

## Using Geographic Information Systems for Policy and Planning

Imagine being able to improve the quality and accountability of services by graphically presenting resource allocation patterns. With Geographic Information Systems (GIS) accurate details on services by geographic location are available in a matter of minutes. GIS is a relatively new technology that provides better information and better tools for policy planning and management.

### What is GIS?

GIS is an information system designed to capture, model, analyze, and display data referenced by geographic coordinates. GIS provides the ability to overlay data fields and represent them visually (in the form of a map) to the user. Understanding and interpreting information that is displayed in a map format may be easier for several reasons. Traditionally information is shared in a table format with columnar appearance. GIS provides the ability to break apart complex information into several pieces and present data in a spatial layout, which offers a great deal of information at a glance. The user-friendly format may increase the satisfaction with data and use of data by child welfare staff. Also, as users become more skilled in using GIS a considerable amount of time may be saved during points of critical decision-making. Currently GIS is abundantly used in the fields of environment, energy, and geographical surveys, but the social policy planning communities are quickly discovering the benefits of GIS as well.

### GIS and Child Welfare

GIS enables many different types of analysis that aid administration, management and planning of child welfare services. Some of the applications and benefits include the ability to:

#### **Produce clear and useful information to support effective management decisions.**

For example, GIS can be used to create map-based inventory of services or other information of interest. Also, administrators may be able to see differences in community characteristics or differences in local procedures for providing services.

#### **Illustrate the flow of clients to and from various community services.**

GIS can be used to collect data on the sociodemographic characteristics of neighborhoods served by an agency. The information may be used to help assess whether the current services in a given community are adequate and appropriate for the population.

#### **Predict future needs.**

A GIS map can be used to monitor trends and to forecast service demand changes as result of policy changes. This knowledge may also help with efforts to allocate funds by providing visually appealing evidence of need for resources.<sup>1</sup>

<sup>1</sup> The 1998 Social Work article by M. Queralt and A.D. Witte entitled "A map for you? Geographic Information Systems in the social services" was a valuable resource in the formulation of this document.

## State Case

In New York City, the child welfare system has experienced much success in allocating resources and planning for services with the use of GIS. On January 10, 1996, New York City Mayor Rudolph W. Giuliani created the Administration for Children's Services (ACS), which is an agency devoted solely to serving children and their families. The ACS is held accountable for the protection of children from abuse and neglect, timely achievement of best permanent solutions for children in its care, and for the provision of several services that ensure well-being for children in New York City (NYC). ACS's jurisdiction, i.e. New York City, has a population of approximately 8 million and covers an area of 322 square miles. ACS serves 59 community districts that assist 28,000 children in foster care and 20,000 families receiving in-home services.

In 1999 NYC incorporated the use of a Neighborhood-Based Services delivery model (NBS) to better directly serve the 59 community districts. A critical component of NBS are the service networks developed in each neighborhood so children and families can directly receive services in the communities in which they live. The institution of this program resulted in the reorganization of child protective service, foster care, and in-home services.

With the reorganization of services, child welfare administrators needed a tool to analyze how services and resources should be divided among the communities served by the newly designed service networks. GIS was the logical solution as policy makers were able to monitor resource allocation as well as performance evaluation and quality improvement by geographic locations.

According to Eric Nicklas, of the ACS Management Analysis Unit, the use of GIS depends on the data, methods, and people that comprise a working GIS. ACS collects data on NYC's child welfare system from a vast number of sources.

The two major sources for child welfare data are the New York State Department of Social Services; ChildCare Review Services (CCRS) and the partially implemented SACWIS system referred to as CONNECTIONS. The GIS tool used by ACS is MapInfo. NYC utilizes data on case addresses, facility address, and person address. The data used for GIS is kept in a standard text format and downloaded into a Microsoft EXCEL spreadsheet. A program was developed to prep or clean the data. This program standardizes the address information and corrects a few common errors.

The final step of the data preparation process involves manually checking the data. Typically, there are approximately 10% of the addresses that are 'ungeo-codable' and that the cleaning program does not standardize. For these a manual look-up is employed in that an analyst compares the address as it appears in the data system to a street map. This analysis identifies data entry errors that result in impossible addresses and often corrections can be made. The result of this process typically leaves only 2-3% of the addresses 'ungeo-codable'.

This cleaned file of addresses is processed through, MapInfo, to identify the community districts (CD) in which each address is located. This CD assignment allows the mapping of the data by CD, e.g. the number of placement into foster care based on child's CD of origin.

It is important to note that the address information can be accurately geo-coded but still provide a misleading geographic picture. Consequently, the mix of addresses should be analyzed to ensure that map reflects the real service needs. An example of this in New York City involves looking at the home address of children in foster care. Often when a child is freed for adoption, his/her birth parent's address is removed from the case record and the address for the local child welfare agency is inserted. One common address used is the main office of ACS, which is located in lower Manhattan's financial district. Without adjusting for this issue, the geo-coding process returns a picture suggesting that there are several hundred

children from the financial district in foster care. This is not feasible since the financial district has one of the lowest population's in the city and only a handful of children enter foster care from this part of the city in a given year. For this cut of the service population, the procedure of inserting the local office's addresses requires that these cases be removed from the data file to be able to generate a more accurate geographic picture.

### **Conclusion**

The large, diverse population of NYC and the move toward NBS made the selection of GIS mapping a good fit. Now the high-resolution color maps created through GIS are used to illustrate the differences among communities in key child welfare indicators, e.g victimization rates, abuse/neglect indication rates, and foster care placements. This information is critical in understanding resource needs throughout the system as well as building a better understanding of what drives system performance from a geographic perspective. Other States may find information collected for NYC to be limiting. The data elements were chosen as the best elements to answer NYC policy and planning requirements and the needs of others States may vary.

For NYC GIS has been a great tool; however, NYC has two cautions for other States to carefully consider before investing in GIS mapping. States should know that the capacity of GIS depends on the data that is collected. Therefore, States should carefully consider the data elements that may provide insight into their day-to-day practice and management analysis. Also, States must be willing to dedicate staff time to manually check the data as needed. States should not underestimate the time and resources needed to successfully explore the potential uses of GIS in agency planning and policy-making.

For information on the NYC experience, To learn more about GIS technology and please contact Eric Nicklas, Director of its uses around the country, try out this Management Analysis, Office of web site as a starting point for your Management, Development, and research: <http://www.gislinx.com> Research, NYC's Administration for Children's Services, at (212) 341-2824.

*This document was prepared as a supplement to the material presented in a session at the April 2002 Making IT Work: Using Data for Program Improvement in Arlington, VA. We hope that it will serve to stimulate an exchange of ideas and information among States and between systems and program staff. Your feedback is important to us. If you have any additional information on the topic presented in this sheet, or if you have any comments or suggestions regarding its presentation or content, please contact Valerie Sayd of Xtria at (703) 821-3090 x247 or vsayd@xtria.com.*