Commonwealth Office of Technology
Geospatial Strategic Plan

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Introduction

This Strategic Plan was drafted by DGI Staff with input from the Kentucky GIS Community and its many stakeholders. It embodies the known needs of many state agencies, but also pays special attention to local, regional, and the federal government, as well as, Kentucky's citizenry and the private sector. In order for this plan to be effective, it must be reviewed and revised accordingly on a regular basis.

Mission

Facilitate statewide electronic geographic data sharing and its application for streamlined decision-making, greater efficiency, public protection, emergency response, and economic vitality.

Vision

Expand the use of Geographic Information technology throughout State & Local Government Agencies and the citizenry of the Commonwealth while simultaneously making available selected data to other entities that can benefit from its utility.

Goal 1: Implement GIS Technology with an Enterprise Approach

Background: Years ago, the implementation of GIS in State Government was carried out through use of massive amounts of file-based GIS data. In years past, if an agency used GIS, it needed significant on-site storage which was usually dedicated to a disproportionately small number of users. During early 2005 a consolidation of all agency-level enterprise-class GIS datasets for Kentucky was initiated. This consolidation effort moved the vast majority of geospatial data resources to the infrastructure at the Commonwealth Computing Center. The creation of new layers by agencies is ongoing thus the effort to document and consolidate geospatial resources is still in process nearly two decades later. Substantial savings have been realized through this efficient, enterprise-level approach. Below are the objectives aimed at improving the currently available enterprise GIS services managed by COT.

1.1   Expand GIS Data Sharing Capabilities

- Continue to maintain the Kentucky Geography Network (KyGeoNet) and all components of the Commonwealth's geospatial data clearinghouse as a means of disseminating data to both internal and external stakeholders in Kentucky's GIS Community.

- Continue to build infrastructure based on the industry-standard RDBMS (Microsoft SQL Server) & ESRI's Spatial Database Engine (SDE). Run this software base on Enterprise-class servers at the Commonwealth Computing Center thus leveraging its robust infrastructure and resources.

- Maintain KyRaster – KyRaster consists of many terabytes of geospatial raster data (imagery) including all aerial photography, topographic maps, digital elevation models, hillshade, shaded relief, land cover, and other critical raster GIS base layers. Esri's ArcGIS Image Server technology is used to manage and serve the aforementioned service. Ensure this critical resource is available to power internet mapping sites for the Commonwealth and for delivering GIS data to GIS Desktops across the WAN and on the web. (Note: KyRaster is key to delivering raster data to GIS Desktop users across the WAN.)

- Maintain KyVector – KyVector is a robust geodatabase that contains vector-based (points, lines and polygons) GIS data throughout the state (DB contains over 300 thematic layers) Ensure that agencies who are stewards of these datasets maintain accuracy and currency. KyVector is arranged by thematic feature-datasets (categories) that contain layers within particular "themes" of data. Ensure these feature-datasets mirror the browse categories on the KyGeoNet accordingly. Ensure this critical service is available to power internet mapping sites for the Commonwealth. Continue quarterly archives of KyVector with KDLA. (Note: KyVector is key to delivering vector data to GIS Desktop users across the WAN.)

- Expose additional map and image services via the KyGovMaps Open Data Portal implementation in order to facilitate access to and re-use of public sector mapping information.

- Maintain a single Portal for ArcGIS (ArcGIS Enterprise) instance at the enterprise level so that agencies have a map-centric content management system to support their internal business processes.

1.2   Provide Direct Service to State Agencies

- Continue to host Geospatial Data for WAN-based access using the aforementioned infrastructure (KyRaster and KyVector)

- Continue to host Web Mapping and Image Services for State Agencies and other stakeholders.

- Continue to provide direct consultation to requesting agencies, i.e., technical advice, technical intervention, workflow analysis, etc.

- Facilitate the timely dissemination of geospatial data updates. This will ensure that decision-makers across State Government have access to the latest geospatial information when they need it.

- Provide guidance and suggest best practices to the Commonwealth's UAS workgroup as they begin to capture imagery and elevation data for small footprint across the state. Ensure that data is stored in an organized manner and that it can be accessed easily by the appropriate stakeholders.

- Leverage the Box storage platform for data dissemination rather than traditional on-premise FTP services.

1.3   Monitor State Agency ESRI Licensing

- Review agency-level purchasing and maintenance renewals submitted through COT to ensure licenses are not underutilized and that new purchases are not duplicative.

- Continue maintenance of the ESRI Master Purchase Agreement (MPA) for the Executive Branch.

Goal 2: Offer GIS Technology as a Utility

Background: Implementation of GIS using an Enterprise approach is key to offering geospatial technologies as a utility within State Government. Providing agencies with the ability to remotely access GIS base and thematic resources across the WAN effectively addresses the problem of data redundancy and duplicative spending. This frees up significant amounts of storage resources at the agency level and addresses any remaining standardization and duplication issues.

2.1   Secure Appropriate Computing & Funding Resources for User Demands

- Maintain and continue to optimize network performance through the divided load configuration which separates traffic between Internet and Intranet (WAN-based) usage.

- Continue to manage spatial resources and user accounts in a manner that reduces contention on spatial databases and web mapping services.

- Continue to advocate for funding of the Commonwealth's Capital Projects that focus on the KyFromAbove Ortho-Imagery and LiDAR updates across Kentucky. Explore options for funding annual updates to Kentucky's Ortho-Imagery resources and updates to the statewide LiDAR dataset (work with Cabinet Secretaries and Legislators).

2.2   Reduce Geospatial Data Redundancy throughout the Commonwealth

- Continue to maintain KyRaster and KyVector, and mirror/replicate the resources in appropriate physical locations to provide fail-over capacity, thus ensuring service continuity during disaster/failure situations.

- Work with state agencies to discover, document, and maintain geospatial data layers that still reside in a file-based format at the agency level.

2.3 Promote use of the Statewide Enterprise Geocoding & Routing Services

- Maintain licensing of Esri's Street Map Premium enterprise geocoding server in order to provide enterprise-level geocoding and routing services to state government agencies.

- Encourage the use of the enterprise geocoding service so state agencies can input batches of address data from their database(s) and return a latitude/longitude location for these addresses (i.e., put a point on the map).

- Encourage the use of the enterprise routing service so agencies can determine the most efficient routes for inspectors, field-staff, and other state-related business processes.

2.4 Improve Support for GIS Users in the Commonwealth

- Continue to make more data available by attracting more KyGeoNet publishers and working with agencies to "package" their thematic datasets for use by other agencies – KyGeoNet currently has over 600 published items by over 20 responsible publishers.

- Provide direction and support for the Geographic Information Advisory Council (GIAC) and leverage other GIS User's Groups and forums to ensure alignment with internal and external stakeholders in the GIS Community.

Goal 3: Implement GIS in Accordance with KITS

Background: For many years the Kentucky Information Technology Standards (KITS) for GIS Software in the Commonwealth has been the ESRI suite of GIS packages that are available from the Esri Master Purchase Agreement (MPA). The current KITS report can be found at https://cgp.ky.gov/sites/COTPUBDOCS/Standards/KITS_Report.pdf (items # 2800 and 2810). As indicated, this standard exists for both the GIS Desktop and GIS Server environments. Additionally, DGI provides its web mapping services to the public via an OGC Compliant WMS/WMTS format.

3.1 Adhere to Enterprise Architecture Standards (EAS)

- Adherence to KITS will ensure a standard software environment that leverages data in an interoperable fashion.

3.2 Assist Agencies with GIS Implementation

- Assist agencies with the implementation of GIS – through this process DGI can ensure adherence to KITS and reduce waste that would occur through duplicative data acquisition and/or storage.

- Continue to advocate and partner with other Divisions as well as Agency Developers at the beginning stages of application and database development to determine if there is a "spatial" component within the business process being automated that could benefit from DGI assistance.

- Foster best management practices to ensure reliable data is acquired, documented (metadata) and maintained (data integrity).

Goal 4: Participate in the Legislative Process

Background: Develop a relationship and provide assistance to Legislators in decision-making throughout each Session by applying GIS technologies where applicable. This creates an opportunity to work with the Legislative Branch regarding the application and power of GIS within state government, thus making a strong case for funding base mapping, as well as other needs throughout the GIS Community.

4.1 Establish a Relationship with the Legislature

- Prepare personalized maps for every Legislator each session that highlights their district and provides insight into how GIS is being used within the Commonwealth.

- Partner with KIA and other such entities that are key to legislative funding to ensure they have all the resources necessary to provide the richest decision-making information possible from a geospatial perspective. Exploit the fact that GIS drives the water and sewer infrastructure, transportation, and agency funding process and that the same sort of methodology could be applied to other areas of interest/funding considered by Legislators.

4.2 Draft, Monitor, and Support Legislation that Impacts the Geospatial Community

- Continue to monitor bills that could affect the implementation of GIS in Kentucky.

- Drive a collaborative effort of GIS-using agencies to show that GIS needs consistent budgetary funding in order to ensure consistent and timely updates of critical KyFromAbove ortho imagery and LiDAR as well as other data resources for the entire state.

- Manage the legislation (KRS 42.744) that requires all imagery obtained by any public entity in the Commonwealth to become property of the Commonwealth which will be held in a master repository for exclusive use by designated agencies, such as the Kentucky Office of Homeland Security (KOHS) and the National Guard.

- Continue to look for opportunities to implement the digital submission of infrastructure plans, voting precincts, city boundary annexations, and other plans and jurisdictional designations that can be spatially positioned so as to improve the efficiency of the review process, cut the costs of field-based data collection, and to negate the need for re-inputting data that was originally created in a digital format.

- Provide regulatory standards to help insure submittal of accurate and reliable geospatial data to the various regulatory agencies, data repositories, and archives.

Goal 5: Heighten Awareness of GIS Services & Capabilities

Background: Because DGI is now in the mode of delivering services, it is crucial that the awareness of the services that are offered is heightened. Strategies that improve the visibility and marketing of GIS will be a key part to the ongoing success of DGI.

5.1 Enhance Marketing of GIS Services

- Work with agency leadership, and their public information officers, in publicizing all noteworthy news regarding the successful application of GIS Technology in Kentucky.

- Provide GIS-related trade publications with noteworthy press releases regarding the successful application of GIS Technology in Kentucky.

- Create StoryMaps and Spatial Dashboards that showcase the Commonwealth's GIS resources as a way of exposing geospatial data resources to high-level decision makers and citizens.

- Use social media services in accordance with COT's CIO-061 – Social Media Policy to inform and educate the GIS community, and the public, about Kentucky's GIS services, products, and news.

5.2 Kentucky GIS Conference

- Participate in and provide reasonable support to KAMP during the annual Kentucky GIS Conference.