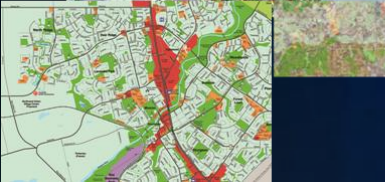


THE VALUE OF GIS IN LEGISLATIVE INFORMATION



House Standing Committee on Government Efficiency



Jim Geringer

Esri

Wyoming Governor 1995-2003

Wyoming Legislator 1983-1995



January 17, 2012



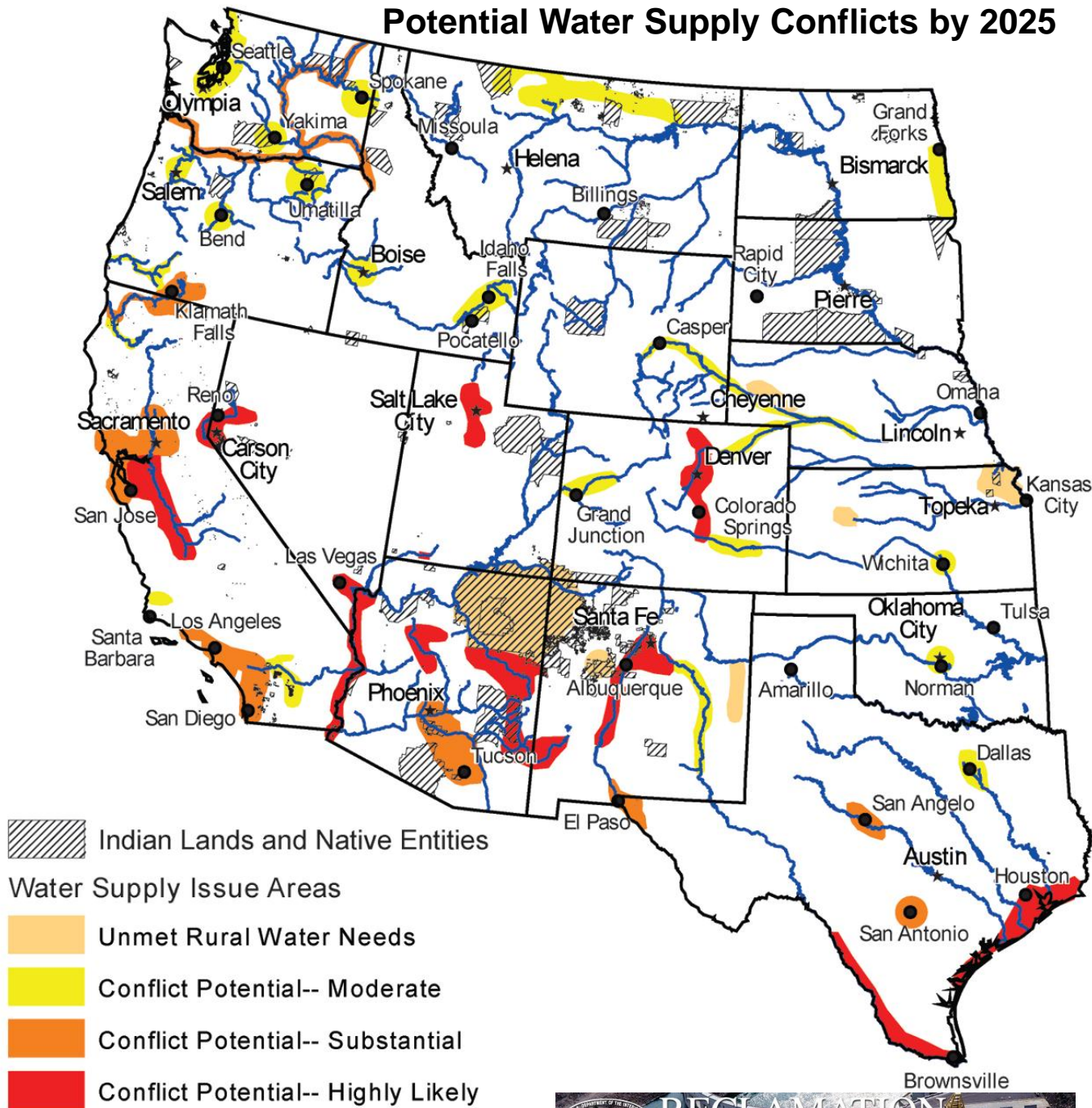
Today's Thoughts - More Than A Map – Connecting People, Places and Policy

- Data and Information Management
- Information in context
 - Top issues
- GIS as a powerful tool
 - for Decision Makers
 - for everyday activities
 - Ever increasing public participation
- Information Integration – Not an option but a necessity
 - Cross-boundary Collaboration, Planning, Modeling, Action
 - Increasing presence on the Web



Potential Water Supply Conflicts by 2025

water availability and seasonal stress will lead to greater competition among agricultural, urban, industrial, and ecosystem water needs



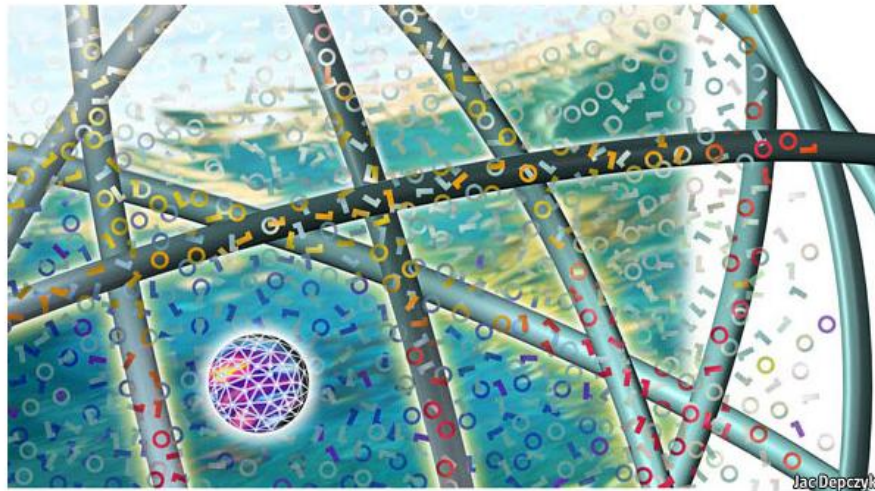


A special report on managing information

Data, data everywhere

Information has gone from scarce to superabundant. That brings huge new benefits, says Kenneth Cukier (interviewed [here](#))—but also big headaches

Feb 25th 2010 | From *The Economist* print edition



WHEN the Sloan Digital Sky Survey started work in 2000, its telescope in New Mexico collected more data in its first few weeks than had been amassed in the entire history of astronomy. Now, a decade later, its archive contains a whopping 140 terabytes of information. A successor, the Large Synoptic Survey Telescope, due to come on stream in Chile in 2016, will acquire that quantity of data every five days.

Such astronomical amounts of information can be found closer to Earth too. Wal-Mart, a retail giant, handles more than 1m customer transactions every hour, feeding databases estimated at more than 2.5 petabytes—the equivalent of 167 times the books in America's Library of Congress (see [article](#) for an explanation of how data are quantified). Facebook, a social-networking website, is home to 40 billion photos. And decoding the human genome involves analysing 3 billion base pairs—which took ten years the first time it was done, in 2003, but can now be achieved in one week.

All these examples tell the same story: that the world contains an unimaginably vast amount of digital information which is getting ever vaster ever more rapidly. This makes it possible to do many things that previously could not be done: spot business trends, prevent diseases, combat crime and so on. Managed well, the data can be used to unlock new sources of

- Comment (30)
- E-mail
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- Reprints & permissions
- Recommend (292)
- Share
- Buy PDF

Advertisement



Related Items

In this special report

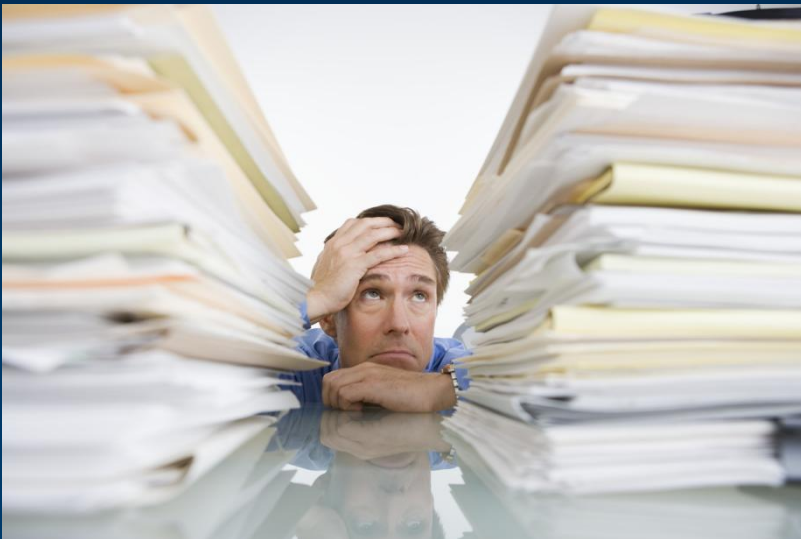
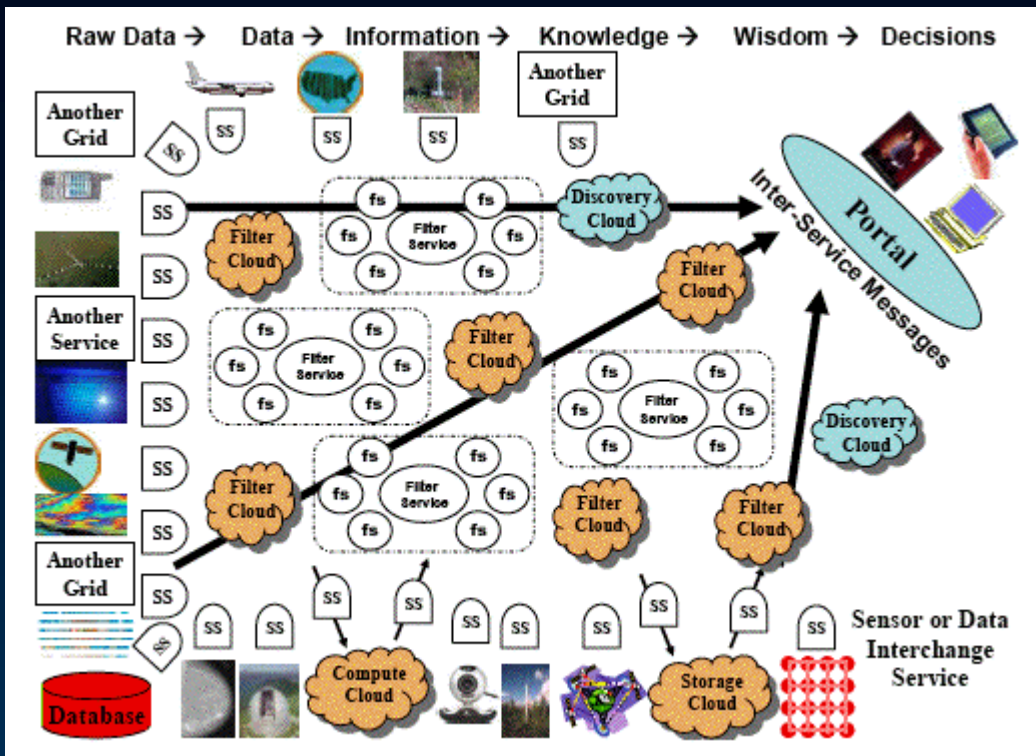
- Information has become superabundant
- Too much data
- Information is changing business
- How internet companies profit from online data
- Governments are becoming more open about data
- News ways of showing data
- The uses of information about information
- New regulations
- How machines deal with information
- Sources and acknowledgments
- Offer to readers

From *The Economist*

- Too much data
Feb 25th 2010
- The data deluge
Feb 25th 2010

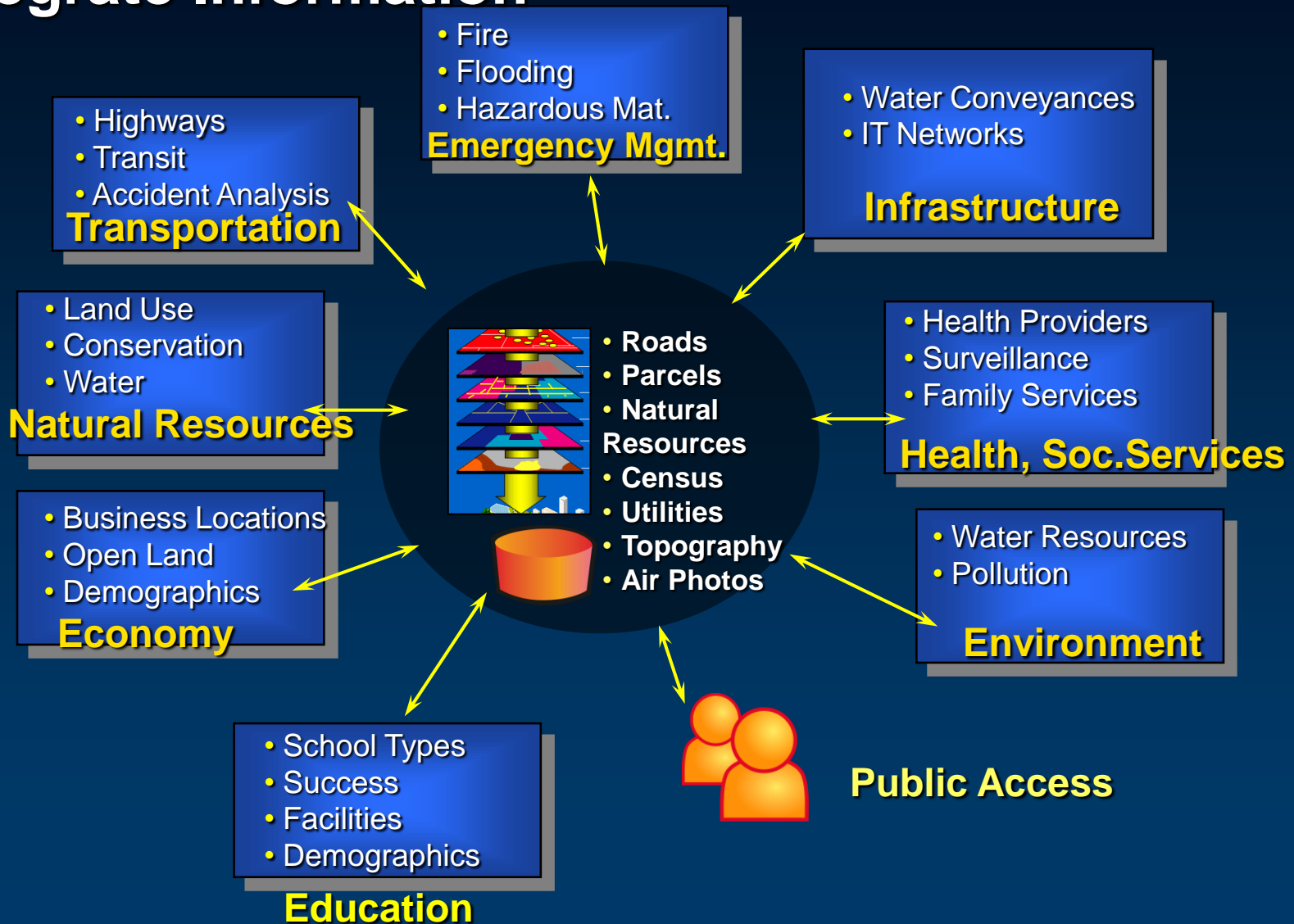
The Data Deluge

Too Much Data



When Is “Good Enough” Good Enough

The Vision: Using Place As A Framework to Integrate Information



Typical Top 10 (or so) Issues

Everything we do is somewhere – and affects something else

- The Budget – Crunch is an Understatement
- Health Care
 - The aging population
 - Health Reform, Medicaid
- Economy, Jobs, Competitiveness, Recovery
- Education
 - K-12 Funding, Standards
 - Higher Ed, Access, Cost
- Energy/Environment – Cost, Alternatives
- Disasters, Weather (Fire, Drought, Tornado)
- Transportation/Infrastructure
- Local Government Funding
- Public Safety – Corrections, juvenile justice
- Broadband Coverage

Public Data

- Unemployment in the U.S.
 - Employment
 - Labor force
 - Unemployment
 - Unemployment rate**

Clear

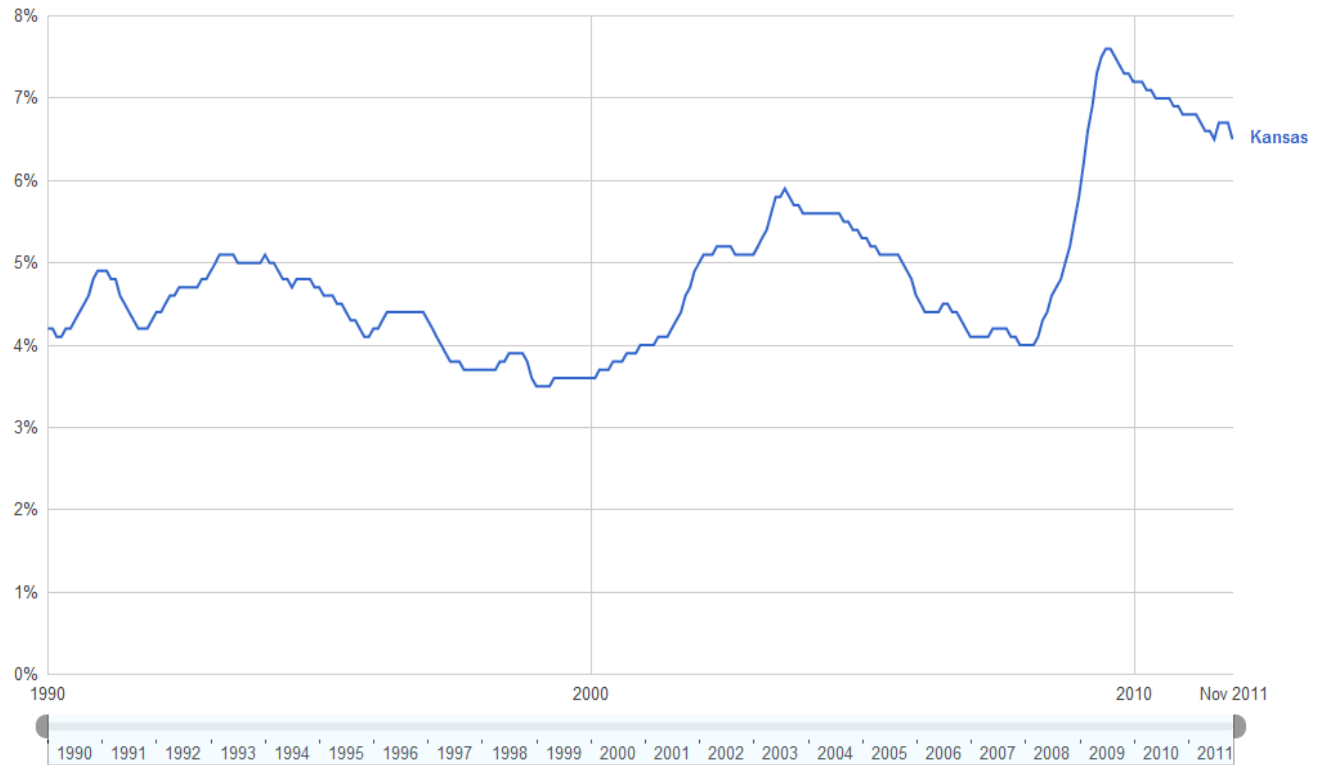
Compare by

- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Puerto Rico
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

Clear selections

Seasonality

Unemployment rate - Seasonally Adjusted ?



Data from [U.S. Bureau of Labor Statistics](#) Last updated: Jan 9, 2012

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Public Data

- Unemployment in the U.S.
 - Employment
 - Labor force
 - Unemployment
 - Unemployment rate**

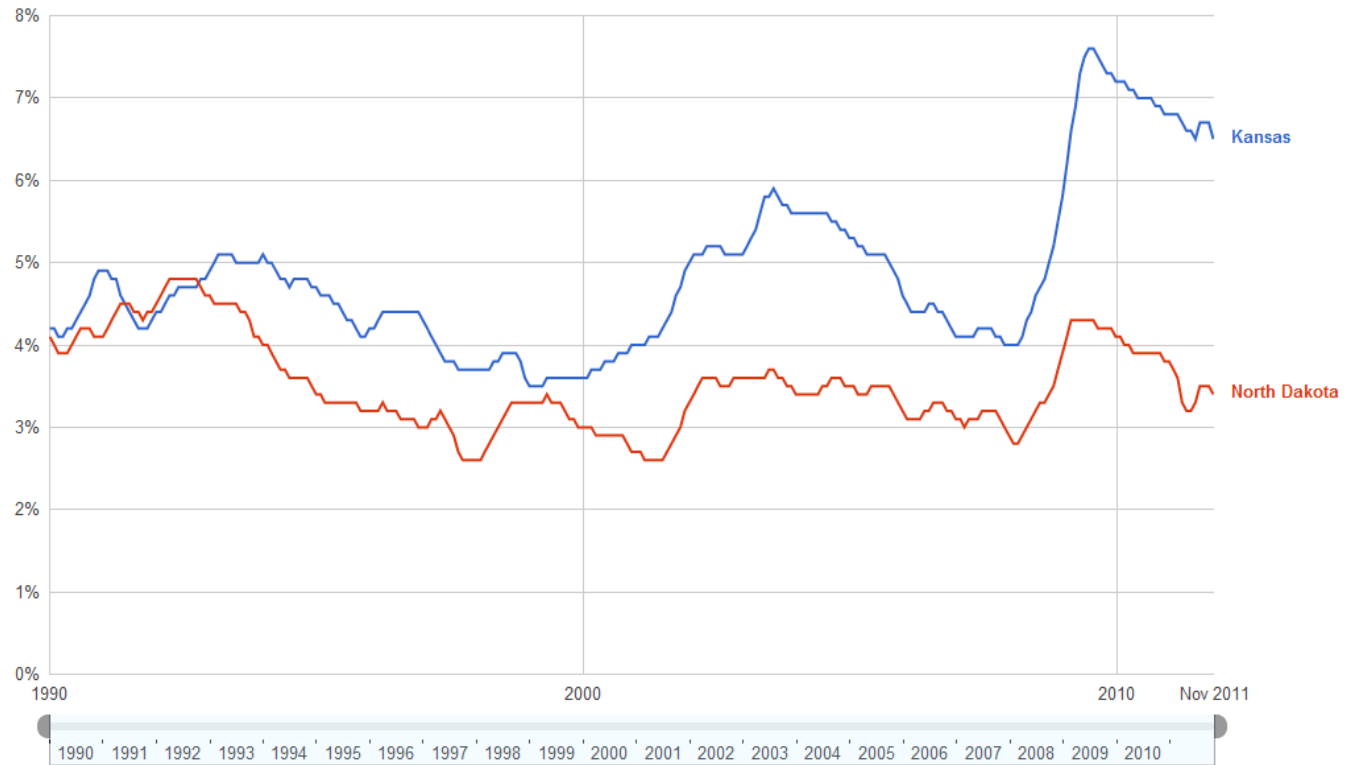
Clear

Compare by State

- New York
- North Carolina
- North Dakota**
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Puerto Rico
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

Clear selections

Unemployment rate - Seasonally Adjusted



Data from [U.S. Bureau of Labor Statistics](#) Last updated: Jan 9, 2012

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Seasonality Seasonally Adjusted

Public Data

- Unemployment in the U.S.
 - Employment
 - Labor force
 - Unemployment
 - Unemployment rate**

Clear

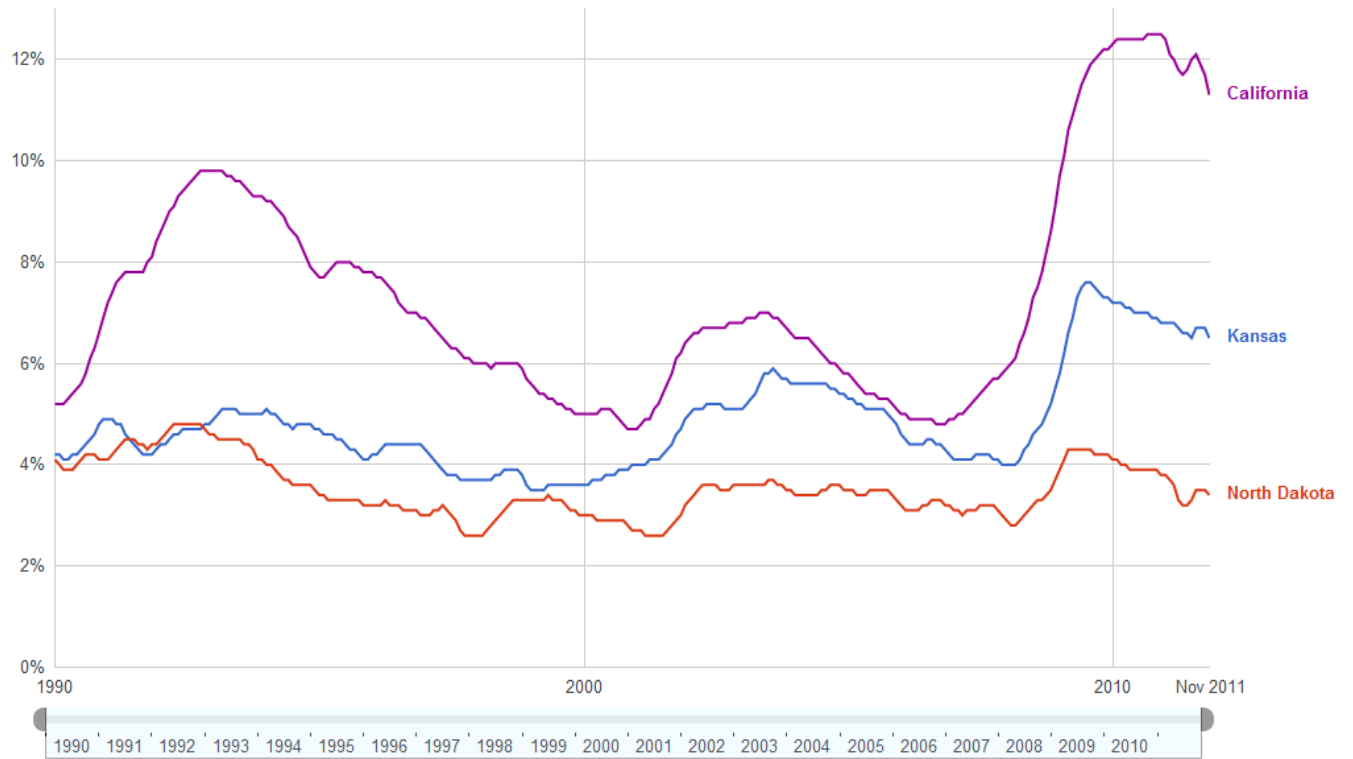
Compare by State

- Iowa
- Kansas**
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota**

Clear selections

Seasonality Seasonally Adjusted

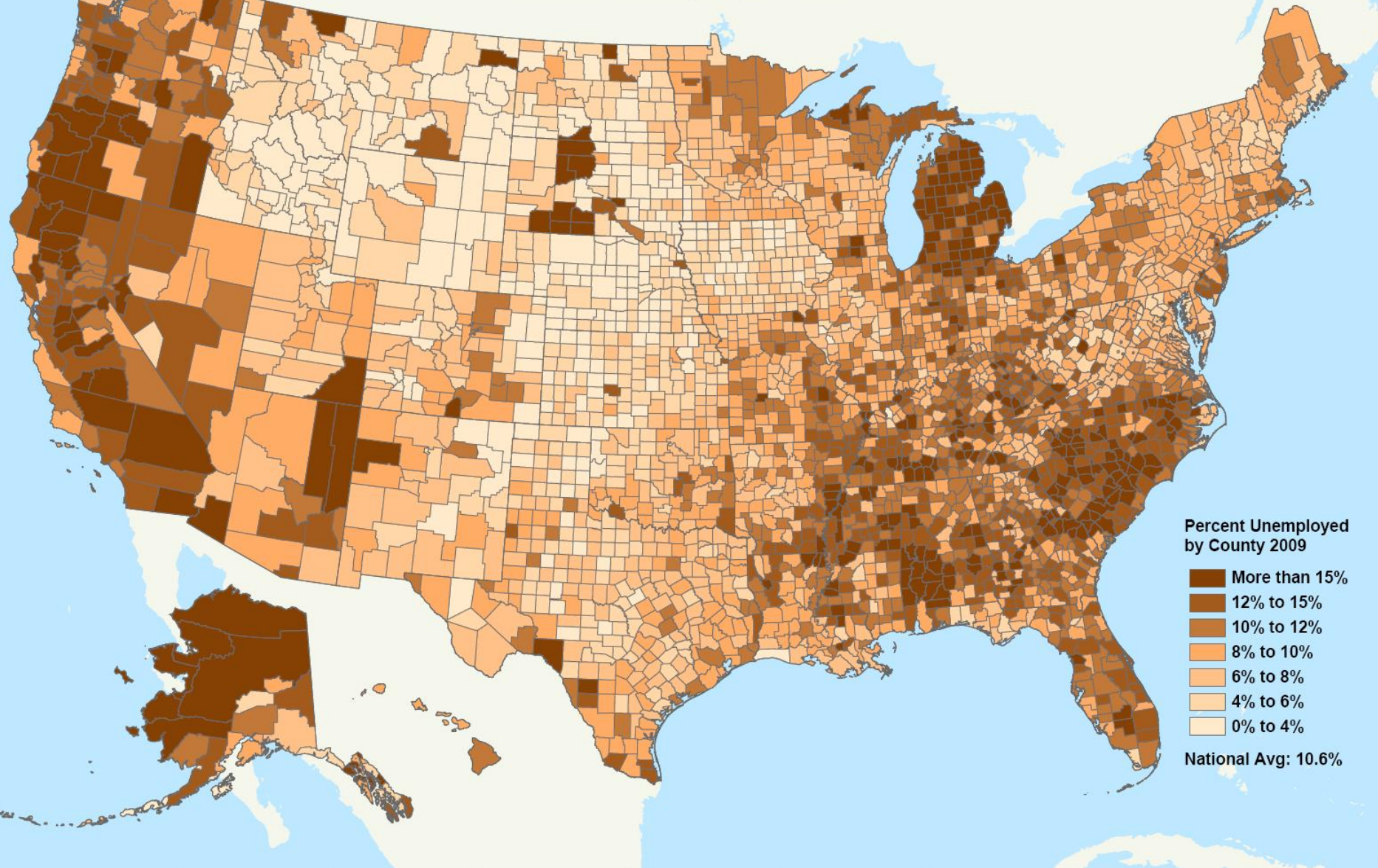
Unemployment rate - Seasonally Adjusted

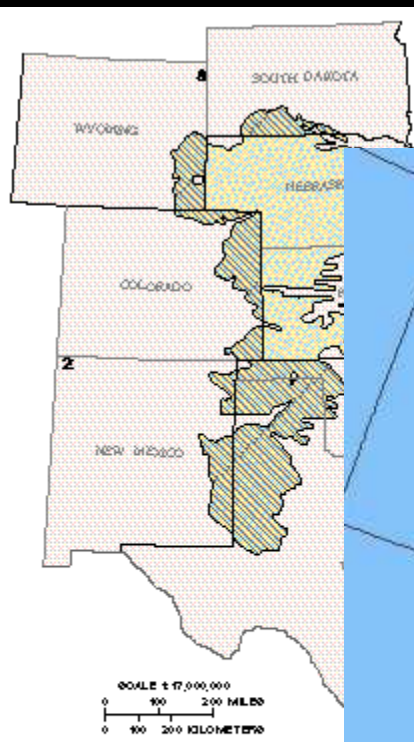


Data from U.S. Bureau of Labor Statistics Last updated: Jan 9, 2012

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
Percent Unemployed 2009





EXPLANATION

High Plains aquifer

 Within Segment 3

Map of US Aquifers

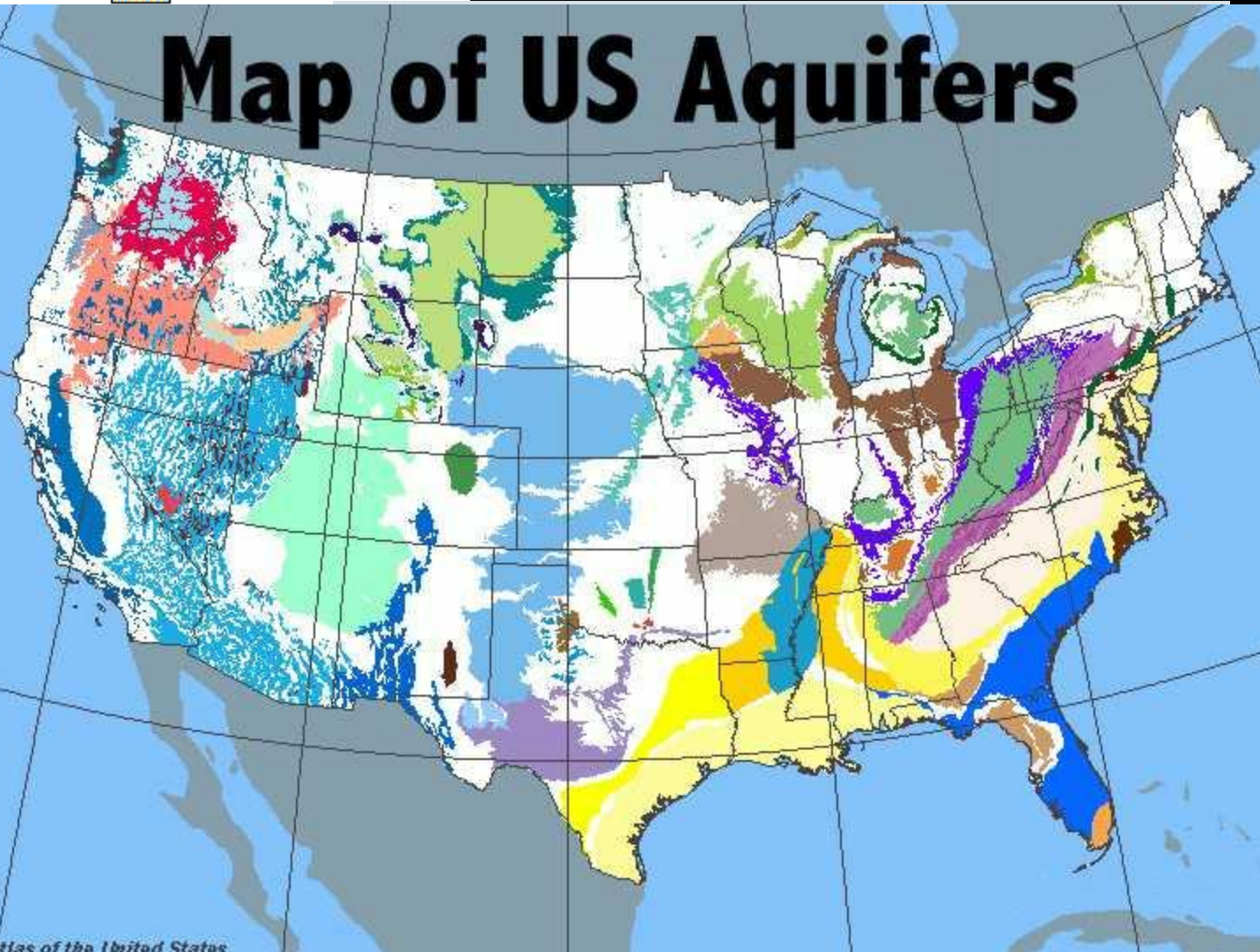
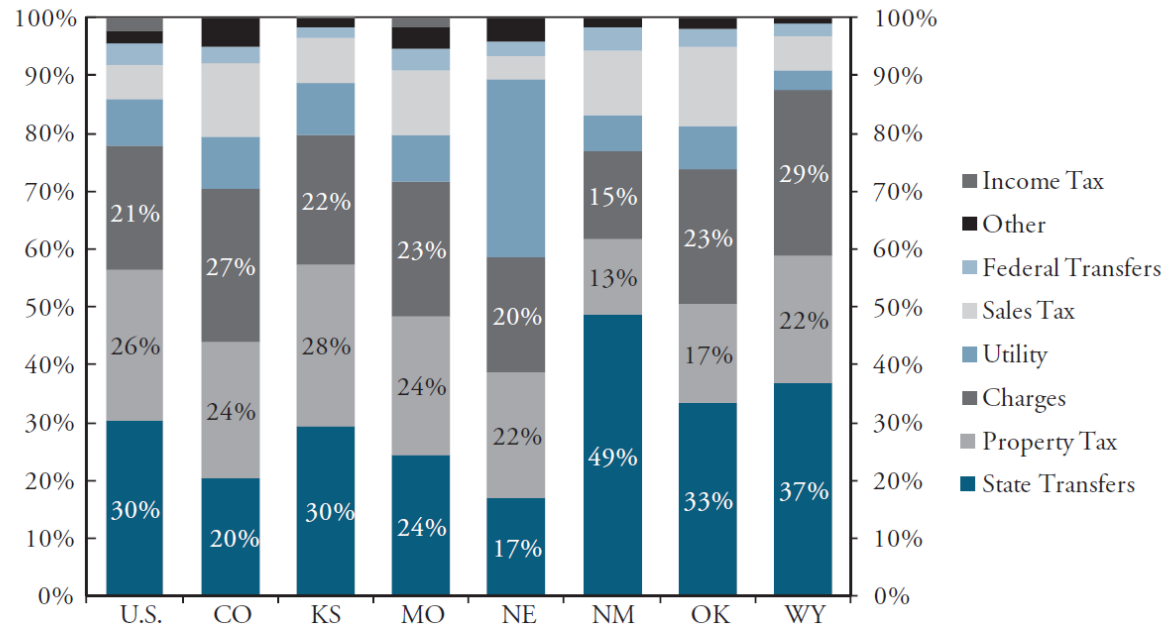


Figure 46. The High Plains area of about 174,000 sq miles in the central and western States. The aquifer underlies the High Plains area of about 174,000 sq miles in the central and western States. The aquifer underlies the High Plains area of about 174,000 sq miles in the central and western States.

Federal Reserve Bank of Kansas City, Tenth District

THE COMPOSITION OF LOCAL GOVERNMENT REVENUES, FISCAL YEAR 2008

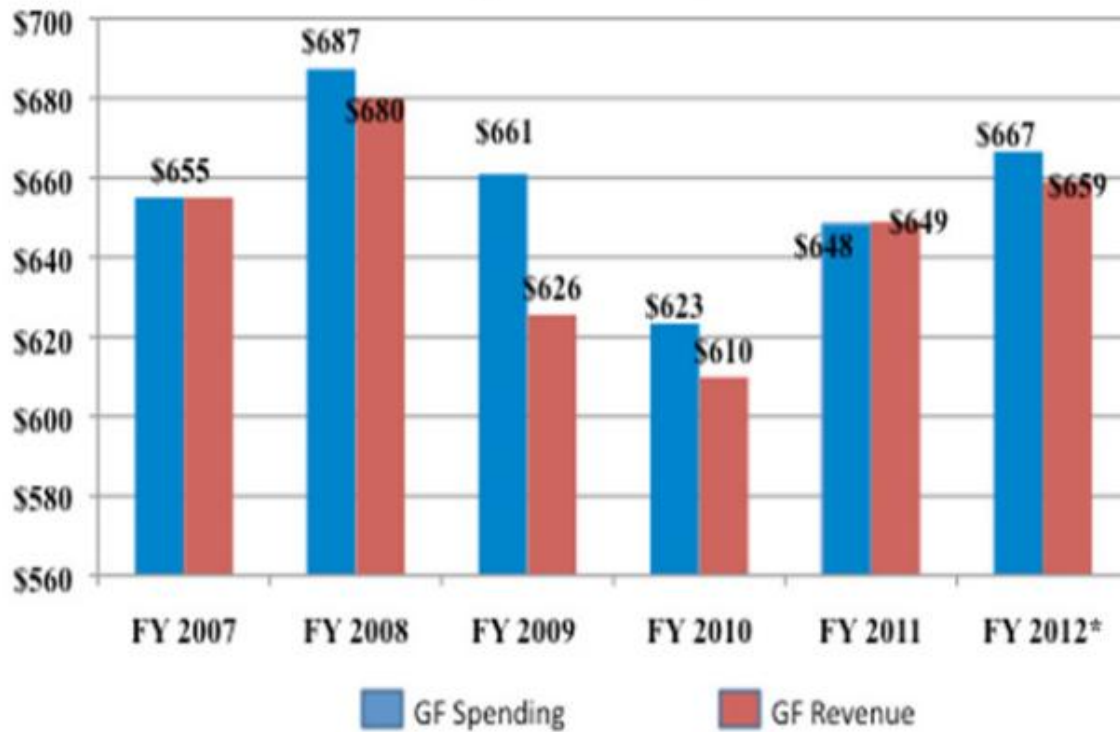


Source: U.S. Census Bureau

Property taxes are the second largest source of revenue for most local governments.

FY 2012 Spending and Revenue: Increasing but Still Below FY 2008

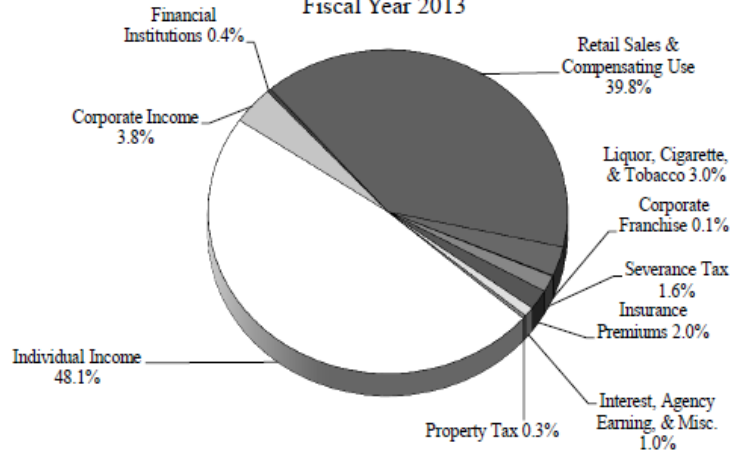
General Fund Spending and Revenue, in billions of dollars



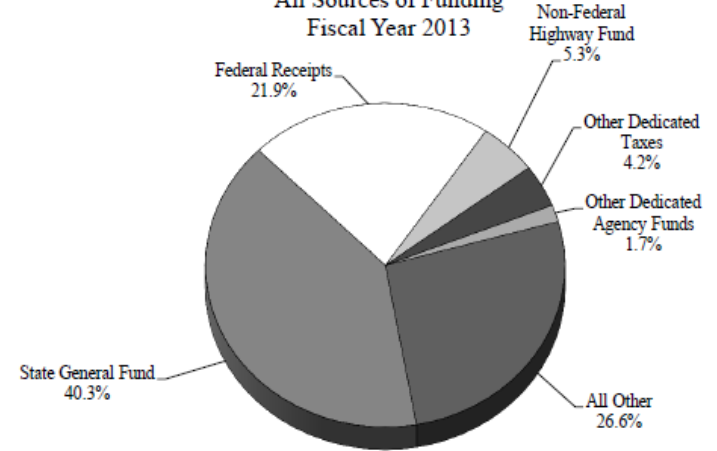
* FY 2007 – 2010 are actual, FY 2011 is preliminary actual and FY 2012 is enacted.

Kansas Budget Report 2013 – Gov Brownback

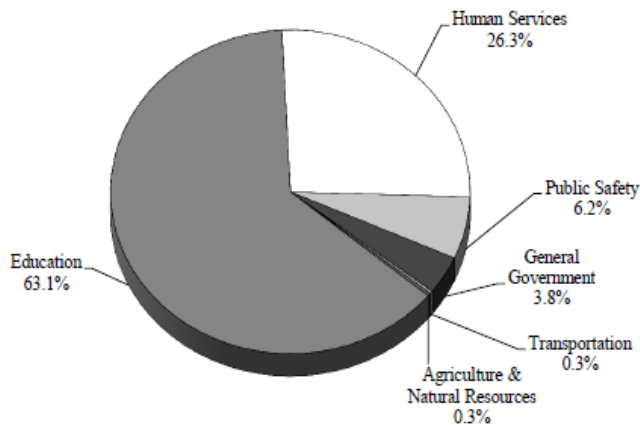
Where State Dollars Come From
State General Fund
Fiscal Year 2013



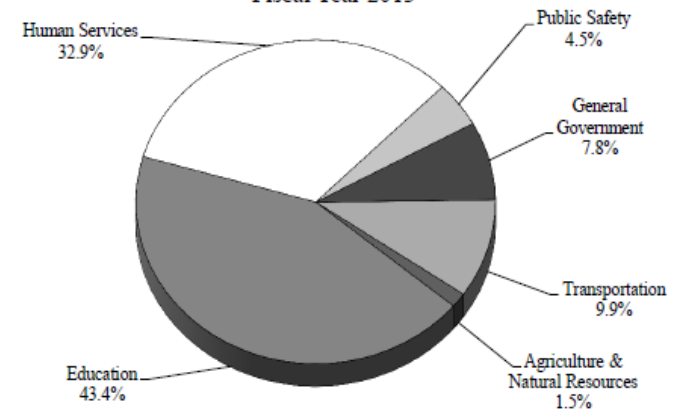
How the All Funds Budget Is Financed
All Sources of Funding
Fiscal Year 2013



Where State Dollars Go by Function
State General Fund
Fiscal Year 2013



Where State Dollars Go by Function
All Sources of Funding*
Fiscal Year 2013



*Excludes non-reportable expenditures



Sam Brownback
GOVERNOR

- Increase in net personal income
- Increase in private sector employment
- Increase in the percentage of 4th graders reading at grade level
- Increase in the percentage of high school graduates who are college or career ready
- Decrease in the percentage of Kansas' children who live in poverty

Roadmap for Kansas: Report Card

BigTicket Areas in the Budget

- Education
 - Health
 - Family Services
 - Corrections and Public Safety
-
- Typically these four receive 85% to 95% of the General Fund allocations

Map of Diabetes Rates by County

Home

Explore Community

Select Location

Get Reports

Choose One >>

Smart Map Search

Create Color-Coded Map

Import Locations

Business Search

Business name, SIC, or NAICS code

advanced options

Enter Address (optional)

Go

Choose Variables

Geography:

Counties

Colors:



Transparency:



Select Location

NEW More Options...

Adult diabetes rate (CDC:2007) by Counties

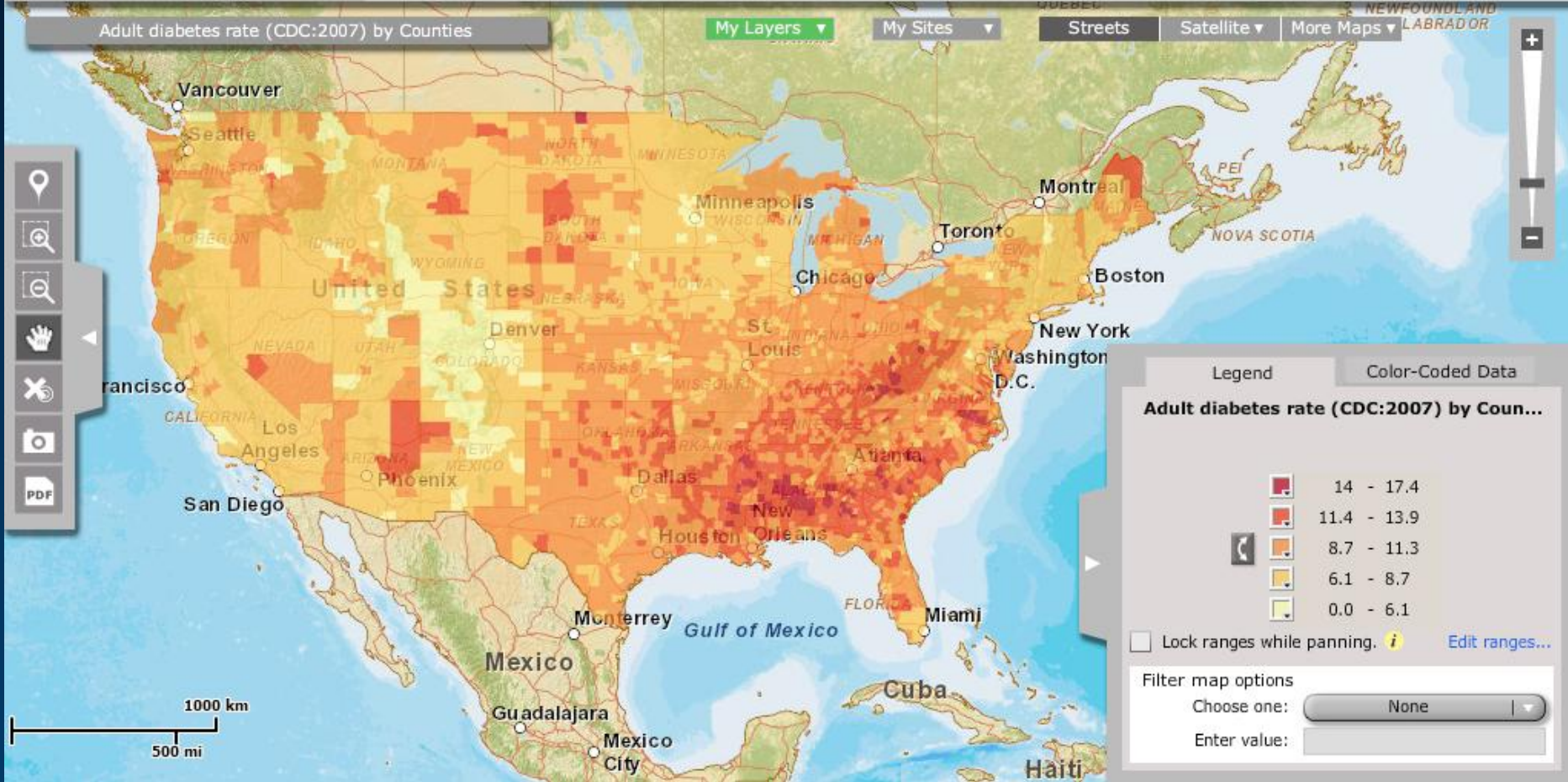
My Layers

My Sites

Streets

Satellite

More Maps



Legend

Color-Coded Data

Adult diabetes rate (CDC:2007) by Coun...

	14 - 17.4
	11.4 - 13.9
	8.7 - 11.3
	6.1 - 8.7
	0.0 - 6.1

Lock ranges while panning. [i](#) [Edit ranges...](#)

Filter map options

Choose one:

Enter value:



Gov't Transparency, Accountability & Citizen Engagement

State
Budget



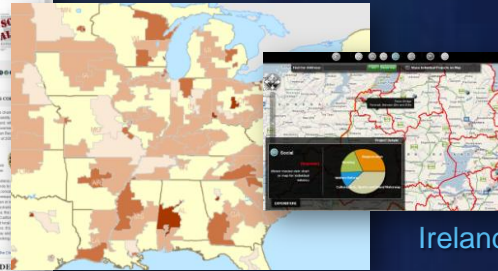
Maryland

Stimulus Funding



Recovery.gov

eServices



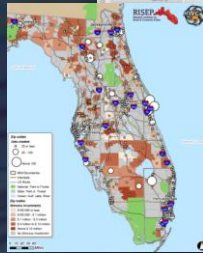
Ireland

E 311



New Jersey

Job Creation



Florida

United States

Government Portals



Data.gov, USA

School Evaluation



Abu Dhabi



Lombardy, Italy



Geodata.gov

Lithuania

People Are More Involved: Crowd Sourcing & Social Media

Creating New Sources of Information and Interaction



... Creating New Opportunities & Challenges

The Smart Phone As A Sensor, as Volunteer Generated Information

The Game Changer



Using Geography to Advance the Business of the Legislature

- The power of place to support **decision-makers**
- The power of Geographic Information Systems to **integrate** data from various sources
- Understanding **interrelationships**
- Model and determine **priorities**, allocate **resources**
- It's not about technology – it's about **solutions**

... As a Framework For Strategic Thinking

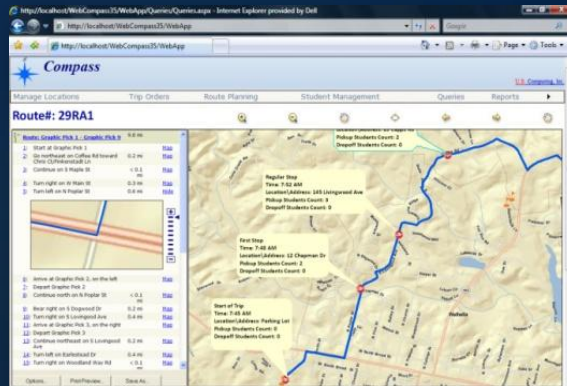
State & Local Fiscal Outlook

- **Austere budgets for at least the next several years**
- **Health and education will continue to have the greatest impact on state finances**
- **Tough competition for state general funds, less share with local governments**
- **Demand for performance and results**
- **Opportunity to transform service delivery**
- **Citizen engagement to self-deliver services**

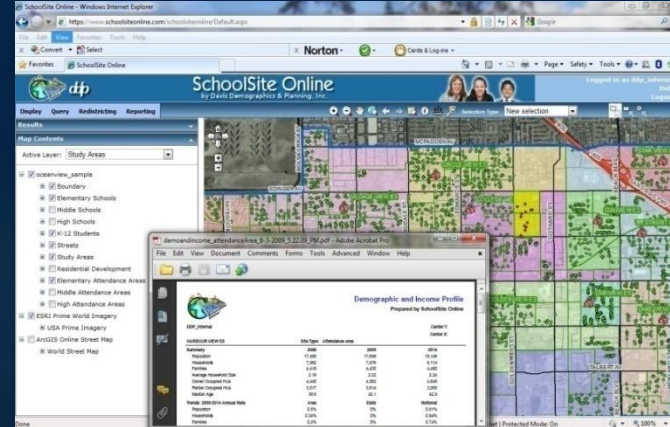
Education

Student Demographic and Income Profile

School Bus Routing



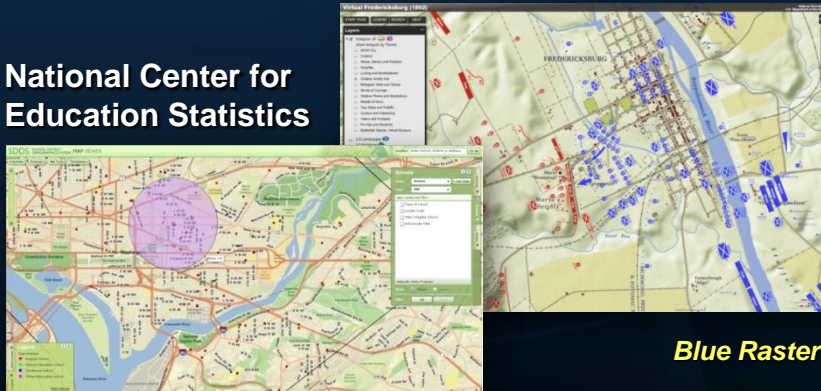
US Computing, Inc



Davis Demographics

Civil War Educational Mapping

National Center for Education Statistics



Blue Raster

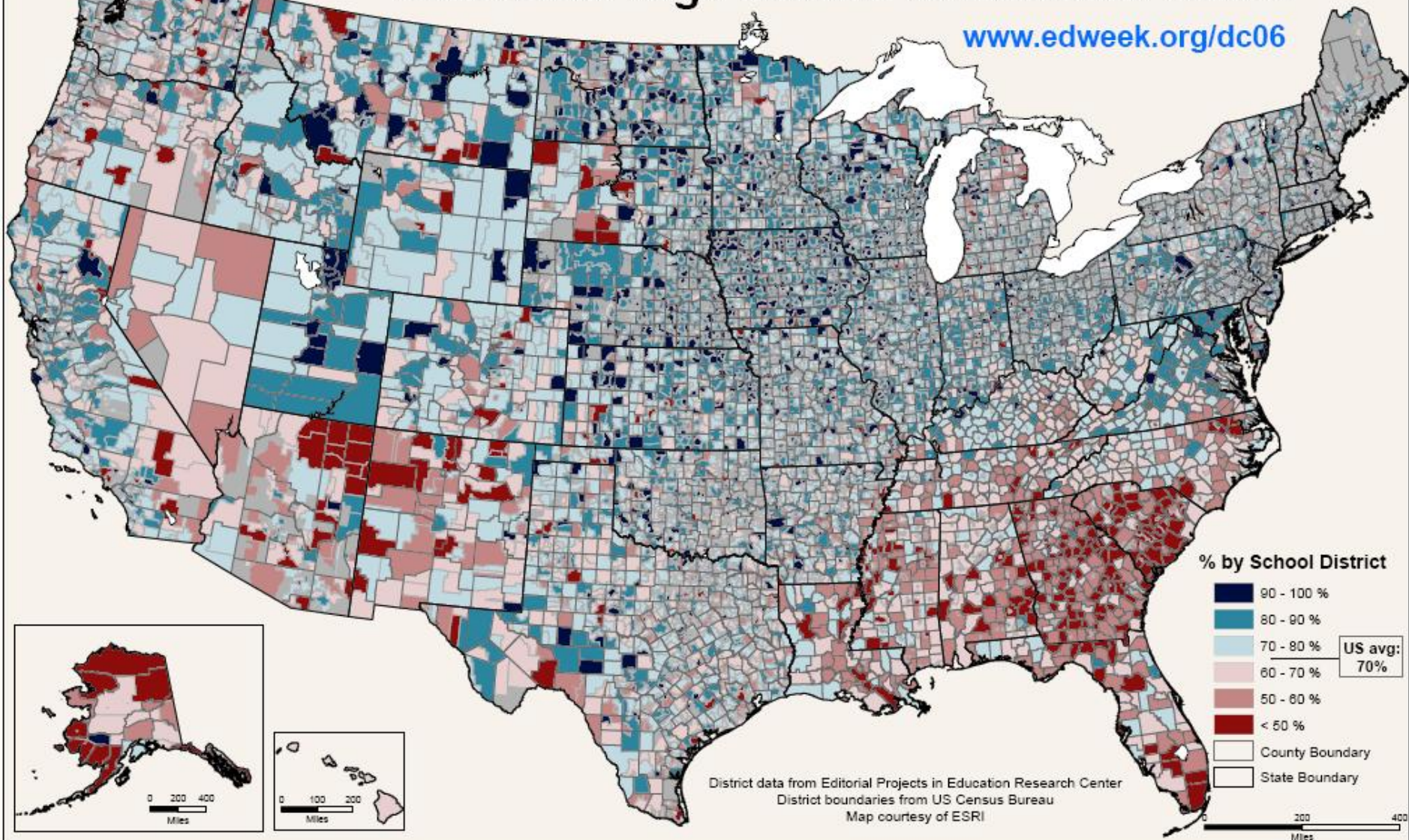
Campus Facilities Assessment



R & K Engineering

2002-2003 High School Graduation Rates

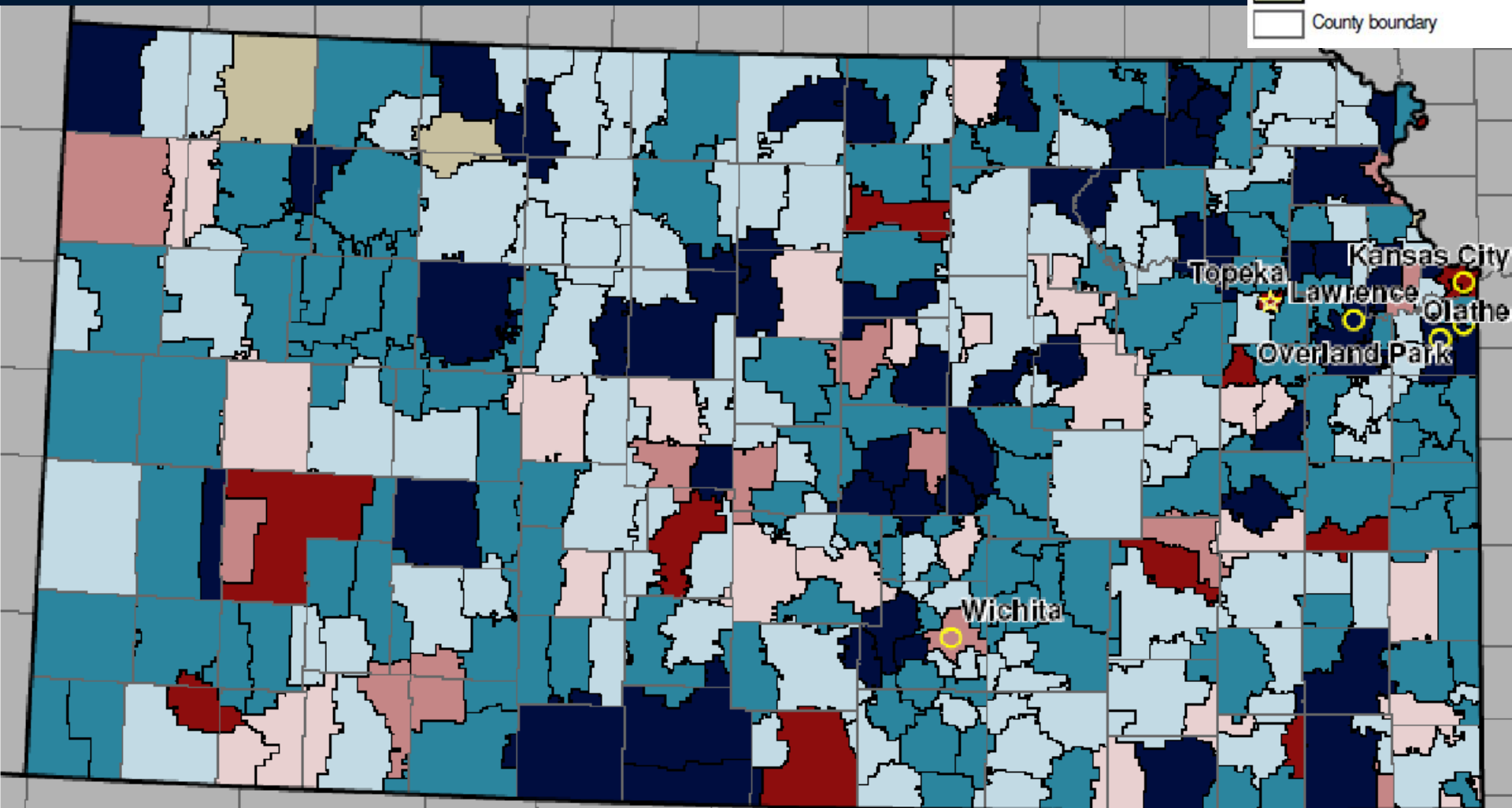
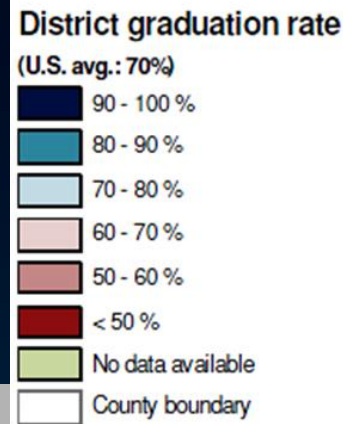
www.edweek.org/dc06

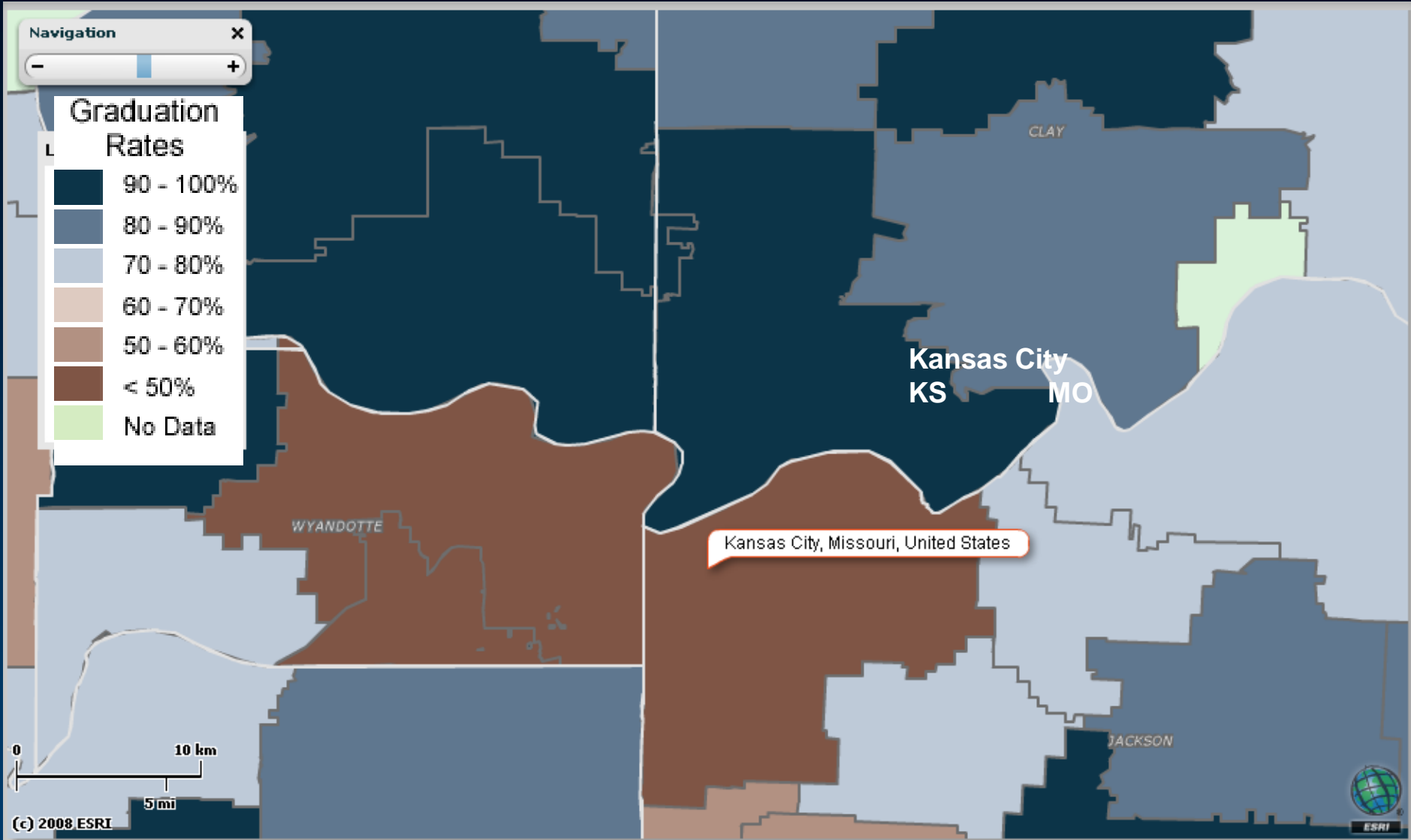


http://www.edweek.org/media/ew/dc/2006/usmap_districts.pdf

High School Graduation Rates for Districts in Kansas 2003-04

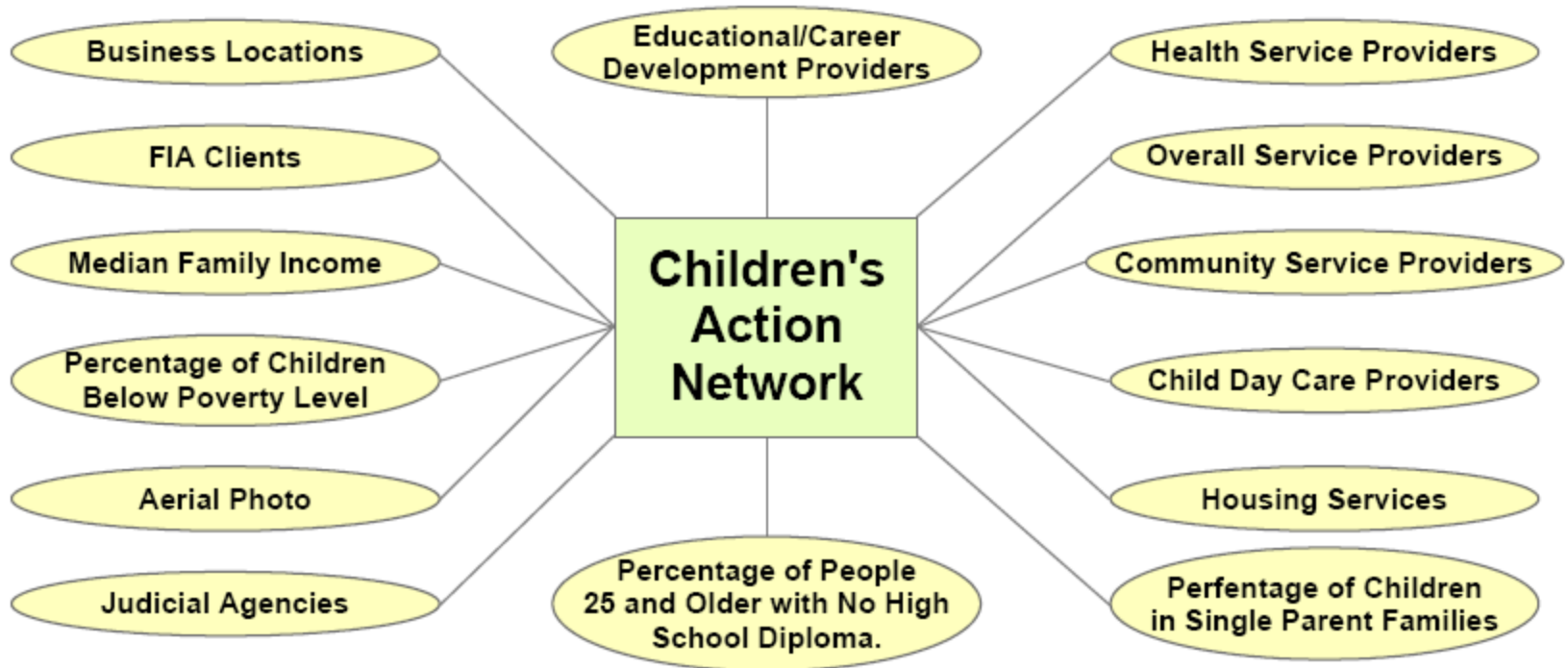
Source: Education Week, EPE Research Center





<http://maps.edweek.org>

**No Child Left Behind
State of Michigan Governors' Initiative:
Children's Action Network (CAN)**



225 schools failing in the "no child left behind" program were examined and GIS was used to help determine appropriate action for overall improvement.

Map Search

Common Keywords

- Age
- Asian
- Black
- Ethnicity
- Female
- Gender
- Households
- Income
- Male
- Population
- Poverty
- Race
- Vacant
- White

Keyword Search

Search ARMS for maps:

Search

Search the ARMS map archive for plots covering various topics. These maps are ideal for printing and inclusion in reports or grants. All maps include references to the data source and production date. Use the "Common Keywords" search or use your own custom search in the box above.

Top 100 Maps!!!



- [First Grade Retention 2006](#)
- [2005 Local Education Spending PPE](#)
- [2005 State Education Spending PPE](#)
- [2005 Federal Education Spending PPE](#)
- [Percentage of Active Voters \(2006\) Active Voters div by Voting Age Population for December of each year](#)
- [2005 Infant Mortality Rate \(per 1,000 live births\) by County](#)
- [2006 Infant Mortality Rate \(per 1,000 live births\) by County](#)
- [2006 Divorce Rate \(per 1,000\)](#)
- [2005 Child Death Rate \(per 1,000\)](#)
- [2006 Child Death Rate \(per 1,000\)](#)

Full List >>

Financial

use on

Juvenile
Detention
Grants

arten

Tobacco
Settlement
Grants

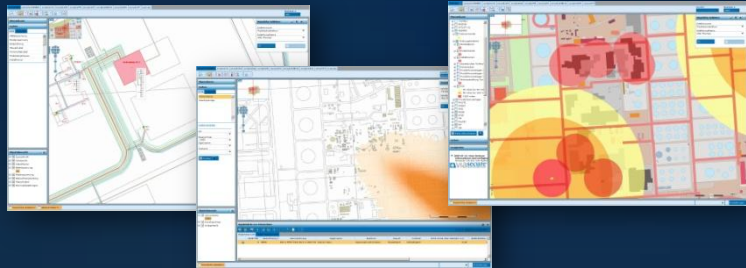
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rev
s

School Safety
Grants

Delinquency
Prevention
Grants

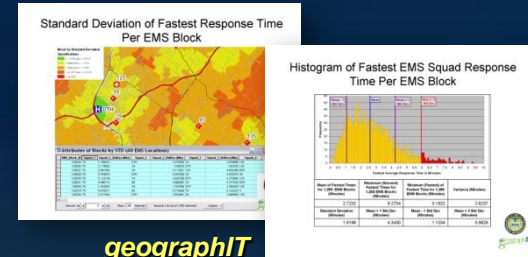
Emergency Management

Hazardous Incident Simulation and Management



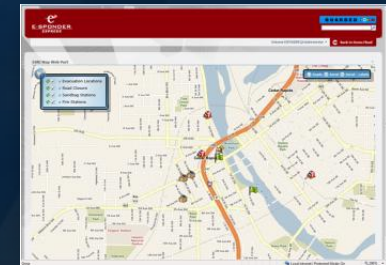
Complete Plant Solutions

EMS Response Time



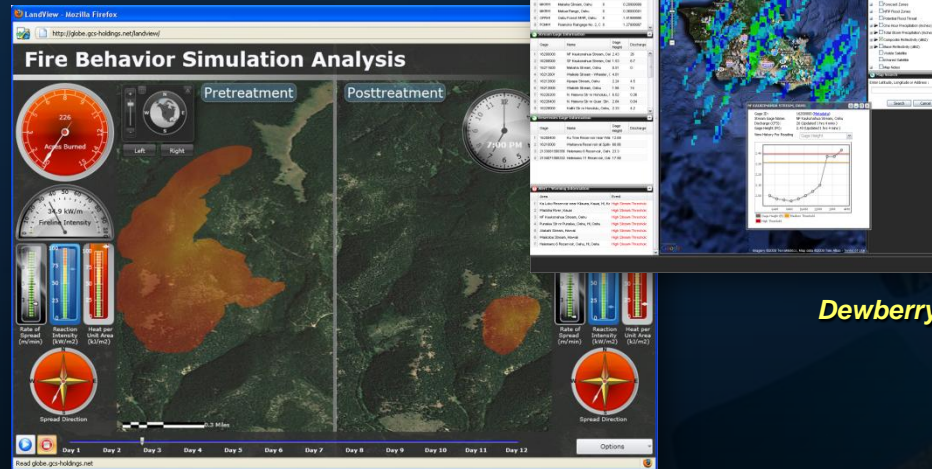
geographIT

Flood Evacuation Routing



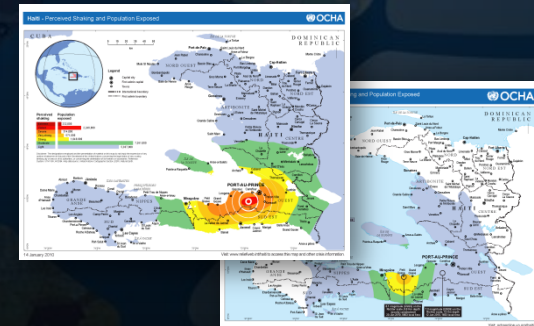
E. Spender

Fire Simulation



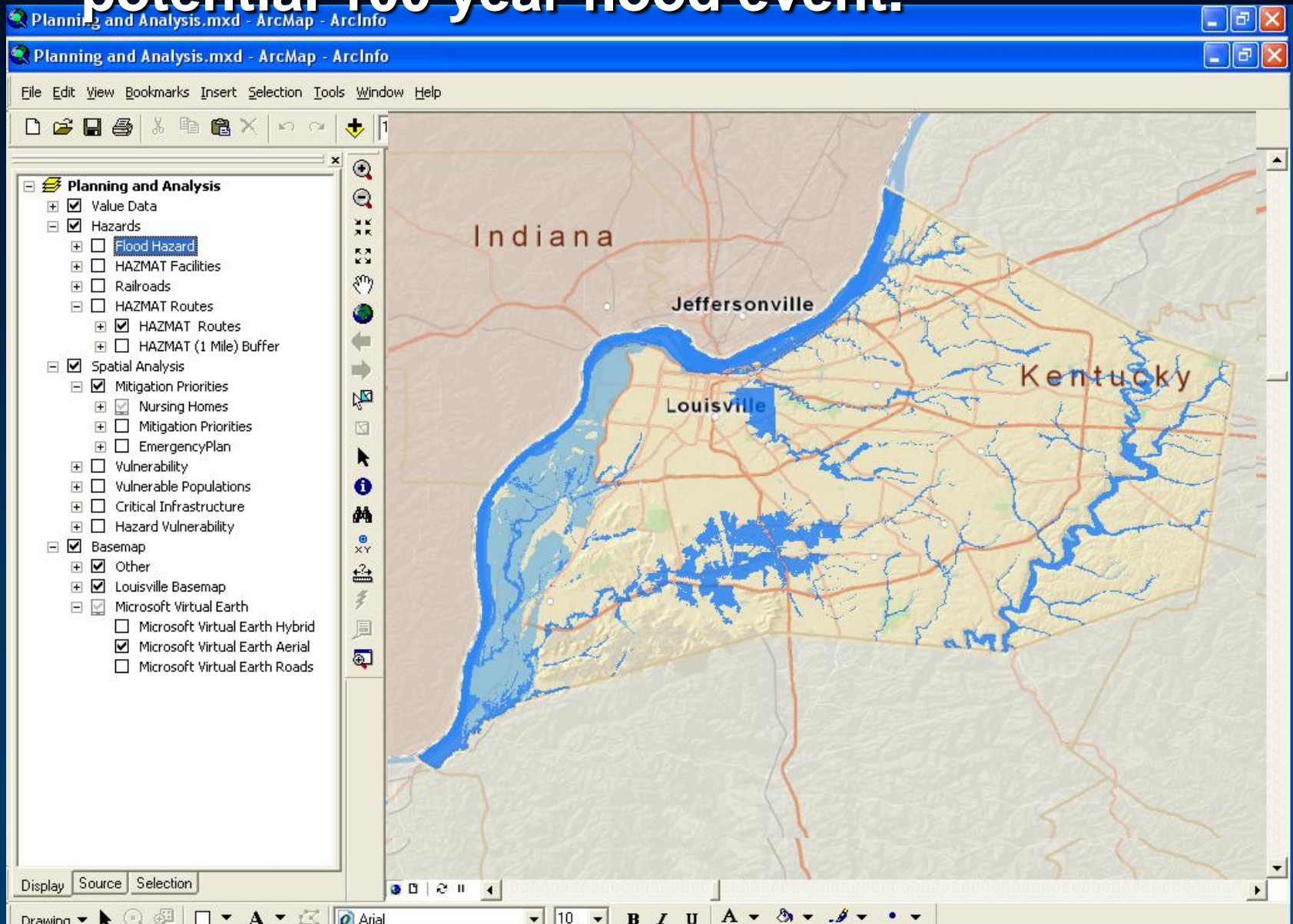
Dewberry

Response in Haiti

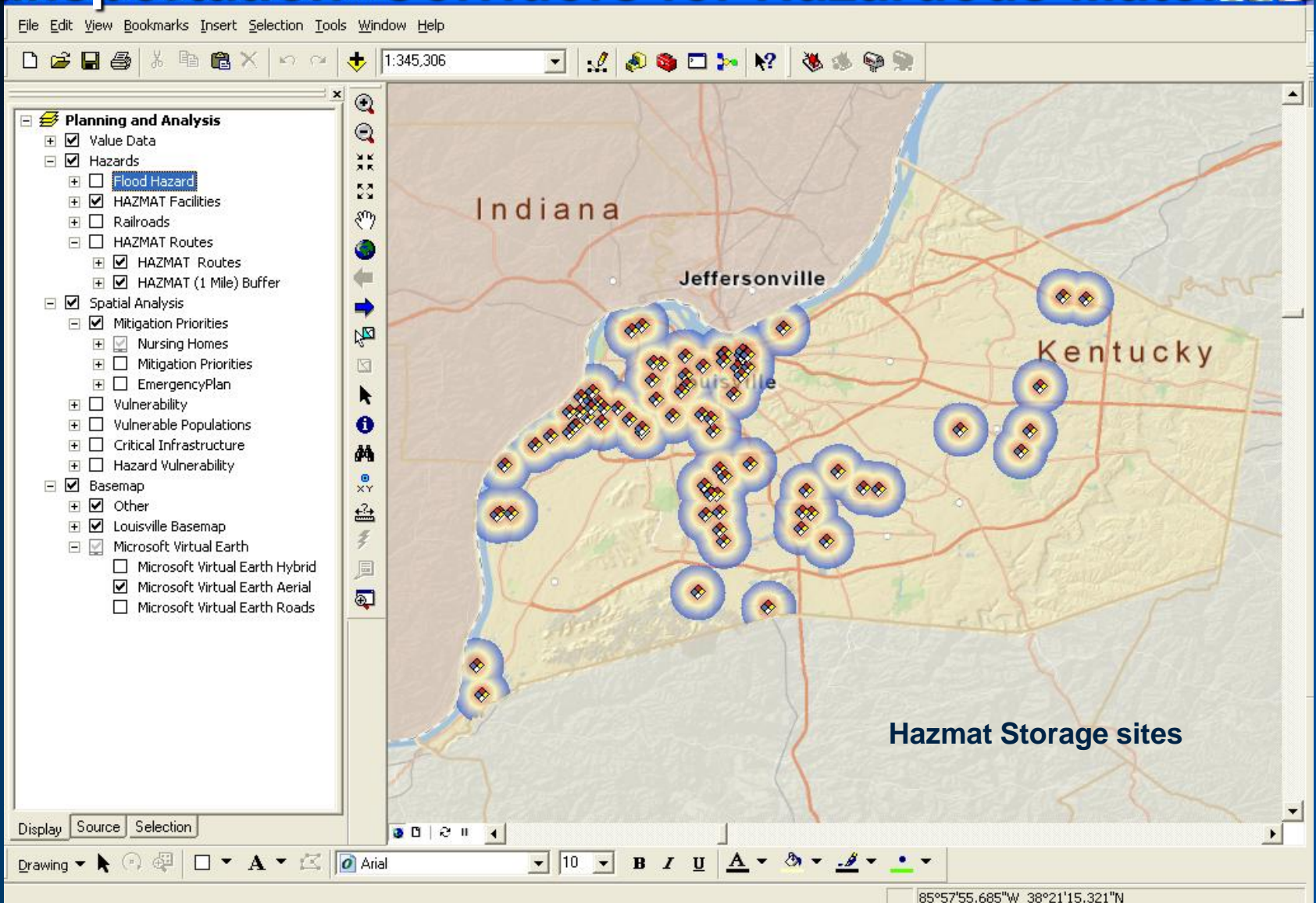


GCS Research

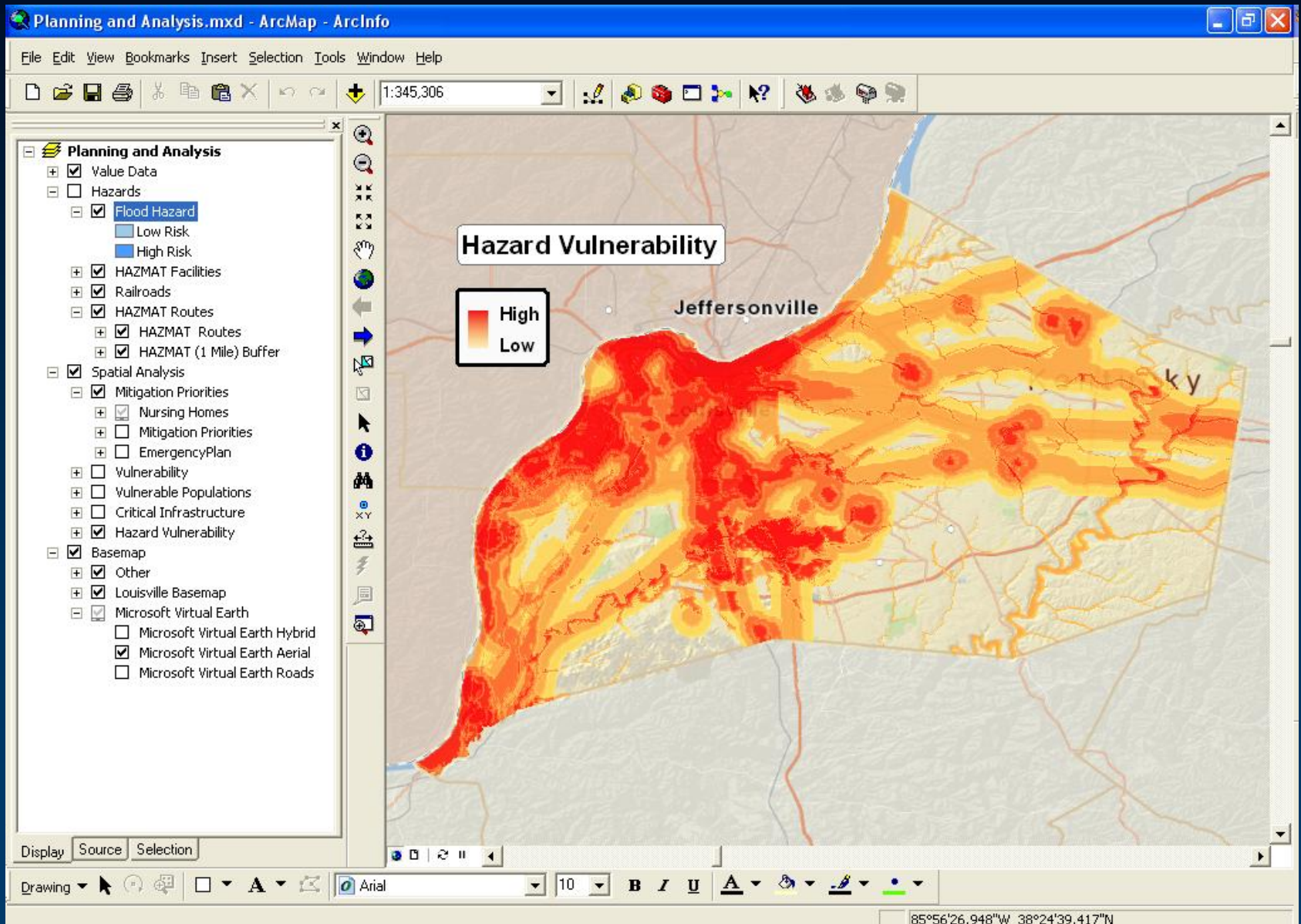
Assessment – Natural Hazards - potential 100 year flood event.



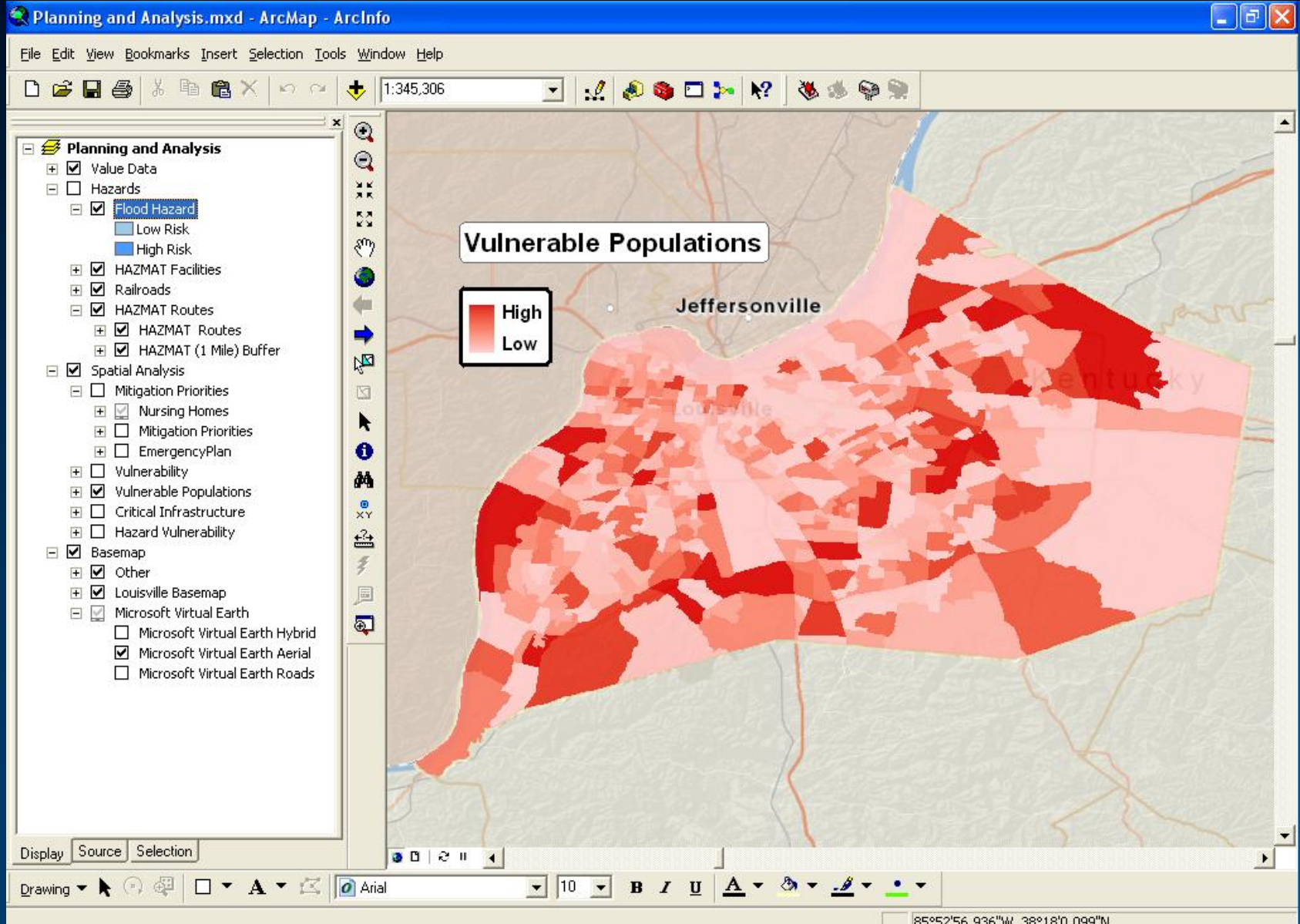
Assessment – Technological Hazards- Transportation Corridors for Hazardous Materials



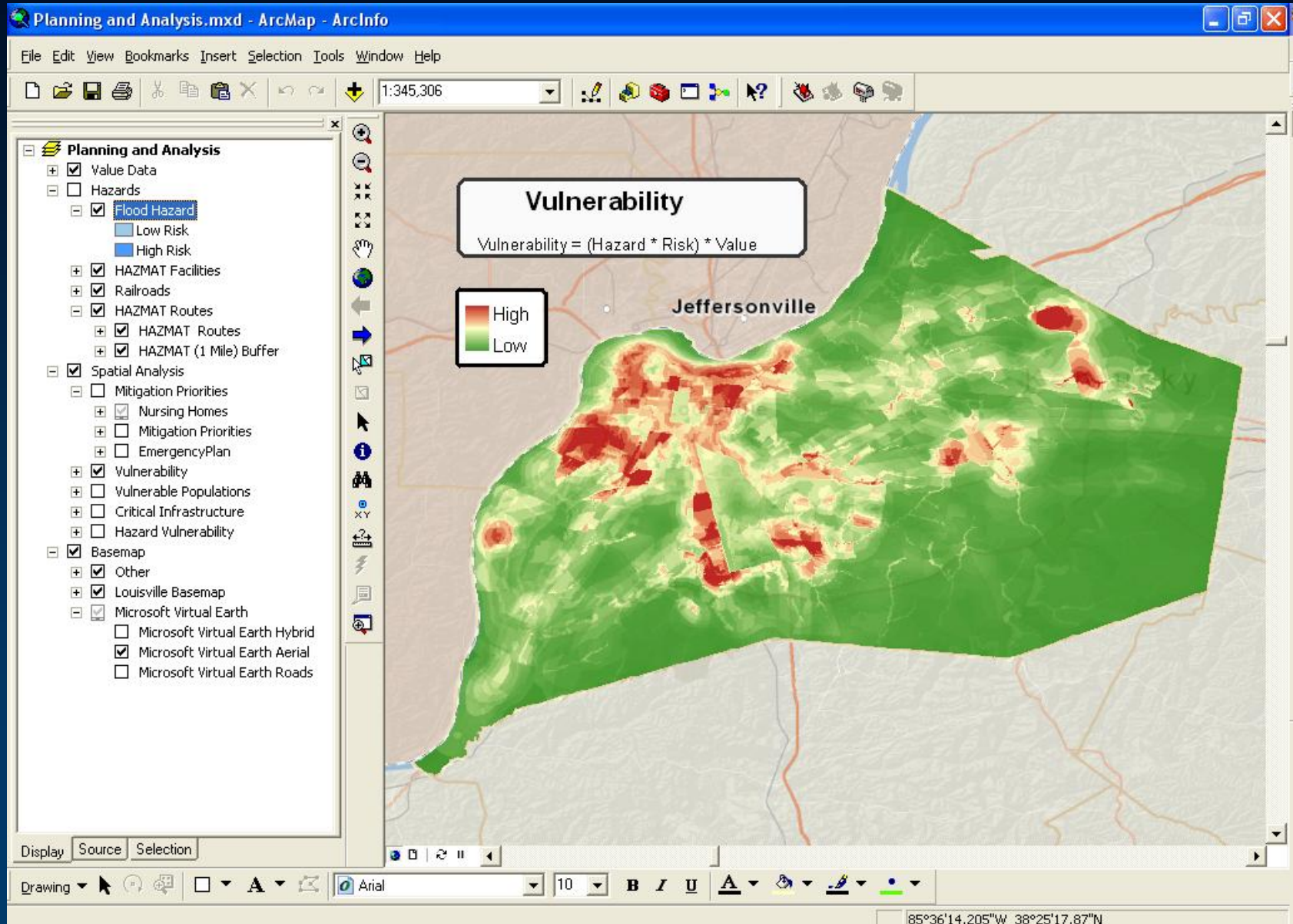
Assessment – All Hazards



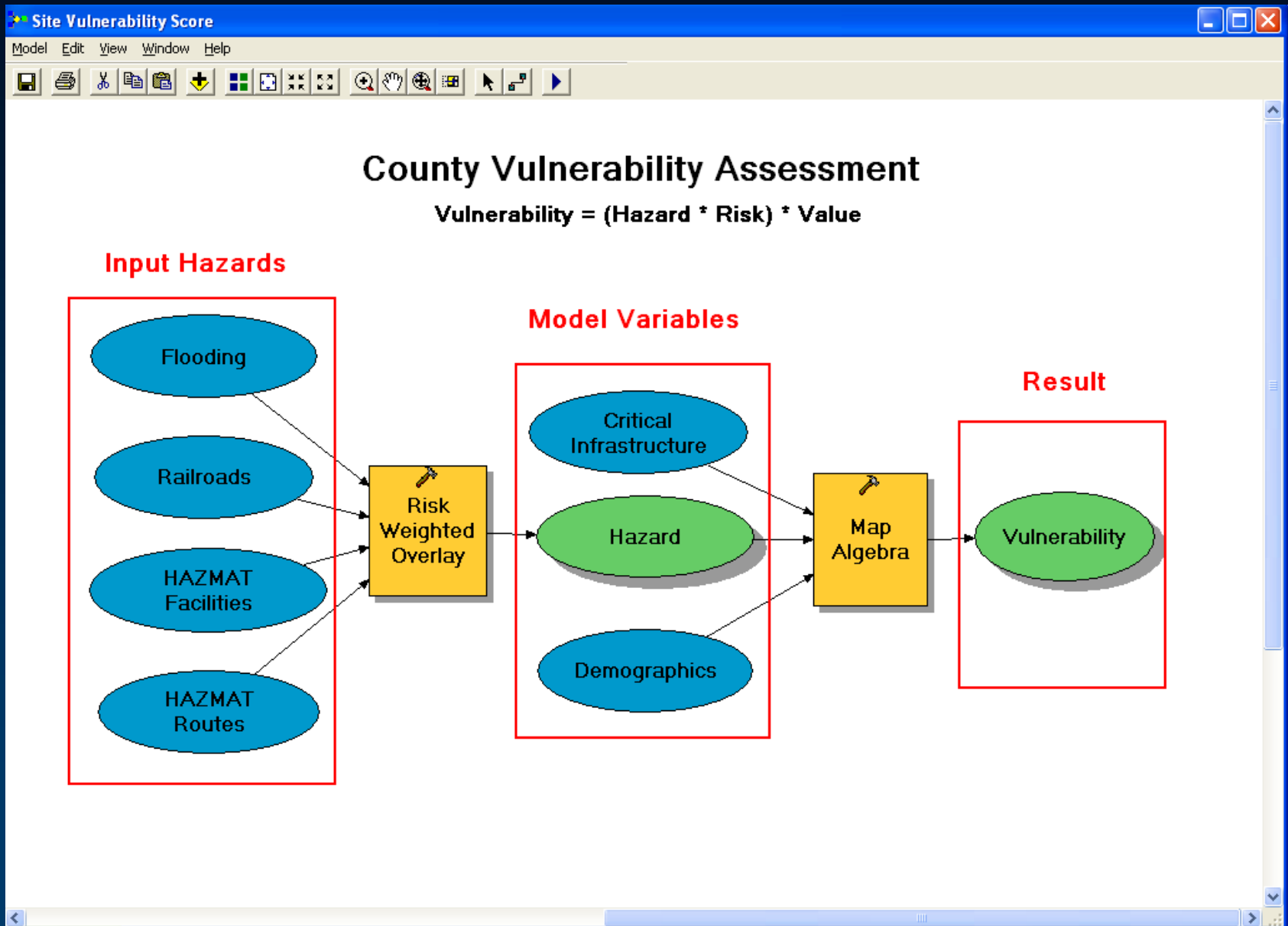
Assessment – Values



Assessment – Overall Value Exposure



Hazards Exposure Modeling



Data Management – Operationalize Plans

The screenshot displays a GIS application interface with several key components:

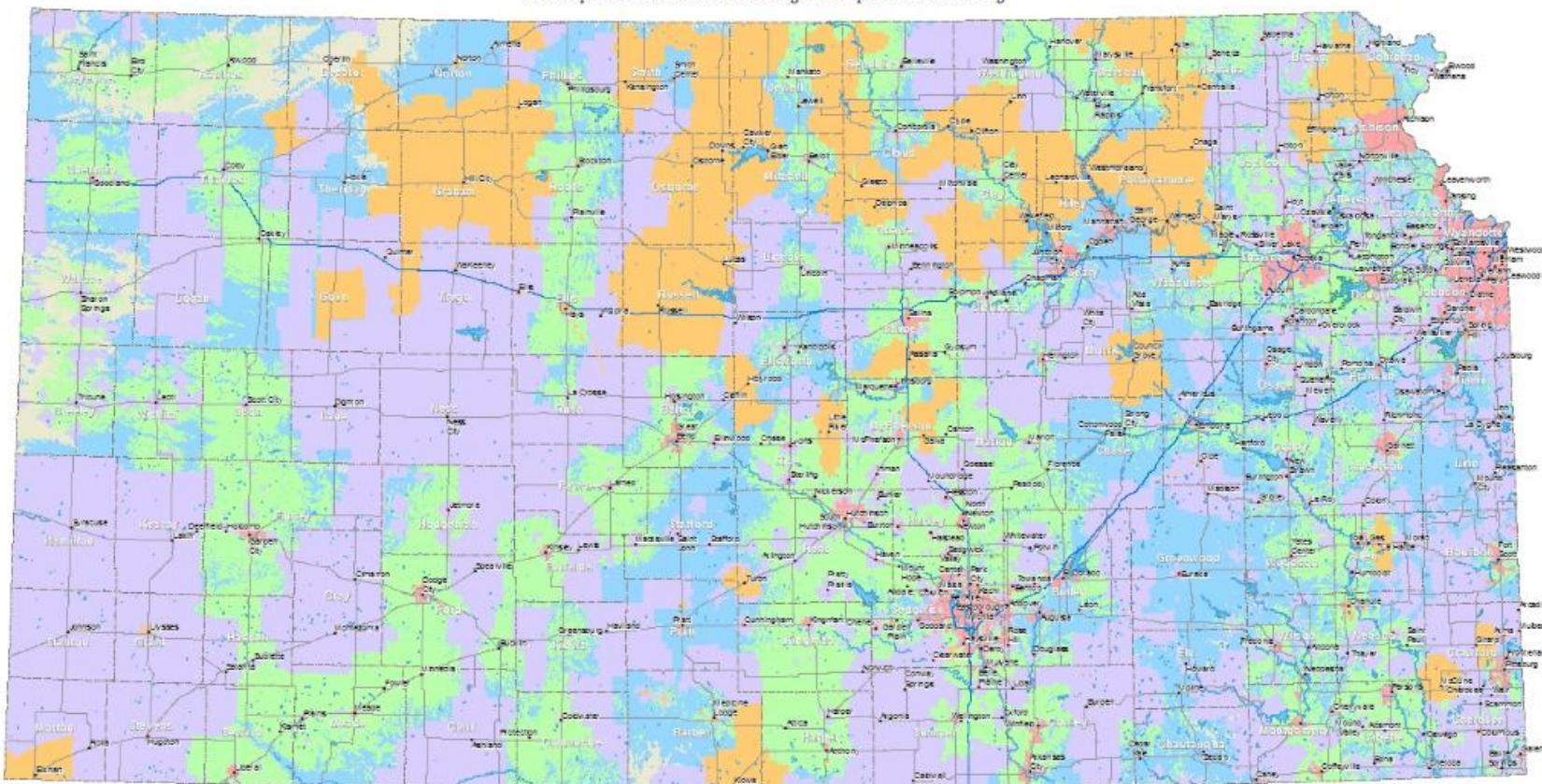
- Browser Window:** Microsoft Internet Explorer showing the address <http://palmbeach.esri.com/COP2008/>.
- Thumbnail Gallery:** A window titled "Click Thumbnail to Display the Full Sized Image" showing a grid of 8 images labeled: FRONT ENTRANCE, CAFETERIA, TRAILER, MAIN HALLWAY, LIBRARY, MEETING ROOM, ELECTRIC PANEL, and FENCED-IN GENERATOR.
- Map Content:** A panel on the right with "Local Map Layers" including Incidents, Hospitals, Operations, Shelters, Road Blocks, and Traffic Cams.
- Operations Panel:** A panel on the right with a "+" icon and a list of items: Staging Area 2, TEST TEST TEST, and Test for Mules and Jeff.
- Manual Editing Window:** A window titled "Manual Editing" with a table of migrated objects. The table has columns for "Source Objects", "Migration message", and "Target Objects".
- Map Interface:** A central map showing a city street grid with labels like "CORNWALL ST", "LOCHER AVE", and "PORTLAND AVE". A red square highlights a specific location. A "Locator" tool is visible on the right.
- City Security Overlay:** A red overlay with the text "CITY SECURITY 27" and a photograph of a building.
- Floor Plan Overlay:** A detailed floor plan overlay showing room layouts and furniture.

Source Objects	Migration message	Target Objects
Alphabetical List of Prod...	The migration of MS Access views is not implemented yet.	Alphabetical List of Products
Category Sales for 1997	The migration of MS Access views is not implemented yet.	Category Sales for 1997
Current Product List	The migration of MS Access views is not implemented yet.	Current Product List
Customers and Suppliers	The migration of MS Access views is not implemented yet.	Customers and Suppliers B...
Employee Sales by County	The migration of MS Access views is not implemented yet.	Employee Sales by County
Invoices	The migration of MS Access views is not implemented yet.	Invoices
Invoices Filter	The migration of MS Access views is not implemented yet.	Invoices Filter
Order Details Extended	The migration of MS Access views is not implemented yet.	Order Details Extended
Order Subtotal	The migration of MS Access views is not implemented yet.	Order Subtotal
Orders Qty	The migration of MS Access views is not implemented yet.	Orders Qty
Product Sales for 1997	The migration of MS Access views is not implemented yet.	Product Sales for 1997
Products Above Average	The migration of MS Access views is not implemented yet.	Products Above Average
Products by Category	The migration of MS Access views is not implemented yet.	Products by Category
Quarterly Orders	The migration of MS Access views is not implemented yet.	Quarterly Orders
Quarterly Orders by Prod...	The migration of MS Access views is not implemented yet.	Quarterly Orders by Product
Sales by Category	The migration of MS Access views is not implemented yet.	Sales by Category
Sales by Year	The migration of MS Access views is not implemented yet.	Sales by Year
Sales Totals by Amount	The migration of MS Access views is not implemented yet.	Sales Totals by Amount
Summary of Sales by Qu...	The migration of MS Access views is not implemented yet.	Summary of Sales by Quarter
Summary of Sales by Year	The migration of MS Access views is not implemented yet.	Summary of Sales by Year
Ten Most Expensive Pro...	The migration of MS Access views is not implemented yet.	Ten Most Expensive Prod...

Broadband Service Inventory for the State of Kansas

Advertised Speeds of at Least 768 kbps Downstream and 200 kbps Upstream

Submit questions or recommended changes to: maps@connectkansas.org



Updated October 1, 2011

BETA Version



Symbology

In areas where multiple broadband providers offer service, this platform composite map stacks coverage display layers in the order presented below.

- City
- Interstate
- US Road
- County Boundary
- Water
- National/State Land
- Fiber Broadband Available
- Cable Broadband Available
- DSL Broadband Available
- Fixed Wireless Broadband Available
- Mobile Wireless Broadband Available*
- Unserved Area



This map represents areas of broadband service availability determined by ongoing, in-depth technical analysis of provider networks and accommodations for the impact of external factors on service quality. Satellite broadband services may also be available.

*This map is not a guarantee of coverage, contains areas with no service, and generally predicts where outdoor coverage is available. Equipment, topography and environment affect service.

As required by the US Department of Commerce's State Broadband Initiative, if broadband service is available to at least one household in a census block, then for mapping purposes, that census block is reported to have some level of broadband availability. As such, broadband availability at an exact address location cannot be guaranteed. Providers supplying more specific data than census block are displayed as such.

Map users are encouraged to participate in improving broadband data granularity through data validation and field testing efforts. Learn more about this and other broadband mapping facts at www.connectkansas.org.

It all comes down to usability

- A big report is impressive but is likely to be difficult to use and tedious to evaluate
- Legislators and other People want actionable graphics, not just data tables
- Be sure the information is understandable – would your mother be able to understand it?
- The biggest challenge of all is not always technology - it may be people and processes - fragmentation

GIS for Decision Support

– Solving Problems

The image is a composite illustrating GIS for decision support. It features several screenshots of ArcGIS software and a central flowchart.

- Top Left:** A screenshot of ArcMap showing a map of the San Juan National Forest area in Colorado. The interface includes a toolbar, a map view, and a table of contents on the left listing layers like 'Denver', 'Campgrounds', and 'Points of Interest - Rec Sites'.
- Top Right:** A screenshot of ArcGIS Explorer showing a world map with a search bar and a list of locations.
- Middle Right:** A screenshot of ArcGIS Explorer showing a detailed map of a region with a 'Task Center' window open, displaying various analysis parameters such as 'Weights for Dist to Roads', 'Weights for Dist to Water', and 'Weights for Slope Snow Retain'.
- Bottom Left:** A screenshot of ArcMap showing a map of the San Juan National Forest with a 'Site_Campground_Forest.mxd' project. The table of contents shows layers like 'San Juan National Forest', 'Town Names', and 'Campgrounds'.
- Center:** A flowchart titled 'Site a Campground a location for a campground using suitability analysis.' The flowchart starts with 'DEM' and 'Points of Interest' as inputs. It branches into multiple paths:
 - DEM Path:** DEM → Aspect → Aspect Grid → Single Output Map Algebra (3) → Slope Areas → Single Output Map Algebra (6) → Slopes and Slope → Weight for Slope → Weight for Slope.
 - Points of Interest Path:** Points of Interest → Euclidean Distance (2) → Output direction → Reclassify (4) → Dist to Roads → Reclassify (4) → Roads Dist → Weight for Dist to Roads.
 - Points of Interest Path:** Points of Interest → Euclidean Distance (2) → Output direction → Reclassify (4) → Dist to Pts of Interest → Reclassify (4) → Pts of Interest → Weight for Dist to Pts of Interest.
 - Points of Interest Path:** Points of Interest → Favor High → Reclassify (4) → High Solar Duration → Merge Branch (2) → Solar Duratio → Weight for High Solar Duration.
 - Points of Interest Path:** Points of Interest → Favor Low → Reclassify (4) → Low Solar Duration → Merge Branch (2) → Solar Duratio → Weight for High Solar Duration.
 - Points of Interest Path:** Points of Interest → Viewshed from → Hardness (1) → Viewshed Reclass → Weight for Viewshed.
 - Points of Interest Path:** Points of Interest → Vegetation → Reclassify (4) → Veg Reclass → Weight for Veg Reclass.
 - Points of Interest Path:** Points of Interest → Use Water → Dist Use → Constant Raster → Water Zone → Single Output Map Algebra (6) → Water Features → Weight for Water Features.
 - Points of Interest Path:** Points of Interest → Use Water → Dist to Water → Reclassify (2) → Water Dist Features → Merge Branch (2) → Water Features → Weight for Water Features.
 - Points of Interest Path:** Points of Interest → Exclusion Distance (2) → Output direction → Exclusion Area → Polygon to Raster (2) → Exclusion Grid → Single Output Map Algebra (6) → Exclusion Substity → Weight for Exclusion Substity.
 - Points of Interest Path:** Points of Interest → Copy Features → Feature Area → Polygon to Raster (2) → Exclusion Grid → Single Output Map Algebra (6) → Exclusion Substity → Weight for Exclusion Substity.
- Bottom Center:** A text box stating 'Site a Campground a location for a campground using suitability analysis.'



Thanks!

