

Integrated GIS for Planning and Public Policy Decision Making

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Center for Agricultural, Resource and Environmental Systems (CARES)

University of Missouri – Columbia

Transportation Seminar Series

February 17th, 2006

Columbia, Missouri

Agenda

- What is Internet GIS, how is it different from desktop GIS and why is this important?
- An overview of our custom applications
- An overview of our main map room
- Discussion
- Conclusions

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Welcome

The Rural Policy Research Institute's (RUPRI) Community Information Resource Center provides timely, policy-relevant information and decision support to government agencies, non-profit organizations, and citizen groups across the U.S. and globally.

Our center works with stakeholders to link people and place through interactive visualization, analytical tools, and spatial analysis. Our mission is to make public information publicly accessible in a decision support framework.

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IMAGES OF THE MONTH



emergency response



poverty



health

TRY
interactive mapping

Utilize internet mapping software and rich database to build custom interactive maps.

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our initiatives and projects

Access information developed through ongoing research between the staff at CIRC and outside organizations.

about CIRC

Learn about CIRC, the people behind the scenes, our technology and our programs

New @ CIRC

1/3/06-1/14/06 - CIRC director traveled to Pyongtaek City, Korea to present seminars on Rural and Community Development and e-governance

12/5/05 - Staff presented at The Rural Early Childhood Forum on Hurricane Recovery and Emergency Preparedness in Mobile, AL

[View hurricane maps here](#)

12/1/05 - Staff presented a workshop at the [Community Indicators Consortium](#) in Burlington, VT

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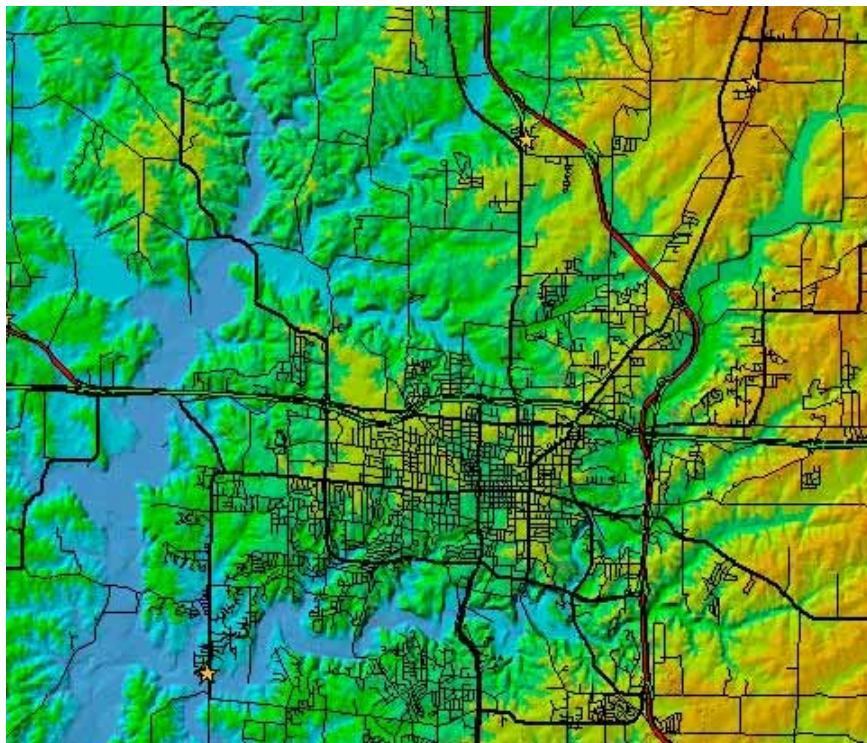
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What is a Geographic Information System (GIS?)

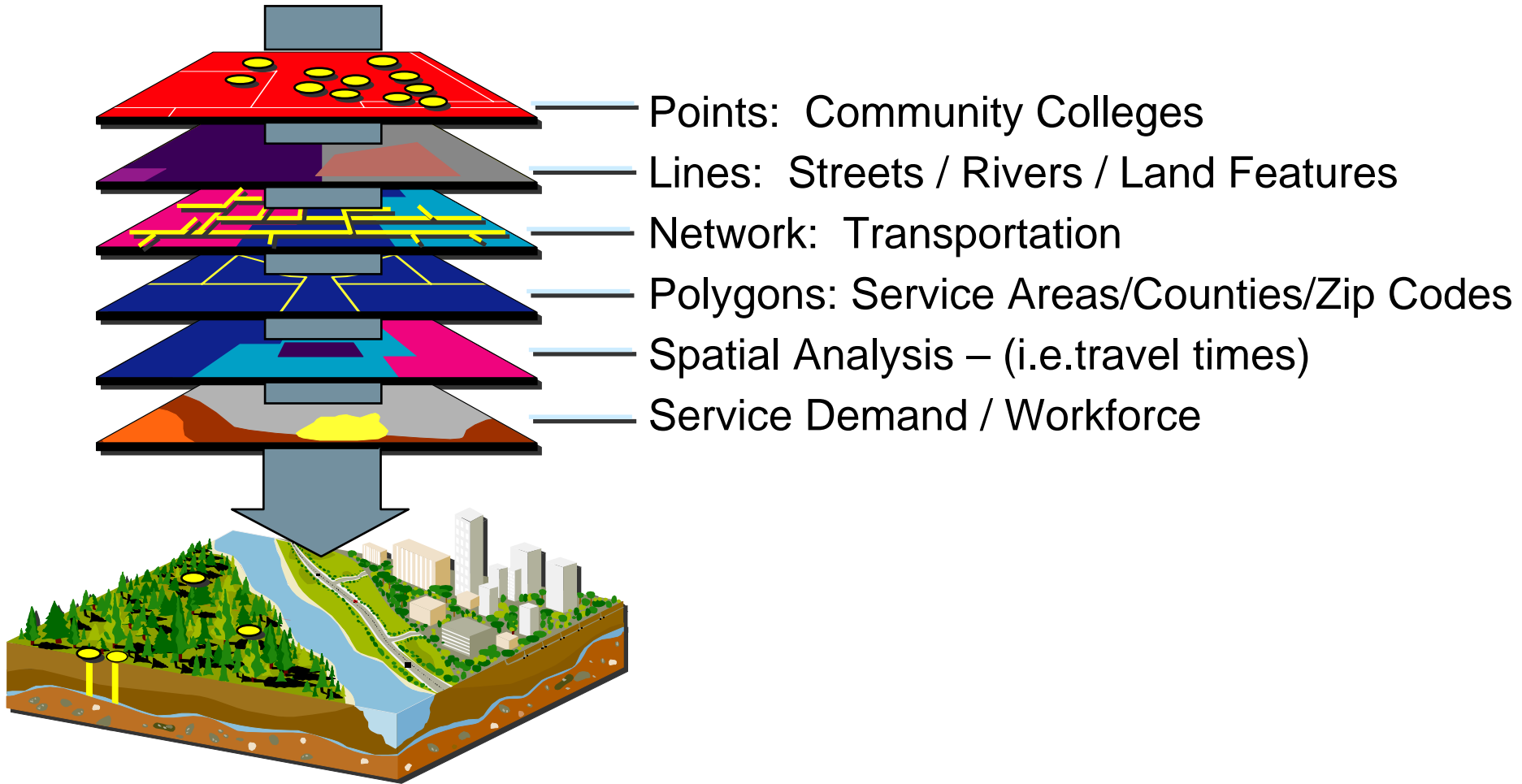
Geographic Information system (GIS)

A GIS is often defined as the complete sequence of components for obtaining, processing, storing, managing, and manipulating spatial data

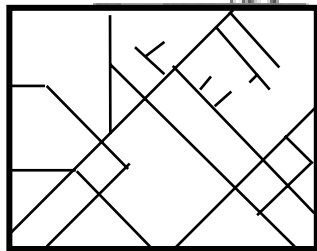


Creating Data Layers

...linking digital data to “geography”



Geographic features are represented by two types of data.



SPATIAL DATA

Street Name
Address range on left
Address range on right
Length to travel
Directions to travel

ATTRIBUTE DATA

What you can do with a GIS

- Impact Analysis
- Economic Development
- Strategic Planning
- Multi-sector Collaboration / Coordination
- Grant support
- Data Visualization
- Environmental Monitoring
- Site Location Analysis
- Advocacy
- ...

Limitations of an Agency-Based GIS Framework

- Non-profit organizations and government agencies at all levels often disseminate institution-specific data in the public domain.
- Decision makers often need data from several agencies that can be used together in a decision support framework.
- Many policy makers do not have resources to readily integrate data from Agency-based websites into a decision support system that cuts across multiple agencies or institutions.

A Patchwork Quilt of Data...

- Water water everywhere but not a drop to drink...
- Data data everywhere but not a BYTE to think...

What is an Internet GIS and how is it different from a desktop GIS?

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Interactive Mapping: Step 1. Specify Area of Interest

Step 1. Specify Area of Interest

ADMINISTRATIVE:

- [State](#)
- [County or Equivalent](#)
- [City](#)
- [Metropolitan Statistical Area](#)
- [High School District](#)

POLITICAL:

- [US 109th Congressional District](#)

RESEARCH PROJECT AREA:

- [CIRC Research Study Areas](#)
- [RUPRI Panels Study Areas](#)

Step 2. Select Data Layers

Step 3. Verify Selections

Select your area of interest. Click Step 2 above to proceed.

Select a State:



This website is best viewed using Internet Explorer 5.x or higher or Netscape 5.x or higher, with pop-up windows enabled. Mozilla users may encounter functional errors with certain tools. [more about browser requirements...](#)

 [Step 2. Select Data Layers](#)

Interactive Mapping: Step 2. Select Data Layers

Step 1. Specify Area of Interest

Step 2. Select Data Layers

Step 3. Verify Selections

DATA CATEGORY

- Administrative
- Base Data
- + Census 2000
- + Economic
- + Health
- + Kids Count - Annie E. Casey
- Political
- + Special Projects

Administrative

- | | |
|--|----------------------------|
| <input checked="" type="checkbox"/> State Boundaries | details... |
| <input type="checkbox"/> County Boundaries | details... |
| <input type="checkbox"/> Cities and Towns | details... |
| <input type="checkbox"/> Core Based Statistical Areas | |
| <input type="checkbox"/> County Subdivisions | details... |
| <input type="checkbox"/> Elementary School Districts | details... |
| <input type="checkbox"/> High School Districts | details... |
| <input type="checkbox"/> Indian Reservation Boundaries | |

Rural

- ☐ [Rural-Urban Commuting Areas \(RUCAs\)](#)

[Step 3. Verify Selections](#)



Interactive Mapping: Step 3. Verify Selections

Step 1. Specify Area of Interest

Step 2. Select Data Layers

Step 3. Verify Selections

Check your selections of geographic area and data layer listed below. Click "Map Map" to start your interactive map. An interactive map allows you to change colors, label items, utilize tools, and make printable maps (HTML or PDF format).

MAKE MAP

Geographic Area:

US (Lower 48 States)

CHANGE

Data Layer Selections:

Lakes and Ponds

DELETE

State Boundaries

DELETE

MAKE MAP

For information on Browser Requirements, click [here](#).

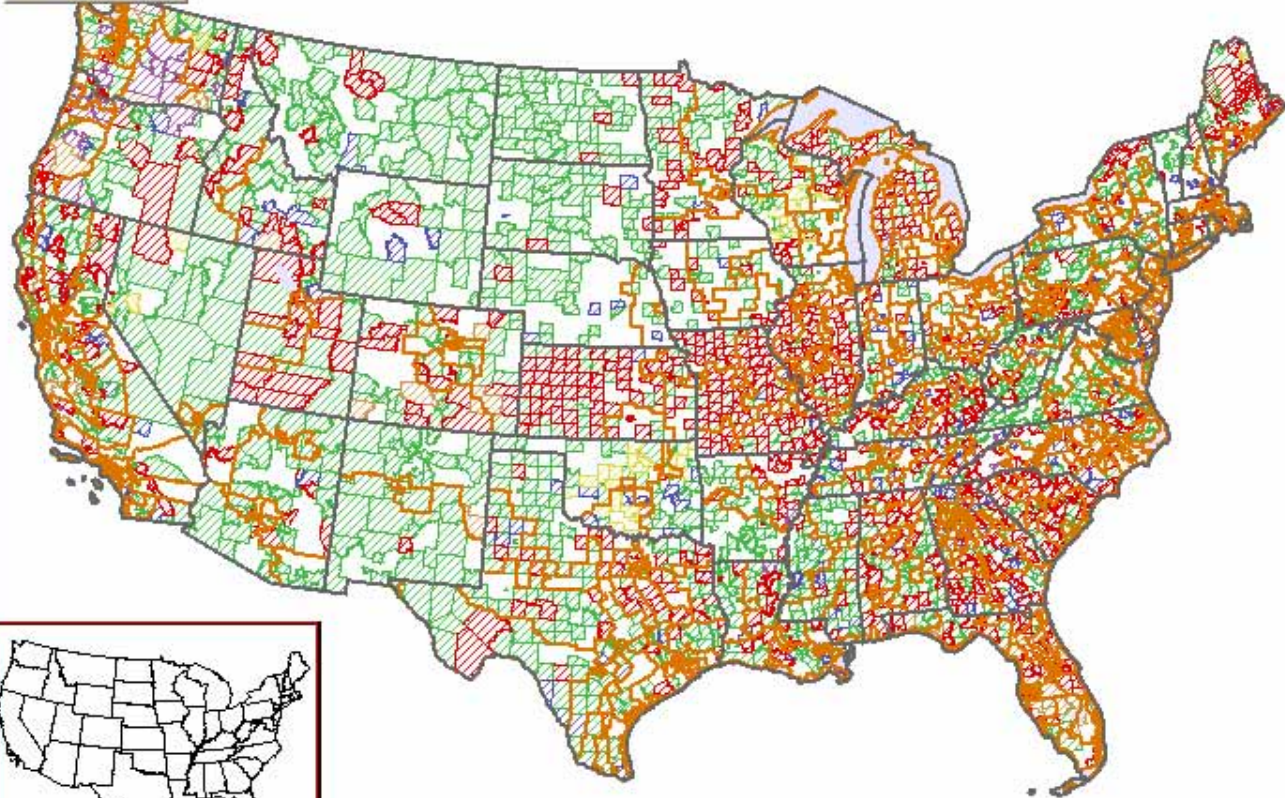




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[interactive mapping](#)

File View Selection Tools Extent Help



Map Scale = 1:25780802
0 449mi

☒ Display map legend

☐ Layer and label controls

- State Boundaries
- US 109th Congressional Districts
- Water
- Health Professional Shortage Areas (Primary Care)
- Total Population
- Low Income Population
- Low Income / Migrant Worker Population
- Native American Population
- No Data or Proposed Withdrawal
- Other Defined Population



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Interactive Mapping: Step 2. Select Data Layers

Step 1. Specify Area of Interest

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Administrative

- ☒ State Boundaries [details...](#)
- ☐ County Boundaries [details...](#)
- ☐ Cities and Towns [details...](#)
- ☐ Core Based Statistical Areas

- ☐ County Subdivisions [details...](#)
- ☐ Elementary School Districts [details...](#)
- ☐ High School Districts [details...](#)
- ☐ Indian Reservation Boundaries

Rural

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[Step 3. Verify Selections](#)

Interactive Mapping: Step 2. Select Data Layers

Step 1. Specify Area of Interest


Step 2. Select Data Layers

Step 3. Verify Selections

DATA CATEGORY

- Administrative
- Base Data
- ☒ Census 2000
 - Age
 - Education
 - Employment by Industry
 - Gender
 - Group Quarters
 - Hispanic or Latino
 - Household by Type
 - Housing Occupancy and Tenure
 - Income
 - Labor Force
 - Population
 - Race
 - Relationship of Persons in Household
 - Urban and Rural Population
 - Work Force by Occupation
- ☒ Economic
- ☒ Health
- ☒ Kids Count - Annie E. Casey
- Political

Census 2000

-  Age
 - ☒ Median Age
 - ☒ 17 and under
 - ☒ 18 to 24 years
 - ☒ 25 to 44 years
 - ☒ 45 to 64 years
 - ☒ 62 years and over
 - ☒ 65 years and over
 - ☒ 4 and under
 - ☒ 5 to 9 years
 - ☒ 10 to 14 years
 - ☒ 15 to 17 years
 - ☒ 18 to 19 years
 - ☒ 20 to 24 years
 - ☒ 25 to 34 years
 - ☒ 35 to 44 years
 - ☒ 45 to 54 years
 - ☒ 55 to 59 years
 - ☒ 60 to 64 years
 - ☒ 65 to 74 years
 - ☒ 75 to 84 years
 - ☒ 85 years and over

Note: For each interactive map, you are limited to add up-to 4 data layers with the SAME geographic unit (e.g. county) from the Census 2000 collection.

Interactive Mapping: Step 2. Select Data Layers

Step 1. Specify Area of Interest


Step 2. Select Data Layers

Step 3. Verify Selections

DATA CATEGORY

- ☐ Administrative
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- ☒ Census 2000
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 - ☐ Education
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 - ☐ Race
 - ☐ Relationship of Persons in Household
 - ☐ Urban and Rural Population
 - ☐ Work Force by Occupation
- ☒ Economic
- ☒ Health
- ☒ Kids Count - Annie E. Casey
- ☐ Political

Census 2000

-  **Age**
 - ☒ Median Age
 - ☒ 17 and under
 - ☐ By Block Group, 2000 Total
 - ☐ By Block Group, 2000 Percent
 - ☐ By Census Civil Division, 2000 Total
 - ☐ By Census Civil Division, 2000 Percent
 - ☐ By CMSA_MSA, 2000 Total
 - ☐ By CMSA_MSA, 2000 Percent
 - ☐ By County, 2000 Total
 - ☐ By County, 2000 Percent
 - ☐ By Designated Place, 2000 Total
 - ☐ By Designated Place, 2000 Percent
 - ☐ By State, 2000 Total
 - ☐ By State, 2000 Percent
 - ☐ By Tract, 2000 Total
 - ☐ By Tract, 2000 Percent
 - ☐ By US Congressional, 2000 Total
 - ☐ By US Congressional, 2000 Percent
 - ☒ 18 to 24 years
 - ☒ 25 to 44 years
 - ☒ 45 to 64 years
 - ☒ 62 years and over
 - ☒ 65 years and over



Interactive Mapping: Step 2. Select Data Layers

Step 1. Specify Area of Interest

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Step 2. Select Data Layers

Political

- | | |
|---|----------------------------|
| <input type="checkbox"/> State House Districts, 2000 | details... |
| <input type="checkbox"/> State House Districts, Updated | details... |
| <input type="checkbox"/> State Senate Districts, 2000 | details... |
| <input type="checkbox"/> State Senate Districts, Updated | details... |
| <input type="checkbox"/> US 109th Congressional Districts | |
| <input type="checkbox"/> Voting Districts | details... |

Step 3. Verify Selections

[Step 3. Verify Selections](#)



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 - Urban and Rural Population
 - Work Force by Occupation
- ☒ Economic
- ☒ Health
 - Health Systems
 - ☒ Providers of Service (CMS)
 - ☒ State Offices of Rural Health (SORH)
 - Health Professions Network
- ☒ Kids Count - Annie E. Casey
- Political

Health System

Health Facilities

- ☐ Community Health Centers
- ☐ Companies Providing Ambulance Services, 10/2004
- ☐ County and City Health Departments
- ☐ Critical Access Hospitals
- ☐ Respiratory Care Facilities, 2002
- ☐ Small Rural Hospital Improvement Grant Program (SHIP), 2002
- ☐ Small Rural Hospital Improvement Grant Program (SHIP), 2004

Health Statistics, 1998-2002

- ☐ Infant Mortality Rate
- ☐ Low Birth Weight Rate

HRSA Area Resource File (ARF), 2001-2002

- ☐ Nursing Facilities in 2002
- ☐ Skilled Nursing Facilities in 2002
- ☐ Total Active DOs in 2001
- ☐ Total Active MDs in 2001
- ☐ Total Nursing Facility Beds in 2002
- ☐ Total Skilled Nursing Facility Beds in 2002

Health Professional Shortage Areas

- ☐ Health Professional Shortage Area (Dental)
- ☐ Health Professional Shortage Area (Mental Care)
- ☐ Health Professional Shortage Area (Primary Care)
- ☐ Medically Underserved Areas/Populations



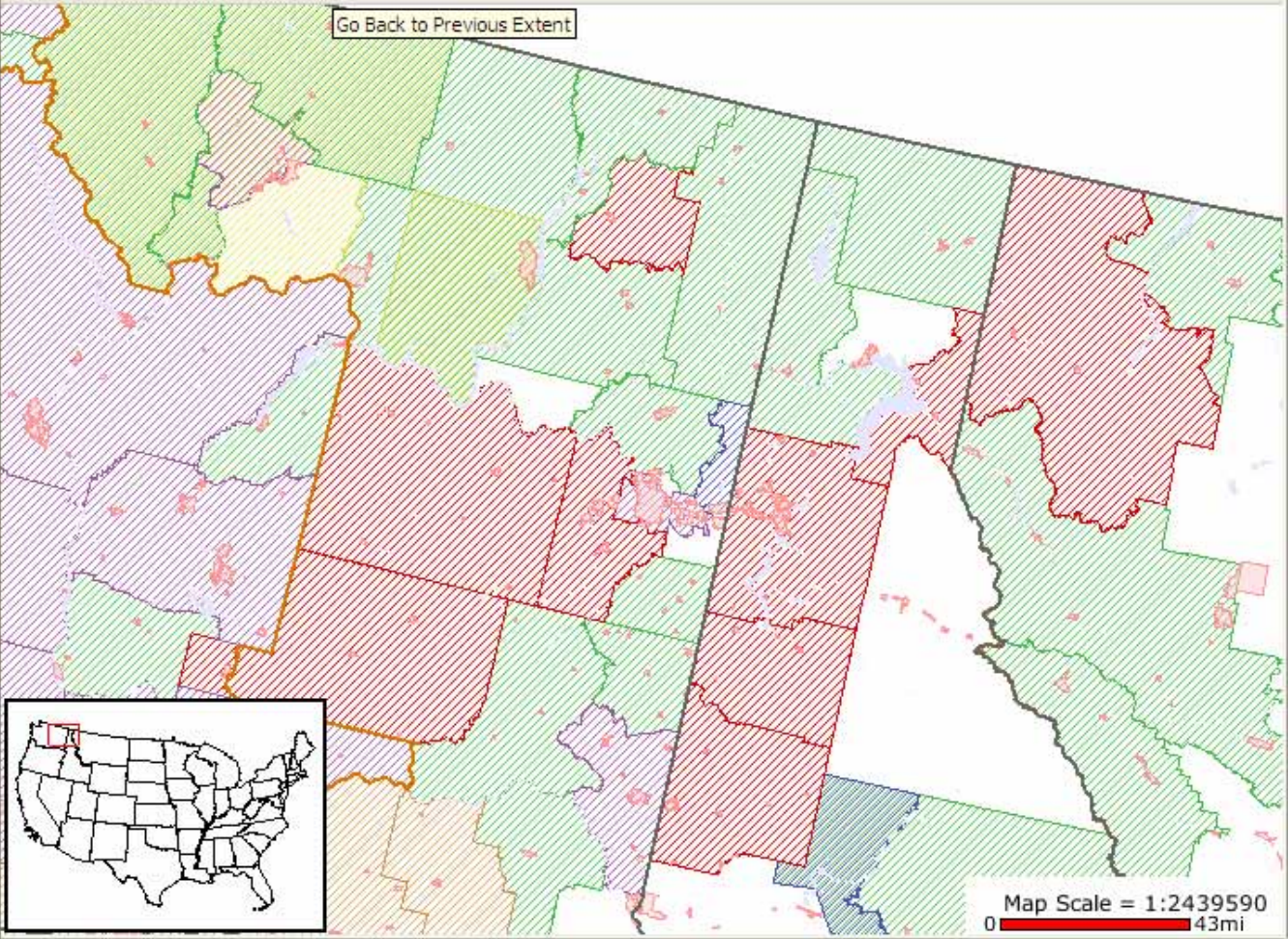
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Go Back to Previous Extent



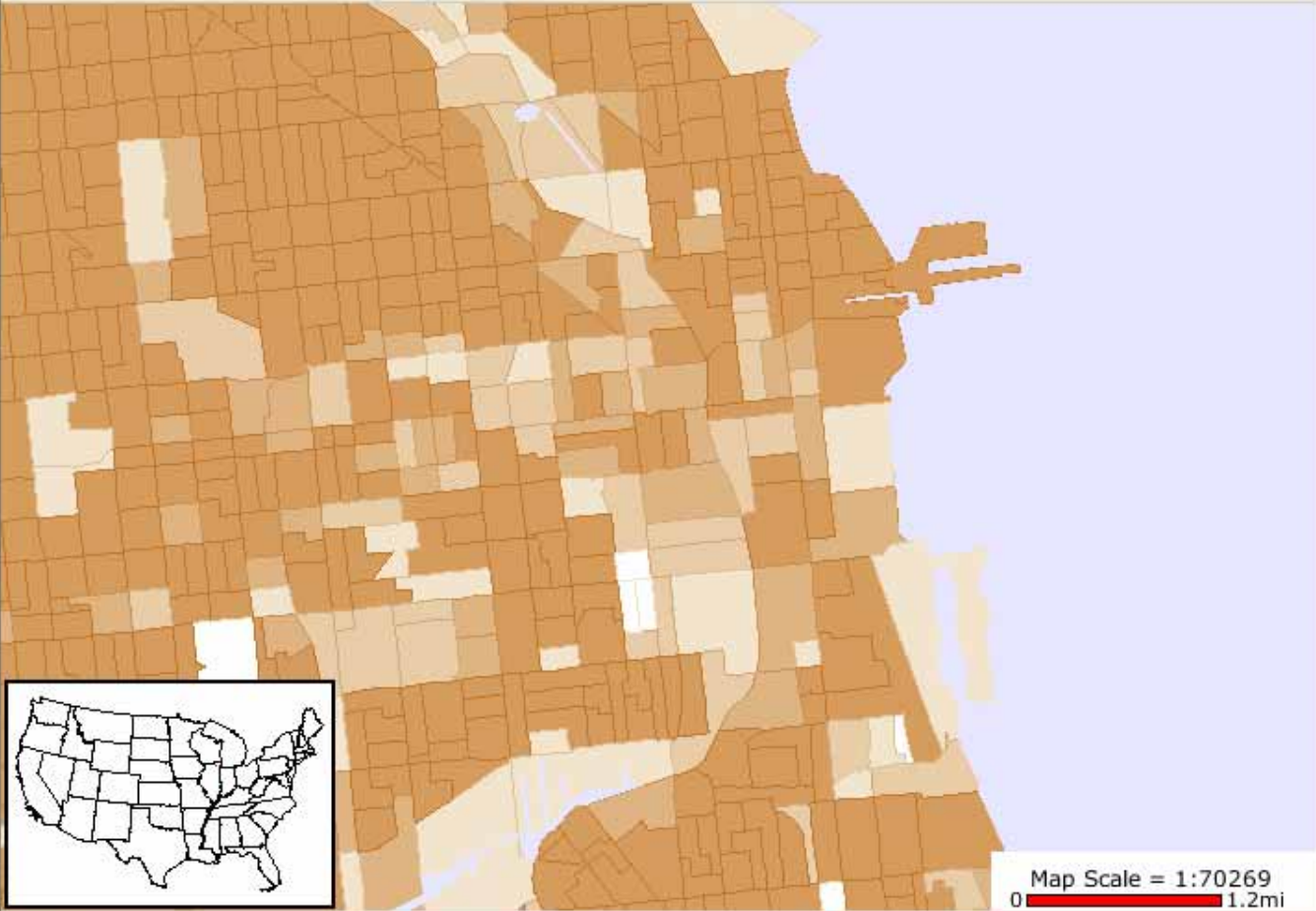
Map Scale = 1:2439590
0 43mi

☒ Display map legend
☐ Layer and label controls

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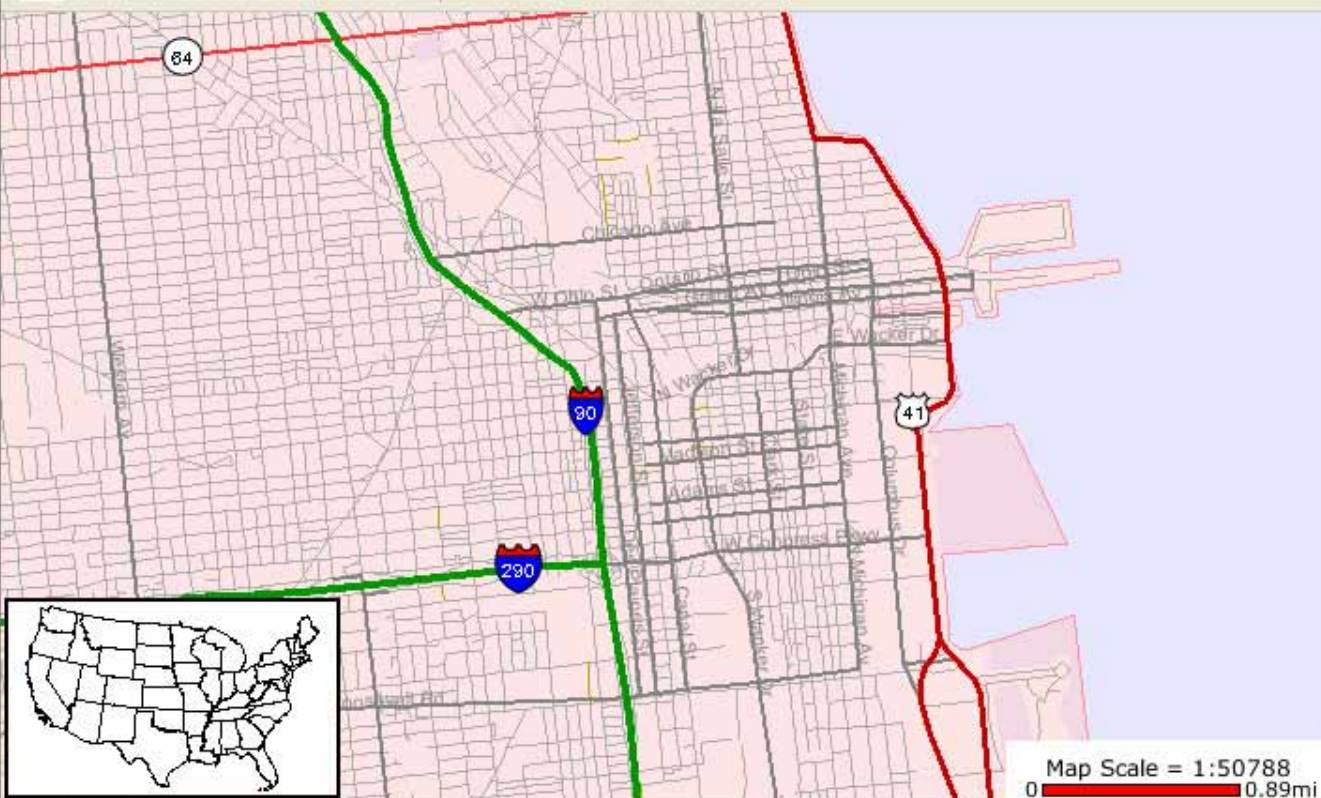
- Water
- Persons per Sq. Mile by Block Group, 2000
 - 6,178.1 or more
 - 2,547.29 - 6,178.09
 - 326.9 - 2,547.28
 - Less than 326.9
 - No population

Legend

Map Scale = 1:70269
0 1.2mi



File View Selection Tools Extent Help



☒ Display map legend

☐ Layer and label controls

Highways

- Interstate
- U. S. Highway
- State Highway
- Business Route
- Ferry
- Other Principal Road

Roads and Streets

- Road or Street
- Private / Other Throughfare
- Trail
- Ferry

- Cities and Towns
- Water

Map Scale = 1:50788
0 0.89mi

How Does Internet-based GIS Level the Playing Field?

- Effective research collaboration tool
- Effective communication tool
- No GIS software required
- No data distribution required
- Cost effective

Website and Contact Information

<http://circ.rupri.org>

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