

Using Research & GIS Strategically

Shaping Action and Response to Issues

2010 ESRI Southeast Regional User Group (SERUG) Conference
April 26–28, at the Westin Charlotte, North Carolina

Safeguarding the Community Ideal Through Data-Driven Collaboration
www.centerforcommunitysafety.org



Center for Community Safety

Safeguarding the Community Ideal Through Data-Driven Collaboration

- Mission
 - To engage communities in using research strategically to shape action and response to community safety issues
- Purpose
 - Initiate analysis and research on community safety issues, and then help shape action and response
 - Bring community partners together to work on significant public safety issues
 - Serve as major public service and research center of WSSU
 - Train other communities in taking strategic, data-based, problem-solving approach

Center for Community Safety

Training

- Joanne Davidson, Training & Communications Lead

Data Research & Analytics

- Tim Mulrooney, PhD, Data Research & Analytics Lead
- Mike Carmichael, M.A. GIS Training & Database Coordination

Teaching & Applied Experience

- Rick Pender, Acting Deputy Director, Teaching & Applied Experience Lead

Partnerships

- Rick Pender, Acting Deputy Director, Teaching & Applied Experience Lead
- Marian Anderson Booker, Partnership Coordination

CCS Administration

- Alvin Atkinson, CCS Interim Exec. Director
- Mary Fries, Accounting & Front Office Coordination
- Alta McNair, Finance & Project Coordination

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Center for Community Safety Data, Research & Analytics GIS Classroom** Staff

**The GIS Classroom formally changed it's name
From the Transforming Communities Research
Lab in March 2010

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Mike Carmichael



Email Address: carmichaelm@wssu.edu
Personal Website: <http://myweb.wssu.edu/carmichaelm>
Telephone Number: (336)779-7310

- GIS Training and Database Coordination
 - Center for Community Safety
 - Data Research & Analytics
- B.S. Law Enforcement & Administration
 - UNC Charlotte 1976
- M.A. Community Education
 - Appalachian State University 1985
- Geospatial Technology Certificate
 - Central Piedmont Community College 2007

Tim Mulrooney

- Data Research & Analytics Lead
 - Center for Community Safety
 - Data Research & Analytics Lead
- B.A. - Columbia University '95
- M.S. – University of Idaho '02
- 2002 – 2007: SRP GIS Regional Support Center, Fort A.P. Hill, VA
- 2009 – Ph.D., University of North Carolina, Greensboro



Email Address:

mulrooneyti@wssu.edu

Personal Website:

<http://myweb.wssu.edu/mulrooneyti>

Telephone Number:

(336) 779-7313

Winston-Salem State University

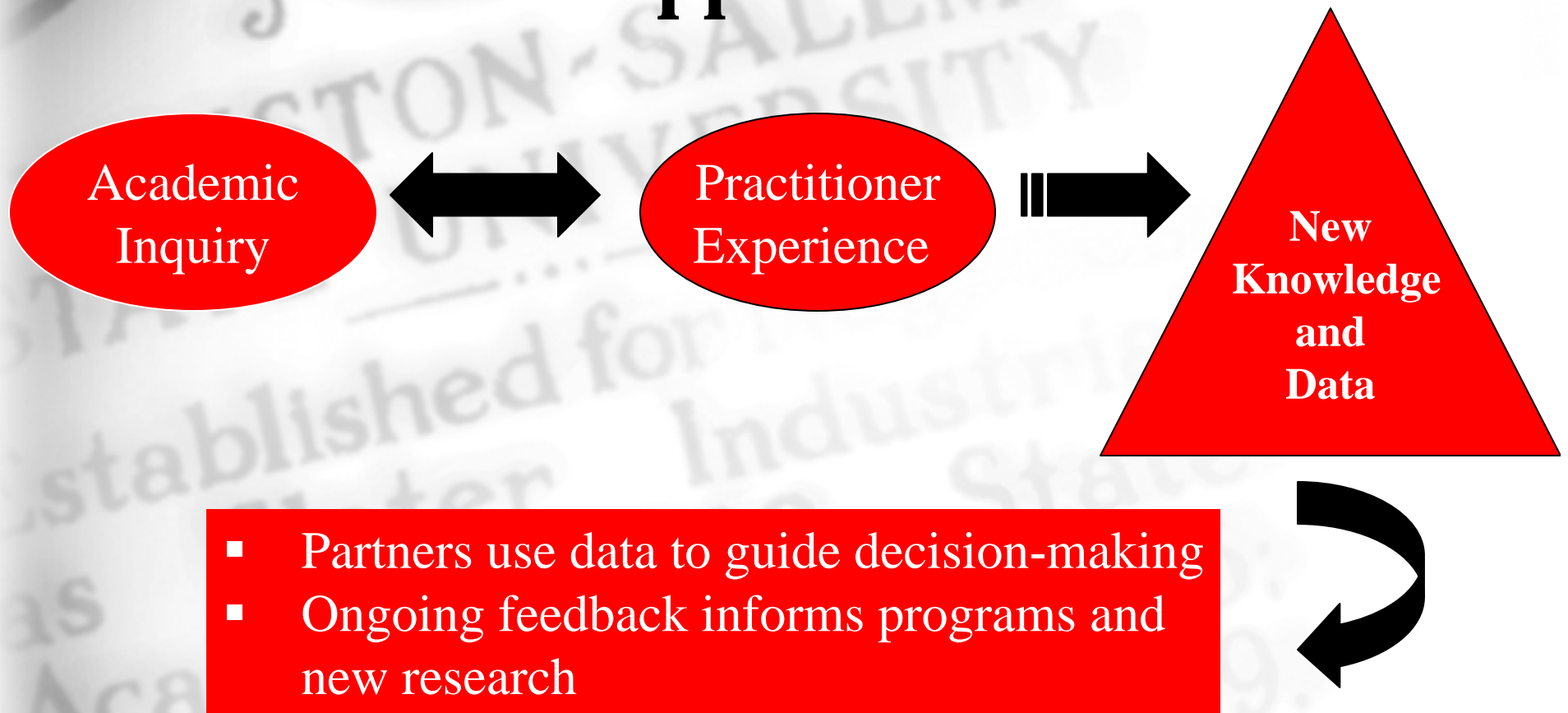


- **Location**
 - Winston-Salem, NC
- **Founded**
 - 1892
- **Status**
 - Public, master's level , HBCU
- **Enrollment**
 - Nearly 6,000
- **Academic Majors**
 - 43
- **Graduate Programs**
 - 12
- **Undergraduates Receiving Financial Aid**
 - 86%
- **Undergraduates In-State/Out-of-State**
 - 86%/14%

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Center for Community Safety Approach



- Partners use data to guide decision-making
- Ongoing feedback informs programs and new research

History of GIS at CCS TCRL

- **Police Foundation MAPPS Project (ArcView 3.1 acquired)**
- **2002 N.C. Governors Crime Commission Planning Grant**
- **2003**
 - N.C. Governors Crime Commission Planning Grant Implementation
 - Community Safety Technology Network, NC Gov Crime Commission Reentry Mapping Network Urban Institute, Washington, D.C.
 - Simon Green Atkins Community Development Corporation
- **2004 - Winston-Salem Foundation Grant**
- **2005 - Transforming Communities Research Lab**
- **2008 -**
 - **Receives Title III Funding from US Dept of Education**
 - **CCS hires consults to look at operations**
- **2009 - CCS joins WSSU College of Arts & Sciences
Metadata Grant - NSDI, Category 1 CAP Grant Program**
- **2010 - CCS creates four units TCRL name
changed to *GIS Classroom***

Transforming Communities Research Lab

- One-stop resource
- Powerful tools
- Public outreach vehicle
- Puts geographic data within easy view—and understanding—of residents, researchers, advocates, entrepreneurs, planners and policymakers



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GIS Classroom Public Resources



12 Dell desktops with Geographic Information System and spatial-mapping software

Five Dell PowerEdge servers housing local, state and national geo-coded databases

Two large-format printers

- LCD projector and laptop computer

- Conference table with whiteboard

GIS Classroom Use



GIS/Mapping Workshop

- Free to public
- Offered weekly
- 2 hour introduction
- Return to GIS Classroom for further instruction and use
- University resources available to assist

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GIS Classroom Use



- ***Metadata 101: Hands-On Metadata Training and Support for North Carolina.***
 - provided through the FGDC (Federal Geographic Data Committee) CAP Grant Program
- **WSSU Geosciences Initiative (WGI)**
 - 2 1 ½ day intro workshops for summer student and faculty mentors
 - 1 1 day professional development workshop for K-12 faculty
- **Health Sciences Dept. (Nursing)**
 - Community Health Nurses includes GIS workshop in their curriculum each semester
- **Justice Studies –Tech Analysis**
 - Uses GIS classroom and resources to teach GIS use in Justice arena

TCRL User Statistics



•2009 793 log ins

- Begin adding phone and email data request to dataset
- WSSU Faculty
- WSSU Staff
- WSSU Students
- Community Non-Profits
- Community Agencies
- Other Area Colleges & Universities



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Users Include

- WSSU students
- WSSU faculty
- WSSU staff
- UNCG students
- Elon University Students
- Salem College Students
- Salem College Faculty
- WFU faculty
- WFU students
- A Balm in Gilead Family Enrichment Center
- Ardmore neighborhood Association
- Forsyth Habitat for Humanity
- Bethlehem AME Zion Church
- Center for Human Services Research Evaluation and Advocacy
- CHANGE
- NC Minority Support Center



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Faith Based User Example

What kinds of crime? Where? & the ages of the perpetrators?

New ministry in town
wanted to map
crimes around city
to determine where
they might be most
needed and
effective in planning
their mission in
Winston-Salem



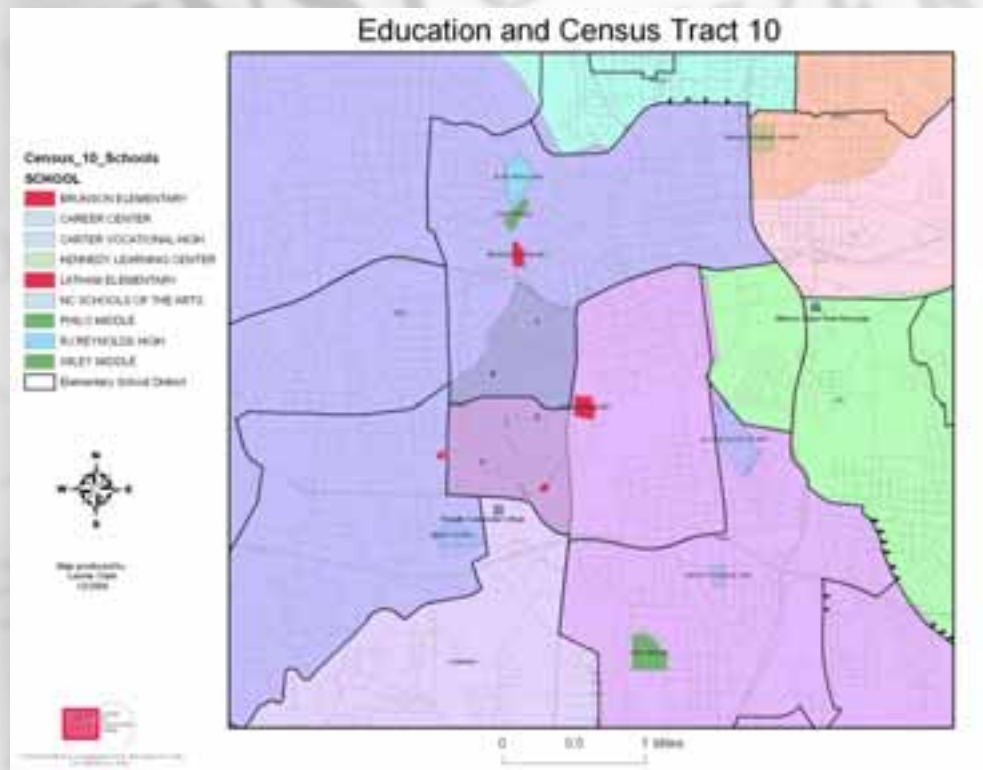
Community Advocate User Example

What are the age ranges in 27105?



Community Research

Where are the elementary, middle and high School District boundaries?

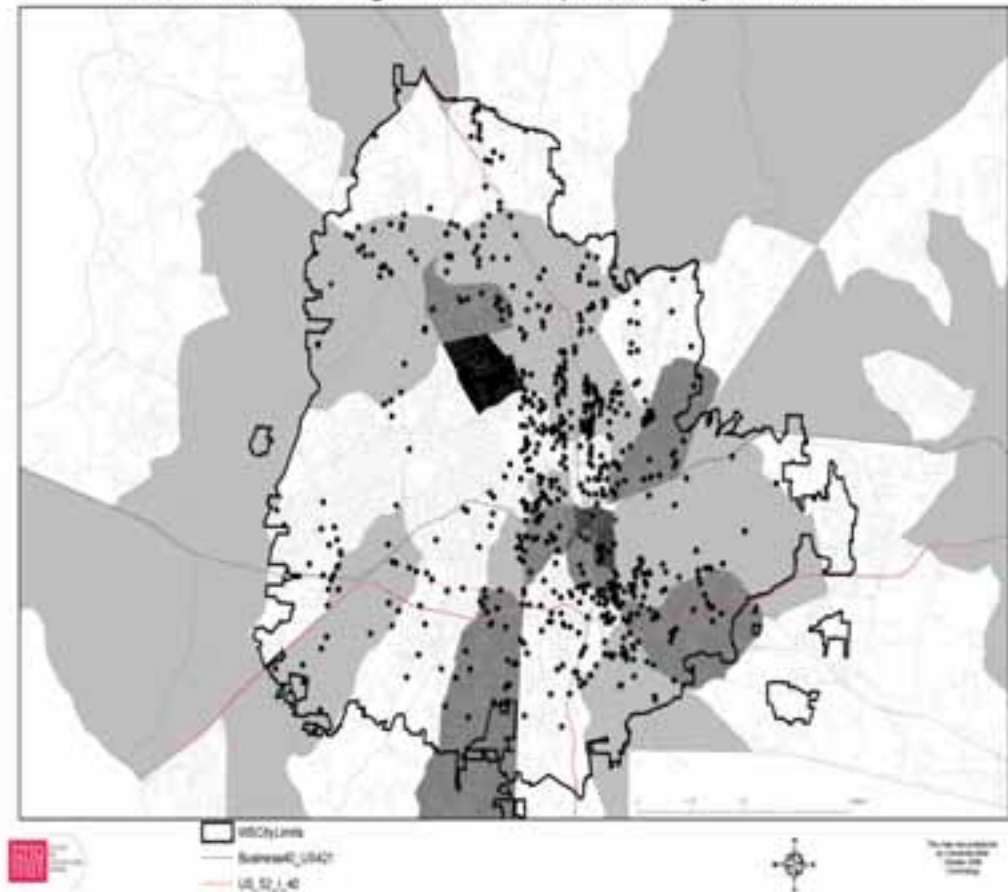


One community researcher looked at education districts in census tract she lives in along with other data

Undergraduate Research

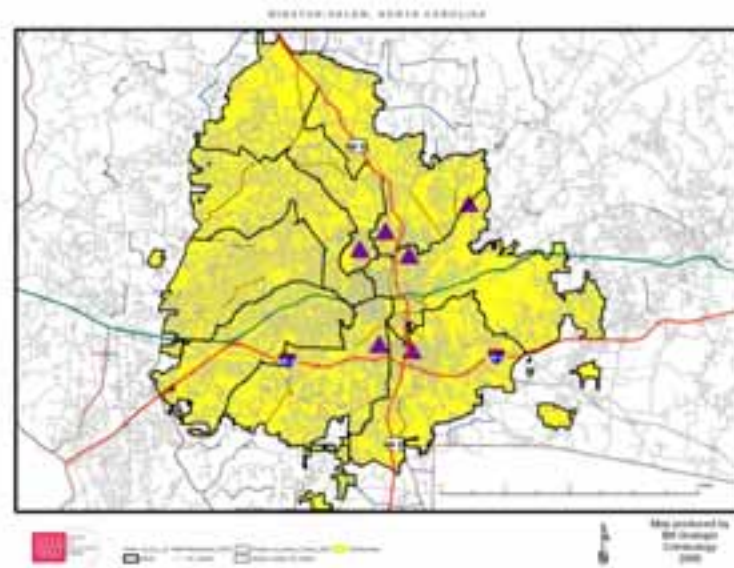
Undergraduate student in criminology course (resident of Winston-Salem) worked on project for class looking at assaults overlaid onto 18-21 Census data.

2005 Assaults: Ages 18-21 Population by Census Tract



Undergraduate Research 2

Undergraduate student in criminology course (resident of Winston-Salem) worked on project for class did his class research on gambling



Partnership Research

Local homicide vigil group needed know how many places of worship were within 1 mile of a homicide location. They wanted to invite the churches to their vigil.



Reasons Given to Use TCRL

- Gerontology Research
- The "Y.B.E.G." project looks at geographic data to understand the geospatial relationships between poverty communities in Davie County and utilization of banking services". It is hoped that such a project will elucidate the geospatial patterns of banking services for the rural poor.
- training
- Mapping school system needs, spending, and political affiliations against other demographics.
- I want to buy a home and am interested in researching neighborhoods
- Community Mapping Workshop
- Potentially may use GIS as part of my Master's Project.
- home renovations, educational assistance
- i am interested in doing research in the Forsyth county area, African American community in connection with domestic violence and the impact that it is having on the area as well as the community.
- Faith Seeds Community Capacity Survey data entry.
- asset mapping and community needs assessments
- Home Purchase sites
- Mapping educational Equity in the WSFC school system
- Increase proficiency level in editing within ArcGIS Software Suite.

Workshop Participant Evaluation

“Good introduction to what I need...”

“Made things comfortable....made things seem doable...”

“I can find out more information about jobs in my neighborhood”



Community Development Corporation



CDC used TCRL to analyze entire CDC area
then analyze specific neighborhood they are
currently working to habilitate

Neighborhood Associations

67 year old neighborhood association president maps downloads sex offenders from internet and maps them out for association meeting



Neighborhood Research

What Buildings
in My Neighborhood
Are Boarded Up and
Appear Abandoned?

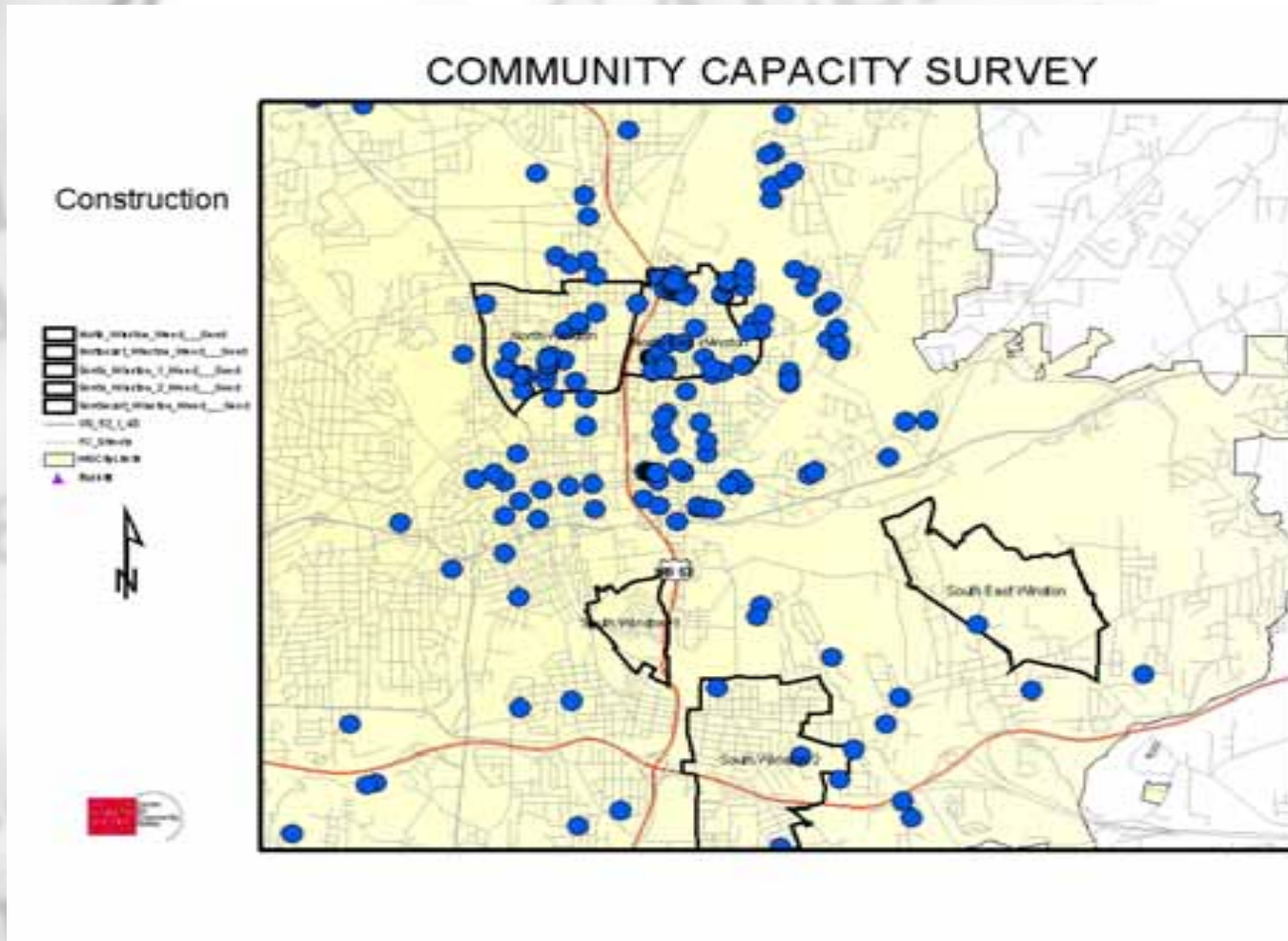


Source: County GIS Tax Record 2004

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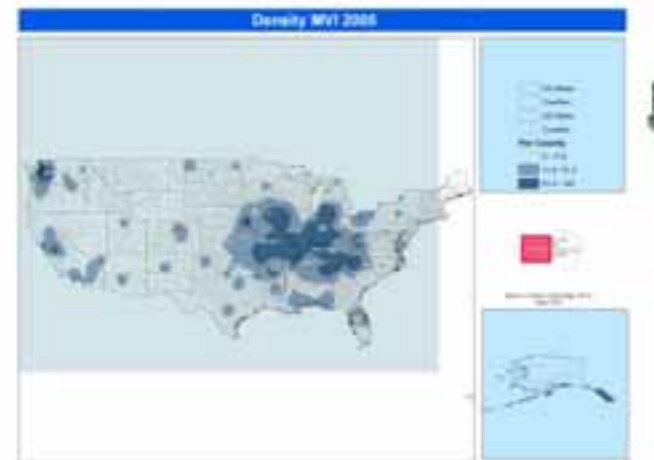
Faith Based Organization Prisoner Reentry Survey



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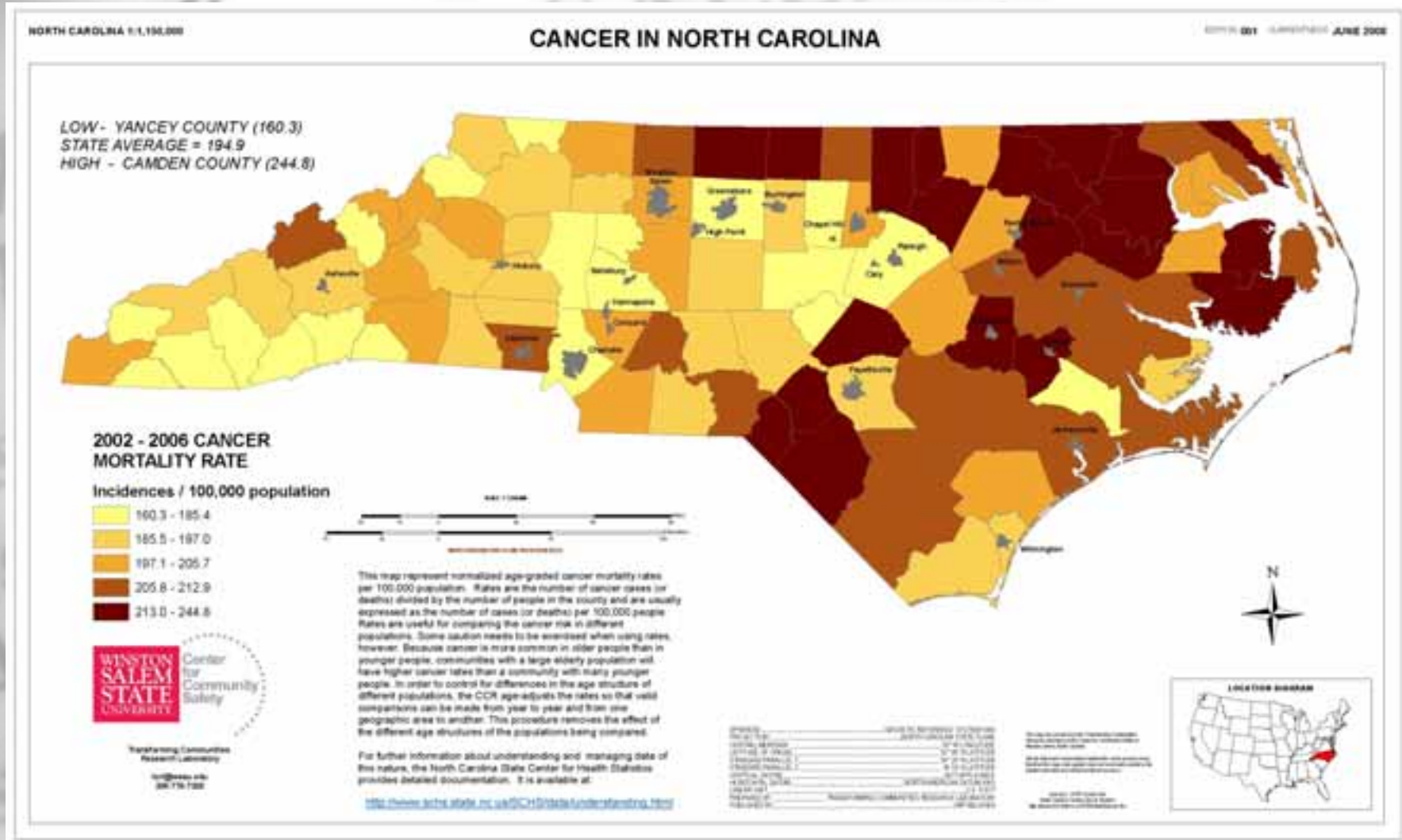


User Produced Maps



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Examples of Polygon Data in the Health Sciences



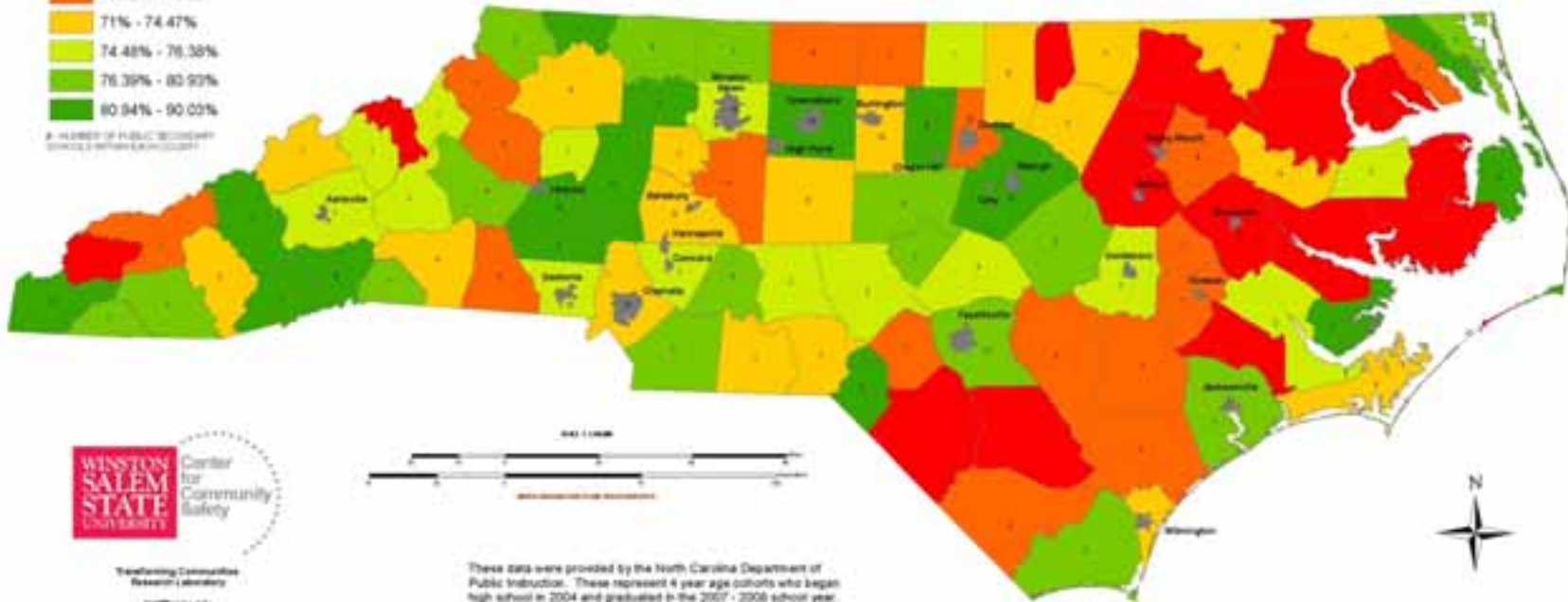
HIGH SCHOOL GRADUATION RATES

STATE AVERAGE = 74.47%

Graduation Rate

- 15.38% - 65.11%
- 65.12% - 70.99%
- 71% - 74.47%
- 74.48% - 76.35%
- 76.36% - 80.93%
- 80.94% - 90.03%

NUMBER OF PUBLIC SECONDARY SCHOOLS WITHIN EACH COUNTY



Transforming Communities
Research | Laboratory
wssu@wssu.edu
336-776-1300

* ALL DATA PROVIDED ARE AS OF THE CONCLUSION OF THE 2007 - 2008 SCHOOL YEAR EXCEPT FOR EDGEcombe COUNTY. DATA FOR ONE HIGH SCHOOL WAS NOT PROVIDED. AS A RESULT, A YEAR COHORT DATA FROM THIS SCHOOL FOR THE 2006 - 2007 SCHOOL YEAR WAS COMBINED WITH UPDATED INFORMATION FROM THE OTHER SECONDARY SCHOOLS IN THE COUNTY.

These data were provided by the North Carolina Department of Public Instruction. These represent 4 year age cohorts who began high school in 2004 and graduated in the 2007 - 2008 school year. As a result, schools that did not have a freshman class at the beginning of the 2004 - 2005 school year could not be included in this study.

Individual graduation rates were provided for each school within the county. The total number of students and graduates were tabulated and summarized from all secondary schools within the county. The number of secondary schools within each county is denoted by the number in the map. This graduation rate is merely the percentage of students who graduated in 4 years for a given county based on the data provided by NC DPI in 2008.

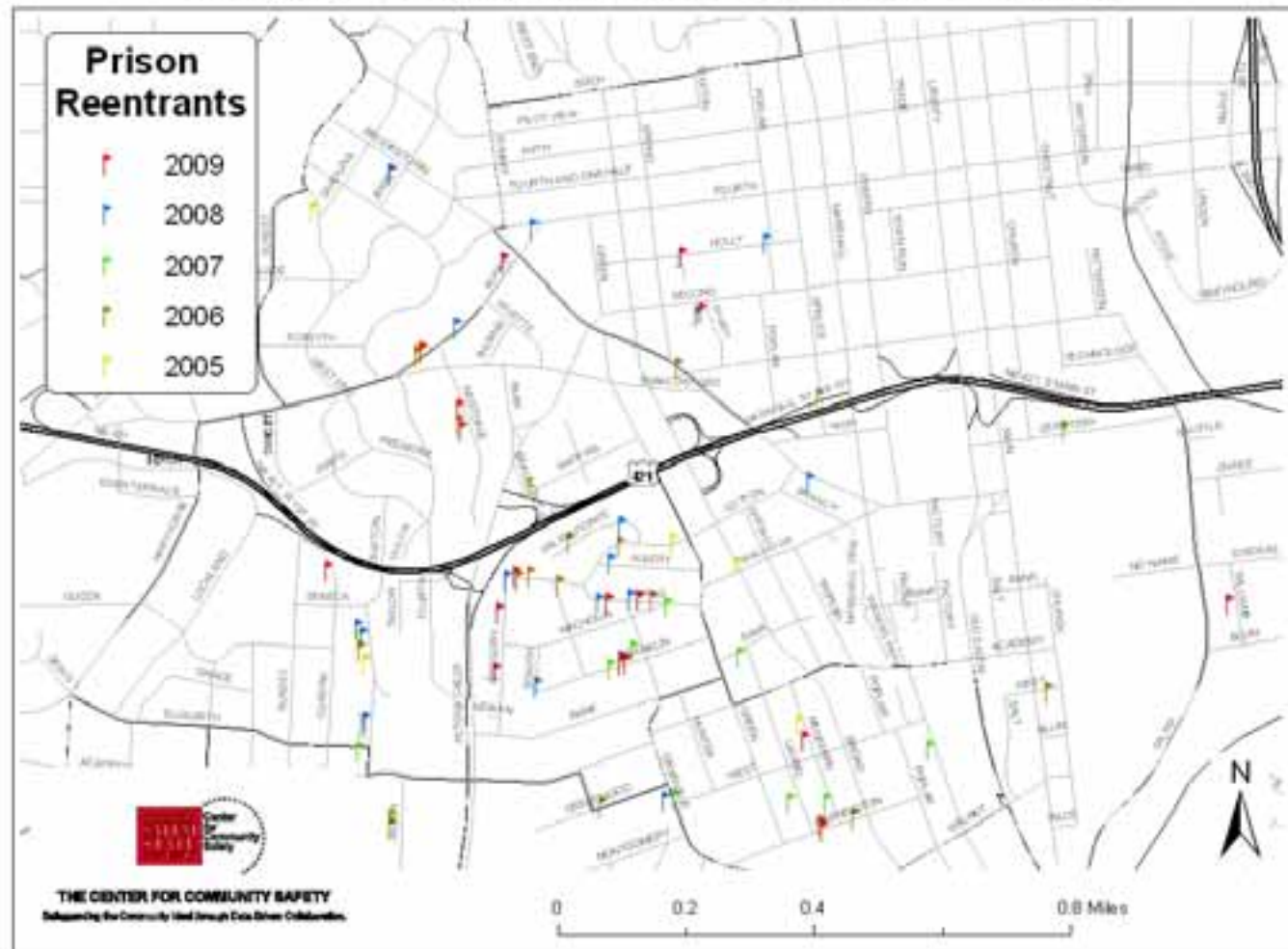
| County | Number of Schools | Graduation Rate |
|-------------|-------------------|-----------------|
| Alamogordo | 1 | 15.38% |
| Ashe | 1 | 15.38% |
| Beaufort | 1 | 15.38% |
| Bladen | 1 | 15.38% |
| Chatham | 1 | 15.38% |
| Columbus | 1 | 15.38% |
| Dare | 1 | 15.38% |
| Davidson | 1 | 15.38% |
| Edgecombe | 1 | 15.38% |
| Forsyth | 1 | 15.38% |
| Gaston | 1 | 15.38% |
| Guilford | 1 | 15.38% |
| Henderson | 1 | 15.38% |
| Johnston | 1 | 15.38% |
| Lincoln | 1 | 15.38% |
| Martin | 1 | 15.38% |
| Mecklenburg | 1 | 15.38% |
| Montgomery | 1 | 15.38% |
| Northampton | 1 | 15.38% |
| Onslow | 1 | 15.38% |
| Orange | 1 | 15.38% |
| Perquimans | 1 | 15.38% |
| Rocky Mount | 1 | 15.38% |
| Wake | 1 | 15.38% |
| Wayne | 1 | 15.38% |
| Yamhill | 1 | 15.38% |

Map created by the Center for Community Safety at Winston-Salem State University. Data provided by the North Carolina Department of Public Instruction. All rights reserved. No part of this publication may be reproduced without the prior written permission of the Center for Community Safety.

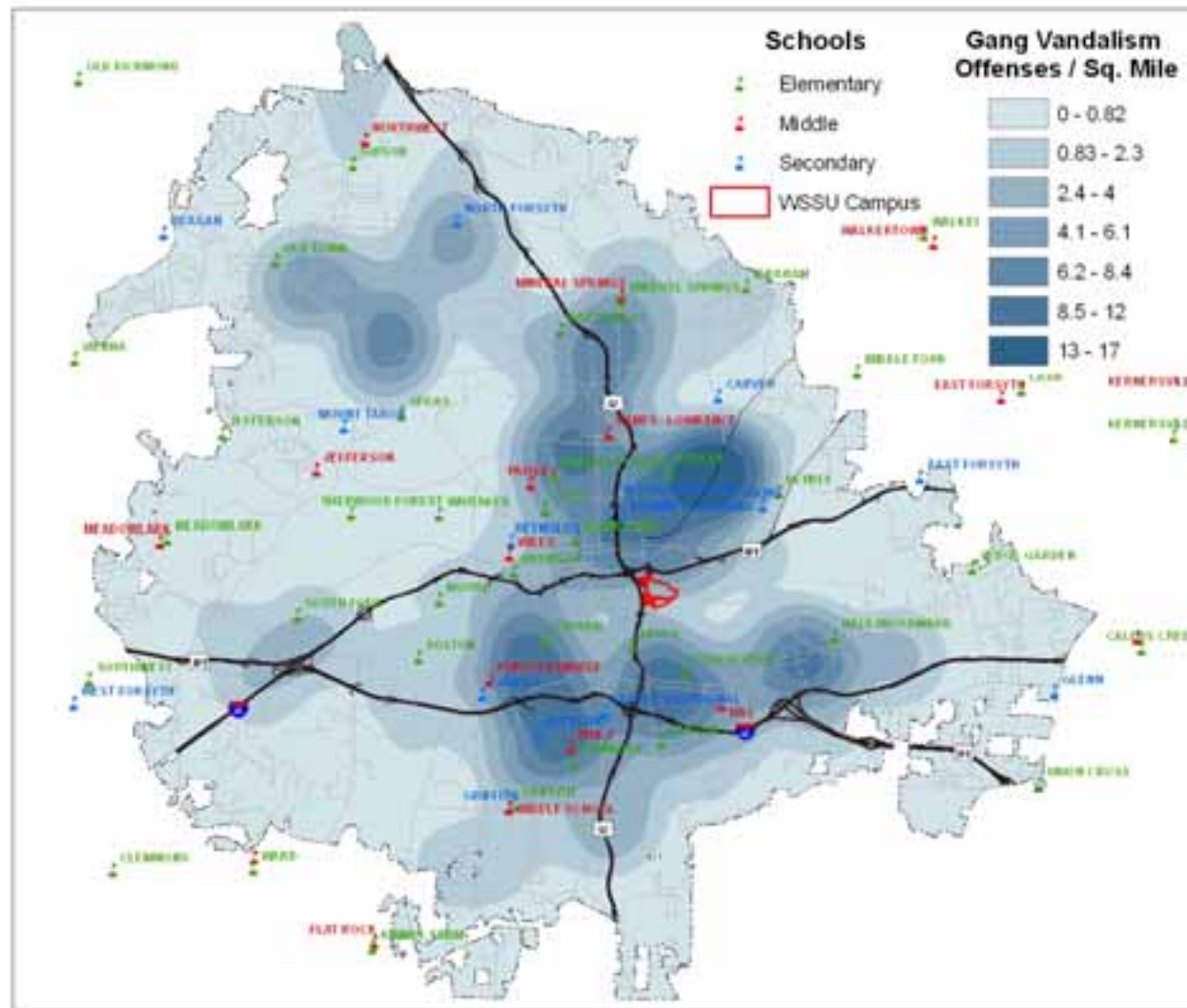


GIS at Winston-Salem State University

Forsyth County Prison Reentrant Locations

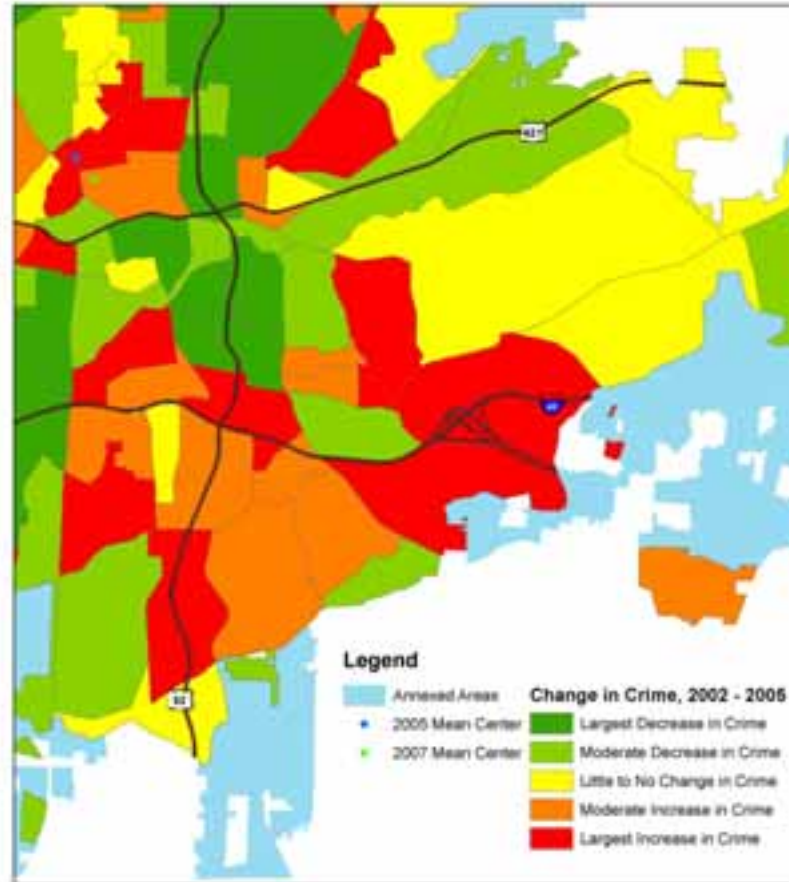


GIS at Winston-Salem State University



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CRIME CHANGE IN WINSTON-SALEM, 2002 - 2005



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GIS at Winston-Salem State University

- Geographic information can and is being utilized at a small UNC campus.
- The Data Research & Analytics Unit continues to introduce students and faculty to the powerful uses of GIS.
- The Data Research & Analytics Unit support practical work in the community.