IndianaMap Framework Planning and Indiana GIS Council Business Plan
Agreement Number: 05HQAG0127

**NSDI Cooperative Agreements Program
Geographic Information Integration and Analysis
Final Project Report**

Submitted by the
Indiana Geographic Information Council, Inc.
140 North Senate Avenue, Room 306
Indianapolis, IN 46204

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NSDI Cooperative Agreements Program
Institution Building and Coordination Project
Final Project Report

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Applicant organization – Indiana Geographic Information Council, Inc.
Organization Internet address – www.igic.org

Key project contact

Jill Saligoe-Simmel, Ph.D.
IGIC Executive Director
317-234-2924
jsaligoe@igic.org

Other key contact personnel

Ms. Jennifer Dubeansky
IGIC Executive Assistant
317-234-2924
jdubeansky@igic.org

2005 IGIC Board - **Collaborating Organizations**

State Government	- Indiana Office of Technology - Indiana State Department of Health
County Government	- Association of Indiana Counties - Allen County, Indiana
Municipal Government	- Indiana Association of Cities and Towns - City of Richmond/Wayne County Government
Federal Government	- U.S. Geological Survey - Military Department of Indiana
Education	- Indiana University - Indiana University Purdue University Indianapolis University Library
Regional GIS Consortia	- Northwest Indiana GIS Forum - Indianapolis Mapping and Geographic Infrastructure System
Regional Planning Commissions	Indiana 15 Regional Planning Commission
GIS Service Providers	- The Schneider Corporation - EarthData International, LLC
Private Industry	- Zickler Associates, LLC - Krieg DeVault, LLP
Not-For-Profit	- The Nature Conservancy - Indiana Chapter - Hoosier Heartland/Indiana Association of Soil and Water Conservation Districts, Inc.

Utilities	• Indianapolis Power and Light • City of Lafayette
Critical Infrastructure	• City of Elkhart • Cinergy
Surveyors	• Indiana County Surveyors' Association • Indiana Society of Professional Land Surveyors
Members At Large	• Indiana Department of Environmental Management • Hamilton County

Project Narrative

With funding from the FGDC 2005 CAP Grant, the Indiana Geographic Information Council (IGIC) has made significant progress toward strengthening our existing multi-organizational collaboration on the IndianaMap that supports the development and maintenance of shared digital geographic resources, and to foster the establishment of cross-organizational coordinating councils that develop and advance the NSDI within Indiana. The Indiana Geographic Information Council, Inc. is a 501(c)(3) nonprofit. The Council is the formal statewide coordinating body for Indiana. It is our mission to lead the effective application of GIS in Indiana for an improved quality of life. We provide coordination of Indiana GIS through dissemination of data and data products, education and outreach, adoption of standards, and building partnerships. The following presents our original objectives and results of the project.

Executive Summary: *With FGDC CAP funding, IGIC will conduct critical "next step" planning and development activities over the coming year:*

1. *IGIC must develop a solid business plan for long-term sustainability of our partnerships and the organization.*
2. *IGIC must develop framework data plans for all framework data layers, including technical, policy, and financial components, to complete and maintain Indiana's portion of the NSDI.*

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1. IGIC must develop a solid business plan for long-term sustainability of our partnerships and the organization

IGIC made significant progress toward developing business activities for sustaining the organization. A number of key initiatives were identified and pursued. One of the most relevant actions was to develop a formal, paying general membership for the

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organization. In January 2006, IGIC opened a formal membership. We have tied that membership to benefits for the members, including member pricing on products and our annual conference. We also developed an e-commerce site to facilitate developing funding streams from membership and sponsorship.

Second and more significantly, we initiated a dialog with the State Chief Information Officer, Governor's Office, and Lt. Governor's Office regarding sustained program development for the IndianaMap. While the progress on this dialog has move slower than desired, it continues to progress in a positive direction. As a result of these activities, we will have legislation proposed during the 2007 Indiana General Assembly for support of the IndianaMap. A significant potion of our activity was in development of a business case for the IndianaMap (attached). The business case is a pivotal document in "selling" the long-term business plan.

IGIC continues to get its primary base of support from grants and contracts. We have identified a need for further (sustainable) base support for general administration.

2. IGIC must develop framework data plans for all framework data layers, including technical, policy, and financial components, to complete and maintain Indiana's portion of the NSDI.
IGIC has developed recommended framework data plans for all framework data layers, including technical, policy, and financial components, to complete and maintain Indiana's portion of the NSDI. These framework data plans will provide a road map for development, compilation, and maintenance of a statewide base map.

IGIC's activities included:
- o 10 Regional framework data forums (modeled after our existing regional forum series)
- o Outreach material development
- o Legislative GIS Day events with an exhibit at the Indiana State House
- o Meetings with key officials
- o Framework workgroup support

Attached is a meeting report for activities initiated under support of this grant.

Conclusion
Under the 2005 CAP Grant, IGIC initiated many activities directed at the long-term support and sustainability of the organization. During the project period we experienced a new administration and entire new group of decision-makers to both educate and engage. The CAP Grant proved vital to our success in engaging this administration. Because of these changes, IGIC was able only to develop short-term business plan solutions as we await decisions by the State regarding their potential long-term support

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and leadership. Nonetheless, the right stakeholders are actively engaged in dialog and we have positive progress on formalization of the IndianaMap.

The activities initiated under this project will continue into the future. We anticipate the State of Indiana to make decisions regarding their role in IndianaMap leadership. Next steps for the project will include developing a Strategic Plan and Implementation Plan for the IndianaMap.

Feedback on Cooperative Agreements Program
The FGDC CAP Grant program provided much needed funding support for our organization as we develop our plans for the organization and the IndianaMap. As a not-for-profit organization, IGIC depends on such grant support for our activities, without which we would not be able to accomplish our goals.

The main complicating aspect of this project was the change in administration and resulting change in direction by the state regarding statewide GIS development. However, this beyond our control and could not necessarily be done differently next time.

**CAP Grant: Planning
Meeting Report**

November-December 2005

Indiana Office of Technology
Jill Saligoe-Simmel, Jim Stout, Larry Stout and Alex Wernher met with Karl Browning and Chris Cotterill from the Indiana Office of Technology. IGIC was invited to review the proposed executive order regarding the State's nascent GIS Center of Excellence. The Center is currently operating under agreements with the five largest state agencies. IGIC Officers received a bulleted list outlining the order, which they discussed and returned with suggestions. IGIC's recommendations included, among others: appoint a board of geographic names, recognize the value of a single Indiana basemap, remove the word "maintenance" in reference to data, and extend an invitation to the University Consortium to be a non-voting member of the board. Although only this last suggestion was accepted, it was a very positive step for them to have asked for our opinion on the document. IGIC has also been asked to serve as a non-voting member of the Strategic Board. It is hoped our involvement will continue to evolve as the Center does.

Indiana Data Initiative
The Center of Excellence also ties in with Governor's Indiana Data Initiative. Jill has been representing IGIC on the Initiative's Board. A number of attendees have ties directly to the Governor's office, and are coming to recognize the value of GIS as an integration tool. Members have been developing papers on a number of topics - education, taxes, etc. - all of which have a GIS component.

911 Board
Jill and Jim met with Ken Lauden from the 911 Board. Historically, IGIC has had very little access to this body. Ken, however, comes from local government (Steuben County?), and is familiar with GIS. He is enthusiastic and has expressed interest in participating on the Centerline and Address Workgroup. Ken also asked Jill to present at the County Commissioner's Conference last month, which went very well. There was a good appreciation for 2005 Orthophotography project, good feedback and questions on a variety of levels and topics.

Upcoming Meetings
Jill will soon begin meeting one-on-one with a number of different groups, business leaders and agencies to further framework data activities. The goal is to establish relationships with business drivers. The first planned meeting is with the Secretary of State's office next week.

January 2006

Secretary of State
In December, Jim Stout and Jill Saligoe-Simmel met with Secretary of State, Plexis and Quest representatives. The two companies are the contractors working on the Help America Vote Application (HAVA). The meeting was to discuss Indiana's street centerlines and addresses, and gauge their interest in working with IGIC's framework workgroup in putting these layer(s) together. They expressed interest in participating, consider themselves stakeholders, and are taking the

long-term approach. This year, IGIC will be gathering requirements and moving forward with this workgroup. The goal is to have high-level stakeholders - potentially as business drivers - involved in the workgroup activities. Stakeholders for addresses and centerlines include the Secretary of State's Office, the 911 Board (Treasurer's Office), and the Governor's Office.

Objectives for the addresses and centerline framework workgroup mirror those of the other framework workgroups and include:
- Defining the current state of the state
- Identifying users
- Identifying business drivers and funding sources
- Determining requirements
- Prioritizing importance and timing for development

Department of Homeland Security
Jill will be meeting with Cliff Wojtalewicz, Roger Koelpin and Diane Mack bi-weekly to coordinate with Homeland Security efforts related to the IGIC contract.

Indiana Farm Bureau
Jill met with Indiana Farm Bureau President, Don Villwock (board member Betsy Villwock's father), Michael Base, former IGIC board member, and Brad Buening. Jill briefed them on the orthophotography project and agricultural applications of the dataset. They are very excited about the possibilities of working with GIS and IGIC.

ISPLS Conference
Jill manned an IGIC booth and presented at the 2006 Indiana Society of Professional Land Surveyors conference. There was a good amount of traffic and Jill was able to distribute flyers and information on the orthophotography project, the GIS conference and membership. Jill also gave a 3-hour presentation on the IndianaMap to 100 surveyors, for which they received continuing credit. The result was fantastic visibility for IGIC, which we hope will lead to a high level of exchange with ISPLS and its members. And we now have current presentation material on the orthophotography and elevation project, what is IGIC, the tie-card scanning project, education and outreach efforts, and numerous concrete examples of what GIS is and why it's good.

February-March 2006

GIS Resources Seminars
Jill conducted two seminars in January on Indiana's GIS resources. It detailed IGIC's current projects, website and other online resources.

Indiana Department of Transportation (INDOT)
Jill met with the GIS team at INDOT, the first such meeting since Joel Bump became the new GIS manager there. They have been working on a centerline data layer, realigning roads to 2003 NAIP imagery and conflating census road data. Similar projects are underway at the Census Bureau and at the local level.   Jill has been comparing the centerline files and it is very difficult to determine whose is best. She has also been talking with program and agency heads to determine need for this data and collecting information for the business case. These factors will definitely be a matter for the centerline workgroup to resolve.

The INDOT GIS group is in charge of applications. A separate group has been working on data collection. There is currently no plan or funding for maintaining the new centerline layer. Jill will be following up with them on how we can help. The GIS group has expressed the desire to be stewards for the data - they are the obvious choice - but they are having trouble getting agency backing. Joel is planning to further develop their staff and strategies in the future.

Information for Indiana (nee Indiana Data Initiative)
The group has produced a series of issue briefs, including one focusing on GIS. The materials will be sent out electronically and in hardcopy to all legislators.

April 2006

Indiana Department of Revenue
Jill met with Assistant Commission Larry Smith at the Indiana Department of Revenue (IDR) and, after signing a non-disclosure agreement, received a fantastic tour of their facility. Larry Smith, who has been interested in GIS for some time, indicated he is now in a position to increase participation and act as a business driver for a statewide geocoded addresses dataset. IDR also needs tax jurisdictions. They require it from businesses, but the information is not available anywhere. IDR is considered one of the more forward-thinking departments on the country. Jill will work in the next few months to submit an unsolicited proposal for IGIC to do some work for them.

Governor's Office
Jill met with Neil Picket, the Governor's Office's recent appointee to the IGIC board. She has been meeting individually with new board members this year. They discussed potential legislation, and his role on the board. It was agreed he could be helpful by providing legislative and state agency contacts. He is interested in tying together GIS legislation and the governor-sponsored initiative he leads, Information for Indiana. He also recommended writing GIS legislation with a non-specific funding format. It should describe what's needed and provide several funding options. This helps avoid potential problems when talking with legislators.

Transportation and Addressing Forum
Jill suggested we hold a forum for address and transportation data stakeholders. It would give everyone an opportunity to provide input on building a statewide dataset. US Department of Agriculture-NRCS could facilitate, as they have in the past.. Larry recommended finding out if the National Emergency Number Association (NENA) has a chapter here. Working with emergency management on addressing has been very productive. Logistics companies like FedEx and UPS should also be included.

Indiana Brownfields Conference
Jill presented on the orthophotography project at the Indiana Brownfields Conference. GIS professionals from the Indiana Department of Transportation and Indiana Region 15 also gave presentations. Brownfields has been a growing issue in the state, and it was nice to be involved.

Indiana GIS Center of Excellence
IGIC has officially been invited to participate in the State's GIS coordination meetings. Jim and Jill attended to represent the board at the last meeting. The level of GIS experience was minimal, but the directors were open to listening. The Center has launched a GIS portal inside the State's firewall, primarily for expert GIS users. It includes webmap services and metadata, and draws from multiple agencies. Irv Goldblatt of the Center and Roger Koelpin at Homeland Security are making real progress at the State, being more vocal about the need for GIS and seeing some good results.

May 2006

Governor's Office
Jill, Larry Stout, and Jim Stout met this week with Neil Picket, the IGIC Board member representing the Governor's Office. He is an advisor to the Governor on technology issues. The meeting was very productive. Neil provided guidance and support for moving forward with the IndianaMap

and legislation. IGIC will concentrate on funding mechanisms, possibly in coordination with the Indiana State Center of Excellence for GIS.

Neil requested a 5-slide presentation covering basic GIS, business cases and high-level budget information. Jill is putting the presentation together using the 2004 Technology Strategy as a basis for maximum and minimum budget figures ($6.37M and $3.6M respectively). Scenarios include funding for a combination of items, e.g. framework data, administration, local government grants, the University Consortium and statewide orthophotography. The presentation will be sent out for review before it is delivered.

IGIC has successfully generated broad support for the IndianaMap. Neil will be meeting with State agency personnel to continue this process with upper State and executive personnel. The University Consortium will be solicited for input and support.

Center of Excellence
Jill and Jim were invited to attend the regular high-level meetings with the Center of Excellence for GIS. Becky pointed out the need to work cooperatively with the State in terms of goals and strategies. There should be a clear division of labor, and a plan for mutual support with the Center when talking with legislators. Jill will be meeting with individually with the Center's director, Irv Goldblatt, to ensure the lines of communication are open.

Legislative Committee
The committee held its first meeting since the close of the legislative session. Turnout was encouraging. IGIC members who may not be as active in other areas are very interested in legislation.

Funding was the main topic of discussion at the meeting. General response to the IndianaMap has been positive, but formal support cannot be determined until a source of funding is identified. Property transaction fees, initially seen as a potential avenue, are unacceptable to the realty community. They view it as a slippery slope and have argued against the imposition of any charges.

Larry suggested providing a number of options to legislators, allowing them to take ownership and make the final decisions. With State agencies, the House, Senate Lieutenant Governor and Governor's Offices support it, identifying funding should be the final piece needed to pass meaningful legislation.

Upcoming Meetings
Jill will be meeting with Department of Homeland Security staff next week. They have historically been enthusiastic, and the new administration appears to be following suit. It will be an opportunity to vet funding and legislative plans with them.

Jill will be presenting with Irv Goldblatt next week at the Indiana Digital Summit.

June 2006

Summer Forums
 The first two Summer Forums were held June 16th for Transportation, Cadastral and Boundaries. The following are important points from the forums:

- The Indiana Department of Transportation (INDOT) could be the logical steward for roads and addresses if they are committed to local-level data maintenance
- 100% support at the meetings for public domain data
- High need for addressing public access code in order to make progress
- DLGF has significant experience in collecting the county parcel data base information

Indiana State GIS Center for Excellence
Jill and Jim have been regularly attending these meetings, though progress has been slow. In the future, IGIC will seek to advance our goals by asking for 10-15 minutes on the agenda to drive particular topics, e.g. framework planning.

Jill will be meeting with the following people in June and July. Officers are welcome to attend as well.
- Mickey Maurer, Indiana Economic Development Corporation 7/26 9-10am
- Karl Browning, CIO for the State 6/26 10-11am
- Associates from the public television station WFYI 6/29 9-11am

July-August 2006

Summer Forums
The final two framework data summer forums will be held tomorrow. In general, the events have been very useful. They have drawn a diverse range of stakeholders, many of them enthusiastic new GIS users. The information and input gathered will be very useful as Jill Saligoe-Simmel compiles plans for the statewide framework data.

WFYI/Across Indiana
Producers of "Across Indiana" started work on a segment highlighting the IndianaMap, and GIS in general. In August they filmed Board member Jim Binkley in Scottsburg as he was locating high speed internet antennas on a (very tall) tower. The crew will also be visiting Anna Radue at Indiana University-UITS to capture the more technical side of the project, as well as the award-winning South Bend Police Department GIS. After their initial research, the producers commented on how much value Hoosier's are getting from these maps. Other suggestions for contacts to pass along to the producers: Greg Grabner for the Evansville tornado recovery, Department of Natural Resources for the emerald ash borer eradication.

US Geological Survey
Jill Saligoe-Simmel attended a meeting with the US Geological Survey (USGS) to discuss plans for David Nail, the newly appointed Indiana liaison. It is anticipated that he will be at the IGIC office one day per week. Ideally, the relationship will be similar to that of North Carolina's, where the liaison has "gone native," and is practically a member of the GIS Council's staff.

USGS will be flying several areas in Indiana as part of their 133 Cities project. Jim Stout has been approached regarding the acquisition of a footprint for Indianapolis. Jill will follow up on details about which areas of the state will be flown (specifically Lake County/Hammond) and cost sharing opportunities.

Indiana Economic Development Corporation (Mickey Maurer)
Jim Stout and Jill Saligoe-Simmel met with Mickey Maurer at the Economic Development Corporation. He is an enthusiastic convert to GIS, and has begun asking why his agency is not using it more. He has offered to support IGIC's legislative efforts, including testifying before committees. Unfortunately, Mr. Maurer may be stepping down soon. A replacement has been unofficially named, and Jim suggested IGIC representatives attempt to schedule a meeting with him before the transition takes place (i.e. while he still has free time on his calendar).

Jim and Jill also spent an hour with other IEDC staff, and Jill will return in September to provide more extensive training. Charlie Sparks has been assigned to work with Jill on documenting the use of GIS in successfully acquiring a Honda plant in Decatur County.

Indiana State GIS Center of Excellence
A day-long retreat was held at the IGIC offices for State agency GIS coordinators, and GIS Center of Excellence staff. The meeting was very productive, and resulted in agreement of big-picture goals and aspirations for GIS at the State.

IndianaMap Business Case

Introduction

Indiana needs a single, accurate, high-quality electronic map.

The portfolio of projects needed to create this statewide map has been given the brand identification of "The IndianaMap Program". **The purpose of the IndianaMap is to enhance public safety, economic development, land and water resources, and good government** by encouraging and facilitating the establishment of a consistent geographic information infrastructure for Indiana that is accurate, maintained, and accessible to those who need it.

Indiana needs a single, accurate, high-quality electronic map because...
1. Electronic maps should be made only once and paid for only once
2. Better informed decision-makers make better decisions
3. Emergency responders need maps that span city and county lines
4. Pooling resources saves taxpayer dollars
5. Pooling resources makes a better map than any individual agency could afford
6. Access to information empowers citizens

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This document outlines the status of **Geographic Information Systems** (GIS) implementation in Indiana, and particularly inside state government; describes how the IndianaMap Program will aid state agencies fulfill their program missions; and shows how the IndianaMap will provide enough tangible benefits that a return on investment to taxpayers will easily be seen in four years.

GIS in Indiana

GIS technology is being used by a growing number of user groups at all levels of government and in the private sector. A 2006 statewide survey on GIS technology (conducted by the Indiana Geographic Information Council) provides information on the extent of current GIS use in Indiana (Figure 1). These numbers are indicative of a long-term trend of GIS technology adoption by public agencies – a trend that continues to accelerate, driving GIS use by a large number of state, regional, and local agencies:

- 20 state government agencies currently use GIS technology (Table 1)
- 8 state agencies have indicated a need to acquire GIS capabilities
- 20 federal government agencies in Indiana use GIS
- 10 sub-state regional agencies use GIS
- At least 79 of 92 county governments (increasing at high rate) use GIS
- More than 43 cities and towns use GIS

Figure 1. Types of GIS users/organizations in Indiana (among 566 survey respondents).
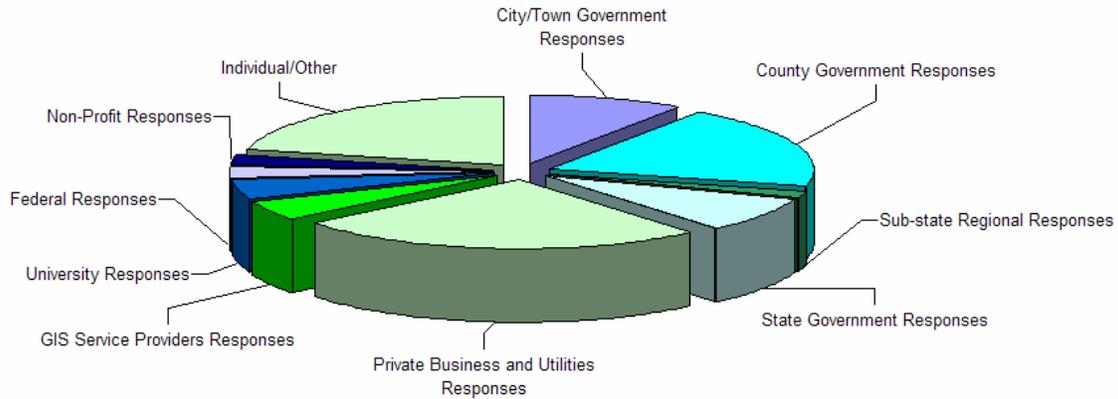
State Agency Missions and GIS Requirements

An analysis of state agency programs (summarized in Table 1) reveals the importance of geographic information. Almost every state agency in Indiana has mission objectives that depend on geographic information to be successful. Several of these agencies already have active GIS programs and others are in the process of adopting the technology. Many state agencies have indicated that high-quality electronic map data – such as would be created, integrated, and maintained by the IndianaMap – are essential for performing their statutory responsibilities.

Currently, no formally authorized entity exists within the state to support the GIS requirements of these agencies, programs and statutory responsibilities.

There is no organized program in place, and no designated funding, to accomplish the IndianaMap Program.

Table 1. State agency missions relative to their geographic information requirements.

State Agency /Statewide Statutory Programs	Agency Mission/Program Relative to Geographic Information Requirements	Agency Status Using GIS
Indiana Board of Animal Health	Almost every aspect of agency's mission tied to geographic information; management of wild animal and domestic livestock disease outbreaks, including emergency planning, mitigation and response, mass-culling carcass disposal, and public relations	✔
Indiana Business Research Center	Almost every aspect of IBRC's mission tied to geographic information; the IBRC is an extensive resource for data and analysis of economic and demographic information needed by business, government and nonprofit organizations in Indiana and throughout the nation; requires highly accurate and maintained geographic information; State appointed liaison to the U.S. Census Bureau; managed by Indiana University	✔
Indiana Bureau of Motor Vehicles - Excise Tax & Registration Division	Geographic information and GIS technology are needed for motor vehicle excise tax distribution - Revenues are allocated to the taxing district in which the registrant resides. The revenues are then distributed to the taxing units of that taxing district in the same manner and at the same time that property taxes are distributed	Opportunity exists
Indiana Department of Agriculture	Regulation of food processing and role in tracking of agricultural products and markets require geographic information on source and supply chain; pesticides program management; land resources management and farmland preservation; facilitate the protection of	✔

	Indiana's land and water; provides technical, educational, and financial assistance to citizens to solve erosion and sediment-related problems occurring on the land or impacting public waters; promoting ag economic development and biofuels	
Indiana Department of Corrections	Responsibility for tracking released convicts, monitoring their locations, and managing post-release programs from a geographical perspective; this includes management of the Indiana Sex Offender Registry and compliance with geographic restrictions near "safe zones" – schools, parks, etc.	✔
Indiana Department of Education (not yet)	Geographic information and GIS technologies are needed to support planning for siting and expansion of schools, delineation of student catchment areas, management of school bus transportation, infrastructure management, analysis of migration of students for assessing high school drop-out rates; evaluation of charter school student distribution and effect on public school finance; and the measurement of the effectiveness and equity related to the distribution of education funding across the state	Opportunity exists
Indiana Department of Environmental Management	Almost every aspect of agency's mission tied to geographic information; GIS is used for all aspects of water, land, and air quality analyses, regulation/permit management oversees regulatory programs that require geographic-based tracking; waste management planning; environmental clean-up rely on accurate and maintained geographic data	✔
Indiana Department of Homeland Security	Almost every aspect of agency's mission tied to geographic information; use of GIS to provide the authoritative source of locational information for use during planning for, response to, and recovery from man-made and natural disasters; to enable state and local government agency emergency management and geographic information capabilities to support a common operating picture during state participation in responses and planning; needed to support of the Indiana Intelligence Fusion Center to collect, integrate, evaluate, analyze, disseminate, and maintain criminal intelligence information and other information to support governmental agencies and private organizations in detecting, preventing, investigating, and responding to criminal and terrorist activity	✔
Indiana Department of Local Government Finance	Geographic information and GIS technologies are needed to support property tax assessment and annual review and approval of the tax rates and levies of every political subdivision in the state, including all counties, cities, towns, townships, school corporations, libraries, and other entities with tax levy authority; promotes consistent assessing procedures and responsible for the statewide assessment of public utilities; personal property auditing; assisting in equalization studies	Opportunity exists – under review by agency
Indiana Department of Natural Resources	Almost every aspect of agency's mission tied to geographic information; wildlife management and habitat enhancement are inherently geographic; inventorying, protecting, managing, and maintaining the state's forestry resources are essentially spatial operations; management of well inventory; responsible for maintenance and modernization of flood hazard maps	✔
Indiana Department of Revenue	Geographic information and GIS technologies are needs for verification of business reporting by appropriate tax districts and income tax allocation to appropriate government local districts	Opportunity exists – need identified by agency
Indiana Department of Transportation	All programs are heavily dependent on GIS, maps, and geographic information; including transportation planning and design, traffic planning and management, infrastructure maintenance, right-of-way and property acquisition; includes I-69 corridor, Major Moves and other transportation initiatives of statewide significance; oversees	✔

	certain regulatory programs that require geographic-based tracking such as traffic accident reporting	
Indiana Economic Development Corporation	Geographic information and GIS tools are needed for identifying sites for development and supporting economic development; pre-permitting of sites based on environmental and zoning regulations for "shovel ready" program; allocation and management of funding statewide require geographically based information on demographics, infrastructure, and economy; GIS being used in the Indiana site and building database and significant initiatives such as Indiana's new Honda plant	Opportunity exists – need identified by agency
Indiana Family and Social Services Agency	Geographic information and GIS tools are needed for provisioning, planning and management for social services and children's services; site-specific information on demographics and statistics is required for efficient program planning and allocation of social services and licensing programs for a geographically distributed citizenry and business community	Opportunity exists – need identified by agency
Indiana Geological Survey	Mission very dependent on mapping and analysis of mineral resources and natural hazards; serves as an information source for geographic information and oversees certain regulatory programs that require geographic-based tracking; provides access to GIS data through the Atlas of Indiana and is an IndianaMap partner	✔
Indiana Higher Education / State Universities	Many university disciplines perform instruction, research, and outreach that are related to geography directly and indirectly; major GIS research and instruction at Indiana University, Purdue University, IUPUI, Indiana State University and Ball State University; smaller programs at other state universities and community colleges; in addition to teaching and research activities, institutions of higher education utilize geographic information for facilities management, outreach/recruiting, and alumni development activities	✔
Indiana Legislative Services Agency	The Office of Census Data rely heavily of geographic information to assist the General Assembly with redistricting and to maintain the congressional and legislative district boundaries throughout the decade; suggest census block boundaries to the Bureau of the Census for the 2010 census; collect municipal annexation ordinances; maintain boundaries for over 5000 voting precincts statewide; and to assist all levels of Indiana government	✔
Indiana National Guard	Military facility and operations planning require current and complete mapping and GIS capabilities; utilize geographic information for facilities management, outreach and recruiting	✔
Indiana Office of Energy and Defense Development	Evaluation of source and distribution of energy resources is geographically based; tracking and managing defense related resources, contractors, and the geographical distribution grant funded initiatives	Opportunity exists – need identified by agency
Indiana Office of the Attorney General	Heavy dependence on geographic information and GIS technology for communicating Sex Offender Registry information and related locational information to the public	✔
Indiana Secretary of State	Responsible for Indiana's Help America Vote of 2002 (HAVA) program with mandates for voting reforms, including responsibility for a statewide, "state of the art" voter registration system dependent on GIS technology and highly accurate and updated geographic information	✔
Indiana State Department of Health	Almost every aspect of agency's mission tied to geographic information; responsible for planning, provisioning, and management for health services; site-specific information on demographics and health statistics is required for efficient health program planning and allocation of health services and licensing programs for a geographically distributed citizenry and business community; mission	✔

	also includes geographically-based programs for disease tracking, environmental public health programs, and health alerts	
Indiana State Lands Office	Almost every aspect of agency's mission tied to geographic information; geographic information and GIS tools are needed for management of state land and real property with associated asset management responsibilities	✔
Indiana State Library	Geographic information and GIS tools are needed for making the Census and other federal, state, demographic and economic statistics available through the Indiana State Data Center; provide data and services to all sectors of the community including government agencies, businesses, academia, non-profit organizations, and private citizens; products and services are used in marketing, economic development, community planning and analysis, grant writing, business start-ups, and much more; partnership with the Indiana Business Research Center; partner on the IndianaMap	✔
Indiana State Police	Geographic information and GIS tools are needed for managing public safety, which is heavily dependent on locational information of resources and incidents	Opportunity exists – under review by agency
Indiana State Treasurer/Enhanced 911 Board	Responsible for distribution of funding and oversight of compliance for local E-911 services; emergency services for police, fire and ambulance are inherently reliant on high-accuracy and current geographic information to locate callers, identify service territories, and route response vehicles; the need for state-of-the-art technology and better data continues to increase with additional mandates for cell phone location (phase 2 requirements) and 3-dimensional capabilities for multi-storied buildings; since its inception, the E-911 Board has distributed nearly $15 million to local government for GIS technologies and geographic data development that support E-911 implementation	✔
Indiana Utility Plant Protection Services	Almost every aspect of agency's mission to promote damage prevention and public awareness of underground facilities is tied to geographic information and GIS technologies; urgent need for highly accurate and current geographic information	✔
Indiana Utility Regulatory Commission	Relies on geographic information and GIS technology to fulfill its mission to assure that utilities and others use adequate planning and resources for the provision of safe and reliable utility services at reasonable cost; oversee more than 600 utilities that operate in Indiana; regulates electric, natural gas, telecommunications, steam, water and sewer utilities – utilities may be investor-owned, municipal, not-for-profit or cooperative utilities or they might operate as water conservancy districts; regulates various aspects of the public utilities' business including environmental compliance plans, service territories, construction projects, and acquisition of additional plants and equipment	✔

While state agencies have benefited from the work of the Indiana Geographic Information Council and the recently formed State of Indiana GIS Center of Excellence. Yet, coordination and sharing of geographic information and services in state government are still inadequate and only marginally supported. Duplication and redundancy in operations and data management tend to increase the costs of GIS database development and operations. Plus, there are a lot of data which does not exist or has not been assembled from the source.

The data comes from both state <u>and</u> local government

Many agencies spend countless hours collecting, combining and cleaning up data BEFORE they can even start doing their jobs. There are multiple instances where more than one state agency has contacted a county government for the same data; and sadly, there are cases where different workgroups within the same agency have duplicated the effort to find and clean GIS data from cities and counties. **Every hour spent is taxpayer money wasted by not having a coordinated IndianaMap program** (Figure 2).

Figure 2. Example of effort spent every time an agency needs statewide "local" data.

When Indiana needed to evaluate the fairness of its new property reassessment system, the biggest obstacle was the data:

"The county parcel data had to be cleaned and put into a database. Assessors and auditors are required to provide parcel-level data to the Legislative Services Agency (LSA) and DLGF in a specified format. Some vendors and counties worked to adhere to the standards, while others did not. Some counties provided data only after repeated contacts by LSA. Reading, decoding, and understanding the nature of the data included in the parcel data files has proven to be a major undertaking. The problems are many. Because of the myriad of systems and vendors, the data was received in many formats, even though there is a standard format requirement. There were no reporting or standard format requirements for the 2001/2002 data. LSA collected the pre-reassessment data in any format that was available. The following issues are only a portion of the major obstacles faced in analyzing the parcel data. Each of these problems had to be solved in order to use the data. Each different county system stores data differently. The number of files and relation between them differ by system. Some counties include non-property tax assessments (i.e., ditch assessments) and records for non-taxable parcels in the data. Some counties populate some fields while others do not. Some counties identify deductions differently than others. Most counties do not use or report the state tax district codes. Many counties have auditor and assessor systems that use different parcel identifiers which makes matching records more difficult. Many counties upgraded or changed systems between 2001/2002 and 2003 which makes matching records more difficult. Property use codes were missing or invalid for many parcels. Each county handles and reports exempt property differently."

- Indiana Legislative Services 2005, Indiana County Property Tax Reassessment Studies Property Tax Payments 2002-2003.

And this scenario is repeated 100's of times among multiple agencies (such as Indiana's voter registration system, Indiana's sex offender registry, transportation planning, health programs, environmental permitting programs, land management, road maintenance, etc.); and the same duplication holds true for local government, utilities, and the private sector.

Budget for the IndianaMap

The IndianaMap Program is the portfolio of activities and projects designed to create, maintain and disseminate electronic map framework data to government, industry, and the public.

Framework data includes those layers of information of value to a wide user community, and include, among others, the seven layers listed in the budget tables below. The program budget includes the organization, staff, equipment, technology, resources and authorization required to manage the activities and projects.

The proposed annual budget for the IndianaMap is $6,516,000 for joint implementation among state and local government (detailed in Figure 5). The budget does not call for funding the entire cost of all Indiana geographic framework data layers. Rather, it recommends a level of funding appropriate to leverage ongoing investments and develop service capacity to meet state agency business needs.

The IndianaMap aligns with the Governor's statewide effort to creatively find new ways to provide better services at less cost to taxpayers.

The **proposed budget is scaleable** in that funding can be directed at the top priority framework data layers if full funding is not attained. As an example, the budget could be scaled accordingly:

- Statewide orthophotography only, on an on-going rotational basis, updating 1/3 of the state each year, would carry an approximately $3.3 million annual budget
- Orthophotography, Roads and Addresses, and Parcels (land ownership) would be an approximately $5.9 million annual budget

It is important to note that all the framework layers identified in the IndianaMap are considered essential geographic information and data to support the business needs of the state. Without full funding, it will take much longer to complete all layers and the full benefits of the IndianaMap program will be delayed accordingly.

Figure 3 depicts the estimated costs for IndianaMap framework data development and maintenance. Again, the proposal does not call for funding the entire cost of all Indiana geographic framework data layers. Rather, it recommends a level of funding with reasonable expectations to leverage new and ongoing investments in the form of external grants and cost-sharing.

Figure 3. Annual costs over a 10 year period.
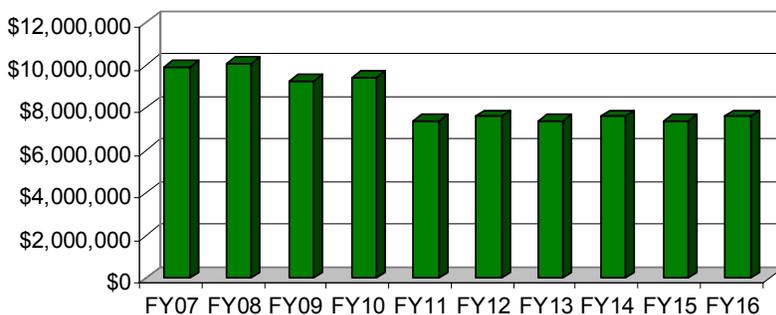
Among the cost categories (Figure 4), approximately 75% of the budget are directed at immediate off-set costs to local government (including state management and data creation/maintenance of orthophotography).

Figure 4. Cost Categories and summary of IndianaMap development for annual operational budget.
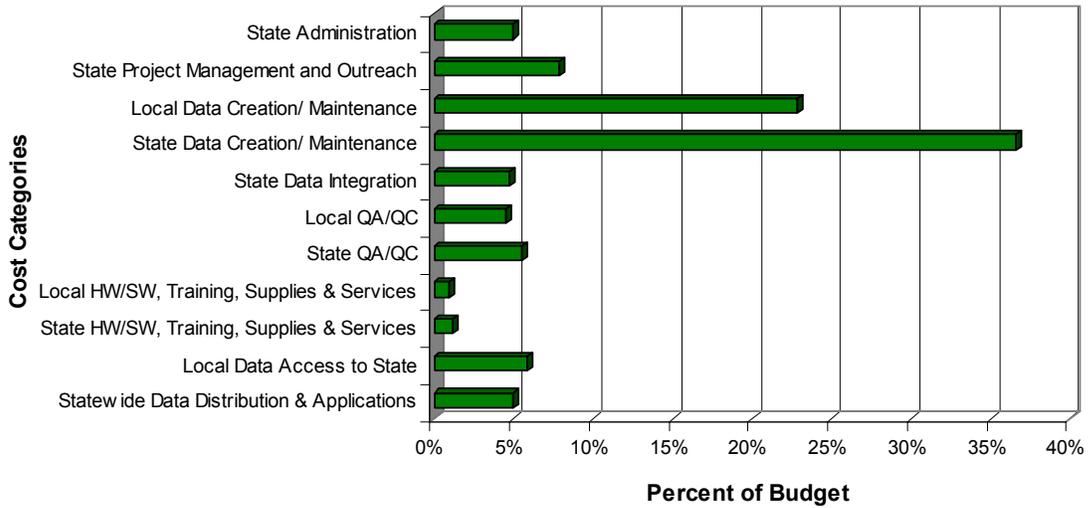
Figure 5. IndianaMap budget itemized by framework data layer and detailed by cost category.

| Budget	Annual Recommended	2-Year Budget	State Administration	State Project Management and Outreach	Local Data Creation/Maintenance	State Data Creation/Maintenance	State Data Integration	Local QA/QC	State QA/QC	Local HW/SW, Training, Supplies & Services	State HW/SW, Training, Supplies & Services	Local Data Access to State	Statewide Data Distribution & Applications	AMOUNT DIRECT TO LOCALS (GRANTS)
IndianaMap Framework Data Program	$6,616,000	$13,032,000	$325,800	$513,500	$1,486,000	$2,384,720	$311,200	$293,700	$357,900	$62,240	$75,080	$380,060	$325,800	$2,222,000
Orthophotography (1/3 state per year rotation)	$3,279,000	$6,558,000	$163,950	$327,900		$2,229,720			$327,900		$65,580.00		$163,950.0	$0
Elevation	$50,000	$100,000	$2,500	$5,000		$34,000			$5,000		$1,000.00		$2,500.0	$0
*Roads & Addresses	$1,220,000	$2,440,000	$61,000	$61,000	$610,000		$122,000	$122,000		$24,400.00		$158,600.0	$61,000.0	$915,000
*Parcels (Land Ownership)	$1,450,000	$2,900,000	$72,500	$72,500	$725,000		$145,000	$145,000		$29,000.00		$188,500.0	$72,500.0	$1,087,500
*Boundaries	$350,000	$700,000	$17,500	$35,000	$105,000	$70,000	$35,000	$17,500	$17,500	$7,000.00	$7,000.00	$21,000.0	$17,500.0	$150,500
Hydrography	$75,000	$150,000	$3,750	$7,500		$51,000			$7,500		$1,500.00		$3,750.0	$0
Geodetic Control	$92,000	$184,000	$4,600	$4,600	$46,000		$9,200	$9,200		$1,840		$11,960.0	$4,600.0	$69,000

Cost Benefit Evaluation

The benefits of implementing the IndianaMap are clear and long-term in nature. These benefits show a strong financial return on investment, including tangible cost savings and cost avoidance, as well as a wide range of intangible business values which are not easily measured..

Return on Investment

The return on investment potential for the IndianaMap is huge. The following charts depict a very conservative view of return on investment. These figures are based on savings from a limited pool of local government, state government, and taxpayer savings (Figure 6). From documented experience in Indiana and around the country we know there are other areas of savings that we have not included. It is fair the say that the real benefits will be considerably greater than depicted here.

Figure 6. Cumulative costs and benefits.

Cummulative Cost Benefit Analysis
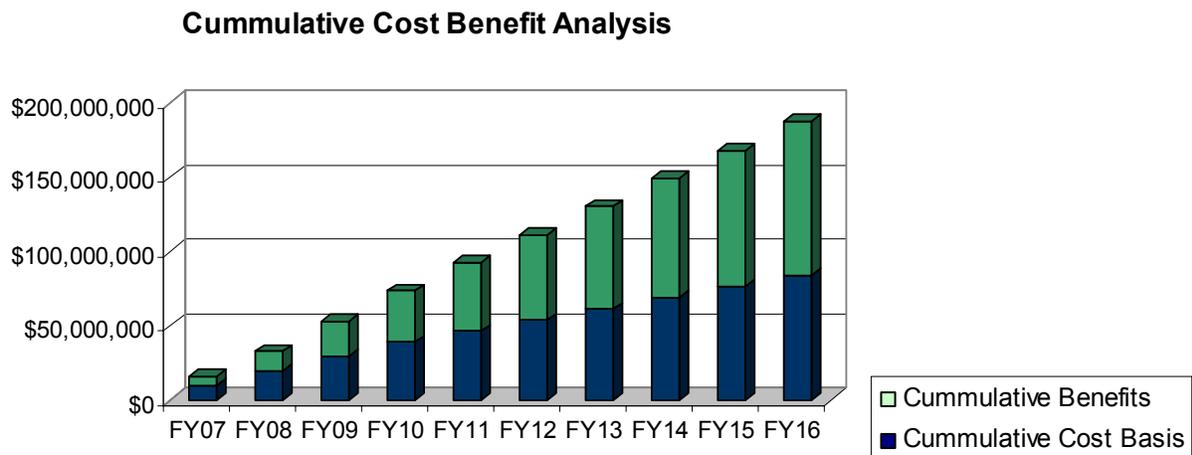
Conservative estimates show a positive return on investment after only 4 years (Figure 7) – and that is only based on very limited information on potential state, local, and taxpayer savings. Based on experience in areas not documented here, we expect to see even faster return.

Figure 7. Ten-year return on investment based on limited information gathered from state and local government.

Cummulative ROI
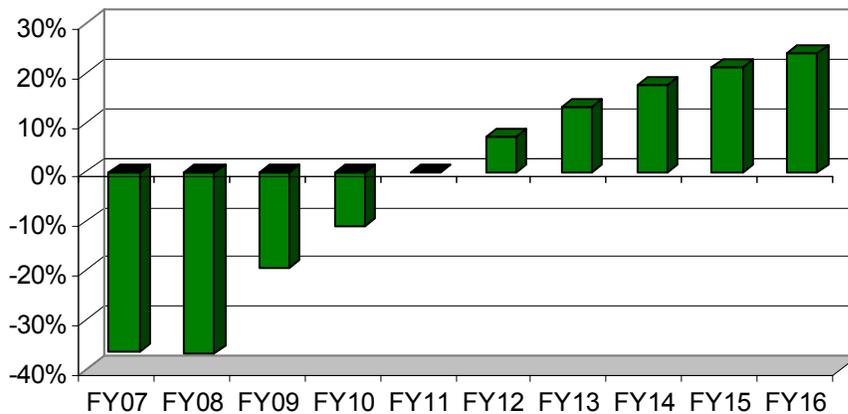
Finally**, one of the greatest benefits will be when the IndianaMap is used over and over again** for multiple purposes (Figure 8). Not only does this build consistency (resulting in interoperable data among all levels of government)**, the more it is used the more its' value is realized.**

Figure 8. An example of "collateral benefits" of the IndianaMap.

Coordinated Mapping Leverages Investments!

In 2005, Indiana demonstrated success with a statewide map that is used by all levels of government, demonstrating the principle "build once, use many times." Here's an example:

Local use: When Kyle Johnson, **Delaware County GIS Administrator** received the 2005 IndianaMap orthophotography, he put it immediately to use. "We have used the orthos in response to emergency management incidents by helping verify the existence of trailers with hazardous materials in them during the spring of 2005. Most recently we have performed analysis on a potentially dangerous log jam upstream from Muncie that measures over three-quarters of an acre in size, that could possibly to break lose during a high water event and send tons of debris towards bridges in Muncie. We are also using it to update our Land Use dataset and geocoded streets layers. Our sheriff's Swat team and drug task force…will use them to gather intelligence and help plan raids on suspected methamphetamine and other drug houses. **The uses are limitless!**"

State use: Indiana **Legislative Services Agency** – Office of Census Data uses the 2005 IndianaMap orthophotography for redistricting and to maintain the congressional and legislative district boundaries; to collect municipal annexation ordinances; and maintain boundaries for over 5000 voting precincts statewide. "The IndianaMap and related orthophotography are of inestimable value to the work and functions of our office. For a variety of reasons, **it is absolutely essential** that these maps and their related attributes are regularly updated and maintained."

Conclusion

Indiana needs the IndianaMap Program so that government entities and businesses can be more effective, efficient and productive. Public agencies and many other organizations in Indiana depend on geographically referenced information to support day-to-day operations, planning and decision-making. The IndianaMap will ensure that the information people need most is collected consistently, maintained accurately, and made widely available.

A conservative study of the benefits of the IndianaMap show tangible and intangible value to state and local government; with a return on investment for taxpayers in four years.

The value of implementing the Indiana Map Program include:
- Indiana will have a single, comprehensive, authoritative map, specifically designed for the most demanding applications.
- Multi-jurisdictional geographic information management will be more efficient – and in some cases "possible" for the first time.
- Government agencies and businesses can more fully capitalize on past and current investments in GIS.
- Redundancy and duplication in data collection, data maintenance, data storage, and system resources across and within organizations will be reduced.
- "Have-Not" parts of the state will be assisted so that we have a complete, statewide map of framework layers.
- Opportunities for leveraging grant funds can be more fully exploited.

The sooner Indiana implements the IndianaMap, the sooner we can start to realize these enormous benefits to state agencies, local government, businesses and taxpayers.