

# Guidebook for County Geographic Information Systems (GIS) Implementation

## The Kansas Collaborative



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## **Opening Context**

Through an Information Network of Kansas grant and the support of the state's GIS Policy Board, TeamTech, Inc. (project managers and founders of The Kansas Collaborative) has created stronger communication and partnership linkages between county and state GIS efforts.

This Guidebook is our attempt to capture basic information and lessons learned from our work across Kansas so that local governments can learn from each other as GIS implementation continues to expand. These insights come from a variety of activities:

Six pilot counties allowed us to help facilitate their efforts (some were county efforts, others were county/city efforts). These counties are Atchison, Cowley, Dickinson, Osborne, Rooks and Seward.

The Kansas Association of Local Health Departments asked us to partner with them and DASC (Data Access and Support Center) to gather data at the state level on Vulnerable Populations and create a process for local verification of this information as well as identifying additional data needs. A special thank you goes to Edie Snethen, Ken Nelson, and the Kansas Departments on Aging and Health & Environment for their help and cooperation with this project.

Associations welcomed us at annual or regional meetings or provided us with information:, Kansas Association of Counties, Kansas Association of Planning and Zoning Officials, Kansas County Commissioners Association, Kansas Rural Water Association, and League of Kansas Municipalities.

State agency personnel provided information and time for strategizing and technical understanding: Ivan Weichert, state's GIS Director and Ken Nelson, Director of the Data Access and Support Center as well as Ingrid Landgraf with the U.S. Geological Survey.

Local folks provided time and energy to assist us with pilot programs, presentations and examples: Shelly Abbott-Becker, Marion County Emergency Manager; Mark Dinkel, Wheatland Electric; Sherry Massey, Dickinson County GIS; John Rogers, Sedgwick County GIS, and Chris Schmeissner, Jefferson County GIS.

We also want to thank Ed Crane for his time and commitment to helping Kansas implement a successful GIS program.

One final note about software...most of the state departments and many of the counties use ESRI software and it is the software taught at the universities. Many counties and cities use other brands of GIS software including Autodesk Map, Bentley, Intergraph and MapInfo. Some agencies use CAD (computer aided drafting/design) software like AutoCAD or MicroStation. There are several counties and some state departments that use a combination of different software packages since each software has its strengths and weaknesses. Most of the software easily imports and exports the standard formats of the other brands.

### ***What can you do to help?***

***To keep this document "contemporary," please let us know what needs to be added or modified so it can be as helpful to local governments as possible.***

With warm regards,  
Kathleen Harnish-Doucet and Joel Wright, TeamTech, Inc.  
Founders and project managers for The Kansas Collaborative<sup>SM</sup>

## **I. Requirements for Executive Support of GIS Efforts**

### **A. Understanding What GIS is**

GIS stands for Geographic Information Systems. It is a means to take information and relate it to location or geography. Maps are certainly one dimension to a GIS system but it is much broader than that. The key to any good GIS is the ability to take data layers (streets, addresses, flood plains, valuations, water lines, etc) and overlay the data to get a picture of reality. As Ken Wilkerson from GIS Edge teaches, GIS has six primary functions:

1. Capturing data.

The data is captured in data layers...just think about laying transparencies on top of each other. For example, you would have one data layer for road centerlines, another for address points and another for the location of hospitals or other medical facilities. Folks talk about the “old Joe” factor...that is, once you capture the data you won’t have to rely on “old Joe’s” memory of where the water lines are located.

2. Storing data.

When the information is “digitized” it is then stored in a computer.

3. Querying data.

With good data in your system, you can ask questions and then produce pictures that help you understand the answers.

a. Click a specific data layer (like parcels) and get information like owner, valuation, when appraised, etc.

b. Query based on criteria. For example, “What is the value of all parcels sold last year in the county?”

4. Analysis.

This is a key benefit to any GIS system. Using the information from your GIS system to inform decision making and policy making is an important tool. For example, “We are interested in attracting an ethanol facility to our county. Where is there access to water, where’s the corn production, etc.?”

5. Displaying data.

A GIS system displays data in a map format so you can see locational relationships between the information you are looking at. For example, a 10 mile buffer zone around an elementary school.

6. Output.

The biggest challenge to an established GIS department is in keeping up with the demands for information. As Osborne Commissioner Gary Doane stated in May 2007, “It surprises me how many requests we have had for some type of service from our GIS dept. We are not capable of producing everything yet, but it demonstrates the value of the department to the rest of the courthouse and that the public is aware of what we are doing.”

## **B. Understanding the Value of GIS**

### Improve decision-making

Everyone wants to make the best decision possible. We have learned in The Kansas Collaborative that when better information is provided to local decisions makers, you use it to tailor make the best solution for your local situation. A GIS system provides

- Better and quicker information in emergencies (*How many roads need to be closed to contain this contaminated area? What is the value of the property that was destroyed?*)
- Quicker information to citizens (*How many acres of corn are already planted in this and surrounding counties?*)
- Better policy information (*How many folks that are receiving X services are within 25 miles of where these services are being offered? How many of our water sources are within a flood plain?*)

### Increase productivity

Counties that have measured phone call and personal visits to the Appraiser's Office found on average a 60% decrease in these when land records were made available in digital format on the web.

### Increase efficiency

Once data is digitized, hundreds of the same maps can be made with only a few moves of the computer mouse.

One county is helping their small, growing townships with addressing. The GIS system is assigning new addresses for the new developments so the cities don't have to figure out how to do this. This provides for consistency and saves time.

### Ensure equity among taxpayers

When they moved to a GIS system, Dickinson County found 40 acres of old platted streets that were not being taxed at all yet were being used for agriculture and commercial purposes. They are working on tax assessments now for these landowners.

### Increase accuracy

Once converted to digital data, taxing errors are easy to find. Counties have found property within city limits taxed as if part of the county and property within the county limits that was being taxed as if part of the city. These taxing errors were corrected.

### Maintain or increase public safety

Consistent addressing is a constant challenge. Counties have found serious addressing errors that may have delayed emergency response time. Converting to a GIS system made these unknown errors come to "light" so they could be fixed before a tragedy occurred.

### Produce immediate information when time is critical

In cases of natural disaster, having accurate timely information is important. Maps with the correct street names and locations of gas shut-off valves protect responders. Parcel data with valuations can ensure timely reports are provided to FEMA.

## C. Understanding the Leadership Required

1. Commissioner leadership is critical to a successful GIS effort. GIS is an information management tool that needs to belong to the county not one department. It can be managed by one department, however, input and direction should be county-wide. Commissioner leadership is essential to ensure a county/city/region wide approach.
2. Develop a cross-county, cross county/city GIS team that includes commissioners and department heads. Developing a written GIS strategic implementation plan is a key activity. This team should report quarterly to the Commission regarding progress on the plan. That plan could include thinking together about:
  - a. what you want the GIS system to do,
  - b. the time frame in which to do it in,
  - c. project priorities,
  - d. procedures for maintaining data, keeping it accurate, sharing data as well as backing it up, and (NOTE: The state's Data Access and Support Center, DASC, provides free backup services. They back up nightly to an Arkansas location. Learn more by visiting [www.kansasgis.org](http://www.kansasgis.org). The state is also interested in an active sharing of data so critical data layers are available when needed. DASC is the coordinating point for this effort as well.)
  - e. your GIS organizational structure.

Coordinating with your E-911 efforts in the Sheriff's Department or Dispatch and with information already in the Appraiser's office is a good starting point. Also check with your Emergency Manager to get the data layers already built by the Kansas Division of Emergency Management. See Appendix Three for information on free data layers.

3. Assign GIS duties to one person that has the time to devote to GIS. It is difficult to achieve a successful GIS part-time.
4. Manage data layers TOGETHER. The roads data layer in E-911 should match the roads data layer in the Appraiser's office...and yes, data layers can and should be shared. The Attorney General's opinion that clarified sharing E-911 data can be found at [www.kansascollaborative.com](http://www.kansascollaborative.com), Resource Center, GIS Breakthrough Team.
5. As a leader of a new innovation, access as much knowledge as possible. This Guidebook is one place to start. Let us know the questions you still need answers to and we'll work on getting them.
6. Think about what you are purchasing and let's try and do it together:
  - Ask about standards to make sure they are being met...look to [www.kansasgis.org](http://www.kansasgis.org), documents section or ask us and we'll find out.
  - Let's try and buy together and take advantage of discount pricing. Talk to neighboring counties. Let us know at The Collaborative.
  - As money for GIS becomes more readily available, so do "new" vendors. Make sure you know what you are asking for and that you have a contract that helps you get it. Ask if you aren't sure. (Please see Appendix Two for tips from your colleagues about working with vendors.)
7. Strategize with your Homeland Security Regional Team representative about what they are considering in terms of regional GIS efforts. The Kansas Collaborative is talking with some of the regions about implementing regional GIS strategies.

8. Certify road names and addresses – do this annually so road and address names “match.” The goal is to have “one” map of the county.
9. Use GIS as the analytical tool it is. For example,
  - *Alternative energy is a potential economic development initiative for us...where is there access to corn, to water, etc.?*
  - *Which parcels are within 50 feet of the road since this road will be under construction and I need to notify landowners? With a single button click, you can find the parcels and then the households impacted. You can even generate a mailing list and form letter right from the GIS program.*
10. Realize this is a tool/technology that is here to stay and if managed correctly will be beneficial to government and the taxpayer in the long run.

#### **D. The Cost of a Basic GIS Start-up**

What does it really cost? Here are some estimates

Start-up (1<sup>st</sup> year):

- Hardware, Computer: \$4,000
- Hardware, Plotter: \$5,000 – 9,000
- Software: depending on the software brand and which components are purchased, prices range from \$4,000 to \$6,000
- Personnel: \$35,000 or more plus benefits
- Training: varies...see the section on Training
- Good aerial photography (A number of counties have partnered with their Sheriff to get good photography with E-911 grant money. Prices have ranged from \$37,000 - \$90,000.) Bj Wooding, Barton County GIS, recommends a URISA publication called “Aerial Imagery Guidelines” available at [www.URISA.org](http://www.URISA.org).

Annual Cost:

- Software maintenance and support: Approximately \$1,000
- Personnel: Approximately \$35,000 plus benefits
- Training: varies

Some counties chose to contract out their GIS services to a vendor. **If you do so, colleagues recommend making sure YOU retain ownership of your data and not the vendor.**

Some counties have had a vendor complete the major data layers – road centerlines, address points and parcels and then trained their staff to keep these data layers “up to date” as well as learn to add additional data layers like road and bridge information, school locations and utility information from their cities.

## **II. Pathways to GIS implementation**

### **A. Start-up Mode**

1. Commissioner leadership is key.  
These points were made in the section entitled, “Understanding the Leadership Required.”
2. Be a smart customer.  
As more money for GIS becomes available, “new” vendors begin to show up. Talk to neighboring counties...we did and their advice can be found in Appendix Two.
3. Completing base data layers is important.
  - Aerial photography. Having good photography is a great place to start. Many counties purchased high quality aerial photography with their E-911 grant money. (See Appendix Two for some key questions to ask.) Check with your Sheriff’s office to see what photography they have. You can get 1 meter black and white photography free from the state’s DASC site at [www.kansasgis.org](http://www.kansasgis.org). The 2006 photography will be available by June 1, 2007.
  - Road centerlines – check with your Sheriff’s office or dispatcher to see if this is already done because this is a key data layer for E-911 implementation. If it is, it can be shared with other governmental offices. Check with your Appraiser’s Office. They are the other department that often has data layers done if there are any GIS efforts already underway.
  - Address points – The folks at the state level are really interested now in address points (putting a “dot” on every location and assigning it an address) rather than address ranges. Developing guidelines and standards is something the state’s GIS Policy Board realizes is needed. If your Sheriff or Dispatcher is working on E-911 compliance then this data layer will be done or will be “in process.” Some older addressing standards can be found at <http://www.kansasgis.org/docs/uploaded/2address.pdf>. Local folks tell us that Sedgwick County has good addressing standards which can be found at <http://gis.sedgwick.gov/address/>.
  - Parcel data. This is actually one of the most complex and time-consuming layers. In 2006 and 2007 many rural counties chose to contract out this work. Call neighboring counties and talk with them about who they are using, if they are satisfied and what it cost.
  - Administrative boundaries. You will definitely want to talk with your county clerk about this data layer and its status. They have likely received this data layer from the state’s DASC site at [www.kansasgis.org](http://www.kansasgis.org) and are in the process of making adjustments as needed.
4. Decide together how GIS can benefit county departments  
Distribute the document, “County Department Uses for GIS” found on The Kansas Collaborative web site, Resource Center at [www.kansascollaborative.com](http://www.kansascollaborative.com). This document will provide folks with ideas on how others are using GIS within their courthouse. If you see items that are missing from this list, let us know.

Form a cross-department GIS Team (consider including city representatives as well) that can recommend priorities, funding plans, and timelines as well as manage expectations. Include elected officials and department heads (appraiser, road & bridge, register of deeds, clerk, EMS director, 911 director, planning and zoning and IT/GIS director.)

5. Deciding your GIS “structure” is important  
GIS is a supportive infrastructure just like other information technology. It does not belong to one department or one division. Options locals have chosen:
  - Option 1: Locating GIS in one department, typically the Appraiser’s Office. Our sense is that this works for awhile but that soon the duties of handling the GIS efforts along with other duties becomes overwhelming.
  - Option 2: Establishing a separate GIS department. Osborne County set up a small area in the courthouse for their GIS and hired one person to learn and coordinate their GIS efforts. Judy Cady is working with efforts already underway in the Sheriffs’ Department and the Road and Bridge Department.

Whatever avenue you choose, establishing a cross-department team to guide the GIS efforts is the best way to ensure effective and efficient implementation and use of your GIS. Once folks understand the power of GIS, everyone wants it. Prioritizing and coordinating implementation efforts is a key role of a cross-department team. In Rooks County, Commissioner Pat Hageman chairs their cross-government GIS committee which includes county and city leadership.

6. Training, Training, Training  
See section IV. below on Training Pathways.
7. Data Sharing  
The state’s Data Access and Support Center (DASC) is the hub for data sharing. One primary goal is to get critical data layers stored and backed up in this central location (which is backed up nightly to Arkansas) so they are available when they are most needed. A secondary goal is to ensure that data layers are not duplicated...that is they are digitized only once so taxpayer dollars are efficiently utilized. Finally, other units of government realize that “the best data is local data” so having your local data available for other units of government ensures that the picture of your local situation is as accurate as possible.
8. Create a written GIS implementation plan (and keep it updated).  
Take the time to think about what you want from your GIS efforts. Without knowing this, the vendors you talk to define this for you. Your implementation plan should be built by a cross-department even cross-county/city team. The plan should be revisited and revised on a regular basis – quarterly is recommended but at least annually. Suggested topics to include are:
  - i. what you want the GIS system to do,
  - ii. the time frame in which to do it in,
  - iii. project priorities (which projects need support first and what data layers will be required),
  - iv. procedures for maintaining data, keeping it accurate, sharing data as well as backing it up. (NOTE: The state’s Data Access and Support Center, DASC, provides free backup services. They back up nightly to an Arkansas location. Learn more by visiting [www.kansasgis.org](http://www.kansasgis.org). The state is also interested in an active sharing of data so critical data layers are available when needed. DASC is the coordinating point for this effort as well.)
  - v. your GIS organizational structure.

## **B. Building the Cross-functional Team**

All the steps in “start-up” mode discussed in section A. apply here. In fact, as we talked with more folks, all agreed that building a cross-functional team should be a step from the beginning. If you already have GIS efforts going in one department and you know it is time to move this county-wide or even county/city-wide, think about these steps.

### 1. Commissioner leadership is key.

Share this document with your commissioners especially Section I. Requirements for executive support of GIS efforts. It is most helpful if at least one commissioner takes on the role of GIS champion. Encourage them to talk with neighboring counties or even to us at The Kansas Collaborative.

### 2. Department heads need to come around the table to learn about GIS and its uses

- Share the County Uses document
- Arrange for a demonstration on the capabilities of a GIS system from a neighboring county. Contact us at The Kansas Collaborative if you need help with this.
- Create the list of “wants” for GIS
- Utilize a smaller “GIS Team” with commissioner participation to prioritize the projects. Critical base maps will need to be completed first. These include road centerlines and address points. A number of counties also include parcel data but this could be done simultaneously with other projects.

## **C. Making the Move to a Separate GIS Department**

Though it seems like a simple response, most folks agree “that you will know.” You will know because the requests for GIS information start coming from a number of other departments as folks begin to see the broad applications of this technology. When GIS begins to play an important and separate “function” (not unlike IT), then it is time to make the move to a separate GIS department.

## **D. Working Across County and City Lines...it just makes good “cents”**

Leadership and vision are key. With city and county commissioners in dialogue with one another, working across county and city lines can happen.

In Seward County they are working closely with the City of Liberal in their GIS efforts. For example, the county is sharing their GPS unit with the city so utility information can be geocoded by the city.

Consider coordinating aerial photography across a regional area. Ground control and “getting the plane” to the area can then be shared costs. This is actually a project The Kansas Collaborative is considering coordinating. If counties could get on the same “schedule” it is even possible to fly the entire state at one time. Look for a request from us asking for information about your aerial imagery.

In a brainstorming meeting in Seward County with 10 different government entities around the table, participants suggested sharing a GIS person between a few rural counties. The technology will support having multiple counties on one server.

### **III. User Templates and Standards**

We actually thought these would be readily available. They are not. In fact, this is something that The Kansas Collaborative has asked the state's GIS Policy Board to work on as part of our feedback into the Policy Board's 2007 strategic planning process. We will keep you posted on the progress of these.

John Rogers, Sedgwick County GIS indicated that have various applications but all are highly customized for their data and particular use and not really a template. He did suggest looking at the ESRI templates at <http://www.esri.com/software/arcgis/arcpad/about/templates.html>

### **IV. Training Pathways**

Judy Cady, GIS Coordinator, for Osborne County began with no GIS experience. Her advice to beginners? In week one of your work, complete the ESRI online course, Planning for a GIS.

Other training options that folks have talked about include the following:

1. Local community or technical colleges offer GIS courses for reasonable fees
2. Fort Hays State University has online courses at <http://www.fhsu.edu/virtualcollege/>
3. K-State offers courses. Check out [www.accesskansas.org/kcaa/KSU\\_GIS.htm](http://www.accesskansas.org/kcaa/KSU_GIS.htm)
4. The Kansas Department of Revenue offers courses. Check these out at [www.ksrevenue.org/pvd.htm](http://www.ksrevenue.org/pvd.htm), then click on "Education", "Cartography" or contact Susan Williams, Kansas Department of Revenue, [susan\\_williams@kdor.state.ks.us](mailto:susan_williams@kdor.state.ks.us)
5. Join the Kansas Association of Mappers at [www.kam.to](http://www.kam.to)
6. The Kansas Collaborative, through the Information of Network of Kansas' grant, provided some basic GIS training led by Ken Wilkerson at GIS Edge at [www.gisedge.com](http://www.gisedge.com).

There are a number of publications by URISA that you may find helpful. The list is at [https://www.urisa.org/forms/order\\_form.htm](https://www.urisa.org/forms/order_form.htm)

**Please notify us of other quality training opportunities that you have participated in.**

### **V. Funding Sources**

1. Inventory what you already have.

First and foremost, folks at the local level advise you to find out what is already done. Some data may already be digitized and should be used as a starting point. Here are places to check:

1. Sheriff's office or dispatcher: Many already have street centerline files and even address points or ranges. These are key base layers that are needed for many E-911 Phase II compliant systems. Getting the data out of the Sheriff's system may require outside assistance and some folks have discovered that centerlines need some adjusting.
2. Appraiser's office. This is often where GIS starts because of its roots as a land information management system.
3. DASC – visit [www.kansasgis.org](http://www.kansasgis.org)
4. See Appendix Three for data layers that are free.

2. E-911 funding.

Grants for 2007 are complete. In 2007, some county commissioners worked with their Sheriff to submit a grant for new aerial photography. Remember, that digitized information can then be shared with other governmental departments so the same information isn't digitized twice. Check out Appendix Two for tips in working with vendors.

The next funding cycle will be for 2008. The grant runs on the calendar year and is usually due in early September. All grant applications can be found on the governor's homepage when there is an open application process, [www.governor.ks.gov](http://www.governor.ks.gov) or contact Jamie Bowser at

[jamie.bowser@gov.state.ks.us](mailto:jamie.bowser@gov.state.ks.us). In addition, your colleagues suggest coordinating your grant efforts between departments including the sheriff, appraiser, emergency management and other department heads.

3. Homeland Security funding.  
The Kansas Collaborative has submitted proposals for 2007 to three of the six Homeland Security regions. This funding would include small amounts of money for inventorying all GIS systems within the region. The bulk of the funding would then be utilized by the region to “close the GIS data gaps” on critical data layers. Additionally, when data layers are complete, the goal would be to provide funding for the needed technology to “link” all the data together with the goal of statewide maps of critical data layers.
4. Register of Deeds’ Technology funds.  
A few counties have indicated that they have used some money from this local fund to help with equipment purchases.
5. Look at grant programs provided by ESRI at [www.esri.org](http://www.esri.org), search for “grants” when you get to their site. Let us know at The Kansas Collaborative ([www.kansascollaborative.com](http://www.kansascollaborative.com)) if you see something several of us should be working on.

## **VI. Data Access and Support Center (DASC) Services**

DASC was created by the State of Kansas GIS Policy Board to serve as a sort of “central” resource and repository for Kansas GIS information. Their mission is to “implement cutting-edge technology to transition DASC from a traditional GIS data clearinghouse to a web-based GIS service provider.” As such, DASC provides web-based GIS application development and hosting services for state and local government. A full range of services can be viewed by visiting their web site at [www.kansasgis.org](http://www.kansasgis.org).

## **VII. Kansas Vendor List**

There is no official “vendor” list. Below are listed the companies mentioned most often and whose work in Kansas has some history. Also, check out Appendix Two for advice from your colleagues on working with vendors.

### ***Aerial Photography***

Aero-Metric, Overland Park, KS (formerly known as MarkHurd)  
MJ Harden (a GeoEye company), Mission, KS  
Sanborn, Chesterfield, MO  
Western Air Maps, Overland Park, KS

### ***Data and Mapping***

InfiniTec, Hays, KS  
Kimble Mapping, Manhattan, KS  
R & S Digital, Great Bend, KS  
Spatial Data Research, Lawrence, KS

### ***Software***

AutoDesk, SanRafael, CA  
Bentley, Exton, PA  
ESRI, Redlands, CA  
Intergraph, Huntsville, AL  
MapInfo (acquired by Pitney Bowes in 2007)

### ***Training***

GIS Edge, Wichita, KS  
Stephen Thompson, GIS/FPS Consultant, Salina, KS

## **VIII. Other Resources**

### **A. Mentoring from other counties**

Regardless of your location, there are GIS “experts” throughout the state that can help provide insight into how to use GIS and to share their personal experience. In the pilot stages, the following individuals deserve a special “thank you” for their mentoring efforts:

Mark Dinkel, Wheatland Electric GIS Department  
John Rogers, Sedgwick County GIS Director  
Chris Schmeissner, Jefferson County GIS Director

As we have worked across Kansas, folks tell us that talking with peers in neighboring counties is one of the best ways to improve GIS implementation and decision-making...a sort of “buddy” system rather than a formal mentoring program. If you need help finding others to network with, let us know and we’ll help you out. Included in Appendix Four is a list of GIS folks throughout Kansas counties. We would appreciate your help in keeping this “up to date.”

### **B. Working with Kansas Utilities**

This is one possible role of the state’s GIS Policy Board as top leadership may be needed to really make this happen. Throughout The Kansas Collaborative’s process, Mark Dinkel from Wheatland Electric has been extremely helpful. Wheatland is actively assisting counties with GIS efforts and is very interested in data sharing. Throughout this process we also had some limited contact with Tyler Remmert from Prairie Land Electric. They also seem open to working with counties.

### **C. Working with the Kansas Rural Water Association**

Following is the information from Pete Koenig, GIS Coordinator, Kansas Rural Water Association:

The Kansas Rural Water Association provides GPS data collection as a service to Rural Water Districts and cities in Kansas in an effort to update existing infrastructure maps and introduce local governments to the digital era. In 2001, KRWA was asked by the Kansas Corporation Commission to assist utilities for the benefit of improved system locating practices and procedures. As of May 2007, KRWA has assisted more than 80 RWDs and cities in Kansas with collecting data and/or providing GPS/GIS services. KRWA also provides training to individual systems to better manage their infrastructure data and keep up-to-date with improvements or system additions.

KRWA promotes the practice of sharing data with appropriate governmental agencies in order to better serve the citizens of Kansas. A GIS can be instrumental in the management of emergency personnel in times of crisis or natural disaster.

KRWA would be pleased to visit with any county or city government(s) to discuss training and tech assistance to their GIS departments. The Association is also interested in conducting data collection of facilities in partnership with counties.

The KRWA contact information is [www.krwa.net](http://www.krwa.net), or you can contact Pete Koenig, GIS Coordinator, at [pete@krwa.net](mailto:pete@krwa.net) or 706 Waterway Dr. Seneca, KS 66538 or by phone at 785.336.3760.

## Appendix One: Frequently Asked Questions

**1. *Is anyone coordinating aerial photography so we can all get a better price?***

The state's Data Access and Support Center (DASC) is considering this as a project. Keep updated by checking out their web site at [www.kansasgis.org](http://www.kansasgis.org).

**2. *What data layers does the state have that counties can use?***

See Appendix Three for a beginning list of some of the data layers counties are usually most interested in.

**3. *Are there security standards or protocols we can access regarding sharing data?***

Common sense seems to be the best guide here. If you want a little more help about security protocols around certain data sets, check out this decision tree on classifying data sets for security... <http://www.fgdc.gov/policyandplanning/Access%20Guidelines.pdf>

**4. *Are there addressing standards we should follow?***

Yes. Some older addressing standards can be found at <http://www.kansasgis.org/docs/uploaded/2address.pdf>. Local folks tell us that Sedgwick County has good addressing standards which can be found at <http://gis.sedgwick.gov/address/>.

**5. *What is the process for sharing base maps with the state?***

Contact Ken Nelson at DASC (785-864-2000) to discuss how data can be delivered to DASC and what conditions you would like specified.

**6. *Can we arrange for a “group buy” from ESRI by pooling state and county purchases?***

There is a statewide contract for ESRI purchased items. You can access the details including pricing at <http://www.da.ks.gov/purch/adds/2005MPA.zip>. When you purchase from ESRI, please reference Contract Number 2005MPA1199.

**7. *What are others paying for GIS contracted services?***

We would like to hear from folks...should we survey counties to get this information? If so, what specifically would you want to know?

**8. *What budget amounts are other counties working with as they establish a GIS department?***

We would like to hear from folks so we can share this information

**9. *What forms of data can you import into the GIS system?***

Most of the software brands can import and export the standard formats of the other brands. Be sure and ask about this when purchasing software.

Gail Ogle from Russell County shares this tip, “Because the data must be ‘clean’ before performing the export in Autodesk, my suggestion is to export out from the Autodesk format rather than using the ArcGIS import utility.”

**10. *When do we need to use a GPS unit?***

When you need accuracy within one foot.

## Appendix Two: Working with Vendors

The Kansas Collaborative asked your colleagues from county and state government to share some “lessons learned” or tips about comparing and working with vendors. Here is their advice.

*When working with vendors consider the following...*

### 1) Get People Involved, Communicate Needs and Establish Goals

It may be too much to expect from one person (a county sheriff or EMS director for E-911 grants, an Appraiser perhaps if all local funds are being utilized) especially in the smaller counties to fully see the total vision of what is being created. The future utilization of the GIS data needs to be explored with other departments. Get people together, brainstorm, roundtable your ideas. Some may be applicable, some not. If you don't do this then you are letting the vendor define your needs for you. Call on the state's Data Access and Support Center for advice. Contact The Kansas Collaborative for help. Hodgeman County Sheriff Ron Ridley stated, “We involved the Appraiser's Office in our E-911 grant application process since they are up to speed on GIS and may be an end-user on our orthos (photography) since we own the photos and can share with other departments.”

### 2) Get References of Vendors

When engaging professional help & seeking proposals for work to be completed, this project should be viewed no differently than entering into any binding contractual agreement. Research your vendors, do background checks, ask for & require references of "completed" jobs and get your own competitive bids.

- How long has the vendor been in business completing the type of work being offered & how many jobs can they handle at one time?
- Does the vendor have the capability and capacity to do the work you want done?
- Is their work product high quality?
- Does the county/city retain ownership of the information/data? (When you let a vendor retain ownership, data sharing and updates are costly.)
- And most importantly, are they going to be around next year or the year after?

Talk to your peers and ask about their experiences.

### 3) Prepare a "ROCK SOLID" contract

If a contract is on the table to be entered into, make sure there is adequate language guaranteeing periodic quality review of the work being provided. Stipulate a 100% satisfaction guarantee before final payment. Withhold 25% of the total contract payment until satisfaction is met. DON'T allow the vendor to submit bills for work not completed or not reviewed. DON'T wait until the end to discover you didn't get what you thought you were getting. DON'T enter into any contract where the vendor retains ownership of your data and licenses it back to you – this can get expensive and makes data sharing challenging.

(NOTE: If you have a good contract that you would be willing to share, let Kathleen know at [kathleen@teamtechinc.com](mailto:kathleen@teamtechinc.com))

***When considering purchasing aerial photography, consider asking these questions:***

- a) What are we going to use the imagery for? What do we need/expect to see within the imagery? This will help determine the resolution: 6 inch, 1 ft, 2 ft, 1 meter, etc. (Note: 6 inch resolution imagery is 4 times the file size as 1 ft resolution imagery over the same size area.)
- b) Do we need Color or Black & White imagery to see your features? Color may be easier to interpret features. (Note: Color imagery is 3 times the file size as black and white imagery.)
- c) How accurate does the data need to be? In other words, how far away can a pixel on the imagery be from its true position on the ground? This defines the horizontal accuracy: 2 ft, 4 ft, 10 ft, 15 ft, etc. Defining the horizontal requirements will also determine flight height, amount of control, and digital elevation requirements.
- d) What tiling scheme/size do we want? Tile size covers the area of each individual image; ex. 2,500 ft x 2,500 ft, or 5,000 ft x 5,000 ft, etc. Tile size also affects file size. (Note: 5,000 ft tiles would be 4 times as large as 2,500 ft tiles of the same resolution.)

NOTE: URISA has a publication “Aerial Imagery Guidelines” available online at [www.URISA.org](http://www.URISA.org).

More specific aerial photography “standards” will be available in mid-July. Check our web site at [www.kansascollaborative.com](http://www.kansascollaborative.com), Resource Center.

## Appendix Three: Data Layers Available at No Charge

### Administrative Boundaries

Available from the DASC site at [www.kansasgis.org](http://www.kansasgis.org). Also check with your county clerk for updates they are making in this data layer.

Aerial Photography, 1 meter, Black and White, 2006. 2 meter is available for 2002.

Available for every county at [www.kansasgis.org](http://www.kansasgis.org) by June 1, 2007.

### Bridges.

Available from the DASC site at [www.kansasgis.org](http://www.kansasgis.org).

### County/City EOCs.

Available on or before 12/31/07 through special request from the Kansas Adjutant General's Department, Geospatial Technologies at 785-274-1610 or [jpfrye@agtop.state.ks.us](mailto:jpfrye@agtop.state.ks.us).

### EMS Stations.

Available through special request from the Kansas Adjutant General's Department, Geospatial Technologies at 785-274-1610 or [jpfrye@agtop.state.ks.us](mailto:jpfrye@agtop.state.ks.us).

### Flood Plains.

Tom Morey at [tmorey@kda.state.ks.us](mailto:tmorey@kda.state.ks.us) or (785) 296-5440 is at the Kansas Department of Agriculture and is the FEMA contact. FEMA is undertaking a limited number of floodplain updates so check with Tom to find out the status of your county.

### Sheriff/Police Stations.

Available on or before 12/31/07 through special request from the Kansas Adjutant General's Department, Geospatial Technologies at 785-274-1610 or [jpfrye@agtop.state.ks.us](mailto:jpfrye@agtop.state.ks.us).

### Vulnerable Populations.

The Kansas Collaborative, in conjunction with the Kansas Association of Local Health Departments (KALHD) and DASC, facilitated a project to provide the state's data layers for vulnerable populations to local governments through a web-based application. Check with your local health department director or emergency manager for more information. The web site will be launched June 19 at the KALHD annual conference.

For a complete listing of what's available from DASC, go to [www.kansasgis.org](http://www.kansasgis.org).

## Appendix Four: GIS Contacts by County

(Please help us complete this list by sending in additional to The Kansas Collaborative via [kathleen@teamtechinc.com](mailto:kathleen@teamtechinc.com). Thanks!

County	Contact Person	Phone	E-mail
Allen			
Anderson			
Atchison	Tony Redden, GIS		<a href="mailto:darton@lvnworth.com">darton@lvnworth.com</a>
Barber	Diana Brittain		<a href="mailto:Dlbrittain76@yahoo.com">Dlbrittain76@yahoo.com</a>
Barton	Bj Wooding, GIS	620-793-1821	<a href="mailto:mapping@bartoncounty.org">mapping@bartoncounty.org</a>
Bourbon	Shane Walker, GIS	620-223-3800 ext. 29	<a href="mailto:swalker@bourboncountyks.org">swalker@bourboncountyks.org</a>
Brown			
Butler	Pam Dunham, GIS	316-322-4225	<a href="mailto:pdunham@bucoks.com">pdunham@bucoks.com</a>
Chase	Pam Wilson, Appraiser	620-273-6306	<a href="mailto:cscoappr@yahoo.com">cscoappr@yahoo.com</a>
Chautauqua			
Cherokee	Jane Fletcher, cartographer	620-429-1648	<a href="mailto:Jane.appraiser@cherokeecounty-ks.gov">Jane.appraiser@cherokeecounty-ks.gov</a>
Cheyenne	Randy Sangster, Appraiser	785-332-8830	<a href="mailto:Cn_county_appraiser@wan.kdor.state.ks.us">Cn_county_appraiser@wan.kdor.state.ks.us</a>
Clark	Sherry Pike, Appraiser	620-362-2142	<a href="mailto:cacoappr@ucom.net">cacoappr@ucom.net</a>
Clay			
Cloud			
Coffey	Bill Bauer, GIS	620-364-3609	<a href="mailto:bbauer@coffeycountyks.org">bbauer@coffeycountyks.org</a>
Comanche			
Cowley	Sarah Wolf, GIS	620-221-5405	<a href="mailto:swolf@cowleycounty.org">swolf@cowleycounty.org</a>
Crawford	John Gagliardo, GIS	620-724-7155	<a href="mailto:jgagliardo@ckt.net">jgagliardo@ckt.net</a>
Decatur	Alan Hale, Appraiser	785-475-8109	<a href="mailto:Dc_county_appraiser@wan.kdor.state.ks.us">Dc_county_appraiser@wan.kdor.state.ks.us</a>
Dickinson	Sherry Massey, GIS	785-263-3608	<a href="mailto:smassey@dkcoks.com">smassey@dkcoks.com</a>
Doniphan	Billie Meisenheimer	785-985-3977	<a href="mailto:billiebrackney@hotmail.com">billiebrackney@hotmail.com</a>
Douglas	Rick Miller	785-330-2825	<a href="mailto:rmiller@douglas-county.com">rmiller@douglas-county.com</a>
Edwards	Vic Miller		<a href="mailto:edroad@edwards.kscoxmail.com">edroad@edwards.kscoxmail.com</a>
Elk	Karen Spencer, Appraiser	620-374-3511	<a href="mailto:Ek_county_appraiser@wan.kdor.state.ks.us">Ek_county_appraiser@wan.kdor.state.ks.us</a>
Ellis	Nadine Herold/ Lori Dreiling	785-628-9400	<a href="mailto:lappraiser@ellisco.net">lappraiser@ellisco.net</a>
Ellsworth	Nancy Hysong	785-472-3165	<a href="mailto:nlhysong@hotmail.com">nlhysong@hotmail.com</a>
Finney	Trey Phillips, GIS	620-271-1781	<a href="mailto:tphillips@garden-city.org">tphillips@garden-city.org</a>
Ford	Andrew Smith, GIS	620-227-4673	<a href="mailto:asmith@fordcounty.net">asmith@fordcounty.net</a>
Franklin	Roy Baker, GIS	785-229-3420	<a href="mailto:rbaker@mail.franklincoks.org">rbaker@mail.franklincoks.org</a>
Geary	Brian Clark	785-238-4407	<a href="mailto:brian.clark@jcks.com">brian.clark@jcks.com</a>
Gove	Jeanie Gee-Frazer	785-938-2301	<a href="mailto:Go_county_appraiser@wan.kdor.state.ks.us">Go_county_appraiser@wan.kdor.state.ks.us</a>

Graham	Mark Niehaus, Appraiser	785-421-2196	<a href="mailto:planix@ruraltel.net">planix@ruraltel.net</a>
Grant	Don Button, Emergency Mgmt	620-356-4430	<a href="mailto:gtozem@pld.com">gtozem@pld.com</a>
Gray	Jerry Denney, Appraiser	620-855-3858	<a href="mailto:jdenny@grayco.org">jdenny@grayco.org</a>
Greeley			
Greenwood	Ian Martell, GIS	620-583-8121	<a href="mailto:Gwe911@yahoo.com">Gwe911@yahoo.com</a>
Hamilton	Steve Phillips, Emergency Mgmt		<a href="mailto:hmcoem@pld.com">hmcoem@pld.com</a>
Harper	Cheryl Adelhardt	620-842-5555	<a href="mailto:clerk@harpercountyks.gov">clerk@harpercountyks.gov</a>
Harvey	Michelle Doshier, GIS	316-284-6825	<a href="mailto:mdoshier@harveycounty.com">mdoshier@harveycounty.com</a>
Haskell	Gwen Meairs		<a href="mailto:emchs@pld.com">emchs@pld.com</a>
Hodgeman	Lea Ann Seiler		<a href="mailto:Hodgeman1@fairpoint.net">Hodgeman1@fairpoint.net</a>
Jackson	Darrin Reith	785-364-4781	<a href="mailto:japlanningland@yahoo.com">japlanningland@yahoo.com</a>
Jefferson	Chris Schmeissner	785-863-2173	<a href="mailto:CSchmeissner@jfcountyks.com">CSchmeissner@jfcountyks.com</a>
Jewell	Marilou Becker	785-378-3076	<a href="mailto:Mariloubecker36@hotmail.com">Mariloubecker36@hotmail.com</a>
Johnson	Jay Heermann, GIS	913-715-1536	<a href="mailto:Jay.heermann@jocogov.org">Jay.heermann@jocogov.org</a>
Kearny	Donna Wrens		<a href="mailto:renzD725@yahoo.co.uk">renzD725@yahoo.co.uk</a>
Kingman	Bruce Wright, Appraiser	620-532-2256	<a href="mailto:kmcoappraiser@pop.websurf.net">kmcoappraiser@pop.websurf.net</a>
Kiowa			
Labette	Tara Foster, Cartographer	620-795-2548	<a href="mailto:tfoster@labettecounty.com">tfoster@labettecounty.com</a>
Lane	Christine Walker		<a href="mailto:Le_county_appraiser@wan.kdor.state.ks.us">Le_county_appraiser@wan.kdor.state.ks.us</a>
Leavenworth	Jeff Culbertson	913-684-0449	<a href="mailto:jculbertson@leavenworthcounty.org">jculbertson@leavenworthcounty.org</a>
Lincoln	Teri Jo Hiitter	785-524-4958	<a href="mailto:lcappraiser@lincolncoks.org">lcappraiser@lincolncoks.org</a>
Linn	Pam Cannon/ Mary Ann Brown	913-795-2523	<a href="mailto:pcannon@linncountyks.com">pcannon@linncountyks.com</a>
Logan	Randy Sangster, Appraiser	785-672-4821	<a href="mailto:Lg_county_appraiser@wan.kdor.state.ks.us">Lg_county_appraiser@wan.kdor.state.ks.us</a>
Lyon	Becky Samuelson, GIS	620-343-4265	<a href="mailto:Becky.samuelson@emporia.ws">Becky.samuelson@emporia.ws</a>
Marion	Deborah Bowman	620-382-3378	<a href="mailto:mapping@marioncoks.net">mapping@marioncoks.net</a>
Marshall	Janet Duever, Appraiser	785-562-3301	<a href="mailto:msappr@bluevalley.net">msappr@bluevalley.net</a>
McPherson	Kevin Beakey, Cartographer	620-241-6777	<a href="mailto:kbeakey@mcphersoncountyks.us">kbeakey@mcphersoncountyks.us</a>
Meade			
Miami	Deanna Hermreck, GIS	913-294-9531	<a href="mailto:limo@micoks.net">limo@micoks.net</a>
Mitchell			
Montgomery	Ken Collins, IT	620-330-1220	<a href="mailto:kcollins@mgcountyks.org">kcollins@mgcountyks.org</a>
Morris			
Morton	Jeff Milburn, GIS	620-697-2106	<a href="mailto:jmilburn@elkhart.com">jmilburn@elkhart.com</a>
Nemaha			
Neosho	Sharon Yarnell	620-244-3871	<a href="mailto:patsypeterson@yahoo.com">patsypeterson@yahoo.com</a>
Ness			

Norton	Mindy Harting	785-877-5700	<a href="mailto:nortonapprmindy@ruraltel.net">nortonapprmindy@ruraltel.net</a>
Osage	Becky Bartley	785-828-3124	<a href="mailto:B_bartley@osageco.org">B_bartley@osageco.org</a>
Osborne	Judy Cady, GIS	785-345-4042	<a href="mailto:obcogis@ruraltel.net">obcogis@ruraltel.net</a>
Ottawa	Diane McKain	785-392-3037	<a href="mailto:otappraiser@nckcn.com">otappraiser@nckcn.com</a>
Pawnee	Brenda Langdon	620-285-2915	<a href="mailto:pawneecogis@yahoo.com">pawneecogis@yahoo.com</a>
Phillips	Chris Brown, GIS	785-540-4182	<a href="mailto:phillipscogis@ruraltel.net">phillipscogis@ruraltel.net</a>
Pottawatomie	Brenda Krause	785-457-3337	
Pratt			
Rawlins	Marsha Felzien	785-626-3085	<a href="mailto:Ra_appraiser@wan.kdor.state.ks.us">Ra_appraiser@wan.kdor.state.ks.us</a>
Reno			
Republic			
Rice			
Riley	John Cowan, GIS	785-537-6314	<a href="mailto:jcowan@co.riley.ks.us">jcowan@co.riley.ks.us</a>
Rooks	Denzil McNeal	785-425-6818	<a href="mailto:rcem@rurtel.net">rcem@rurtel.net</a>
Rush	Steven Rein, mapper	785-222-2659	<a href="mailto:rushappraiser@yahoo.com">rushappraiser@yahoo.com</a>
Russell	Gail Ogle, GIS	785-483-6650	<a href="mailto:ogleg@russell.kansasgov.com">ogleg@russell.kansasgov.com</a>
Saline	Linda Sibert, GIS	785-309-5801	<a href="mailto:Linda.sibert@saline.org">Linda.sibert@saline.org</a>
Scott	Pam McDaniel		<a href="mailto:Sc_county_appraiser@wan.kdor.state.ks.us">Sc_county_appraiser@wan.kdor.state.ks.us</a>
Sedgwick	John Rogers	316-660-9291	<a href="mailto:jrogers@sedgwick.gov">jrogers@sedgwick.gov</a>
Seward	Lisa Olson	620- 626-3258	<a href="mailto:lolson@swko.net">lolson@swko.net</a>
Shawnee	Carol Kriebs, GIS	785-223-8200, ext. 4207	<a href="mailto:carol.kriebs@co.shawnee.ks.us">carol.kriebs@co.shawnee.ks.us</a>
Sheridan			
Sherman	Karla Messinger	785-890-4825	<a href="mailto:Sh_appraiser2@wan.kdor.state.ks.us">Sh_appraiser2@wan.kdor.state.ks.us</a>
Smith	Stephanie Arment	785-282-5100	<a href="mailto:noworries@ruraltel.net">noworries@ruraltel.net</a>
Stafford	Carl Miller	785-549-3540	
Stanton			
Stevens	Susan Schulte, GIS	620-544-2559	<a href="mailto:svco_suzy@hotmail.com">svco_suzy@hotmail.com</a>
Sumner			
Thomas	George Overton	785-460-4525	<a href="mailto:tap@st-tel.net">tap@st-tel.net</a>
Trego			
Unified Govt	Christian Cooley	913-573-8299	<a href="mailto:ccooley@wycokck.org">ccooley@wycokck.org</a>
Wabaunsee			
Wallace	Randy Sangster, Appraiser	785-852-4206	<a href="mailto:Wa_county_appraiser@wan.kdor.state.ks.us">Wa_county_appraiser@wan.kdor.state.ks.us</a>
Washington	Francine Regan, Appraiser	785-325-2236	<a href="mailto:wscoappr@washingtonks.net">wscoappr@washingtonks.net</a>
Wichita	Randy Sangster, Appraiser	620-375-4242	<a href="mailto:Wh_county_appraiser@wan.kdor.state.ks.us">Wh_county_appraiser@wan.kdor.state.ks.us</a>
Wilson	Sandy Cox, GIS	620-378-4337	<a href="mailto:wldp@twinmounds.com">wldp@twinmounds.com</a>
Woodson	Diane Ludwig, GIS	620-625-8600	<a href="mailto:dludwig@hotmail.com">dludwig@hotmail.com</a>