

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



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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.

Earth Matters Networks

Welcome to EarthMattersNetworks...

Welcome & Mission

About Us

Dr. Geo. W. Carver

Education

History

Inspiration

Organization News

Permaculture

Photo Gallery

Support & Join



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

The screenshot shows a Microsoft Internet Explorer browser window displaying the EPA's Environmental Justice Small Grants Program page. The browser's address bar shows the URL: http://www.epa.gov/compliance/environmentaljustice/grants/ej_smgrants.html. The page features the EPA logo on the left and a navigation menu with links for 'Compliance and Enforcement Home', 'Environmental Justice Home', 'Basic Information', 'Where You Live', 'Newsroom', 'National Environmental Justice Advisory Council', 'Grants', and 'Community Intern Program'. The main content area is titled 'U.S. Environmental Protection Agency Environmental Justice' and 'EJ Small Grants Program'. A search bar is present with a 'GO' button and a link to 'Advanced Search'. A breadcrumb trail reads: 'EPA Home > Compliance and Enforcement > Environmental Justice > Grants > Small Grants Program'. A text box states: 'You will need Adobe Acrobat Reader, available as a free download, to view some of the files on this page. See [EPA's PDF page](#) to learn more about PDF, and for a link to the free Acrobat Reader.' Below this is an 'OVERVIEW' section with the text: 'The Office of Environmental Justice's Small Grants Program was established in 1994 to provide financial assistance to eligible community groups. The program provides financial assistance to eligible affected local community-based organizations working on or planning to work on projects to address local environmental and/or public health concerns.' The browser's taskbar at the bottom shows the 'start' button, several open applications, and the system clock at 2:18 AM.



Recycle Bin IBM PC Registration HP Image Zone

AutoPlay Menu

LandView® 6

Federal Geographic Data Viewer

Run LandView 6

Exit

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>

20h 21h 22h 23h 24h 01h 02h 03h 04h 05h 06h 07h 08h 09h 10h 11h 12h 13h 14h 15h 16h

start 6 2 M.. 2 A.. T.. M.. A.. 100% 2:20 AM



Layer List

Set To Default Settings

alphabetical
 draw order

Show + Names Show Range Hide

	Show + Names	Show	Range	Hide		
▼ 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

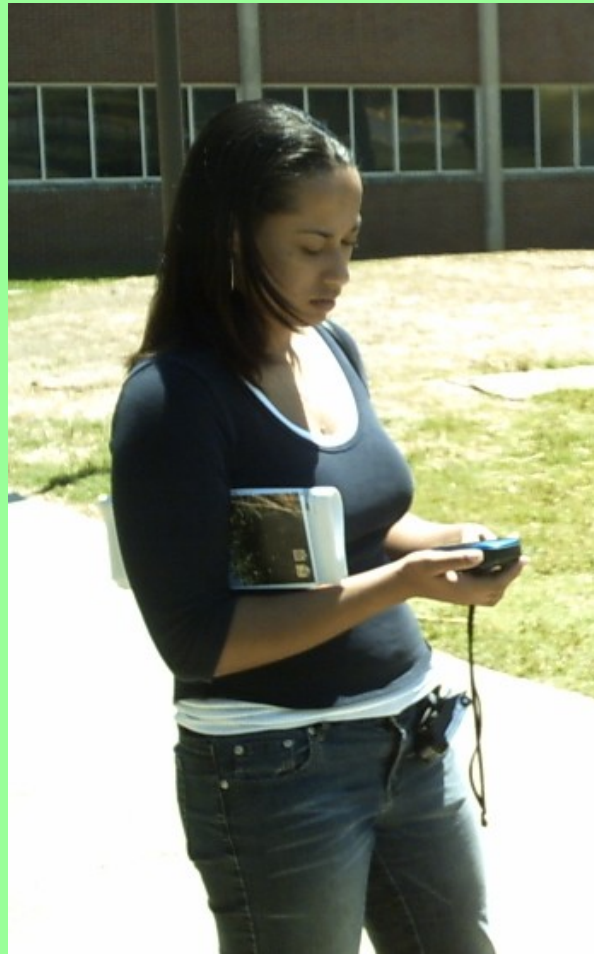
Objects: 119988 on 1 map

Default graphics:

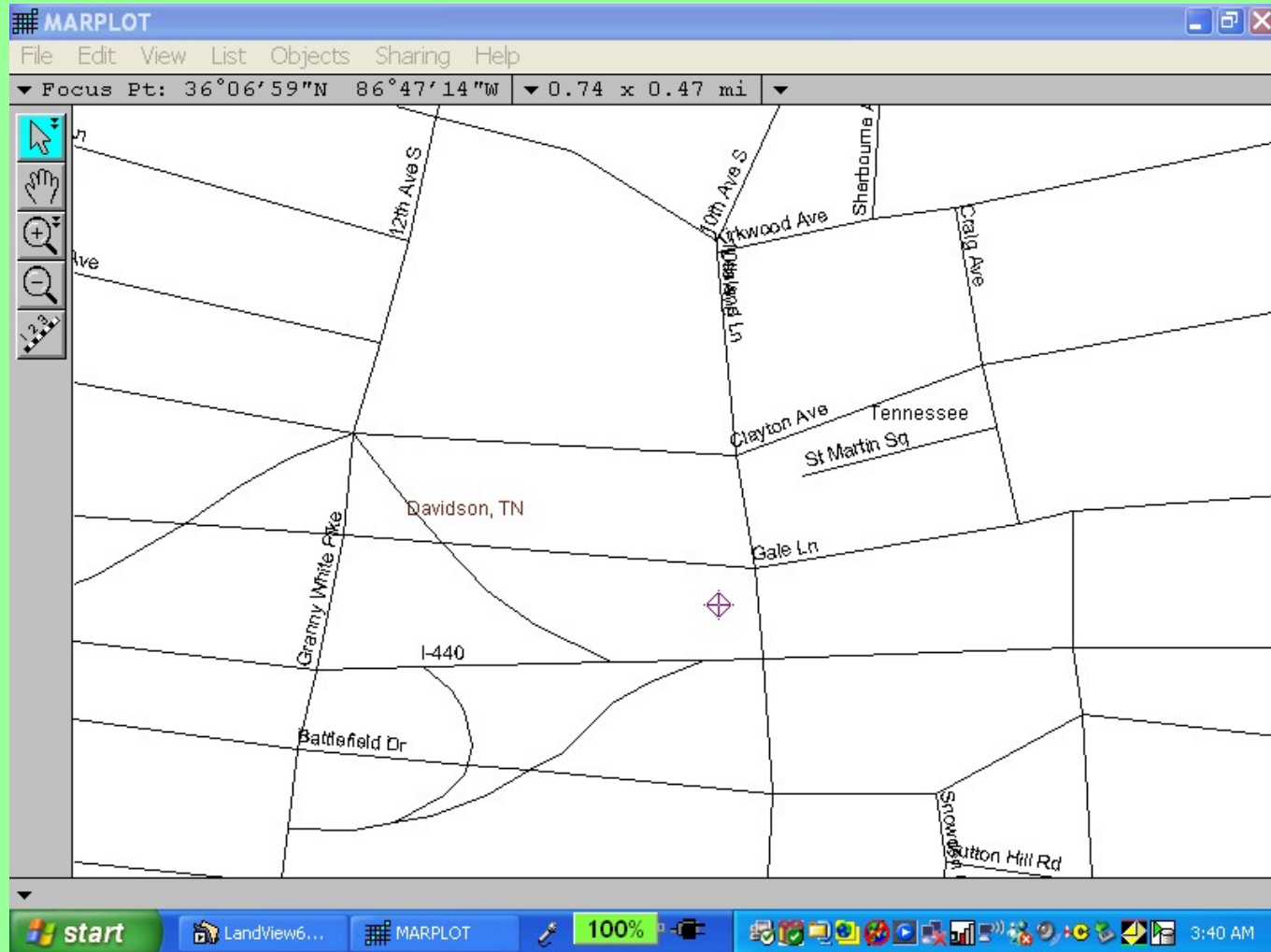
Delineation of “Community Impact Area” for EarthMatters Tennessee’s “Earth Food Park”



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

LandView6 - [blocks.lv6]

File Edit View Insert Format Records System Window Help

LandView 6 Census 2000 Population Estimator [Instructions for using this estimator](#) [Home](#)

Enter Location and Radius

Decimal degrees	Latitude 36.116426	Longitude -86.787300	<p>Calculate Population using Block points</p> <p>↓</p> <p>Most accurate, but limited to the race & ethnicity fields below</p>	<p>Summarize Demographic Profiles using Block Group points</p> <p>↓</p> <p>Less accurate, but provides more demographic information</p>
— or —	deg-min-sec	deg-min-sec		
hemisphere	<input checked="" type="radio"/> North <input type="radio"/> South	<input checked="" type="radio"/> West <input type="radio"/> East		
Radius (miles)				
.5				

[Clear all fields](#)
[Refresh Lat/Long from MARPLOT](#)
[Print this screen](#)
[Show this radius on map](#)

Results (based on Census **Block** points located within or touching the circle defined by the radius)

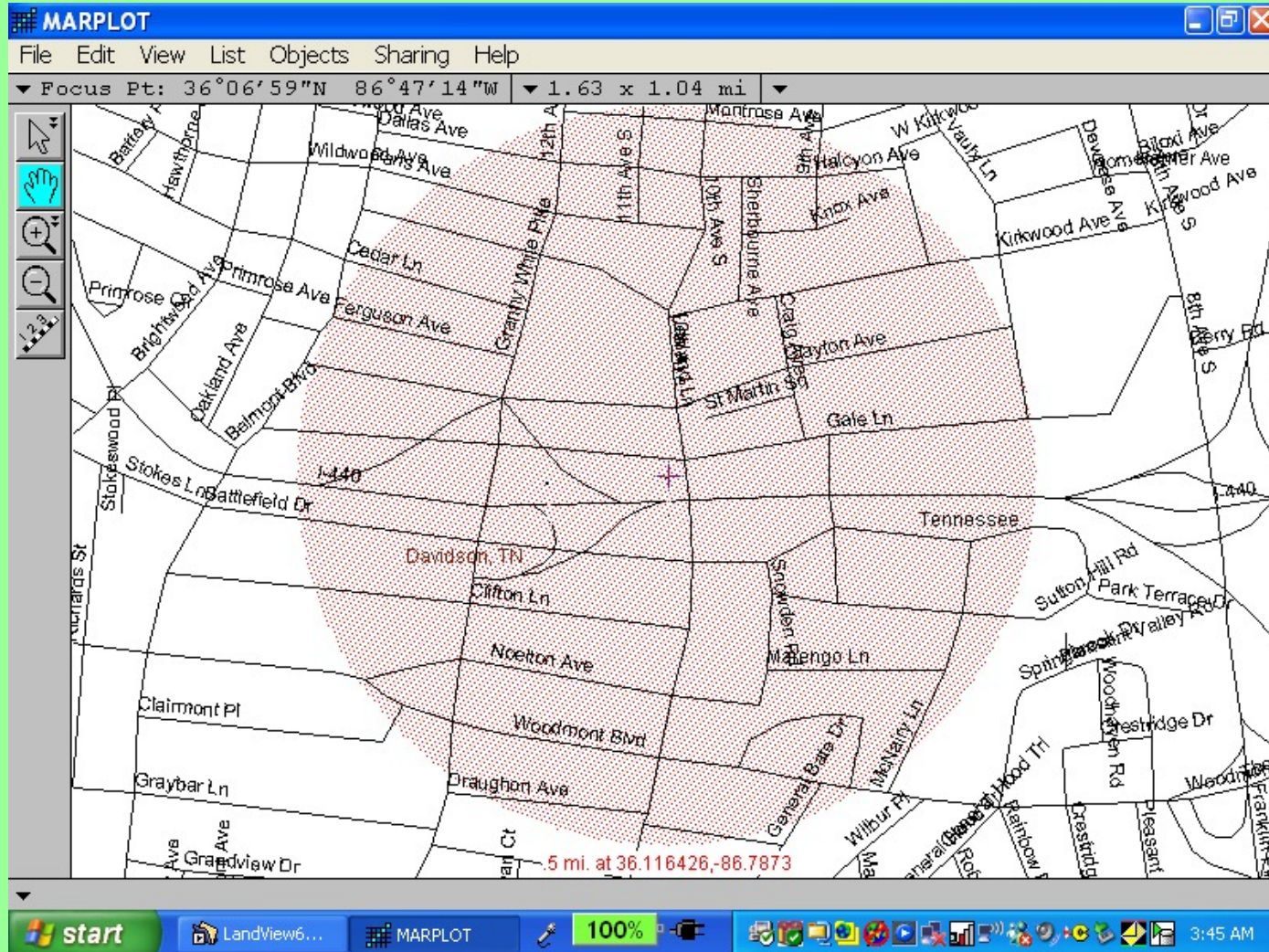
Total population:	0	Block count:	0
Housing Units:	0	Area within radius:	0.0 sq. mi.
White alone:	0		
Black or African American alone:	0		
American Indian and Alaska Native alone:	0		
Asian alone:	0		

100% Browse

For Help, press F1

start LandView6... MARPLOT 100% 3:44 AM

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")

LandView6 - [psummary3]

File Edit View Insert Format Records System Window Help

Print Close

LandView 6 - Census 2000 Profile of Selected Economic Characteristics (DP-3)

Summary of Census Block Groups # records summarized 4

Population estimate for radius: .5 miles (36.116426, -86.7873)

Demographic (DP-1)
 Social (DP-2)
 Economic (DP-3)
 Housing (DP-4)

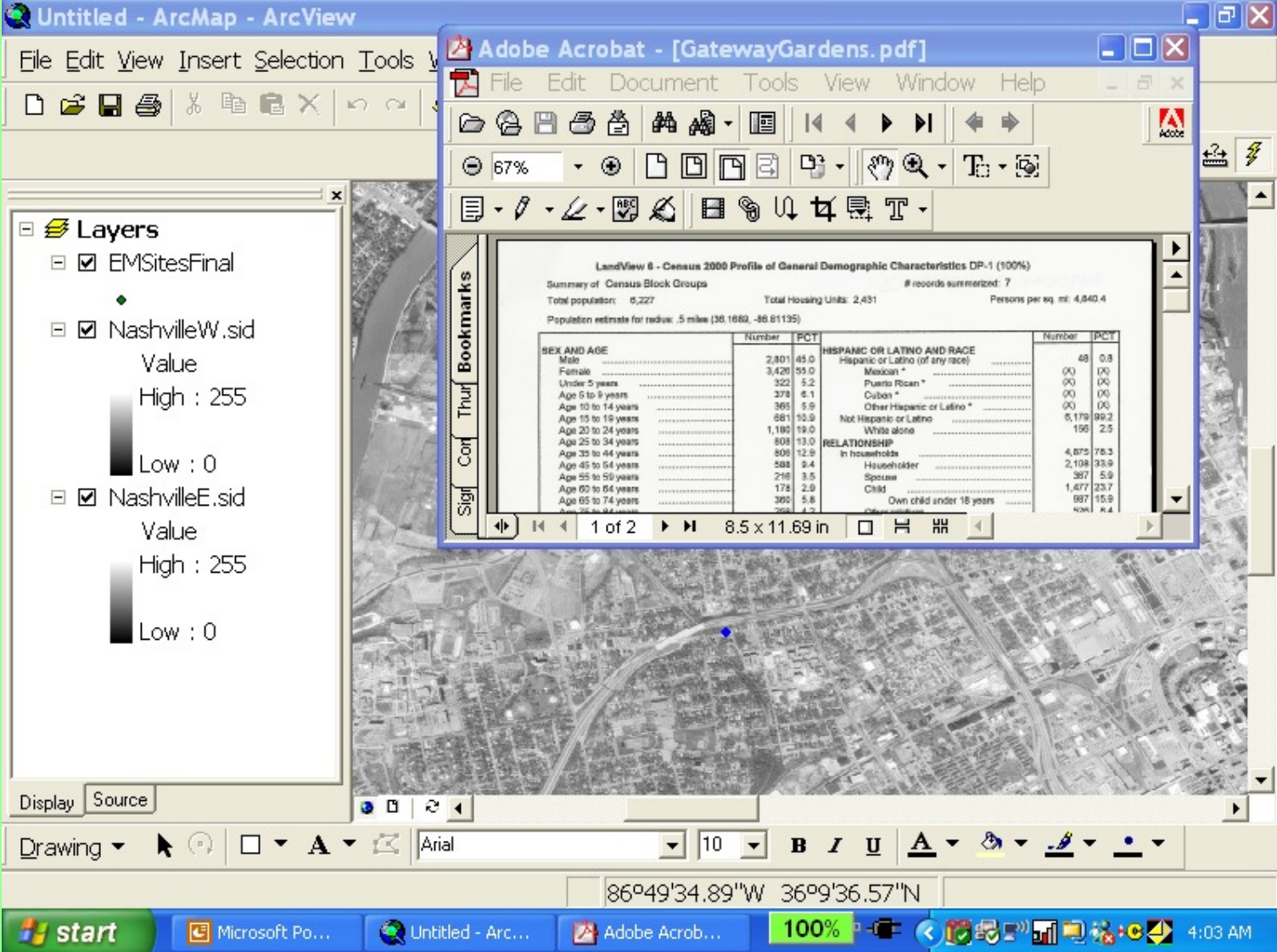
EMPLOYMENT STATUS	Number	PCT	INCOME IN 1999	Number	PCT
Population 16 years and over	3,052	100.0	Households	1,677	100.0
In labor force	2,334	76.5	Less than \$10,000	101	6.0
Civilian labor force	2,334	76.5	\$10,000 to \$14,999	47	2.8
Employed	2,256	73.9	\$15,000 to \$24,999	273	16.3
Unemployed	78	2.6	\$25,000 to \$34,999	200	11.9
Percent of civilian labor force	3.3	(X)	\$35,000 to \$49,999	264	15.7
Armed Forces	0	0.0	\$50,000 to \$74,999	340	20.3
Not in labor force	718	23.5	\$75,000 to \$99,999	202	12.0
Females 16 years and over	1,679	100.0	\$100,000 to \$149,999	196	11.7
In labor force	1,170	69.7	\$150,000 to \$199,999	39	2.3
Civilian labor force	1,170	69.7	\$200,000 or more	15	0.9
Employed	1,124	66.9	Median household income (dollars)	(X)	(X)
Own children under 6 years	252		With earnings	1,509	90.0
All parents in family in labor force	155	61.5	Mean earnings (dollars) ¹	(X)	(X)
COMMUTING TO WORK			With Social Security income	363	21.6
Workers 16 years and over	2,242	100.0	Mean Social Security income (dollars) ¹	(X)	(X)
Car, truck, or van -- drove alone	1,858	82.9	With Supplemental Security Income	30	1.8
Car, truck, or van -- carpooled	138	6.2	Mean Supplemental Security income (dollars) ¹	(X)	(X)
Public transportation (including taxicab)	65	2.9	With public assistance income	42	2.5
Walked	15	0.7	Mean public assistance income (dollars) ¹	(X)	(X)
Other means	18	0.8	With retirement income	192	11.4
Worked at home	148	6.6	Mean retirement income (dollars) ¹	(X)	(X)
Mean travel time to work (minutes) ¹	(X)	(X)	Families	897	100.0
Employed civilian population					

100% Browse

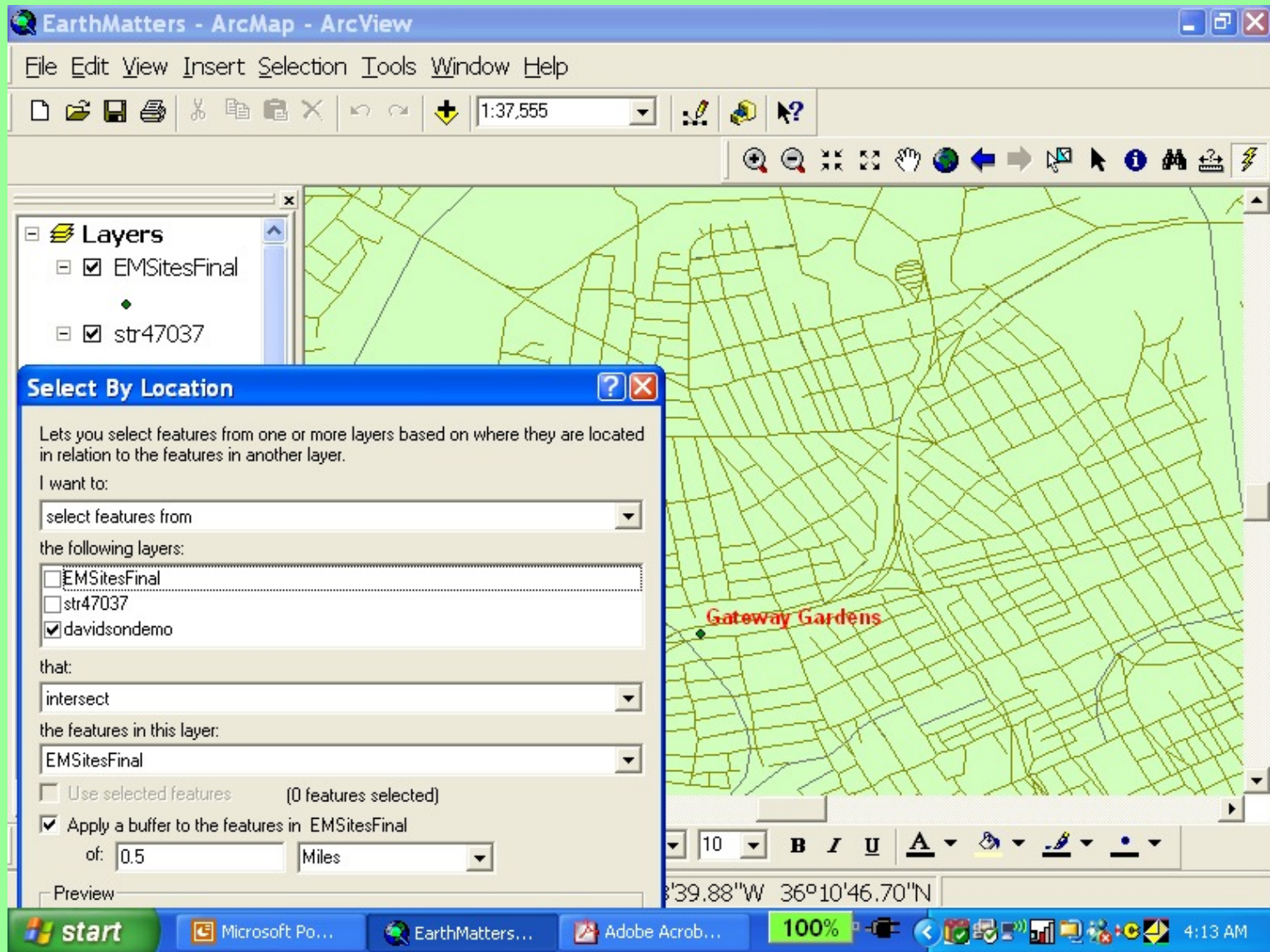
For Help, press F1

start LandView6... MARPLOT 100% 3:47 AM

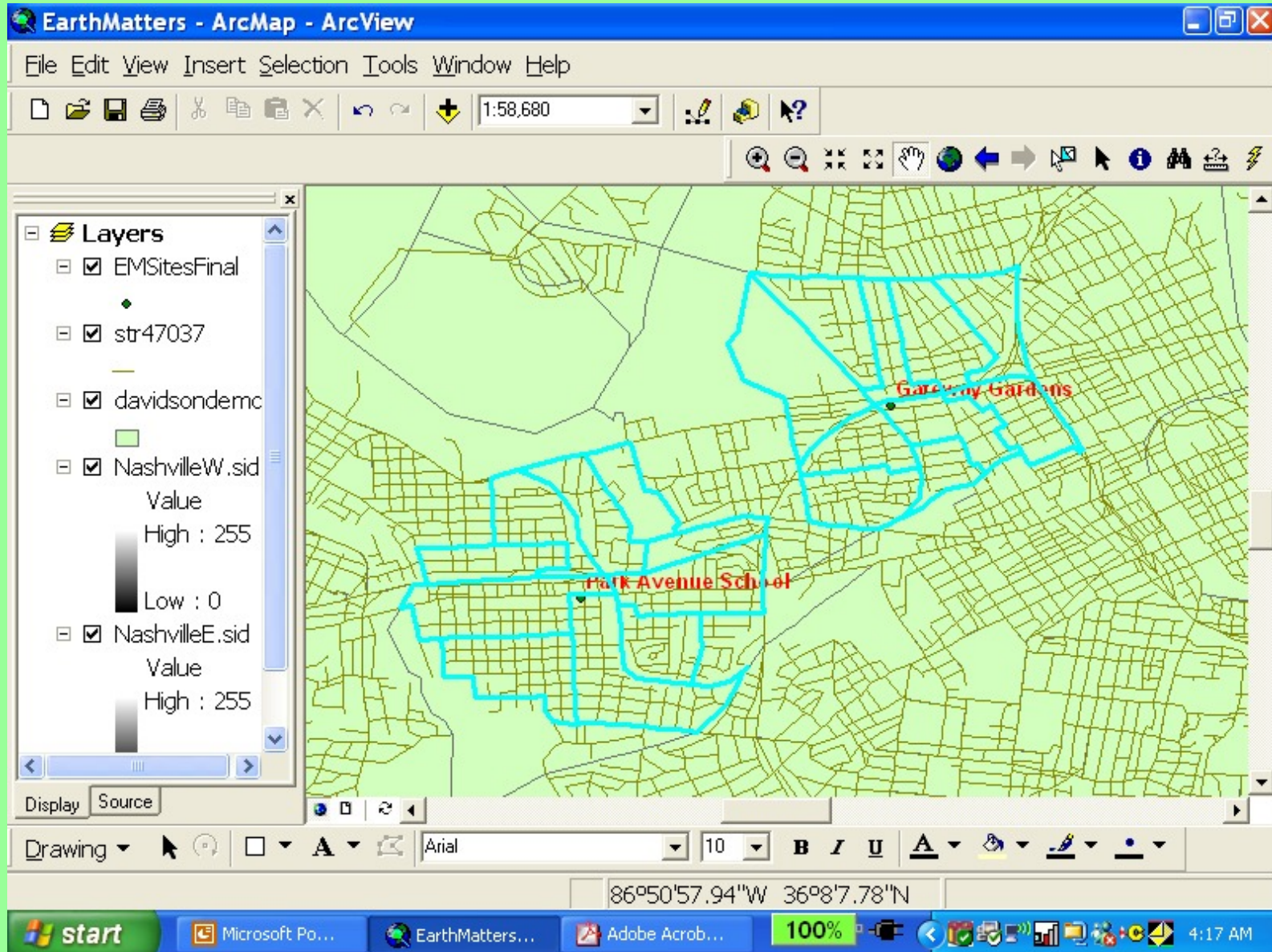
LandView 6 community impact area data may be extracted and then converted into *.pdf format and imported into ArcGIS. In this case, the EarthMatter’s “Gateway Gardens” site is hyperlinked to the population data at a one-half mile radius.



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.

The screenshot displays the ArcMap interface. The main map window shows a geographic area with a grid overlay. A specific area is highlighted in purple and labeled "Gateway Gardens". The "Layers" panel on the left lists several layers, including "gatewaygarde". A popup window titled "Attributes of gatewaygardensdata" is open, showing a table of demographic data for selected census block groups.

STFID_1	POP2000	WHITE	BLACK	AMERI_ES	ASIAN	HAWN_PI	OTHER	MULT_RACE	HISP
470370136001	1109	23	1034	0	20	2	5	25	
470370138001	760	9	747	0	1	0	0	3	
470370138002	939	17	910	0	6	0	0	6	
470370139001	531	16	495	1	0	0	10	9	
470370139002	1232	16	1194	3	1	1	6	11	
470370142001	702	10	679	4	2	0	0	7	
470370142002	510	26	460	5	10	0	1	8	
470370142003	1019	65	914	0	14	0	6	20	
470370143001	658	8	628	0	4	0	4	14	

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