Illinois Heartland Library System

MEMO TO: IHLS Board of Directors
FROM: Long Range Planning Committee
DATE: November 24, 2015
RE: Proposed Mapping Project with Laboratory for Applied Spatial Analysis

Our committee is pleased to have the Long Range Planning documents approved and in place. These positional statements set the framework for IHLS moving forward.

We present to the board a second phase of the Long Range Planning process that will aid IHLS senior staff and board in the determination of best service hub locations. Attached please find a proposed scope of work from the Laboratory for Applied Spatial Analysis (LASA) which is part of the Geographic Information Systems (GIS) program at Southern Illinois University Edwardsville. LASA utilizes GIS technology combined with additional information to develop mapping tools which assist companies and non-profit organizations such as school districts to assess appropriate sites for service centers and offices.

LASA can provide IHLS with a similar product in a relatively short time by using member library locations and library-specific data maintained by IHLS. The result is a database which can be queried and will return visual results that may guide our leadership is positioning service centers in the best possible locations based on member service needs and financial considerations.

Given the current budget stalemate and funding uncertainty this mapping tool may be quite useful in key decisions in the near future. The Long Range Planning Committee recommends the board accept the attached scope of work so the project may begin as soon as possible.

Thank you for your consideration.

Draft Scope of Work
Illinois Heartland Library System (IHLS)

Overview

On October 15 of this year, Laboratory of Applied Spatial Analysis (LASA) Director Dr. Randall Pearson met with Leslie Bednar (IHLS Executive Director) and Ellen Popit (IHLS Membership and Grants Director) to discuss the potential for analyzing the spatial and locational efficiency of the three IHLS Delivery Hubs located in the Illinois municipalities of Champaign, Du Quoin, and Edwardsville. These Hubs service a large geographic area within central and southern Illinois with 537 member library locations. The results of these discussions were as follows:

- Geographic modeling (service area modeling) is technically possible using today's geographic information system (GIS) software, however, it requires very specific information for input such as detailed roads, Hub Locations, member library locations, delivery frequency information, volume information, Current IHLS boundary, current service area boundaries and routes, etc.

- Some of this information resides at the Illinois State Library (ISL), some of it resides within IHLS, and some of it resides at LASA from past contracts with the ISL.

- While LASA has the capability to perform service area analysis, without considerable input from knowledgeable IHLS personnel, the results would probably be less than meaningful and would require too many iterations to meet the short timeline required of this project. GIS technology is much more powerful when integrated with individuals with expertise and experience in the subject being investigated.

- Considering the above points, it was agreed that the best course of action was:

    - for LASA to build an ArcMap GIS database for the IHLS that includes detailed roads, county boundaries, municipalities, IHLS boundary, Hub Locations, member libraries (type, location, volume, delivery frequency, etc.), current delivery routes by Hub, and other necessary layers that may be available from the ISL in digital format.

    - for LASA and IHLS personnel to work closely together to analyze (using the GIS system) the efficiency/inefficiency of current Hub locations (considering all three Hubs, considering all possible combinations of two Hubs, and considering only one Hub) AND to analyze the potential efficiency/inefficiency of moving the

Hubs to other locations. This process will be interactive and visual using ArcMap to display the data (library type, volume, delivery frequency, etc.) in the most meaningful way, thereby enabling better decision making. This process will also utilize the GIS power of ArcMap to quickly calculate things such as route distances, potential route times, suggested service areas, aggregation of total delivery volume along a route or within a Hub service area, and much more.

Tasks and Timing

Considering the above, LASA proposes to:

1. Build an ArcMap GIS database consisting of the digital layers outlined above. This database will be built during the month of December and early January. The construction of this database will require input from IHLS (data on library locations, volume, delivery frequency, type, etc.) and will require IHLS to help gather digital data layers (as necessary) from the ISL.

2. Work closely with IHLS staff (during the month of January) to assess efficiencies / inefficiencies in the current location of IHLS Hubs and asses the change in these efficiencies / inefficiencies as Hubs are moved or removed from the system.

3. Provide the necessary graphics, maps, and tabular data that will aid IHLS in supporting current Hub locations or presenting proposed modifications to Hub locations.

As a bonus, the spatial database that will be created for this project will allow IHLS to begin mapping and analyzing much of its future data spatially. As well, these data layers can easily be incorporated into an IHLS online mapping system for easily viewing a variety of maps (delivery routes, Hub boundaries, library types, library delivery days and times, library volume, etc.). These layers can be for community consumption or can be password protected for limited viewing by IHLS administrators. This web-based mapping system can evolve as wants and needs of the IHLS change.

Cost

The cost for this project is a fixed price of $10,000. This will be paid at the conclusion of the contract.