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Illinois						
Lake County	3-D glacial geologic mapping.	X			Numerous groundwater-resource and contamination issues; conflicting land uses; interaction of land and water use (rapid development) with wetlands and Lake Michigan shoreline.	Moraine belts and till plains; ice stagnation features; mainly Wisconsin Episode glacial deposits overlie Illinois Episode and possibly older deposits; 100–300 ft drift thickness.
McHenry County	3-D glacial geologic mapping.	X	X		Numerous groundwater-resource and contamination issues; conflicting land uses; interaction of land and water use (rapid development) with wetlands and agriculture.	Moraine belts and till plains; Wisconsin Episode glacial deposits overlie Illinois Episode and possibly older deposits; 100–400 ft drift thickness.
Will County	3-D glacial geologic mapping.		X		Numerous groundwater-resource and contamination issues; conflicting land uses; interaction of land and water use with wetlands, agriculture, and quarrying.	Moraine belt and meltwater drainageways underlain by deposits of the last Wisconsin Episode events. Landscape incised by numerous channels, some of which extend to bedrock. <25–150 ft drift thickness.
Lake Calumet - Cook County	3-D glacial geologic mapping. Establish "digital data library" from thousands of historical borings. Determine material's engineering properties and potential for transmitting contaminants.		X		Economic development; brownfield mitigation; environmental protection; and natural area establishment.	Large tracts of filled and made land. Dominated by lake plains and beaches of ancestral Lake Michigan and associated lake sediment. Lake Michigan shoreline intensely modified; 50–100 ft drift thickness.
South Chicago - Cook County	3-D glacial geologic mapping. Determine material's engineering properties and potential for transmitting contaminants.		X	X	Economic development; environmental protection; and remediation/redevelopment.	Large tracts of filled and made land. Dominated by lake plains and beaches of ancestral Lake Michigan and associated lake sediment. Patches of moraine rise from the surrounding lake plain; 25–125 ft drift thickness.
Mahomet Valley - eastern portion	3-D glacial geologic mapping.			X	Mahomet Aquifer receives water from bedrock and overlying glacial deposits; overlying aquifers may be contaminated from agricultural chemicals; aquifer properties and boundaries need detailed delineation for modeling.	Buried valley/moraine belt/till plain; regional pre-Illinois Episode aquifer is beneath thick deposits from multiple glaciations; shallow and restricted Illinois Episode aquifers overlie the Mahomet Aquifer; 200–350 ft drift thickness.

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Mahomet Valley - central portion	3-D glacial geologic mapping.			X	Same as above.	Same as above.
	8. Development and use of Visualization Laboratory to visualize 3-D relationships among glacial deposits. Laboratory use by ISGS and Coalition partners.	X	X	X		N.A.
Indiana						
Bartholomew County	Develop county website to disseminate completed and current 3-D geologic mapping. Construct derivative map products and data analyses relevant to groundwater and resource assessment to distribute via county website.		X	X	Groundwater availability, use, and protection. Type, location, quality, and quantity of geologic resources.	Wisconsin and older glacial marginal deposits, including thick outwash in a complex paleovalley drainage system.
Morgan County	Same as above.			X	Same as above.	Wisconsin and older glacial marginal deposits, including thick outwash in a major paleovalley drainage system and extensive, thick lacustrine deposits.
Northern Indiana - Interlobate region	3-D glacial geologic mapping at a regional scale to determine the character, extent, and chronology of the late Wisconsin ice lobes.		X	X	Sediment stratigraphy, architecture, and properties in 3-D provide a foundation for evaluating geologic and groundwater resources.	Moraine and head-of-fan; large coarse-grained outwash plains; ice stagnation and collapse features; late Wisconsin lobe sediments interfinger and overlap, which in turn overlie thick pre-Wisconsin deposits; 100–400 ft drift thickness.
Northeastern Indiana, including Allen County: new project mapping areas representing targeted glacial land systems	3-D glacial geologic mapping at regional, intermediate, and micro-scales. Includes coring, logging, sediment analysis, and dating.	X	X		Same as above.F25	Several glacial land system types including typical ice-lobe and complex, inter-ice-lobe systems; variable drift thickness.

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Central Indiana: Wisconsin and pre-Wisconsin ice marginal zones	3-D glacial geologic mapping at several scales (quadrangle, county, and regional) to investigate groundwater resources, glacial processes, and glacial chronology. Central area includes Bartholomew, Johnson, Morgan, and Hendricks Counties. Additional work will move into east- and west-central Indiana.		X	X	Groundwater availability, use, and protection. Type, location, quality, and quantity of geologic resources.	Generally low relief till plains interspersed with meltwater sluiceways and outwash (potential aquifers). Thicker glacial deposits (till, outwash, and lacustrine sediments) occur in several important bedrock valley systems near the maximum extent of glaciation.
Glacial sediment characterization, stratigraphic classification and nomenclature	Update of "Pleistocene formations of Indiana" by Wayne (1963).			X	Allows characterization and correlation of geologic units to aid in 3-D geological mapping and evaluation of groundwater resources.	Includes all Quaternary units of Indiana.
	7. Sediment laboratory expansion. Develop rapid particle-size analysis capability. Automate high-resolution analysis of sediment cores for magnetic susceptibility, p-wave velocity, resistivity, and imaging. Cooperate with Illinois and Ohio Geological Surveys.	X	X	X	Quantitative textural and physical property data are fundamental to 3-D sediment modeling, geology-geophysics linkage, and deriving applied sediment characteristics. Increased speed of sediment cores analysis facilitates greater data coverage.	N.A.
	8. Shallow geophysics in principal types of Midwest glacial land systems. Cooperate with Illinois, Michigan, and Ohio Geological Surveys.	X	X	X	Shallow seismic studies help provide data that can be applied to mapping, stratigraphic, engineering, and earthquake properties. Valuable in exploring for resources and in delineating geohazards.	Huron-Erie, Erie, and Saginaw Lobe land systems; variable drift thickness.
Michigan						
Barry Country	3-D glacial geologic mapping.	X			Includes development corridor; agriculture and sand and gravel resource issues.	Interlobate area between Saginaw Lobe and Lake Michigan Lobe; 150–300 ft drift thickness.
Calhoun County	3-D glacial geologic mapping.	X	X		Includes development corridor between Battle Creek and Kalamazoo; agriculture, extractive, and industrial issues.	Saginaw Lobe Terrain, areas of thin drift, drumlins; 0–300 ft drift thickness.

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Allegan County	3-D glacial geologic mapping.			X	Includes development corridor; agriculture issues.	Lake Michigan Lobe deposits; eastern side contains Saginaw Lobe deposits; 150–250 ft drift thickness.
Clinton County (southern)	3-D glacial geologic mapping.			X	High population growth; sand and gravel resource issues; surface water issues.	Saginaw Lobe recessional moraines with outwash channels between them; 120 ft average drift thickness.
Monroe County	3-D glacial geologic mapping.			X	Karst region; nonexistent aquifer in areas; limestone quarry dewatering; development corridor; poor water quality.	Huron-Erie Lobe; moraines, and lake plain; 0–70 ft drift thickness.
Eastern Upper Peninsula	Karst feature mapping.			X	Karst region, mapping; products will be directly useful for resolving resource utilization issues such as groundwater availability and pollution, and aggregate mining.	Lake Superior Lobe; 0–200 ft drift thickness.
Minnesota						
	Stratigraphic nomenclature development.	X				
Priority counties (see map); determined by state/ local participation	Surficial and subsurface glacial mapping.	X	X	X	Focus on mapping glacial aquifers and the nature of their connections to the land surface and surface water features.	Variable drift thickness.
New York						
Onondaga County	3-D glacial geologic mapping.	X			Numerous groundwater resource and contamination issues; conflicting land uses; interaction of land and water use (rapid development) with wetlands; Onondaga Lake. Geologic hazards associated with landslides.	Through valleys with drumlinized terrains composed of till. Large complex meltwater channel systems tying proto Great Lakes into Finger Lake Valleys. Wisconsin Episode sediments overlie Devonian shales and limestones. Glacial stratigraphy poorly defined; 0–800+ ft drift thickness.

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Ulster County	3-D glacial geologic mapping.		X		Water resource issues with New York City water supply; conflicting land use. Rapid development and economic development issues associated with water resources. Geologic hazards, flooding, landslides, and water quality.	Established fluvial systems within a glaciated mountainous terrain formerly occupied by extensive, deep proglacial lake systems. Extensive till and lacustrine facies. Poor age control although suspected Wisconsin Episode drift over Devonian sandstones; 0–400 ft drift thickness.
Albany County	3-D glacial geologic mapping.			X	Numerous water-resource issues including contamination from landfills and industrial settings. Prevalent landslides in high population centers (geologic hazards).	Extensive sand dune fields 10–75 ft thick, derived from delta sediments. Thick glaciolacustrine sediments deposited in proglacial lake basins. Poor age control; little consensus on ice marginal positions; 0–300 ft drift thickness.
Cayuga County	3-D glacial geologic mapping.		X		Numerous water-resource issues centered around the Montezuma Wetlands Complex. Competing land use between agriculture, wetlands along Interstate highway corridor. Complex stratigraphy and aquifers impacting surface water, groundwater, and ecologic communities.	Drumlinized till plains grading into Finger Lake troughs. Till on upland surface interbedded with lacustrine sediments deposited in large proglacial lake systems. Multiple ice marginal positions in region in association with eskers and tunnel channels. Large wetlands developed on floors of former lake basins. Poor age control on deposits; 30–300 ft drift thickness.
Seneca County	3-D glacial geologic mapping.		X		Numerous water-resource issues centered around the Montezuma Wetlands Complex. Complex stratigraphy and aquifers impacting surface water, groundwater, and ecologic communities. Coastal erosion on the shore of Lake Ontario.	Same as above.

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Wayne County	3-D glacial geologic mapping.		X	X	Same as above.	Drumlinized till plains grading into Finger Lake troughs. Till on upland surface interbedded with lacustrine sediments deposited in large proglacial lake systems. Multiple ice marginal positions in region in association with eskers and tunnel channels. Poor age control on deposits; 30–300 ft drift thickness.
Ohio						
Clark County - and elsewhere in Ohio	Karst mapping.	X			Important geohazards with groundwater contamination, construction problems, flooding, and road maintenance issues.	Typically, thin upland, ground moraine areas with thin drift. Karst features have been found with as much as 40 ft of overlying drift, 0–40 ft drift thickness.
	Continuation of development of till stratigraphic model. Cooperate with Illinois and Indiana Geological Surveys.	X			Till stratigraphic models will be valuable for correlating and better understanding of units and depositional patterns. Models will be crucial for future detailed mapping and modeling projects.	Various till-dominated settings (Erie Lobe land systems); variable drift thickness.
	Development of various derivative maps to tie in with STATEMAP stack maps and surficial mapping of 30x60 minute quadrangles.	X	X		Derivative maps will include sand and gravel resources; thick fine-grained drift suitable for waste disposal; and thin drift areas suitable for quarrying underlying bedrock.	Various settings targeted towards the specific type of derivative map; variable drift thickness, reflects a very critical component of these maps.
	Continued development of shallow seismic capabilities and engineering properties/seismic database. Cooperate with Illinois and Indiana Geological Surveys.		X	X	Shallow seismic studies will help provide data that can be applied to mapping, stratigraphic, engineering, and earthquake properties. Valuable in exploration for resources and in delineating geohazards.	Various settings depending upon the particular project, tie in with STATEMAP projects; drift thickness typically limited to about 100–150 ft. Refined techniques or equipment might extend this maximum depth.

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	Obtain Giddings or shallow geo-probe to assist with stratigraphic sampling or contracting the same.		X	X	Drilling program will greatly aid in developing the till stratigraphic model, obtaining samples for same, provide control points for seismic studies, and obtain engineering samples. Will also aid in mapping complex and problematic areas for STATEMAP projects.	Same as above. Drift thickness assumed limited to <100 ft unless drilling can be contracted in the future.
	Reactivate sedimentation laboratory to do analyses on samples to support till stratigraphic and soils geochemistry. Cooperate with Indiana Geological Survey.		X	X	Provide laboratory to help aid projects listed above. Provide lithologic and engineering properties that would provide useful data for a host of activities including aggregate and groundwater exploration, earthquake loss prediction, engineering risks, and delineating geohazards. Soils geochemistry would be directed towards elements of interest, particularly arsenic and selenium.	Same as above.
	View completed surficial geology and related derivative maps and determine areas that would support and benefit from detailed studies/maps/models utilizing and testing of stratigraphic models.	X	X		View areas with complex or unresolved geologic properties. Tie studies into known geologically problematic areas. Assist with doing site-specific studies that are required to support other government agencies as needed.	Various settings, depends upon particular project needs; variable drift thickness, however, drift thickness is a key component of such maps.
	Work on developing coastline models and GIS tools to help predict shoreline erosion from unconsolidated bluffs.		X		Predictor for areas experiencing shoreline recession. Also, a predictor of sediments/sand flux into the lake system.	Shoreline along Lake Erie in northeastern Ohio. Glacial materials overlying shale bedrock.
	Work on surficial geology along the complex glacial margin in southwestern Ohio.		X	X	Work on relatively unmapped terrains and areas in the southwestern portion of the state. Complex interaction between the Illinoian and Wisconsin ice advances.	Mapping along glacial boundary in southwestern Ohio.
	Work on colluvial areas flanking the unglaciated margins.		X	X	Help determine the thickness of these deposits and the settings for these areas. Determine if they constitute a potential geohazard.	Mapping along steep slopes and alluvial valleys in southwestern Ohio.

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	Work on karst features in southwestern Ohio.		x	x	Map sinks and related features using LiDAR and completing the field verification.	Mapping in groundwater sensitive areas, especially in Highland and Adams Counties.
Ontario						
Brantford-Woodstock area	3-D glacial geologic mapping.	X			Geoscience input to Source Water Protection; better understand surface water-groundwater interactions; assist with remediation of contaminated sites; input to land use planning; identification of groundwater resources for municipal, agricultural and industrial use; input to nutrient management guidelines.	Interlobate zone, multiple till units, both deeply buried and shallow aquifer bodies; drift thickness up to 377 ft (115 m).
Barrie-Oro Moraine area	3-D glacial geologic mapping.	X			Same as above.	Centered on the Oro Moraine, multiple till units; both deeply buried and shallow aquifer bodies; drift thickness exceeding 820 ft (250 m) in places.
Orangeville-Fergus area	3-D glacial geologic mapping.		X		Same as above.	Interlobate zone, multiple till units, both deeply buried and shallow aquifer bodies; drift thickness variable, exceeding 328 ft (100 m) in places.
South Simcoe County	3-D glacial geologic mapping.		X		Same as above.	Centered over the Laurentian buried bedrock valley; drift thickness variable and exceeding 492 ft (150 m) in places. Multiple till units with intervening glaciolacustrine deposits. Youngest units incised by deep tunnel channels.
Niagara Peninsula	3-D glacial geologic mapping.			X	Same as above.	Generally a thin drift region containing multiple Ontario lobe till units separated by fine-textured glacial lake deposits. Bedrock surface deeply incised at St. Davids. Less well developed valleys recognized elsewhere (e.g.. Erigan valley).

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Central Simcoe County	3-D glacial geologic mapping.			X	Same as above.	Centered over the Laurentian buried bedrock valley; drift thickness variable and exceeding 492 ft (150 m) in places. Multiple till units with intervening glaciolacustrine deposits. Youngest units incised by deep tunnel channels.
Mount Forest-Elmira area	3-D glacial geologic mapping.			X	Same as above.	Variable drift cover; up to 377 ft (115 m); study area underlain by deep bedrock valley; multiple till units derived from both the Ontario and Georgian Bay ice lobes; both deeply buried and near surface aquifers.
Ottawa area	3-D glacial geologic mapping.			X	Same as above.	Variable drift thickness; underlain by both Precambrian and Paleozoic bedrock; simple stratigraphic sequence consisting of Champlain Sea marine clay overlying stratified sands and gravels in subaquatic fans then till.
Pennsylvania						
	Determine locations of water wells in PaGWIS (water well database).	X			Groundwater-resource protection in rapidly developing municipal-industrial areas. Surficial and bedrock geologic mapping.	Moraine belts and till plains; ice stagnation features; mainly Wisconsin Episode glacial deposits overlie Illinois Episode and possibly older deposits; 0–400 ft drift thickness.
	Complete compilation of critical water well data entry into PaGWIS.	X	X		Same as above.	Same as above.
Northwestern Pennsylvania+	Bedrock topographic and drift thickness mapping.	X	X	X	Aid/restrict location of municipal and industrial infrastructure to protect limited groundwater resources. Base for future surficial and bedrock geologic mapping.	Same as above.

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Erie Bluffs State Park	3-D glacial geologic mapping.	X			Groundwater-resource protection. Monitor bluff stability for new Erie Bluffs State Park development. Identify unsuitable foundation areas (lacustrine deposit consolidation).	Lacustrine deposits and till. Beach ridges and moraines; 0–300 ft drift thickness.
New Castle South Quadrangle	3-D glacial geologic mapping.	X			Economic development in the area of Toll Road 60. Brownfield redevelopment near New Castle.	Moraine and ice-stagnation features; 0–100 ft drift thickness.
Warren County (western)	3-D glacial geologic mapping.		X	X	Prepare suitability maps for anticipated economic development, construction-resource availability, and groundwater-resource protection.	Moraine. Ice stagnation features. Thick valley fills. Unknown drift thickness, but estimated at 0–200+ ft.
Wisconsin						
Grant County (STATEMAP project supported by GLGMC)		X			Flooding susceptibility; groundwater resources and contamination; use of wetlands and agricultural land.	Periglacial, proglacial, and glacial (pre-Illinoian glaciation); loess dominated; drift thickness 30–300 ft.
Lower Wisconsin River Valley			X	X	Same as above.	Same as above.
USGS						
Livingston, Oakland, and Washtenaw Counties - South Lyon Quadrangle	Cooperate with Michigan Geological Survey.	X			High population region; groundwater issues; sand and gravel extraction issues.	Huron-Erie and Saginaw interlobate area with surficial and buried outwash; drift thickness 125–250 ft.
Manistee and Wexford Counties - Wellston NE and Wellston Quadrangles		X			Refining sand resources in Manistee National Forest. Competing interests between recreation and resource extraction.	Deltaic sand region between Lake Michigan Lobe moraines; drift thickness 300–800 ft.
Wexford County - Harrietta, Mesick, and Mesick NE Quadrangles			X	X	Same as above.	Same as above.
Leelanau County			X		County map compilation.	Lake Michigan Lobe deposits; drift thickness 50–250 ft.
Livingston County Cooperate with Michigan Geological Survey		X	X		County map compilation.	Huron-Erie and Saginaw Lobes and interlobate areas with associated outwash; drift thickness 50–300 ft.
Benzie County - Frankfort Quadrangle				X	Sleeping Bear National Lakeshore; popular recreation area.	Sand dunes, Lake Michigan Lobe moraines, and outwash; drift thickness 100–200 ft.