GIS in Redistricting

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Redistricting

- What is redistricting?
- Census Bureau
- Population changes
- Technology/ GIS
- Software demo
Redistricting - Nebraska

What is redistricting?

- Decennial Census
- The Legislature draws district boundaries
- Each district must be composed of substantially the same number of people
- People then vote by district
- The 2000 system:
  - Legislative task force
  - Non-partisan Research Office
- Public input is welcome

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Redistricting - Nebraska

U.S. House of Representatives

University of Nebraska Board of Regents/State Board of Education

Nebraska Legislature

Supreme Court

Public Service Commission
Redistricting – Timeline

2008 – 2010
- Compile and verify boundary data to enable Census Bureau to attribute population data to boundary files

2010 – 2011
- Data returned from Census after 2010 count and……..

2011 - 2012
- Legislature draws boundaries
- New district plans finalized before elections

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Redistricting – Timeline

- Plans introduced as bills
- Public Hearings
- Legislative Floor debate
  - Amendments?
- Vote
- Governor’s Signature
Redistricting – U.S. Census Bureau

Public Law 94-171

- Mandates the provision of small area data required for legislative redistricting no later than 1 year following Census Day
- Requires the Census Bureau to work with the states to identify those small areas
- Examples: voting districts, census blocks

Census Bureau Redistricting Program Phases

- **Phase 1** – State Legislative District Project, 2005 - 2007
- **Phase 2** – Voting District/Block Boundary Suggestion Project, 2008 - 2010
- **Phase 3** – 2010 Census Data Delivery, Spring 2011
- **Phase 4** – Collection of post-2010 Census Redistricting Plans, 2011 - 2013
- **Phase 5** – Evaluation and Recommendations
U.S. Census Bureau
Redistricting Program Phase 2

Voting Tabulation Districts (VTD)

- “Building Blocks” for redistricting process
- Also known as “Voting Precincts” or “Wards”
- Boundaries for VTD determined by county officials
- Frequently changing boundaries
- Requested updated VTD information from all 93 counties 7-2008
Phase 2 - VTD

1,888 Voting Districts in Nebraska in 2000

Nebraska Voting Tabulation Districts, 2000
Phase 2 – Voting Tabulation Districts

256 Voting Districts in Lancaster Co., 2008

362 Voting Districts in Douglas Co., 2008

Loup County

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Phase 2 – VTD
Phase 2 – VTD
Phase 2 – VTD
North Central Nebraska

Voting Precinct Population

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Phase 2 – VTD
Omaha Precincts
Redistricting - Data

Demographics

- Total population reported by 63 potential race categories and Hispanic origin
- Voting age population reported by 63 potential race categories and Hispanic origin
- All data reported at the state, county, municipality, VTD (precinct), tract, block group, and block level
Nebraska Population Trends

2000 to 2009

- Population increased by 85,354 people (about 5% increase)
- Only 16 of 93 counties increased population
- Douglas, Lancaster, and Sarpy accounted for 52.6 percent of Nebraska’s population in 2009
Nebraska Population Trends

Using 2009 population estimates...

- 1,796,619 people divided by 49 Legislative Districts = 36,665 (target district size), up from 34,924 in 2000
  - 4.99% increase – within the 5% +/- deviation goal

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598,873 target district size, up from 570,422 in 2000
0% deviation goal
Traditional Redistricting

Principles

- Deviations
  - 10% State Legislative Districts
  - 0 for Congressional Districts

- Compact and Contiguous Territory

- Preserve Political Subdivisions

- Preserve Communities of Interest

- Protect Incumbents
  - Preserve Cores of Prior Districts
  - Avoid Contests Between Incumbents

- Must not be a “racial gerrymander”
Gerrymandering

There is no place like Nebraska...

Voting Rights Act

- Section 5
  - Pre-clearance for certain jurisdictions

- Section 2
  - Minority Majority Districts

Odd year elections

- LA, MS, NJ and VA have only a few months to draw plans

Political Data

- Not used in Nebraska
Evolving Redistricting Technology

1980 and before (Pre-Redistricting GIS)
- Mainframe and paper maps
- Limited number of plans created

1990
- PC’s first used
- First TIGER files used
- First time there was block level data for entire nation
- Early redistricting GIS systems used

2000
- Redistricting-specific GIS
- Bigger, faster and cheaper
  - Led to the ability of 1000’s plans to be created
Redistricting – Technology Today

Software

- ESRI’s ArcINFO 10 for everyday GIS tasks
- MTPS (MAF/TIGER Partnership Software) Census Bureau redistricting program specific software
- Redistricting Software: AutoBound or Maptitude
Redistricting - Software

- Two major redistricting-specific software companies
  - Data returned from 2010 Census count will be plugged into this software and used for drawing new boundaries
Redistricting - Software
GIS in Redistricting

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Websites

http://www.census.gov/rdo/

http://www.redistrictingthenation.com/

http://www.ncsl.org/

http://www.redistrictinggame.org/

http://nebraskalegislature.gov/about/maps.php

http://www.census.gov/popest/gallery/maps/maps.html#counties