LOUISIANA TECHNOLOGY INNOVATION FUND PROPOSAL

I   PROJECT TITLE

LouisianaMap – Louisiana's Geographic Information and Services Portal

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III   EXECUTIVE SUMMARY

The Louisiana Geographic Information Systems Council in partnership with the Office of Electronic Services is requesting $472,175 from the Technology Innovation Fund to implement *LouisianaMAP*, a 24 month project to revolutionize e-government in Louisiana by providing a reliable, consistent geographic information and services component. The Council was created by an act of the Legislature in 1995 (Act 922) to guide the sound development of geographic information systems and geographically related information technology for the state of Louisiana. The *LouisianaMAP* project will support this directive through the three complementary, integrated initiatives shown in Figure 1.
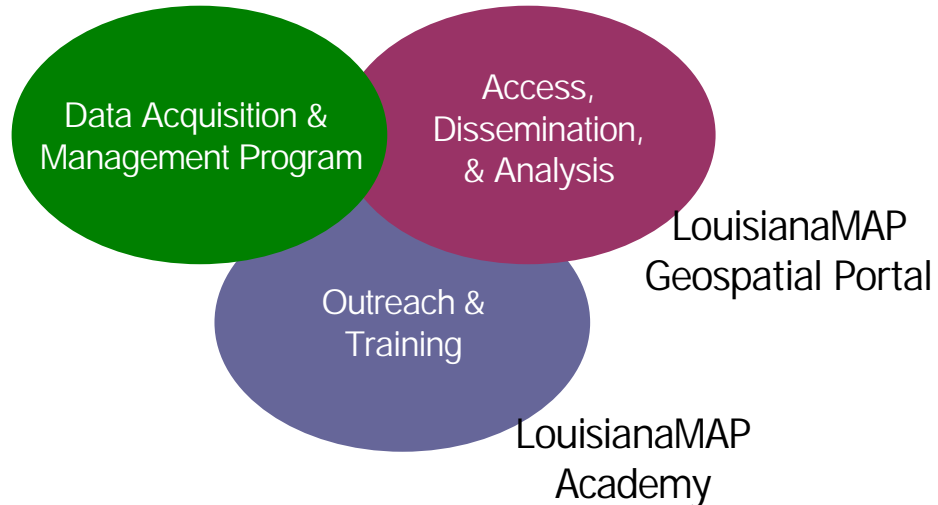

Figure 1. *LouisianaMAP* Project

The long-term direction for the *LouisianaMAP* project will be provided through a comprehensive state plan for production, acquisition, and management of key geographic framework information. The first version of this plan, known as the Implementation Team Geospatial Framework Data Plan (I-Team Plan), will be available in November 2002.

The second component of *LouisianaMAP* is the web-based geospatial portal. The portal will provide state and local government decision makers, academia, and the general public access to and dissemination of the geographic framework data. The Portal will also provide services for analysis of user supplied information in the context of the geographic framework data. The *LouisianaMAP* portal will be implemented in the InfoLouisiana state environment. This will require augmentation of the InfoLouisiana architecture with technology that is specific to the handing and analysis of geographic information in a web-based environment. The initial release of the portal is scheduled for November 2002 with planned enhancements to support user needs that are identified in the I-Team Plan.

The *LouisianaMAP* Academy will also be activated in November 2002 to provide training for the use of the data and geographic services provided through the portal. Academy sessions will be conducted on a scheduled basis consistent with user demand.

IV   DESCRIPTION OF THE PROJECT

A. Project Narrative

Most data used by government, industry and citizens have a spatial or geographic component. Consequently, Geographic Information Systems (GIS) and geographic information significantly affect how we all do business. All levels of government invest millions of dollars in the production of digital geographic data specific to Louisiana. Figure 2 shows the end-to-end process for production and use of geographic information and services. This process has many elements that can be grouped into three distinct phases:

1. Planning – collecting user needs and formulating a plan to address those needs
2. Production – acquiring/developing geographic data, products, and services that are responsive to validated user needs
3. Exploitation – providing the tools and resources that support the application of geographic products and services to meet the user's needs.
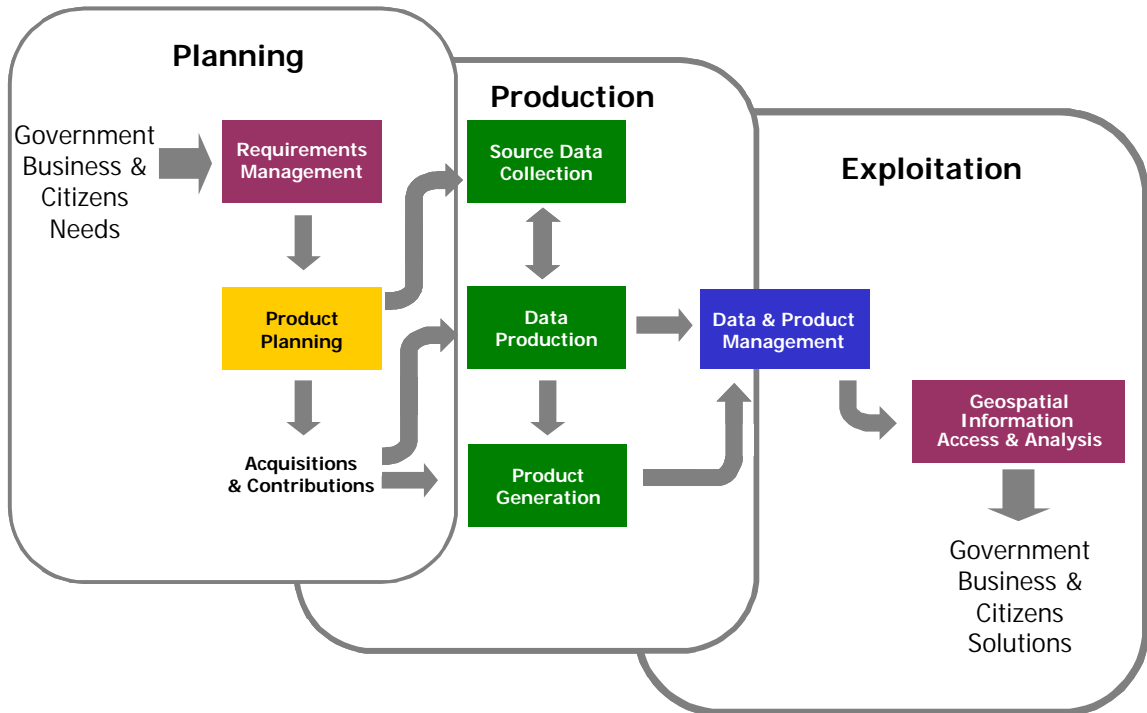

Figure 2. Geographic Information and Services Lifecycle

Historically, geographic data layers have been funded largely by individual agency initiatives with limited intergovernmental coordination. This process is ineffective and costly. Geographic data should be handled as a critical capital asset. In order to allocate the state's financial resources more efficiently and to avoid duplicative spending, the implementation process for Louisiana's spatial data infrastructure needs to occur on a priority basis. Moreover, investment in these data is only leveraged when user organizations and individuals are aware of and have access to the data.

Many Louisiana agencies such as Department of Transportation and Development, Environmental Quality, Natural Resources, and parish Tax Assessors have applied all or portions of this process to utilize GIS effectively for years. While the potential for beneficial use of GIS in state and local government is extensive, key process issues must be addressed from an enterprise perspective to ensure this is done comprehensively, effectively, and efficiently.

The goal of the *LouisianaMAP* project is to address the geographic process issues in such a manner as to enable all sectors of Louisiana government, businesses and citizens to effectively and efficiently utilize geographic information and services to enhance their business processes. The strategy is to address the geographic process from an enterprise perspective through the three *LouisianaMAP* initiatives identified in Figure 1 and as described below.

1.   I-Team Geospatial Data Framework Plan

The objective of the I-Team Geospatial Data Framework Plan (I-Team Plan) is to establish a process for defining, implementing and maintaining geographic information and services in Louisiana and to recommend the framework implementation strategy. This initiative will directly address the Planning Phase shown in Figure 2. Based on recommendations provided by the Federal Office of Management and Budget (OMB) in Collecting Information in the Information Age, a statewide Implementation Team or 'I-Team' has been established to prepare the strategic plan for defining, developing and maintaining Louisiana's geographic data infrastructure (see Attachment II). By aligning Louisiana's needs and resources under the I-Team concept, all levels of government and the private sector will have the opportunity to use their financial resources more efficiently, to migrate from existing legacy systems, to make use of existing resources, and to develop the business case for new and expanded public and private geospatial resources. Furthermore, because the I-Team Initiative addresses the major barriers to development of the framework through a coherent set of institutional and financial incentives, it will be easier for all levels of government and the private sector to collaborate in the building of the next generation of framework data.

The Louisiana I-Team currently consists of the eighteen members of the GIS Council plus the five additional entities as shown in Table 1. I-Team participation is open to all interested organizations and is currently being expanded to include additional academia and federal governmental agencies with Louisiana interests, and the private sector.

Under this initiative the I-Team will work collaboratively to create Louisiana's I-Team Plan. The team will utilize a state-of-the-art requirements management system (RMS) to collect, organize and maintain the statewide needs for geographic information and services. RMS will be available as a web-based application based on a commercial software package and will be integrated as a service under the *LouisianaMAP* Portal. The plan will include a recommended process for conducting the Planning Phase tasks identified in Figure 2. Based on the validated user needs and priorities, the plan will identify and clearly define the framework geographic data layers for Louisiana and will provide a suggested production and funding strategy for each layer. The plan will also identify geographic services required to validate user needs.

State Agencies		
Louisiana Senate	**La. House of Representatives**	**Division of Administration**[1]
Office of Governor, Military Department	**Dept. of Culture, Recreation, and Tourism**	**Dept. of Economic Development**
Dept. of Justice	**Dept. of Agriculture & Forestry**	**Dept. of Environmental Quality**
Department of Transportation and Development[1]	**Dept. of Public Safety and Corrections**	**Department of Wildlife & Fisheries**
Dept. of Natural Resources	**Dept of Health and Hospitals**	Oil Spill Coordinator's Office[1]
Local Government		
La. Assessors Association	**Police Jury Association of La.**	**La. Municipal Association**
La. Association of Planning and Development Districts		
Academia		
LSU	ULL	
Federal Government		
US Geologic Survey	National Oceanographic and Atmospheric Administration	

Table 1. I-Team Membership with GIS Council Members Bolded

(1) Note: This agency is custodian of a current framework data layer

2. *LouisianaMAP* Geospatial Portal

The *LouisianaMAP* Geospatial Portal will be implemented in an open, web-based infrastructure, making it a widely available resource to Louisiana communities of interest. Framework datasets identified in the I-Team Geospatial Data Framework Plan will be integrated within a database management system, utilizing established data management and dissemination framework. Clearinghouse technologies and distribution standards established by the federal government and the Open GIS Consortium (OGC) will be implemented, allowing users to draw upon a single interface for data search and acquisition.

The Portal interface, customized to address the different needs of the geospatial community and the needs of Louisiana citizens, will be designed and implemented to provide meaningful access to the available data services. Advanced GIS users will be able to query, identify, and stream (or download) geospatial datasets directly into professional-level GIS applications for integration with their own data products. Users not requiring the advanced technology of professional GIS applications can search, identify, and display geospatial data directly to the desktop through a thin-client browser interface such as Internet Explorer or Netscape. Additionally, *LouisianaMAP* services will be directly integrated within the *InfoLouisiana* portal, providing value added location-based services and resources previously unavailable on *InfoLouisiana*.

3. *LouisianaMAP* Academy

The Academy will be an orientation and training outreach on use of the resources available through the *LouisianaMAP* Portal. Topics covered will include requirements management, framework data definition and access, and use of portal services. Academy materials will be developed using web content management tools and hosted on the portal. The Academy will be presented in a classroom/laboratory setting on a regularly scheduled basis using the web-based content. Selected topics will also be available via the Internet in a web delivery mode. Academy

sessions will be offered throughout the state based on demand. The Academy will be supported as an extension of the Louisiana Geographic Information Center (LAGIC) component of LGISC. The initial Academy will be piloted with members of the I-Team as attendees in order to ensure the quality of the content and delivery is appropriate. The initial Academy session will coincide with launch of the *LouisianaMAP* Portal.

B. Use of Innovative Technology

The most innovative aspect of this project is its organizational structure. Through the I-Team concept this project will be performed by active collaboration of many government entities at the Federal, state, and local levels. This is shown in Table 1. In addition, members of Louisiana's business community and academia will actively participate. It is estimated that more than 12,000 hours will be contributed to this project through I-Team member collaboration. In order for this to work most efficiently the project will be organized under an integrated product team (IPT) approach. The IPTs are workgroups with representation from across the diverse I-Team membership that will be created to develop specific parts of the overall project plan. For example, there will be a Requirements Management IPT, a Portal IPT, and a Layer IPT for each identified framework data layer.

The *LouisianaMAP* project will utilize a state-of-the-art requirements management system (RMS) to collect, organize, consolidate, and maintain the statewide needs for geographic information and services. RMS will provide a comprehensive view of geographic needs across all state communities of interest. RMS is a web application that will reside on the *LouisianaMAP* portal, making it readily accessible by geographic users and providers. RMS will initially be used by the I-Team to collect the needs and requirements that will form the baseline for the I-Team Geospatial Framework Data Plan. Thereafter, RMS will be available via *LouisianaMAP* portal for use by agencies, organizations, and individuals to register new and evolving geographic needs and requirements.

The *LouisianaMAP* geographic data and products will be based on Federal Geographic Data Committee standards and the software components incorporated will be Open GIS Consortium interoperability compliant. Use of these standards will ensure a framework that enables sharing of data, services and resources among users with Louisiana interests at the local, state and Federal levels.

Integrating the geospatial data within a database management system (DBMS) ensures reliable management and efficient access to spatial data. Spatial data is stored within the DBMS using specialized, back-end software that integrates the data within tables, while maintaining relevant spatial continuity and fidelity. Utilizing a DBMS to manage and serve spatial data provides a scalable solution, enabling spatial data to be easily integrated with the non-spatial data. Additionally, a DBMS extends the value for location information such as road networks, boundaries, and geocoded customer data by allowing state entities to easily incorporate location information directly in their applications and services. Very large datasets composed of millions of spatial features will be managed from one location. Additionally, the DBMS can support multiple users and provide open access to spatial data over wide area networks and the Internet using TCP/IP protocol. Access to the data resources is facilitated through a specialized, internet-based, GIS software capable of serving geospatial data in customizable ways, depending upon the client.

Scalable and high-performance platforms will support electronic data dissemination from a centralized location to a variety of customizable client-side interfaces. The *LouisianaMAP* portal will bring geographic analysis capabilities previously only available through the use of special purpose GIS software directly to the desktop through a thin-client browser interface such as Internet Explorer or Netscape. Clients will be able to view, display, and analyze data hosted by *LouisianaMAP* as well as their own local data. Just as innovative is the fact that these web-based analysis tools are highly intuitive, requiring minimal orientation for a new user. Any required

orientation will be available through either web-based or classroom tutorials provided by the *LouisianaMAP* Academy.

A particularly innovative technology is the address-matching feature of the Portal. This technology will allow Portal users who have textual data with street addresses to automatically translate those addresses to geographic coordinates and to then visualize the associated textual data in a geographic or map-based view. An extension of this will be the capability to perform proximity searches for types of items, features, and installations within a specified distance of a known location. For example, citizens will be able to find the state office nearest to their address that offers a specific service and the driving instructions to that location. A further extension of this technology will permit users to derive knowledge by associating events over time based on a common location or geographic area.

C. Multi-agency Application or Portability to Other Agencies

LouisianaMAP addresses the components of GIS that are common to all government, business, academia, and citizens with interests in Louisiana; the framework geographic data layers and the common geographic services. Moreover, the I-Team is incorporated into the project structure to ensure representation from all interested elements as both advisors and technical contributors. The current project organization, shown in Table 1, includes over 25 organizations.

Core *LouisianaMAP* participants are the agencies that will be identified as custodians of the various framework layers. These agencies conduct the Production Phase tasks shown in Figure 2 and their products are essential elements of the *LouisianaMAP* data repository. Some custodians are already known and are so indicated in Table 1. Additional custodians will be selected through the initial I-Team planning initiative and new custodians will be identified as requirements evolve in the future.

The following ten data themes have tentatively been identified as *LouisianaMAP* framework data because of their wide applicability across government entities and communities of interest in Louisiana:

- ?? <u>Geodetic Control</u> – This dataset provides a common reference system for establishing coordinates for all geographic data.
- ?? <u>Ortho Imagery</u> – This dataset contains geo-referenced images of the Earth's surface, collected by a sensor. Digital ortho-images have the geometric characteristics of a map and image qualities of a photograph.
- ?? <u>Elevation / Bathymetry</u> – This dataset contains geo-referenced digital representations of terrestrial and bathymetric surfaces, natural or manmade, which describe vertical position above or below a datum surface.
- ?? <u>Transportation</u> - This dataset is used to model the geographic locations, interconnectedness, and characteristics of the transportation system within Louisiana. The transportation system includes both physical and non-physical components representing all modes of travel that allow the movement of goods and people between locations.
- ?? <u>Hydrology</u> - This dataset includes surface water features such as lakes, ponds, streams, rivers, canals, oceans, and coastlines.
- ?? <u>Governmental Units</u> - This dataset describes the official boundary of local, regional, state, tribal, and federal governments.
- ?? <u>Cadastral Information</u> - This dataset describe the geographic extent of past, current, and future right, title, and interest in real property.
- ?? <u>Land Use / Land Cover</u> – This dataset details information about the usability and characteristics of features, both natural and man-made, on the Earth's surface.
- ?? <u>Demographics</u> – This dataset describes features and statistics regarding human population.
- ?? <u>Flood Plains / Wetlands</u> – This dataset identifies the location and characteristics of flood plain surfaces and wetlands.

As a comprehensive web portal, *LouisianaMAP* will be developed and deployed to provide single source access to these data and information services. *LouisianaMAP* portal will establish reliable and standardized framework data services on the web and will foster the production of virtually seamless and consistent geographic information that is collected once, and shared many times. In so doing, it will enable organizations at the local, regional, state, tribal, and federal levels to share production and maintenance of Louisiana data that satisfy common data needs and serve as a foundation or infrastructure for other e-government initiatives.

LouisianaMAP will utilize interoperability tools, which allow different information communities to share data, in order to migrate existing data to the standards established for the framework data and the associated portal. This reuse of existing data in a common, standards based framework will avoid significant development cost.

Through *LouisianaMAP*, government, businesses, and citizens in Louisiana will, for the first time, be able to interactively utilize and combine their own information resources with those of the framework data layers. This will permit them the opportunity to generate new data, and develop new information solutions at significant savings.

D.   Benchmarking Partners and/or Best Practice References

There are several I-Team Planning initiatives underway in other states at various stages of implementation. Descriptions of these can be found on the FGDC I-Team site at http://www.fgdc.gov/I-Team/. The Maryland and Utah plans are the best benchmarks for Louisiana because they both take a comprehensive organizational approach similar to that proposed for *LouisianaMAP* and both have issued first releases of their planning documents.

Maryland has sixty-three members on their I-Team, which has identified twenty-five priority framework data layers for their state. This compares to the ten priority framework layers preliminarily identified for Louisiana. Because all ten Louisiana layers are addressed in the Maryland plan there is a wealth of technical information from Maryland that can be shared. This includes (1) the "as-is" status for each layer, (2) new product specifications, (3) proposed layer custodian for the state, (4) strategy, cost and procurement required to move from the "as-is" to the "to-be" situation, and (5) funding options. The Maryland plan can be accessed at the FGDC URL presented above.

Similarly there is significant information available to Louisiana from the Utah I-Team Plan that can also be accessed at the FGDC URL. At ninety-three members Utah has a very large I-Team in comparison to similar states. Utah will be able to provide for Louisiana's consideration the advantages and the dynamics of an extended organization structure.   Also, because Utah's seventeen priority framework layers include all ten suggested Louisiana layers; Louisiana will leverage significant technical information from the Utah plan.

LouisianaMAP **Portal Benchmarks.**   While there is not a single site that provides all the functionality planned for the *LouisianaMAP* portal, the functionality can be assembled by picking and choosing best approaches from several web sites. For ease of use featuring map and imagery presentation two commercial web sites stand out. They are TerraServer , which is located at http://terraserver.homeadvisor.msn.com/default.asp and GlobeXplorer, which is located at URL www.globeexplorer.com. Both of these sites are extremely intuitive, have rapid response, and offer a variety of data overlays based on the content that is available around the point or area selected. These sites set a good baseline for design of the user layer for the *LouisianaMAP* portal.

There are several state and Federal web resources that contribute best practices for *LouisianaMAP*.
?? The Texas Natural Resources Information System (TNRIS) provides digital data pertaining to Texas water resources, geology, census, and other natural resources spatial data. Particularly applicable to *LouisianaMAP* is a TNRIS pilot underway known as the National Map of Texas.

In this pilot TNRIS has created website to show how digital data layers can be combined to create a user-defined, custom map. TNRIS can be found at URL http://www.tnris.state.tx.us/.

?? Another benchmark for Louisiana is "Inside Illinois", the geospatial portal for Illinois state government. This site is seamlessly integrated into the Illinois state portal in the same manner as planned for *LouisianaMAP*. It also presents two of the key services planned for *LouisianaMAP*, a robust route mapping service and a state GIS data clearinghouse. This site may be accesses at URL http://www100.state.il.us/inside/

?? The Federal Geospatial One-Stop is one of 23 e-government initiatives selected by the President's Management Council. Under this initiative the FGDC is leading a project to define and build national consensus on the content of a geographic data framework at the national level. This project will build a comprehensive web portal to provide "one-stop" access to the data framework. The *LouisianaMAP* project will monitor this project very closely to leverage both its framework data and portal concepts.

E. Long-range Planning

A key goal for the *LouisianaMAP* project is to establish a needs based planning process and organizational structure to develop and maintain the long-range, comprehensive plan for production, acquisition, and management of common geographic data and user services for the state. The initial release of this plan, identified earlier as the I-Team Plan, will be available in November 2002. Thereafter, the I-Team plan will be continually maintained as a "living plan" that reflects new and evolving government needs, priorities, and missions as well as major geospatial technology advancements. A key objective of this project is to institute a responsive planning process that will be utilized effectively for the long-term.

LouisianaMAP will identify data needs and result in the publication and adoption of specific framework data models of statewide interest, as identified and detailed in the I-Team Plan. This will promote data interoperability among the framework data themes and across organizational lines. It will also set a long-term direction for consistent data collection among the state's framework data partners. Furthermore, the I-Team process will facilitate ongoing community participation in the evaluation and adoption of relevant standards. Finally, *LouisianaMAP* and the I-Team process will establish the practices and techniques that will be used as the building blocks for additional data themes.

Also important is the long-range services aspect of *LouisianaMAP*. Agency services needs for application of geographic data will be identified through the ongoing planning process   both during and after this project is complete. Based on priority, these needs will drive the requirement for new services capability in either the *LouisianaMAP* Portal or agency-specific GIS environments.

At the end of this project the continuity of the integrity and effectiveness of *LouisianaMAP* process will be ensured for the long-term because of the ownership and oversight of the Louisiana GIS Council. Additionally, the *Louisiana MAP* Portal will be maintained and enhanced by OES as a key component of Louisiana's e-government infrastructure.

F. Performance Goal

The key to the success of this project is creating the framework layers and making these layers available for use via the *LouisianaMAP* portal. Consequently, the success of *LouisianaMAP* for the three years following implementation will be measured based on the following indicators:

Indicator Name	Indicator Value
Percentage of Framework Data Layers with state approved standards	FY 2004/2005 - 80% FY 2005/2006 - 90% FY 2006/2007 - 100%
Percentage of Framework Data Layers with	FY 2004/2005 - 80%

state approved implementation plans	FY 2005/2006 - 90%
	FY 2006/2007 - 90%
Percentage of Framework Data Layers with approved implementation plans that are available via the Louisiana*MAP* Portal	FY 2004/2005 - 90%
	FY 2005/2006 - 90%
	FY 2006/2007 - 100%

G. Technical Approach

The *LouisianaMAP* portal will simplify and unify access to geospatial data in three distinct layers as shown in figure 3. The **data layer** will contain and manage the data contributed by external organizations as show in the figure, as well as all internally generated data and information. The **user layer** will provide an intuitive web-based interface for all portal services. The **application layer** will provide and manage the applications and utilities necessary to access the data and perform the services in support of user requests and system management.
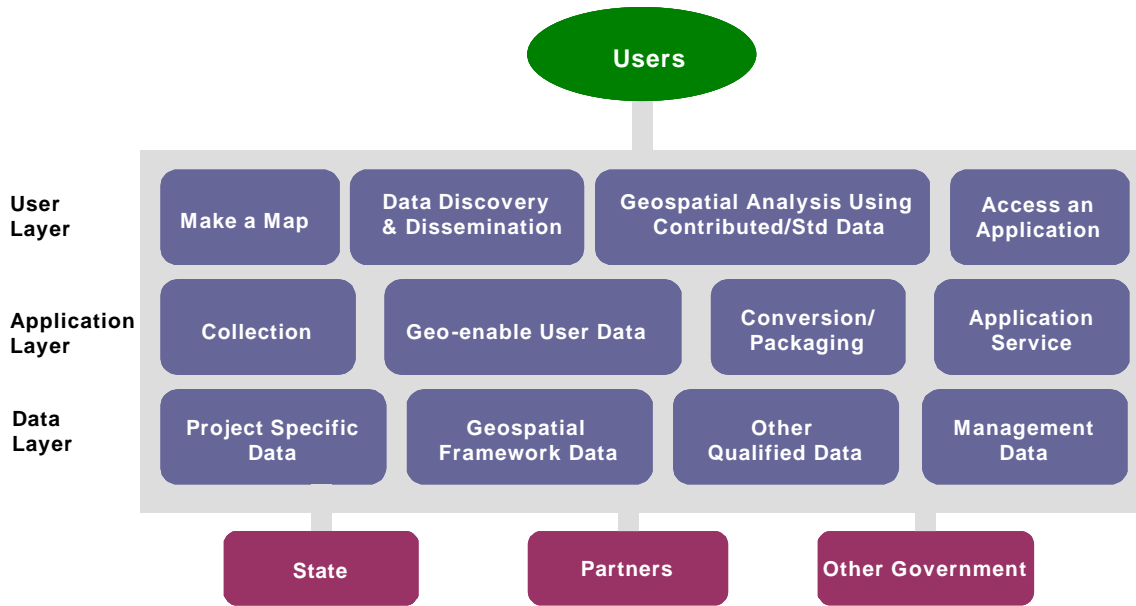
Figure 3. LousianaMAP Portal Architecture

1. Data Layer

Data providers (state, partners, other governments, etc.) identified by the I-Team plan will submit geospatial data for distribution via the *LouisianaMAP* portal. Data entities responsible for data development will supply specific datasets to the Portal Administrator (LAGIC). These datasets my be identified by the I-Team plan as framework data, project specific data, or other data holdings identified as valuable for seamless data integration with InfoLouisiana.

Federal Geographic Data Committee (FGDC) standardized metadata records are to accompany all submitted datasets. Metadata will be integrated with the data holdings and used to identify the dataset, the geospatial extent, quality assurance/quality control, entities, and publication information.

Applications developed specifically for spatial data are used to integrate and serve geospatial data within the DBMS in such a way as to maintain spatial integrity and data fidelity. Centralized management and dissemination of the geospatial data permit system scalability, ensuring the efficient and managed access to the data holdings. Because the DBMS is platform independent,

the *LouisianaMAP* portal will provide fast access to data holdings in heterogeneous environments that include UNIX and Microsoft Windows clients and servers.

LouisianaMAP portal services are integrated within custom and existing applications by embedding map content and analysis functions within existing web-based applications. Internet map server software utilizes spatial servers to process data requests. The map servers will operate in a distributed environment that consists of both client side and server side components. Client requests are received from Internet or Intranet servers and are processed by the spatial application servers. The application server parses the request for distribution to the spatial server, where requested data from database tables are retrieved and served to the client.

Data is maintained on scalable database management systems on high availability servers, ensuring continuous access. Updates to spatial data holdings will be managed according to the I-Team plan. Procedures for updates follow that of original submission (data custodian supplies metadata and the geospatial dataset to LAGIC). Upon proper validation of a dataset, updated products are seamlessly integrated within the DBMS. The associated metadata will be used to indicate the changes within the data, including publication date. In order to provide the highest level of usability and service, archives of dated datasets will be maintained for access by geospatial professionals.

The data layer will be supported by the DBMS and the DBMS Spatial Data Option residing on the Database Server hardware platform.

2. User Layer

The user layer of the *LouisianaMAP* portal addresses how the user will search, display, and use requested geospatial data. There are three primary categories of end-users, *basic*, *advanced*, and *expert*.

?? *Basic User.* Basic users can query, view, and interact with maps generated by the portal with little or no training and/or experience. *LouisianaMAP* services will be seamlessly integrated within existing InfoLouisiana web services. Maps referenced within documents and web pages are directly linked to *LouisianaMAP* services. Agencies can integrate maps within their web sites, providing value-added location based resources to their pre-existing services. For example, Basic Users can identify and display voting/polling places, emergency response maps, meeting notifications, transportation routes, tourist & recreation sites, and more simply by submitting their personal address/location. Furthermore, *LouisianaMAP* services can be customized by the user, allowing various resources to be accessed and displayed according to individual input. With minimal training, the Basic User can develop and maintain location-based services customized to their interest based on address and/or location. *My Maps* features such as, map *My House*, map *My Fishing-Hole*, map *My School District*, and more can be accessible through the *LouisianaMAP* portal.

?? *Advanced User.* Advanced users can manipulate *LouisianaMAP* data, and integrate user-specific data with the portal services. Advanced users are characterized as having a moderate level of education, training, and experience using GIS related software. The Advanced group will employ varying levels of thin-client software that will allow the user to identify, access, manipulate, and develop geographic queries on existing *LouisianaMAP* data services. This process will result in the development of new data defined by the needs of user's applications. Furthermore, Advanced Users will have access to geo-enabling services, allowing in-house data resources to be displayed and manipulated against existing *LouisianaMAP* data services.

?? *Expert User.* The Expert User group creates geospatial content. This group is characterized as having extensive education, training, and experience using professional GIS software. The

Expert group employs various professional level software that enable users to create application specific geospatial content. This group utilizes *LouisianaMAP* portal's services to identify and subsequently stream geospatial data directly into their applications. Furthermore, Expert Users can submit geospatial data to the *LouisianaMAP* Application Services for storage and distribution over the portal.

The user layer will be supported by the Geographic Application Server software and will be hosted on the application server hardware suite.

3. Application Layer

As the middle tier of the *LouisianaMAP* functional architecture, the *Application Layer* integrates the data and production resources with user requests. The application layer manages all production services and user requests in a centralized location. The layer consists of *collection services*, *spatial services*, and *requirements services*. Multiple components make up the application layer architecture, ensuring scalability and performance.

?? *Collection Services.* Collection services manage the data processing of the *LouisianaMAP* portal. Data is submitted by agencies where it can be integrated and maintained within the DBMS. Agencies have administrative privileges for their specific records, ensuring qualified updates and maintenance.

?? *Spatial Services.* Spatial services manage multiple, user-specific applications of the *LouisianaMAP* portal. Geo-coding services can *geo-enable* non-spatial data, allowing the datasets to be displayed, integrated, and analyzed geographically. The proposed Route Map System will provide specific geo-coding, location, and direction spatial services. Additionally, the spatial services layer is responsible for managing user queries and serving geospatial data for dissemination to end-users. Queries are parsed within spatial servers in order to identify the user-type and data requirements, ensuring access to the appropriate services.

?? *Requirements Management Services.* Requirements management services are used to identify and manage the needs for geospatial data and services. Users will access these services to register their needs which will be evaluated and then allocated to the Portal, and I-Team IPT, or an agency. These services will provide complete traceability and status of all registered user needs. Requirements management services allow the *LouisianaMAP* portal to meet the evolving expectations of the users and data providers on a priority basis.

The application layer will be supported by the Geographic Application Server software and will be hosted on the application server hardware suite. The Requirements Management System and the Route Map System software packages are also included in the application layer and will be hosted in the same environment as the application layer.

H. Implementation Approach

LouisianaMAP consists of three complementary initiatives that all contibute to the common project objective of providing a reliable, consistent geographic information and services baseline for Louisiana. The first initiative, the I-Team Plan, will define and activate the state's geographic acquisition and management approach. This initiative will drive the Louisiana MAP Portal from a time-phased content perspective by specifying the data the *LouisianaMAP* Portal will accommodate and the services that should be available to operate on the data. Similarly, the Portal initiative will drive the content, timing, audience, and delivery methods for the *LouisianaMAP* Academy. The proposed implementation approach accommodates these and other relationships and dependencies as shown in the integrated schedule.

Figure 5 is an integrated schedule of tasks required to implement the three *LouisianaMAP* technical initiatives. and to achieve the first operational baseline for the project. Also shown are the project management tasks required to manage and administer the integrated project. Figure 6. shows the planned deliverables for the proposed 24 month project period.

Project Management. Overall project management is the responsibility of the Office of Electronic Services (OES). As shown in Figure 5, one of the initial OES tasks is to acquire professional services for both the I-Team and the Portal Initiatives. OES will work closely with the GIS Council and the I-Team Coordinator to ensure that project objectives are met. The Louisiana GIS Center (LAGIC) will provide administrative support to OES and the I-Team Coordinator including meeting coordination, collection of project status, preparation of status reports, and preparation of technical reports and the Annual I-Team Report for the Governor.

I-Team Plan Initiative. Management of the I-Team Plan Initiative will be the responsibility of the I-Team Coordinator who will also chair the I-Team Steering Committee (the Level 0 IPT). The I-Team Steering will start the initiative by establishing the I-Team process. The Requirements IPT will then have responsibility for conducting the next four initiative tasks. This includes implementing RMS by identifying priority data layers. Once a priority layer and its associated requirements are defined, the Steering Committee will assigna Layer IPT to conduct the specific tasks for each layer., a process which includes creating the "As-Is' for the layer through recommending a strategy for the layer. Based on the Layer IPT recommendations, the I-Team Steering Committee will coordinate acceptance of the recommendation and designation of the custodian for the data layer with the Office of Information Technology.

A layer will be added to the official I-Team plan once it has been identified as an official framework data layer. Key updates to the layer specific information in the I-Team Plan will occur once the Layer IPT makes its recommendation and upon a decision by OIT as disposition of that recommendation. Figure 5 shows the task plan to get to the first release of the I-Team Plan, keeping in mind that the layer-specific tasks are replicated for each layer. The tasks will continue to be performed during the 24 month project period supporting the three releases of the plan shown in Figure 6. Furthermore, this process will continue after project completion under the direction of LGISC.
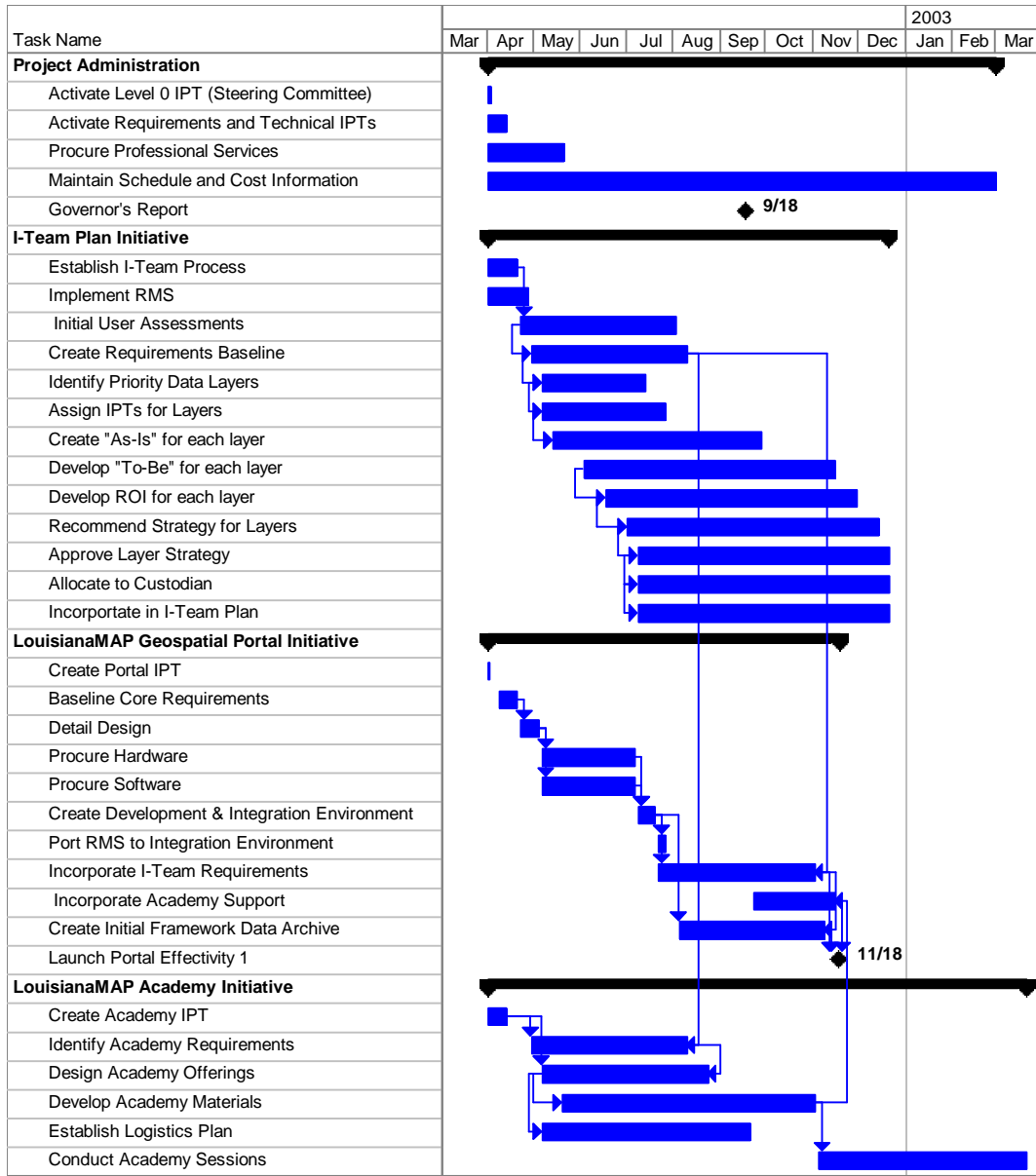
Task Name		2003													
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
Project Administration															
Activate Level 0 IPT (Steering Committee)															
Activate Requirements and Technical IPTs															
Procure Professional Services															
Maintain Schedule and Cost Information															
Governor's Report						9/18									
I-Team Plan Initiative															
Establish I-Team Process															
Implement RMS															
Initial User Assessments															
Create Requirements Baseline															
Identify Priority Data Layers															
Assign IPTs for Layers															
Create "As-Is" for each layer															
Develop "To-Be" for each layer															
Develop ROI for each layer															
Recommend Strategy for Layers															
Approve Layer Strategy															
Allocate to Custodian															
Incorportate in I-Team Plan															
LouisianaMAP Geospatial Portal Initiative															
Create Portal IPT															
Baseline Core Requirements															
Detail Design															
Procure Hardware															
Procure Software															
Create Development & Integration Environment															
Port RMS to Integration Environment															
Incorporate I-Team Requirements															
Incorporate Academy Support															
Create Initial Framework Data Archive															
Launch Portal Effectivity 1										11/18					
LouisianaMAP Academy Initiative															
Create Academy IPT															
Identify Academy Requirements															
Design Academy Offerings															
Develop Academy Materials															
Establish Logistics Plan															
Conduct Academy Sessions															

Figure 5. *LouisianaMAP* Task Schedule

LouisianaMAP **Geospatial Portal Initiative.** A Portal IPT, which will be structured around the LAGIC staff, will conduct this initiative. This IPT will obtain advice and guidance from the Technical IPT. Professional Services assistance will be added to the IPT to configure the system for performance and to support implementation of the advanced geographic products. The Portal design will accommodate services requirements validated under the I-Team Initiative. As shown

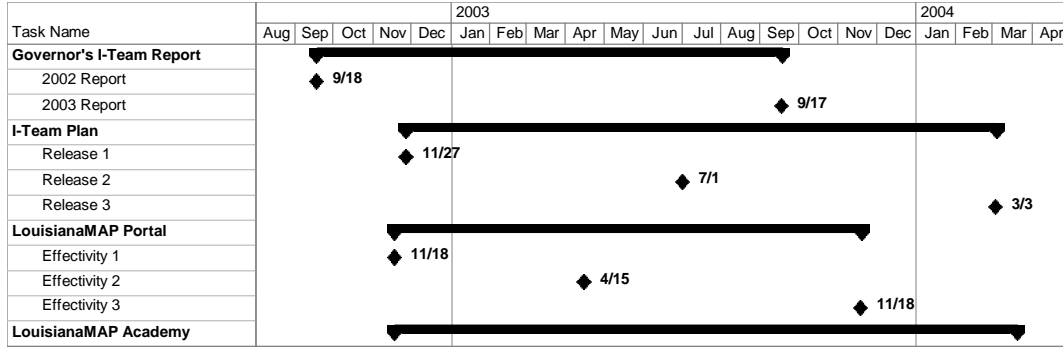| Task Name	2003																	2004			
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Governor's I-Team Report																					
2002 Report		◆ 9/18																			
2003 Report														◆ 9/17							
I-Team Plan																					
Release 1				◆ 11/27																	
Release 2									◆ 7/1												
Release 3																			◆ 3/3		
LouisianaMAP Portal																					
Effectivity 1				◆ 11/18																	
Effectivity 2								◆ 4/15													
Effectivity 3																◆ 11/18					
LouisianaMAP Academy																					

Figure 6. Louisiana MAP Deliverables Schedule

in Figure 6, three effectivities will be delivered under the proposed project . Each effectivity will increase the number of framework data layers and provide more and enhanced user capabilities as described in Section F, Technical Approach.

LouisianaMAP **Academy Initiative.** An IPT will be established by the Steering Committee to develop the Academy. As shown in Figure 5, the Academy will be structured around use of the geospatial framework data and specifically use of the capabilities of the Portal. Once established, conduct of the Academy will be coordinated by LAGIC with assistance from subject matter experts from LGISC. Academy courses will be offered throughout the state, based on demand, beginning in November 2002. Selected courses will also be available through the Portal beginning in November 2002. The Academy will continue under LAGIC administration after conclusion of this project.

I.   Assessment of Risks

The are both management and technical risks that have been addressed but which must be actively monitored and controlled throughout the *LouisianaMAP* project.

Management Risk - The success of this project requires the participation of all state agencies currently involved in GIS. This is needed to assure that agencies will adopt the Louisiana framework data standards and maintain their data according to these standards. It is also needed to assure availability of the critical skills necessary to conduct the project. This project can have outstanding results if entities in the state outside the GIS community get involved and leverage the capabilities that will delivered as a result of *LouisianaMAP*.

GIS community participation is being actively worked from two perspectives. First, the Louisiana GIS Council is obtaining commitments from state and local agencies, academia, and Federal agencies to support specific *LouisianaMAP* activities. Second, executive support for *LouisianaMAP*, all the way to the Governor's Office, has been obtained. This level of support is key to obtaining the appropriate agency participation.

The *LouisianaMAP* team will maintain an aggressive outreach program to involve new users of GIS data and capabilities. This will be done through direct solicitations to organizations and individuals by the LGISC and OES. In addition, there will be media announcements, Internet notifications, and presentations at business and technology conferences concerning the project and inviting participation.

Technical Risk – Geographic standards and security are the primary technical risks for this project. Statewide consensus on the standards for the ten proposed framework data layers for Louisiana may be difficult because of investment in non-standard legacy data and the complexity of some of the early FGDC proposed standards. The standards issue is a central theme of I-Team

Planning initiative.   A central theme for this project is to address the cost and usability issues head-on, developing standards based approaches that are both financially feasible and workable.

There are three areas of security concerns:
?? Data integrity may be at risk without the use of proper security features.
?? The use of maliciously altered or inaccurate data could have profound consequences.
?? Data may contain sensitive information dealing with issues relating to national security, civil liberties, and discrimination.
The *LouisianaMAP* Portal will be implemented within the security architecture being advanced by Office of Information Technology. This approach features a DMZ that will provide a level of protection from external users and a Secure IP area that will assure the integrity of data. These security features will be coupled with strong user identification and appropriate access control, therefore mitigating the potential security risks.

J.   Integration with Existing Technologies

This project influences the complete geographic information and services lifecycle shown in Figure 2. Many Louisiana agencies have applied all or portions of this process to utilize GIS effectively for years.   The *LouisianaMAP* project will directly address the planning phase and should become key for all agencies planning GIS activities. It will influence the production phase that is the primary responsibility of the data custodian agencies, and it will jointly address the exploitation phase with all entities that utilized geographic data and services. Rather than duplicate, *LouisianaMAP* will leverage legacy or planned data and capabilities in meeting validated user needs.

In the planning area the I-Team plan will initially document the "as-is" model for the ten framework layers identified earlier in Section C. This will include which of those exist, what needs drive their existence, how they are being produced, managed, and shared, and used across government. The state currently has digital data for the ortho imagery, state and parish boundaries, 2000 census data, and the Louisiana Oil Spill Environmental Baseline Inventory. These fulfill many of the framework data requirements and they will be used to populate the first version of the *LouisianaMAP* portal framework data archive.

The *LouisianaMAP* portal will be designed to work in conjunction with InfoLouisiana both as a user and provider of resources. For example, where InfoLouisiana applications such as the Services Directory need address and routing information, those applications will seamlessly access *LouisianaMAP* to dynamically obtain that information and incorporate the results in Services Directory transactions. As a resource consumer, *LouisianaMAP* will utilize the content management, customer relationship management, and web-search capabilities of InfoLouisiana in providing geospatial services to its users.

K.   Project Budget and Costs

1.   Equipment.

EQUIPMENT

Database Server.   Includes the cost to purchase a dual processor server to host the portal database including the online framework data layers. The server will be configured with network connectivity and other peripherals necessary to support the requirements of the Portal project.

Application Server. Includes the cost to purchase and install one dual processor server increment to InfoLouisiana to host the Geospatial Application Server functions.

RAID Array Storage. Includes the cost to purchase a 200GB RAID Array to hold the geospatial, textual, and management data contained in the Portal environment.

Equipment Rack. Includes the cost to purchase an equipment rack to host the Portal hardware components.

Cost Summary:

Item	Quantity	Unit Price	Total
Database Server	1	$25,000	$ 25,000
Application Server	1	$16,000	$16,000
RAID Array Storage	1	$14,000	$ 14,000
Equipment Rack	1	$ 8,000	$ 8,000
Total			**$63,000**

2. Software

SOFTWARE

Web Developer Suite. The Web Developer Suite will be used as the developer tool for implementing Web access applications for the Geospatial Portal. Includes fees for license and two years of support.

Geographic Application Server. Includes fees for license, installation, and two-years of support for the software to function as a web-based map server. Cost is based on the number of CPUs of hardware processing capability configured for the application.
?
Route Map System: Includes fees for software, license, installation, Internet deployment and two years maintenance (first year of maintenance in license fee) for software to provide web-based location and routing services. Cost is based on the number of CPUs of hardware processing capability configured for the application.

DBMS Spatial Data Option: Includes fees for license, installation, and two-year maintenance for software to serve geospatial data directly from a database management system. Cost is based on the number of CPUs of hardware processing capability configured for the application.

Address Matching Data Packs: Includes street data for geocoding purposes. License fees are assessed by server CPUs and include two-year maintenance for data updates.

Requirements Management System: Includes fees for software license, Internet deployment, and two-year maintenance for software to support the requirements management collection, analysis, and reporting functions.

Cost Summary for licenses

Item	Quantity	Unit Price	Total
Geographic Application Server	1	$ 7,500	$ 7,500
Second CPU	1	$ 5,000	$ 5,000
Database Management Software	2	$ 29,250	$ 58,500
Web Development Suite	1	$ 3,675	$ 3,675
Route Mapping System	1	$ 3,000	$ 3,000
Second CPU	1	$ 500	$ 500
DBMS Spatial Data Option	1	$ 10,000	$ 10,000
Address Matching Pack	1	$ 3,500	$ 3,500
Requirements Management Software	1	$ 17,500	$ 17,500
Subtotal			$109,175

Cost Summary for Maintenance (2 years)

Item	Quantity	Unit Price	Total
Geographic Application Server	2	$ 1,500	$ 3,000
Second CPU	2	$ 1,000	$ 2,000
Database Management Software	4	$ 6,500	$ 26,000
Web Development Suite	2	$ 800	$ 1,600
Route Mapping System	1	$ 1,000	$ 1,000
Second CPU	1	$ 500	$ 500
DBMS Spatial Data Option	2	$ 2,000	$ 4,000
Address Matching Pack	2	$ 1,500	$ 3,000
Requirements Management Software	2	$ 3,150	$ 6,300
Subtotal			$ 47,400
Total Software Lease and Maintenance cost for 24 months			**$156,575**

3. Telecommunications.
This configuration will utilize equipment already in place or planned by OCS.

4. **Professional/Contracted Services**

PROFESSIONAL SERVICES

<u>Web Application Development & Support Services.</u> Professional services will be required to develop and maintain the geospatial portal and academy applications and provide operational support for the portal during the project period. It is estimated that 3500 hours at $50/hr will be required.

<u>Systems Consulting Contract.</u> Professional services will be required to assist in design and initial set-up of the proposed *LouisianaMAP* Geospatial Portal. These resources are product specialists in the specific geospatial products being used. It is estimated that 500 hours of consulting services at $100/hr will be required.

<u>Geospatial Technical Support Contract</u>. Professional services will be required to assist in development of detailed specifications and production alternatives for some of the geospatial layers. While most of these skills will be obtained free of charge through the government/industry collaboration, some skills may be required that are not readily available from the collaborating partners. It is proposed that 240 hours of consulting services at $150/hr will be allocated for this consulting.

<u>Project Administration Contract</u>. Professional services will be required to assist in administration and implementation of the proposed I-Team Plan Initiative. It is estimated that 3,000 hours of consulting services at $50/hr will be required.

Cost Summary:

Item	Quantity	Unit Price	Total
Web Application Development & Support	3,500	$ 50/hr	$ 175,000
Systems Development	500	$ 120/hr	$ 60,000
Geospatial Technical Support	200	$ 150/hr	$ 30,000
Project Administration	3,000	$ 50/hr	$ 150,000
Total			**$ 415,000**

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5. Other.

OTHER COSTS

<u>Travel</u>. I-Team approach as defined by OMB requires periodic meetings in Washington, DC. Out-of-state travel to cover the cost for state employees covering 10 federal I-Team meetings will be required. Also, in-state travel will be required for state employees involved in the I-Team effort and Portal Academy effort. 10 overnight trips at $140 each and 20 day trips at $60 each are estimated.

Cost Summary:

Item	Quantity	Unit Price	Total
Out-of-state Travel	10 trips	$1,000/trip	$ 10,000
In-state overnight	10 trips	$ 140/trip	$ 1,400
In-state day	20 trips	$ 60/trip	$ 1,200
Total			**$ 12,600**

V   FUNDING REQUESTED

FUNDING REQUESTED
Other Sources: OES will fund $ 175,000 for professional services from an existing contract.

Funding Category	Total Cost	Other Sources	Funding Requested
Equipment	$ 63,000		$ 63,000
Software	$ 156,575		$ 156,575
Telecommunications	0		0
Professional Services	$ 415,000	$ 175,000	$ 240,000
Other	$ 12,600		$ 12,600
Total	**$ 647,175**	**$ 175,000**	**$ 472,175**

VI   COST/BENEFIT ANALYSIS

LouisianaMAP will allow state and local governments to significantly improve their return on investment for geospatial applications. Agencies will be able to create new data sets and conduct analysis that previously were cost prohibitive. State and local government agencies that have not used GIS because they don't know how to get started will be able to effectively leverage the state's assets through the *LouisianaMAP* Portal and its associated Academy.

It is estimated that State, local, and Federal government will contribute more than 12,000 hours to the *LouisianaMap* project over the next two years to ensure its success. This contribution, coupled with the resources requested in this proposal will significantly advance GIS in Louisiana from both a responsiveness and an affordability perspective as described below.

?? Avoid duplication. The state will benefit from cost savings by eliminating the duplication of data collection, creation and maintenance. Framework and other critical data need only be produced/acquired once and then shared by all organizations that have a need for the data.

?? Improve decision support data. GIS is becoming the decision making tool of choice in all branches of government and business. The combination of framework data and GIS software provide a unique and powerful method to display, process, and analyze information that is critical for all decision makers. The state will benefit from improved quality of decisions based on application of the framework data, which is derived from documented sources, with known accuracy and quality control.

?? Leverage outside funding sources for Louisiana. The FGDC and the U.S. Office of Management and Budget have created the I-Team Initiative to encourage the development of these framework data layers to populate the National Spatial Data Infrastructure (NSDI). Louisiana needs these same framework data layers for Louisiana's Framework Data Infrastructure and to address Louisiana's priority needs. Taking advantage of the I-Team initiative will leverage the state's dollars, time and effort with those of the federal agencies. Louisiana already has acquired one of the most important framework data layers, Orthoimagery, which has been compiled for the entire state.   The development of digital orthophoto quarter quadrangles, (DOQQs), has been a Louisiana success story. Acquisition of this data layer was coordinated through an innovative partnership among various Federal and State agencies and was produced by a local company.   By taking advantage of the I-Team Initiative we can meet both State and Federal data development needs, at a cost saving to all partners, just as we did for the DOQQ project.

?? Provide affordable entry for new geospatial users. Louisiana's geospatial framework data and the robust analysis capabilities of the *LouisianaMAP* portal will provide government and private sector extremely powerful decision support tools at very low cost.

?? Support key goals of Vision 2020. Several key issues in Vision 2020 will be addressed from a geospatial data and services perspective by this project. These are identified in Attachment II.

VII   SIGNED STANDARD FORM

The information included in this proposal represents the best estimates of benefits, costs, and potential for innovative use of technology for *LouisianaMAP* project. The signatures herein also confirm the partnership between the Louisiana GIS Council and the Office of Electronic Services for conduct of the *LouisianaMAP* project. The Division of Administration will comply with all reporting requirements established by the Louisiana Technology Innovations Council.

_____   _____
Mark C. Drennen, Commissioner of Administration   Date

_____   _____
Marty Beasley, Chair,   Date
Louisiana GIS Council

_____   _____
Allen L. Doescher, Assistant Commissioner   Date

_____   _____
Ed Leachman, Director,   Date
Office of Electronic Services

	Expenditure Increase (Decrease)		
STATE COSTS	2001-02	2002-03	2003-04
Personal Services	0	0	0
Operating Services	$ 20,650	$ 115,375	$ 23,700
Professional Services	$ 20,000	$ 165,000	$ 55,000
Other Charges	$ 2,600	$ 7,000	$ 3,000
Equipment		$ 63,000	
Total State Exp.	$ 43,250	$ 350,375	$ 81,700

	2001-02		2002-03		2003-04	
PERSONNEL (By Classification)	No. Pos.	Av. Sal.	No. Pos.	Av. Sal.	No. Pos.	Av. Sal.
No change in personnel						

MEANS OF FINANCING FOR ABOVE EXPENDITURES

FISCAL YEAR	STATE GEN. FUND	AGENCY SELF GENERATED	RESTRICTED/ OTHER (specify)	FEDERAL FUNDS	LOCAL FUNDS
2001-02	$ 43,250				
2002-03	$ 350,375				
2003-04	$ 81,700				

Narrative Explanation of Expenditure Impact

The expenditure increases for FY 2001/2002, FY 2002/2003, and the first three quarters of FY 2003-04 total $ 472,175. It is proposed that all these expenditures be covered by the Technology Innovations Fund grant. In the fourth quarter FY 2003-04 the annual maintenance fee for the RMS software product acquired under TIF funding will total $3,150 bringing the total expenditure increases for the three fiscal years to $475,325. OCS will incorporate these and future recurring maintenance costs into the total cost of providing shared computing services which will be allocated to the OES as the responsible agency for the portal. These costs will be paid from the OES budget.

Ongoing maintenance of the Portal will be provided by OES under their current contract with LSU for LAGIC support. These costs are not shown because they are not an expenditure increase.

ATTACHMENT I - FISCAL NOTE   **PAGE 2**

Revenue Increase (Decrease)

FISCAL YEAR	STATE GEN. FUND	AGENCY SELF GENERATED	RESTRICTED/ OTHER (specify)	FEDERAL FUNDS	LOCAL FUNDS
2001-02					
2002-03					
2003-04					

Narrative Explanation of Revenue Impact

While this project will have no direct impact on state revenues, it will have a positive influence on the cost of revenue generation and the ease with which citizens and businesses can locate state services. For example, individuals will be able to readily identify mapping services that agencies such as DOTD and State Land Office offer. This and other features of the portal will increase the visibility of and access to state geographic services and products that generate revenue.

ATTACHMENT II   **PAGE 1**

JUSTIFICATION FOR LOUISIANA'S PARTICIPATION
IN THE
FRAMEWORK IMPLEMENTATION TEAM INITIATIVE

DECEMBER 2001

The Louisiana Geographic Information Systems Council (LGISC) was created by an act of the Legislature in 1995 (Act 922) to guide the sound development of geographic information systems and geographically related information technology for the state of Louisiana. The Council's responsibilities include the establishment of Geographic Information Systems (GIS) policies, procedures and guidelines for the sharing of data and technology among state agencies and to coordinate the acquisition of statewide data sets. To facilitate the elimination of duplication of effort and unnecessary redundancy in data collections and to provide for integration of geographically related databases, the Council has adopted the Federal Geographic Data Committee's (FGDC) seven framework data layers as the basis for Louisiana's geographic information system. At the national level, the need to coordinate data creation was addressed by a Presidential Executive Order establishing the National Spatial Data Infrastructure (NSDI). The creation of these critical data sets at both the state and federal level will facilitate decision-making on policy and planning issues for the state of Louisiana and the nation.

In response to the Presidential Executive Order #12906 the Office of Management and Budget (OMB) has established the Framework Data Implementation Initiative Team (I-Team Initiative) as a joint project with the Federal Geographic Data Committee (FGDC), the Council for Excellence in Government, Urban Logic, National States Geographic Information Council (NSGIC), National Association of County Government (NACO), and other strategic partners. The I-Team Initiative relies on locally formed interdependent partnerships of federal, state, local, and tribal authorities, academia and the private sector (I-Teams) to implement state and regional portions of the NSDI in accordance with interoperability specifications and data standards as part of their ordinary business processes. By establishing the Louisiana Spatial Data Infrastructure Team Initiative (Louisiana's I-Team) and aligning Louisiana's needs and resources under the I-Team concept, all levels of government and the private sector will have the opportunity to save money, migrate from existing legacy systems, make use of existing resources, and develop the business case for new and expanded public and private geospatial resources. Furthermore, because the I-Team Initiative addresses the major barriers to development of the NSDI by offering a coherent set of institutional and financial incentives, it will be easier for all levels of government and the private sector to collaborate in the building of the next generation of framework data.

"Geographic data users from many disciplines have a recurring need for a few themes of basic data: geodetic control, orthoimagery, elevation, transportation, hydrography, governmental boundaries and cadastral information. Many organizations produce and use such data every day. The framework provides basic information for these data themes. By attaching their own geographic data – which can cover innumerable subjects and themes – to the common data in the framework, users can build their own applications more easily and at less cost." From Framework Introduction and Guide, FGDC, 1997.

The state will benefit from cost savings by eliminating the duplication of data collection, creation and maintenance. The cost of creating all the accurate data sets needed for executive level decision-making is too onerous for any one state agency or any local government.   Single purpose data sets should be a thing of the past. Furthermore, the state will benefit from decisions based on the framework data, which is derived from documented sources, with known accuracy and quality control. The combination of framework data and GIS software provide a unique and powerful method to display, process, and analyze information that is critical for decision makers in government and the private sector. GIS is becoming the decision making tool of choice in all branches of government, business and the military. It is therefore essential that this powerful tool be accompanied with high quality, dependable framework data. These framework data layers will be an essential tool in addressing the issues raised by Vision 2020.

The FGDC and the U.S. Office of Management and Budget have created the I-Team Initiative to encourage the development of these framework data layers to populate the National Spatial Data Infrastructure (NSDI). Louisiana needs these same framework data layers for Louisiana's Spatial Data Infrastructure (LSDI) and to address Louisiana's priority issues (page 3). Taking advantage of the I-Team initiative would leverage the state's dollars, time and effort with those of the federal agencies. By taking advantage of the I-Team Initiative we can meet both State and Federal data development goals at the same time.

The state has been in the forefront of GIS technology beginning in the mid-1980s. Various state agencies have established robust GIS laboratories and applications to support their spatial data needs. Louisiana already has acquired one of the most important framework data layers, Orthoimagery, which has been compiled for the entire state.   The development of digital orthophoto quarter quadrangles, (DOQQs), has been a Louisiana success story. Acquisition of this data layer was coordinated through an innovative partnership among various Federal and State agencies and was produced by a local company.   Spatial data development is a national industry and Louisiana is home to one of the leading Orthoimagery service providers in the country. Another innovative partnership between FEMA and the state is underway for the acquisition of another critical framework data layer, elevation data.

In addition to our innovative data development efforts and nationally recognized geospatial industries, Louisiana can build on a statewide fiber optic infrastructure second to none. This telecommunication infrastructure advantage should be exploited to the greatest extent possible.   This high-speed/high capacity data network is tailor made for sharing large geospatial data sets and will provide Louisiana's geospatial industries with a significant competitive advantage. The Louisiana Spatial Data Infrastructure Initiative builds on these early successes by creating a program that incorporates partnerships and cooperation through all levels of government, the private sector and academia. However, the LGISC only has authority to coordinate state agency efforts and to encourage the development of partnerships with other levels of government. To build on our existing telecommunications and spatial data infrastructure, and to provide the data needed to address the issues identified in Vision 2020 the LGISC will need executive level support. Executive support will be essential in the following ways:

Encourage state agency department heads to make the creation, maintenance and sharing of geospatial data a top priority by fully participating in the Louisiana Spatial Data Infrastructure Initiative.
Encourage local governmental agencies, universities and the private sector to fully participate in the Louisiana Spatial Data Infrastructure Initiative

The LGISC is requesting executive level assistance to ensure that the Louisiana Spatial Data Infrastructure Initiative provides the priority data sets needed to address the issues raised by Vision 2020.
The LGISC, working with the agencies they represent, identified many of the state's priority issues.   The LGISC then identified which geospatial data layers would be required to fully address each issue. The analysis is summarized in the table below.

Louisiana's Geospatial Priority Issues
(Defined in the Goals of Vision 2020)

Priority Data Layers (The critical data sets needed to address Louisiana's priority issues, includes the seven NSDI framework layers)	Education (Goal 1, a fully engaged well educated workforce)	Economic Development (Goal 2, a vibrant and balanced economy)	Recreation & Tourism (Goal 3, A quality of life placing us among the top ten states)	Flood Control & Hurricane Protection (Goals 2 & 3)	Emergency Management & Homeland Security (Goals 2 & 3)
Geodetic Control (a common land reference system)	I	D	I	D	D
OrthoImagery (positionally correct aerial photography)	D	D	D	D	D
Elevation / Bathymetry (includes contours & spot elevations)	I	D	D	D	D
Transportation (roads, railroads, waterways, airports)	D	D	D	D	D
Hydrography (rivers, lakes, canals, oceans, shorelines)	I	D	D	D	D
Governmental Units (states, counties, cities, tribal lands)	D	D	D	D	D
Cadastral Information (surveyed parcels, lots and ownership)	D	D	D	D	D
Land Use / Land Cover (land surface features: urban, forested, rural)	I	D	D	D	D
Demographics (census data & population projections)	D	D	D	D	D
Flood Plains / Wetlands (FEMA zones, designated wetlands)	I	D	D	D	D

D = Primary Product **(used directly)**   I = Derived Product **(used indirectly)**