Current Work in Progress – Kentucky Division of Geographic Information

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KAMP Summer Quarterly Meeting
August 9th 2016

National Geospatial Technology Center of Excellence
(http://www.geotechcenter.org/)
– Jefferson Community and Technical College – SW Campus
Louisville KY
Outline

• **Agency Support** (*Examples*)
  – Finance and Administration
    • Kentucky Business One Stop (KYBOS)
  – Other Cabinets, Departments, Divisions
  – Geographic Information Advisory Council (GIAC)

• **Advisory role** (*Examples*)
  – Technical committees

• **Response and Support to Citizen Requests** (*Examples*)
  – Specific queries/inquiries (e.g. KY GeoPortal)

• **Programmatic** (*Examples*)
Geographic Information System (GIS)

The primary responsibilities of the Division of Geographic Information (DGI) are the maintenance of the Commonwealth’s enterprise Geographic Information Systems (GIS) services, on-going support of the Kentucky Geography Network, and oversight of the KYFromAbove Program. DGI collaborates with geospatial publishers to provide a wealth of GIS-related information, including downloadable data sets, web mapping services and map products. These valuable resources support education and training, research, decision support, and policy development for a multitude of organizations in Kentucky and across the United States.

Looking for GIS Data? Try the powerful search capabilities of the KYGeoportal to locate maps and geographic data content for a particular part of the state or search based on keyword or content type.

If you are not looking for GIS data, but want to explore some web maps please browse the currently highlighted content using KyGovMaps page or check out our guidance documents on how to connect directly to our ArcGIS Server services.

We encourage you to share ideas and information with Kentucky’s Geographic Information Systems (GIS) community through the KYGIS listserv.

Kentucky Division of Geographic Information

Contact Information

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VACANT

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WELCOME TO THE KENTUCKY GEOGRAPHY NETWORK

The KyGeoNet is the Geospatial Data Clearinghouse for the Commonwealth of Kentucky. A variety of datasets can be located and downloaded, static map products can be viewed, and many web mapping applications and services are easily accessible. Use the powerful search capabilities of the KyGeoPortal to find downloadable data, explore Kentucky using the web maps found on the KyGovMaps page or connect directly to our Web Mapping Services using ArcGIS for Desktop.

KyGeoPortal
Use the KyGeoportal to:
Download GIS Data

KyStoryMaps
Tour Kentucky with Interactive Story Maps

KyFromAbove
Ky's Aerial Photography & Elevation Data Program

KyGovMaps
Explore Kentucky with Web Maps and Apps

http://kygeonet.ky.gov
Agency Support (examples)

- Cabinet for Economic Development
  (http://www.thinkkentucky.com/selectkentucky/)

- Kentucky Department of Education – Public Schools
  (http://education.ky.gov/comm/Pages/2013-2014-Kentucky-Schools-Directory.aspx)

- Council on Postsecondary Education – Esri Site License
  (http://cpe.ky.gov/institutions/postsecondarylicense.htm)

- Office of the Secretary of State – Kentucky Land Office
  (http://www.sos.ky.gov/admin/land/Pages/default.aspx)
Motor Vehicle-Related Plants and Suppliers

Total number of motor vehicle-related facilities: 499
Total full-time employment as of 8/3/2016: 93,422*

Number of motor-vehicle plants and suppliers
- 1 - 2
- 3 - 7
- 8 - 15
- 16 - 76
- 77+

Assembly Plants

*The report shows total employment for each facility. Actual employment related to production of motor vehicle components, parts, or services may be less since some employees may be involved in production of products or services unrelated to motor vehicles.

Prepared by: KY Cabinet for Economic Development, Office of Research and Public Affairs
Published August 3, 2016
Kentucky operations with European ownership

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<th># of Companies</th>
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<tbody>
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<td>Denmark</td>
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<tr>
<td>Belgium</td>
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<td>United Kingdom</td>
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<tr>
<td>Denmark</td>
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<td>Italy</td>
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<tr>
<td>France</td>
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<td>Luxembourg</td>
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<td>Germany</td>
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<tr>
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<td>United Kingdom</td>
<td>1</td>
<td>Finland</td>
</tr>
</tbody>
</table>

300 W. Broadway • Frankfort, KY 40601 | (800) 626-2930 • ThinkKentucky.com
Folder: /

Current Version: 10.11

View Footprints In:  ArcGIS.com Map

Folders:

- System
- Utilities

Services:

- AutoPlants (MapServer)
- BusInd (MapServer)
- Cities (MapServer)
- Communities_Place (MapServer)
- Communities (MapServer)
- Counties (MapServer)
- EB5_2014_Kentucky (MapServer)
- EDIS (MapServer)
- Kentucky_Demographics (MapServer)
- KY_TIF_Zones (MapServer)
- SitesBuildings (MapServer)

Supported Interfaces:  REST  SOAP  Sitemap  Geo Sitemap
A Geospatial Approach to Selling Kentucky
Cabinet for Economic Development

- Primary state agency responsible for creating new jobs and new investment in the state.
- CED needed a state-of-the-art site and building search website that gave Kentucky a competitive advantage over other states in attracting businesses.
What we actually sell

- Sites
- Buildings
- Existing Industry
- Communities

Kentucky - UNBRIDLED SPIRIT
Contact information

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Agency Support (examples)

- Cabinet for Economic Development (http://www.thinkkentucky.com/selectkentucky/)

- Kentucky Department of Education – Public Schools (http://education.ky.gov/comm/Pages/2013-2014-Kentucky-Schools-Directory.aspx)

- Council on Postsecondary Education – Esri Site License (http://cpe.ky.gov/institutions/postsecondarylicense.htm)

- Office of the Secretary of State – Kentucky Land Office (http://www.sos.ky.gov/admin/land/Pages/default.aspx)
Questions?
Scott Stepro
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Moving the Line!

State Boundary Update

Kentucky Geographic Information Advisory Council

September 8, 2015

• Prior to 1980 the Ohio River boundary was highly disputed among Kentucky, Ohio and Indiana
• Before that time Kentucky claimed all of the river
• The United States Supreme Court ruled in January 1980 that the boundary should be the low-water mark on the Ohio and Indiana shore when Kentucky became a state in 1792
• The agreed upon boundary was based on two surveys conducted by the Corps of Engineers from 1896 to 1914 to help establish the 1792 low-water mark
Ohio River Boundary
Let’s Take a Closer Look
Let’s Take a Closer Look
Overall Addition & Loss

- Acres Gained after change = 855 Acres
- Acres Lost after change = 2,046 Acres
- Total Loss of 1,191 Acres
### Geographic Coordinate System

<table>
<thead>
<tr>
<th>MAKE</th>
<th>SURVEY</th>
<th>HDG.</th>
<th>L. DIST.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky</td>
<td>South Zone</td>
<td></td>
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</tr>
<tr>
<td>Illinois</td>
<td>West Zone</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### USGS Quadrangle Name

- Wabash Island, IL, KY

#### Source Data

Source data was difficult to work with and lengthy (148 pages).
Impacted Layers – KY Vector and KY GeoPortal

- Kentucky Boundary Lines and Polygons
- County Boundary Lines and Polygons
- Incorporated City Boundary Lines and Polygons
- Kentucky Masks
- ADD Districts
- Kentucky House and Senate, Congressional Districts
- ARC Counties
- School Districts
- SOAR Counties
- Time Zone Polygons
- ???
Record Level Metadata

• Agency Contact
• Contact Person
• Date of Last Update
• XY Source
• XY Issues
• Comments
Questions?

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http://kygeonet.ky.gov/
Advisory/Outreach Role (examples)

• Kentucky Geographic Names Committee
  (http://www.kga.org/kentucky-geographic-names-committee.html)

>>>>> U.S. Board of Geographic Names + GNIS <<<<<

• National States Geographic Information Council (NSGISC)
  – Geospatial Preparedness Committee
    • Continuum of Natural Disasters Project:
      https://www.nsgic.org/natural-disasters
Disaster Events 1980 - 2014
Greater Than $1 Billion Impact

Key to Column P
1. HIFLD Open Data - https://hifld-dhs-glo.opendata.arcgis.com/
2. NOAA Digital Coast - https://coast.noaa.gov/digitalcoast/
3. NOAA nowCoast - http://nowcoast.noaa.gov/

A "P" will follow the source if it provides partial but significant coverage.
Programmatic (examples)

• LiDAR and Aerial Photography
  (http://kygeonet.ky.gov/kyfromabov/)

• Land Cover (MRLA data for KY)
Kentucky from Above!

The Kentucky Aerial Photography & Elevation Data Program (KYAPED)

KAMP Quarterly Meeting
August 9th, 2015
What is KY From Above?

A Program that . . .

- Acquires current leaf-off color aerial photography for the entire Commonwealth
- Acquires current elevation data for the entire Commonwealth
- Partners with entities at all levels of government (economies of scale)
- Distributes data to state agencies and in the public domain
- Utilizes Kentucky-based firms for acquisition and control work
KY From Above Program Status

- 2012 – “Golden Triangle”
- 2013 – “Purchase”
- 2014 – “Western Kentucky”
- 2015 – “Central Kentucky”
- 2016 – “South Central Kentucky”

Data is available for download or via service for all acquisition periods through 2016. Data acquired in 2016 should be available before the end of the calendar year.
Elevation Data Status

Kentucky From Above

Elevation Data by Year Collected

- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016

[Map of Kentucky showing elevation data status by year collected]
Elevation Data Status

Kentucky From Above
Elevation Data by Agency

- DOW - FEMA
- DOW - KYTC
- DOW - NRCS
- KYAPED
- KYTC
- LOJIC
- NRCS
2017 LiDAR Acquisition Plan

- State Flood Control Matching Grant Program
- KYTC/DOW
- Existing Elevation Data
Aerial Photography Status

Kentucky From Above
Aerial Photography Status Map

- 2014 Local Aerial Photography 6" buy-up
- 2014 Acquisition area
- 2013 Local Aerial Photography 6" buy-up
- 2013 Acquisition area
- 2012 Acquisition area
Website

http://kygeonet.ky.gov/kyfromabove/
ArcGIS REST Services Directory

Home > services > ElevationServices

JSON | SOAP

Folder: ElevationServices

Current Version: 10.11

View Footprints In:  ArcGIS.com Map

Services:

- ElevationServices/Ky_DEM_KYAPED_5FT_Hillshade (ImageServer)
- ElevationServices/Ky_DEM_KYAPED_5FT_PercentSlope (ImageServer)
- ElevationServices/Ky_DEM_KYAPED_5FT_ShadedRelief (ImageServer)
- ElevationServices/Ky_DEM_KYAPED_5FT (ImageServer)
- ElevationServices/Ky_DEM_LOJIC_2009_5FT (ImageServer)
- ElevationServices/Ky_DEM_USGS_10M (ImageServer)
- ElevationServices/Ky_Hillshade_10M (ImageServer)
- ElevationServices/Ky_ShadedRelief_USGS_10M (ImageServer)
- ElevationServices/Ky_Slope_USGS_10M (ImageServer)

Supported Interfaces:  REST  SOAP  Sitemap  Geo Sitemap

http://kyraster.ky.gov/arcgis/rest/services/ElevationServices
Questions?

Kent Anness

Division of Geographic Information (DGI)

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Website: http://kygeonet.ky.gov/kyfromabove/
KYAPED Spin-Offs

• Tips and Tricks for Tools and Services
• Provisioning of point clouds
• QA/QC to 3DEP
ElevationServices/Ky_DEM_KYAPED_5FT_ShadedRelief (ImageServer)

View In:  ArcGIS JavaScript  ArcGIS.com Map  Google Earth  ArcMap

View Footprint In:  ArcGIS.com Map

Service Description: This Dynamic Image Service provides access to a 5 Foot Digital Elevation Model (DEM) with a Shaded Relief function applied! service as it becomes available through the KYAPED Program.

Name: ElevationServices/Ky_DEM_KYAPED_5FT_ShadedRelief

Description: This Dynamic Image Service provides access to a 5 Foot Digital Elevation Model (DEM) with a Shaded Relief function applied for select it becomes available through the KYAPED Program.

Single Fused Map Cache: false

Extent:

XMin: 3798940
YMin: 3356425
XMax: 6019070
YMax: 4308265
Spatial Reference: 102763 (3089)

Initial Extent:

XMin: 3798940
YMin: 3356425
XMax: 6019070
YMax: 4308265
Spatial Reference: 102763 (3089)

Full Extent:

XMin: 3798940
YMin: 3356425
XMax: 6019070
YMax: 4308265
Spatial Reference: 102763 (3089)

Pixel Size X: 5.0

http://kyraster.ky.gov/arcgis/rest/services/ElevationServices/Ky_DEM_KYAPED_5FT_ShadedRelief/ImageServer
“How To?”
- questions on using our services -
KYAPED Spin-Offs

- Tips and Tricks for Tools and Services
- Provisioning of point clouds
- QA/QC to 3DEP
Imagery and LiDAR Index

Questions?
Scott Stepro
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DGI LAS Toolbar

Version 1.0

(Release Date: Nov.11, 2015)

Kentucky Division of Geographic Information

http://gis.ky.gov

The DGI LAS Toolbar is a toolset used for selecting and decompressed (LAZ) files. The Select and Copy tool that decompresses the LAZ files and copies the decompressed files to a directory of the user's choice.

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Tile Selection Tool
(under development)
Questions?
Bob Jenkins
Robert.Jenkins@ky.gov
KYAPED Spin-Offs

• Tips and Tricks for Tools and Services
  Provisioning of point clouds
• QA/QC to 3DEP
KYAPED
LiDAR Quality Level Assessment
(83 Counties)

Quality Level (QL) and Nominal Point Spacing

- QL 1 (<=0.35 meters)
- 10% over QL 1 (>0.35 meters - <=0.39 meters)
- QL 2 (>0.39 - <=0.71 meters)
- 10% over QL2 (>0.71 m - <=0.78 meters)
- QL3 (>0.78 meters)
- Partial or Residual Coverage
- No Coverage
KY Continues to be Added to the U.S. Point Cloud Family!

https://earthexplorer.usgs.gov/
Thank You!

Questions?

Contact Information for this Presentation:

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