County of Los Angeles

Enterprise Geographic Information Systems Program

Chief Information Office
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Contents

Revision History

Version	Date	Name	Description
Version 0.1	11/21/06	Mark Greninger	Original Enterprise GIS Group Proposal
Version 0.2	05/29/08	Mark Greninger	Updated for content and format
Version 1.0	06/05/08	Greg Melendez, Mark Greninger	Final changes and release

Background

Geographic Information Systems (GIS) are powerful software technologies that allow vast amounts of information to be linked to geographic locations. Using the concept of an "electronic" or digital map, GIS records, stores, and analyzes multiple layers of spatial data and relates this data to locations of interest (e.g., communities, neighborhoods and people that live there). These layers contain data in the form of points (e.g., addresses, locations, etc.), lines (e.g., streets, highways, etc.), polygons (e.g., areas, political jurisdictions, etc.) and images that can be viewed in various combinations to identify and display underlying spatial relationships.

The County's early GIS adopters were primarily departments that had direct responsibility for land use and related issues and where GIS was engrained in their day-to-day business operations. These departmental and sub-departmental systems were often independent and disparate from one another, resulting in the lack of enterprise view and information sharing between departments, and increased duplication of data and GIS resources across the County.

In FY 2001-02, CIO reviews of department business automation plans indicated that many departments had identified the need for GIS and were planning or in the process of developing GIS systems and resources, which would further exacerbate the duplication of GIS data and resources.

Recent changes in GIS technologies have increased the need for Enterprise GIS. The introduction of high-volume mapping applications such as Google Earth, Google Maps, Yahoo Maps, and Microsoft Live Local has made GIS an asset expected to be ubiquitous, user-friendly, web-based, and constantly available. The County's decentralized approach to GIS will be unable to meet these expectations.

County GIS Assessment Study

The CIO commissioned a consultant in January 2002 to conduct a countywide assessment of the current use and future needs for GIS and to recommend a cost effective, countywide enterprise strategy that would leverage County investments in GIS technology, provide access to additional users who will benefit from GIS technology, increased data sharing, and eliminate department redundancies.

The study found that although the County was an early adopter of GIS technologies, only 2% of the departments were fully using GIS and 55% indicated a need for GIS but did not have the access to data and tools. Seventy-five percent of the departments indicated that greater access to GIS would significantly boost their productivity. The study also indicated that lack of a central GIS coordination function (i.e., central data repository, GIS ready environment and technical resources) would result in a continuing duplication of GIS data and resources

The study recommended establishing an Enterprise GIS (EGIS) Program, which would include a core team of GIS technical staff. This EGIS Program would create and maintain a central environment for a shared GIS data repository and assist departments to utilizing this shared resource

Current GIS Model

There are multiple GIS initiatives currently underway within several departments with each department setting priorities, storing data, and building applications separately.
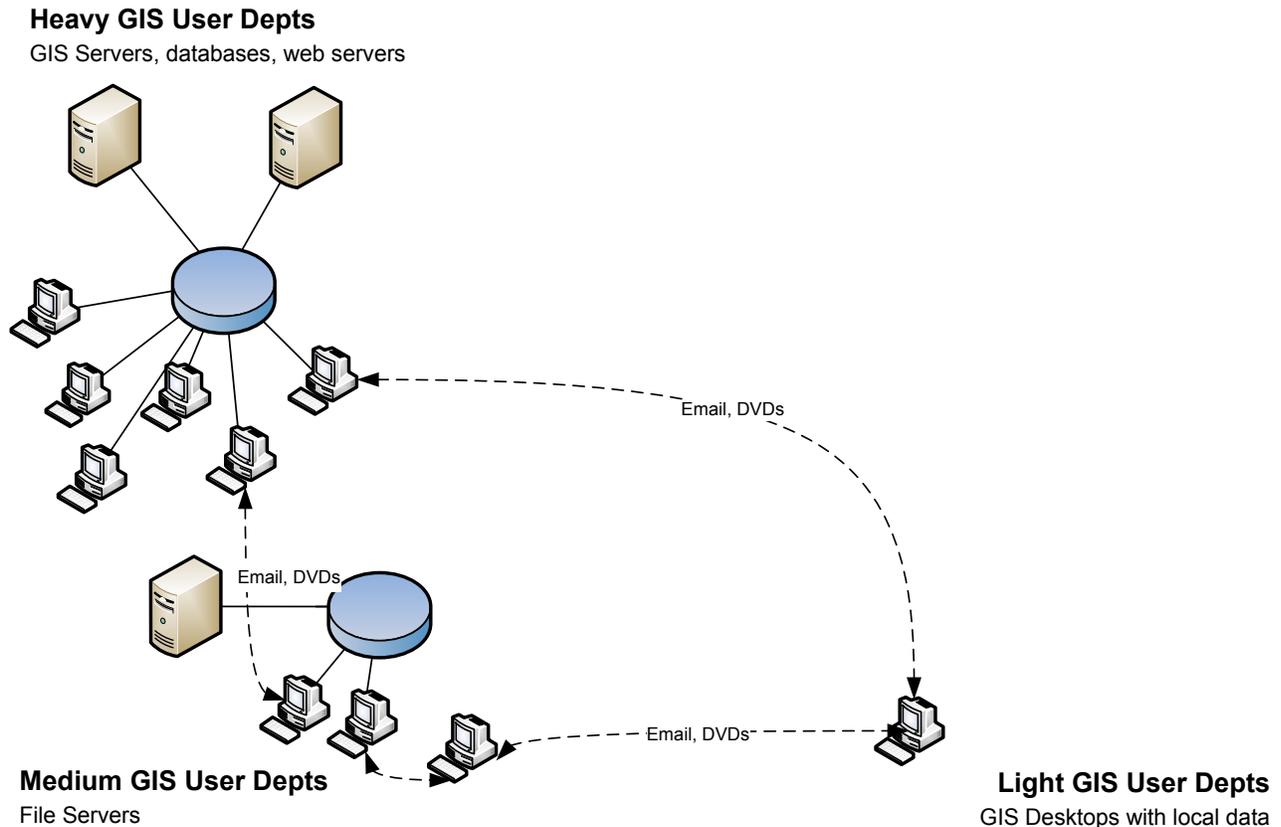
The table on the next page identifies departments and commissions by GIS usage.

Department GIS Usage

GIS Usage	Description	Department

Heavy	• Established centralized department GIS infrastructure
	• Dedicated GIS staff to:
	    ○ Maintain map layers
	    ○ Perform spatial analysis
	    ○ Maintain and support infrastructure
		Assessor, Fire, Public Works, Regional Planning, Registrar-Recorder/County Clerk

Medium	• No centralized infrastructure, utilize a distributed file based system.
	• Dedicated GIS staff to:
	    ○ Maintain map layers
	    ○ Perform spatial analysis
	• No staff to maintain and support GIS infrastructure
		Children and Family Services, Public Health, Community Development Commission, Chief Executive Office, Parks and Recreation, Sheriff

Light	• Part-time/fractional staff maintaining simple map layers and performing light spatial analysis. • No staff to maintain and support GIS infrastructure	Agricultural Commission/Weights and Measures, Animal Care and Control, Beaches and Harbors, Board of Supervisors, Mental Health, Probation. Public Social Services, Human Relations Commission, Health Services
Start-Up	• Recognize value of GIS as a decision support tool • Need support and direction to effectively utilize GIS	Community and Senior Services, Public Library

The figure on the next page depicts how GIS is currently organized in the County.

Current GIS Environment

Heavy GIS User Depts
GIS Servers, databases, web servers

Email, DVDs

Email, DVDs

Email, DVDs

Medium GIS User Depts
File Servers

Light GIS User Depts
GIS Desktops with local data

Issues

Although the current model has been successful in introducing GIS capabilities into many departments, the following limitations have been encountered:

- Low levels of GIS data sharing between departments – no single point of contact for GIS data.
- Lack of data sharing with other jurisdictions (cities, counties, state, federal).
- Limited sharing of GIS expertise between departments.
- Duplication of hardware, software, and staffing.
- Lack of GIS data standards.
- Lack of a re-useable countywide GIS toolset.
- No countywide software agreements to reduce software costs.
- Limited enterprise focus across departments to support public outreach.

If GIS implementation continues as a series of uncoordinated, incremental, departmentally focused efforts, it is very likely that these efforts will result in fewer opportunities to leverage current investments and higher overall implementation costs. This same multiplicity of vertical investments will increase diversity of the GIS assets and result in rising GIS costs at an ever-increasing rate.

Enterprise GIS (EGIS) Program

EGIS Program will increase the use of GIS and extend its benefits to support a greater level of County services and programs. At the same time, the program will minimize redundancies and yield greater efficiencies.   This EGIS Program will be maintained and supported by the County's Internal Services Department (ISD).
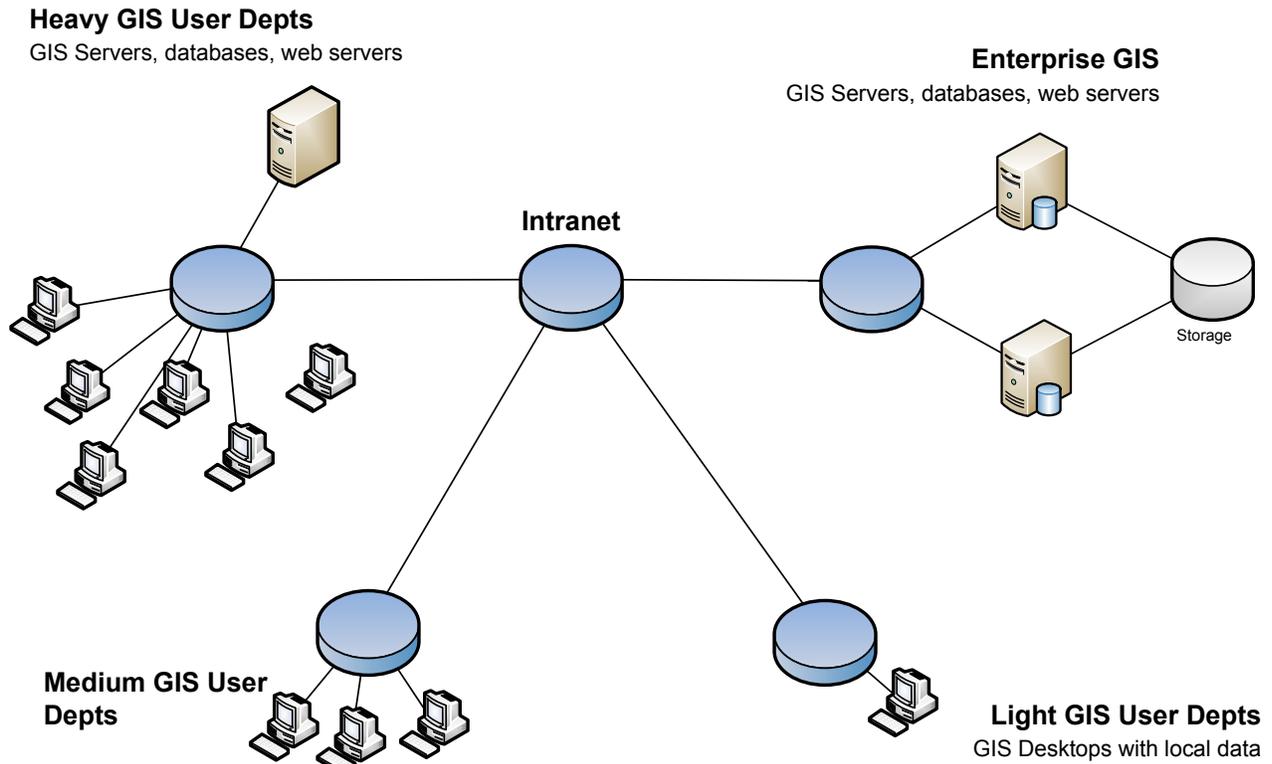
This centralized program model has been identified as a GIS best practice and many governments across the county are moving this model. Examples include: City of New York, City of Miami, Alameda County, San Francisco City/County, San Mateo County, and the Department of Homeland Security.

Benefits

- **Increased Data Access and Sharing** – An EGIS Program will facilitate public and inter/intra-departmental access to GIS data by placing integrated, standard data in a central, highly available location. This model will support the following:
  o   Integrated response to Jessica's Law Mapping Request.
  o   Distribution of LAR-IAC imagery data.
  o   Support for the County Portal Service Mapping.
  o   Distribution and access to 211 service location data.
  o   Local Update of Census Addresses (LUCA) project.
- **Reduced GIS duplication and costs** – Creating a central data repository storing all data layers published by departments will enable medium and light GIS user departments to share the cost of storing, accessing, and distributing GIS data, thereby avoiding the cost of building and maintaining redundant systems around the County. In addition, it will allow heavy GIS user departments to reduce their ongoing GIS costs by leveraging the Program's central storage infrastructure and GIS applications.
- **Development of GIS Standards** – The EGIS Program will develop countywide standards for GIS data, software, and applications, ensuring system interoperability and enhancing the usefulness of GIS.
- **GIS Center of Expertise** – The EGIS Program will support departments as they implement GIS. It will provide best practices, strategic advice, and expertise, to departments as they deploy GIS. The program will leverage existing investments to distribute the advantages of GIS across the County.
- **Public Outreach –** The EGIS Program will leverage the full potential of the County's GIS data and technology, which will make spatial information more readily accessible to the public and other outside stakeholders.

The figure on the next page depicts how EGIS will be organized in the County.

EGIS Environment

Heavy GIS User Depts
GIS Servers, databases, web servers

Enterprise GIS
GIS Servers, databases, web servers

Intranet

Storage

Medium GIS User Depts

Light GIS User Depts
GIS Desktops with local data

EGIS Program Roadmap

The Program is currently organized into four distinct phases:

1. Establish EGIS Governance – The goals of this phase are to appoint a County Geographic Information Officer (GIO) to oversee the implementation of the EGIS Program, establish an EGIS governance structure, comprised of GIS department representatives, to support implementation, management and planning.

2. Implement EGIS Infrastructure and Services – acquire and install infrastructure hardware and software, identify and acquire GIS application software, pilot EGIS infrastructure and load initial base map layers, develop EGIS business plan (funding, rate structure, staffing levels, and service levels), and gain support for appropriate funding and staffing for ongoing maintenance and support.

3. Promote EGIS utilization – work with EGIS governance and departments to increase utilization of the EGIS infrastructure, host countywide GIS systems (e.g., CAMS, Automated Geocoder Tool, countywide Driving Directions, Countywide Resource Directory, and deploy GIS toolsets for countywide use (e.g., Geocortex development tools).

4. Establish EGIS as "Center of Excellence" – centralize maintenance and support for key GIS system and initiatives (e.g., Parcel Maintenance, Election Mapping, County Portal Mapping, emergency

planning and support), develop countywide standards for GIS data, software, and applications, and establish partnerships with local, state, and federal jurisdictions.

The actual target dates for the third and fourth phase will be updated based on the implementation from the second phase. The following are project milestones established for the project:

Major Milestones

Phase 1 – Establish EGIS Governance (Complete)

Appoint County GIO .... October 2006

Establish EGIS Program Governance .... January 2007

Phase 2– Implement EGIS Infrastructure and Services

Install EGIS infrastructure .... September 2007

Develop EGIS Business Plan .... February 2008

Gain Support for EGIS Funding .... June 2008

Phase 3– Promote EGIS utilization.. July 2008-June 2009

Phase 4– Establish EGIS as "Center of Excellence" .... July 2009