Association of American State Geologists

ILLINOIS STATE GEOLOGICAL SURVEY
PRAIRIE RESEARCH INSTITUTE

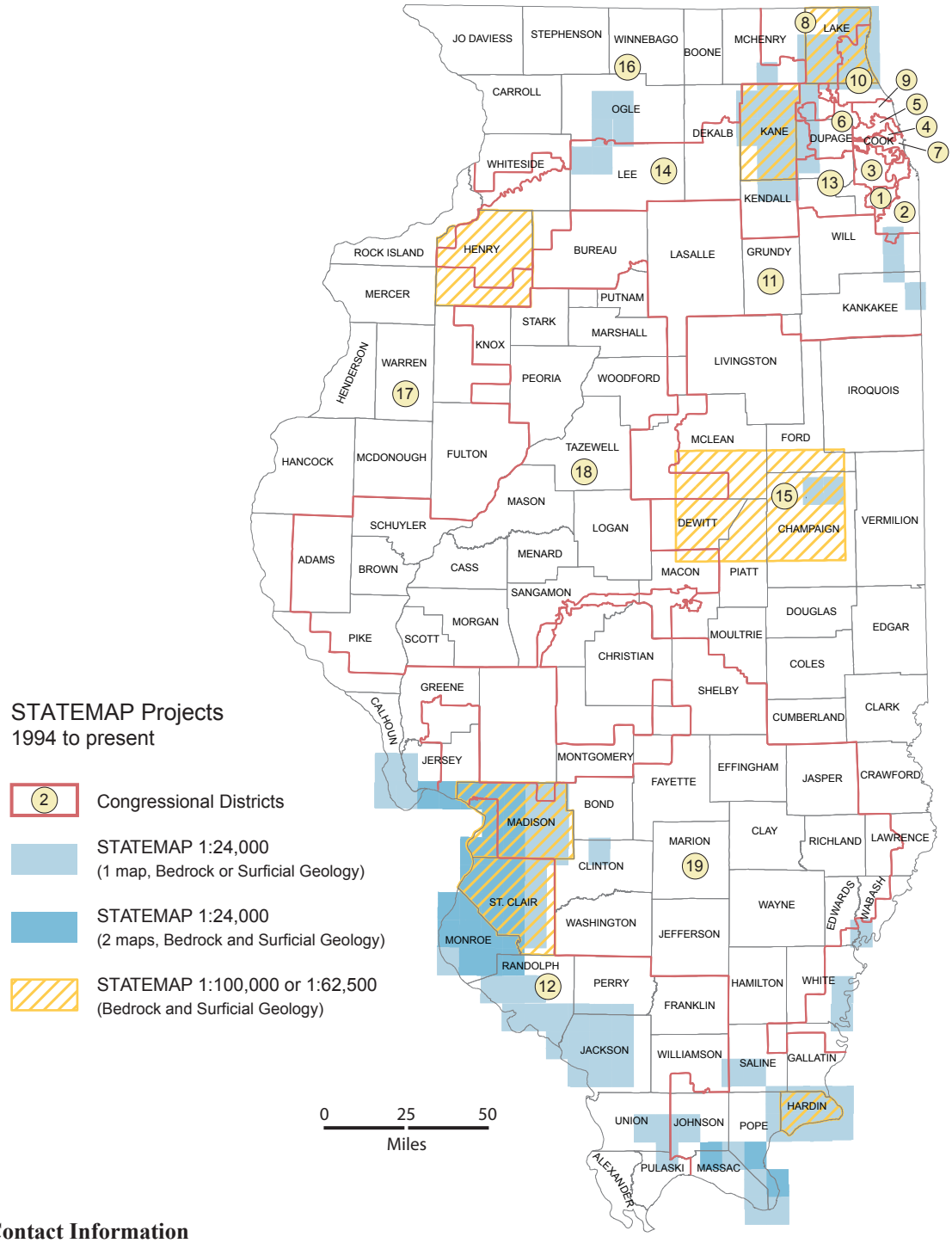
United States Geological Survey

USGS
science for a changing world

National Cooperative Geologic Mapping Program

STATEMAP Component: States compete for federal matching funds for geologic mapping

ILLINOIS



STATEMAP Projects
1994 to present

- (2) Congressional Districts
- STATEMAP 1:24,000 (1 map, Bedrock or Surficial Geology)
- STATEMAP 1:24,000 (2 maps, Bedrock and Surficial Geology)
- STATEMAP 1:100,000 or 1:62,500 (Bedrock and Surficial Geology)

Contact Information

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Summary of STATEMAP
Geologic Mapping Program in Illinois

FFY	7.5' Quadrangles Mapped	Federal Dollars	State Dollars	Total Project Dollars
1993	Champaign (30' x 60') & Mermet Surficial Geology Mermet & Reevesville Geology	$72,395	$126,768	$199,163
1994	Elburn & Geneva Surficial Geology Anna & Mt. Pleasant Bedrock Geology	80,000	128,270	208,270
1995	Brownfield, Smithland, Paducah E., & Little Cypress Surficial Geology Brownfield, Paducah NE, & Smithland Bedrock Geology	34,999	69,581	104,580
1996	Henry (County), Sugar Grove, Aurora N, Alton, & Grafton Surficial Geology Alton & Grafton Bedrock Geology	108,921	109,409	218,330
1997	Pingree Grove, Elgin, Elsah, & O'Fallon Surficial Geology Elsah & O'Fallon Bedrock Geology	100,000	100,000	200,000
1998	Hampshire, Maple Park, Cahokia, French Village, & Millstadt Surficial Geology Cahokia, French Village, & Millstadt Bedrock Geology	153,827	263,853	417,680
1999	Beecher W, Steger, Columbia, Waterloo, & Renault Surficial Geology Columbia, Waterloo, & Renault Bedrock Geology	119,856	196,036	315,892
2000	Wadsworth, Wood River, Monks Mound, Granite City, & Collinsville Surficial Geology Wood River, Monks Mound, & Collinsville Bedrock Geology	138,935	139,176	278,111
2001	Wauconda Surficial Geology Valmeyer, Selma, Paderborn, & Ames Bedrock Geology	184,036	184,512	368,548
2002	Bethalto &Prairietown; Edwardsville, & Oakville Surficial Geology Bethalto, Prairietown, Edwardsville, Oakville, & Granite City Bedrock Geology	150,000	150,249	300,249
2003	Grayslake, Marine, St. Jacob, Worden Surficial Geology New Athens West & Red Bud Geology; Prairie du Rocher & Vienna Bedrock Geology	201,980	203,037	405,017
2004	Highland, Grantfork, Libertyville, & New Douglas Surficial Geology Freeburg, Ava, Oraville, Raddle, Rockwood, & Willisville Bedrock Geology	217,273	217,273	434,546
2005	Lake Zurich, Lebanon, Mascoutah, & Madison (County) Surficial Geology Carrier Mills, Chester, Harrisburg, Vergennes, & Welge Bedrock Geology	249,196	249,196	498,392
2006	Ames, Barrington, Freeburg, Streamwood, & West Chicago Surficial Geology Cypress, Murphysboro, & Pomona Bedrock Geology	227,531	228,999	456,530
2007	New Athens East, New Athens West, & Wheeling Surficial Geology Brussels, Herod, Nutwood, & Winfield Bedrock Geology	242,230	243,550	485,780
2008	Aurora South, Paderborn, Red Bud, & Zion Surficial Geology Altenburg, Goram, & Shetlerville Bedrock Geology	228,592	229,832	458,424
2009	Naperville, Waukegan, & St. Clair County Surficial Geology Oregon, Foley, & Karbers Ridge Bedrock Geology	253,109	254,574	507,683
2010	Gifford, Highland Park, & Yorkville Surficial Geology Grand Detour, Mt. Morris, & Rosiclare Bedrock Geology	226,152	228,625	454,776
2011	Grayville, Huntley, Valmeyer, & Lake County Surficial Geology Dixon East, Evansville, Kaskaskia, & Saline Mines Bedrock Geology	255,774	255,900	511,674
2012	Emma, Stolletown, & Kane County Surficial Geology Cave-In-Rock, Dekoven, & Dixon West Bedrock Geology	204,968	205,300	410,268
2013	Illiana Heights, Rantoul, and Maunie Surficial Geology Daysville, Repton, Walsh, and Hardin County Bedrock Geology	194,565	196,301	390,866
	TOTALS **Total number of maps: 148**	**$3,644,339**	**$3,980,441**	**$7,624,780**

September 2013

Geologic Mapping in Illinois (2013)

The Illinois State Geological Survey (ISGS) has a continuing goal to map the geology of the state at 1:24,000 scale. ISGS geologic maps highlight either the unconsolidated (mainly glacial) sediments or the underlying Paleozoic bedrock and typically include cross sections or three dimensional views. ISGS geologic maps are being increasingly used by consultants, engineers, government agencies, educators, businesses, and scientists for a variety of purposes. The STATEMAP part of the National Cooperative Geologic Mapping Program has funded 148 mapping projects, including 142 quadrangle maps, 6 county compilation maps, and one regional map. From 1993 until 2010, STATEMAP mapping projects were mainly focused in three areas: (1) glacial deposits in the Chicago metropolitan region; (2) bedrock and surficial deposits in southernmost Illinois (with emphasis on evidence of faulting from the New Madrid and Wabash Valley seismic zones); and (3) glacial deposits and bedrock in the St. Louis metropolitan-east region. In the last few years, a geographic expansion of the program into the Kaskaskia Valley, Wabash Valley, and buried Mahomet Valley regions is helping to delineate additional groundwater, coal, and aggregate resources and to identify seismic hazards in areas with previously few high quality subsurface records. These new regions of mapping, along with the original areas, have helped to further scientific research in geographically diverse regions, and to provide baseline data for ecological or environmental issues (such as groundwater contamination). Another area of bedrock mapping is in northwestern Illinois, a region with thick deposits of a well sorted, medium-grained sandstone (St. Peter Sandstone), a material utilized in the hydrologic fracturing process and an important regional aquifer.

Illinois' glacial deposits are dominated by complexly layered deposits of clay, silt, sand, gravel, and boulders laid down by continental glaciers (and associated meltwaters), that repeatedly advanced into and receded from Illinois several times during the past million years. The glacial deposits are the primary source of drinking water for 37% of the state's total population, and more than 90% of the rural population, and contain significant reserves of sand and gravel. Our state's rich soil, some of the most productive in the world, owes its fertility in part to abundant nutrients in loess deposits (windblown silt) that blanket the state and serve as the soil parent material. The people of Illinois require information about the state's geology to successfully maintain natural areas and unique habitats, to locate and protect drinking-water sources, to properly site waste materials, to discover new construction materials and safe building localities, and to effectively and safely extract coal and oil resources. Maps delivered annually to the USGS to fulfill the STATEMAP contract are now made immediately available to the public through the ISGS website (*http://www.isgs.illinois.edu/?q=maps*), and are subsequently published in various map series.

Specific Map Outcome

The surficial geology map of St. Clair County (Grimley and Phillips 2011) depicts the glacial and nonglacial surficial deposits and landforms in the St. Louis metropolitan-east region. This area is well known for its archeological history and contains the Cahokia Mounds site, a UNESCO world heritage site within a settlement that had the largest population north of Mexico several hundred years ago. Modern development and highway construction in the St. Louis suburban region is commonly exposing more sites with a rich archeological history. The surficial geology map of St. Clair County, along with the original 1:24,000-scale maps that were compiled, have been useful to the Illinois Department of Transportation and the Illinois State Archeological Survey in providing a geologic context for Native American settlements and resources. One example is an archeological site in St. Clair County, called Emerald Mound, a mound and town complex constructed on top of a glacial morainic system with a viewshed of the surrounding valleys. During the last several years, construction of a new Illinois-Missouri Mississippi River bridge, and associated highway ramps, have also yielded many archeological sites for which the geological context from this mapping has been useful.

Reference

Grimley, D.A., and A.C. Phillips, 2011, Surficial Geology of St. Clair County, Illinois: Illinois State Geological Survey, Illinois County Geologic Map, ICGM St. Clair County-SG, 2 sheets, 1:62,500.