Human Services Delivery with GIS, Initial Steps, Lee County Florida

Abstract

Human Service Programs providing housing, neighborhood development and social services are increasingly being called upon to operate in a business model, which demonstrates priority needs, focused responses, and measurable outcomes. The Department of Human Services (DHS) is joining Income, Health, Workforce and other data to the well established ESRI-based GIS system of Lee County. DHS Goals include: proactive planning, coordinated implementation, timely depiction of conditions, and accessible public information. Presentation maps show Low-Income Categories, Housing, and Population characteristics at Census Block Group level and aggregated to Target Neighborhoods and Commissioner Districts. Data was joined from Census and HUD databases. Additional collaborative maps are in preparation with the county Health Department and State Housing Data Clearinghouse. The presentation will discuss the GIS implementation process and GIS benefits for Needs Analyses, Federal and State Reporting, and the Coordinated Human Services delivery.

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Background and Rationale

The Department of Human Services (DHS) of the Lee County Board of County Commissioners supports low-income county residents with programs in housing, targeted neighborhood development, the elimination of homelessness, vocational training, HIV/AIDS support, and state-mandated programs in public health, mental health, and substance abuse. Budgets for these programs total approximately $20 million dollars. Lee County's fast growing population was 497,022 in 2003.

Human Services across the nation traditionally have been supplied through single-purpose programs mounted by a patchwork of government, nonprofit and faith-based entities. Human Services programs can be inefficient and ineffective when comprehensive data is unavailable for program design and when multiple programs are implemented without coordination. DHS has attempted to avoid these constraints by coordinating planning and integrating strategies with related government and private efforts. A major remaining obstacle to human services delivery has been the inability to display the multiple demographic, time, and location components of community needs and human service program responses in a clear graphic format. Without a credible and convincing visual display, programs may be inadequately funded or scarce resources allocated inefficiently.

The Lee County GIS System and DHS Goals

Staff and administrators of local government departments access a well-established Lee County GIS system with over 350 active feature layers based on the ESRI ArcGIS product. In 2001, DHS staff began to make use of Lee GIS system mapping and aerial photos for analysis and implementation of target neighborhood and housing programs. In 2002, DHS planners began investigating national literature and found little in the way of on-going GIS work in the field of Human Services. The limited evidence notwithstanding, the Department staff saw GIS as a valuable tool for enhancing planning and providing credible visual display. In 2003, the DHS *GIS for Human Services Strategy* (*Strategy*) was adopted, which defined financial and other *Inputs* and projected short to long-term *Outcomes*. The *Strategy* outlines 3 major elements: Demonstration, Collaborative Implementation, and Public Utilization, which correspond to initial, mid-term, and long-term phases. (*The Strategy document details some 19 projected Human Services GIS Outcomes and Action Steps and is available from the authors*) DHS GIS *Outcomes* mirror the department planning goals of: (1) timely analysis and credible depiction of conditions and needs, (2) proactive planning, (3) coordinated planning and program design and coordinated implementation of services, and (4) improved public access and utilization of Human Services resources.

DHS GIS for Human Services Progress to Date
The Demonstration Phase

Initiating the *Demonstration Phase,* a full day Lee County GIS for Human Services Conference was held in December 2003 for County staff and administration along with representatives of collaborating agencies - University of Florida Housing Data Center and the (State) Lee County Health Department. Participants viewed a presentation on national Human Services GIS implementations and a second presentation on Lee County Human Service GIS possibilities. Both presentations were prepared by a contracted consultant with national experience in Human Services GIS. Attendees participated in a collaborative GIS planning workshop and GIS needs and objectives were recorded.

In 2004, a Request for Proposal (RFP) was released requesting preparation of four importable Human Services GIS Projects covering Affordable Housing, Community Health, Neighborhood Development, and Human Services Provider locations. A fifth request was for data and cartography to display multiple vignettes of demographic conditions such as poverty, educational level, and crime impact on one display map. The RFP also required that the vendor contact the collaborating agencies – Department of Health, the University of Florida Housing Data Center, and the Lee County Sheriff's Office to obtain appropriate databases under their control. The vendor was contracted, databases acquired, and the model map projects completed in the period January through June 2004.

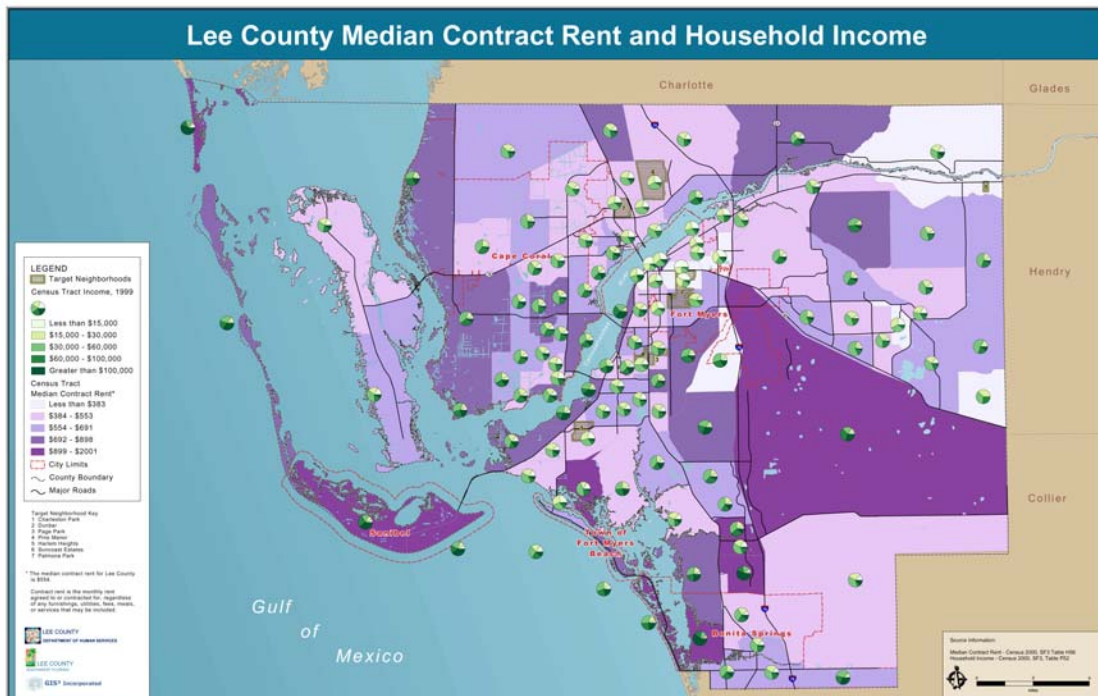**Model Demonstration Map Projects –Lee County Human Services GIS 2004.**

The presentation of the model demonstration maps to staff of the collaborating agencies will complete the Demonstration phase of the *Strategy*. Demonstration maps were intended to model the ability to analyze one set of parameters (e.g. income range) against another (e.g. range of area rents). The following describes the ArcGIS Projects created.

Map 1. – **Human Service Locations – Lee County**
This map displays all the *Locations* of all human services providers in the county. Locations are displayed against the background of *Household Income* gradations. (This and other maps also display the 7 DHS Target Neighborhoods.) The Map Project allows for modification of the background to display many other income, race, and other demographic gradations. Location data was obtained from the local Internet-based Human Services Directory. Demographic data was obtained from US Census Tapes owned by Lee County (Lee Census) and special Census tabulations obtained by the U.S Department of Housing and Urban development and distributed from their website. (HUD Census)

Map 2. – **Affordable Housing** – Lee County
This map displays *Household Income* categories displayed against the background of *Rent or Mortgage Cost* gradations. The Map Project allows for modification of the background to display other housing condition gradations. Housing cost and conditions data was obtained from the University of Florida Housing Data Center. Income data was obtained from Lee Census and HUD Census files.

(This and other maps will be on display at the 2004 ESRI International Conference and on the ESRI Internet Map Library)

Map 3. – **Community Health – Lee County**
This map displays *Household Income* categories displayed against the background of *Major Disease* concentrations. The Map Project allows for modification of the background to display other community health condition gradations. Health conditions data was obtained from the Lee County Health Department. Demographic data was obtained from Lee Census and HUD Census files.

Map 4. – **Neighborhood Public Safety** – Lee County
This map displays *Crime Concentrations* in the county displayed against the background of *Household Income* gradations. The Map Project allows for modification of the background to display many other income, race, and other demographic gradations. Crime data was obtained from Lee County Sheriff's Office. Demographic data was obtained from Lee Census and HUD Census files.

Map 5. – **The Human Services Picture – Lee County**
This map replicates Map 1 above and adds smaller vignettes of Lee County Human Services Demographics arrayed around the primary map. These vignettes cover numerous demographic categories including race, gender, educational attainment, etc. Demographic data was obtained from Lee Census and HUD Census files and from the databases of the collaborating agencies.

DHS GIS for Human Services Progress to Date
The Collaborative Implementation and Public Utilization Phases
The goal of the 1st phase was to have clear demonstration (via model maps) of the value to the several collaborator agencies of GIS use for analysis, program design and public display. The County, Health Department, Sheriff's Office and Florida Housing Data Center will now begin to utilize and expand upon the model GIS projects. A second collaborative *GIS for Human Services* conference will be held in 2005 and progress to date measured.

The Public Utilization Phase of Human Services GIS Strategy is under initiation at this point. A contract is in completion for provision of a public access Human Services Web GIS to be mounted on the County website. This will cover Human Service programs and provide interactive mapping and routing along with neighborhood-level demographic abstracts.

Acknowledgements and References
The Lee County Board of Commissioners, County Administration, and in particular, Karen Hawes, Human Services Director, have given unqualified support for this human services expansion in GIS. Amy Hoyt, County GIS coordinator, was instrumental in initiating this effort and continues to provide regular support and direction.

The Lee County GIS system operates under licenses for ESRI ArcGIS, ArcIMS, and numerous extensions. Data references accompany the several ArcGIS project descriptions above. The authors can be contacted at farisrl@leegov.com, jbizelli@leegov.com, and hoytal@leegov.com. Consultant Courtney Sullivan can be contacted at csullivan@gis3.com.