



Qualifications, Technical Approach, & Cost Bid
for
Geographic Information System (GIS)
Maintenance Services for
Computer Aided Dispatch System

March 14, 2018

Submitted by:

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1.0 EXECUTIVE SUMMARY

1.1 Introduction and Project Objectives

Environmental Science Services Inc. (Es²) is pleased to present this technical proposal and cost bid for the maintenance of the St. Landry Parish Sheriff's Office Geographic Information System (GIS). The St. Landry Parish Sheriff's Office maintains a state-of-the-art Computer Aided Dispatch (CAD) System for use in routing all emergency calls within the Parish. The CAD system is integrated with the GIS to link spatial data with caller dispatch information. The objectives of this project are summarized as follows:

- Update existing GIS data layers
 - Address Points
 - Street Centerlines
 - Mile Markers
 - Law Enforcement, Fire, and EMS Zones
 - Municipal Borders
- Create new GIS data layers
 - Common Places
 - Block Points
 - Points of Interest
 - Hydrography
 - Forests
 - Other layers of interest
- Load GIS data into CAD System
- Integrate Sheriff Property Improvements Database with CAD System
- Provide Data Updates and Telephone Support for One (1) Year

1.2 Administrative Information

Contact information for Es² is listed below:

Company Name:	Environmental Science Services, Inc.
Address:	1027 North Range Avenue Denham Springs, LA 70726
Telephone:	(225) 927-7171
Contact Name:	Andrew Milanes, PE, GISP
Email Address:	amilanes@es2-inc.com

As will be presented and documented in this proposal, the Es² Team is expertly qualified to cost-effectively and professionally perform the tasks and services requested by the St. Landry Sheriff's Office. The Es² Team has extensive GIS experience specifically relevant to this project, including:

- Provide Enterprise GIS services to numerous Local Government clients throughout Louisiana, including:
 - West Baton Rouge Parish Government
 - Lafourche Parish Government
 - Recreation and Park Commission for the Parish of East Baton Rouge (BREC)
 - Bossier Parish Assessor
 - City of Denham Springs
 - City of Port Allen
 - City of Walker
 - Town of Brusly
 - Town of Addis
- Provide GIS services to Local Governments specifically related to Computer Aided Dispatch Systems
 - West Baton Rouge Parish Department of Homeland Security and Emergency Preparedness
 - East Baton Rouge 911 Communications District – EMS Dispatch Operations at the Advance Traffic Management Center through the Kip Holden's Mayor's Office as the Enterprise GIS Manager Services (Wyndston Services).
- Provide Enterprise GIS services for critical infrastructure to the Port of New Orleans

As detailed further in this proposal submittal, the following unique Es² Team qualifications provide for an ideal partnership between the St. Landry Parish Sheriff and Es²:

- Technical Competence
 - Only Esri certified Local Government Specialty Partner in Louisiana
 - Only Esri certified ArcGIS Online Specialty Partner in Louisiana
 - One of only two Esri certified Federal Small Business Specialty Partners in Louisiana
 - ESRI SDE Database Certified (Oracle and SQL Server) (Wyndston Services)
- Local, State, and Federal Government Experience
 - Es² Project Team has worked, and performed GIS projects, for numerous local, state, and federal government agencies over the past 28 years.
- Computer Aided Dispatch GIS Experience

- Es² Project Team has performed GIS services for CAD Systems in East Baton Rouge and West Baton Rouge Parishes
- Personnel Qualifications
 - Key personnel on the Es² Project Team include
 - One (1) Professional Engineer (PE)
 - Three (3) Certified GIS Professionals (GISP)
- Presence in the South Louisiana Area and Ability to Provide Local Support
 - Es² Project Team personnel located in Baton Rouge area
 - Extensive relationships in the local GIS and emergency communications community
 - Provided Property Insurance Association of Louisiana (PIAL) Fire Insurance Rating Services for urban and rural district premium calculations (Wyndston Services)
 - Emergency Response Station (Fire Station) Placement Services based on road coverage service areas to meet PIAL dispatching requirements (Wyndson Services)
- Ability to Meet Schedule Expeditiously
 - Es² Project Team has extensive depth at key positions, such as GISP.
 - Existing relationships by key team personnel within the GIS community provide access to additional GIS support resources, if necessary.
 - Andrew Milanes, PE, GISP is the 2017-2018 Urban and Regional Information Systems Association (URISA) Louisiana Chapter President
 - Wendi Couvillion French, GISP is the 2013 ESRI Jack Dangermond's Special Awards Recipient for EBR's enterprise GIS based municipal emergency response services.
- DBE/SBE Participation
 - 100% of the Es² Project Team is a DBE or SBE

The Es² Project Team is uniquely qualified to perform the services outlined in this project and looks forward to working with St. Landry Parish on the maintenance and development of the GIS for the Computer Aided Dispatch System.

2.0 PROJECT TEAM BACKGROUND AND EXPERIENCE

2.1 Project Team Organization

Es², located in Denham Springs, LA, will be the prime contractor and serve as the primary point of contact for the project. Es² will provide all project management and coordination for the St. Landry Parish Sheriff's Office. Es² is an Esri Silver Partner and will be the technical lead for development, integration and maintenance of the GIS for the CAD System. Es² has teamed with Wendi Couvillion French of Wyndston Services to provide additional expertise integrating the GIS and CAD Systems.

2.2 Corporate Background and History

Es² is a registered engineering firm in Louisiana, Mississippi, Florida, and Texas that provides a wide range of environmental consulting, engineering, and science support services for both government and private sector entities. Established in 1996, the foundation of Es² has always focused on the leading-edge technologies in Geographic Information Systems (GIS), GPS, photogrammetry, and remote sensing to support its environmental and engineering projects. Es² offers an industry-leading array of GIS products and services. Our diverse background, experienced and professional teams, combined with the most current cloud-based GIS technology allow Es² to provide customized, web-based, enterprise-wide solutions.

Additionally, Es² also offers:

- Cloud-based Enterprise GIS Solutions
- CAD / GIS Data Conversion and Import
- Survey-Grade GPS and Real-Time Mobile Data Collection
- GeoData Mapping, Integration & Analysis
- UAS Aerial Photography Acquisition and Digital Photogrammetry

2.3 Registrations and Certifications

The following is a listing of the Es² corporate and employee registrations and certifications relevant to the project:

- Registered engineering firm in Louisiana, Mississippi, Florida, and Texas
- Two Professional Engineers (PEs) on staff:
 - One Civil Engineer, registered in LA, FL, MS, and TX
 - One Environmental and Mechanical Engineer, registered in LA
- Two Certified GIS Professionals (GISPs) on staff
- One FAA Part 107 Unmanned Aerial System (UAS) Certified Remote Pilot in Command on staff

- Esri Silver Partner with the following additional specialty partner designations:
 - Local Government Specialty Partner
 - ArcGIS Online Specialty Partner
 - Federal Small Business Specialty Partner
- Certified Small Entrepreneurship – Louisiana Economic Development Hudson Initiative. (see Appendix A for Hudson Firm documentation)

2.4 Past Project Performance

Appendix B contains letters of recommendation from current Es² local government clients which illustrates our performance for a variety of GIS projects.

2.5 Emergency Services GIS Experience

The Es² project team has extensive emergency services GIS experience from municipality 911 to field crew dispatch systems. In addition to GIS data conversion and migration, the Es² project team has expertise in the development of a modern emergency services data management architecture.

Enterprise emergency services consider a four-tier data management architecture approach. By building with a GIS-centric databank, data that support 911 services can continuously be maintained and provide extended services during crisis periods like hurricanes and flooding. This four-tier emergency responder approach aggressively supports insurance requirements for municipal emergency communication practices. Emergency response services have a long culture of following the four procedural model of preparedness, response, recovery and mitigation processes.

Modern technical emergency response systems are building with a GIS-centric focus that can move data through all four planning protocol phases with a four-tier data stream. The modern emergency response data stream fills the following data communication phases of data follow-

- a.) Field – Street Level Onsite observations
- b.) District- Resource allocation or district risk observations
- c.) Dispatching - 911 communication response zones and resource calibrations
- d.) Dashboarding- EOC/Executive Dashboard services for daily operations & critical situational awareness.



2.6 GIS and Mapping Capabilities

The foundation of Es² was built on high-end geospatial mapping, analysis, and data presentation and serves as the core of our business today. With two certified GIS Professionals on staff, each with over 20 years of GIS experience, Es² is able to provide a wide range of GIS services. As an Esri Silver Partner, Es² has access to a wealth of resources to perform a wide-range of services from local governments to emergency response to environmental assessments. The following highlights the Es² GIS and Mapping capabilities relevant to this project:

GIS Data Conversion and Integration



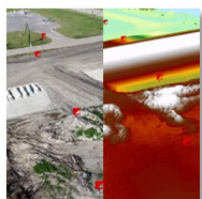
- Geodatabase and SQL Development
- GIS Data Import and Conversion
- Data Cleanup
- GIS Systems Integration

Field Data Collection



- Elevation Surveys and Beach Profiles
- Survey-Grade RTK GPS Data Collection
- Field Mapping Utilizing Smartphones and Tablets
- UAS Vertical or Oblique Photo and Video Acquisition

Spatial and 3D Analysis



- Feature Extraction
- 3D Visualization
- Cross-Sections and Volume Calculations
- Digital Elevation / Surface Models

Es² is also an Esri Silver Partner and is the only Partner located in Louisiana with all of the following Esri specialty partner designations:

- ArcGIS Online (only one in LA)
- Federal Small Business (1 of 2 in LA)
- ArcGIS for Local Government (only one in LA)



ArcGIS Online
Specialty



Federal Small Business
Specialty



ArcGIS for
Local Government
Specialty

- **ArcGIS for Local Government Specialty:** Es² has been designated as an ArcGIS for Local Government Specialty Partner by Esri. This designation signifies an Esri partner who provides implementation services to help local governments install and configure the ArcGIS for Local Government solution, including the Esri local government information model geodatabase. As shown in Figure 2.1, Es² is the only Esri Partner with this specialty designation within the State of Louisiana.



Figure 2.1 – Esri Partners in the ArcGIS for Local Government Specialty

- **ArcGIS Online Specialty:** Es² has been designated as an ArcGIS Online Specialty Partner by Esri. This designation signifies an Esri partner that has developed a proven set of value-added services and solutions that help users implement and optimize ArcGIS Online in their organizations. As shown in Figure 2.2, Es² is the only Esri Partner with this specialty designation within the State of Louisiana.

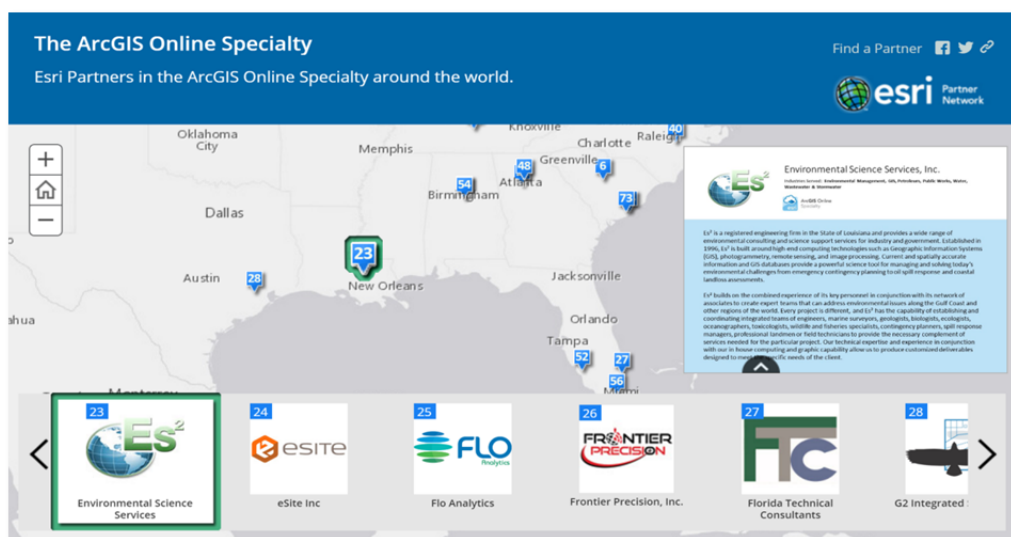


Figure 2.2 – Esri Partners in the ArcGIS Online Specialty

- Federal Small Business Specialty: Es² has been designated as a Federal Small Business Specialty Partner by Esri. This partner program is designed for qualified, registered small businesses that have expertise in GIS and want to develop services offerings and pursue opportunities around the Esri ArcGIS Platform to grow their federal business. As shown in Figure 2.3, Es² is only one of two Esri Partners with this specialty designation within the State of Louisiana.

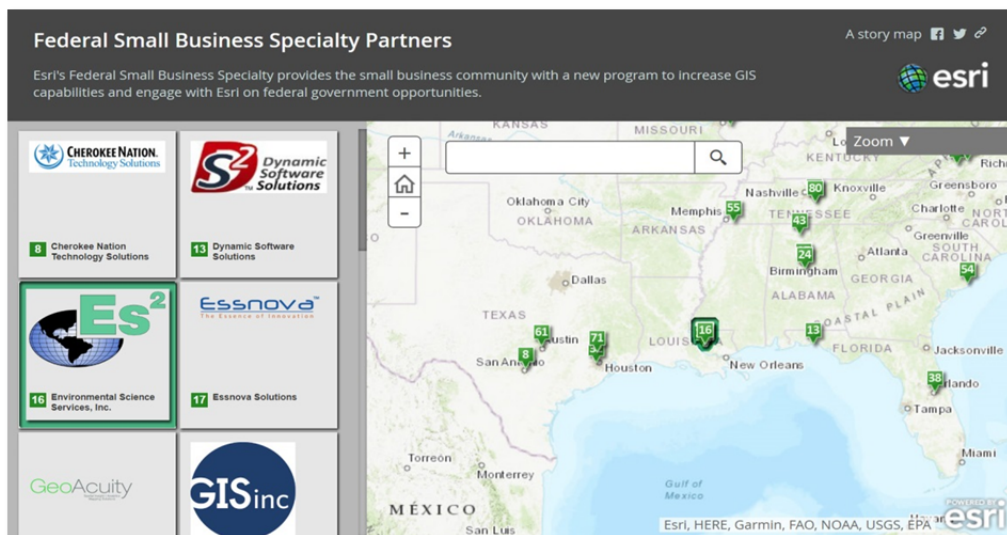


Figure 2.3 – Esri Partners in the Federal Small Business Specialty

A listing of specific Es² CAD System and GIS / Mapping project experience can be found in Table 2.1, including project description, client reference information, date, and cost.

Table 2.1 – Es² Team Relevant CAD System and GIS / Mapping Projects


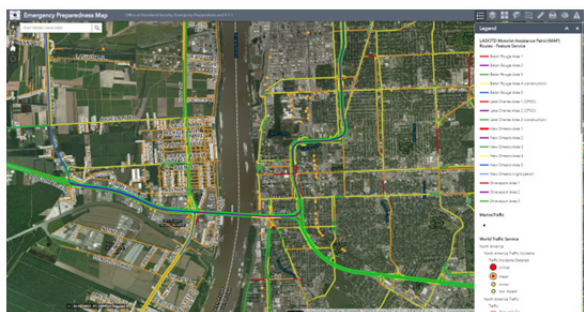
Es² Project Name and Location	Project Date	Cost
Local Government Enterprise GIS West Baton Rouge Parish, Louisiana	2013-Present	\$122,000 (fee to-date)
Project Description <p>Assisted the West Baton Rouge Parish Council with the move from a fragmented, departmental and desktop-based GIS solution to a more coordinated and centralized Enterprise GIS solution. This solution has allowed the departments within the West Baton Rouge Parish Government, including Department of Homeland Security and Emergency Preparedness, to more efficiently and effectively manage and share GIS data internally and externally. Es² utilized the suite of Esri ArcGIS products and solutions during the development of the Enterprise GIS. Es² assisted with the acquisition of a Small Municipal and County Government Enterprise License Agreement (ELA) with Esri, which allowed for licenses for all desktop, server, and online software needed in the Parish. Es² setup and configured an Amazon cloud server to host the Parish GIS database. Es² has deployed the ArcGIS for Local Government Information Model on the cloud server, which contains a series of essential foundation layers and operational information to support a range of key maps and apps within a local government.</p>		
Nature of firm's responsibility		
<ul style="list-style-type: none"> • Provide GIS consulting services, • GIS management of projects and GIS Training • Development and construction of entire GIS database, • ArcGIS server installation on Amazon cloud platform, • <u>Assist with data conversion and integration with Computer Aided Dispatch System</u> • Development of the AGO organizational site, • Development of web and mobile applications, • Provide GIS Database development using the Local Government Informational Model, • Geodatabase creation, • Importing AutoCAD drawings and files, • Digitization of hard copy drawings, • Train staff of Data acquisition using Trimble GPS • Provided workflow plan for future acquisition, • Provide security guidelines for all applications, • Workflow management and Desktop support, • Facilitating the GIS User Meetings, • License management, and • Assistance with outside agencies. 		 
Key Personnel		
Andrew Milanes, PE, GISP; David Alford, GISP		
Owner Contact Information		
West Baton Rouge Parish Government Kevin Durbin - (225)336-2434		

Table 2.1 – Es² Team Relevant CAD System and GIS / Mapping Projects (continued)


Es² Project Name and Location	Project Date	Cost
Enterprise GIS Development for Critical Infrastructure Port of New Orleans, Louisiana	2017-2019	\$500,000
Project Description		
Provide GIS services for the Port of New Orleans for development, integration and maintenance of an Enterprise GIS for critical infrastructure security purposes.		
Nature of firm's responsibility		
<p>The purpose of this effort will be to assist with converting and organizing existing data for GIS development. The tasks detailed below illustrate some of the identified technical assistance needs:</p> <ul style="list-style-type: none"> • System Design and Data Services <ul style="list-style-type: none"> ○ Create a geodatabase of Port assets from AutoCAD drawings ○ Develop a file structure and data maintenance procedures ○ On-site digitization and vectorization of hard copy documents ○ Data acquisition plan development ○ Security protocols development • Configuration and Training <ul style="list-style-type: none"> ○ Configure Survey 123 apps for departmental forms ○ Configure apps for departmental workflows ○ Configure maps and apps for Harbor Police Department (HPD) ○ Training • Systems and Data Integration <ul style="list-style-type: none"> ○ Integrate with HPD's CommandBridge Software ○ Integrate with Laserfiche ○ Integrate with MyPermitNow.org ○ Integrate with FinancialForce (SalesForce) ○ Integrate real time traffic data from the intermodal terminal 		
		
Key Personnel		
Andrew Milanes, PE, GISP; David Alford, GISP; Brennon Albarez		
Owner Contact Information		
Port of New Orleans Maggie Cloos – (504) 528-3543		

Table 2.1 – Es² Team Relevant CAD System and GIS / Mapping Projects (continued)

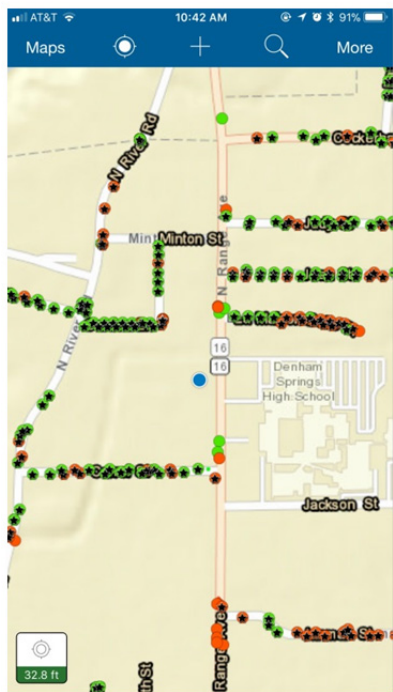
Es² Project Name and Location	Project Date	Cost
Local Government Enterprise GIS City of Denham Springs, Louisiana	2012-present	\$26,000 (fee to-date)
Project Description <p>Develop an Enterprise GIS for the City of Denham Springs. Clean-up and convert existing data into GIS database, develop focused web and mobile applications, and provide Trimble GPS training. Future tasks to include development of a cloud Enterprise solution using ArcGIS Online, development of additional web and mobile applications, provide desktop GIS training and support, and provide assistance with license management.</p> <p>Pro bono work performed after the August 2016 flooding included the development web and mobile applications for recovery status as well as blighted property surveys.</p>		
Nature of firm's responsibility		
<ul style="list-style-type: none"> • Provide GIS consulting services, • Assistance with the development and construction of GIS database, • Development of the AGO organizational site (proposed), • Development of web and mobile applications • Provide GIS Database development using the Local Government Informational Model, • Train staff of Data acquisition using Trimble GPS • Provided workflow plan for future acquisition, • Provide security guidelines for all applications, • Assist with the development mobile and web applications, • Workflow management, • Desktop support (proposed), • GIS training, • License management (proposed), and • Assistance with outside agencies (proposed). 		
Key Personnel		
Andrew Milanes, PE, GISP; David Alford, GISP		
Owner Contact Information		
City of Denham Springs, Louisiana Mayor Gerard Landry – (225) 665-8121		

Table 2.1 – Es² Team Relevant CAD System and GIS / Mapping Projects (continued)

Es² Project Name and Location	Project Date	Cost
Parks and Recreation Enterprise GIS BREC, Baton Rouge, Louisiana	2016-present	\$10,000 (fee to-date)
Project Description <p>Es² is assisting with the development and migration of existing GIS data to an enterprise cloud-based GIS system. The following are the items that are to be performed as part the setup and configuration of the ArcGIS platform: Installed and configured ArcGIS for Server, configured BREC's ArcGIS Online for Organization Site, ensured that ArcGIS Server accessed all BREC referenced data, ensured ArcGIS Server was published and can be accessed by AGO, ensured ArcGIS Server GIS data is published, compatible, and was accessed by PubWorks, the new work order asset management software.</p> <p>Also part of this project, Es² will assist with the creation and publishing of new GIS datasets, import and conversion of CAD data to GIS, creation of ArcGIS Online web applications, web maps, and mobile applications, integration of the GIS System with PubWorks, assistance in GIS Server management along with the SDE database, provide support, training, and troubleshooting. Es² also provides GPS/GIS Field Survey data support, training, and troubleshooting. Es² provides assistance with license management, assistance with data from outside agencies, management of BREC GIS User Meetings, and other additional GIS consulting services.</p>		
Nature of firm's responsibility		
<ul style="list-style-type: none"> • Provide GIS consulting services, • Assistance with the development and construction of GIS database, • ArcGIS server installation, • Development of the AGO organizational site, • Development of web and mobile applications, • Provide GIS Database development using the Local Government Informational Model, • Train staff of Data acquisition using Trimble GPS • Provided workflow plan for future acquisition, • Provide security guidelines for all applications, • Assist with the development mobile and web applications, • Workflow management, • Desktop support, • GIS training, • License management, and • Assistance with outside agencies. 		
Key Personnel		
Andrew Milanes, PE, GISP; David Alford, GISP		
Owner Contact Information		
Recreation and Park Commission for the Parish of East Baton Rouge Reed Richard – (225) 272-9200		

Table 2.1 – Es² Team Relevant CAD System and GIS / Mapping Projects (continued)


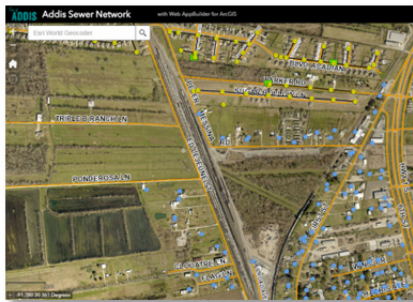
Es² Project Name and Location	Project Date	Cost
Sanitary Sewer Data Collection and Enterprise GIS Town of Addis, Louisiana	2016-Present	\$42,000
Project Description		
Map existing sanitary sewer system network for the Town of Addis and create enterprise GIS solution for data acquisition, management, and sharing.		
Nature of firm's responsibility		
<p>Es² located, verified, and collected approximately 900 sewer GPS data points that are part of the Town of Addis existing sanitary sewer network system. This data was used to create an accurate and comprehensive sanitary sewer system GIS database. Es² utilized a RTK GPS system to collect sewer manholes, grinders, and lift stations. Rim elevation was collected using RTK GPS and converted to invert elevations using a survey rod. LSU C4GNET Real-Time Network (RTN) was used as the RTK correction source. Other information, such as pipe direction and flow direction, was also collected.</p> <p>Es² provided the Town of Addis with a GIS Cloud Server Configuration and Web Solutions for the Towns' sanitary sewer system. This provided Addis a cloud-based GIS solution to manage its sanitary sewer data and give the ability to share the data with web and mobile applications. This solution was developed on the existing West Baton Rouge Parish ArcGIS Server / ArcGIS Online system.</p>		
 		
Key Personnel		
Andrew Milanes, PE, GISP; David Alford, GISP; Brennon Albarez		
Owner Contact Information		
Town of Addis, Louisiana Mayor David Toups – (225) 336-2434		

Table 2.1 – Es² Team Relevant CAD System and GIS / Mapping Projects (continued)

Es ² Project Name and Location	Project Date	Cost
Local Government Enterprise GIS City of Walker, Louisiana	2015-present	\$15,000
Project Description		
Develop an Enterprise GIS for the City of Walker. Clean-up and convert existing data into GIS database, provide desktop GIS training and support, develop cloud Enterprise solution using ArcGIS Online, develop focused web and mobile applications, provide Trimble GPS training, and provide license management.		
Nature of firm's responsibility		
<ul style="list-style-type: none"> • Provide GIS consulting services, • Assistance with the development and construction of GIS database, • ArcGIS server installation, • Development of the AGO organizational site, • Development of web and mobile applications • Provide GIS Database development using the Local Government Informational Model, • Train staff of Data acquisition using Trimble GPS • Provided workflow plan for future acquisition, • Provide security guidelines for all applications, • Assist with the development mobile and web applications, • Workflow management, • Desktop support, • GIS training, • License management, and • Assistance with outside agencies. 		
		
Key Personnel		
Andrew Milanes, PE, GISP; David Alford, GISP		
Owner Contact Information		
City of Walker, Louisiana Jamie Etheridge – (225) 665-3125		

Table 2.1 – Es² Team Relevant CAD System and GIS / Mapping Projects (continued)

Wyndston Project Name and Location	Project Date
Local Government Enterprise GIS City/Parish of East Baton Rouge, Louisiana	2006-2014
Project Description	
<p>Served as the first Enterprise GIS Manager of the City/Parish of East Baton Rouge supporting transportation road networks, sewer system infrastructure updating needs, 911 emergency response services including EMS, fire and police services, and Public Works 311 systems with dynamic GIS based services and tools. These 8 years were critical to move Baton Rouge from a paper processing organization into a dynamically digital organization.</p>	
Nature of responsibility	
<ul style="list-style-type: none"> • Configured Enterprise GIS with ESRI ARC Products – for Municipal Agencies & Emergency Response Services (including 4 EOC Events) SDE Oracle, Arc Map 10, AGO Field Collections Services to support multiple city agencies in a primary and dynamic enterprise GIS solution. • Scoped a Security Strategy for City Department Users – roles, responsibility, security levels and login and data accessibility within an integrated web & file services on Oracle DB with SDE Spatial Engine and Esri City ArcGIS Online Organizational web account. • Develop of GIS Policy and Governance Structure for each GIS data layer that defined a mission statement for each GIS feature class, its domain of origin for GIS spatial accuracy level, and its domain of change to outline attributing/profiles and updating schemas for an orderly management of spatial data that operational and spatial change dynamically daily for proper hosting in an interactive spatial database. • Structure supported ground level data use for operational daily changes (domains of change) while supporting the need for departmental or program budgeting need to support the data layer integrity with funding and liability services (domain of origins) while consistently servicing the executive level to accomplish mission goals with 3 compliance in the GIS layer's/features purpose. (mission statement). • Collaborated and Integrated Key Department/Agency Key Infrastructure Services. Wrangled department data into mapping features classes that illustrated each key agencies primary functions and responsibilities. First agencies were agencies with specific emergency response services (Traffic, Sewer, Drainage, & Outside Electricity Providers) and then we broaden to agencies with redevelopment needs and illustrated how operational data can be integrated for data attributing profiles and updates. (Debris Collections & 311 Compliant Services) These projects became continuous operational dashboard and illustrated how AGO Online services with ARC Collector field collection apps are easy to support continuous data maintenance efforts. 	
Key Personnel	
Wendi Couvillion French, GISP	
Owner Contact Information	
City/Parish of East Baton Rouge, Louisiana Walter Monsour, William Daniel, Eric Romero – (225) 387-3070	

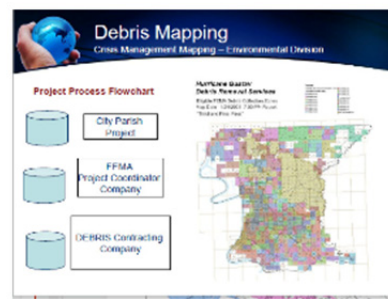


Table 2.1 – Es² Team Relevant CAD System and GIS / Mapping Projects (continued)

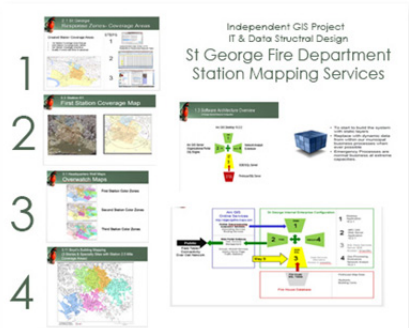
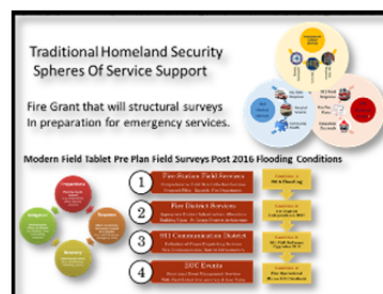
Wyndston Project Name and Location	Project Date
Local Government Emergency Services GIS Baton Rouge, Louisiana	2014-2017
Project Description	
Providing Fire Insurance Rating Mapping to satisfy Property Insurance Association of Louisiana (PIAL) fire rating reviews for the St George Fire Department. This department is a mutual aid agency to the City of Baton Rouge fire services. Building upon City EOC enterprise architecture. These services illustrated mutual aid interactivity abilities through interactive mapping services when needed.	
Nature of responsibility	
<ul style="list-style-type: none"> • GIS Scoping and Server Design Support for an independent Fire Service that functions like a full enterprise system with their fire service price range and supports their fire rating & emergency response needs. • St George Response Zone Mapping Services to illustrate their fire protection capabilities & needs • Developed & Created GIS data from St George Mutual Aid Agreements to be an illustration of the Insurance and Mutual Aid responsibility for each Fire Station. Resource & Equipment were allocated based on the following list of mapping products. <ul style="list-style-type: none"> ○ 911 Call Mapping Services- Dispatch Sequence Mapping Services & And Call Load Management Overview ○ 3 Story Building Mapping Pre Planning Mapping ○ Hydrant Mapping Services for water capacity. ○ First Station Mapping Services & Second Station Mapping Services ○ Response Zone Booklet Mapping Services. 	
	
Key Personnel	
Wendi Couvillion French, GISP	
Owner Contact Information	
St. George Fire Department, Baton Rouge, Louisiana Chuck Albert, Boyd Westbrook – (225) 454-6550	

Table 2.1 – Es² Team Relevant CAD System and GIS / Mapping Projects (continued)

Wyndston Project Name and Location	Project Date
Local Government Emergency Services GIS Grant Assistance Denham Springs / Livingston Parish, Louisiana	2018
Project Description	
Provide grant preparation assistance for Homeland Security Grant for Firefighters (AFG) for the City of Denham Springs and Livingston Parish. Proposing to complete the Parish GIS architecture to support a four-tier data configuration for emergency response services. Parish has data collected from a range of project efforts. This proposal for \$1.5 Million was to configure the collected data and develop emergency response data streams to support the four levels of emergency response data flow	
Nature of responsibility	
<ul style="list-style-type: none"> • GIS Scoping and Server Design Support for the Denham Springs Fire Service to serve as the pilot project to organize a GIS data warehouse will all four collection tiers. • Tier One- Truck – Fire Pre Plan Survey Collections • Tier Two- Fire District Mapping level for District Resource Service Area Mapping • Tier Three- 911 Communication District Addressing and Special Needs Addressing Identifications • Tier Four- EOC Situational Reporting including field truck observations, District Level Risk Assessment Mapping, 911 Call Mapping and SIT REP Mapping at Parish EOC with live field feeds. • Architecture Supports the Following PIAL Mapping Products for PIAL Rating considerations. 911 Call Mapping Services- Dispatch Sequence Mapping Services & And Call Load Management Overview 3 Story Building Mapping Pre Planning Mapping Hydrant Mapping Services for water capacity. 	
Key Personnel	
Wendi Couvillion French, GISP	
Owner Contact Information	
City of Denham Springs, Louisiana Jeanette Clark – (225) 667-8332; Fire Chief Wheat – (225) 667-8370 Livingston Parish, Louisiana Jack Varnado – (225) 454-6550	



3.0 APPROACH AND METHODOLOGY

3.1 CAD / GIS Integration Needs Assessment

In order to fully understand the GIS requirements of the St. Landry Parish Sheriff's Office, Es² proposes to perform an initial needs assessment. The Es² team will meet with representatives from pertinent departments, such as 911 and Sheriff's Office, to gain insight on the current CAD / GIS system integration and configuration. During these meetings Es² will review current workflows as well as the roles, responsibilities, and qualifications of key personnel involved in the operation and maintenance of the system. This review will help form recommendations for future internal data development and maintenance procedures and workflows. Availability of existing data sets as well as sources for new data layers will also be identified at this time.

3.2 Update Existing GIS Data Layers

Es² will update the following existing GIS data layers:

- Road Centerlines – Updated with newest data available from St. Landry Parish. Road centerline topology will be checked to ensure road intersections are correct.
- Address Points – Updated with newest data available from St. Landry Parish. According to information provided to Es² by EagleView (provider of the aerial imagery for the Parish), the St. Landry Parish Assessor purchased a building footprint layer based on the 2017 aerial imagery. This layer should be submitted by EagleView to the Parish in March 2018. This 2017 building footprints layer along with assessor parcel data can be used to update the address points.
- Mile Markers – Updated with current street data.
- Boundaries – The following boundaries will be reviewed, updated, and cleaned to ensure proper topology:
 - Law
 - Fire
 - EMS Zones
 - City Boundaries

3.3 Create New GIS Data Layers

In addition to updating existing GIS data layers, the Es² team will create the following new data sets:

- Common Places – Built from available data provided by St. Landry Parish. The 2017 building footprints layer along with address points and assessor parcel data can be used to create a common places layer. Es² will develop a workflow to allow St. Landry Parish Sheriff personnel to update this layer on a continuous basis.
- Block Points – Created from updated street centerline data.
- Points of Interest – Created from available data provided by St. Landry Parish as well as other publically available sources, such as the Geographic Names Information System.
- Other layers of interest (hydro, forest, etc.) – Created from available data provided by St. Landry Parish as well as other publically available sources

3.4 Integrate GIS Data with CAD System

Upon completion of the GIS data creation and update, Es² will integrate the GIS with the CAD system. Depending on the results of the needs assessment, this integration could include loading the data directly into the Spillman CAD system or linking the GIS database with the CAD system.

3.5 Import Descriptions of Property Improvements into CAD Database

Descriptions of improvements made to properties corresponding to addresses stored in a St. Landry Parish Sheriff's Office SQL server database will be imported into the Spillman CAD system for the purpose of facilitating the population of the "Location Text" field with this descriptive information when an address is validated.

3.6 System Testing and Implementation

The Es² team will thoroughly test the GIS / CAD system integration to ensure all data is accessible and functions as expected. Es² will troubleshoot and make any changes and revisions, as necessary.

3.7 One-Year Support Services

To support the St. Landry Parish Sheriff's Office, Es² will provide one (1) year of technical support and data maintenance. Primary means of support will be provided via telephone, email, and online web meetings. On-site support can be provided, if necessary. A total of 46 support hours (\$500/month) are included in the cost bid.

4.0 STAFF QUALIFICATIONS

Figure 4.1, shown below, illustrates the project team organization. Es² will be the prime contractor and serve as the primary point of contact for the project. Es² will provide all project management and coordination for the St. Landry Parish Sheriff's Office. Es² has teamed with Wendi Couvillion French of Wyndston Services to provide additional expertise integrating GIS with CAD Systems.



Figure 4.1 – Project Team Organization

Summary qualifications for key Es² personnel are listed below. Detailed resumes are also included in Appendix C.

Andrew Milanes, PE, GISP – Mr. Milanes is the Vice President and a Supervising Engineer of Es² and has been with the firm since its inception in 1996. He is a registered professional civil engineer in Louisiana, Mississippi, Texas, and Florida as well as a certified GIS Professional (GISP). With over 25 years of engineering, environmental, and GIS consulting experience, Mr. Milanes will serve as the project manager, principal engineer, and technical lead for this project as well as the primary point of contact for St. Landry Parish Sheriff.

David Alford, GISP – Mr. Alford, a GISP, has over 18 years of experience in GIS and environmental consulting in civil, military, and private projects. He is the GIS manager at Es² and has extensive experience with Esri GIS software including desktop, web, and mobile solutions. Mr. Alford has extensive experience with Local Government Enterprise GIS and data conversion.

Brennon Albarez – Mr. Albarez is a GIS technician at Es² and will serve that role for this project. He has expertise with field data collection using mobile GIS data collection devices and RTK GPS receivers. Mr. Albarez is also a certified FAA Part 107 UAS Remote Pilot.

Wendi Couvillion French, GISP (Wyndston Services) – Ms. French, a GISP, has over 21 years of experience in GIS research, data analysis, business system integration, workflow processes, development of management strategies, processing of field-gathered survey data, and map creation and presentation for community development projects. Ms. French will provide expertise with GIS and CAD integration.

5.0 Cost Bid

The not-to-exceed cost to perform this project, as detailed in Section 3.0, is **\$47,613** and is broken down in Table 5.1. Should the scope of work differ from what is described in Section 3.0 of this proposal, Es² reserves the right to modify this cost bid.

Table 5.1 – Es² Cost Bid

	Task Description	Hourly Billable Rate	Budgeted Number of Hours	Extended Amount
Task 1 Needs Assessment / Project Management				
	Project Manager / Engineer / GISP	\$ 150	16	\$ 2,400
	GIS Professional (GISP)	\$ 125	32	\$ 4,000
	GIS Technician	\$ 75	0	\$ -
	Subtotal Task #1		48	\$ 6,400
Task 2 Update and Create GIS Data Layers				
	Project Manager / Engineer / GISP	\$ 150	32	\$ 4,800
	GIS Professional (GISP)	\$ 125	112	\$ 14,000
	GIS Technician	\$ 75	80	\$ 6,000
	Subtotal Task #2		224	\$ 24,800
Task 3 Load / Integrate Data into Spillman CAD Database				
	Project Manager / Engineer / GISP	\$ 150	14	\$ 2,100
	GIS Professional (GISP)	\$ 125	32	\$ 4,000
	GIS Technician	\$ 75	0	\$ -
	Subtotal Task #3		46	\$ 6,100
Task 4 System Testing and Implementation				
	Project Manager / Engineer / GISP	\$ 150	8	\$ 1,200
	GIS Professional (GISP)	\$ 125	16	\$ 2,000
	GIS Technician	\$ 75	0	\$ -
	Subtotal Task #4		24	\$ 3,200
Task 5 One-Year Support Services				
	Project Manager / Engineer / GISP	\$ 150	10	\$ 1,500
	GIS Professional (GISP)	\$ 125	36	\$ 4,500
	GIS Technician	\$ 75	0	\$ -
	Subtotal Task #5		46	\$ 6,000
	Subtotal Personnel Cost		388	\$ 46,500
Project Expenses				
	Vehicle Mileage - 13 trips total (2018 IRS Rate)	\$ 0.535	2,080	\$ 1,113
	TOTAL PROJECT COST*			\$ 47,613

*Cost does not include the purchase of additional data sets, if required.

Appendix A

Small / Disadvantaged Business Enterprise (SBE / DBE)

Certifications



DIVISION OF SMALL BUSINESS SERVICES

This certification acknowledges that

Environmental Science Services, Inc.

is Certified-Active as a Small Entrepreneurship with
Louisiana Economic Development's Hudson Initiative.

This certification is valid from 3/23/2017 to 3/23/2018 .

Certification No. 11203

A handwritten signature in black ink, reading "John W. Matthews, Jr.", written over a horizontal line.

John W. Matthews, Jr.,
Executive Director, Entrepreneurial Services

Appendix B

Letters of Recommendation



West Baton Rouge Parish
Office of Homeland Security/ Emergency
Preparedness

Director Anthony "Deano" Moran

March 1, 2018

To whom it may concern:

It is my understanding that Environmental Science Services, Inc. ("Es2 ") is submitting a proposal to do local government GIS consulting in your jurisdiction. Let me be the first to highly recommend this team of professionals for your consideration.

In 2014, West Baton Rouge Parish Government went out to bid for firms to transition us from a standalone desktop Geographic Information System(GIS) to an enterprise-based system. This system has allowed the parish to increase efficiency by the sharing of Realtime geographic data where we were unable to do so before. Prior to Es2 being hired, the sharing of data was on an as needed basis which was highly inefficient and allowed there to be errors in the data due to the data itself being sometimes outdated. Es2 came into each department to do a needs assessment to determine the workflow necessary to make each department that deals with GIS data more efficient.

The transition to the enterprise GIS system by Es2 has significantly reduced the amount of time it takes in our office to update our computer aided dispatching system with new addresses after they have been assigned. This is because through the system, which utilizes the schema that our cad system requires, we created a web app that allows a non-technical user to input data into the GIS without the need for specialized software. Because there is no training on specialized software, users are up and running in hours versus weeks and months for the more sophisticated GIS software. This tool that we developed with the help of Es2, also allows us to go out into the field to look at address discrepancy's with only an iPad or similar device instead of an expensive GPS unit. In addition to improving our work flow, Es2 has been able to help us to identify and rectify topology errors in our road network data used by our cad system.

Since the implementation of our Enterprise GIS system, we have also been able to create maps that allow to have a better situational awareness of hazards such as severe weather and hurricanes. We have also been able to build maps with layers such as the national grid reference system, that can be used by a first responder with no more than a smartphone to assist in search and rescue. Another task that we were able to be complete because of Es2's knowledge, was to create maps of schools with information such as staging areas, traffic control points and school floor plan layouts to be used by first responders in crisis situations.

We have been very satisfied with the knowledge and experience that Es2 has with its team of professionals. It is because of this, that we would not hesitate to recommend their services to other agencies looking to replicate what we have done. Please feel free to contact me regarding our relationship with Es2 and some of the other ways we have been able to utilize our Enterprise GIS system.

Sincerely,

A handwritten signature in black ink, reading "Anthony J. Summers". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

Anthony J Summers, CEM, ENP
Assistant Director



City of Denham Springs

MAYOR

GERARD LANDRY

MAYOR PRO-TEMPORE

LORI LAMM-WILLIAMS

CITY CLERK

JOAN LEBLANC

CITY COUNCIL

RENÉ DELAHOUSAYE

LORI LAMM-WILLIAMS

ROBERT POOLE

LAURA SCHMITT SMITH

JEFF WESLEY

To whom it may concern:

Since 2012 Environmental Science Services, Inc. (Es²) has provided GIS and mapping services to the City of Denham Springs, which is located east of Baton Rouge, Louisiana with a population of 10,215. Beginning in 2012, Es² provided data conversion and mapping services for City Public Works utility data. Es² created web and mobile applications that allowed City personnel to easily access utility data, including sewer, water, and gas information.

In August 2016 the City was inundated with flooding from an unnamed storm that sat over the area for three days. Over 75% of the structures, both residential and commercial, took on at least 18 inches of water. As a part of the recovery process the City created a long term community recovery plan. This planning process involved City leadership, employees, businesses, community leaders and residents.

Es² has been a great community partner throughout this process. David and Andrew attended all three of our community meetings and gathered information from residents about their homes. In dealing with blighted housing, Es² created an application to help the permit department survey the housing situation after the flood.

Currently Es² is developing a web-based Enterprise GIS for the City that will allow for increased efficiency and communication between all departments, including Public Works, Permitting, Police, and Fire. This project will require data conversion and application development to aid all aspects of City government.

In summary, in addition to being a great community partner, Es² has provided professional GIS and consulting services to the City of Denham Springs for many years. The City of Denham Springs has no hesitation in recommending Es² as a quality GIS and consulting service provider.

Sincerely,

Mayor Gerard Landry



RECREATION AND PARK COMMISSION
FOR THE PARISH OF EAST BATON ROUGE

April 6, 2017

Port of New Orleans
1350 Port of New Orleans Place
New Orleans, LA 70130

To Whom It May Concern:

In December 2015, Environmental Science Services, Inc. (Es²) was recommended to the East Baton Rouge Parish Recreation and Park Commission (BREC) by the Baton Rouge City-Parish GIS Manager to provide GIS training services to our organization. Es² initially provided Trimble GPS training as well as some basic GIS training to some of our staff members. During the training classes, it became apparent that the GIS needs of BREC were beyond the scope of structured training classes and we engaged Es² to help develop a more comprehensive enterprise GIS strategy for the entire organization. In December 2016 Es² provided an outline for the implementation of an enterprise GIS system for BREC, which included the following tasks:

- Setup and Configuration of ArcGIS Environment
- Creation and Importing Existing BREC Datasets and Publish Services
- ArcGIS Online Web Maps, Web Applications, and Mobile Applications
- Integration of BREC GIS Platform with New Work Order Software
- GIS Server Management
- GIS Desktop Support, Training, and Troubleshooting
- GPS/GIS Field Data Support, Training, and Troubleshooting
- Assistance with License Management
- Assistance with Data from Outside Agencies
- Management of BREC GIS User Meetings
- Additional GIS Consulting Services

Throughout the entire evolution of this enterprise GIS system implementation to-date, Es² has demonstrated high levels of technical expertise, responsiveness, and quality service to our organization. Es² has also assisted with the internal promotion of the GIS system to management and steering committee personnel as well as provided guidance and recommendations for GIS integration with third-party asset management systems, such as Pub Works and Cartograph. Based on the level of professionalism and expertise demonstrated by Es² over the past year and a half, BREC has engaged Es² as our GIS consultant to help guide our organization through the enterprise GIS development process. I highly recommend Es² for any enterprise GIS implementation projects. Please contact me if you have any questions regarding our relationship with Es².

Sincerely,

Reed Richard, AICP, CPRP, PLA
Assistant Superintendent, Planning and Construction
(225)273-6405

6201 Florida Boulevard, Baton Rouge, Louisiana 70806
225.272.9200 | 225.273.6404 | brec.org

Appendix C

Detailed Resumes of Key Personnel

Andrew N. Milanes, PE, GISP

Education

- Louisiana State University – B.S., Civil Engineering, 1992

Registrations/Certifications

- Professional Engineer in Civil Engineering – Louisiana (#39896)
- Professional Engineer in Civil Engineering – Florida (#79699)
- Professional Engineer in Civil Engineering – Mississippi (#28167)
- Professional Engineer in Civil Engineering – Texas (#121117)
- Certified Geographic Information Systems Professional (GISP) (#60604)
- Transportation Worker Identification Credential (TWIC)

Experience Summary

- 1996-Present: Environmental Science Services, Inc.; Vice President
- 1992-1996: C. K. Associates, Inc.; Environmental Engineer.
- As Vice President and supervising engineer of Es², Mr. Milanes has served as a civil engineer, GIS professional, and project manager on a wide-range of projects over the past 25 years. He has managed numerous environmental, engineering, and mapping projects ranging from site investigations and remediation, shoreline surveys, damage assessments, litigation expert reports, topographical surveys, and mapping.
- Mr. Milanes has engineering and environmental experience in coastal restoration planning and design, site remediation and investigations, shoreline oiling and vegetation assessments, water bottom surveys and oyster assessments, elevation certificates, and oil spill response activities.
- He has completed projects using GIS for oil spill contingency planning and response, environmental assessments, property litigation, data management, and local governments. He also has extensive experience utilizing survey-grade GPS for data acquisition for use in engineering, mapping, and GIS projects. Mr. Milanes also has professional experience in digital photogrammetry and remote sensing, which complement the GIS data.
- Mr. Milanes' computer skills include expertise in various technical software applications including Esri ArcGIS Platform, Microsoft SQL Server, Adobe Photoshop, AutoCAD, Trimble Business Center, and Pix4D UAS mapping software. Other IT skills include network administration, web page design and hosting, and hardware troubleshooting and repair.

Relevant Project Experience – Engineering

- Elevation Certificates for National Flood Insurance Program – LA – Supervising engineer for the preparation of Elevation Certificates. The Elevation Certificate is an important administrative tool of the National Flood Insurance Program (NFIP). It is to be used to provide elevation information necessary to ensure compliance with community floodplain management ordinances, to determine the proper insurance premium rate, and to support a request for a Letter of Map Amendment. Responsibilities include field crew management and supervision, processing of field GPS and survey data, documentation of NFIP compliance as well as local flood plain ordinances, and certification of the completed EC.
- Risk Evaluation/Corrective Action Program (RECAP) Projects – St. Gabriel, LA – Project Manager and supervising engineer for four separate RECAP projects at a chemical plant in St. Gabriel, LA. Responsibilities included project management and oversight of all aspects of project work including coordination with LDEQ regarding sampling and analysis requirements, coordination with drilling contractor for installation of groundwater monitoring wells, soil and groundwater sample collection, data analyses and evaluation, and final report writing.
- Oil Spill Response and Risk Evaluation/Corrective Action Program (RECAP) Project – Empire, LA – Project Manager and engineer for crude oil spill response from a land-based facility near Empire, LA. Responsibilities included project management and oversight of remedial activities resulting from the oil spill. Managed the installation of groundwater monitoring wells and performed soil and groundwater sampling. Oversaw excavation activities of contaminated soil to ensure targeted area was properly addressed. Performed data analysis and evaluation and report writing.
- Targeted Louisiana Shoreline Monitoring and Mitigation (TLSMM) – Team leader for TLSMM surveys, which were performed to assess shoreline areas impacted by the Deepwater Horizon oil spill. The purpose of these assessments was to monitor and collect information to determine whether additional removal activities were warranted. Responsibilities included coordination with State of Louisiana representatives, assessment of current shoreline oiling conditions, determination of additional cleanup efforts, and oversight of cleanup crews.
- Coastal Wetlands Vegetation Assessments – Team leader for Coastal Wetlands Vegetation Assessment (CWVA) surveys. Wetlands surveys conducted to obtain detailed information on the potential effects of oiling from the Deepwater Horizon accident and subsequent cleanup on coastal wetland vegetation along the northern Gulf of Mexico. Data used to assess unoiled, post-impact, and post-cleanup conditions, and to monitor recovery. Data collected on vegetative

health, soil characterization, and elevation to assist in the evaluation of the overall status of the wetland communities. Data collected included visual estimates and counts of vegetative conditions; instrument-based measurements of environmental conditions; biological community samples; laboratory analysis of soil samples; and digital photographs and GPS data.

- SCAT Team Leader, Deepwater Horizon Response – Leader of SCAT Team 4 of the Mobile Sector beginning in May 2010. Based out of Pensacola, FL. Responsibilities included the coordination of the team’s Federal Representative (USCG) and State Representative (FDEP). Performed shoreline surveys covering over 1,200 segments (500 miles) from the AL/FL border to Apalachicola, FL. Shoreline surveys quantified the location and degree of oiling. Developed Shoreline Treatment Recommendations (STRs) for specific oiled areas. Coordinated treatment recommendations with the State, County, and Local agencies. Used a mechanical auger to locate subsurface oil along the beaches. Collected data from over 1,500 pits utilizing a Magellan MobileMapper CX real-time sub-meter GPS / GIS data logger. Created subsurface oiling maps in ArcMap utilizing this data. These subsurface oiling maps were utilized by cleanup crews to target areas for cleanup. This data was also presented to the National Park Service (NPS) for use in the development of cleanup guidelines along NPS beaches. At the conclusion of the response in Florida in June 2013, Mr. Milanes transitioned to Louisiana as a SCAT Team Lead until the completion of the active response in March 2014.
- SCAT Team Lead/Coordinator for Oil Spill in Yellowstone River, Montana – Served as a SCAT Team Lead then SCAT Coordinator for the spill response activities resulting from a 1,000 barrel crude oil pipeline spill in the Yellowstone River near Billings, Montana. As a Team Lead, Mr. Milanes was responsible for the coordinated survey activities of State and Federal representatives on his SCAT Team. Mr. Milanes was promoted to SCAT Coordinator within 10 days and served the next three months in that position. The SCAT Coordinator was responsible for the planning and oversight of up to six (6) SCAT Teams, consisting of two Team Leads each, a dozen field liaisons, five (5) GIS/data technicians, and three (3) administrative personnel. Mr. Milanes was also responsible for the oversight and QA/QC of the SCAT database and GIS data as well as the final report deliverables to the client.
- Pelican Habitat Restoration Design, Louisiana – Served as project manager on a brown pelican habitat restoration design project related to a natural resource damage assessment conducted on North Breton Island, Louisiana. The initial phase of the project concentrated on project scaling and conceptual design to determine basic performance expectations of the restoration project in terms of island lifespan. Initially four conceptual designs were presented to the natural resource Trustees and it was determined that the pelican habitat should be

created elsewhere. Subsequently, the Trustees determined that a project within the Isle Dernieres chain was preferable over a project on North Breton Island. Therefore two additional conceptual restoration designs were developed for projects on Wine Island and Raccoon Island, LA. Responsibilities included assistance with engineering design, cost estimates, bathymetric mapping, and report preparation.

- Mapping, Habitat Change Analysis, GIS Services, Expert Report Preparation for Environmental Unit Support for Oil Spills Resulting from Hurricane Katrina – Environmental specialist, field surveyor, and project manager for spill response activities for a 90,000 barrel and a 10,000 barrel oil spill resulting from Hurricane Katrina in south Louisiana. Mr. Milanes was responsible for conducting dozens of helicopter overflights for spill assessments to determine impact area and degree of oiling. Mr. Milanes developed cleanup strategies and work plans in conjunction with the spill contractor and state/federal agencies. Mr. Milanes utilized vertical and oblique aerial photography and GPS data to develop numerous impact, assessment, cleanup strategies, and work plan maps for the incident.
- Shoreline Cleanup Assessment Team (SCAT) Activities – Environmental specialist and team member for SCAT surveys conducted after major oil spills in South Louisiana. Mr. Milanes was a representative for the Responsible Party for SCAT activities. Other members on the team include representatives from natural resource trustees (State and Federal agencies). Team responsibilities included the delineation, documentation, and mapping of oiled shoreline areas.
- Salvage Monitoring – Environmental specialist for pollution monitoring during salvage operations of marine vessels. Mr. Milanes directed pollution prevention and cleanup measures of spill response contractors during salvage operations of marine vessels. Mr. Milanes was responsible for ensuring the salvage operations were performed in such a manner as to minimize pollution to the greatest extent practical.
- Water Bottom Surveys and Oyster Assessments – Environmental specialist and project manager for performing water bottom surveys for the LA Dept. of Wildlife and Fisheries. Surveys include the determination of water bottom type and bathymetry in the project area. Survey reports consisted of a data summary as well as maps illustrating the water bottom types and bathymetry.

Relevant Project Experience – GIS/Mapping

- Enterprise GIS Design and Deployment – New Orleans, LA – Project Manager for GIS services for the Port of New Orleans for development, integration and maintenance of an Enterprise GIS for critical infrastructure security purposes. Responsibilities include system architecture design, scanning and digitizing of hardcopy drawings, integration of GIS with other Port business systems such as Sales Force and Laser Fiche, geodatabase design consultation, GPS and GIS training, inter-departmental coordination regarding uses and application of enterprise GIS, desktop and mobile GIS technical support, and development of best-practices guidelines.
- Parks and Recreation Enterprise GIS Design and Deployment – Baton Rouge, LA – Project Manager for the design and implementation of an enterprise GIS for the parks and recreation department of a Parish with a population of 450,000. Responsibilities include system architecture design, integration of GIS with facilities management work-order system, geodatabase design consultation, GPS and GIS training, inter-departmental coordination regarding uses and application of enterprise GIS, desktop and mobile GIS technical support, and development of best-practices guidelines.
- Web and Mobile GIS and GPS Mapping for Petroleum Pipeline Operation and Maintenance – Baton Rouge, LA – Project Manager and supervising engineering for the development of a GIS for maintenance and operation of petroleum pipeline system. Application managed the location and documentation of pipeline repairs and maintenance as well as various operational data such as foreign crossing locations and cathodic protection system components. The web application is used by pipeline management during regulatory audits to demonstrate compliance with maintenance regulations. Other tasks included the conversion of inline inspection results data to GIS in order to locate repair anomalies in the field using RTK GPS.
- Sanitary Sewer Mapping and GIS – Addis, LA – Project Manager and supervising engineering for field data collection of sanitary sewer utility features. Project scope covered mapping existing sanitary sewer features, including manholes, lift stations, and grinder pumps. The Esri local government information model was utilized as the geodatabase to ensure consistency with the Parish GIS. The sanitary sewer geodatabase schema was uploaded to the survey data controller to collect feature attributes. Feature locations, including elevations, were collected using RTK GPS. All collected data was incorporated into the Parish GIS upon completion.
- Parish Enterprise GIS Design and Deployment – West Baton Rouge Parish, LA – Project Manager for the design and implementation of an enterprise GIS for

- West Baton Parish. As the Parish GIS Consultant, the scope of services include system architecture design, data conversion, ArcGIS and SQL Server installation, configuration, and management, inter-departmental coordination regarding uses and application of enterprise GIS, desktop and mobile GIS technical support, development of best-practices guidelines, and management of internal quarterly GIS user group meetings.
- Hurricane Katrina Litigation - Project Manager and GIS specialist for plaintiff expert services in Robinson et al v United States. Mr. Milanes was responsible for historical data searches and acquisition, aerial photography scanning and mosaicing, and GIS map development. Mr. Milanes combined existing historical databases to create habitat change maps for the project area. Historical shoreline change and landloss analyses were also performed. Mr. Milanes also utilized high resolution aerial photography and LIDAR elevation imagery to delineate levee breach locations and elevations. Mr. Milanes was also a co-author of a plaintiff's expert report and assisted the lead author of the report during deposition and trial preparation. Mr. Milanes provided GIS presentations to the legal and expert team to illustrate historical change. Mr. Milanes provided exhibit and demonstratives preparation assistance, as well as presentation of "live" GIS during courtroom testimony. Mr. Milanes also supervised the services of the other member of the Es² team working on this project.
 - Coastal Restoration Habitat Assessment – East Timbalier Island, LA – GIS analyst for habitat assessment and percent cover analysis for a coastal restoration project on East Timbalier Island, LA resulting from an oil spill natural resource damage assessment. Using remote sensing and GIS techniques, Mr. Milanes performed percent cover analysis from six (6) separate time periods using high resolution (3") aerial photography. Mr. Milanes was responsible for coordinating the aerial photography acquisition, creating ortho photo basemaps, and performing the remote sensing analysis.
 - Land Loss Mapping for Oil and Gas Damage Litigation – GIS technician/project coordinator for litigation plaintiff in land loss claims. Mr. Milanes was responsible for acquiring historical aerial photography from the 1930s to the present for thirty (30) sites in south Louisiana. Mr. Milanes digitized photo-interpreted maps of the aerial photography and calculated land loss for each time period. The findings were documented in expert reports.
 - Environmental Sensitivity Mapping – GIS technician/project coordinator for the development of eight (8) natural resource inventory atlases. Mr. Milanes was responsible for data acquisition, mapping, and hardcopy production for these atlases, which contained maps illustrating shoreline types and land classifications and state and federally identified biological resources at risk. These atlases are

utilized by major oil and gas corporations to facilitate oil spill contingency planning and response.

- Data Management/Mapping for Oyster Lease Damage Litigation – GIS technician/project coordinator for litigation defendant in oyster lease damage claims. Mr. Milanes was responsible for data management and GIS development for an oyster lease damage suit. Affected oyster leases were mapped along with their associated data, owner, lease number, etc., to assist in the settlement process.
- 3-D Seismic Activities Damage Assessments – GIS technician/project coordinator for marsh damage assessment resulting from oil and gas seismic survey exploration activities. Mr. Milanes has performed two marsh damage assessments utilizing digital photogrammetry and GIS. Marsh buggy and airboat tracks were delineated from aerial photography obtained prior to the seismic survey being performed to establish a baseline for pre-existing damage. Post-survey photography was also analyzed and compared to the baseline assessment to determine actual damage due to the specific survey. Acreage calculations on pre-existing and new damages were performed.
- Oil Well Blowout NRDA Mapping – GIS technician/field technician for Natural Resource Damage Assessment (NRDA) mapping requirements resulting from a 7,000-barrel spill from an oil well in the Atchafalaya Basin. Mr. Milanes was responsible for numerous aspects of data acquisition utilizing differential GPS including sample points and aerial photography control points as well as accompanying the natural resource trustees when delineating the extent of the habitat damage. His duties also included creating aerial photography mosaics from several dates of photography in addition to mapping all of the sample data and damage assessment results.
- Oil Spill Emergency Response Mapping – GIS technician for emergency response mapping for several major oil spills resulting from pipeline ruptures. Mr. Milanes' duties included mobilizing a GIS and plotting workstation on-site during the spill to develop various maps to aid in planning for the spill response. Products included maps illustrating the findings from helicopter and fixed-wing overflights, depicting sample locations, and potential sensitive areas at risk.

Publications

Milanes, A., Stevens, M., Alford, D. Mobile GIS and Real-Time Data Display in a Common Operating Picture. International Oil Spill Conference Proceedings May 2014, Vol. 2014, No. 1 (May 2014) pp. 1607-1620

Penland, S., Thompson, S., Milanes, A., and Tischer, S., 1999. Assessment of a condensate spill in a bottomland hardwood forest in the Atchafalaya basin. Gulf Coast Association of Geological Societies. Transactions, v. 49:426-431.

Shaffer Gary P., John W. Day Jr, Sarah Mack, G. Paul Kemp, Ivor van Heerden, Michael A. Poirrier, Karen A. Westphal, Duncan FitzGerald, Andrew Milanes, Chad A. Morris, Robert Bea, P. Shea Penland (2009) The MRGO Navigation Project: A Massive Human-Induced Environmental, Economic, and Storm Disaster. Journal of Coastal Research: Vol. , Special Issue 54, pp. 206-224.

David R. Alford, GISP

Education

- Louisiana State University – B.S., Environmental Management Systems, 2001

Registrations/Certifications

- Certified Geographic Information Systems Professional (GISP) (#62786)
- 38 Hour Army Corps of Engineers - Wetland Delineation Program (#6448)

Experience Summary

- 2012-Present: Environmental Science Services, Inc.; GIS Manager
- 2007-2011: Providence Engineering and Environmental Group, LLC; GIS Manager
- 2007: CSRS, Inc.; GIS Manager
- 2002-2007: Gulf South Research Corp.; GIS Specialist
- 2001-2002: Coastal Environments; GIS Analyst
- Mr. Alford has over 17 years' experience participating in Geographic Information Systems (GIS). Mr. Alford has extensive experience in GIS development, implementation and analysis through civil, military, private projects. Projects include environmental resource management, endangered species management plans, utilities/infrastructure systems management, digital cartography and custom programming of cloud-based ArcGIS Server web and mobile applications. He has experience using ESRI's ArcGIS for over 500 environmental projects relating to wetland delineations, Environmental Assessments (EAs), Environmental Impact Statements (EISs), and Biological Assessments (BAs), Phase I Environmental Site Assessments (ESA), and Habitat Evaluation Procedures (HEP).
- Mr. Alford's experience includes acquiring, processing, and analyzing geographic data and using GIS software to display and analyze environmental data along with managing stand-alone GIS projects. He also has experience with relational database design; geo-reference map creation and spatial coordinate system conversion; data capturing; system configuration and development; raster or vector-based GIS spatial analysis for planning; and data collection, compilation and validation.

Relevant Project Experience

- GIS Consulting Services; Port Allen, Louisiana. Client West Baton Rouge Parish Government - GIS Specialist which provided GIS consulting expertise in developing a strategic plan to migrate the government's GIS system from a fragmented, departmental, desktop GIS solution to a more coordinated, centralized enterprise solution cloud-based solution which included, Esri ArcGIS for Server Standard Enterprise, Enterprise Relational Database Management System, 911 integration, concurrent-use licenses of ArcGIS for Desktop Standard, and ArcGIS Online for Organizations. Other services included migration of existing data to enterprise database, general GIS Consulting and Technical Support, GIS Desktop Support, Training, and Troubleshooting, assistance with Outside Agencies, Management of WBR Parish Government User Group Meetings, and Assistance with License Management.
- Enterprise GIS System Deployment; Bossier Parish, LA. Client: Bossier Parish Assessor – Es² assisted in the migration of existing BPAO datasets and assist in the creation of new datasets, into BPAO's server geodatabase. Es² assisted in using BPAO GIS services to create of new focused Web Maps and Web Applications for internal viewing of GIS data for daily operations, and Mobile Applications for field data collection. Es² created a focused web application Parcel Drafter that allows BPAO staff to enter metes and bounds descriptions and check for closure errors. Es² assisted in integrating the BPAO GIS platform and datasets with the Praeses CAMA System and GCT Parcel Viewer Software and its corresponding mapping components. Es² assisted in the management of BPAO's ArcGIS Enterprise, SQL database, and web services. Es² assisted BPAO with developing a mobile field application for accessing CAMA records for field verification.
- Sanitary Sewer Data Collection and GIS Solution and Web-based and Mobile Applications and GIS Support; West Baton Rouge Parish, LA. Client: Town of Addis – Es² located, verified, and collected approximately 900 sewer GPS data points that are part of the Town of Addis existing sanitary sewer network system. This data was used to create an accurate and comprehensive sanitary sewer system GIS database. Es² utilized two high-accuracy GNSS GPS systems to collect the sewer data, depending on accuracy requirements. For sewer manholes, grinders, and lift stations, where invert elevations are required, Es² utilized a Trimble Geo 7x Centimeter system. The Geo 7x Centimeter system has approximate post-processed accuracies of 1-inch horizontal and 1.5-inches vertical. Other information, such as pipe direction and flow direction, was also collected. Es² provided the Town of Addis with a GIS Cloud Server Configuration and Web Solutions for the Towns' sanitary sewer system. This provided Addis a cloud-based GIS solution to manage its sanitary sewer data and give the ability to share the data with web and mobile applications. This solution was developed on the existing West Baton Rouge Parish ArcGIS Server / ArcGIS Online system.

- GIS Consulting Services; Baton Rouge, Louisiana. Client East Baton Rouge Parish Parks and Recreation Commission - Es² developed and migrated existing GIS to an enterprise cloud-based GIS system. The following are the items that are to be performed as part the setup and configuration of the ArcGIS platform: Installed and configured ArcGIS for Server, configured BREC's ArcGIS Online for Organization Site, ensured that ArcGIS Server accessed all BREC referenced data, ensured ArcGIS Server was published and can be accessed by AGO, ensured ArcGIS Server GIS data is published, compatible, and was accessed by PubWorks, the new work order asset management software. Also part of this project, Es² Created and published new GIS datasets, Imported and Converted CAD data to GIS, created ArcGIS Online web applications, web maps, and mobile applications, integrated the GIS System with PubWorks, assisted in GIS Server management along with the SDE database, provided support, training, and troubleshooting. Es² also provided GPS/GIS Field Survey data support, training, and troubleshooting. Es² provided assistance with license management, assistance with data from outside agencies, management of BREC GIS User Meetings, and other additional GIS consulting services.
- City of Port Allen GIS Utility Data Solution and Web-based and Mobile Applications and GIS Support; West Baton Rouge Parish, LA. Client: City of Port Allen— GIS Specialist that provide the Town of Addis with a GIS Cloud Server Configuration and Web Solutions for the Towns' sanitary sewer system. This provided Addis a cloud-based GIS solution to manage its sanitary sewer data and give the ability to share the data with web and mobile applications. This solution was developed on the existing West Baton Rouge Parish ArcGIS Server / ArcGIS Online system.
- Sanitary Sewer Data Collection and GIS Solution and Web-based and Mobile Applications and GIS Support; West Baton Rouge Parish, LA. Client: Town of Brusly – Es² located, verified, and collected approximately 400 sewer GPS data points that are part of the Town of Addis existing sanitary sewer network system. This data was used to create an accurate and comprehensive sanitary sewer system GIS database. Es² utilized two high-accuracy GNSS GPS systems to collect the sewer data, depending on accuracy requirements. For sewer manholes, grinders, and lift stations, where invert elevations are required, Es² utilized a Trimble Geo 7x Centimeter system. The Geo 7x Centimeter system has approximate post-processed accuracies of 1-inch horizontal and 1.5-inches vertical. Other information, such as pipe direction and flow direction, was also collected. Es² provided the Town of Brusly with a GIS Cloud Server Configuration and Web Solutions for the Towns' sanitary sewer system. This provided Brusly a cloud-based GIS solution to manage its sanitary sewer data and give the ability to share the data with web and mobile applications. This solution was developed on the existing West Baton Rouge Parish ArcGIS Server / ArcGIS Online system.

- GIS Web-based Flexviewer and Mobile Applications and GIS Support; Livingston Parish, LA. Client: City of Denham Springs – GIS Specialist that provided GIS Flexviewer application development, Mobile data collection application, and project management, along with preliminary design of the GIS. Activities included assisting purchase of all software and hardware, GIS system design, installation of GIS Server, and conversion of all Public Works CAD data into GIS for implementation on GIS Server for internal access for the Department of Public Works.
- GIS Web and Mobile Applications and GIS Training; Livingston Parish, LA. Client: City of Walker – GIS Specialist provided the City of Walker with GPS/GIS training and assist in GPS data collection of the Department of Public Works infrastructure. This will provide City Personnel as well as their contractors the training and expertise to continue GIS data collection for the rest of the City's infrastructure. GIS Specialist that provided GIS web application development, Mobile data collection application, and project management, along with preliminary design of the GIS. Activities included assisting purchase of all software and hardware, GIS system design, installation of GIS Server, and conversion of all Public Works CAD data into GIS for implementation on GIS Server for internal access for the Department of Public Works.
- GIS Web-based Flexviewer and Mobile Applications and GIS Support; San Ramon, California. Client: Chevron Shipping Company - GIS Specialist that developed cloud-based GIS web and mobile applications for Chevron Shipping Company for their West Coast operations to manage data for all shipping activities with emphasis on oil spill management. All environmental and oil spill related data was created on Chevron's cloud-based ArcGIS Server along with other sensitive data. A web-based ArcGIS Viewer for Flex GIS application was developed to assist both emergency responders and environmental resource managers, but also helped Chevron Shipping Company deal with incidents that may adversely impact the environment. This Flex application integrates various real-time and static datasets into a single interactive map, thus provides fast visualization of the situation and improves communication and coordination among responders and environmental stakeholders. Mobile access to the data is also provided by ArcGIS smartphone apps for iOS and Android via their ArcGIS Online (AGOL) account.
- GIS Support Services; Boston 30 Oil Spill, New Jersey. Client: Gallagher Marine Services – GIS Specialist that served on the GIS Team for the spill response activities resulting from a 112,000 #6 crude oil spill in the KillVan Kull near Staten Island, New York. Mr. Alford was responsible for maintaining the SCAT database and GIS data as well as the assistance with final report deliverables to the client.

- GIS Support Services; Yellowstone River, Montana. Client: Exxon – GIS Specialist that served on the GIS Team for the spill response activities resulting from a 1,000 barrel crude oil pipeline spill in the Yellowstone River near Billings, Montana. Mr. Alford was responsible for maintaining the SCAT database and GIS data as well as the assistance with final report deliverables to the client.
- GIS Web-based Interactive Mapping Systems (IMS) and GIS Project Management and Support Services; Evangeline Parish, LA. Client: Evangeline Parish Police Jury - GIS Specialist providing GIS mapping and analysis application development and project management, along with preliminary design of the GIS System and implementation of the Web-based Interactive Mapping System. Activities included assisting purchase of all software and hardware, GIS system design, installation of GIS Server, and conversion of all Assessor tax parcel CAD data into GIS for implementation on GIS Server for public access.
- Hazard Mitigation Plan, Audubon Park Commission and Institute - The Audubon Commission Hazard Mitigation Plan is a concerted effort on the part of the Audubon Nature Institute (ANI) facilities to develop an all hazards, facility-wide approach to disaster damage reduction. In order to focus on a process needed to attain a sustainable future for the community, the Audubon Commission utilized a FEMA approved process to identify and assess all potential hazards that may affect the ANI facilities and develop an action plan to address those hazards. A GIS database was developed, which mapped the Audubon Commission's evacuation routes, flood zones, and critical facilities. Used GIS software called Hazards U.S. Multi-Hazard (HAZUS-MH) along with ESRI ArcGIS and Spatial Analysis to estimate losses of ANI facilities based on the total number and value of the facilities that can be damaged by a hazard event. Based on the impacts from Hurricane Katrina, the primary hazards of concern to the Audubon Commission are hurricanes, tropical storms and floods. HAZUS was used to estimate the potential dollar losses to vulnerable structures. Inputs for the HAZUS models consisted of data from the asset inventory and site visit.
- St. Bernard CZM PEA, St. Bernard Parish, LA. Plan. Client: LDNR – GIS Manager/Specialist for all GIS mapping and analysis for the development of the Coastal Zone Management Plan for St. Bernard Parish. This project consisted of analyzing and quantifying land loss, vegetation analysis and verification, marsh loss/changes, economic, MRGO impacts, flooding analysis, emergency response and evacuation routes, endangered and sensitive species studies and habitat type health, transportation, and all other environmental factors.
- Department of Homeland Security (DHS), Customs and Border Protection, Office of Border Patrol Environmental Planning and Infrastructure.– GIS Manager/Specialist for all mapping and analysis for over 500 environmental projects to all Southern Border Patrol Sectors along the U.S. /Mexico Border.

- These included Programmatic Environmental Impact Statements (PEA), Environmental Impact Statements (EIS), Environmental Assessments (EA), HEP and Biological Assessments (BA), Environmental Site Assessments (ESA), and Wetland Delineations. Constructed and managed an ArcIMS web-based mapping project to support all Border Patrol Sector PPT meetings. Also assisted in collection and mapping of all data associated with endangered and threatened species studies.
- Defining Boundaries of Environmentally Sensitive Areas, Ruston, LA. Client: Energy Transfer Company – Provided GIS analysis and mapping for the impacts for locations and boundaries for portions of the 176-mile proposed right-of-way for the Tiger Pipeline project across eastern Texas and northern Louisiana. Utilized Trimble GPS unit shape files associated with the right-of-way, centerline, northern work boundary, southern work boundary, areas defined as expanded workspaces, previously delineated wetlands, and creeks inside the permitted work areas, to map the locations of the environmentally sensitive areas to cause minimal disturbances during the clearing and construction operations.
 - Cheniers and Natural Ridges Study. Cameron and St. Tammany Parishes, LA. Client: LDNR – On behalf of the LDNR, conducted the Chenier and Natural Ridges Study for sites in southwest Louisiana and the north shore of Lake Pontchartrain. Provided biologists with GIS support in assessing historical and current wildlife usage of chenier and ridge features by on-site field evaluations and review of the literature. A hydrological study is underway to determine the efficacy of cheniers and natural ridges in storm surge protection. Geological studies, which will examine how structural changes in these features may affect their integrity, are in progress. Interpretation of historical and current aerial photography will be undertaken to quantify and qualify feature impact. Data collected from the above-described efforts will be assimilated and a report describing how changes, attributable to human activity, may have affected cheniers and natural ridge features.
 - Threatened and Endangered Species Monitoring. Client: Harrison Law, LLC – Prepared mapping and analysis for a red-cockaded woodpecker survey and timber stand survey on 430 acres in St. Tammany Parish, Louisiana.
 - Regulatory Compliance Assistance. Louisiana Statewide Bridge Replacement Projects Louisiana. Client: LA DOTD – GIS Manager/Specialist for all GIS project management and assistance to LDOTD for wetlands and ecological compliance involving thirty individual bridge projects throughout Louisiana. Tasks include wetland delineations and the following environmental permitting: Section 10/404, Coastal Use, Scenic Rivers, and U.S. Coast Guard.

- Stage 0 Feasibility Study and EI, I-49 Inner Connector Project, Caddo Parish, LA. Client: Northwest Louisiana Council of Governments (NLCOG). – Provided GIS analysis, mapping, and a web-based map for the public website for the impacts of a connector as part of the I-49 Corridor, and was designed to intersect Shreveport, Louisiana through the urban area adjacent to the center of downtown with an approximately 3.6 mile long highway segment connecting the existing I-49/I-20 interchange to the proposed I-49/I-220 interchange.
- Constructed Wetlands/Wetlands Restoration (Demonstration Project); Ouachita Parish, LA. Client: Graphic Packaging International, Inc. (GPI). – Provided GIS for the restoration of a ±200 acre cypress/tupelo swamp at GPI's West Monroe facility. Project is being implemented to assess the feasibility of using secondary sludge as a suitable substrate for wetland plant growth and re-establishment as a result of hydrologic modifications associated with the site.

Publications

Milanes, A., Stevens, M., Alford, D. Mobile GIS and Real-Time Data Display in a Common Operating Picture. International Oil Spill Conference Proceedings May 2014, Vol. 2014, No. 1 (May 2014) pp. 1607-1620

Wendy French Couvillion, GISP

Education

- Louisiana State University, Baton Rouge, LA: BA - History, BA - Economics

Technology Expertise

- **Geographic Information Systems Professional (GISP)** - (Certification #: 90300)
- **Mapping with Databases:** ESRI Arc GIS Mapping Products (Intro Arc SDE, Intro ArcInfo SDE Administration for Oracle Databases, Intro ARC IMS, Customizing Arc IMS with HTML & Java), Intergraph Geomedia
- **Design Packages:** Adobe Photoshop, PageMaker, Illustrator, SwishMax Flash Animations
- **Databases:** Tableau Analytics, Access, Oracle, SQL Server
- **Microsoft Office Suite:** Excel, Access, Power Point, Visio
- **Cloud Services:** ESRI ArcGIS Online, ESRI AMAZON, MICROSOFT 365

Experience Summary

- 2017 – Present, Wyndston Services, Inc.
- 2015 – 2017, Acadian Millwork & Supply
- 2014 – 2015, Wyndston Services, Inc.
- 2006 – 2014, Municipal Government of East Baton Rouge Parish
- 2002 – 2006, Wyndston Services, Inc.
- 2002 – 2006, C-K Associates, Inc.
- 2002 – 2006, Integrate Corporation
- 1998 – 2000 CH Fenstermaker
- 1996 – 1998, Johnson Control World Services
- 1996 – 1998, Aero-Data Corporation

Relevant Project Experience

Wyndston Services, Inc., Principal Consultant - Currently provide technology consulting services that focus on asset management, workflow processes and Geographical Information Systems. Enterprise GIS database services that use LEAN task mapping and ASSET mapping techniques can provide operational work flow protocols with illustrated operational dashboards that provide task level transparency for all

Wendy French Couvillion, GISP

stakeholders. This concept was originally developed a management strategies to manage crisis periods during oil spills and Hurricane management, these techniques have proven as dynamic stakeholder reporting for a range of organizations managing a range of tasks and complex expectations.

Recently, I have been working with several pilot projects to illustrate these reporting techniques to support high growth or critical maintenance periods for small to mid-size local companies. Some of these private systems have been key in managing the recent flood events in Louisiana private ventures focused on insurance reporting and construction management. Building upon Microsoft software and databases with affordable ESRI web mapping technologies makes these services affordable for a range of firms. Using readily available software directs firms so that they do not become entrenched in custom programming initiatives and keeps cost low, training timelines shortened and understandable by all stakeholders.

Municipal Government of East Baton Rouge Parish Information Services, GIS Manager - Served with the East Baton Rouge Parish Information Services section as the Parish GIS Manager for East Baton Rouge. While working under Mayor Holden's administration, I helped broaden a single agency's Geographic Information Management project into a truly modern enterprise program through the ESRI ArcGIS & AGO Organizational web services to serve parish wide. By developing GIS trained personnel in critical city agencies, they served as authoritative data resource managers that overviewed critical data layers in the integrated GIS data Oracle library. This library and personnel combination was used to provide daily status update reports for several parish EOC events. In 2011 these oracle library services were published into a city ESRI AGO and then later migrated into a parish wide organizational portal. Some of the specific projects I managed included: the Department of Public Works' 311 ticket management system, sewer rehab project updates, and fire station planning and risk management. These GIS data services also supported the City of Baton Rouge through several hurricanes Gustav, Ike & Isaac with hurricane debris mapping and utilities outage mapping. The City of Baton Rouge's GIS projects were highlighted by **ESRI's Jack Dangermond as a 2013 Special Achievement Award winner.**

Wyndston Services, Inc., Principal Consultant - Introduced database services, early co-op architectures & GIS services to small and mid-businesses that traditional enterprise computing were too expensive. I managed subcontractors and servers in a data center to create a 3 tier architecture that provided web content management services, data center file storage capacity, and GIS mapping services with SDE and Microsoft SQL Server. Previously, 3 Tier architectures were only available at a state agency level, but creating a co-op these resources were cost shared. These early co-op projects were critical to support the several organizations through Hurricane Katrina. My co-op clients included the Port of Fourchon, the Barataria Terrebonne National Estuary Program & PIA of Louisiana. The PIA of Louisiana project included creating an association management database that housed an Error and Omission insurance policy module

Wendy French Couvillion, GISP

that contains policy details for all member insurance agencies. This system was key to the insurance industry during the immediate Katrina event. As each co-op member grew and the Katrina recovery needs moved each client into their own independent systems. I was invited to serve the City of Baton Rouge to help them build a true GIS enterprise system for the City/Parish of East Baton Rouge.