Using Spatial Data and GIS in Support of Community-Based Research

David A. Padgett
Director
Geographic Information Sciences Laboratory
Tennessee State University
Nashville, Tennessee
Case Study: Defining an Organization’s “Geographic Impact Area” Using GIS

- Funding organizations often want to know the nature and magnitude of the “community being served.”
- Geographic impact area delineation provides a quantitative assessment of with whom and where funding organizations’ dollars will be spent.
- GIS applications reveal unique community characteristics.
Welcome to EarthMattersNetworks...

EarthMatters NetWORKS is a group of environmental educators, youth and organizations that have come together to make a difference in the community and the lives of its people.
Proposal: U.S. Environmental Protection Agency Environmental Justice Small Grants Program
LandView® 6
Federal Geographic Data Viewer

LandView® 6 is produced by:
U.S. Census Bureau
U.S. Environmental Protection Agency
U.S. Geological Survey
National Oceanic and Atmospheric Administration

http://landview.census.gov
### Layer List

- **Set To Default Settings**

#### Census 2000 Demographic Layers
- **Census Block Groups**
- **Census Block Points**
- **Census Tracts**
- **Congressional Districts (106th)**
- **Congressional Districts (108th)**
- **Consolidated Cities**
- **Counties**
- **Indian Areas**
- **MCD**

#### Schools
- **# Objects:** 119988 on 1 map

**Default graphics:**
- **Set...**

**Buttons:**
- **OK**
- **Cancel**
- **New...**
- **Delete**
- **Rename...**
- **Key**
- **Help...**

**Screen Capture**
Delineation of “Community Impact Area” for EarthMatters Tennessee’s “Earth Food Park”
Earth Food Park site absolute location determined using a Global Positioning Systems (GPS) hand-held receiver
Location of EarthMatters Park
Plotted on LandView 6 Map
Demographic Data Selected at One Half Mile Radius Around the EarthMatters Park
Demographic Data Selected at One Half Mile Radius Around the EarthMatters Park
Economic Status of Population at One Half Mile Radius Around the EarthMatters Park (i.e. “Community Impact Area”)

<table>
<thead>
<tr>
<th>EMPLOYMENT STATUS</th>
<th>Number</th>
<th>PCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population 18 years and over</td>
<td>2,052</td>
<td>100.0</td>
</tr>
<tr>
<td>In labor force</td>
<td>2,024</td>
<td>78.5</td>
</tr>
<tr>
<td>Civilian labor force</td>
<td>2,024</td>
<td>78.5</td>
</tr>
<tr>
<td>Employed</td>
<td>2,256</td>
<td>72.6</td>
</tr>
<tr>
<td>Unemployed</td>
<td>78</td>
<td>2.9</td>
</tr>
<tr>
<td>Percent of civilian labor force</td>
<td>3.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Armed Forces</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Not in labor force</td>
<td>719</td>
<td>28.9</td>
</tr>
<tr>
<td>Females 18 years and over</td>
<td>1,870</td>
<td>100.0</td>
</tr>
<tr>
<td>Employed</td>
<td>1,170</td>
<td>62.7</td>
</tr>
<tr>
<td>Median household income (dollars)</td>
<td>$200,000 or more</td>
<td>0</td>
</tr>
<tr>
<td>Employed civilian population</td>
<td>1,124</td>
<td>66.4</td>
</tr>
</tbody>
</table>

For Help, press F1
LandView 6 community impact area data may be extracted and then converted into *.pdf format and imported into ArcGIS. In this case, the EarthMatter’s “Gateway Gardens” site is hyperlinked to the population data at a one-half mile radius.
In ArcGIS the “Select by Location” function may be used to extract demographic data at a one-half mile radius at various levels of geography. However, much more data preparation is necessary than with the LandView 6 approach.
Census Block Groups selected within a one-half mile radius of two EarthMatters Tennessee sites.
Demographic data for Census Block Groups selected within a one-half mile radius of EarthMatters Tennessee’s Gateway Gardens site is extracted using the Select Tool. The popup attribute table may be saved as an Excel spreadsheet for graphing and statistical analysis.
Geographic Information Sciences Laboratory
Box 9538
Tennessee State University
3500 John Merritt Boulevard
Nashville, Tennessee 37209
615-963-5508
dpadgett@tnstate.edu