

# Public comments on draft Geospatial Strategic Plan for the Commonwealth of Kentucky

Kentucky Geographic Information Advisory Council



Compiled by William Andrews  
Chair, GIAC Strategic Planning Committee  
[wandrews@uky.edu](mailto:wandrews@uky.edu)  
December 6, 2010

*This document is a record of public comment received on the original draft of the "Geospatial Strategic Plan for the Commonwealth of Kentucky," presented to the Kentucky Geographic Information Advisory Council on November 18, 2010. All comments received prior to November 30, 2010, are included below. Some respondents included digital markup of the draft document in PDF format. These are included at the end of this document; only pages with markup or comments are shown.*

## **Respondents:**

Bruce Bauch, *Geospatial Liaison for Kentucky, U.S. Geological Survey*  
Susan Cohn, *GIS and Data Analysis Section, Watershed Management Branch, Ky Division of Water*  
Jim Creighton, *Data Integrator, Pennyrite Area Development District*  
Brian D. Lee, PhD, *Department of Landscape Architecture, University of Kentucky*  
Ted L. Niemann, *Surveyor, Elizabeth Niemann & Associates, Inc.*  
Ruth A. Rowles, *GIS Manager, Kentucky Public Service Commission*  
Jerry Weisenfluh, *Associate Director, Kentucky Geological Survey*  
Mark Wiljanen, PhD, *Senior Research Associate, Council on Postsecondary Education*  
Susan Carson Lambert, *Earthworks LLC (\*formatted by author; filed out of order to honor formatting)*

The latest version of the Commonwealth Geospatial Strategic Plan can be found in the World  
Wide Web at:

<http://technology.ky.gov/gis/Pages/GIAC.aspx>

**From: Bruce A Bauch [bbauch@usgs.gov]**  
Sent: Tuesday, November 30, 2010 2:25 PM  
To: Andrews Jr, William M

Hi Drew - As I mentioned at the GIAC meeting, you did a great job on the draft plan document.

A minor edit suggestion is on page 34 under the Federal agency list.... USGS is the United States Geological Survey, not the Service.

On page 11, under section 4.2, I think the timeframes may be too long. I'd suggest GIAC should be able to develop a comprehensive Mission Statement for statewide GIS by March 30, 2011. This task should be the primary priority for GIAC.

Following that Mission Statement, the GIAC should be able to develop a more comprehensive strategic plan by December 31, 2011, and probably much sooner. These actions are needed and GIAC is the group to do them.

Thanks.

Bruce Bauch  
U.S. Geological Survey  
USGS Geospatial Liaison for KY  
National Geospatial Program Office  
9818 Bluegrass Parkway  
Louisville, KY 40299  
Office Phone: 502-493-1945

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**From: Cohn, Susan (EEC) [susan.cohn@ky.gov]**  
Sent: Tuesday, November 30, 2010 8:42 AM  
To: Andrews Jr, William M

Dr. Andrews,

I have just a couple of picky editorial comments.

Wondering if you plan to leave 6.1 and 6.2 highlighted in the Table of Contents on page 2.

In section 2.1, top of page 5, you start with An NSDI CAP Grant was awarded but do not define NSDI until in the table on page 9. CAP is never defined.

Overall, I find this plan very succinct and straight-forward. It spells out in open terms what the situation is and the critical needs that should be addressed before any new initiatives can be taken on by DGI. It helps identify opportunities for anyone in the GIS community to get involved in the process. That is a huge success.

Thank you,

Susan Cohn  
GIS and Data Analysis Section  
Watershed Management Branch  
Kentucky Division of Water  
200 Fair Oaks, Frankfort, KY 40601  
(502) 564-3410 x4945

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**From: Creighton, Jim (Pennyrile ADD) [Jim.Creighton@ky.gov]**

Sent: Tuesday, November 30, 2010 10:35 AM

To: Andrews Jr, William M

Drew,

OK, a couple comments (no real change suggestions . . .)

Agree completely with the need to reorganize the GIAC to more adequately reflect the GIS community in Kentucky. As noted, the previous (legislatively mandated) policy of "one each from every agency" hasn't led to much useful policy or direction.

Page 14: last three data needs would make a great difference to effectiveness and standardization.

DGI staffing – as we know, it's pitiful, and depending on Demetrio and the Anness family, as capable as they all are is inadequate.

Para 5.6.5 – show about DGI getting a tiny hit on the cell phone fees? \$.001 per phone would be an immense boost . . .

That's it – thanks for all your work! If you need additional collaborators on the next phase, within our limited budget I'd be glad to help.

Jim Creighton, GISP  
Data Integrator  
Pennyrile Area Development District  
Hopkinsville, KY 270-886-9484  
jim.creighton@ky.gov www.peadd.org

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**From: Ted Niemann [tedniemann@bellsouth.net]**

Sent: Thursday, November 18, 2010 11:46 AM

To: Andrews Jr, William M

Drew,

Attached are my notes, hopefully they will supplement the official notes.

Ted Niemann

Geographic Information Advisory Council  
Meeting Notes 11-18-2010

Called to order 10:28  
Reviewed minutes of October meeting

Drew Andrews reviewed GIAC strategic plan  
Handouts were distributed.

Document for statewide geospatial data, not just govt.

NSDI funded the effort to develop geospatial standards in Ky. Grant terms expire in Dec. 2010. Process generally takes about 18 months, the committee had about 5 months.

Number 1 recommendation is to give the plan more detail. Take a closer look at needs. Develop a comprehensive strategic plan.

Discussion of approval for the strategic plan as presented. Motion to approve this version with any changes submitted by November 30, 2010. Begin immediately on revisions and additions working toward v2.0

Strategic planning committee will meet and guide now through March to help develop guidelines for the new vision of the strategic plan.

Any and all volunteers are welcome to participate in the process. Any names and contact info can be forwarded to Drew.

How is the effort funded for the future effort? Communication and coordination will be the primary focus of the upcoming effort.

What is the cost of developing and Maintaining the data? What kind of creative funding could be developed to sustain the effort? Maybe non traditional non-governmental funding. Fees could be built into process for those who cause change.

Vision without funding is a delusion.

Motion to have drew and strategic planning committee return to the next meeting with a plan to move forward with version 2.0.

Will the version 1.0 limit the GIAC's ability to get additional funding?  
Version 2.0 can be forwarded to NSDI for filing. Can point back to revised vision and location of revised plan.

Business plan would be for statewide gis including how the effort would be funded. It is a very complex problem. A grant may be available to develop a business plan.

Should a business plan committee be set up? The strategic plan may need to be developed prior to developing a business plan.

Governors race could impact the ability of the GIAC to function after the election.

- Add locations for updated versions.
- may need by October 1 have a summary of the existing business model in place.
- must divide and conquer in development of both a business plan and strategic plan.

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**From: Rowles, Ruth A (PSC) [rarowles@ky.gov]**

Sent: Thursday, November 18, 2010 6:24 PM  
To: Andrews Jr, William M  
Attachments: PSC\_CommentsDRAFT\_Kentucky~1.pdf (495 KB)

Drew,

Good presentation today!

I liked your conclusions ... although there wasn't much participation from the utilities, I'm sure that they would agree that PVA Parcels would be of great interest, as would addressing and LiDAR. I would like to participate in the second go-round, since I've got names and addresses that should be used (if they weren't initially) to approach the utilities. They are not represented on the GIAC (except maybe through the engineering association), which is a problem, and they don't participate at the GIS Conference. I'm particularly concerned that they be at the table when they are viewed as a "cash cow".

I've included my remarks in the document as sticky notes and call outs ... see pages 12 and 34-36.

Thanks for all your work ...

*Ruth*  
Ruth A. Rowles  
GIS Manager, Kentucky Public Service Commission  
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Mail: PO Box 615, Frankfort, KY 40602  
Phone: (502) 564-3940 Ext. 451  
Web: <http://psc.ky.gov>

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**From: Weisenfluh, Jerry**

Sent: Tuesday, November 30, 2010 10:04 AM  
To: Andrews Jr, William M  
Attachments: DRAFT\_KentuckyGeospatialSt~1.pdf (460 KB)

Drew,

I've read the plan and find it in good order. There are some corrections in the attached file in the front part of the document.

Jerry

Jerry Weisenfluh  
Associate Director  
Kentucky Geological Survey  
202 Mining and Mineral Research Bldg  
University of Kentucky  
Lexington, KY 40506-0107  
859-323-0505

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**From: Wiljanen, Mark (CPE) [Mark.Wiljanen@ky.gov]**

Sent: Tuesday, November 30, 2010 10:20 AM

To: Andrews Jr, William M

Hello Drew ~

At various places in the Geospatial Strategic Plan, you state that the GIAC is chaired by the Commonwealth Chief Information Officer. While this is correct de facto, it does not reflect the statutory language, and I am concerned that this might create a problem in some unforeseen way. KRS 42.740 states that the GIAC is chaired by the "executive director of the Commonwealth Office of Technology" and that its purpose is to advise the "executive director of the Commonwealth Office of Technology". Perhaps this terminology should be used throughout the Strategic Plan rather than the Commonwealth CIO terminology.

~ Mark

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<http://www.cpe.ky.gov>

**From: Wiljanen, Mark (CPE) [Mark.Wiljanen@ky.gov]**

Sent: Monday, November 29, 2010 3:30 PM

To: Andrews Jr, William M

Hello Drew ~

Hope you had a wonderful Thanksgiving!

As you know, I believe you have done a very good job, given the little time at your disposal, of pulling together something like a strategic plan for the Commonwealth. Just a few notes:

1. Entity name on page 1 should be "Geographic Information Advisory Council" or "Kentucky Geographic Information Advisory Council", not "Kentucky Geographic Advisory Council".
2. Entity name on first line of page 4 should be "Geographic Information Advisory Council", not "Geospatial Infrastructure Advisory Council".
3. The tables on page 9 need short contextual discussions in the body of the report. I don't see any place where they are referenced or discussed in the body of the report.
4. Section 4.1 on page 11 describes a strategic plan vision, but part of that vision is to "[d]evelop a vision . . ." I don't believe that a vision can include the development of a vision. Perhaps this could be something like "Develop a more detailed set of goals and recommendations . . ."
5. "One of the goals of this strategic plan will be . . ." in the first line of page 16 is confusing. It reads as though it refers to the strategic plan that we are presently submitting, but I'm pretty sure that you mean to refer to the more comprehensive strategic plan proposed by the present strategic plan.

6. What do you plan to insert for sections 6.1 and 6.2 (page 19)?
7. The entity listed as Appendix 8.b.ii.3.b, on page 35, should be "Centre College", not "Center College".
8. I note that the Kentucky Virtual Schools are listed twice in Appendix 8, as a.iii.1.j.i, and again as b.i.2. By this logic, the Council on Postsecondary Education (CPE) should also be listed twice. The CPE is already listed as b.iii, but the CPE is an independent ("Individual") state agency within the Executive Branch, and should be listed as such under a.iii.1.

Otherwise, this is looking great!

~ Mark

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**GIAC Plan Feedback**

Brian Lee [brianleeph@gmail.com]

**Sent:** Monday, November 22, 2010 4:57 PM  
**To:** Andrews Jr, William M  
**Cc:** Zourarkis, Demetrio; stephanie.mcspirit@eku.edu  
**Attachments:** GIAC\_Markup.pdf (5 MB)

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Dear Drew:

First, I wanted to say thank you for all the work you and the people that helped you have done on the Draft Strategic Plan for the Commonwealth. Given the five months to work on it, it is a good document that gets the ball rolling. I am providing this feedback as a private stakeholder and the views below do not necessarily represent my employer. I hope the comments below are useful. I have also attached a .pdf of a markup of the draft document on the pages where I have marked up. I am happy to translate my penmanship if it can not be read. I am also happy to stop by and talk with you or chat over the phone if the comments do not make sense. I have copied Demetrio because I believe he has done a lot of the draft work in terms of compilation and layout of the Draft. I have copied Stephanie because she is on the Strategic Planning Committee as well as a Commissioner on the EQC which did a lot of work in the last year or so concerning land cover and water issues and the role of geospatial data/technology/people. What you will find below are a few remaining issues that should be considered to make this Draft an even stronger document.

1. Consistently using the term "GIS" in the document when I believe the better term is "geospatial." I think this is especially true since it is in the title of the document. I am concerned that a person that thinks of himself or herself as doing remote sensing work or GPS work would be believed to be not included by using the term GIS.

2. The availability of ground water basins in Karst for the state is really important for water resources. I recognize that it takes a lot of work to map the Karst basins but I would be disappointed if they were to be lost in the process. This might be more important to KGS but it is an important geospatial dataset to have available for people.
3. This geospatial field is rapidly changing and there needs to be a recognition and commitment that continual training needs to occur for people as new technologies are deployed as well as new data become available. For example, a few years ago I interacted with someone in state government wanting to convert all the 2001 land cover data into polygons so they could do some area calculations. The person had no conception of what a raster data model was all about because they never had any formal education that included raster data models. This person thought of it as a picture and not even as an image as we might think of it today. In just a short period, I was able to get the person up to speed so that they could get the numbers they needed without doing a raster to feature conversion for the entire state.
4. I know people would love to be able to write and go in on grants with people from DGI either through universities or other organizations or through state government. It is talked about in the document but in the past couple of years, this has not been easily done in my experience as well as people I have spoken with from time to time. We need to strengthen this part of communication infrastructure to include specific processes/ protocols for communication/ collaboration between DGI with universities and agencies. For example, has The Hatch Act of 1887 and/or the McIntire-Stennis Act funding been explored for use through the State Agricultural Experiment Station? I don't know that there are opportunities but it seems like there might be a possibility particularly for land cover types of work.
5. I am surprised that change and 3D were not bigger themes in the document. Using the data to identify change in the Commonwealth could be really valuable as well as using 3D particularly in urban environments.
6. There is a lot of excitement about LiDAR and it is very exciting and useful as long as the geodesy is there to support it. Getting the feasibility of LiDAR more explicitly laid out is really important. As part of this, seeing how to make connections to the SRTM and previous data is essential to be able to address topographic changes. In some parts of the state as you know, this is a big concern. This is a technical issue in many ways but it also ties back to staffing issues. There is mention in multiple places about staffing resources loss as high. There needs to be a more explicit characterization of this personnel resource picture. I could envision a table indicating the role a person did in the organization and when they departed. I don't think names are helpful in this case, what they did or the expertise they brought to the organization is essential. In addition, charactering the time of departure is important to show the trend that has been on going for several years. For example, LiDAR is looking like a reality but the NGS person and the advisor position that was clearly with DGI are gone and have been gone for some time now.
7. What about the National State Geographic Information Council and the GIAC/DGI interaction with the organization? Are people going to the meetings to interact with peers from the other states on a regular basis? This is an important community to be involved with on a regular basis such as the mid-year and annual conferences. For example, NSGIC is advocating for the dissemination of address data that were collected during the Census earlier this year. This also has connections with 911 funding and broadband mapping that I think is what is being referred to on page 20 just before section 6.4. A ten-minute conversation with someone at the conference could save a lot of money for the state. What about the explicitly pulling out communication with the Federal geospatial liaisons that are right here in the state? All of this stuff might be happening and I am not aware of it. It is the absence of any reference to NSGIC and the federal liaisons is what made me curious.
8. This last concern is the biggest concern to me although I will set it up as a one part leading into a second part. The process and the resulting document has largely been framed as 'what are the problems and what do you need' in tone and in specific questions. There is nothing wrong with this approach at one level. The process has received some good feedback and has some direction in which to proceed. The point of caution is the direction might not be on a solid statistical footing and therefore could be prone to error resulting in wrong direction. For example, on page 37 it is shown in Appendix 9 that there are about 1,495 (average) Estimated GIS Users. This is a tough number to nail down but I believe a good faith effort was made to get a number. Let us assume that this number is correct for the moment. The statistical caution comes in when we think about the sample of 208 effective surveys (222 total minus 14 blank) that were returned. Is this sample size of 208 large enough to be statistically representative of the community? The short answer is no. In order to be representative at the 95% level of confidence with a 5% margin of error, about 306 surveys would have been needed to be returned. The process has yielded about 100 less surveys than needed for this

generalization. The respondents in about 45% of the surveys identified themselves with city or county jurisdictions and therefore I believe there is unintentional bias appearing in the results. If we were to think about the results in the context of the Estimated GIS Users in a stratified way, the results could be even more misleading. A stratified way I actually think would be better because there are many different communities in the larger geospatial community. It is a nice sized sample but not large enough to boldly move forward without a pause for reflection that will lead to my second part.

It is only upon reading the document and reflecting upon it and the process that a different type of question emerges at least to me. What if there was a question(s) that was framed/phrased as 'What are the key social and environmental issues facing the Commonwealth? Then follow that question with ...'How and what geospatial technologies/data/personnel are needed to address those key issues?' I think we might get a different list of items coming to the front. This would go a long way in terms of Business Plan proposal development. For example, the Commonwealth wide remotely sensed land cover data is very valuable to lots of Agencies and other stakeholders. Land cover data are important to characterizing, monitoring, and the modeling of

- a. Forests (which is roughly half of the Commonwealth's land cover)
  - i. Fire, insect, fragmentation, reduction/gain, disturbances
- b. Urban Sprawl
- c. Agricultural activity
- d. Surface based extraction activities
- e. Wildlife habitat
- f. Water resources include identifying potentially healthy watersheds
- g. Water demand and stress for crops
- h. Planning power transmission routes
- i. Tracking socioeconomic impacts on land use
- j. Cancer research because of environmental conditions
- k. Biofuel assessment
- l. Others

It doesn't surprise me that the land cover data are not mentioned by a lot of people in the survey but the data themselves can address several important issues on an on-going and cost effective basis for the Commonwealth and do not necessarily need a lot of people to do it. Therefore, looking at the needs from a people perspective as previously described would not necessarily highlight these types of data. For example, in a few hours I can tell you how the spatial composition and configuration of the forest or agricultural land has changed/not changed if the data are available. This has important ramifications for any number of stakeholders. A case in point, I don't see how it is possible for say the Division of Forestry to be able to do a statewide assessment of forest resources, identify priority areas, and develop long-term strategies to address forest threats in the most cost effective fashion without periodically collected land cover data compatible to what is already available. Incidentally, the last I read concerning the total economic importance of forests in Kentucky was nearly \$8.7 billion annually and one of the biggest in the south if I remember correctly. We can certainly point to other examples where just a few people might use the land cover data but the information is really valuable across many disciplinary fields.

In many ways this data type are potentially very low hanging fruit. Landsat data are now freely available for download, the software exists in the state agencies and/or state universities to classify the data, the expertise certainly exists between agencies, universities, and the private sector to do the work. There is a pool of local knowledge that participated in the previous efforts so startup-training expenses should be reduced. Protocols and ground sites are established in general. Potentially some more ground sites should be identified but in general, the ground sites exist because of previous efforts. This is a relatively low cost product, especially in the context of something like a statewide LiDAR or the creation and ongoing maintenance of parcels. This work doesn't even need to be done every year and most likely could be done on a 3-5 year basis that is synchronous with other state and/or federal data collections (e.g. Census or Agricultural Census, etc). In addition, this type of work will build upon previous work that goes back almost two decades that helps us better understand, manage, and address many key issues facing the Commonwealth on a very cost effective basis. In fact, a consortium similar to the federal Multit-Resolution Land Characteristics Consortium but at the state level could be very valuable. Not having consistent land cover data and an identified program to generate the classified data periodically for the entire Commonwealth is a grave shortcoming.

If I can use a metaphor to conclude, in some ways, the survey and the process has helped us see trees, but it has not helped us see the forest let alone the different types of forests. I hope the comments are constructive because that is how they are meant to be taken. I also hope these comments and the other comments people have provided you are included somehow in the revised Draft document and are part of the continuing dialogue for version 2.0 and beyond.

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**From: Bruce A Bauch [mailto:bbauch@usgs.gov]** (received after deadline, but comments incorporated)  
Sent: Friday, December 03, 2010 8:37 AM  
To: Rossman, Thomas J. (COT)  
Subject: Re: Business Plan Proposals

Hi Tom - It was good to see you again at the last GIAC meeting. Since our first meeting earlier this year I had been on a detail assignment to USGS HQ for the entire summer and into October and I was unable to be active in Kentucky during that time.

I commend you on moving forward on the strategic plan and business plan initiatives. We probably should either meet or have a phone conversation soon about the following, but I thought I'd write this first and then we can talk further.

Something that I need to point out is that there is apparently some confusion about acronyms, organizations, etc... that are related to strategic plan and business plan development.

When Drew Andrews briefed the GIAC members, he referred to the "NSDI Grant" that funded the strategic plan effort. In your email below you refer to submission of the plan to "the NSGIC". Use of NSDI or NSGIC in these contexts is not correct. The grant is from the FGDC (see below) and you will submit the plan(s) to the FGDC.

To hopefully keep you out of the federal/national geospatial acronym purgatory, here is some information:

NSDI is the National Spatial Data Infrastructure. It is not an organization or an office. It is a structure that enables development of geospatial data and related resources for the nation. Various geospatial organizations and agencies build and support the concepts of the NSDI which include things like data acquisition, data standards, data access and distribution, and partnerships involving all sectors of government, academia, and the private sector.

NSGIC is the National States Geographic Information Council (<http://www.nsgic.org/>). It is an organization of geospatial-related agencies throughout the nation and includes state GIS coordinators, Federal agency geospatial folks (such as the USGS liaisons), private sector mapping and surveying companies, and others. See the web site for the mission and goals of the NSGIC. You will not submit your plan(s) to the NSGIC.

FGDC is the Federal Geographic Data Committee (<http://www.fgdc.gov/>). FGDC is an overarching geospatial management and advisory group that resides within the Department of the Interior, and specifically is provided funding from the USGS. Some of the USGS funding provided to the FGDC is used to support the FGDC Grants. Kentucky's strategic plan is funded by one of those FGDC grants. You will submit your plan(s) to the FGDC.

NSGIC, FGDC, USGS, State GIS agencies (like DGI), and many other local, state, and federal agencies provide and manage data acquisition and access policies and tools that support the overarching NSDI principals.

All that said, I'd suggest that any language about the Kentucky Strategic and/or Business Plan should refer to the appropriate agency or group.

As far as my input and / or guidance about developing a Business Plan(s), the FGDC site has links to examples of other state Business Plans that would be very useful to you. I can talk with you further on this.

If you go to: <http://www.fgdc.gov/> and click on the "grants" link (left hand side) there is CAP Project Information.

In the box on the right side of the page are links to Category Lists for various years. Select the 2009 link, and under "Fifty States", there are example strategic and business plans that have been done by states such as Arizona and others.

The FGDC site is loaded with all types of information about CAP grants, strategic plans, etc... and can provide you with ideas.

Sorry this is so long, but I wanted to start clarifying acronyms and various roles so when we talk more, we have a common starting point.

I plan to attend the Dec. 14th meeting about the statewide LiDAR and Ortho program and hope to see you then if not sooner.

Please don't hesitate to contact me in the meantime if you have questions or other comments.

Thanks.

Bruce Bauch  
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USGS Geospatial Liaison for KY  
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Office Phone: 502-493-1945

# Comments on the GIAC Strategic Plan

Susan Carson Lambert, GISP

November 30, 2010

## Preliminary Observation

It is unfortunate that so crucial an exercise as establishing a direction for the geospatial community in Kentucky should be jam-packed into the fourth quarter of 2010. Especially considering the Cooperative Agreements Program award for Kentucky for the *50 States Initiative* from FGDC was made in February of 2009 (according to their website). With almost two years to conduct the work...there was more than adequate time to accomplish the tasks thoughtfully and thoroughly. That this piece of work was hurriedly assembled is very much in evidence. And that there was little input from outside KY State Government agencies is also apparent.

There was a valiant attempt to garner input from the geospatial community in Kentucky by the chair of the Strategic Planning Committee Drew Andrews and the committee members (Appendix 2). The numbers of professionals working in this field in the Commonwealth as witnessed by the information in Appendix 9 (1500+-) as opposed to the numbers of responses to the online survey (208) Appendix 5 was miniscule. The responses were from about 13% of the practitioners in the Commonwealth. This does not a consensus make. Rather than Version 1.0, this draft Strategic Plan should be labeled version 0.1.

## Analysis

### Constitution of the GIAC

The Geographic Information Advisory Council is weighted heavily with KY state government agency representation. 14 of the 25 members of the Council are within State Government. None are federal, non represent private industry (MAPPS), and non represent the larger community of practitioners (KAMP). If you examine the representation of the membership through the lens of \$\$ spent on geospatial data, applications supported, programs underpinned by the use of mapping and geospatial data the constitution of the GIAC is skewed out of proportion. The huge majority of entities who use geospatial data and perform mapping as part of their core mission are not working at the state level of government.. Yet, decision being made regarding how data procurement, service, application development, standards, web services, functionality and availability of data are made in a vacuum with not only no input, but no allowance made for input.

For example. The Federal government has overall responsibility for ensuring the nation is mapped wall to wall to accepted standards and multi-resolutions. They have many avenues for cooperation and a multitude of program offerings. Yet, they don't nor have they never have had a seat on the GIAC. The Federal State Liaisons are responsible for developing partnerships in their states. They have a great deal of latitude regarding funding and partnership opportunities. In current economic times it seems KY would open the tent rather than close it down to fiscal and programmatic opportunities. If the data in Appendix 9 are accurate – state government represents only 25% of the practitioners in the State. So, why is it that the GIAC is made up of 56% state government agency representation? To take this a step further, if the GIAC is supposed to represent the community, why is the Chair the acting CIO of COT? Why isn't the Chair selected by the membership of the GIAC who are supposed to represent their constituencies? Does this not confirm that the GIAC will be dominated by State Government interest rather than the larger community outside government where most high \$\$ and high resolution/current data are created and used? Models exist for data sharing but are not being created nor implemented in KY.

### **Funding Model**

The funding model of the DGI never has worked well. There is resentment among state agencies who have to pay a levy to the DGI. Any \$\$ paid to DGI takes away from their own abilities to fund their geospatial activities. This funding model was established in the original 1994 legislation. No amount of cajoling, examples from other states, and proposed funding models have ever changed the mindset of the general assembly on this matter. This funding model will continue to be problematic. There are working examples in the U.S. available from NSGIC of every permutation see: [www.nsgic.org](http://www.nsgic.org)

### **Data Needs**

Until a formal needs inventory is conducted only assumptions can be made about data needs. For every application at every level of government and every entity who uses geospatial data there are demands. There are demands for themes, resolutions, standards, attributes, and update cycles. Winnowing through the many demands to identify the common ones that serve the most purposes for the most needs - and finding funders who will engage programmatically and fiscally is the meat of the matter. Until a comprehensive data needs assessment is performed which includes the input of a large percentage of practitioners – a statement of data needs is moot.

### **Community Needs**

As above in the Data Needs section of this document these needs are not known except by a cursory survey with a very short fuse and limited input from relevant

members of the community. Studied questions need to be developed, a comprehensive survey instrument developed and appropriate channels of communication of the whole community in KY need to be solicited for input. The results need to be analyzed and categorized into understandable information and used by appropriate bodies to develop plans of action about how to address the identified needs.

### **Data Procurement/Sharing Programs and Agreements**

Around the country there are many working examples of data consortiums. An internationally notable one right here in KY is LOJIC. NSGIC has inventoried their membership repeatedly regarding the 50 state's programs, policies and practices. Multiple examples exist for working and viable data procurement/sharing contracts, data sharing agreements and data consortiums are at the fingertips of interested entities. For data that is useful to multiple parties, it only makes sense to fiscally and programmatically partner. KY does not have such a program in place and would benefit greatly from partnering with other data procurement entities on the front end fiscally in order to share data with them on the back end. Heavy handed legislation that imposes demands on data creators within a jurisdiction stiffens resolve not to cooperate/share and resentment. When partnerships are formed and risk and reward are shared equally, data begin to flow between the partners and cooperation ensues because the terms of the agreement are negotiated and all parties are signatories on the agreements.

### **Education**

One of the most difficult parts of geospatial/mapping coordination is creating an understanding by entities who influence and affect the practitioners about the importance and extent of the technologies and data. Where the coordinating agency resides in the structure is vital along with strong leadership. Unfortunately the DGI has had neither in the past several years. This has profoundly affected their ability to carry out coordination activities. FGDC, NSGIC and other states have developed materials that clearly show ROI and the necessity of a strong geospatial infrastructure, set of policies, leadership and data consortiums. These materials are at multiple levels of understanding so that the information can be tailored to the audience.

### **Advocacy**

Finding champions for geospatial programs at every level who are willing to take up the struggle on behalf of program managers must be identified, cultured and educated and kept in the loop. The continued communication and education of and with these champions is critical. Communication with funding bodies such as fiscal courts, legislatures and city councils must be concise, informative and compelling. The message regarding the need, the expected results and information about successes

from previous funding cycles must be broadcasted into appropriate channels to appropriate audiences with tailored messages.

## **Observations From The National Level**

It appears that exactly the same issues that KY geospatial coordination are facing are being played out at the federal level of government. Think tanks considering how to move forward with Spatial Data Infrastructures are coming up against issues like – locals are creating all the good data but we can't access it. Another is - the current interagency coordination structures are not effective and perhaps in existence beyond their useful purpose....so how can we be better at interagency coordination? How can we be better at partnering with locals where the good data are being created without alienating state governments who work in the crossroads between federal and state government.

Another issue that is being discussed is regarding how much data are being created in the private sector for independent mapping applications that operate completely outside any governmental influence whatsoever. Some discussions conjecture that perhaps the days of governmental control of data are numbered and the data will be created by those who need it for their own specific purposes and held, manipulated and served by the entities who created it for profit or leverage it for some other value exchange.

All this is aside from the phenomenon of 'crowd sourcing', 'participatory mapping' or 'mapping of the commons' – that is the people mapping their own world in their own way and posting it to the internet. There is a burgeoning branch of geography being devoted to this trend.

The model is indeed changing. Recent economic downturns have stymied government budgets. Innovation is and will become imperative in order for those who need and use geospatial data for their programmatic purposes to be successful.

## **Thoughts on Coordination Models**

There are many coordination models for creation, sharing and partnering for geospatial data, services, and applications. Some are within governmental entities, many are not. Indiana IGIC is an example, LOJIC is another, SANDAG in San Diego, Teale Data Center in California are others. If you look where the data are being created and the \$\$ are being spent, it is neither at the federal nor the state level. When geospatial data were first being automated from analog maps and into digits only the federal

government had deep enough pockets to play in that space. Later, state governments sometimes in partnership with federal partners leveraged their resources to create much of the National Spatial Data Infrastructure that we know today. As the low resolution data became available i.e. the DOQQs many county and city digital mapping organizations came up because the data were available and they could start their programs with 1 meter data that was free from the government. As the cost of data manipulation software came down, more people became trained as geospatial professionals and applications were developed that enabled reduced operating costs by use of applications that performed previously impossible information gathering for decision making - the center of gravity for geospatial data shifted yet again down to the county/city level.

The KAMP GIS Conference in KY this fall was an exact replica of what is happening all around the country with this center of gravity shift. If analysis were done on the affiliation of the attendees it would become obvious who the community is and where the vitality of the communities exists. 200+ people who are geospatial/mapping professionals left their workplaces and came to Frankfort for 2 or 3 days. Not so many are in state government - where geospatial coordination is legislated. Many are in the private sector, other government, consultants, engineers, surveyors, tangential mapping and web mapping application development businesses. Much of the data are used not for classic geospatial analysis but to simply provide information from a web query of a single use nature by non professionals who just have a question. If an analysis were done from the fiscal perspective, the clarity of the power shift would be crystal clear.

## **Suppositions**

Suppose the current coordination model were turned on its head. And suppose the geospatial/ mapping community came together with the notion that they as a community would and/or can decide among themselves how to move forward with coordination and cooperation among themselves to reach a desired end. Rather than try to fit or retrofit coordination from within a previously successful state government-centric model that had its success in a former time, when fed/state partnerships were the only game in town they broke the mold and started from the ground up.

The community has everything it needs to be successful. Intelligent, highly trained, motivated individuals who know how to operate successfully within their peer group and accomplish the ends of their company, employers, or agencies. Every day each of them does deals and favors and cooperates within the community that exists and flourishes to get their own job done and help their colleagues along the way. All of this

is accomplished with a spirit of collegial cooperation, currently without any formal machinations.

If those colleagues were to come to the table with open minds and a common goal in mind – useful, shared risk and reward to create a formal coordination body they could do that and craft it in a way that suits them. These ideas may be heretical here in KY but just such models exist and are operating and successful in many other locales.

## **To End**

It has been an honor to be called upon to participate on the strategic planning committee of the GIAC. I hope that my ruminations are thought provoking and found useful by the vibrant geospatial/mapping community in Kentucky. If I can provide further energy to this effort I am willing to do so.

# Geospatial Strategic Plan for the Commonwealth of Kentucky

Kentucky Geographic Advisory Council



**FIRST DRAFT**

**11/15/10**

***(final draft due Dec 2010)***

*Please direct all comments and feedback  
by November 30, 2010,  
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This Doesn't work in B&W  
~~work in B&W~~

## 1 EXECUTIVE SUMMARY

The Geospatial Infrastructure Advisory Council (GIAC) of the Commonwealth of Kentucky working with the Commonwealth Office of Technology's Division of Geographic Information (DGI) has worked to identify the key organizational elements required to increase the Commonwealth's overall effectiveness in delivering Geographic Information Services (GIS) to its many stakeholders. Kentucky has long been a leader in making GIS data available to its citizens. The barriers to further improvements are mostly organizational, not technological. Consequently, this strategic plan focuses on those organizational issues and lays out a framework to remediate them.

Prior to mid 2010 the GIAC had been inactive for many years. This has not prevented significant progress from being made in the deployment and use of GIS data within the Commonwealth, but without an active GIAC going forward it would be difficult to ensure that optimal goals and objectives are being set. Fortunately, the reconstituted GIAC has many members who are determined to move forward and leave the past behind.

AND CERTAINLY NOT MET.

The GIAC, working closely with DGI, held three listening sessions around the Commonwealth to gather stakeholder input for the development of this plan. An on-line survey gathered additional feedback from those who could not attend the listening sessions. We are confident that this open and inclusive process used in the development of this plan makes it an accurate representation of the needs of the Commonwealth as seen by its major GIS stakeholders.

Kentucky has a strong base of GIS professionals and a robust infrastructure to support them. Consequently, this plan has relatively little reference to infrastructure needs, as these are already reasonably well met. The major need going forward is for improved communication, leadership, and coordination among the various GIS stakeholders. This is needed to improve planning for the future. A second goal is to improve relationships and communication to ensure that a truly collaborative GIS environment exists. Thirdly, the plan identifies data needs for parcels, geocoding, and LiDAR data.

NEEDS

PERIOD  
LANDSCOPE SCALE  
REMOVELY SENSORED  
LAND COVER DATA  
THAT IS ORIENTED  
COMPATIBLE?

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## 2 STRATEGIC PLANNING METHODOLOGY

### 2.1 Background

spell out spell out - by ?  
An NSDI CAP Grant was awarded to the Division of Geographic Information (DGI) in 2009, with the purpose to assist the Geographic Information Advisory Council (GIAC) in the development of a Geospatial Strategic Plan for the Commonwealth. In its original scope, DGI would provide the support to enable GIAC to be re-constituted and re-convened, with the purpose of starting strategic planning process. Thus, during the drafting process, DGI's role would be one of facilitation, coordination and support. After adoption, DGI will assist the GIAC in implementing the recommendations in an efficient and timely manner. It was expected that this process would enable the stakeholders involved with geospatial data and activities in Kentucky to improve communication and coordination efforts resulting in better decisions, products, and services for the Commonwealth's citizens. The planning process was to evaluate the business needs of all stakeholders, identify opportunities for consolidation of resources and services, and open the flow of geospatial information between agencies. Additionally, the Enterprise Architecture Standards that relate to GIS Software and Hardware would be reviewed for currency and applicability within today's IT environment. Collectively, the process was to yield recommendations that would improve the support of GIS initiatives for all member organizations.

### 2.2 Preliminary Planning

Unfortunately, reconstitution of the GIAC was delayed by forces beyond the control of DGI, which left a shortened time frame for development of the strategic plan. The planning process was initiated on July 15<sup>th</sup>, 2010 with the first meeting of the new GIAC (see *Appendix 1*); at this meeting, William Andrews was appointed Strategic Planning chair. A supporting committee of volunteers from GIAC membership and the interested community at large was formed (see *Appendix 2*). DGI staff was committed to support the effort. Due to the restricted time frame, a concerted effort was made to engage the community at large and to gauge interest in the future of geospatial data in Kentucky and to solicit feedback. A series of listening sessions and communication meetings were scheduled, and a feedback survey was posted online.

A series of three listening sessions invited open feedback from the geospatial community in Kentucky. Verbal comments were recorded and discussed; the themes that arose from these discussions guided the general structure of the developing strategic plan. All attendees were encouraged to also submit their comments and feedback through the online survey. A series of communication meetings were also held with various representative constituent groups to ensure that feedback from those communities were reflected in the plan; these attendees were also encouraged to utilize the online feedback form. Dates and attendance lists of the listening sessions and communication meetings are available in *Appendix 3*.

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ADD flow you need a better transition

Information recorded at a series of breakout-group focus sessions at the 2008 "Mapping and Monitoring Land-Resource Change: Bridging the Geospatial Divide for Decision Making" Conference, as well as feedback from GIAC Strategic Planning Committee members, was used to guide the development of questions for the online survey. Appendix 4 contains the questions posted on the online survey form. The online feedback survey was posted in early September 2010, and was advertised through the KYGIS Listserv. Feedback was also encouraged from GIAC constituent communities and the membership of the Kentucky Association of Mapping Professionals (KAMP). A total of 208 responses were received through the online survey; preliminary results are summarized in Appendix 5. The shortened planning time-frame prevented complete analysis of the online survey results for this plan. Full analysis and review of the feedback will be used to continue the planning process going forward.

This document reflects the general trends of feedback received from the in-person listening sessions and meetings. Broad themes and preliminary statistics from the online feedback are used to prioritize the action items and objectives in this plan. More thorough and comprehensive analysis of the large number of feedback responses will be one of the key objectives in the next cycle of plan discussion and revision.

### 2.3 Support for the Planning Process

- a. In addition to the CAP grant, COT/OAD/DGI provided personnel for implementation of the listening sessions, document development, logistical and communication support, online survey, and KYGIS listserv coordination.
- b. The Kentucky Geological Survey at the University of Kentucky provided support and permission for William Andrews' time in pursuing feedback and coordinating the strategic planning effort.
- c. The Kentucky Area Development Districts (ADDs) of Big Sandy ADD and Pennyriple ADD, and Northern Kentucky Area Planning Commission hosted listening sessions at their facilities.
- d. KAMP provided communication support and volunteer time at the annual Kentucky GIS Conference.

you have to spell out at least the first time they are used.

## 3 CURRENT SITUATION

### 3.1 Who are we?

In Kentucky, a strong and diverse geospatial community-of-practice represented the right stakeholder community participating in this effort, as seen in the listing below:

- a. Geographic Information Advisory Council (GIAC): is a legislatively mandated body created to advise the Commonwealth's Chief Information Officer on issues relating to

geographic information and geographic information systems (GIS). The council recommends policies and procedures which assist state and local jurisdictions in developing, deploying, and leveraging geographic information resources and GIS technology for the purpose of improving public administration and to ensure maximum use of geographic information by minimizing redundancy of data and resources. The founding legislation specifies membership in the board, and members are appointed by the Governor. Meetings are open to the public, and the 2010 meetings of the GIAC have attracted significant attendance from the broader geospatial community. GIAC ceased to function by the end of 2004, and was reconvened for the first time on July 15, 2010, following a failed effort in 2006 to constitute a new entity, the Kentucky Geospatial Board (KRS 42.740, KRS 42.742) <http://technology.ky.gov/gis/Pages/GIAC.aspx>

b. *Division of Geographic Information (DGI)*: is a state government agency charged with collecting, compiling, and facilitating the production of geospatial data for the Commonwealth. Maintenance of the Commonwealth's enterprise GIS services and on-going support of the Kentucky Geography Network are the primary responsibilities of the Division of Geographic Information. The DGI is responsible for collaborative relationships with all levels of government in order to promote the application of GIS through strategic planning, technical support, policy development, and provides administrative and technical support of the GIAC. The DGI is in the Executive Branch, currently under the Commonwealth Office of Technology, Office of Application Development (<http://gis.ky.gov>; KRS 42.650). The DGI executes these duties with a staff of three full-time professionals, and has experienced a high rate of director turn-over and physical office moves in the last six years. The agency has no direct budget, and its operating costs are defrayed by a fee structure from state government cabinets and organizations. DGI's position in state government is shown in organizational chart on *Appendix 6*.

STATE:  
Explicitly  
what this is  
Really consider

c. *Kentucky Association of Mapping Professionals (KAMP)*: is a professional association of GIS practitioners in Kentucky formed in 2003, prior to GIAC's last functioning year (<http://kampro.org>); much of the development of KAMP activities and organization has developed during the absence of an active GIAC. KAMP provides quarterly meetings, an online webpage and bulletin board, and has organized the statewide GIS conference (at which attendance was sold out in October 2010). KAMP's membership is approximately 160 and its geographic distribution is shown on *Appendix 7*.

d. *Stakeholders in the Community-of-Practice*: Some entities are almost exclusively data producers (such as the private sector photogrammetric firms) or data users (state and local government). Several of the stakeholders identified, however act in a dual role of being data producers and users. The main categories are:

- i. Federal
- ii. State government
  1. Multiple cabinets and agencies
- iii. Regional government

- 1. Area Development Districts
- iv. Local government
  - 1. City, county, municipal
- v. Planning and professional organizations
- vi. Academia
- vii. Private businesses, including consultants (photogrammetry, GIS, remote sensing, etc.)

A detailed and more comprehensive – but not all-inclusive list appears in *Appendix 8*. Preliminary numerical estimates of the sector appear in *Appendix 9*.

*Geospatial*

*for each ERCH*

- e. *Certified Professionals*: Kentucky has 94 certified GIS Professionals (GISPs), 10 Certified Photogrammetrists, and 4 Certified Mapping Scientists. A list appears in *Appendix 10*.

### 3.2 Where are we now?

Kentucky has a metadata Clearinghouse (the KYGEONET) for data that is harvested by the Geospatial One Stop on a weekly basis. The KYGEONET currently has 564 GIS data and mapping published resources. The KYGEONET leverages Esri's Geoportal Toolkit for the metadata portal. Kentucky does not use the Ramona GIS Inventory Tool since we have an existing inventory tool. *Why is this important to state?*

GIS Coordination is done through the ~~Division of Geographic Information~~ <sup>already defined.</sup> (DGI). DGI currently has an Acting Director who also has other duties. In addition, the DGI director position **has had substantial turnover in recent years**, making it difficult to sustain a steady direction. The Division of Geographic Information (DGI) is a part of the Commonwealth Office of Technology and is responsible for encouraging, coordinating, and implementing GIS programs throughout the Commonwealth of Kentucky. DGI works with both state and local government, and serves as liaison to federal agencies. Activities include strategic planning, implementation services, technical and administrative support, dissemination of geospatial data, grant administration, research, and policy development. DGI also provides assistance to the newly reformed Geographic Information Advisory Council (GIAC).

*How many?*  
*This needs better*  
~~Characterization~~  
*Characterization*

*Geospatial*  
 The GIS community within Kentucky State Government works closely together and has been successful in data sharing, standards development and implementation and data documentation. In the past there has been little coordination between State and Local Government. Specifically, although State Government provides a diverse array of statewide data via the Kentucky Geography Network, only a few local entities have contributed data to the KYGEONET clearinghouse. *Why?*

See section 5.1 for information on the current State of Technology Infrastructure.

How Does This Fit Here in Relationship To The Text?

Framework Layer	Status (Non-existent, Incomplete, Complete)	Available to NSDI (Yes/No)
Geodetic Control	Complete	Yes
Cadastral	Incomplete	No
Orthoimagery	Complete	Yes
Elevation	Complete	Yes
Hydrography	Complete	Yes
Administration Units	Complete	Yes
Transportation	Complete	Yes
<b>Other Base Themes of Significance:</b>		
Structures	Incomplete	No
Land Use	Incomplete	No

Land cover ?

NSGIC Criteria	Status (Non-Existent=RED; Partially in Place=YELLOW; Completely in Place=GREEN)	Status Description
1. A full-time, paid coordinator position is designated and has the authority to implement the state's business and strategic plans.	Non-Existent	There is currently an acting director for the State GIS Office.
2. A clearly defined authority exists for statewide coordination of geospatial information technologies and data production.	Completely in Place	The GIAC has been recently been reestablished
3. The statewide coordination office has a formal relationship with the state's Chief Information Office (CIO).	Completely in Place	?
4. A champion (politician or executive decision-maker) is aware and involved in the process of geospatial coordination.	Partially in Place	?
5. Responsibilities for developing the National Spatial Data Infrastructure (NSDI) and a State Clearinghouse are assigned.	Completely in Place	<a href="http://kygeonet.ky.gov">http://kygeonet.ky.gov</a>
6. The ability exists to work and coordinate with local governments, academia, and the private sector.	Partially in Place	?

NSGIC Criteria	Status (Non-Existent=RED; Partially in Place=YELLOW; Completely in Place=GREEN)	Status Description
7. Sustainable funding sources exist to meet project needs.	Partially in Place	?
8. GIS Coordinators have the authority to enter into contracts and become capable of receiving and expending funds.	Partially in Place	?
9. The Federal government works through the statewide coordinating authority.	Completely in Place	?

*add phrases*

A wide range of public-facing, on-line geospatial information services exist in state and local government in Kentucky; examples of this are:

*If there is a wide range, you need more phrases*

- a. Kentucky Geography Network (<http://kygeonet.ky.gov>): the premier service for publication and sharing of geospatial data in the Commonwealth
- b. Two main services (KYVECTOR and KYRASTER) are made available to LAN users within state government.

A comprehensive listing of services, portals and data sources is given in *Appendix 11*.

### 3.3 Strengths and Weaknesses

*— you have to give some context before you go into a group of lists.*

a. Strengths:

- i. Community of engaged and dedicated professionals and practitioners.
- ii. ? Framework of agencies is available to provide support.
- iii. Fully capable infrastructure for data production, management, and distribution.
- iv. Community has numerous relationships established that can facilitate communication and collaboration.

b. Weaknesses:

- i. Limited budgets.
- ii. Uneven distribution of GIS professionals through the multiple stakeholder communities.
- iii. Recent administrative instability surrounding DGI, the GIAC and resulting lack of coordination; DGI funding is limited to a state-agency fee structure and external grants; DGI is operating with a limited full-time staff.

*are they really allowed?*

*I would love to collaborate & have people on grants out the door. Has severely*

- iv. Limited opportunities for continuing education, training and skills development. *For?*
- v. Bureaucracies business models, and procedures do not always facilitate cooperation. *I would say this is more the case.*

### 3.4 Opportunities and Threats

*Context?*

#### a. Opportunities:

- i. A brand new GIAC has been formed
- ii. KAMP is strong, with highly engaged and talented membership
- iii. The cost-savings that GIS allows with improved data management and access for facilities management, environmental monitoring, decision making, etc., could be leveraged to improve support for GIS services and activities during an otherwise-tight budget period. *Geospatial*

#### b. Threats:

- i. Recent poor communication and coordination while the GIAC was inactive has left community relationships fragile
- ii. Current economic situation suggests little potential for increased funding support for adding personnel, training, large-scale data-collection initiatives, etc.,

*Doesn't work in BAN*

## 4 VISION AND GOALS

### 4.1 Vision

Facilitate statewide geographic data sharing and its application for simplified decision making, greater efficiency, public protection, and economic vitality. Provide input to help determine what is required to successfully improve statewide GIS data coordination, and additional application integration of GIS data, throughout Kentucky. Develop a vision and recommendations for anticipated future data requirements. Improve the integration and communication in the geospatial community at all levels, among the full range of stakeholders. *geospatial* *geospatial*

### 4.2 Primary Goal: More Thorough Planning Process

In the next year, <sup>stipend</sup> have GIAC take the time to develop a comprehensive Mission Statement for statewide GIS, while engaging the broader <sup>geospatial</sup> GIS community as identified in this feedback and planning process.

The next step is to spend the following two years methodically developing a more comprehensive strategic plan properly, building upon the feedback and contacts generated through this current effort, and deliberately and deeply integrate the GIS community (public/private, producers/users) into the process. Conversations with all levels of the Kentucky geospatial community will foster understanding of the roles and goals of the major organizations and entities and will enable closer coordination and

*you should flowchart or grant chart section 4 to support the text.*

- iv. Limited opportunities for continuing education, training and skills development.
- v. Bureaucracies, business models, and procedures do not always facilitate cooperation.

### 3.4 Opportunities and Threats

#### a. Opportunities:

- i. A brand new GIAC has been formed
- ii. KAMP is strong, with highly engaged and talented membership
- iii. The cost-savings that GIS allows with improved data management and access for facilities management, environmental monitoring, decision making, etc could be leveraged to improve support for GIS services and activities during an otherwise-tight budget period.

#### b. Threats:

- i. Recent poor communication and coordination while the GIAC was inactive has left community relationships fragile
- ii. Current economic situation suggests little potential for increased funding support for adding personnel, training, large-scale data-collection initiatives, etc

## 4 VISION AND GOALS

### 4.1 Vision

Facilitate statewide geographic data sharing and its application for simplified decision making, greater efficiency, public protection, and economic vitality. Provide input to help determine what is required to successfully improve statewide GIS data coordination, and additional application integration of GIS data, throughout Kentucky. Develop a vision and recommendations for anticipated future data requirements. Improve the integration and communication in the geospatial community at all levels, among the full range of stakeholders.

### 4.2 Primary Goal: More Thorough Planning Process

In the next year, have GIAC take the time to develop a comprehensive Mission Statement for statewide GIS, while engaging the broader GIS community as identified in this feedback and planning process.

The next step is to spend the following two years methodically developing a more comprehensive strategic plan properly, building upon the feedback and contacts generated through this current effort, and deliberately and deeply integrate the GIS community (public/private, producers/users) into the process. Conversations with all levels of the Kentucky geospatial community will foster understanding of the roles and goals of the major organizations and entities and will enable closer coordination and

collaboration for future initiatives. This will facilitate efficient approaches to future problems and issues, and allow the Kentucky geospatial community to leverage its strengths in improving the state's geospatial data infrastructure.

### 4.3 Second-Tier Goals: Building Relationships

1. Improve state-level communication to and from the "front-line" local-level and private GIS practitioners, users, and producers across the state. Encourage a re-visioning of GIS decision-making in the state from a top-down mandate approach to a local-up data- and needs-sharing paradigm. Communication and coordination/leadership roles have been by far the most intense and common topic of discussion at the listening sessions. This issue can be addressed by a series of targeted listening sessions and conversations between the GIAC, DGI, and practitioners familiar with local and regional data needs, issues, and constraints.

Why a Second Tier goal item?

2. As one of several ways to further that goal, consideration should be given to reorganization of the GIAC to reflect the actual/functional distribution of GIS producers and users across the Commonwealth. The GIAC was originally legislatively mandated when most of Kentucky's GIS production and management occurred at the state level, but this function has shifted toward regional, local, and private entities now. Initially, this could be in the form of specific invited guest attendance at GIAC meetings for representatives of—as examples—KAMP, the CMRS Board, and MAPPs (representing the private aerial photography and photogrammetry industry). Ultimately, this could lead to updating the legislative formulation of the GIAC membership.

OR HAS IT INCREASED

I STILL THINK THE STATE CAN

+ SHOULD BE A MAJOR

LEADER HERE.

IT HAS TO DO WITH

ECONOMY OF SCALE +

QUALITY OF PRODUCTION

ACADEMIC INSTITUTIONS

3. Consider restructuring the business model for certain data themes/layers/topics to support local-level real-time updates for certain vector/point data and to distribute the costs of the updates to those who benefit from and participate in the on-the-ground changes that necessitate those updates. Data themes that could be considered for real-time updates include roads, land parcels, and structures/addresses. This will require focused conversations with traditional collectors of these data, and the entities that generate the associated changes (engineers, surveyors, etc.).

In what format?

4. Encourage more state-collected datasets (e.g. from active regulatory activities, related to specific projects) to be promptly and consistently provided online. This issue can be directly discussed by the GIAC and its member constituents, to solicit even more state agency contributions to the KYGEONET and state-operated data services.

THIS IS AN IDEAL USE OF MOBILE GIS APPLICATION WORK

### 4.4 Third-Tier Goals: Meeting Data Needs

Third-tier goals can be formulated around optimizing access, efficiency, and quality for data sets identified as key by the feedback process for this plan.

According to the online survey responses, roads and geocoded addresses are the most-used data theme. Land parcels and topographic/elevation data roughly tie for second place. Demographic information comes in a close third.

Classify in  
B2 or  
Secret.

## 5 REQUIREMENTS

### 5.1 Inventory of Existing Infrastructure and Suitability Assessment

The Commonwealth has a robust GIS data service infrastructure, which will continue to be maintained and updated on behalf of all stakeholders in the GIS Community:

- The Commonwealth's GIS server environment consists of three dedicated Database servers, three application servers, and one testing server. The Database servers have attached RAID Devices and two have access to DGI's SAN (Purchased with USGS Grant Funds). The database servers were recently upgraded (fall 2010) and are now in full production. *yes?*
- The GIS computing infrastructure is based on industry-standard software that is in compliance with all COT Enterprise Architecture Standards (EAS). DGI's databases are housed in Microsoft SQL Server, database and application servers run Windows Server. Web and Database development is carried out in MS Visual Studio .NET and Macromedia Dreamweaver, while leveraging Javascript, Java Server Pages, XML, Python, Perl, and other scripting tools/protocols as required.
- The Commonwealth's Geospatial data holdings are maintained on the aforementioned hardware and software infrastructure and all data is organized using industry standard ISO categories and are documented accordingly with FGDC based metadata. These data holdings are exposed via the KYGEONET and are harvested weekly the Geospatial One Stop.

Cycle of upgrades  
↓  
Continued  
on-going upgrades  
are important  
to address

### 5.2 Data Requirements

The Commonwealth's data resources are cataloged, maintained, and exposed using Esri's ArcGIS Server Geoportals Extension on the KYGEONET. Below is summary of the resources that support these services.

- The Kentucky Geography Network (KYGEONET) is the geospatial data clearinghouse for the Commonwealth and is used for data dissemination throughout Kentucky's GIS Community. (Note: -- this site currently sustains between 5.5 and 7.5 million server requests per month, serving up data to entities such as state agencies, private business, education institutions as well as others, who require such data to support their business processes.) (This service is harvested weekly by the Geospatial One Stop.) *Why is this important?*
- The data resources are hosted on infrastructure based on the industry-standard RDBMS (Microsoft SQL Server) & Esri's Spatial Database Engine (SDE) and ArcGIS Server. All software runs on Enterprise-class servers at the Commonwealth Computing Center thus leveraging COT infrastructure and resources.
- KyRaster - <sup>is</sup> a geodatabase that contains all the aerial images, topographic maps, digital elevation models, hillshade, landcover, percent slope and other critical raster GIS base layers. This critical resource is available to power internet mapping sites for the Commonwealth and for delivering GIS data to

*- WITH STATE GOVERNMENT?*

Desktop users across the WAN. This geodatabase contains many of the Commonwealth's authoritative thematic layers.

- KyVector <sup>is</sup> a robust geodatabase that contains vector-based (points, lines and polygons) GIS data throughout the state (DB contains over 260 thematic layers) KyVector is arranged by thematic feature-classes (categories) that contain GIS layers for particular "themes" of data. This critical resource is available to power Internet mapping sites for the Commonwealth. This geodatabase contains many of the Commonwealth's authoritative thematic layers.
- A wide variety of publishers (or custodians) feed the KYGEONET clearinghouse. These publishers come from all levels of government and actively make metadata updates as necessary. Each relies on a set of published metadata requirements that leverages the FGDC metadata template.
- Currently, the data sharing that feeds the KYGEONET is not supported by specific data sharing agreements.
- One specific enhancement to the Commonwealth's Data resources will be sought as a part of this plan by acquiring additional LiDAR and leaf-off orthoimagery data to cover the entire Commonwealth. A plan to fund and acquire this data will be developed in 2011.
- An authoritative address enabled road centerline database does not exist for the Commonwealth. As a result of this plan, DGI intends to create a plan to offer a geocoding service in 2011.
- The need for parcel data is expressed time and time again by many stakeholders. Obtaining access to this Revenue-held dataset could introduce a whole new level of efficiency and savings to those in the GIS Community.

*Common Projection?  
Re-projection  
from S44 DD TO 12  
could/should be done  
what about WGS84  
for use in GPS*

### 5.3 Technology Requirements

The Commonwealth has a robust base of technology including a secure data center at Cold Harbor in Frankfort, a redundant high speed network, and adequate server and storage to house the additional data that we propose to acquire in this plan. It is important that the infrastructure be refreshed periodically so as to take advantage of advances in technology, especially storage.

*What happens if something terrible happens AT Cold Harbor?*

### 5.4 Resource Requirements

It is important for DGI to employ at least one or two more high-end GIS staff persons.  
DGI Staff is currently at capacity and it is difficult to take on new initiatives without appropriate resources. An enhanced level of staffing is critical if DGI is to continue to provide the level of GIS Services so desperately needed by the Commonwealth's GIS Community.

*Current workload for DGI staff is at capacity. Therefore, it is difficult to take on*

### 5.5 Standards

The Commonwealth has fully embraced the FGDC standards related to metadata and utilizes ISO standards for data theme organization. This is necessary so as to be compliant with the Geospatial One Stop and in order to support the KYGEONET metadata services. *What is it? & why should we care?*

*Is this good/bad? Do we need multiple & why?*

Several published data layer standards exist in the Commonwealth as well as Kentucky specific coordinate system. These standards can be found on the KYGEONET.

All hardware and software utilized to support Kentucky's geospatial services are in compliance with the Commonwealth's Enterprise Architecture Standards (EAS).

### 5.6 Organizational Needs

The Commonwealth Chief Information Officer serves as the Chairperson of the GIAC. The composition of the GIAC was legislated several years ago and will be reviewed as part of the implementation of this Strategic Plan. It may be necessary to seek legislative changes if it is determined to be in the best interests of all of the stakeholders to change the makeup of the GIAC. *- Is this the best place to mention invited guests to make presentations?*

Currently there are many agencies within the Commonwealth that have active GIS departments and many others that rely on data hosted by DGI. In addition, many counties and larger municipalities have GIS departments. *K-12 community + Post Secondary*

#### 5.6.1 Executive Support

One of the main roles of the reconstituted GIAC will be to build upon the political support that GIS already enjoys within the Commonwealth. There is already widespread political support for GIS based on its extensive use within the Kentucky Transportation Cabinet (KYTC), Parks and Adventure Tourism, Homeland Security, and many other bodies. *on page 9. #4 indicates that this is partially in place. Seems like a mis match?*

Given the tight budget picture for the Commonwealth, the ability to reduce labor costs through increased use of GIS will be a major benefit to elected officials and policy makers at all levels of government.

The fact that the GIAC did not meet for several years will require some regaining of momentum, but the GIS community continued to grow during that period of inactivity. With the recently revitalized GIAC, even greater communication with policy makers will be possible.

#### 5.6.2 Coordination and Oversight Procedures

Currently the Commonwealth CIO chairs the GIAC. This gives the CIO de facto responsibility for leading the GIS community within the public sector. The current legislated composition of the GIAC, which is heavily weighted to state agencies, makes it difficult for the GIAC chair to lead nongovernmental GIS initiatives that involve utilities, private business, academia, and the general public.

One of the goals of this strategic plan will be to review the composition and role of the GIAC and recommend changes. As technology continues to evolve at an ever increasing rate, it may be necessary to increase the flexibility of the GIAC in terms of its composition. It may be desirable to have the Chair of the GIAC be a full time position, but that has yet to be determined.

DGI currently has one full time employee devoted primarily to outreach activities with an emphasis on local governments and academia. The limited DGI staff (3 FTEs) plus an acting Director, is a constraint on further outreach activities. In addition, the DGI director position has had substantial turnover in recent years, making it difficult to sustain a steady direction.

The GIAC is currently made up of Commonwealth Agency personnel and volunteers. The GIAC does not have a budget. DGI is funded through assessments to various state agencies, but provides services to a wide variety of customers for which it generates no revenue. DGI also performs a limited amount of paid project work. Finally, DGI has received a limited number of grants to fund certain specific activities, such as the development of this Strategic Plan.

In general, despite the constraints outlined above, overall cooperation among the various GIS stakeholders within the Commonwealth has been good. Most data has been shared and made available to all. There have been issues surrounding the access to parcel data, and those issues will be addressed as a part of the implementation of the Strategic Plan.

### 5.6.3 Policy

As referenced in 5.6.2 above, the details of the GIAC are defined in legislation. It may be necessary to request legislative changes in order to implement all aspects of this Strategic Plan. Any such proposed changes, if any, have yet to be determined.

### 5.6.4 Staffing

As referenced in 5.6.2 above, the GIAC is composed mostly of Commonwealth Agency personnel as the GIAC does not have a budget or source of funding. DGI is funded through Assessments, paid project work, and grants. DGI has a staff of 3 full time GIS professionals and an Acting Director who also has other duties.

The current staff is easily justified by the legislatively defined functions of DGI (see 3.1.b). As GIS technology has become more important to all stakeholders within the Commonwealth, the efforts required by DGI to support these stakeholders continue to increase. There has not been a commensurate increase in budget or staff, and this will need to be addressed in the next biannual budget of the Commonwealth in 2012-2013.

In addition to the existing staff, two additional resources are needed to support the servers, data and software. DGI also needs two developers to enable the development of custom applications, both fixed and mobile. DGI believes there is a solid business case to be made for these resources, which will be referenced in greater detail in the future business plan document.

*How many in  
How many years?  
A positive comment on the  
and professional & tireless efforts  
of the three persons staff & that more left since XXXX year  
would be appropriate at this point especially if it is in the  
Survey Data.*

*for what?*

### 5.6.5 Budget Requirements

The GIAC does not have a budget. How GIAC will be funded in the future will be determined as one of the outcomes of the implementation of this Strategic Plan. The fact that the GIAC has been unable to spend any money has been a severe constraint.

DGI does not have a budget, <sup>spell out</sup> as by Statute, budgets are defined at the Office level. DGI is a Division within OAD. Consequently, it consumes a portion of the OAD budget. It should also be noted that OAD is an Office within COT, and COT zero based budgeted. COT can only spend what revenue it generates through a combination of assessments, paid work, and grant monies.

*This means —*

DGI generates revenues through a separate GIS assessment that has remained flat since 2001. DGI also generates revenue from paid project work and grant monies. There will be a comprehensive review within COT of the DGI funding model, which may need to change to properly support its stakeholders going forward. This review will result in proposed funding modifications for the 2012-2013 Commonwealth biannual budgets.

### 5.6.6 Outreach and Community Development

Communication and Collaboration within the GIS community was definitely compromised for several years after the GIAC was disbanded. This, in conjunction with decreasing funding and personnel made it difficult for DGI and others to devote significant resources to outreach.

Entities such as the Kentucky Association of Mapping Professional (KAMP) have done a good job at outreach and have worked to maintain a sense of community. It is important that such groups work closely with the GIAC and DGI in the future so as to underscore the importance of the Commonwealth's geospatial activities.

In the absence of an active GIAC, DGI performed, and still performs, a number of outreach activities to the Kentucky GIS community. DGI has worked closely with the GIAC in conducting the listening sessions performed as part of this strategic plan development effort. DGI has one technical resource largely devoted to outreach activities.

*What is happening with the state GIS Conference?*

### 5.6.7 Assessing Risk

For Kentucky, like most states, the great recession has ~~taken an awful~~ <sup>future work</sup> toll on revenues and budgets. This represents the largest risk to ~~our~~ <sup>future work</sup> plans. If the economy continues to remain weak, DGI could be impacted and this would cascade down to its many stakeholders. The economy could also limit the GIAC in its ability to revitalize itself. Finally, a weak economy has the potential to negatively impact stakeholders at the county and local level, as well as academia and the private sector.

On a positive note however, GIS technology can help stakeholders reduce costs. By increasing productivity organizations at all levels may be more amenable to making GIS investments.

## 6 IMPLEMENTATION PROGRAM

### 6.1 Lessons-learned ???

### 6.2 Implementation of Sub Projects ???

### 6.3 Phasing and Milestones

The implementation of this program will have multiple phases. The first phase will be for the GIAC to refine this strategic plan. The second phase will be to build relationships among key stakeholders. The third phase will be to acquire data not currently available. The third phase will run in parallel to the first two phases.

*What about maintain  
& expand data ~~sets~~  
that  
we already ~~have~~ have?*

#### 6.3.1 Communicate and Refine the Plan

This Strategic Plan represents the first version of an ongoing effort to document the Strategic goals for the Commonwealth GIS Community. This plan now needs to be refined and enhanced with detail to make it more actionable.

Now that the GIAC has been revitalized, it can work to see that as many people as possible are aware of this plan. The GIAC will be in a position to solicit feedback from people and organizations to add detail where detail is needed. It is important that this plan get wide distribution. The GIAC will work with DGI, KAMP, and other groups to see that distribution is sufficient.

As feedback becomes available through the first half of 2011, the plan will be refined. This will lead to a proposal to develop a more detailed Business Plan in 2012. *Late 2011 for funding in 2012.*

#### 6.3.2 Building Relationships

In addition to soliciting feedback through listening sessions and surveys, consideration will be given reviewing the composition of the GIAC to determine if its current defined membership best meets the needs of the Commonwealth.

This debate will need to take place both within the GIAC and among the other GIS stakeholders within the Commonwealth. Since any change will require a political consensus, since the makeup of the GIAC is defined in statute, no date can be given as to when this can be accomplished.

*Invited presentations are also important  
and could help in the short term.*

#### 6.3.3 Meeting Data Needs

A need has been identified for better parcel data availability. Discussions will begin in early 2011 to determine what technical or organizational barriers exist to improve parcel data access. We expect to have recommendations by mid-2011.

*2011*  
In early January, DGI intends to begin work on a plan to acquire additional LiDAR Data for the Commonwealth. In December 2010, DGI intends to work on seeking

*ODD  
ordering  
of  
satellites.*

funding to develop that plan with the expectation that data can be acquired beginning in late 2011.

Also in early January 2011, DGI intends to develop a plan to offer a geocoding service to all state and local agencies and public organizations. The goal will be to implement this plan by the end of 2011.

#### **6.4 Budget Plan**

DGI will seek funding for the planning and acquisition of the LiDAR data for the Commonwealth. It is expected that many counties and local governments and agencies will be willing to contribute to this effort. DGI already has key technological components necessary to do geocoding. Funding will be sought for the planning and implementation of a geocoding service. This function will be implemented as a web service that should be affordable to all who need it.

#### **6.5 Marketing the Program**

Once the refined Strategic Plan has been created by the GIAC, additional listening sessions will be held around the Commonwealth to communicate, educate and inform the GIS Community. Feedback will be sought through the use of these listening sessions and an on-line survey. Presentations will also be scheduled with multiple GIS professional organizations within the Commonwealth. *state GIS conference?*

#### **6.6 Measuring Success and Recalibration**

Measuring the first two goals of the plan will be done through the listening sessions and surveys. We have a benchmark set of data from the listening sessions and surveys used to develop this plan. We should see improvement in the satisfaction level expressed by stakeholders as we refine the plan and continue implementation. Areas of dissatisfaction will be indicators that changes may need to be made in the plan or that timetables are inadequate.

The third goal regarding data acquisition is more straightforward, as we will be able to implement these plans or not. If they are implemented, we will use surveys to determine the level of satisfaction by users of the data.

## **APPENDIX 8: Geospatial Community-of-Practice in Kentucky**

### a. Government agencies:

#### i. Local:

1. City government
2. County government

#### ii. Regional

← Municipal utilities  
and water districts

nt Districts (ADDs)

#### iii. State:

##### 1. Executive Branch Cabinets and Individual Agencies:

- a. Kentucky Department of Library and Archives
- b. Department of Agriculture
- c. Department of Revenue - County PVA Mapping Projects
- d. Department of Fish & Wildlife Resources
- e. Department of Parks
- f. Division of Water 
- g. Division of Emergency Management
- h. Kentucky Transportation Cabinet
- i. Energy and Environment Cabinet
- j. Education and Workforce Development Cabinet:
  - i. KY Virtual Schools
- k. Cabinet of Health and Family Services

#### iv. Boards, Commissions, Councils, Offices, and Authorities:

1. Commercial Mobile Radio Service Board (CRMS)
2. Public Service Commission (PSC)
3. Kentucky Infrastructure Authority (KIA)
4. Office of the Secretary of State (SOS)
5. Legislative Research Commission (LRC)
6. Kentucky State Nature Preserves Commission (KSNPC)
7. Kentucky Heritage Council

#### v. Federal:

1. United States Department of Agriculture
  - a. Natural Resources Conservation Service
  - b. Forest Service
2. United States Geological Service

3. United States Army Corps of Engineers
4. United States Parks

b. Academia:



i. K-12:

1. School Districts
2. Kentucky Virtual Schools

ii. Higher Education

1. Kentucky Community and Technical College System

2. State Universities:

- a. University of Kentucky
- b. University of Louisville
- c. Northern Kentucky University
- d. Eastern Kentucky University
- e. Western Kentucky University
- f. Morehead State University
- g. Murray State University
- h. Kentucky State University

3. Private Universities

- a. Berea College
- b. Center College
- c. Georgetown College
- d. Bellarmine University

iii. Council on Postsecondary Education

iv. Kentucky Geological Survey

v. Institutes and Centers at Universities

c. Private Businesses: including private GIS Consultants and data-producers:

i. Photogrammetry and surveying:

1. PhotoScience
2. GRW
3. Woolpert
4. Surdex
5. Others

ii. GIS and Environmental

1. Stantec
2. Others

iii. Hydrology/geologic

1. Tetra Tech
2. Third Rock

vi. Utilities - gas distribution companies, investor-owned electric and water companies, member-owned water associations, and electric cooperatives

- 3. Others
- iv. Geospatial integration and application development:
  - 1. Others
  - y. Chambers of Commerce
- d. Non-profits and citizens groups:
  - i. Conservation and preservation:
    - 1. The Nature Conservancy
    - 2. The Bluegrass Conservancy
  - ii. Watershed/stream protection:
    - 1. Kentucky Waterways Alliance
  - iii. Recreational and out-of-doors
  - iv. Community development:
    - 1. MACED
  - v. Other user groups
- e. Security and homeland/hometown protection: 
  - i. Kentucky National Guard and Military Affairs
  - ii. State Police
- f. Professional organizations:
  - i. GIS and mapping professionals: KAMP
  - ii. Kentucky Association of Professional Surveyors
  - iii. Kentucky Society of Professional Engineers
  - iv. Kentucky Board of Registration for Professional Geologists
  - v. Kentucky Landscape Architecture Board
  - vi. American Planning Association
  - vii. Kentucky Association of Mitigation Managers