Prepared by the City Attorney

RESOLUTION NO. 1-05

A RESOLUTION RATIFYING AN INTERLOCAL AGREEMENT BETWEEN THE CITY OF WEST LAFAYETTE, THE CITY OF LAFAYETTE AND TIPPECANOE COUNTY CONCERNING A GEOGRAPHICAL INFORMATION SYSTEMS (GIS) WEBSITE

WHEREAS, the City of West Lafayette has developed substantial GIS information and resources; and

WHEREAS, the City of Lafayette and Tippecanoe County desire to enter into an agreement with the City of West Lafayette to jointly host a website to provide GIS information to the public;

BE IT RESOLVED By the Common Council of the City of West Lafayette that:

1. The attached Interlocal Agreement between the City of West Lafayette, the City of Lafayette and Tippecanoe County concerning a Geographical Information Systems (GIS) website is hereby approved.

This resolution shall be in full force and effect from and after its passage and signing by the Mayor.

INTRODUCED AND FILED ON _____, 2005.

PASSED AND ADOPTED BY THE COMMON COUNCIL OF THE CITY OF WEST LAFAYETTE, INDIANA ON _____, 2005, HAVING BEEN PASSED BY A VOTE OF ____ IN FAVOR AND ____ OPPOSED.

_____
Presiding Officer

Attested:

_____
Clerk-Treasurer

PRESENTED BY ME TO THE MAYOR OF THE CITY OF WEST LAFAYETTE, INDIANA ON _____, 2005, AT THE HOUR OF _____ ___.M.

_____
Clerk-Treasurer

THIS RESOLUTION APPROVED AND SIGNED BY ME ON _____, 2005, AT THE HOUR OF _____ ___.M.

_____
Jan H. Mills, Mayor

Attested:

_____
Clerk-Treasurer

INTERLOCAL AGREEMENT BETWEEN
THE BOARD OF WORKS OF THE CITY OF LAFAYETTE,
THE BOARD OF WORKS OF THE CITY OF WEST LAFAYETTE,
AND
THE BOARD OF COMMISSIONERS OF TIPPECANOE COUNTY

This Interlocal Agreement is made this _____ day of _____, 2004, by the City Lafayette, the City of West Lafayette and the Board of Commissioners of Tippecanoe County, Indiana, for which the parties hereto agree as follows:

1. All parties agree that it is in their mutual best interest to jointly sponsor a web site to disseminate mapping and tabular information (hereinafter "Geographic Information System" or "GIS"), for the purpose of eliminating duplication of services, improving government and private sector decision making, and promoting efficient use of government resources.

2. All parties will jointly share in the cost of developing and implementing the GIS web site as provided for herein.

3. The Parties agree to make payment for: consulting fees; acquisition of hardware, software, and data; costs associated with the purchase and maintenance of the specialized GIS web based software, where practicable, that are directly related to the web site strategy as outlined in the Software Requirements Specifications (SRS) dated 9/02/03, and attached hereto as Exhibit "A".

4. The total cost to the City of Lafayette under this, and the prior agreement, dated November 26th of 2002 (Exhibit B), is $75,000. This amount will be used for costs associated with item #3 above and the City of Lafayette shall be credited for any payments heretofore made pursuant to the terms of the November 26, 2002 agreement.

5. The total cost to the City of West Lafayette under this agreement is

$20,000 with a maximum of $7,500 per year. This amount will be used for costs associated with item #3 above.

6. The County will operate and maintain the web site, and host data from the Cities of Lafayette, and West Lafayette.

7. Both Cities shall make such payment within thirty (30) days of receipt of County's invoicing of payment due.

8. This Agreement supercedes and replaces in its entirety that agreement entered into between the City of Lafayette and the Commissioners of Tippecanoe County dated November 26, 2002.

9. This Agreement shall be in full force and effect upon signing by the parties hereto, and continue through December 31, 2007. This Agreement shall automatically renew for succeeding one year terms.

10. This Agreement may be supplemented in writing at any time when parties agree on a change of the scope, or amount, of this Agreement.

11. A party's participation in this Agreement may be terminated by providing a two month written notice of termination to the other parties.

12. In the event that any provision or portion of this Agreement shall be determined to be invalid or unenforceable for any reason, the remaining provisions of this Agreement shall be unaffected thereby and shall remain in full force and effect.

Dated:_____

BOARD OF COMMISSIONERS
TIPPECANOE COUNTY:

_____
Ruth Shedd, President

_____
John Knochel, Vice President

_____
KD Benson, Member

Attest:

_____
Robert A. Plantenga, Auditor

BOARD OF PUBLIC WORKS & SAFETY

_____
Gary Henriott, President

_____
Norm Childress

_____
Cindy Murray

_____
Tom Shorter

_____
Claudia Samulowitz

Attest:

_____

Dated:_____

CITY OF WEST LAFAYETTE, INDIANA

BOARD OF PUBLIC WORKS & SAFETY

_____

Jan H. Mills, Mayor

_____

Janet Broyles

_____

Gil Satterly

Attest:

_____

Judy Rhodes

Exhibit A

Tippecanoe County and City of Lafayette

GIS Website Development

Software Requirements Specification (SRS)

HNTB

Revision History

Date	Revision	Description	Author
12/23/02	1.0	Initial Version	JLS
12/27/02	1.1	QA/QC	RKB
1/15/03	1.1	City/County Comments	JLS
1/17/03	2.0	QA/QC	RKB
1/17/03	2.0	Final Intranet SRS	JLS
9/02/03	3.0	Final Internet SRS	JLS

HNTB Project No.: 37089-PL-001

Table of Contents

1. Introduction

1.1. Purpose of Document

The purpose of the Software Requirements Specification (SRS) is to describe the "look and feel" and behavior of the application to be developed as well as any external interfaces. This document also identifies the nonfunctional requirements, design constraints, and other factors necessary to provide a comprehensive description of the software requirements. This document primarily focuses on "what" will be developed and documents it in a measurable manner yet doesn't necessarily specify "how" the application will be designed or constructed.

1.2. Vision

Tippecanoe County and the City of Lafayette desire to jointly develop a GIS website to serve the information needs of the community. The City and County, through the means of an interlocal cooperation agreement, have come together to develop a GIS website to serve and meet this need. The main objective of this initiative is to make the existing City and County spatial databases and related items available to all interested internal (city and county employees) and external users (general public).

1.3. Scope

Tippecanoe County and the City of Lafayette have teamed together in the development of this GIS website to take advantage of shared objectives and technical cooperation of their public information services. This approach removes potential redundancies in information serving devices between the two governments and provides a platform for ease of data sharing between agencies. Along with the straightforward cost sharing advantages of removing redundancy, this joint website approach also promotes a more holistic approach to communicating information regionally and consequently providing better information for better decision-making.

2. Business Use

2.1 User Groups

The GIS website is being designed to serve three core user groups, by providing access to digital mapping and associated information for the City and County. The three user groups have been identified as:

- Internal (City & County employees)
- External (the general public); and
- other external businesses and agencies (eg. Realtors, etc.)

While all user groups are identified as a priority for the GIS website, the early design priority is for the general public. As the development phases of the GIS website continue in the future, the functions and capabilities will be expanded to serve internal and special uses with enhanced access and selective tools.

2.2. Use Case Descriptions

Each user group may have a variety of purposes and workflows in using the GIS website. The GIS website will provide most users with the ability to access and use GIS data in regards to transportation facilities, property ownership, the natural environment and public utilities throughout the City of Lafayette and Tippecanoe County.

The following paragraph is a narrative of one typical use of the GIS website by a general public property owner within Tippecanoe County wanting to look up information regarding a property within Tippecanoe County. It is anticipated that other use case scenarios will be addressed during future phases of the project that describe at least one transaction thread throughout the system for each core user group.

Property Owner (General Public) Use Case Narrative

The property owner will connect to the GIS website via a hyperlink from the County or City government website. Once reading the Introduction page and disclaimer to the GIS website, the user will examine the GIS tools at his/her disposal. Upon noticing the map navigation tools, the user will zoom into an area of interest using the visual cues of the street centerlines and street names in the map screen. Once familiar with the navigation tools, the user will click on the "Search" function. A dialog screen will be presented allowing the user to enter in a street address of his/her property location, property owner or key number (parcel number) as a search criteria. Once the user enters in the address, and clicks OK, the GIS website will locate the parcel and center it within the Map Screen. Also, in another website frame, a Results frame will present selected attribute data regarding the property –such as Owner Name, Legal Description, and Assessed Value. Once the information is ascertained, the user will then exit the website by closing the website windows.

3. Requirements

This section describes the measurable requirements of the GIS website through a listing of functions and qualities. These requirements are designed to be quantifiable so they can be tested for successful implementation during the Acceptance Testing phase of this project.

3.1 Functional Requirements

The GIS website has the following functional requirements:

- The GIS website shall provide the user with the following map navigation tools and functions:
  - Zoom in
  - Zoom out
  - Zoom in to a user specified rectangular box (zoom in window)
  - Zoom to a specific scale identified by the user
  - Zoom to full extents of the map data
  - Zoom to a map feature after viewing the results from a query/search (see search requirements below)
  - Pan view (using "hand" icon)
  - Pan view by 8 compass directional arrows
  - Display an overview map and allow the user to turn it on or off (default on)
  - Measuring linear distance on the map using feet and miles as the unit of measure
  - Display an icon and/or text that is presented when the website is processing a user request; such as "calculating" or "retrieving map"
  - Clear function for clearing selected attributes or map measurements within forms

- ❑ The GIS website shall provide the user with the following tools layer access and control tools:
  - Turn on or off the visibility of each available data layer
  - Activate a specified layer to allow for attribute identification by the user using a pull-down control (with parcel layer as default, when visible)
  - Display attribute data for single or multiple features identified by the user of an active layer. The user can display attributes for one or multiple map features of the active layer by point-click (single feature) or by a rectangular selection box (single or multiple) up to a maximum number of attributes.
  - The display of specific layers can be set to scale dependencies per the current view zoom level, as quantified later in this document
  - Hyperlink to a short (no more than a two sentence) metadata description of each layer
  - Setting of different layer access to the two user groups (internal vs. external). Note: this function is to be provided after vendor selection is made.

- ❑ The GIS website shall provide the user with the following search and query tools:
  - Execute an attribute query, or find function, by property owner name, key number, or address that is entered in by the user
  - Display search results for single or multiple properties found by the search
  - Produce a report, formatted for printing, of a single search result

- ❑ The GIS website shall compile a printable map page with the following elements, generated from the visible map layers in the map screen:
  - North Arrow
  - Graphic Scale
  - Map Legend
  - Map Disclaimer
  - Map Title
  - Owner Name (Tippecanoe County GIS/City of Lafayette GIS)
  - System Print Date

- ❑ The GIS website shall provide an on-line user help page, graphically displaying the available buttons/tools on the GIS website and a short description (up to three sentences) on the functionality of each tool or button.

- ❑ The GIS website shall have an introductory page with an appropriate introduction disclaimer. The introduction page will hyperlink to a page with more description and detail regarding the disclaimer.

- ❑ The GIS website shall provide hyperlinks to contact information and other websites, no more than two dozen links, using a *Related Links* page.

- ❑ The GIS website shall utilize the existing GIS infrastructure for its data sources either through the use of data in its native file format or import into the GIS environment of choice. The GIS native file formats for consideration are from Microstation Geographics (version J), AutoCAD 2000, and Oracle 8i. The GIS website will interface with Oracle 8i for attribute information retrieval.

3.2 Revised Functionality

Prior to the Intranet deployment, the following desired functions were communicated as a result of internal usage and client review. Most items were addressed in the Internet version; however, a few of the items were not addressed or addressed completely due to technical or design reasons, as presented below in italics and underlined.

Search and Query Tools

- Set focus for search text box on all searches, enable Enter key to submit search string
- Set focus to House Number on an Address Search
- Enable a "Search Again" button from the Search Results
- Redesign Results help legend by flipping the icon and text and adding "below" in descriptions – also edit tool tip for Show Details to "Show Report"
- Relax the tolerance on the Identify command
- Examine the use of a highlight or graphic to identify the feature selected from a multiple selection set when centering that feature in the map
- Add Search capability in order to Search by Location. Enable Search on these boundaries >> Lafayette, West Lafayette, Purdue University in order to zoom the map to that location. Add "Zoom To" function with a list of places to go to. On our web site it could go on the navigation bar next to the Zoom In. *Placed command on bottom left of map screen, due to interface space limitations.*
- Check the use of the unique ID (MSLink) in the searches in order to make sure all data searches are performing correctly.

Map Navigation Tools

- Add Previous Map button – to be placed between the Zoom All and Pan command buttons
- Measure graphic to reflect each link measured length in feet, on the graphic. As well, shorten the measurement results boxes in order to try to impede less on the map frame
- *Error messages could not be completed edited as desired without impacting too much of the application. The error commands are modular, so parts of the messages appear during other events in using ArcIMS.* Change the user message "Response from Previous Request Not Received" to *"Please Wait. Still Processing Your Request."*
  - Change the user message "the Active Layer Parcel is not visible due to scale and features cannot be selected" to: *"Please zoom in to see "Layer Name".*
- *Error messages could not be completed edited as desired without impacting too much of the application. The error commands are modular, so parts of the messages appear during other events in using ArcIMS.* Change the user message "the Active Layer Parcel is not visible and features cannot be selected" to:
  - Go to Layer
  - Check "Layer Name"
  - Redraw Map
- Alter user defined scale control to represent 1 inch = xxxx feet. Pull down choices to contain 50, 100, 200, 300, 400, 500, 1000, 5000, 10000 ft.
- Drop the term "assets" from the Active Layer drop down box and list the utilities as:
  Sanitary
  Storm
  Water – *not made as an active layer, due to no existing attribute data for water structures*
- Change Active Layer title 'Section Corners' to "Control"

User Interface

- Modify toolbar on top of right frame to the following control order:
  SEARCH LAYER LEGEND HELP INFO
- Group tools by categories e.g.: Navigation, Information, Selection etc. – *selection tool located left of buffer tool due to logic in use – select then buffer;* http://support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=23887
- change "clear" to "deselect" and modify the "clear" icon. Use a big X on the select icon graphics to make it more intuitive – *did not change due to other functions of tool, clears values, measurements and selection sets. Added descriptive language to help.*
- Add buffer tool – *added as much functionality as possible in default setup, without custom programming and workflow design/thought*
- All these categories should be in alternate colors for better visual distinction – *decided verbally to not proceed with this for interface design consistency*
- Modify Legend to hyperlink to separate sample maps for these major map feature classifications:
  - Parcels
  - Transportation
  - Utilities
  - Topography
- Add Print Legend button to print command frame in order to print all legends on a single page
- Modify default print map title to: "City/County GIS Map"
- Remove map frame information on the status bar of interface
- Change name of "Refresh Map" button to "Redraw Map"
- Lock web page to default page size (resolution setting at 1024 x 768 pixels)
- Remove Water Valves from Public website
- Add login page and username/password mechanism for secure login for restricting access to CITY/County nonpublic information?
- Add *Call Before You Dig* disclaimer to Info page: state law requiring people to call for a utility locate (1-800-382-5544 or www.iupps.org) before two working days prior to excavation. (and to layer control at utilities and to the Metadata pages for the utility layers).
- Help page:
  - change text describing for Zoom In to reflect correct color (red)
  - remove description of "Zoom Out Window" from Zoom Out
  - Add definition of active layer
  - Add definition of scale
  - Add definition of feature and attribute
- Provide a hyperlink to *Related Links* on the Info page
- Add "halo" around scale bar text – *halo not supported by ArcMap Server at this time, did apply BOLD;* http://support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=24598

Printable Map Page

- Modify printable maps to reflect new disclaimer listed in small font at the bottom of the map pages
- Two map reports – one for the parcel report, one for the general map print
- Maximize map size by orienting the page for landscape.
- Place title/date on top of general map print page
- Place title/date on top right of attribute report for parcel report map page

Layer List

Parcels (centroid points, lines as "CAD" image files)
Transportation
Roads (includes bridges and text)
- Pavement Edge

- Unpaved Edge
- Centerline

ف Railroad and Airports (including text)

ف ~~Right Of Way (including Railroad ROW) –~~ *not accessing parcel tiles as separate layers*

ف Utilities

ف Sanitary (green)
- Manholes
- Pipes (including flow arrows)

ف Storm (pink)
- Catch Basins, Curb Inlets, etc.
- Manholes
- Pipes (includes flow arrows)

ف Water (blue)
- Valve (information not for Public)
- Hydrant
- Pipes

ف Topography

ف Index Contour

ف Intermediate Contour

ف Spot Elevation

ف Water Features (Rivers, Lakes, and Streams including text)

ف Boundaries

ف County

ف Corporate

ف Township and Reservation

ف 2002 Rectified Aerial Photography

ف Soils

ف Control

ف Building Footprints

- *Layer control deployed consistent with original design – groups (ability to open or lock certain groups) and organize feature classes as shown in .MXD.*

System Foundation

- Keep the website software design as modular and flexible as possible.
- Build a solid, robust foundation for future expansion, enhancements and modifications with the least amount of additional revisions or effort.
- Clear, precise and detailed documentation of all software configurations, scripts, codes and other project information for the next phase of the project.
- Make maximum use of out of the box tools from the selected vendor.
- All functionality built for one layer should be easily utilizable and applicable to future data layers e.g. search functionality for any attribute layers.
- Keep nomenclature of ArcGIS/ArcIMS project layers logical and consistent so adding, deleting or modifying additional layers is intuitive and simpler.
- Try and keep as much data in native format and symbology as practically possible.
- Address logical workflow, functionality, look feel and user friendliness issues.

3.3 Future Functional Requirements

The requirements detailed above, in section 3.1, are the requirements for Phase 1 of the GIS website implementation. The requirements under consideration for future product releases of the GIS website are as follows:

- ❑ The development of user-based interfaces and functionality oriented by multiple user group login choices.
- ❑ Hyperlinks to various documents such as static maps, diagrams, images, photographs, and/or digital documents
- ❑ Enhanced map and reporting printing functions
- ❑ Additional spatial query functions, including buffering capabilities
- ❑ Enhanced metadata documentation, reporting of FGDC (Federal Geographic Data Committee) compliant specifications for a clearinghouse node
- ❑ Enhanced on-line user help and documentation
- ❑ Advanced printing and reporting
- ❑ Refinement of the active layer button/workflow
- ❑ Normalization of auditor's database
- ❑ Correct topology issues of the parcels in order to incorporate parcel polygons instead of parcel centroids.
- ❑ Add the zoom out window navigation function
- ❑ Evolve the web interface to an advanced application and provide access to updated data sets and new data models. The future data categories include:

  <u>County Layers</u>
  - Tax and Assessment Data
  - Traffic Counts
  - Accidents
  - Political Boundaries (voting districts, precincts, school districts)
  - Zoning
  - Building Permits
  - Crime
  - Assessor's database

  <u>City Layers</u>
  - Streets and Sanitation
  - Road Closures
  - Building Permits
  - Ordinance Violations
  - Crime
  - Community Development
  - Economic Development
  - Parks

3.4. Nonfunctional Requirements

This section will describe the context of the usability, performance, and supportability of the GIS website. These requirements are, in some cases, more difficult to define in a quantifiable manner; however, it is essential that they be taken into consideration.

3.4.1. Usability

The GIS website is to be designed in order to provide reasonable scalability; the ability to grow with future requirements without the need to reengineer the baseline Phase 1 deliverable solution. This will be done using reasonably flexible web design techniques that allow for additional functions to be built-in, such as object oriented programming, the use of frames and/or tabs, and strategic placement of hyperlinks.

The GIS website is to be designed to be intuitive to most users from beginners to experts. In order to do this, the GIS website will minimize the number of commands available to the user by only displaying the functions that are available at a particular time. As well, the use of technical jargon will be discouraged on the website and helpful task descriptions will be provided at user input points during workflows. Extremely small font sizes and shocking or "loud" colors will be discouraged from use in the website design.

Since this application is web-based, training time for users should be relatively minimal. Once certain basic concepts are understood, users should be able to follow intuitive workflows to get desired results. Some key basic concepts that users should be trained on or have some experience with include:

- website navigation and web browser use
- basic GIS data organization (layers, attributes)
- map scale
- mapping-related terminology

3.4.2. Performance

Whenever possible, the following file transfer rates will provide benchmarks for developing the output map to the smallest size possible. For example, a typical client works from a dedicated 28.8 kbps modem connection; one would target the output map to be 180K in size or less, so that they won't be waiting more than a minute to download the map.

Modem

Connect Speed	Best Transfer Rate
9600 bps	60K/min or 1.0K/sec
14.4 kbps	90K/min or 1.5K/sec
28.8 kbps	180K/min or 3.0K/sec
33.6 kbps	210K/min or 3.5K/sec
57.6 kbps	360K/min or 6.0K/sec

ISDN

Connect Speed	Best Transfer Rate
64 kbps	400K/min or 6.7K/sec
128 kbps	800K/min or 13.3K/sec

Ethernet

Connect Speed	Best Transfer Rate
T-1/ 10 mbps	62.5M/min or 1.04M/sec

The GIS website has several performance requirements that are based upon client user trials in implemented case studies. Based on a T-1 line, optimal performance would be at 2-5 second map generation time; based upon a connection of a 56k modem, optimal performance time would be at a 3-6 second map generation time

The website will be designed to achieve optimal performance, understanding that there are factors outside the control of this project. Some of these factors are: hardware, network traffic, and connection types. The performance requirements will not be observed when serving large file size raster data, such as aerial orthophotos, due to pending file format issues. The MrSID raster architecture is under consideration and being assessed by the City of Lafayette and Tippecanoe County.

3.4.3. Supportability

The GIS website will require routine maintenance and management in order to continue its services and run optimally. A combination of County/City resources along with the assistance from the HNTB team will prove useful in ensuring that this GIS site will provide maximum performance and return-on-investment over time.

The web server that hosts the GIS website should be monitored regularly with real-time tools as well as human review on a regular basis; this includes a pre-planned and automatic rebooting of the server on a weekly basis, at a minimum. The system should be rebooted at expected low-user times to improve system performance by cleaning up any system processes that are taking system resources. As the web services are installed, it is important that the services are configured to autostart. If not configured for autostart, every time a system reboot is performed, these necessary services will have to be manually restarted. The deployed GIS website and any enhancements should be copied and stored on available medium as a backup to any system loss.

The GIS Web Services Team (Tippecanoe County and City of Lafayette project management team) should identify contacts and develop programs for technical support for all intended user groups of the GIS website. During the Intranet deployment period and for a 90-day period following Internet deployment, HNTB Corporation will be providing technical support for the GIS website. The support will include the provision of a dedicated e-mail address for on-line response to City/County GIS Web Services Team member questions or problems. Paul Segerstrom (HNTB-Chicago) will be the dedicated contact person for telephone support. The on-line and telephone support will be available during business hours (9 a.m. – 4 p.m. EST) during the prescribed support periods. Additional support can be provided to the County/City if requested after further discussions and negotiations.

3.5. Platform System Requirements

The following paragraphs summarize the system requirements for ArcIMS. The requirements that follow provide guidelines for the specifications for the Internet server and related hardware to be used for the deployment of the Internet solution. The web servers, illustrated in Figure 1, will have the following specifications:

Server-side Software Requirements

- Microsoft Windows 2000 Server
- Microsoft IIS 5.0 for Windows 2000 Server

Server-side Hardware Requirements

- IBM PC or compatible with Pentium Pro Server processor (300 MHz or greater)
- 2 GB disk space or greater available for installation
- 256 MB RAM

ArcIMS and GeoMedia WebMap do differ in regards to some of the required software items on the server and client sides. These differing aspects of the platform requirements are detailed in the following paragraphs.

ArcIMS System Requirements

Software Requirements:

ArcIMS requires a servlet engine since IIS does not support servlets natively. ServletExec 4.1.1 is recommended for this solution because it is fully supported and documented by ESRI. In order to support a Java Viewer ArcIMS site, the Java Runtime Environment (JRE) must be installed. This is supplied with ArcIMS installation software, JRE 1.3.1_02 is fully supported.

As well, ArcMap server must be installed in order to read Microstation and AutoCAD files in their native environment to publish through ArcIMS. ArcGIS 8.2 or higher is needed to create the map documents that can be served in ArcIMS.

ArcMap Server is officially supported on Internet Explorer 5.0.1 or higher, and Microsoft Data Access Components (MDAC) 2.5 are required. If MDAC 2.5 or higher are not installed, the install program will optionally let the operator install it.

ArcIMS ArcMap Server can not be installed on the same machine as ArcGIS Desktop or ArcInfo Workstation. All other ArcIMS components can reside on a machine where ArcGIS Desktop or ArcInfo Workstation is installed; ArcMap Server is the only exception.

Client-side Requirements:

Operating systems supported:
- Microsoft Windows XP/2000
- Windows NT 4.0
- Microsoft Windows 98

Web browsers:
- Internet Explorer 5.0 or later Fully supported
- Netscape Communicator 4.75 to 6.0 Fully supported
- Netscape Communicator 6.1 Unknown

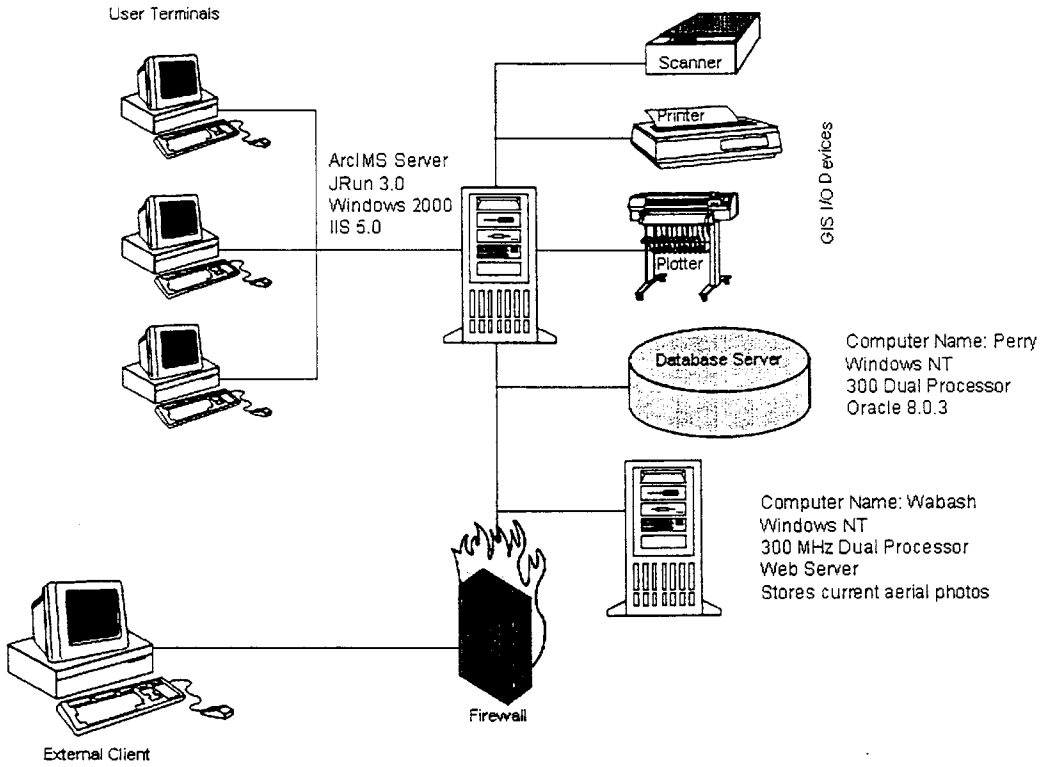


Figure 1 - Internet Deployment System Architecture

4. Design Constraints

This section identifies any design constraints on the system being built. Design constraints represent design decisions that have been mandated and must be adhered to. This GIS website implementation requires the use of web-based GIS environments to work directly with datasets in other vendor platforms. While the capabilities of open data access are built into the respective GIS web products, some software capabilities may not be available or will require special effort to act as designed.

The GIS website is being designed for client-use in both the Microsoft Internet Explorer and Netscape browsers. There are many details published by the vendors regarding versions and levels of compatibility details. The development process will use standard web-development languages and design tools in order to conform with any customization to the requirements for both browsers; however, the compatibility may be dependent on the "out-of-the-box" functionality of ArcIMS.

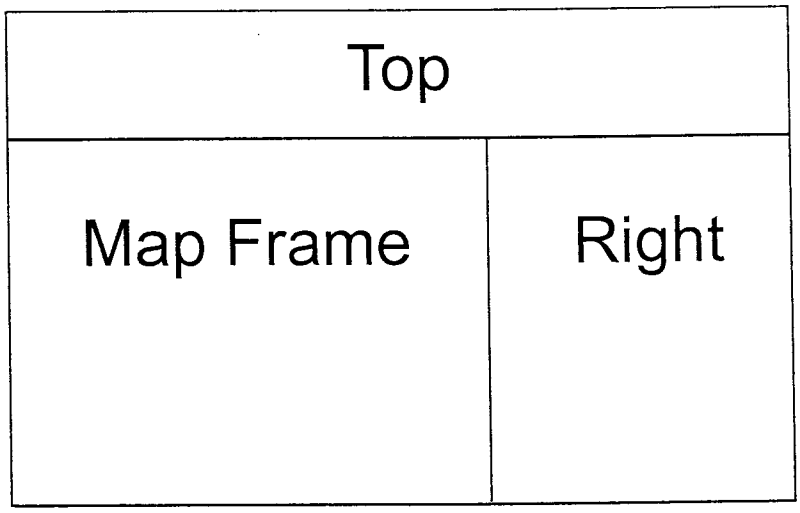
The functional design of the GIS website is highly dependent on the data model and database design of existing datasets; however, they may require modification over time to ensure support for future requirements. The GIS website capabilities must be considered in context with the available spatial and attribute data.

5. User Interfaces

This section illustrates the user interface design elements for the GIS website. Each element of the web interface is addressed in order to provide specifications for design and development of the GIS website. The definition of the design elements are based upon concepts and options presented in the previous draft of this document, and were defined after further review and discussion in the requirements workshop.

5.1 Interface Framework

The framework controls the layout of the website, each frame is made up of page or multiple pages. Each frame on the page can perform a specific task. The layout framework is illustrated below.



This layout framework offers the advantage of maximizing the size of the Map Frame. A disadvantage to this layout is that the user may have to navigate to more tools, instead of

having most tools right on the screen at all times. The typical uses for the frames include; Top for the toolbar, title frame, and logo. The Right would hold the legend, layer listing, introduction/help documentation, search page, and search results page.

5.2 Graphic Standards

The GIS website should impose a graphic standard in the design of the graphics, frames, and forms. This section illustrates some graphic standard alternatives for consideration in the development of the GIS website.

The design standards will be based upon the alternative design ideas agreed upon at the requirements workshop. These standards will provide guidelines for all web pages and form development for the GIS website. These standards include:

- Fonts and font sizes: categorized by paragraph category (major heading, minor heading, body text)
- Colors: categorized by content category (fonts, background, logos, borders, any graphic elements)
- Logos/Graphics: specific graphics or patterns to be used throughout the website.

The GIS website is to be designed for optimal viewing in the client browser resolution setting of 1024 x 768 pixels.

5.2.1. Logos and Title Frame

The GIS website will use a title and/or logo in order to clearly brand the website with the purpose and owner of the application. The logo/title bar sets the tone for the overall graphic design of the website and should consistently be used in any communications regarding the GIS website.

The following logo schema was agreed upon by project participants; however, may be replaced in the future once external branding exercises are completed.

GIS PURDUE UNIVERSITY TIPPECANOE COUNTY • CITY OF LAFAYETTE

5.2.2. Command Buttons

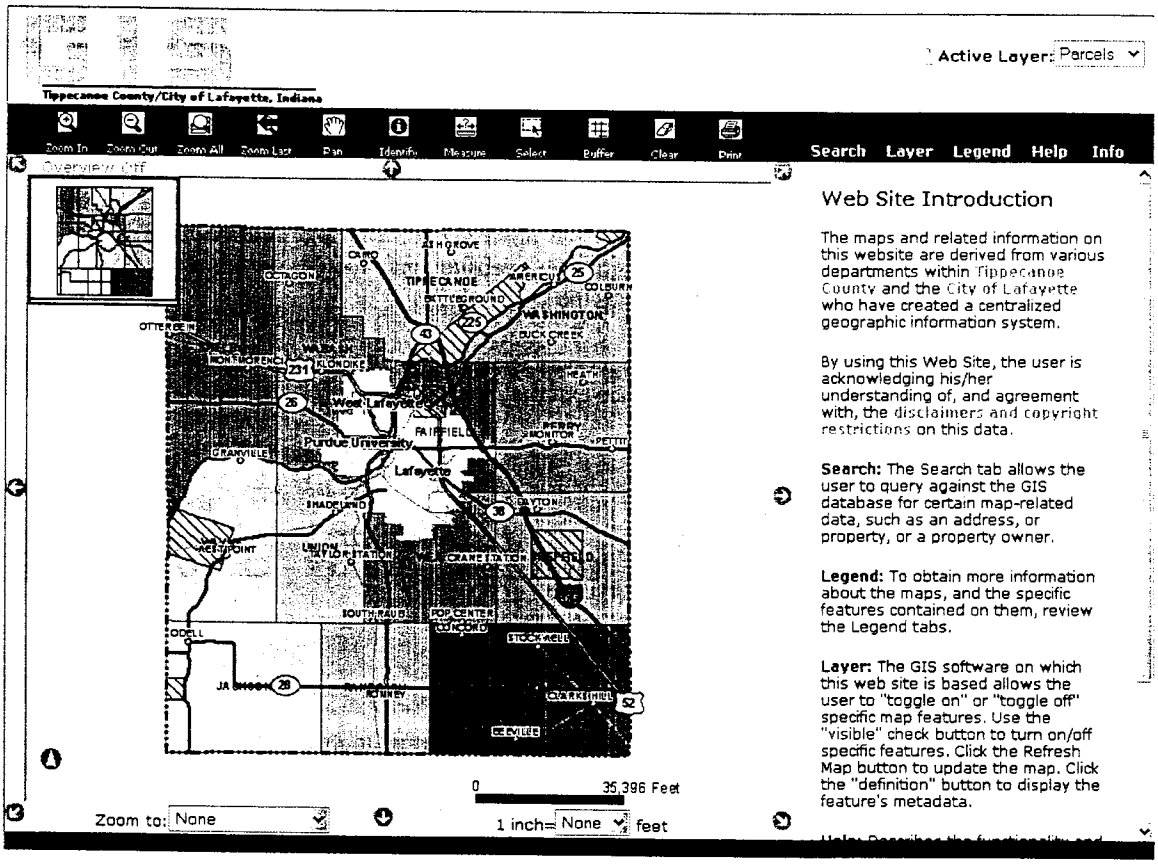
The command buttons will also use a pop-up tooltip to aid the user in understanding the function of the button. The following graphic illustrates all of the command buttons to be employed on the GIS website toolbar. The buttons will be laid out evenly spaced within the top frame in a horizontal row, as a single toolbar.

The command buttons will also use a pop-up message (tooltip) to aid the user in understanding the function of a specific button. As a default, each tooltip text message will mimic the text below the command button.

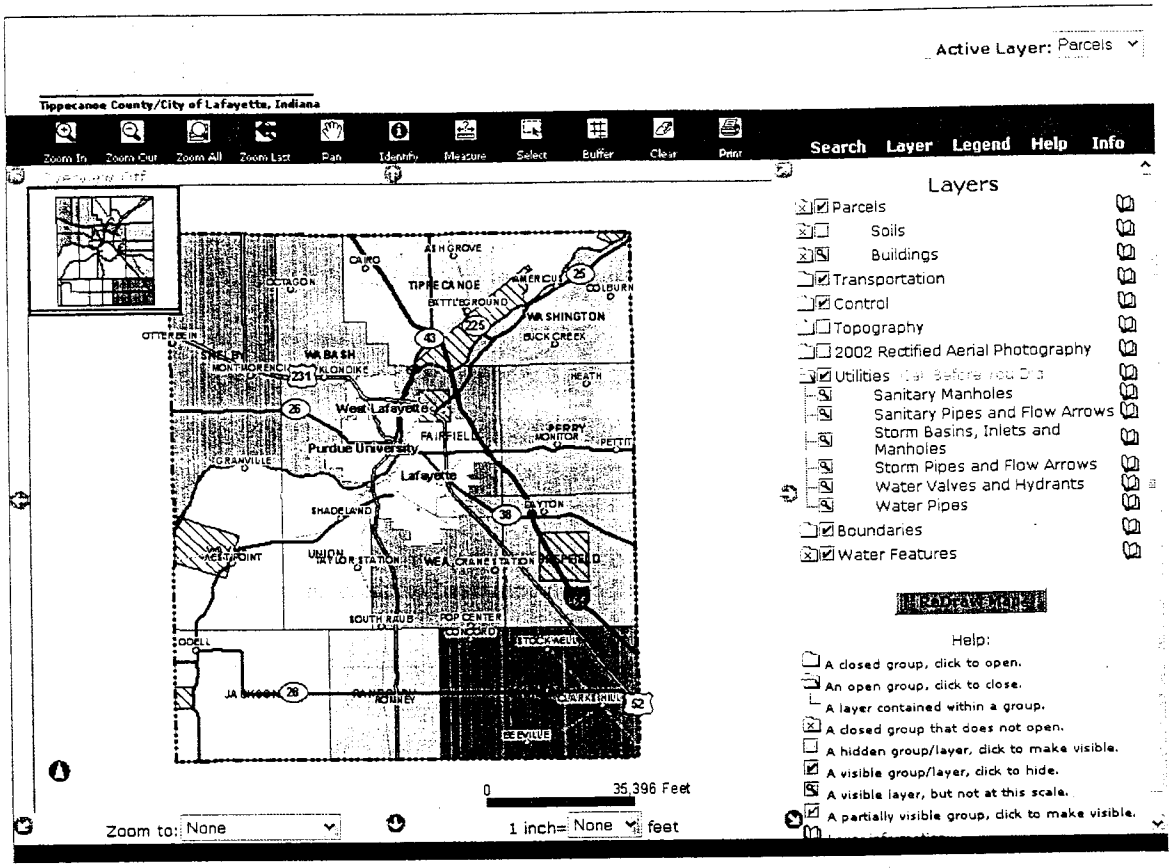
5.3. User Forms and Pages

The GIS website will use several forms and pages in order produce the functions necessary. Each one of the pages will be prototyped in this section, using the prescribed design scheme in order to illustrate the look and functionality of the GIS website.

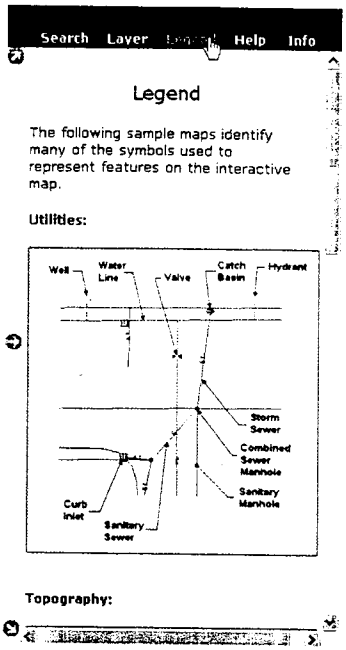
Introduction Page – this page serves as the opening screen for the GIS website. The introductory text will be located within the right frame as a passive message. The map frame will contain an overall map illustrating the County and major geographic features. Another frame on the page contains introductory text to the website and some basic user instructions. The introductory text also contains disclaimer information regarding the website and GIS data. There will be a hyperlink for the user to access a page of information with more detail regarding the GIS website, data documentation (including coordinate system/datum), and an expanded disclaimer description.



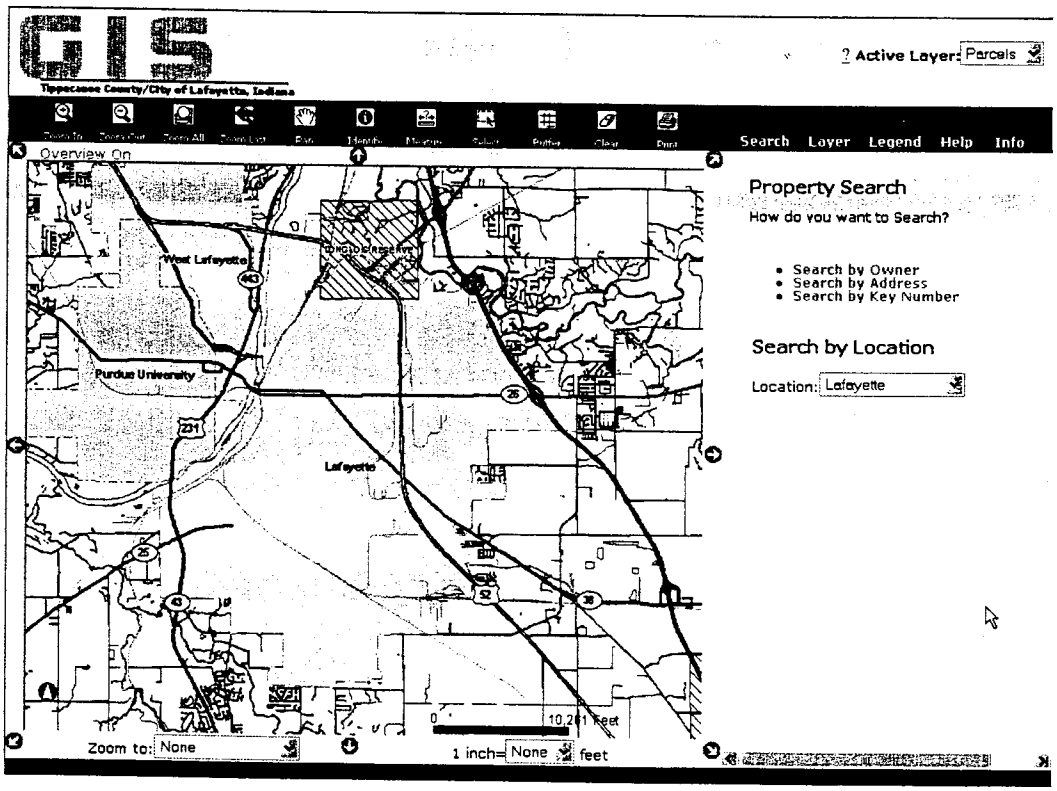
Layer Table of Contents Page - This page serves as the user controls for layer commands. The user can make layers visible or invisible by using the checkboxes. Once the desired layers are checked (made visible), the user will use the ReDraw Map button to refresh the Map Frame. The layers are organized by category in order to aid the user in understanding the available datasets. As allowed by each vendor's software capabilities, the GIS website will avoid the need to have the user set an active layer. When the user clicks on the Identify or Select button, any of the layers with associated attribute data tables that are visible will report the attribute data for the identified map feature(s) in the Right frame.



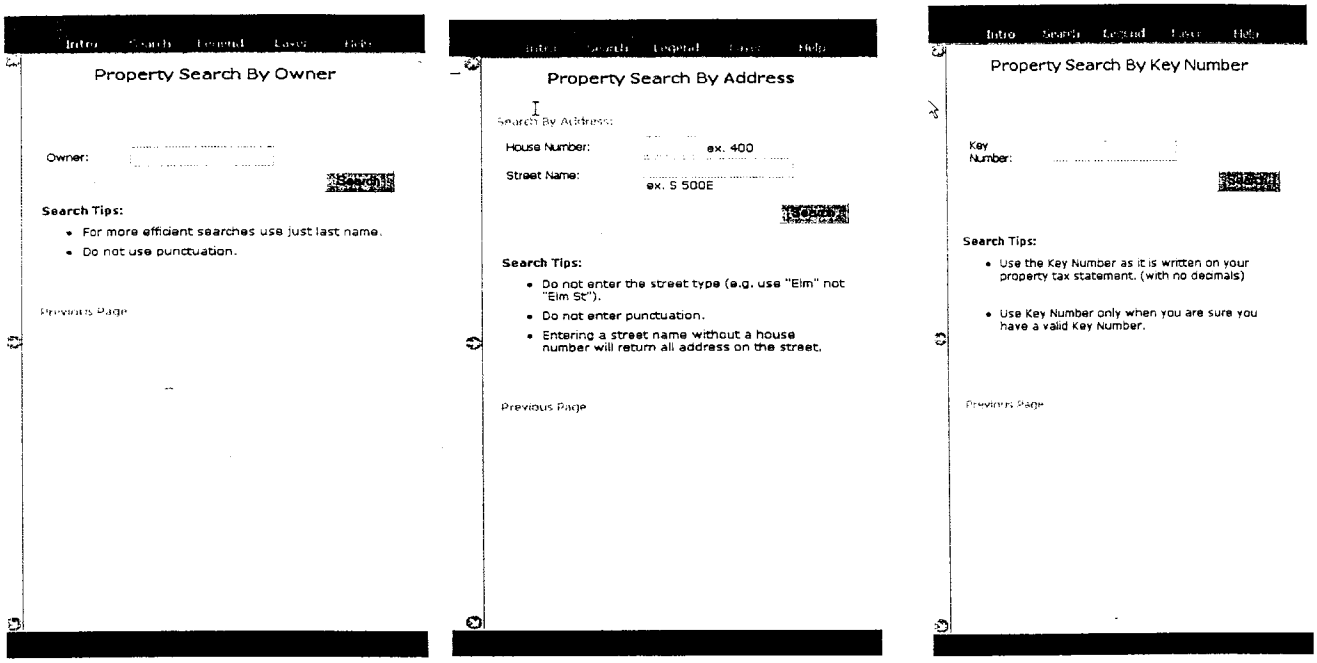
Legend Frame – This frame presents a map legend for the visible layers in the MapFrame. This is generated by clicking the Legend command on the main page. The legend helps the user distinguish the symbology of the features displayed on the map.



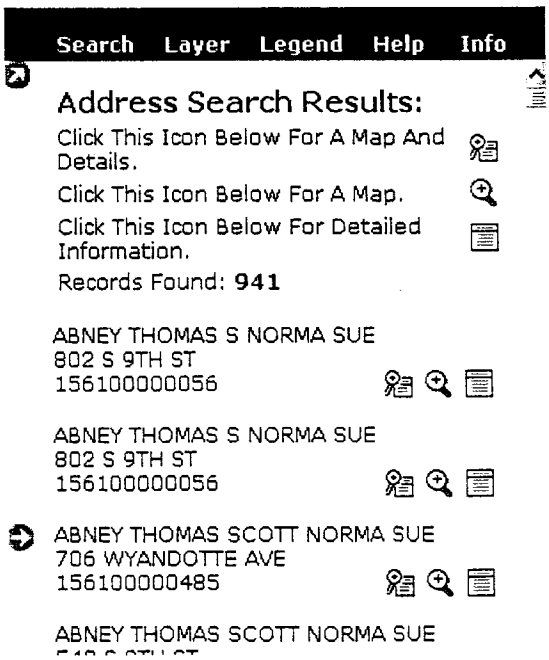
Search Forms – This form allows the user to search the County's property database. These forms are generated by clicking the Search command on the main page. Then in a frame, the search options will be as follows:



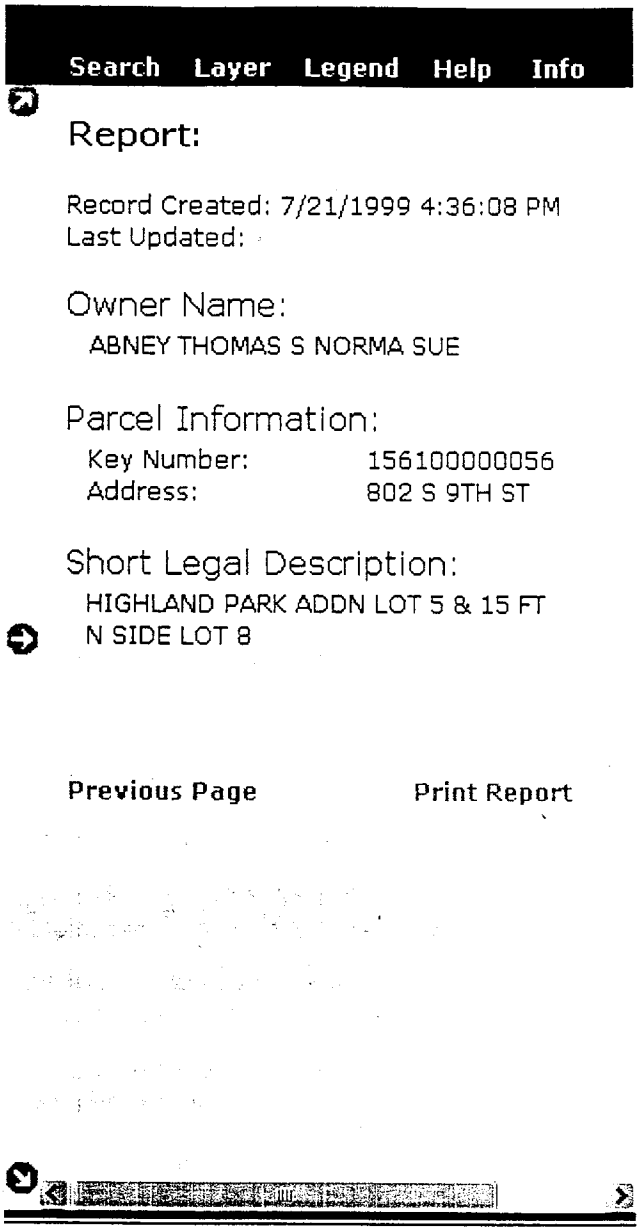
If the user clicks on Owner Search, Address Search or Key Number Search, the user generates a frame within the same frame that allows for data input, appropriate to the selection above. Any value the user provides in this field will return all records that contain that text string.



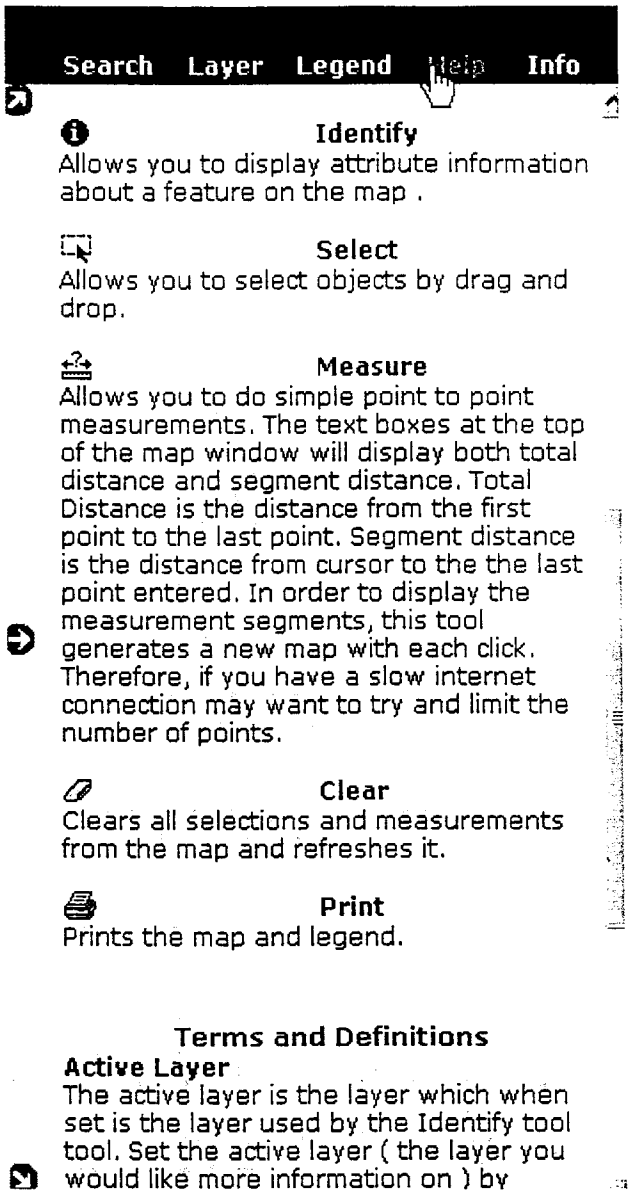
Search Results – at the end of a search query, the user is presented with a frame that contains the search results. This frame will allow the user to scroll through the results, as populated from the database and offer some tools to use the information. The user can display a printable report with both the map and attributes regarding that property or a text-only report.



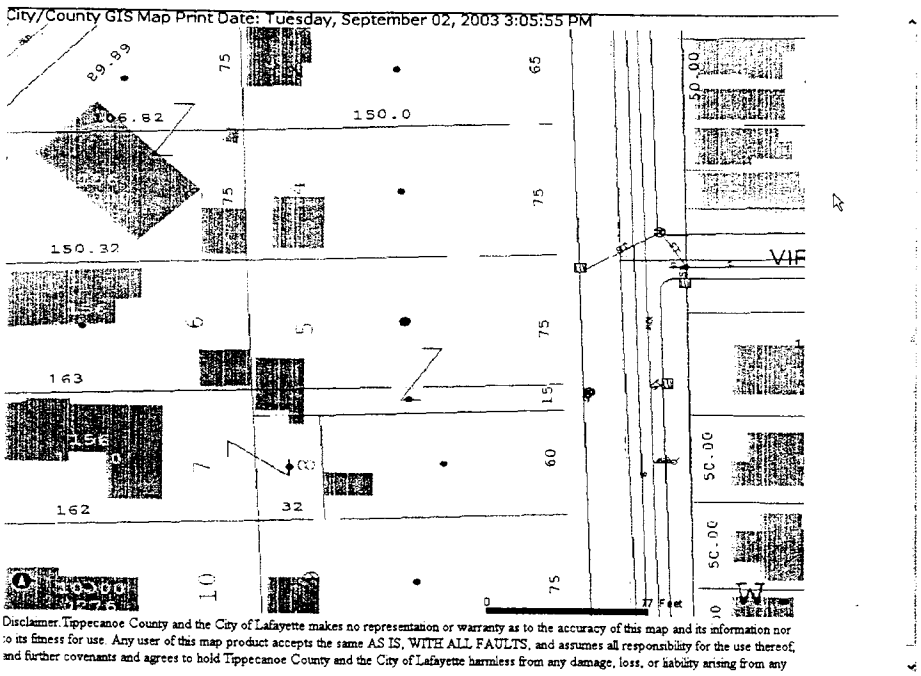
Report Page – the report page is generated from the Display Report command above. This produces a printable formatted text-only report from an executed query of the database. This will report additional database fields from the property database, as the sample illustrates below.



Help Frame - This frame serves as the on-line help for the GIS website. In this frame, all of the available buttons/tools are displayed graphically and with a short description of the functionality of that tool or button.



Map Print Page – This page is generated by clicking the Print button on the main screen. The page pops-up into a new window in order to format for printing. The map will contain the standard map features, such as a north arrow, graphic scale, title, and disclaimer information. The map is oriented for landscape, the user must set their print settings to LANDSCAPE to print appropriately



Disclaimer.Tippecanoe County and the City of Lafayette makes no representation or warranty as to the accuracy of this map and its information nor to its fitness for use. Any user of this map product accepts the same AS IS, WITH ALL FAULTS, and assumes all responsibility for the use thereof, and further covenants and agrees to hold Tippecanoe County and the City of Lafayette harmless from any damage, loss, or liability arising from any

6. Data Requirements

This section provides a description of the GIS data to be available to users of the GIS website. The available layer controls on the website will provide users to add/remove individual layers in order to have a high-level of flexibility when designing a map using the website. The list of available layers on the website does not include all available layers from the City and County GIS databases. It includes a selection of layers oriented towards the requirements of Phase 1 implementation. The following table links the .MXD layer names/controls to the control on the web site.

Table 1: MXD Configuration and Data Layers

layer no.	Index no.	name	legend item (web site)	Active	Source/Type
1	0	Parcels	Parcels	Y	C:\DATA\Parcel\Parcels.shp
2	1	Sanitary Manholes	Utilities – Sanitary Manholes	Y	C:\DATA\Utilities\Points.shp
3	2	Water Valves and Hydrants	Utilities – Water Valves and Hydrants		C:\DATA\Utilities\AUTOCAD2000\water_symbols.dwg
4	3	Storm Basins, Inlets and Manholes	Utilities – Storm Basins, Inlets and Manholes	Y	C:\DATA\Utilities\Points.shp
5	4	Spot Elevations	Topography - Spot Elevation		C:\DATA\Topography\spot_elev.shp
6	5	County	Boundaries - County		C:\DATA\Open_Map\County.shp
7	6	Towns			C:\DATA\Open_Map\Towns.shp
8	7	Major Roads			C:\DATA\Open_Map\Roads.shp
9	8	Railway			C:\DATA\Open_Map\Railway.shp
10	9	Reserves	Boundaries - Reservations		C:\DATA\Open_Map\Reserves.shp
11	10	Wabash_River			C:\DATA\Open_Map\Wabash_River.shp
12	11	Cities	Boundaries - Corporate		C:\DATA\Open_Map\cities.shp
13	12	Index Contours - Major	Topography - Index		C:\DATA\Topography\index.shp
14	13	Intermediate Contours - Minor	Topography - Intermediate Contour		C:\DATA\Topography\intermed.shp
15	14	Section Corners	Control	Y	C:\DATA\Control\controls.shp
16	15	Section Lines	Control		C:\DATA\Control\sections.dgn
17	16	Sanitary Sewers	Utilities - Sanitary		C:\DATA\Utilities\AUTOCAD2000\sewer_lines.dwg
18	17	Storm Sewers	Utilities - Storm		C:\DATA\Utilities\AUTOCAD2000\sewer_lines.dwg
19	18	Water Lines	Utilities - Water		C:\DATA\Utilities\AUTOCAD2000\water_lines.dwg
20	19	Text and Labels	Transportation - Roads		C:\DATA\Transportation\transport.tra
21	20	Roads	Transportation - Roads		C:\DATA\Transportation\transport.tra
22	21	Railroad and Airports	Transportation - Railroad and Airports		C:\DATA\Transportation\transport.tra
23	22	Wea.dgn	Parcels		C:\DATA\Parcel\Wea.dgn
24	23	Wayne.dgn	Parcels		C:\DATA\Parcel\Wayne.dgn
25	24	Washington.dgn	Parcels		C:\DATA\Parcel\Washington.dgn

layer no.	Index no.	name	legend item (web site)	Active	Source/Type
26	25	Wabash_9.dgn	Parcels		C:\DATA\Parcel\Wabash_9.dgn
27	26	Wabash_12.dgn	Parcels		C:\DATA\Parcel\Wabash12.dgn
28	27	Wabash_10.dgn	Parcels		C:\DATA\Parcel\Wasbash10.dgn
29	28	Union.dgn	Parcels		C:\DATA\Parcel\Union.dgn
30	29	Tippecanoe.dgn	Parcels		C:\DATA\Parcel\Tippencanoe.dgn
31	30	Shelby.dgn	Parcels		C:\DATA\Parcel\Shelby.dgn
32	31	Sheffield.dgn	Parcels		C:\DATA\Parcel\Sheffield.dgn
33	32	Randolph.dgn	Parcels		C:\DATA\Parcel\Randolph.dgn
34	33	Perry.dgn	Parcels		C:\DATA\Parcel\Perry.dgn
35	34	Lauramie.dgn	Parcels		C:\DATA\Parcel\Lauramie.dgn
36	35	Fairfield_6.dgn	Parcels		C:\DATA\Parcel\Fairfield_6.dgn
37	36	Jackson.dgn	Parcels		C:\DATA\Parcel\Jackson.dgn
38	37	Fairfield_5.dgn	Parcels		C:\DATA\Parcel\Fairfield_5.dgn
39	38	fairfield803.dgn	Parcels		C:\DATA\Parcel\fairfield803.dgn
40	39	fairfield802.dgn	Parcels		C:\DATA\Parcel\fairfield802.dgn
41	40	fairfield801.dgn	Parcels		C:\DATA\Parcel\fairfield801.dgn
42	41	fairfield712.dgn	Parcels		C:\DATA\Parcel\fairfield712.dgn
43	42	fairfield711.dgn	Parcels		C:\DATA\Parcel\fairfield711.dgn
44	43	fairfield710.dgn	Parcels		C:\DATA\Parcel\fairfield710.dgn
45	44	fairfield709.dgn	Parcels		C:\DATA\Parcel\fairfield709.dgn
46	45	fairfield708.dgn	Parcels		C:\DATA\Parcel\fairfield708.dgn
47	46	fairfield707.dgn	Parcels		C:\DATA\Parcel\fairfield707.dgn
48	47	fairfield706.dgn	Parcels		C:\DATA\Parcel\fairfield706.dgn
49	48	fairfield705.dgn	Parcels		C:\DATA\Parcel\fairfield705.dgn
50	49	fairfield704.dgn	Parcels		C:\DATA\Parcel\fairfield704.dgn
51	50	fairfield703.dgn	Parcels		C:\DATA\Parcel\fairfield703.dgn
52	51	fairfield702.dgn	Parcels		C:\DATA\Parcel\fairfield702.dgn
53	52	fairfield701.dgn	Parcels		C:\DATA\Parcel\fairfield701.dgn
54	53	Hydro Anno	Water Features		C:\DATA\Hydrology\hydro.hyd
55	54	Hyrdology	Water Features		C:\DATA\Hydrology\hydro.hyd
56	55	Buildings	Building Footprints		C:\DATA\Buildings\building.bld
57	56	North.sid	2002 Rectified Aerial Photography		C:\DATA\Aerials\North.sid
58	57	South.sid	2002 Rectified Aerial Photography		C:\DATA\Aerials\South.sid
59	58	North_Central.sid	2002 Rectified Aerial Photography		C:\DATA\Aerials\North_Central.sid

layer no.	Index no.	name	legend item (web site)	Active	Source/Type
60	59	South_Central.sid	2002 Rectified Aerial Photography		C:\DATA\Aerials\South_Central.sid
61	60	Soils	Soils	Y	C:\DATA\Soil\soils.shp
62	61	Townships	Boundaries - Townships		C:\DATA\Open_Map\TownShips.shp

Exhibit B

INTERLOCAL AGREEMENT BETWEEN
THE BOARD OF WORKS OF THE CITY OF LAFAYETTE
AND
THE BOARD OF COMMISSIONERS OF TIPPECANOE COUNTY

This Interlocal Agreement is made this 26th day of November, 2002, by and between the Mayor of Lafayette and the Board of Works of the City of Lafayette, Indiana ("City") and the Board of Commissioners of Tippecanoe county, Indiana ("County") and the parties hereto agree as follows:

1. The City and the County agree that it is in their mutual best interest to jointly develop a web site to disseminate mapping and tabular information (hereinafter "Geographic Information System" or "GIS"), for the purpose of eliminating duplication of services, improving government and private sector decision making, and promoting efficient use of government resources.

2. The City and the County will jointly share in the cost of developing and implementing the GIS web site. The total cost to the city under this agreement is $75,000.

3. The County will operate and maintain the web site, and host data from the City.

4. The City agrees to pay half (1/2) of any consulting fees, acquisition of hardware, or software costs that are directly related to the web site development strategy as outlined in the Request For Proposal distributed in August of 2002 and attached hereto as Exhibit "A", up to the total City commitment of $75,000.

5. The City further agrees to purchase, own, and pay maintenance fees for, the GIS web based software where practicable, that are used to develop and operate the

GIS web site, up to the total City commitment of $75,000.

6. The City and the County agree that it is necessary to obtain the professional services described in the Professional Services Agreement between HNTB and Tippecanoe County ("PSA") attached hereto as Exhibit "B" and incorporated herein by reference, as it may be revised, amended or replaced hereafter by consent of both County and City.

7. The City agrees to pay the County, for deposit into the Tippecanoe County Auditor's Escrow fund one half (1/2) of each payment due under the PSA on or before the first Monday of the month it is due, so that the County shall have sufficient funds to make timely payment of the monthly installment provided by the contract.

8. The City shall pay half (1/2) of any other costs for which the County may reasonably become obligated by the PSA. The City shall make such payment within thirty (30) days of County's notification to City that it intends to pay any such charges or, if County notifies City that it intends to dispute any such charges, City shall make payment thereof within thirty (30) days of any resolution of the dispute that requires such payment.

9. The City acknowledges that it agrees to the terms of the PSA and specifically agrees that the County shall have complete authority to act on behalf of both the City and the County with respect to the PSA, but shall consult with the City's GIS Coordinator, if practicable under the circumstances, before taking any actions which change the scope of or performance under the PSA or increase the cost to the City Pursuant to the PSA.

10. This Agreement shall be in full force and effect upon signing by the

parties hereto, and continue through December 31, 2005. This Agreement shall automatically renew for succeeding one year terms unless either party delivers a written notice of Intent to Not Renew to the other party at least 30 days prior to the date of expiration of any automatic renewal of this Agreement. This Agreement can be supplemented in writing at any time when both parties agree on a change of the scope or amount of this Agreement.

11. In the event that any provision or portion of this Agreement shall be determined to be invalid or unenforceable for any reason, the remaining provisions of this Agreement shall be unaffected thereby and shall remain in full force and effect.

12. This agreement can be terminated by either party by providing a two month written notice of termination to the other party.

13. The web site shall be known as Tippecanoe County & Lafayette GIS Web Site.

14. Both City and County shall have all rights conferred by the PSA to the Client, and both shall own, and have the right to use, the computer source code.

15. All deliverables from HNTB pertaining to city shall be promptly furnished to City for review.

Date: 11-19-02

TIPPECANOE COUNTY BOARD OF COMMISSIONERS

John Knochel, President

KD Benson, Vice President

Ruth Shedd, Member

Attest:

Robert A. Plantenga, Auditor

Date: 11-26-02

CITY OF LAFAYETTE

Dave Heath, Mayor

BOARD OF WORKS

Rebecca Miller, President

James A. Andrew

Rex Bowman

Lisa Decker

Attest:

Rebecca Hatton