



Using GIS to enhance programs serving emancipated youth leaving foster care

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ABSTRACT

This article describes a GIS prototype designed to assist with the identification and evaluation of housing that is affordable, safe, and effective in supporting the educational goals and parental status of youth transitioning from foster care following emancipation. Spatial analysis was used to identify rental properties based on three inclusion criteria (affordability, proximity to public transportation, and proximity to grocery stores), three exclusion criteria (areas of high crime, prostitution, and sexual predator residence), and three suitability criteria (proximity to health care, mental health care, and youth serving organizations). The results were applied to four different scenarios to test the utility of the model. Of the 145 affordable rental properties, 27 met the criteria for safe and effective housing. Of these, 19 were located near bus routes with direct service to post-secondary education or vocational training programs. Only 6 were considered appropriate to meet the needs of youth who had children of their own. These outcomes highlight the complexities faced by youth when they attempt to find affordable and suitable housing following emancipation. The LEASE prototype demonstrates that spatial analysis can be a useful tool to assist with planning services for youth making the transition to independent living.

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1. Introduction

Children are typically placed in foster care because they have experienced some form of maltreatment such as abuse, neglect, or abandonment. Although the goal of foster care is to re-unite children with their families, many youth remain in out-of-home care until they “age-out” of the foster care system and are legally emancipated, typically at age 18. These youth become immediately responsible for all aspects of their daily living including housing, meal preparation, grocery shopping, transportation, education, employment, medical care, and other needed services.

Given the sudden transition from childhood dependency to adult self-sufficiency, it is not surprising that many foster youth experience housing problems following emancipation. Of the 30,000 youth who are emancipated from foster care in the United States each year (U.S. Department of Health and Human Services, 2009), an alarming number become homeless. Fowler, Toro, and Miles (2009) reported that approximately 20% of former foster youth experienced chronic homelessness. Reilly (2003) found that 19% of the former foster youth lived on the streets and an additional 18% lived in a homeless shelter. Courtney, Dworsky, Lee,

and Raap (2010) reported that 37% of former foster youth had been homeless or had “couch surfed” by moving from one temporary housing arrangement with friends, family or strangers to another. Similar results have been reported in England where former foster youth constitute 8% of the homeless population (National Care Advisory Service, 2009). In a sample of 106 youth in England, 35% reported they had experienced homelessness within the first 12–15 months after leaving care (Wade & Dixon, 2006).

Housing instability has been found to be related to emotional and behavioral problems, physical and sexual victimization, criminal conviction, and high school drop out status (Fowler et al., 2009). As such, housing instability can exacerbate the transitional process. Conversely, housing stability has been found to be the factor most closely associated with positive mental well-being in young people leaving foster care (Wade & Dixon, 2006). Johnson et al. (2010) reported that high quality, well located, appropriate, and affordable housing enabled young people leaving care to build social networks and provided a base for them to engage with education, training, and employment opportunities. Therefore, it is essential that housing decisions incorporate multiple factors to support youth in transition (Torrico & Bhat, 2009).

In recognition of the transitional problems experienced by foster youth in the United States (U.S.), Title IV-E of the Social Security Act was amended in 1986 to provide funds for states to create independent living programs. In 1999, the Foster Care Independence Act, specifically the John Chafee Foster Care Program, gave states the option to provide a broader array of

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services to youth, to extend Medicaid coverage through age 21, and to provide vouchers for education and training. Title IV-E was amended again in 2008 to extend the eligibility age for foster care maintenance payments for foster youth from 18 to 21. In order to be eligible for these payments, foster youth had to be enrolled in a high school (or GED), post-secondary or vocational program; participate in a program designed to promote or remove barriers to employment; and be employed for at least 80 h per month.

As a result of these federal initiatives, many states in the U.S. have developed transition services to assist youth in identifying housing as part of independent living programs. These efforts are not limited to the United States. For example, in England, the [National Care Advisory Service \(2009\)](#) published a manual to support safe, suitable, and affordable housing options for youth leaving care. However, no systematic method has been identified to evaluate housing options that address the multiple needs and goals of youth leaving foster care. In order to address this gap in the service delivery system, we developed a model to assist transition case managers in their efforts to Locate and Evaluate Affordable, Safe, and Effective (LEASE) housing.

LEASE is a prototype that uses spatial analysis to map nine factors that are important in making affordable, safe, and suitable housing decisions with youth who are making the transition from foster care following emancipation. LEASE was developed using Geographic Information Systems (GIS), a tool that has the capability of combining multiple datasets and presenting the results on a map to provide new spatial perspectives to social problems ([Joyce, 2009](#)). The potential contributions of GIS have been promoted within child welfare for more than a decade. [Robertson and Wier \(1998\)](#) published an article describing how GIS could be used to enhance child welfare practice, program planning, and evaluation. [Ernst \(2000\)](#) and [Freisthler, Levy, Gruenewald, and Chow \(2006\)](#) used GIS to identify neighborhoods in which children may be at high risk for maltreatment. [Leary \(2009\)](#) incorporated GIS as part of a neighborhood analysis and confirmed that residential instability, impoverishment, and child care burden were positively associated with high foster care entry rates. No examples have been found in the literature that utilize GIS as a tool to address the complex problems faced by youth in transition. Thus, LEASE was designed to explore this possibility.

The geographic focus of the LEASE prototype was Hillsborough County, an area with a population of 1.2 million residents located on the west coast of Florida in the United States. Hillsborough County is the site for one of three national demonstration projects, *Connected by 25*, that provide transition services to former foster youth between the ages of 18 and 25. Their mission is to ensure that foster care youth are educated, housed, employed and connected to a support system by age 25.

2. Methods

2.1. Spatial analysis overview

GIS is a “computer system capable of capturing, storing, analyzing, and displaying geographically referenced information; that is, data identified according to location” ([U.S. Geological Survey, 2007](#)). Originally developed for the purpose of land-use mapping in Canada, GIS has come to be used for a wider range of applications including the study of human behaviors that can be measured by or are influenced by distance. In addition to using spatial data describing boundaries, locations, and other geographic dimensions, GIS has the capacity to incorporate a variety of data types such as census data, crime data, health care data, social services data, and other cultural and demographic data. These data are depicted as points, lines, or polygons on a map. The output of

the spatial analysis can be converted to maps that depict the phenomenon being studied in a visual manner. In order to conduct spatial analysis, data must be available in a geocoded format or must be converted to X, Y spatial references using a recognized geographic coordinate system.

Geocoded datasets were available from public sources for six of the nine factors included in LEASE. Data for the remaining three factors were geocoded by the authors using a national streets database ([ESRI, 2008](#)). The input datasets were imported into a geoprocessing model using ArcGIS 9.3 ([ESRI, 2008](#)). For each of the nine factors, geoprocessing operations were applied and an output dataset was generated.

2.2. Inclusion criteria and analysis

2.2.1. Rationale for inclusion criteria

Former foster youth have been found to be twice as likely as their same age peers to be unable to pay their rent ([Courtney & Dworsky, 2005](#)). Typically, they do not have the resources to purchase or maintain a car and thus transportation becomes a barrier to work, education, health care, mental health care, social support, and routine activities of daily living such as grocery shopping ([Courtney et al., 2007](#)). Therefore, three criteria were used as a basis to include a rental property in the LEASE prototype: affordable housing, accessible transportation, and proximity to a grocery store.

2.2.2. Inclusion criteria definitions

Affordable Housing was defined as a multiple-unit, assisted rental property that provided rate adjustments for low-income individuals and families. The addresses of 2116 properties listed in the Assisted Rental Housing database ([Florida Housing Clearinghouse, 2009](#)) were imported into the GIS. This dataset contains fields denoting the physical address, longitude and latitude for each address, housing program type, and population served: family, persons with disabilities, elderly, and other categories. A rental property was included in LEASE if the address was in Hillsborough County and if the population served was “family (single or multiple resident)” or “persons with disabilities” (Criterion 1).

Public Transportation was defined as a bus route that provided service within the County. The Bus Transit Routes database ([Florida Transit Information System, 2009](#)) was imported to the GIS and the geocoded locations for all bus routes were transformed into lines on a map. All bus routes in the County were included in the model. A one-mile zone (buffer) was then created on either side of the mapped lines to define the geographic areas that were considered to be within reasonable walking distance to public transportation (Criterion 2).

Grocery Stores were defined as businesses listed as a supermarket in the Shopping Center database produced by the [Florida Geographic Data Library \(2005\)](#). The database was imported and the geocoded addresses for all supermarkets in the County were included in the analysis. These locations were buffered by a distance of one mile around the point of the supermarket address to produce the dataset for Criterion 3.

2.2.3. Inclusion analysis data set

[Fig. 1](#) shows a map that presents the data for Inclusion Criteria 1, 2, and 3. Each triangle on the map represents a multiple-unit, assisted rental property in the County. The dark grey areas represent the one-mile buffers for bus routes and for grocery stores including areas where the two buffers overlap. Housing units that fell within the buffered areas were advanced to the next stage and were used to conduct the exclusion analysis. Housing units that fell outside the buffer zones were eliminated from the analysis.

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