HAMPTON VA

Appendix 1.

GIS Strategic Plan

Background

There is a present need for a definitive guideline for departments and city staff to follow when incorporating GIS solutions within the organization.

Executive Summary

The GIS Strategic Plan is intended to set the course for elevating GIS to the enterprise level. Currently, GIS maintains a central GIS database, participates in a variety of special projects and initiatives, as well as produces hard copy map and digital data products. GIS is currently decentralized, with employees outside GIS that are able to access geographic data via a web interface and 12 employees that are able to generate maps and reports from the GIS database; storm water, sanitary, and traffic.

In the coming year, GIS will be focused on building a solid foundation from which to develop an enterprise GIS. GIS will be engaging other departments to identify and prioritize their needs. This plan is one of the first concrete steps toward elevating GIS to the enterprise level ensuring the City leverages the value of its GIS investment to its fullest potential.

This Strategic Plan is one step in building the foundation for an enterprise GIS that will allow members of every City department to access GIS data and tools. An enterprise GIS will allow departments to share data sets, rather than replicate them and will assist department staff in managing resources, assets and the environment and in serving citizens effectively and efficiently.

What Is GIS?

Geographic Information System (GIS) is a tool for linking and displaying graphical (spatial) data with tabular data. This combination allows for the creation of products and services that would be difficult, if not impossible to produce by other means. GIS allows for the management and analysis of large sets of information. In some instances, it is easier to interpret data when it is aggregated or displayed geographically. One feature of a GIS is the ability to take relational data containing the appropriate references or links (such as an address or parcel number) and represent it in a geographic context. GIS is increasingly important to support decision-making. The development and use of a GIS can be complex and expensive. To effectively overcome these, an organization must be committed to its GIS for the life of the system.

What does an Enterprise GIS mean?

The purpose for this section is to present recommendations that allow the City to continue to develop its GIS program in a way that is consistent with department priorities, and guides the continued development and evolution of the City's GIS environment.

Enterprise or City-wide GIS in the context of this document implies the following:

- Executive level involvement and support for GIS technology. Includes identifying GIS as an agent for achieving objectives in Focus Area Strategy Plans, Business Plans, and budgetary support for Enterprise GIS initiatives and department-specific GIS priorities.
- Direct connection between GIS and the City's strategic objectives (Focus Area Strategy Plans).
- A corporate-level focus, driven by consensus, for guiding the direction of GIS investments (demonstrated by the adoption of the GIS Strategic Plan).
- GIS coordination between City departments and other governmental agencies
- Effectiveness improvements and cost avoidance realized by shared applications, hardware, software, personnel resources, and data.
- Applied use of GIS technology to improve business processes that span across the organization.
- Communication and education among users.

References to "Enterprise" therefore speak to all City departments, encompassing their interests collectively versus individually.

GIS and Hampton – Current Role

The City of Hampton employees manage large and disparate data sets, many of which contain a spatial component, such as an address or location. GIS provides data management tools that utilize the geographic data to create meaningful information. From that information, creative solutions may be derived, making the best use of limited staff and financial resources. From those proposed solutions, City Managers can make confident, data-driven decisions.

Mission Statement

The GIS Office manages the overall infrastructure of the City's Geographic Information System (GIS). Its primary purpose is to provide GIS technology access and technical support to all employees who use this tool to perform their work more efficiently. The GIS Office will leverage Hampton's existing data, infrastructure and expertise to implement the core elements of the enterprise GIS solution.

To achieve the goal of an Enterprise GIS for Hampton, the GIS Office will promote these core values:

Facilitating communication between the City, its employees, and the community that is open, honest, proactive and interactive in nature.

Providing reliable, timely, innovative, and cost-effective GIS solutions to the City organization so that the needs of both internal and external customers are successfully met.

Providing leadership, direction, and support in the organization-wide planning and coordination of GIS services.

Vision Statement

It is the vision of the GIS Office that the enterprise GIS Solution will continue to grow in value to the City and its various departments which in turn increases the level of service and cost effectiveness to the citizens of Hampton. The GIS Office will continue to develop through increased and improved functionality and by expanded and improved data sets.

Organizational Use

This Strategic Plan identifies five main organizational GIS uses. These uses contain current applications, future applications, and goals in implementing an enterprise GIS.

1. Managing the Data Infrastructure
2. Continuing Partnership with ESRI technologies
3. Third Party Software Administration
4. Serving the Organization
5. GIS Serving the Public

Section 1: Managing the Data Infrastructure

The GIS Office supports many levels of the organization, from being the GIS entity during emergency operations activation, to supporting the enterprise with hard copy maps and analysis. The GIS Office serves as the keeper of GIS data within the City. This entails a refined process of creating, editing, and updating geographic and tabular data. Included in this responsibility are maintaining strict data standards, so that the enterprise can benefit from reliable data. Though many of the cities layers remain stagnant, several of the more dominant layers are parcel boundaries, street centerline, zoning boundaries, and addresses. The GIS Office is the cornerstone of address and street data for the 911, 311, and LDS Offices. A seamless integration with the GBA Infrastructure Management system provides Public Works Operations users with extended functionality. In striving to be an enterprise solution, all data is stored in a SDE geographic database. This provides the enterprise with the uniqueness of integration with geographic data. More recently, we have stepped into the 3D realm, by creating scaled models of strategic areas in the city; we can aide in the development and marketing process.

Future Statement

While constantly seeking to improve and add datasets to the GIS database, improving integration with all city offices will remain a constant for years to come. Careful analysis and planning will ensure useful outcomes for the enterprise use.

Goals

- Develop an addressing ordinance to better manage the existing addressing process
- Database integrations with 311, Revenue, Treasurer, Business, Planning, Assessor, and Economic Development Offices
- Continue with 3D initiative, as well as exploring newer 3D technologies potential use
- Ensuring all possible spatial data is included in the GIS framework

Making access to the data infrastructure possible for everyone

Section 2: Continuing Partnership with ESRI technology

The Hampton GIS Office prides itself on being an ESRI house. ESRI serves as the foundation of GIS software in the United States. Being one of the first localities in the state to leverage ArcGIS Server technology, the GIS Office remains on the forefront of future ESRI technology. In addition, by being an ESRI house, we are assured of a seamless GIS software framework. The projected yearly maintenance of current software is $24,000. Current licensing is as follows:

- ArcGIS Server (Includes Web Framework, ArcIMS, and ArcSDE)
    - ArcSDE: Spatial database housing the cities data and utilizes sql2000 (need the correct SQL #) technology, inline with most City databases.
    - ArcGIS Server: Provides the framework for all web applications and works with .NET technology.
- ArcINFO (4): All GIS creation, editing, management and analysis tools ArcView (3 and counting): Core GIS analysis tools. (need to confirm the count and reword this info)
- ArcReader (Free): Allows users to query and view current data maps made with ArcINFO.

Future Statement: Developing a plan that identifies GIS stakeholders within the organization then, achieving better management by transferring all current GIS software licenses in the city to a central account. Any licenses in the future would be purchased through the GIS office solely.

Goals:

- Identify all GIS stakeholders within the enterprise.
- Effectively communicate and document GIS software solutions and options to the enterprise

Become the sole manager and facilitate all purchases of GIS software within the organization

Section 3: Third Party Software Administration

The GIS office is currently the administrators of 3 Enterprise technologies that complement the existing GIS infrastructure.

- Pictometry is unique software that captures oblique imagery form various distances and degrees. The overall purpose being to have an overhead, north, south, east, and west view of any property in the City. After a beta period, we will release the web interface for public consumption. A two year contract was signed in September of 2008, with a biannual budget of $85,000.
- Laserfiche technology makes scanned images available through a searchable interface. The scanned images available contain site, development, road, and utility plans, as well as subdivision plats.

Google Earth provides users with access to address, business, and location searching by utilizing national databases. This free, lightweight software provides an easy to use interface. By exposing the existing on-line help documentation and national datasets, then adding Hampton's discrete geographic data, we provide users of the software reliable data at no cost.

Future Statement

Integration of these applications into the city's existing GIS framework will prove beneficial to the enterprise. By utilizing a web interface for Pictometry, we are in a better position for the future. The company is switching from a desktop model to a web model in the near future; also a planned integration with ESRI technology is forthcoming. By adding Laserfiche and making scanned documents available via web interface to the intranet user, we can better serve users needing access to these documents. Utilizing Google Earth technology has already proven beneficial, staying the current course of frequent updates and added functionality will show continued success.

Goals:

Provide Pictometry to the organization in an easy to use web interface.

Bring Laserfiche to the organization through integration with existing GIS website.

Continue to support Google Earth by staying current with technology, adding additional layers.

Section 4: Serving the Organization

As previously stated, the GIS Office serves an enterprise wide need for geographic information. Supporting a variety of departmental needs and adding the GIS element to many special projects and initiatives. Different departments have different needs and the following is a sample of uses across the enterprise:

- Emergency Management: When the EOC office is activated the GIS office is part of the EOC staff. Providing hourly maps of 911 and 311 data to all EOC managers and staff gives the ability to see the overall picture as it happens. Remaining in contact the state EOC GIS representative provides information exchange and keeps us up-to-date and informed during an emergency. During the aftermath, collecting data and providing maps and analysis aides in the disaster management process.

Traffic Division: Recently, we have served a direct GIS need in the Traffic Division of Public Works. The office was in need of live infrastructure data and maps of the cities traffic network and basemap features. Since we already had database integration with the Public Works infrastructure, we only needed to set up a standard map for their use. Using ArcReader, they are now viewing, searching, and printing maps daily basis.

By offering the organization different levels of software options, we ensure the technology will be used efficiently. Our refined workflow allows us a very quick turn-around time on special projects.

Future Statement

As keeper of the data and the technology lead, we must analyze all GIS projects and initiation, therefore appropriating the proper resources when aiding all departments. In addition, increasing the GIS profile to the organization will prove added worth to the organization.

Goals:

o Raising the GIS profile to the enterprise level, will increase all aspects of GIS use with the city

o Adding GIS to the IT project management phase, we can expect increased GIS awareness and properly serve the enterprise as needed

Improve overall communication of GIS technologies to the organization.

Section 5: GIS Serving the Public

Traditionally, the public has been served GIS in two forms. First, the GIS website enables access to geographic data in a searchable viewer. Secondly, the customer service aspect directly serves requests in person, by email, and through digital or printed PDF maps. Recent efforts have proved successful, even without promotion. Citizens have searched the web and discovered maps and searchable sites as evidenced by tracked website traffic. At the beginning of February 2007, we added 20 pre-made 8 x 11 pdf's for download on the city website. In one month's time the main page for these maps was accessed by over 600 unique individuals. Overall worth to the public is priceless.

Future Statement

Increasing the GIS profile with the public will add a valuable resource in public communication. At the same time, striving to promote strategic areas, and aiding in the development of Hampton's future.

Goals:

Printable maps prove to be a valuable asset to the public, by creating and utilizing the existing standardized mapping we can always be prepared for most public requests.

Creating an on-line data/ map request system can further streamline this process.

The Ideal Enterprise GIS

In order for GIS to progress to the point that it can efficiently and effectively serve the needs of the City, GIS must transition from its reliance on hard-copy map production to designing, implementing and supporting an enterprise GIS data model. This direction raises questions about how different departments should access GIS data and how they can link the data that they currently manage to GIS data. In addition, department members may wonder how much GIS knowledge they will require in order to interact with GIS data. This Strategic Plan addresses those concerns, including ways that GIS will support departments with training and technical support along the way.

The progression to a more centralized model does **not** mean or require that every department needs to hire a GIS expert. What it does mean is that GIS will be focused on migrating data to a model that is easier to access for City employees and, soon, citizens too. As GIS stays current with the newest GIS software version and implements an Intranet GIS application, City employees will be able to serve many of their own GIS needs without expert knowledge of GIS. One goal of GIS is to develop applications that are easy-to-use for non-GIS professionals. GIS will assist departments in improving GIS-related data management, automating routine data entry tasks, implementing quality control tools, and ensuring that department data link to GIS data successfully.

For GIS to be successful, it will serve as a catalyst for the business process. Exactly what this will look like for each department has yet to be determined, as department needs vary. There are two main levels of GIS users: viewers and power users. Most City departments will utilize GIS data for viewing maps, querying information, and reporting. Only a few City staff will create and manipulate GIS data. This distinction of skill sets is significant, as many GIS viewers will utilize the City Intranet site and/or an easy-to-use customized application to access GIS data. GIS power users require a much higher level of GIS skills and experience. GIS is working with staff in each department to assess their GIS needs and to determine the best way to design GIS to meet their needs today and in the future.