Where Do Children Go?

An Analysis of Recreational Space in Austin, TX

Jennifer Todd
The University of Texas
12/15/2008
Introduction to Geographic Information Systems
EXECUTIVE SUMMARY

This report focuses on the lack of recreational space for children in central Austin. While some areas of the city have an abundance of park space and/or a high population of children, many areas are the complete opposite. Most children live east of I-35, with the highest population percentages of children 5-12 found outside the central city grid. Park space is distributed throughout the city, with gaps found within the downtown grid as well as the northern portion of the study area. Unfortunately, nothing seems to be occurring to reverse the current development trends toward families on the outer edges and single young professionals in the central city. New downtown development initiatives for high rise condos and upscale retail seem focused on maintaining the young working professionals demographic already present in the area while families are pushed to the outskirts of town.

Data for this project was gathered from a variety of sources. Background research on the topic of recreation and play space for children in cities was procured from several academic journals and studies, which will be discussed in the introduction. Demographic information came from the U.S. Census/TIGER database, as did shapefiles for census block groups. The City of Austin’s GIS database was used for road, school, park, and facilities shapefiles. The shapefile for Travis County was obtained from the Capital Area Council of Governments (CAPCOG) database.

Demographic information from census block groups in the study area was used to construct maps of population trends. My analysis resulted in maps illustrating the total population, the number of children under 20, the number of children ages 5-12, as well as the percentage of this age group as a function of the total census block group population. Further mapping shows the location of parks as well as the types of facilities in these parks, a Children’s Museum, recreation centers, and schools. The location of these child-centric facilities was then compared with the population density of children and a suitability analysis was conducted to determine future focus areas with regard to the development of recreational space for children. These areas include the downtown grid as well as areas along I-35 north of 38th street.

The areas highlighted in the final suitability analysis do not currently house large populations of children, but do have a small youth base. By focusing the development of play spaces in these areas, the population of children and families may grow rather than relocating to Austin’s outer areas in search of a more child-friendly environment.
Major cities which are generally viewed as desirable places to live such as Seattle, Portland, San Francisco, and Boston have experienced decreasing numbers of children in recent years as a result of development patterns which tend to drive families away. These development patterns include escalating housing costs, transportation issues, and the increased development of expensive vertical housing, retail, and restaurants. According to New York Times columnist Timothy Egan, Portland has been undergoing targeted efforts to recruit families to the area in response to a rapidly declining population of children- over the past decade more than 10,000 children have left the city. In the Pearl District, an area which has undergone major revitalization, only 3 school-age children were added between 1990 and 2000. In San Francisco, the problem is even worse- this city has the lowest percentage of people under 18 at 14.5%, compared with the national average of 25.7%. The city has begun active measures to attract families, but a variety of circumstances including exorbitantly priced housing have prevented many families from relocating or staying in the area.

A decrease in the number of children within a city creates a variety of problems. Fewer children can mean school closures, which impacts the fabric of a neighborhood. In addition, cities lose money when children leave- according to Portland Mayor Tom Potter, each child who leaves creates a loss of $5,000 for the school district (Eagan, 3/24/2005). The loss of children also creates a less diverse population, less funding for education, decreased park usage, and can even lessen the leverage needed for municipal improvements. Children, therefore, are essential to maintaining the vitality of a city; any city that intends to keep its children must provide an environment that is responsive to their needs and preferences, which includes offering places for recreation and play.

Unfortunately, however, many cities (including Austin) fail to provide adequate recreational space for young people.

The value of play for children is firmly established. While play is good for the obvious reasons of exercise and the development of motor skills, it is also beneficial for the development of understanding and thinking abilities as well as social, moral, and emotional development (Hart 136). By interacting with one another and their environment in play, children learn how to cope with, understand, and be involved in the world around them. The current trend in children’s play, however, has been toward adult-controlled organized team play, especially in suburbs where kids are shuttled from one event to another in a private vehicle. By taking children off the streets and into cars, they become more isolated and have fewer experiences within their own environment (Haider 84, Bartlett 4).

While dedicated play spaces and parks are good options for children, kids will play almost anywhere, and very little effort is required to create a place that is conducive to play. Particular design elements which have been cited as particularly useful include: safe and graduated challenges, accessibility, diversity and clarity, flexibility of physical elements, sensory experiences, different social experiences, and different spatial settings.
In addition, opportunities for risk taking, moveable parts, sand, water and mud, as well as vegetation, have been mentioned (Woolley 94).

There is an extensive body of research on what makes play space effective, as well as how to involve the community in creating recreational space for children. As a relatively wealthy city with a generally healthy downtown, Austin is in a great position to lure families and children to the city with facilities that are well thought out and suitable to the needs of a younger population. The lack of parks, schools, and recreational centers for children downtown helps perpetuate a cycle where, due to a lack of amenities families choose to locate elsewhere, and due to a lack of children, amenities are then located outside the city. Perhaps, if the city took on multi-faceted initiatives similar to those in Denver, Austin would begin to see a movement of children and families into the downtown area.
PROBLEM STATEMENT

Austin is a rapidly growing city with a relatively low percentage of children (as compared to the national average (Egan, 3/24/2005), and a great deal of new development within the city seems to ignore this demographic. Continuing to ignore the needs and perspectives of children in new development will eventually lead to a decline in the number of children in Austin. In response to this problem I would like to examine the current population distribution of children as well as the distribution of child-friendly play space in Austin. My analysis will include demographic information on where children live, where their schools are, and where publicly accessible park and/or recreational space is located. I’ve chosen to limit my analysis to Central Austin due to the population and development patterns in this area- this region contains a variety of schools and most new development and redevelopment is concentrated here. My study area is defined by MOPAC on the west, 2222 to the north, Airport to the east, and Caesar Chaves to the south.

RESEARCH QUESTIONS

When examining the relationship between the location of current child populations, facilities, and parks, I will be seeking to answer a variety of specific questions listed below:

- What areas of the city have the greatest population of children?
- What does the overall population distribution look like?
- Where are parks located?
- What types of facilities are at each park?
- Where are schools located?
- Where are child-centered facilities located?
- What, if any, is the relationship between schools, parks, and facilities?
- Where is the greatest need for the development of new recreational spaces for children?
- Where are suitable locations for the development of new parks?
METHODOLOGY

Data Acquisition:

To conduct my analysis, data would be required from several sources including the U.S. Census, the City of Austin GIS database, as well as CAPCOG’s GIS data files. Demographic information would definitely come from the census, and needed shapefiles included the Travis County boundary, census block groups, roads, schools, parks, facilities, park equipment details, and Austin city limits.

Most of my data was obtained from online databases. From the U.S. Census/TIGER database I downloaded a shapefile for Travis County census block groups as well as census 2000 population information for the census block groups in my study area. After selecting the relevant block groups, I was able to download a relevant excel spreadsheet, on which I calculated the total number and percentage of children ages 5-12, the group I felt was most likely to be users of a new recreational space.

The City of Austin’s GIS database was a great resource. Here I downloaded shapefiles for the City of Austin jurisdictional boundary, parks, schools, roads, and facilities. Each of these files came as a zip file containing relevant shape, point, and line files. The parks zip file contained a parks inventory shapefile as well as point files for the locations of playscapes, swings, various types of fields, and recreational centers. The facilities zip file contained information for all city-owned facilities, including those relevant to my study such as museums, recreational centers, and libraries. The attribute table for the schools shapefile allowed me to select by school type, which was helpful since I was mostly interested in the location of elementary and middle schools.

I utilized the Capital Area Council of Governments’ GIS files to download a county shapefile from which I was able to select the Travis county boundary and create a separate Travis county layer.

Analysis:

All of my initial maps were created to show current conditions. My first step involved creating reference maps for the study area and parks. The study area reference map shows where the study area is in relation to the City of Austin as well as within Travis County. The parks reference map shows the location of parks both within the study area and the city as a whole.

After creating these maps, I created the population maps for my study area. Using census data, I created maps that would show total population, the total population under 20, the total population of children ages 5-12, and the percentage of the population 5-12 for each census block group. These maps are intended to show where overall population is concentrated as well as where most children live.
My next step was to create more detailed maps of the parks. To do this I chose to divide the parks maps into two categories: one showing the location of playscapes and swings (areas of independent play targeted toward a younger audience) and one showing the location of various team-related play areas and fields.

I next created maps showing the location of child-centric facilities and schools in the study area. For the purposes of this study, child-centric facilities are defined as those who are created for children including the Austin Children’s Museum and programmed recreational centers. For the schools map, I chose to include only elementary and middle schools, since these are the target age groups for parks and play spaces. Older children, in my experience, tend more toward indoor facilities and are not as frequent users of structured play spaces.

After creating all of the initial maps, I created a map showing parks, facilities, and schools in combination with childhood population trends. The purpose of this map was to illustrate the relationship between the location of parks, facilities, and concentrations of children.

Once the initial maps were complete, I began my suitability analysis. I chose to do this in two parts. First, I conducted a suitability analysis on the entire study area to determine the best locations for new facilities. In the second suitability analysis, I limited the analysis to census block groups with 25 or fewer children whose population of children 5-12 represented less than 10% of the total population. The second suitability analysis, therefore, would show investment areas to encourage the location of families and children while the first would show areas of need based on where children live now.
FINDINGS

**Map Directory:**

- Study Area Introduction
- Population Analysis (2 maps)
- Park Area Introduction
- Parks with Playscapes
- Parks with Team Play Space
- Child-Centric Facilities
- Parks, Child-Centric Facilities, and Population
- Suitability Analysis Steps
- Study Area Suitability
- Suitability Analysis for areas with fewer than 25 children 5-12 at less than 10% of the total population
Central Austin Park Inventory

Study Area

Streets

0 0.5 1 2 Miles

M-0-PAC  LAMAR  2222  H-35  AIRPORT
45TH ST  MLK BLVD  38TH ST  CESAR CHAVEZ

Austin City Limits

0 2.5 5 10 Miles

Travis County

Study Area Boundary

Jennifer Todd
Where Do Children Go: An Analysis of Recreational Space in Austin, TX
CRP 386
Fall 2008
Author: Jennifer Todd
Date: 12/10/2008
Data Sources: CAPCOG, City of Austin, U.S. Census/TIGER
Projection NAD 1983 State Plane Texas Central FIPS 4203 (feet)
Population Analysis

Total Population

- 0 - 262
- 263 - 804
- 805 - 1205
- 1206 - 1815
- 1816 - 3895

Study Area Boundary
Census Block Groups

Population under 20

- 0 - 76
- 77 - 273
- 274 - 563
- 564 - 1070
- 1071 - 2932

Data Sources: CAPCOG, City of Austin, U.S. 2000 Census
Projection: NAD 1983 State Plane Texas Central FIPS 4203 (feet)

Author: Jennifer Todd
Date: 12/05/2008
Population Analysis

Number of Children ages 5-12

- 0 - 18
- 19 - 57
- 58 - 112
- 113 - 214
- 215 - 397

- Streets
- Study Area Boundary

Percent ages 5-12

- 0 - 2
- 3 - 4
- 5 - 7
- 8 - 11
- 12 - 24

Data Sources: CAPCOG, City of Austin, U.S. 2000 Census
Projection: NAD 1983 State Plane Texas Central FIPS 4203 (feet)

Author: Jennifer Todd
Date: 12/05/2008

Where Do Children Go? An Analysis of Recreational Space in Austin, TX
Central Austin Park Inventory

Major Study Area Parks

All City Parks

Study Area Boundary

Street

Parks

Travis County

Data Sources: CAPCOG, City of Austin
Projection NAD 1983 State Plane Texas Central RPS 4203 (feet)

Author: Jennifer Todd
Date: 12/08/2008

Where Do Children Go? An Analysis of Recreational Space in Austin, TX

CRP 386
Fall 2008
Central Austin Park Inventory

Parks with Playscapes

Data Sources: CAPCOG, City of Austin
Projection: NAD 1983 State Plane Texas Central FIPS 4203 (feet)

Author: Jennifer Todd
Date: 12/08/2008
Central Austin Park Inventory

Parks with Team Play Space

Data Sources: CAPCOG, City of Austin
Projection: NAD 1983 State Plane Texas Central FIPS 4203 (feet)

Author: Jennifer Todd
Date: 12/10/2008
Facilities and Number of Children

Number of Children
5-12
- 0 - 15
- 16 - 57
- 58 - 112
- 113 - 214
- 215 - 397

Elementary and Middle Schools

Child-Centric Facilities

Study Area Boundary

Parks

Census Block Groups

Percentage of Children
5-12
- 0 - 2
- 3 - 4
- 5 - 7
- 8 - 11
- 12 - 24

Data Sources: CAPCOG, City of Austin, U.S. 2000 Census
Projection: NAD 1983 State Plane Texas Central FIPS 4203 (feet)

Author: Jennifer Todd
Date: 12/11/2008
Suitability Analysis

Distance from Elementary and Middle Schools
Distance from Child-Centric Facilities
Distance from Parks

Data Sources: CAPCOG, City of Austin, U.S. 2000 Census/TIGER. Projection: NAD 1983 State Plane Texas Central FIPS 4203 (feet)
Suitability Analysis

Entire Study Area

Data Sources: CAPCOG, City of Austin, U.S. Census/TIGER
Projection: NAD 1983 State Plane Texas Central FIPS 4203 (feet)

Author: Jennifer Todd
Date: 12/12/2008

CRP 386
Fall 2008
Suitability Analysis

Focus Areas: Parcels with less than 25 children ages 5-12 representing under 10% of total population

Parcel Ranking

- 5
- 6
- 7
- 8
- 9
- 10

Data Sources: CAPCOG, City of Austin, U.S. Census/TIGER
Projection: NAD 1983 State Plane Texas Central FIPS 4203 (feet)
ANALYSIS

Population Analysis:

According to the Total Population map, the greatest concentration of people can be found in central Austin just north of downtown. Other areas with a large number of people include census block groups east of I-35 as well as those along MOPAC near 2222. The greatest concentration of people under 20 follows a similar pattern as this group can be found in the largest numbers just north of downtown as well as east of I-35.

The population distribution of children is somewhat different, however. With regard to both total number and percentage of the population, downtown is in the lowest category for children ages 5-12. The greatest concentrations of children are located east of I-35, south of Martin Luther King Blvd. The census block groups located at the intersection of MOPAC and 2222 also have a high concentration of children as a percentage of the population.

These maps clearly illustrate the difference between total population and the population of children. While the total population is spread throughout the city, children are found in mostly outlying areas. The downtown grid area is light in both types of population, but this is expected to change as an increasing number of high-rise condominiums are built.

City Parks:

Park space is found throughout all areas of the city, but is concentrated mostly in the west and south-eastern portions of the study area. The north-eastern study area is the only space which stands out as particularly devoid of park space. Most of the study area’s smaller parks feature playscapes and/or swings, but only one space downtown has either of these amenities. Many of the larger green spaces such as that along Lady Bird Lake and Shoal creek also lack any structured play space.

Team Play space is differentiated from playscapes and swings since it is seen as appealing to an older audience of children, and for a different purpose. Children come here to interact with one another, and may be less likely to engage in independent play. An analysis of parks with team play space reveals that a variety of options are available in study area parks. The heaviest concentration of team play space is found east of I-35.

Child-Centric Facilities:

The study area contains just one junior high school, three high schools, and 14 elementary schools. Most of the schools are located in the area between Airport and Caesar Chavez with a noticeable absence of schools from the downtown grid as well as sparse distribution in the northern and central portions of the study area.
Recreation facilities programmed year-round for children are also included on this map. Three are found east of I-35 while just one is located elsewhere along 2222 near MOPAC. The Austin Children’s Museum was also included in the facilities category, and is the only representative of any child-centric facilities within the downtown area. Schools are a particularly telling indicator of where children are located, as schools are constructed based on demand. Even without population information, the concentration of children in the southern area east of I-35 is obvious, while the absence of child-centric facilities both downtown and north of this area is equally apparent.

When the various facilities and parks are placed over a map showing the population of children by census block group, the correlation between a high concentration of children and facilities attempting to serve that need is seen in the area east of I-35. Areas with high population proportions of children along MOPAC and 2222 appear to have far fewer facilities.

**Suitability Analysis:**

When conducting the suitability analysis, the following three criteria used according to the following weights: distance from schools (40%), distance from child-centric facilities (40%), and distance from parks (20%). Distance from schools and child-centric facilities were both calculated with positive correlations- sites closer to these variables were more favorable that sites far away. The distance from parks variable, however, was calculated using a negative correlation- sites farther away are preferable to those nearby. A suitability analysis of the entire study area reveals a strong preference for development of new sites in the area east of I-35 between Caesar Chavez and Airport. Other highly ranked sites include the area around Rosedale Elementary in the northeast as well as near Pease Elementary and the Austin Children’s Museum to the south. This map is a good indicator of suitable sites to place new facilities based upon current needs and facilities. What I wanted to discover, however, is how the location of families and children could be influenced by the location of recreational space in areas that currently have low populations of children.

The second suitability analysis map shows suitable locations that are within particular focus areas. To be included in the focus area, a parcel needed to have fewer than 25 children ages 5-12 and that same age group must represent less than 10% of the total population. This analysis revealed a need for new recreational space along I-35 just south of 38th street as well as from downtown to Duncan Park on the west. By creating a more child-friendly environment in these areas with the development of recreational space in conjunction with other policy initiatives, more families may be encouraged to move to the downtown area.
CONCLUSION/RECOMMENDATION/RAMIFICATIONS

Many of our nation’s leading cities, including Seattle, Portland, San Francisco, and Denver, have already begun initiatives to encourage families and children to live in their downtowns. In 2006, Denver launched the Children/Youth-Friendly City initiative as a part of their goal to become the nation’s most child-friendly city. Various indicators of such a city include: a physical environment that responds to the specific needs and concerns of children, methods to involve children in assessing and improving their own neighborhoods and giving them a voice in the local decision-making process, instituting laws, rules, regulations, and planning norms that take children into account, and developing indicators to evaluate the impact of decisions upon children (Kingston et al 98). With regard to play spaces, Denver’s effort to become a more child-friendly city includes a program called the Learning Landscapes Initiative, which is a partnership between the Landscape Architecture department at the University of Colorado and local communities. When working on projects, University students work with school officials, teachers, students, and community members to “design a space responsive to cultural and aesthetic tastes of neighborhood residents and developmental needs of children” in a particular area (Kingston et al 100).

In addition to efforts within America, other countries have also developed child-friendly initiatives. In the United Kingdom, home zones have been created in some areas which close streets to cars (full or part time) and try to make existing streets more pedestrian-friendly (Woolley 92).

Within the city of Austin, efforts could be made to improve the quality and quantity of play space for children. As seen in the earlier analysis, the city lacks space created particularly for children both north of and within the downtown area. One effective way to create better space for children might be to ask them what they want. Since Austin is already a very participatory city with regard to visioning for the future and creating a development plan for the downtown, a natural extension of these efforts would be to include children. These efforts could reveal what spaces children prefer as well as why those spaces are viewed favorably and how this could be translated to the creation of new recreational space that would be frequently utilized.

Dedicated park and play space is definitely valuable to the development of children and their play experience. Children, however, will play anywhere and often choose those spaces most convenient to home. Therefore, while structured play spaces and areas are important, it is equally vital that cities are made safe for children who do not have easy access to parks. Within downtown Austin, for example, efforts are needed to increase the mobility of not just children, but all people so that they are less dependent on cars. Alternate transportation should be made safer- bike lanes could be improved, and bus service made more efficient.
REFERENCES


APPENDIX
Data:

Initial data for demographics as well as Travis County census block groups was obtained from the 2008 TIGER/Line Shapefiles database created by the U.S. Census Bureau. The applicable website is: http://www2.census.gov/cgi-bin/shapefiles/national-files.

Data for Austin jurisdictional limits, parks, roads, schools, and facilities was obtained from the City of Austin GIS Data Sets webpage, found here: ftp://coageoid01.ci.austin.tx.us/GIS-Data/Regional/coa_gis.html. The City of Austin is the author of these data sets.

The Travis County shapefile was obtained from the Capital Area Council of Governments webpage, found here: http://www.capcog.org/information-clearinghouse/geospatial-data/. Data was originally obtained from the Texas Natural Resources Information System.

Analysis: A How-To Guide

Study Area File:
- Open ArcGIS, obtain Travis County Index graphic from previous assignment, insert into map
- Add CAPCOG county boundaries file, select by attribute: County=Travis
- Create new layer from selection. Name the new layer Travis_County
- Add the City of Austin jurisdiction file.
- Clip to Travis_County, name new layer City_Limits
- Add roads file clip to Travis County
- Clip to City_Limits
- Manually select study area roads
- Create new layer from selection. Re-name Study_Area
- Create one data frame with Travis County, City Limits, and Study Area with an extent rectangle referencing a close-up of the study area in a separate data frame

Population Analysis:
Census 2000 Data:
- Open ArcGIS, open Travis County Census Block Groups shapefile
- Manually select Travis County Census Block Groups in study area. Export data, add to map as new layer. Re-name Census_Block_Groups
- Go to www.census.gov, download data for total population and population under 20, selecting by census block groups in study area
- Download selected census information as an excel table

Total Population:
- Add Census Block Group, Streets, and Study Area Layers
- Add Excel Table of Census 2000 population data
- Join Census Table to Travis County Census Block Group attribute table. Join based on GEO_ID2 (Census) and STFID (Census Block Group). Export data
• Change symbology to show natural breaks, no decimals, thousands separators shown if necessary
• Use blue color ramp for population maps
• Add Travis County reference map

**Percent Under 20**
• Copy first three steps from above
• In symbology, choose under 20 value normalized as percent of total
• Use blue color ramp
• Add Travis County reference map

**Percent and Number of Children 5-12**
• Add Travis County Census Block Group, Streets, and Study Area Layers
• Open excel spreadsheet of Census 2000 population data. Add columns for total number and percentage of children ages 5-12, entering appropriate formulas.
• Join edited Census Table to Travis County Census Block Group attribute table. Join based on GEO_ID2 (Census) and STFID (Census Block Group)
• Change symbology to show natural breaks, no decimals, thousands separators shown if necessary, use blue color ramp

**Parks:**

**Central Austin Park Inventory Reference Map:**
• Create index map of Travis County (use Travis County and City of Austin shapefiles), make light grey.
• Create park inventory data frame:
  o Add Travis County layer, park inventory, streets shapefiles.
  o Clip park inventory to City of Austin jurisdictional limits
  o Adjust colors according to map template. Add extent rectangle to above index map.
• Create study area parks data frame:
  o Add Travis County layer, park inventory, streets, and study area streets shapefiles
  o Manually select parks within study area. Create new layer from selection
  o Delete original park inventory file, name new layer Study Area Parks
  o Add labels to major parks (by size and/or notoriety) as reference
  o Add extent rectangle to park inventory map.

**Parks with playscapes:**
• Add Travis County index map (county boundary and park inventory shapefiles)
• Add Travis County boundary, streets, study area, and study area parks shape files
• Add point file for playscapes, clip to study area parks
• Add point file for swings, clip to study area parks
• Adjust symbology to orange and purple stars
• Add labels for parks within study area, change to annotation for deletion of all names not associated with parks that have playscapes. Move names as necessary

**Parks with Team Play Space:**
• Add Travis County index map (county boundary and park inventory shapefiles)
• Add Travis County layer, streets, study area streets, study area parks
• Add point files for ball fields, basketball goals, multi-purpose fields, soccer fields, tennis courts, and volleyball courts
• Clip all files to study area
• Adjust symbology to shapes of different colors by use
• Add labels for parks within study area, change to annotation for deletion of all names not associated with parks that have team play space. Move names as necessary

**Facilities Inventory:**
• Add Travis County Index map (county boundary, Austin city limits, study area boundary) with extent rectangle
• Add Travis County, study area, and streets shapefiles
• Add facilities shapefile. Select by attribute: manually select recreation centers with programming as well as Austin Children’s Museum
• Change symbology for schools: flags of different colors for elementary, junior high, and high schools; recreation centers and the museum will be a purple dot
• Add labels for all elements, change to annotation for deletion of all names not associated with facilities featured in the map

**Facilities and Number of Children:**
• Add Travis County Index map (county boundary, Austin city limits, study area boundary) with extent rectangle
• Add population distribution files from earlier population maps for total number and percentage of children 5-12
• Add park and facilities files from earlier maps

**Suitability Analysis:**
**Individual Elements:**
• Add Travis County Index map (county boundary, Austin city limits, study area boundary) with extent rectangle
• Add study area and census block group files
• Activate Spatial Analyst, set analysis extent to same as layer
• In spatial analyst, select distance → straight line, select schools, save as sch_dist_re
• Reclassify so that method is set to equal interval and classes to 10
• Invert new values to reflect preference of vicinity to schools, delete last row that says no data
• Save files as sch_dist_re
• Repeat process for child-centric facilities, saving files as fac_dist and fac_dist_re as needed
• In spatial analyst, select distance → straight line, select schools, save as park_dist_re
• Reclassify so that method is set to equal interval and classes to 10
• Save file as park_dist_re
• Show each element as separate data frame in map: schools, facilities, and parks

**Entire Study Area:**
• Add study area and census block group files. Clip census block groups to study area.
• Add parks, facilities, and schools shape files
• Select Raster Calculator in Spatial Analyst toolbar, weights variables accordingly:
  o sch_dist_re: .4
  o fac_dist_re: .4
  o park_dist_re: .2
• Click evaluate and make permanent, save. Change name of calculation layer to weights
• Go to spatial analyst ➔ reclassify. Specify weights in input raster window, click classify and make sure method is set to equal interval and classes is set to 10. Click ok
• Delete last row that says no data
• Go to spatial analyst ➔ convert ➔ raster to features. Save file as rank

Focus Areas:
• Continue from last step in above map
• Add new data frame with study area and census block groups
• Within census block groups, select by attribute: under 25 for ages 5-12 and under 10%. Export data and save as new layer focus_area
• Navigate to analysis tools ➔ overlay ➔ intersect
• Input fields: rank and focus_area
• Save new file as focus_area_ranked