

Proposal for Statewide Contract for Technical Services RFP #ITECH10



Submittedace

State of West Virginia

Department of Administration Rurchasing Division Building 15 2019 Washington Street East Charleston, WV 25305-0130

Stilbrittedby

Michael Baken Jrmino

5088 W. Washington St. 2nd Floor Charleston, WV 25318

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DIVISION



Michael Baker Jr., Inc.

5088 W. Washington St., 2nd Floor Charleston, WV 25313

(304) 769-0821 FAX (304) 769-0822

January 20, 2010

Ms. JoAnn Adkins
Department of Administration
Purchasing Division
Building 15
2019 Washington Street East
Charleston, WV 25305-0130

Subject

RFQ ITECH10: To provide temporary staffing with computer technical expertise and to provide

IT services for projects.

Dear Ms. Adkins:

Michael Baker Jr., Inc. is pleased to submit our qualifications to provide temporary staffing with computer technical expertise and to provide IT services for projects. Michael Baker Jr., Inc. and its partners offer a depth of interdisciplinary staff unique to the industry. We are located in Charleston, West Virginia and have been serving the great state of West Virginia since 1954.

Michael Baker Jr., Inc. and its partners meet all of the mandatory requirements outlined in West Virginia RFQ ITECH10. Michael Baker Jr., Inc. and its partners look forward to working gracefully with The State of West Virginia.

If there are any questions, you may contact Rusty Hall or Michael Emanuel at (304) 769-0821.

Sincerely,

MICHAEL BAKER JR., INC.

Mr. Russell B. Hall, P.B.

Principal-In-Charge

REH/RWL/cln

Attachment: Baker Proposal

Mr. Michael Brianuel Senior IT Project Manager



State of West Virginia Department of Administration Purchasing Division 2019 Washington Street East Post Office Box 50130 Charleston, WV 25305-0130

Request for Quotation

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JO ANN ADKINS 304-558-8802

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State of West Virginia Department of Administration Quotation Purchasing Division 2019 Washington Street East Post Office Box 50130 Charleston, WV 25305-0130

Request for

JO ANN ADKINS

304-558-8802

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Section I – Corporate Description

1.1 COMPANY NAME, ADDRESS, AND FEDERAL TAX ID CONTACTS

Michael Baker Jr., Inc. 5088 W. Washington Street, Second Floor Charleston, WV 25313 (304) 769-0821 (304) 769-0822 FAX Federal Tax ID: 25-1228638

Corporate Office: Michael Baker Corporation

100 Airside Drive, Airside Business Park

Moon Township, PA 15108

(412) 269-6300 (412) 375-3980 FAX

1.2 CONTACT INFORMATION

Mr. Russell E. Hall, Assistant Vice President 5088 W. Washington Street Second Floor Charleston, WV 25313 (304) 769-2154 rhall@mbakercorp.com

1.3 DATE COMPANY ESTABLISHED AND FULL TIME EMPLOYEES

Year Baker Established: 1940 Full Time Employees as of January 2010 for Michael Baker Jr., Inc.: 2,161

Michael Baker Jr., Inc. Employee Classifications:

Administrative	472	Engineering Technician	242	Project Manager	61	
Anthropologist	2	Environmental Engineer	13	Railroad Specialist	2	
Archaeologist	11	Environmental		Research Specialist	4	
Architect	31	Scientist/Specialist	82	Risk Assessor	2	
Architectural Historian	5	Foundation/Geotechnical Engineer	14	Scheduler	6	
Architectural Technician	15	Geodetic Surveyor	2	Stereo Specialist	7	
Biologist	6	Geographic Information	2	Structural Engineer	104	
Bridge Inspector	5	System Specialist	214	Survey Technician	17	
Cartographer	4	Geologist	26	Transportation Engineer	74	
Civil Engineer	178	Hazardous Waste		Unassigned	21	
Construction Inspector	118	Specialist	1	Water Resources		
Construction Manager	63	Hydrologist	24	Engineer	46	
Cost Engineer/Estimator	1	Industrial Hygienist	6			
Designer/CADD		Land Surveyor	9			
Technician	170	Landscape Architect	5			
Ecologist	4	Mechanical Engineer	10			
Econ-		Mining Engineer	3			
Financial/Feasibility	4	Oceanographer	1			
Specialist	4	Photogrammetrist	1			
Electrical Engineer	6	Planner	69			

Michael Baker Jr, Inc.

1.4 COMPANY HISTORY, ORGANIZATION, KEY PERSONNEL AND RESULTING CONTRACT AND INDUSTRY PARTNERS

1.4.1 Company History

Michael Baker Corporation was founded in 1940 as a civil engineering and surveying firm. Today, with nearly 2,300 professional employees in more than 40 offices in the United States and abroad, Baker successfully serves the Engineering and Energy markets with a broad spectrum of core services. Our belief is that project challenges are not obstacles, but rather invitations to innovate. We have evolved into a leading engineering and energy services firm by consistently providing targeted solutions for our customers' most complex challenges. Our accomplishments include the design of the Pittsburgh International Airport Midfield

Terminal, the New River Gorge Bridge in West Virginia, and the Trans-Alaska Pipeline, considered one of history's greatest engineering and construction feats.

In addition to engineering and architectural design, **Baker Engineering** provides surveying, mapping, master planning, site development, information technologies, and geotechnical services across several market segments including: Geospatial Information Technologies (GIT); Telecommunications; Transportation; Pipelines/Energy; Civil; Aviation; Environmental; Facilities; and Water/Water Resources. We provide these services to both domestic and international clients in the private and public sectors.



Baker's Digital Services department provides a full range of internal and outsourced IT services to meet the IT infrastructure, project management, and staffing needs of our client and internal projects. Baker Digital Services can accomplish:



- Server hardware provisioning services, from recommendations and specifications to purchase or lease.
- Server hosting in our state of the art, commercial grade off-site data center though our partnership with AT&T
- 24x7 Server security, maintenance, backup and administration through our partnership with ePlus.
- Database provisioning, design and administration on MS SQL Server, Oracle, or other platforms.
- Web services via IIS or Apache.
- Web application development utilizing all popular server technologies, for deployment on client servers or Baker managed services.
- Web (HTML) authoring for public access web sites.
- Graphic design services in support of public web sites and dedicated web applications.
- Application and system support via phone, email, web forms, or fully staffed and dedicated Help Desks, as appropriate for the project.

Baker Digital Services has the design and implementation experience required to ensure the reliability, security, scalability, maintainability of your IT systems.

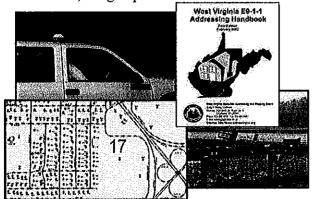
1.4.1.2 Geospatial Information Technology

Baker's GIT Group has over 60 years of proven experience in providing quality base mapping services through photogrammetry. During that time, we have witnessed the extensive growth of the GIT industry and the steadily changing technology. Baker's services have evolved and expanded to meet the demands of the user community to include project management, life cycle software development, database design, data

conversion, web development, addressing, and field data collection. Today, Baker has the unique ability to offer all services needed to take an organization from a "paper system" to a fully integrated enterprise solution. Baker has consistently guided our clients in the deployment of technologies at the forefront of the GIT industry through superior client consulting.

Our first major GIS conversion project, initiated in 1983, was undertaken before the term "GIS" became a commonly used term. From that point forward, we were in the GIT business. Our clients expanded and we used what we learned in those early projects to apply GIT tools to hundreds of different projects. Also in the 1950's, Baker began providing photogrammetric mapping services, one of the first private firms with this capability. Today, Baker primarily operates soft copy stereo workstations, the latest advance in stereoplotters, supplemented with first order analytical plotters. In 1989, Baker began providing GPS services and has since continued to maintain leading edge GPS technology capabilities.

Baker is one of the few firms to offer all of the services necessary to see a client through the process of geoenabling their enterprise, or just fielding a GIS system. From consulting and program management, to mapping and data conversion, to system integration and software development, to operations and maintenance, our geospatial-IT services have evolved with the industry and changing technology. Today,



Baker is recognized as one of the largest and most respected, full service geospatial-IT providers.

Baker's expert knowledge in GIS, information technology, E9-1-1 including wireless Phase II implementations, addressing, mapping, digital orthophotography, surveying, master planning, and environmental management has allowed us to successfully furnish GIT services to a very diverse client base ranging from county and municipal agencies; to state departments; to federal agencies; to public utilities and private industry.

Our full line of GIT services includes:

1.4.1.3 Consulting Services

Baker provides a variety of consulting services that help our clients conduct operations more efficiently and effectively by putting vast amounts of data at their fingertips.

- > Strategic Planning
- Needs Assessments
- Data Survey

- > Implementation Planning
- Database Design
- > RFP Development

1.4.1.4 Data Collection and Conversion Services

Whether from paper maps, databases or other sources, accurate data collection is an essential building block in creating and effective databases.

- ➤ Data Conversion/Migration
- > Translation to/from Multiple Formats
- Database Development

- > Field Inventory
- Scanning

1.4.1.5 Software Services

Baker's extensive IT expertise allows us to formulate innovative solutions to the challenges faced by our clients. Our consulting services provide a broad range of technical approaches to all our projects.

> Application Design

> System Implementation/Integration

Application Development

➤ Web Deployment

1.4.1.6 Customer Support Services

Baker's role does not end with system design and implementation. We also provide our clients with comprehensive out sourcing services.

- > Training
- System Operation & Maintenance
- > Data Maintenance
- ➤ 3D Design/GIS
- > Interactive Multimedia Design
- > Urban Simulation
- > Video Production
- Digital Art
- Photography

1.4.1.7 Financial Stability

Following the death of the founder in 1977 and a corporate restructuring in 1984, major ownership and control of the company shifted to an Employee Stock Ownership Plan (ESOP). With employees holding a stake in the success of the company, Baker continues to grow in the size and scope of client services we provide, and is financially sound. Today, Baker is listed in the top 10 percent of the 500 largest engineering firms in the United States.

1.4.2 Key Personnel

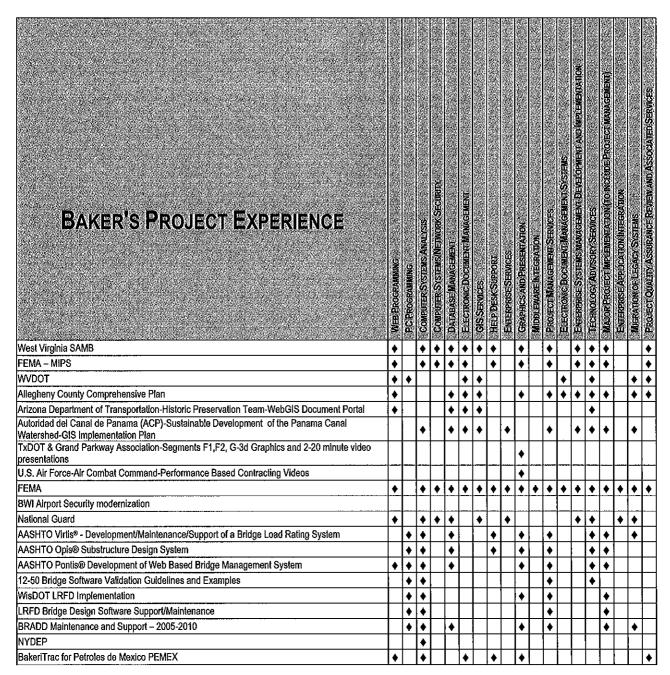
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GIS TECHNICIAN									*			ļ	_	_						*	•
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DAVID J. PRICE GIS/PROJECT MANAGER		<u> </u>	♦	•	*		•	•	*		*		•	*	*	*	*	•	*		•
EDWARD RODGERS GIS TECHNICIAN	5	BS					•	•	•											•	ullet
WILHELMINA ELLEN TAYLOR	26	AD			*	 	*		•											•	•
GIS TECHNICIAN SCOTT A. TREASTER	9	BS			•		*	•	•		ᅱ	\dashv					*			•	•
GIS ASSOCIATE ROBERT A. RICKARD							•				-						_			-	-
SENIOR DESIGNER	18	AS			•			•	•		_	*		•		*	•			*	•
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LAUREN E. WINKLER GIS ASSOCIATE	6	8S							٠			•									
SCOTT C. PETERSON	23	BS	*						•			•								П	П
PROGRAMMER / GIS SPECIALIST TERESA HALL	30	BS		-	_	 			H					•						Н	Н
GIS SPECIALIST GIRISH BHANUSHALI, EIT				_	_				_	_	-									Н	Н
SOFTWARE SYSTEMS DEVELOPER JIM DURAY, PE	35	MS, ME, BE, LC, SC	•	•	•	_	*			•		*				_		*		Н	Н
PROJECT MANAGER	35	BSCE, MSCE, MS	•	*	•	L	•					*		*		•	♦	•	•	*	•
Sandy Fitzgerald Designer	24	BS		*								•									
RICH FLANGO, PE SENIOR ENGINEER	29	BSCE, MSCE		+																	
DAVE FOREMSKY, PE	17	BSCE, MSCE	•	•																П	П
SENIOR ENGINEER JOE HNAT	26	BS	ŕ													H			H		\vdash
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HERMAN LEE CIVIL ENGINEER	15	MS	*	•			*										*			+	
MARK MLYNARSKI, PE PROJECT MANAGER	24	BSCE, MSCE		•	Г							•		*							Г

BAKER'S STA	FF EX	EDUCATION	WEEPROGRAMMING	PCPROGRAMMING	COMPUTER SYSTEMS AND EXIST	COMPUTER SYSTEMS/NETWORK SECURITY	DatabaseManagement	ELECTRONIC DOCUMENT MANAGEMENT	GSSERVICES	HELP DESK SUPPORT	ENTERPRISE STRVICES	GRAPHICS NAID PRESENTATION	Mediewarehnegration	Project Mangement Services	ELECTRONIC BOCOMENT MANAGEMENT SYSTEMS	ENTERPRISE SYSTEMS MANAGEMENT DEVELOPMENT AND IMPLEMENTATION.	243	MAJOR-PROJECT/MPNEMENTATION (TO INCLUDE PROJECT MANAGEMENT)	Enterprise Application integration	MIGRATION OF LEGACY SYSTEMS	Project-Quatify Assurance Revendand Associated Services
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SOFTWARE SYSTEMS DEVELOPER ANDY PARKER, PE			•	Н		•		_		_		\dashv			\dashv	\dashv	\dashv	-	_	\dashv	\dashv
SENIOR ENGINEER	27	MS, BS		•	•	•	*	*			\dashv	\dashv		_	_	_				•	_
MARY ROSICK, PE PROJECT MANAGER	25	BSCE, MSCE		•	•		•		*			*		•				•		*	
STEVE SALATA SOFTWARE SYSTEMS DEVELOPER	21	BSCE, MSCE	*	٠	٠		•		•			•						٠		•	
BILL SMYERS, PE	30	BSCE, MSCE		•	+					•				•						T	
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SOFTWARE DEVELOPMENT SPECIALIST	43	PE	*	•	•		*	_	•					*		_				*	
QINLIN LUO SOFTWARE DEVELOPMENT SPECIALIST	13	MBA	*	*	*		٠		*												
MARTIN FLAHERTY	14	BS	*	*	*		٠	*	*						*					*	
SOFTWARE DEVELOPMENT SPECIALIST VIJAY DUPATI	10	MS	٠	•	•		•		•							П					
SOFTWARE DEVELOPMENT SPECIALIST TOM COLALELA			_	H	_		 		É	_						Н			\dashv		
SYSTEMS SUPPORT ANALYST	41	AAS	*	•			*		_	*					-				\square		
NANCY TAYLOR WEB DESIGNER / GRAPHIC ARTIST	38		•									*									
TRACEY ANDERSON	17	BSIT	*									•									
WEB DESIGNER / GRAPHIC ARTIST STEVE N. CRYTSER	27	CNA/CNE		•	_		*				•	H	*	٨		Н				•	
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Baker's Sta			Web Programming	PCProcepagns	COMPUTER SYSTEMS ANALYSIS	COMPUTER SYSTEMSINETWORK SECURITY	Database Managenent	ELECTRONIC DOCUMENT MANAGEMENT	GISSERACES	HERPDESKSupport	EMERPRISE SERVICES	GRAPHICS.AND PRESENTATION	MODE ENARE NIEGRATION	Project Management Services	ELECTRONIC DOCUMENT/MANAGEMENTS/(STEMS	ENTERPRISE SYSTEMS MANAGEMENT DEVELORMENT AND INFOLEMENTATION	TECHNOLOGI/MD/USORY/SERVICES	MAJOR PROJECT IMPLEMENTATION (TO INCLUDE PROJECT MANAGEMENT)	ENTERPRISE APPLICATION INTEGRATION	Wiceanow of Legacy Systems	Project Quality Assurance Review and Associated Services
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MICHAEL ENNIS SOFTWARE SYSTEMS DEVELOPER	2	BA, BS	•	*	•		•				•		•			•		_			\exists
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JEROD SPERRY	8	BS							•	٠		\dashv	•	7		\dashv	\dashv		\dashv	\dashv	\dashv
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KATHLEEN L. SMETANA SUPPORT TECHNICIAN	6							*		*			•								
RACHELLE L. MODESKI DESIGNER	4	BS									•										

Michael Baker Jr, Inc.



1.4.3 Contract and Industry Partners

Bentley:

Baker has a Bentley Enterprise License Subscription (ELS). With an ELS, you have enterprise-wide access to Bentley's comprehensive portfolio which covers all the AEC software needs of subscribers, providing building, civil, plant, and geospatial solutions and supporting a managed environment for their AEC IT.

ESRI

Baker has 12 offices who are Business Partners. ESRI Business Partners offer a unique combination of expertise and market presence, growing GIS solutions in new markets, assisting customers with ESRI technology, and strengthening the worldwide GIS community

IBM:

The IBM partnership with Baker was to provide system engineering, system integration, program management, and training services to FEMA within the Map Modernization program of 5 years and totaling 750\$M across the entire program. The bulk of the Baker-IBM partnership occurred in the first 2 years of the program where Baker-IBM delivered the Mapping Information Platform (MIP) which included GIS based production tools for producing a map, management by exception capabilities through a workflow based project management tracking system, information sharing through web services, and information extraction via GIS based search and retrieve capabilities totaling ~50\$M. After year one of the contract, Baker assumed sole responsibility for the training and the program management, however the partnership continued with system engineering and system integration services primarily to operate and maintain the MIP.

Microsoft:

Enterprise Agreement helps your business standardize IT across the enterprise, simplifies license management, and provides maintenance benefits to help ensure that your company maintains a competitive advantage and to increase employee productivity. Maintenance benefits include free training, support, and on-site technical assistance on projects

AT&T:

Baker currently partners with AT&T to provide a number of services. This includes Centralized Hosting at Tier 1 Data Center facility for itself and clients as well as infrastructure connectivity worldwide.

Oracle:

Michael Baker Jr., Inc. is an Oracle Business Partner and member of the Oracle Partner Network (OPN). Additionally, Michael Baker Jr., Inc. has worked directly with Oracle to deliver solutions to our government customers. Baker itself is a large Oracle customer as well having deployed Oracle's E-Business Suite for Enterprise Resource Planning (ERP) throughout the Michael Baker Corporation. Baker volunteers time to the Independent Oracle User Group (IOUG) and serves on the board of the North American Oracle Spatial User Group as well.

Section II – Qualifications and Experience – Supplemental Staffing Categories

Category 1: Web Programming

2.1 WEB PROGRAMMING, I.E., HTML

I376-A37 PART 2 CONSTRUCTION MANAGEMENT PENNDOT DISTRICT 11-0

Baker provided construction management and construction inspection services for the rehabilitation/reconstruction of 4.4 miles of I-376, Parkway East from Bates Street to Edgewood/Swissvale. The project included accelerated concrete patching and overlaying, milling and resurfacing of the mainline, shoulders, and ramps, installation of new drainage, guide rail, signage and pavement markings. The structure work included repairs to the dams and substructure in addition to the milling, hydrodemolition and placement of rapid set latex modified concrete on twenty bridges. Other work included the full removal and placement of a new three coat paint system on two structures, zone painting on several other structures, and the upgrade of traffic signals at the ramp locations. Baker's responsibilities included oversight of all project activities, tracking, documentation and payment for all operations, managing all project correspondence, coordination and conducting all meetings, preparation of meeting minutes, documentation review, and issue resolution.

As part of Highway Construction Management Project, Baker provided all services needed for a public information web site featuring project overview, alternate routes, weekly construction updates, project press releases, web camera links, project photos and an email list service to distribute updates.

Customer's Name: Pennsylvania Department of Transportation (PennDOT)

Contact:

Angelo Pampena

Telephone No: 412.429.5055

E-mail:

apampena@state.pa.us

General Value:

\$797,000

Length of Project:

2/28/07 to 9/30/08

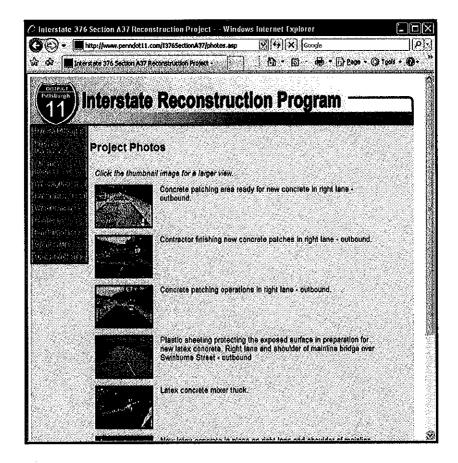
Baker provided web server hosting for this project along with other projects for the same client. Website URL: http://www.penndot11.com/I376SectionA37/

Baker used a template approach to design the website, so that all project pages would have a common look and feel, with an easy to use navigation menu always available on the left margin or each page. Content for the site was developed in coordination with client to address the traveling public's most common areas of interest and concern, and to complement the project's public communication plan.

Where appropriate, the site uses automated content management techniques which allow project level personnel to post content to the site with as little need for HTML expertise as possible. For example, a project engineer was able to return from the field with digital pictures, upload the image files to the web site's content management application, and simply add captions to each photo. The content management application developed by Baker automatically re-sampled the photos to appropriate sizes for the internet, and presented a user interface where viewers could see a thumbnail preview of all project photos, or choose a single photo for larger format view, with 'previous' and 'next' links to other photos in the collection. In a similar fashion, project press releases could be uploaded in PDF format along with relevant information for press release dates, and the content management application would automatically present to the public a collection of all available press sorted by the most recent available information.

Other Internet technologies utilized for this project include a email list server which allowed members of the public to sign up for automatic email updates using a web form, and which allowed project staff to distribute hundred of email to the public when there were late breaking updates and detour changes. The list server application handled all aspects of list maintenance: keeping individual user information confidential from other users, limiting distribution rights to authorized project personnel only, allowing users to unsubscribe at will, managing the task of distributing the emails, and tracking list membership and email distribution reporting statistics.

Baker performed coding, testing and debugging of both the HTML code and the scripting code for the content management application. Baker modified the code as needs changed over the course of the project, documented changes through communication with other project participants, ensured that changes were implemented in an orderly fashion, provided content contributor training as needed.



Category 2: PC Programming

2.2 PC Programming, i.e., .Net, Cold Fusion

BRADD Maintenance and Support – 2005-2010 STATEWIDE, PENNSYLVANIA

Customer's Name:

Contact:

Jay Fitzgerald

BRADD Manager

Telephone No:

iafitzgera@state.pa.us

717.787.7054

E-mail:

Pennsylvania Department of

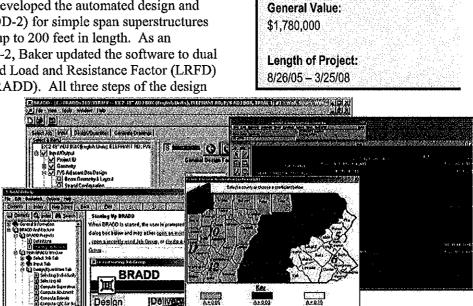
Transportation (PennDOT)

Bridge Automated Design and Drafting Software (BRADD) is a computer software program that was developed by Baker for PennDOT to automate the bridge design process from problem definition through contract drawing development. The software provides a user friendly GUI menu driven input, numerous application design programs, and a drawing generation built around Bentley's MicroStation CADD technology.

Since 1985, Baker has been responsible for developing several automated bridge design and drafting programs that have been implemented on a state and federal level. Baker was contracted by the FHWA and the Pennsylvania Department of Transportation to develop Bridge Automated Design and Drafting (BRADD) software to automate the design and drafting of PennDOT's Low Cost Bridge Standards. After completion of BRADD, Baker further developed the automated design and drafting software (BRADD-2) for simple span superstructures and abutment structures up to 200 feet in length. As an improvement to BRADD-2, Baker updated the software to dual units (English/Metric) and Load and Resistance Factor (LRFD) design specifications (BRADD). All three steps of the design

process (analysis, design, and plan preparation) are automated by the software.

The software is currently supported on the Windows XP operating system. It consists of 19 FORTRAN modules, which are compiled to Dynamic Link Libraries (DLL) to



communicate with the Graphical User Interface which is written in Visual Basic .NET. BRADD has an extensive on-line help system ranging from context sensitive help to a Users Manual and standards documentation.

BRADD produces a set of scaled contracts for simple span bridges using LRFD design. The main abutment types available for selection include wall abutment on spread and/or pile footings and reinforced concrete cantilever abutment on spread and/or pile footings. Superstructure types that can be

incorporated include precast channel beams, adjacent prestressed concrete box beams, prestressed concrete I-beams, and steel multi-beams and girders.

The software generates MicroStation design files using a series of MDL applications and can also generate DXF files. The design files can be modified using a tutorial and associated user commands all developed by Baker.

Category 4: Computer Systems Analysis

2.4 COMPUTER SYSTEMS ANALYSIS

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) MAPPING INFORMATION PLATFORM (MIP)

Baker and IBM created an information system security team comprised of subject matter experts, three Information System Security Officers, and client representatives to complete the federal government's requirements for Certifying and Accrediting the Mapping Information Platform (MIP) system for use and operation. Duties entailed using the National Institute of Standards and Technology documentation to secure the physical and software aspects of the MIP, which extended from the hosting facility in Raleigh, NC to the Alexandria, VA Baker offices due to a dedicated network connect between the MIP development team in Alexandria, VA and the hosting facility. Project plans and responsibility matrices were used to create a government required Plan of Actions and Milestones deliverable. Contingency, Site Approaches, and Business Impact Analysis plans were created and delivered. Physical network security upgrades, physical infrastructure security upgrades, risk identification, security training, and were all implemented based upon NIST standards and guidelines based upon the "Sensitive System" security classification of the MIP.

Employees and/or subcontractors used were IBM information system security officers, building managers, IBM hosting facility in Raleigh, NC.

Customer's Name: FEMA Mitigation Branch 500 C Street S.W. Washington, D.C. 20472

Contact: Doug Bellomo

Telephone No: 202.646.2903

E-mail: doug.bellomo@dhs.gov

General Value: \$1,000,000

Length of Project: 18 Months

The main problem that was encountered was interpreting the scope of the NIST guidelines and standards in defining the scope of the physical area that needed to be secured within the Alexandria, VA office location.

Performance goals of completing our POA&M on schedule and within the budget allocated for the project were met. This eliminated the risk that the MIP would be unavailable to the users after a specific date due to operating under a temporary authority to proceed.

Category 5: Computer Systems/Network Security

2.5 COMPUTER SYSTEMS/NETWORK SECURITY

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) MAPPING INFORMATION PLATFORM (MIP)

Baker and IBM created an information system security team comprised of subject matter experts, three Information System Security Officers, and client representatives to complete the federal government's requirements for Certifying and Accrediting the Mapping Information Platform (MIP) system for use and operation. Duties entailed using the National Institute of Standards and Technology documentation to secure the physical and software aspects of the MIP, which extended from the hosting facility in Raleigh, NC to the Alexandria, VA Baker offices due to a dedicated network connect between the MIP development team in Alexandria, VA and the hosting facility. Project plans and responsibility matrices were used to create a government required Plan of Actions and Milestones deliverable. Contingency, Site Approaches, and Business Impact Analysis plans were created and delivered. Physical network security upgrades, physical infrastructure security upgrades, risk identification, security training, and were all implemented based upon NIST standards and guidelines based upon the "Sensitive System" security classification of the MIP.

Employees and/or subcontractors used were IBM information system security officers, building managers, IBM hosting facility in Raleigh, NC

Customer's Name:
FEMA Mitigation Branch
500 C Street S.W.
Washington, D.C. 20472

Contact:
Doug Bellomo

Telephone No:
202.646.2903

E-mail:
doug.bellomo@dhs.gov

General Value:
\$1,000,000

Length of Project:
18 Months

The main problem that was encountered was interpreting the scope of the NIST guidelines and standards in defining the scope of the physical area that needed to be secured within the Alexandria, VA office location.

Performance goals of completing our POA&M on schedule and within the budget allocated for the project were met. This eliminated the risk that the MIP would be unavailable to the users after a specific date due to operating under a temporary authority to proceed.

Category 6: Database Management

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2.6 DATABASE MANAGEMENT, I.E., ORACLE, DB2

WEST VIRGINIA ENTERPRISE GEOSPATIAL SYSTEM DESIGN AND IMPLEMENTATION STATE OF WEST VIRGINIA

The West Virginia Statewide Addressing and Mapping Board (WVSAMB) is charged with developing an integrated addressing and photogrammetric base mapping system for the entire State of West Virginia. The system includes aerial photography for the development of digital maps and a computerized Geographic Information System (GIS) that will interface with and contribute to the needs of the following: county Enhanced 911 services, state and local government agencies, telephone companies, US Postal Service, and utility systems, with a special focus on public safety and emergency response. The data to be supplied by the successful bidder will be a foundation of this system.

The West Virginia Legislature created the West Virginia Statewide Addressing and Mapping Board in the 2001 session (Senate Bill 460, codified as W. Va. Code Section 24E-1-1 et seq.). The mission of the Board is to advance the infrastructure of West Virginia by overseeing two major tasks: 1) providing new high quality digital mapping of the entire State of West Virginia; and, 2) assigning a standard city-style address to every identifiable structure in the state. The project was funded primarily under the Incentive Regulation Plan of Verizon West

Virginia Inc., approved by the Public Service Commission of West Virginia in *Case Nos. 00-1318-T-GI*, et al., on October 3, 2001.

Baker was selected as the project manager for the duration of the \$16,500,000 project over five years. In addition to writing the mapping and addressing specifications and managing the State's mapping and addressing contractors, Baker was charged with the design of a world-class addressing and mapping system; determining operational, technical, budgetary, and support requirements; developing rules, standards, policies and procedures; developing security procedures; standardized formats for mapping and

addressing databases; and system implementation.

Customer's Name:

West Virginia Statewide
Department of Administration

Contact:

Jimmy Gianato, Chairman 1124 Smith St., LM-10 PO Box 11928 Charleston, WV 25301

Telephone No:

304.344.4538

E-mail:

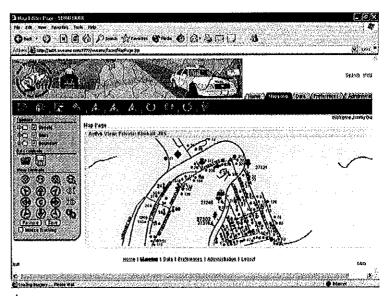
gianato@wvmaps.gov

General Value:

\$16,500,000

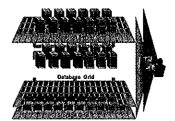
Length of Project:

Sept 2002 - Sept 2007



Baker recommended, designed, and prototyped a complete Oracle solution. Using the Oracle MapViewer, multiple counties, state agencies, and other stakeholders perform map maintenance and viewing through a highly performant and secure web interface. Baker developed procedures to convert and ingest ESRI AreSDE data and data from other formats into the Oracle10g Spatial (SDOGeom) format. Color digital

orthophotography is also being ingested into the Oracle Georaster format for web-distributed viewing. The system architecture allows for disconnected editing of portable XML vector datasets in the field with integrated blue-tooth GPS receivers so that counties can capture new structure sites and then easily synchronize the information to the central Oracle database. The system will scale to multiple public health and safety applications for use by multiple state agencies.



Category 7: Desktop Support

2.7 DESKTOP SUPPORT

JM Huber is a client of Baker Energy; Located in Sheridan Wyoming, Baker is responsible for total operations management of their Coal Bed Methane recovery unit. Baker desktop support staff are onsite and provide Desktop Support services to approximately 97 customers. These services include problem resolution, implementation of COTS software, Technology Refresh Services, field service support for remote pumping staff as well as local rollout of PCs and Laptops as needed. An entire online printing network has been installed and is also supported by the local DS Support Staff. This includes printers and scanners as well. The project is currently in its 4th year and has been renewed for another 18 months. Current Revenue is approximately \$3M (million) per month. Baker IT personnel also manage and support the SCADA host computers that collect data remotely over a dedicated network for 2000 coalbed methane wells.

OPERATIONS MANAGEMENT SHERIDAN, WYOMING

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Category 8: Electronic Document Management

2.8 ELECTRONIC DOCUMENT MANAGEMENT

CONVERSION OF COUNTY ROAD MAPS STATEWIDE, WEST VIRGINIA

This project involved the delivery of a seamless vector County Map Series in MicroStation V-8 format for the entire state of West Virginia. This electronic dataset was digitized from the Division of Highway's existing hard copy County Road Map Series linens and scribes. The project included converting 129 County Road Maps for 55 Counties in West Virginia. The delivered data was accessed via the Intranet and Internet, and printed to scale via Bentley's Digital InterPlot. Active involvement and daily monitoring of project activities by the project manager assured adherence to the project schedule. WVDOH staff were trained to maintain the data and output the County Map Series. Baker provides ongoing technical support and intermittent training on an as needed basis.

Baker's Role

- Vectorize the WVCMS
- Develop Mapping and Symbology Standards
- Deliver Complete Set of MicroStation Vector Maps, Mapping Standards and Related Training Documents
- Develop a County Map Website and Document Management System
- Train WVDOH Staff
- Quality Control Assurance

Customer's Name:

West Virginia Department of Transportation Division of Highways Bullding 5 1900 Kanawha Boulevard, East Charleston, WV 25305-0430

Contact:

Bill Wood

Telephone No: 304,558,3115

E-mail:

bwood@dot.state.wv.us

General Value:

\$880,000

Length of Project:

2003-2004

Category 9: GIS Services

2.9 GIS SERVICES

COMPREHENSIVE GIS DEVELOPMENT WASHINGTON, DC

Baker assisted the District of Columbia in establishing the groundwork documentation necessary for the development of Geographic Information System. Baker was responsible for developing the GIS Needs Assessment approach, conducting Agency interviews (25 half-day meetings), preparing the final Needs Assessment Report, as well as other tasks including System Requirements Analysis and the Preliminary Database Design.

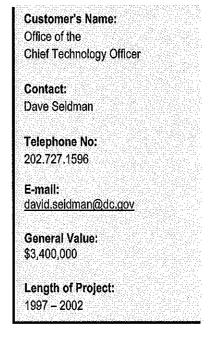
For the Needs Assessment, Baker developed three distinct surveys: 1) General Orientation Survey, 2) System Administrator Survey, and 3) WAN Administrator Survey. Each survey was targeted to the specific tasks and job duties of each group. During six half-day meetings, over 150 total surveys were distributed to District employees across a wide range of Departments and Agencies.

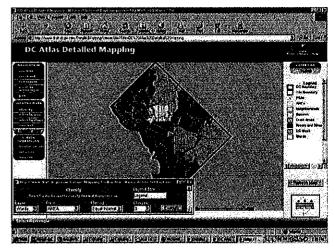
Specific tasks for the Washington DC GIS include the following:

Data conversion and GIS support for the DC Real Property Tax Administration:

Scanned and geo-referenced DC property tax map, created GIS Polygon layer of tax squares, created GIS point layer of tax lots. This Tax map GIS allows DC RPTA to map land use and help improve customer service. In addition, Baker provides on-site support and training for RPTA staff to make them self-sufficient in routine use of new data

Scanned and geo-referenced DC property tax map, created GIS Polygon layer of tax squares, created GIS point layer of tax lots. This Tax map GIS allows DC RPTA to map land use and help improve customer service. In addition, Baker provides on-site support and training for RPTA staff to make them self-sufficient in routine use of new data





Category 10: Help Desk Support

HELP DESK SUPPORT

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) MAPPING INFORMATION PLATFORM (MIP)

Baker provided Tier I, II, and III help desk for the Mapping Information Platform (MIP) for FEMA. The MIP system required support for it's end users, Baker developed and institutionalized a set of service level objectives to manage an end users request throughout it's lifecycle. The lifecycle of a ticket consisted of being resolved at the various tiers or being analyzed to determine if it was a defect or a change request based upon the current functional and non-functional requirements for the MIP. Service level objectives (SLOs), roles, and responsibility defined and implemented to track the following SLO's:

- i. Average Response Time
- Average Resolution Time ii.
- Ticket Arrival iii.
- Ticket Closure iv.

requests.

- Ticket Backlog v.
- Staff Productivity vi.

Types of employees or subcontractors used: IBM Global Services resources were sub-contracted to Baker to provide some Tier II and Tier III resources.

Problems encountered: Staff turnover, training, and managing customer expectations.

Performance results: Service Level Objectives are met and the scope of the MIP Help Desk increased to handle non-technical requests expanding the infrastructure that was set up to handle only MIP technical

Customer's Name:

FEMA Mitigation Branch 500 C Street S.W. Washington, D.C. 20472

Contact:

Doug Bellomo

Telephone No:

202.646.2903

E-mail:

doug.bellomo@dhs.gov

General Value:

\$1,000,000

Length of Project:

Sept 2005 - Ongoing

32

Category 13: Enterprise Services

2.13 ENTERPRISE SERVICES

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) MAPPING INFORMATION PLATFORM (MIP)

Baker and IBM created an information system security team comprised of subject matter experts, three Information System Security Officers, and client representatives to complete the federal government's requirements for Certifying and Accrediting the Mapping Information Platform (MIP) system for use and operation. Duties entailed using the National Institute of Standards and Technology documentation to secure the physical and software aspects of the MIP, which extended from the hosting facility in Raleigh, NC to the Alexandria, VA Baker offices due to a dedicated network connect between the MIP development team in Alexandria, VA and the hosting facility. Project plans and responsibility matrices were used to create a government required Plan of Actions and Milestones deliverable. Contingency, Site Approaches, and Business Impact Analysis plans were created and delivered. Physical network security upgrades, physical infrastructure security upgrades, risk identification, security training, and were all implemented based upon NIST standards and guidelines based upon the "Sensitive System" security classification of the MIP.

Employees and/or subcontractors used were IBM information system security officers, building managers, IBM hosting facility in Raleigh, NC.

Customer's Name:
FEMA Mitigation Branch
500 C Street S.W.
Washington, D.C. 20472

Contact:
Doug Bellomo

Telephone No:
202.646.2903

E-mail:
doug.bellomo@dhs.gov

General Value:
\$1,000,000

Length of Project:

18 Months

The main problem that was encountered was interpreting the scope of the NIST guidelines and standards in defining the scope of the physical area that needed to be secured within the Alexandria, VA office location.

Performance goals of completing our POA&M on schedule and within the budget allocated for the project were met. This eliminated the risk that the MIP would be unavailable to the users after a specific date due to operating under a temporary authority to proceed.

Category 14: Graphic and Presentation

2.14 GRAPHIC AND PRESENTATION

PERFORMANCE-BASED RESTORATION PROGRAM SUPPORT HEADQUARTERS AIR COMBAT COMMAND (HQ ACC), LANGLEY AFB, VIRGINIA

Michael Baker Jr., Inc. was selected by the Air Force Headquarters Air Combat Command (ACC) to develop a web based tool to assist in managing their Performance Based Restoration (PBR) program. The objective of this project was to provide necessary support to HQ ACC to facilitate the use of Information Technology for developing and maintaining the PBR Project Control System, training and development of a training video.

The PBR Project Control System is a private, password-protected tool that is available to ACC team members as specified by the program management team. The primary function of the tool is to store data related to schedule and budget of the PBR projects. The system enables users to query, track, and report information specific to ongoing PBC projects at various Air Force Bases throughout the United States. The system incorporates easy-to-use routines to facilitate data upload and retrieval, with the data being organized in a logical order and stored in a relational database. Custom routines and reports were developed to extract the data for presentation in a user-friendly format.

Customer's Name:
Headquarters Air Combat
Command

Contact:
Shawn Holsinger

Telephone No:
757.764.9405

E-mail:
shawn.holsinger@langley.af.mil

General Value:
\$345,274

Length of Project:
2007

As part of the contract Baker performed a needs assessment for the development of the project, developed the system, delivered the system and provided training, provided updates to the system and maintenance, along with system administration and user support.

Baker also developed an educational video that describes the ACC Performance Based Restoration Program. Tasks included developing the theme for the video and theme boards for internal review and direction. A detailed story board was developed based off of the theme boards. Upon approval of the story board and draft script Baker conducted interviews and shot footage for the video. The video was produced and provided on CD/DVD media in.mpg format to run on standard MS Office suite computers configured with Windows 2000, 2002, or Windows XP. The latest version of Windows Media player was provided on each CD/DVD to ensure viewing capability.

Baker expanded the PBR Project Control System to include an additional seven AFB throughout the United States and expand the reporting capabilities of the system. Baker also upgraded the mapping utilized on the project control system with geo-referenced aerial photography.

Category 15: Middleware Integration

2.15 MIDDLEWARE INTEGRATION

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) ENTERPRISE-WIDE GIS SUPPORT

Baker) is helped FEMA's GIS Working Group to develop an Enterprise-wide GIS strategy, or E-GIS, to coordinate and integrate existing systems and new GIS systems architectures across the agency. The group's objective is a GIS solution for all users that fits with both the Agency's mission and strategic plan, and the Enterprise architecture for the future.

Baker's support covers three steps:

- 1. Perform agency-wide Requirements Analysis,
- 2. Develop a Strategic Plan,
- 3. Design the E-GIS Implementation Plan.

The three phases will provide the framework for the development of FEMA's functional GIS capability for emergency management services that will better support the Agency as a whole.

Baker identified seven high-level requirements, including:

- 1. Web-based access;
- 2. Spatial analysis, display, and modeling tools;
- 3. Data management, to include metadata and centralized storage;
- 4. User-friendliness;
- 5. Integration of existing databases and systems;
- 6. Access and compatibility with federal, state, local, and private-sector platforms; and
- 7. GIS staffing, training, and funding.

Major findings presented in the Requirements Analysis include:

- Some basic level of GIS technology (hardware, software, data, and staffing resources) must be made available to everyone in the Agency.
- GIS tools and services must be more closely coupled with the many interdisciplinary jobs in FEMA.
- The islands of GIS excellence within FEMA must coordinate their activities by integrating the administration and management of GIS resources.
- GIS resources must be realigned and reorganized into an organizational framework with a clear mandate and budget.

Baker submitted the Strategic Plan in August 2002. The FEMA E-GIS Strategic Plan parallels the content and structure of the FEMA-wide Strategic Plan, with the topical focus on GIS. The E-GIS Strategic Plan also incorporates FEMA's organizational values identified in the Agency Strategic Plan. Similar to the FEMA-wide Strategic Plan, the E-GIS Strategic Plan is goal and strategy-based, with a clearly stated Vision Statement and Mission Statement.

Customer's Name:

FEMA Office of Acquisition Management 500 C Street, SW Washington, DC 20472

Contact:

Ed Corvi

Telephone No:

202.646.2813

General Value:

\$500,000

Length of Project:

2003

Michael Baker Jr, Inc.

The five primary goals of the E-GIS Strategic Plan include:

- Goal 1. Establish standards for and integrate the use and storage of geospatial data within the FEMA Enterprise Architecture.
- Goal 2. Provide spatial analysis, display, and modeling capabilities across the FEMA Enterprise, including web-based services and access.
- Goal 3. Establish an E-GIS Business Plan and optimize resources and objectives.
- Goal 4. Establish compatibility with other Federal, state and local GIS programs.
- Goal 5. Provide GIS leadership in the emergency management community. The recently funded next and final E-GIS planning phase is the Implementation Plan. This Plan will design the specifications for the FEMA GIS Enterprise including:

Developing commercial-off-the-shelf (COTS) software specification and benchmarking, hardware/software systems architecture including security, GIS data model, cost/benefit analysis and recommendations for staffing resource requirements.

Category 17: Project Management Services

2.17 PROJECT MANAGEMENT SERVICES

WEST VIRGINIA ENTERPRISE GEOSPATIAL SYSTEM DESIGN AND IMPLEMENTATION STATE OF WEST VIRGINIA

The West Virginia Statewide Addressing and Mapping Board (WVSAMB) is charged with developing an integrated addressing and photogrammetric base mapping system for the entire State of West Virginia. The system includes aerial photography for the development of digital maps and a computerized Geographic Information System (GIS) that will interface with and contribute to the needs of the following: county Enhanced 911 services, state and local government agencies, telephone companies, US Postal Service, and utility systems, with a special focus on public safety and emergency response. The data to be supplied by the successful bidder will be a foundation of this system.

The West Virginia Legislature created the West Virginia Statewide Addressing and Mapping Board in the 2001 session (Senate Bill 460, codified as *W. Va. Code Section 24E-1-1 et seq.*). The mission of the Board is to advance the infrastructure of West Virginia by overseeing two major tasks: 1) providing new high quality digital mapping of the entire State of West Virginia; and, 2) assigning a standard city-style address to every identifiable structure in the state. The project was funded primarily under the Incentive Regulation Plan of Verizon West

Virginia Inc., approved by the Public Service Commission of West Virginia in *Case Nos. 00-1318-T-GI*, et al., on October 3, 2001.

Baker was selected as the project manager for the duration of the \$16,500,000 project over five years. In addition to writing the mapping and addressing specifications and managing the State's mapping and addressing contractors, Baker was charged with the design of a world-class addressing and mapping system; determining operational, technical, budgetary, and support requirements; developing rules, standards, policies and procedures; developing security procedures; standardized formats for mapping and

addressing databases; and system implementation.

Customer's Name:

West Virginia Statewide
Department of Administration

Contact:

Jimmy Glanato, Chairman 1124 Smith St., LM-10 PO Box 11928 Charleston, WV 25301

Telephone No:

304.344.4538

E-mail:

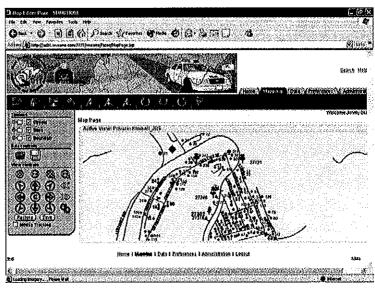
jgianato@wvmaps.gov

General Value:

\$16,500,000

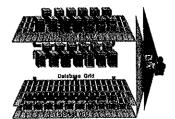
Length of Project:

Sept 2002 - Sept 2007



Baker recommended, designed, and prototyped a complete Oracle solution. Using the Oracle MapViewer, multiple counties, state agencies, and other stakeholders perform map maintenance and viewing through a highly performant and secure web interface. Baker developed procedures to convert and ingest ESRI ArcSDE data and data from other formats into the Oracle10g Spatial (SDOGeom) format. Color digital

orthophotography is also being ingested into the Oracle Georaster format for web-distributed viewing. The system architecture allows for disconnected editing of portable XML vector datasets in the field with integrated blue-tooth GPS receivers so that counties can capture new structure sites and then easily synchronize the information to the central Oracle database. The system will scale to multiple public health and safety applications for use by multiple state agencies.



Section III – Qualifications and Experience – 11 Service Categories

Attachment 6: Electronic Document Management Systems

3.6 ELECTRONIC DOCUMENT MANAGEMENT SYSTEMS

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) DFIRM MAP PRODUCTION

Baker performed the prime contractor work for FEMA to establish it's data sharing and extraction capabilities. This required Baker to define a set of data capture standards that would allow for the base set of requirements for data submissions to FEMA for approximately 12,000 US counties across the nation. Each county representing a project that navigated through a standardized workflow process on producing a Flood Insurance Rate map. Throughout the process various artifacts (i.e. electronic documents) were produced and were required for FEMA to store and retrieve at a later date for auditing and reduced long term re-work cost purposes. Baker produced the Map Modernization domain specific Federal Geographic Data Committee (i.e. FGDC) metadata profile standards and then integrated IBM's WebSphere Process Choreographer, WebSphere Portal Server, and IBM Content Manager to allow for electronic documents to be collected, managed, and shared.

IBM Global Services sub-contractors were used to clarify and facilitate requirements from Baker subject matter experts and ultimately provide the integration between the Portal, Process Choreographer, and Content Manager products.

Standards in some cases were set to stringent for the producers to adhere to, thus requiring a re-issuance of standard changes and causing minor development rework.

Customer's Name: FEMA Mitigation Branch 500 C Street S.W. Washington, D.C. 20472

Contact: Doug Bellomo

Telephone No: 202.646.2903

E-mail: doug.bellomo@dhs.gov

General Value: \$4,000,000

Length of Project: March 2004 - Sept 2005

Results of this project are starting to pay off as FEMA now has the beginnings of a large data store to reach into for future projects and the ability to quickly search and retrieve artifacts that have been produced in order to accomplish the FEMA mission of saving lives and protecting property.

CONVERSION OF COUNTY ROAD MAPS STATEWIDE, WEST VIRGINIA

This project involved the delivery of a seamless vector County Map Series in MicroStation V-8 format for the entire state of West Virginia. This electronic dataset was digitized from the Division of Highway's existing hard copy County Road Map Series linens and scribes. The project included converting 129 County Road Maps for 55 Counties in West Virginia. The delivered data was accessed via the Intranet and Internet, and printed to scale via Bentley's Digital InterPlot. Active involvement and daily monitoring of project activities by the project manager assured adherence to the project schedule. WVDOH staff were trained to maintain the data and output the County Map Series. Baker provides ongoing technical support and intermittent training on an as needed basis.

Baker's Role

- Vectorize the WVCMS
- Develop Mapping and Symbology Standards
- Deliver Complete Set of MicroStation Vector Maps, Mapping Standards and Related Training Documents
- Develop a County Map Website and Document Management System
- Train WVDOH Staff
- Quality Control Assurance

Customer's Name:

West Virginia Department of Transportation Division of Highways Building 5 1900 Kanawha Boulevard, East Charleston, WV 25305-0430

Contact:

Bill Wood

Telephone No: 304.558.3115

E-mail:

bwood@dot.state.wv.us

General Value:

\$880,000

Length of Project:

2003-2004

ADOT HISTORIC PRESERVATION TEAM PORTAL (WEB-BASED PROJECT MANAGEMENT SYSTEMS) ARIZONA

Baker provided EEG with assistance in information management and process improvements in the form of web-based project management systems known as Portals. Baker has completed Portals for EEG's Historic Preservation Team (HPT) and the Noise team.

EEG received a 2003 Showcase in Excellence Award for the HPT Portal from the Arizona Quality Alliance. All available cultural resource reports and agency consultation letters from 1985 to the present were scanned and entered. The HPT Portal also included calendar and news functions to facilitate the daily operation and communication between team members, and a photograph storage page providing a location to upload and access photographs associated with HPT projects.

The cultural resource survey information can be retrieved either through a text search engine or through a GIS interface. The GIS also includes the locations of historic properties recorded during the

surveys. The results of a search request, either through the text or GIS interface, present a summary of the information for the report or historic property, and a link to the associated documents viewable in searchable Portable Document Format. The HPT Portal allows users to upload new information and add to existing information. The system is designed to be self-contained and easily maintained. It is a well-used tool within HPT and improved efficiency in the completion of HPT projects.

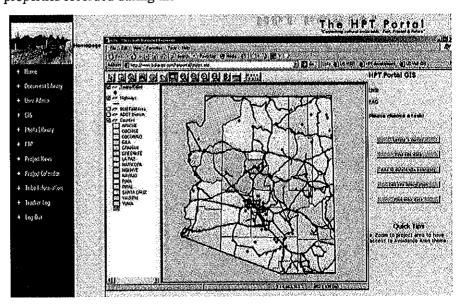
Client
Arizona Department of Transportation
206 S. 17th Avenue, MD 616E
Engineering Consultant Section
Phoenix, AZ 85007

Contact:
Kae Neustadt

Telephone No:
520.620.5410

General Value:
\$219,373

Length of Project:
2004



Summary

Prior to designing and implementing a technological solution for information storage and recovery, HPT maintained a paper-record library of data in three-ring binders. This library took up significant storage space, was very disorganized and difficult to maintain as consultants accessed the information and HPT added reports. There was no association between reports and their associated letters requiring HPT to often produce redundant work to accommodate the lack of correspondence for previous work. These paper records were always problematic as they were difficult to use efficiently, items would become missing, and disorderly. The information that HPT was using to evaluate project effects was unreliable, incomplete, and time consuming to review.

Since releasing the Portal, HPT staff and consultants to ADOT have recognized a significant decrease in the amount of time needed to research the cultural resource data in a given ADOT project area; they have noticed a significant decrease in the number of errors that would result from missing or incomplete information; and they have noticed a significant decrease in redundant efforts to find the information necessary to perform their work. Most importantly, they have recognized a significant increase in efficiency.

To quote one HPT Specialist:

"Before the Portal, when a Project Manager would call with a question about whether or not moving an alignment would impact a cultural resource, I would have to take his name and the project information, hang up, find the time to go to the library, look for the report, if it was misfiled or missing, I would have to attempt to locate it, look through the report to find the project area, and then call the Project Manager back, hoping he would still be available. If I had enough time to do these tasks consecutively, it might take around 45 minutes to an hour; otherwise, I might not be able to do it until the next day. Now, with the Portal, I can navigate to the project area as the project manager tells me where it is, and give him an answer in 5 minutes. It's unbelievable!"

The potential long-term goals for this project are to integrate the data produced and used by the other Specialists within EEG (biology, hazardous materials, air and noise, etc.), eventually incorporating all reports, correspondence, and documents that are generated through the process of compliance with State and Federal environmental regulations.

Baker's Role

- Geographic Information System
- · Document Management
- · Web Portal Development

Attachment 7: Enterprise Systems Management Development and Implementation

3.7 ENTERPRISE SYSTEMS MANAGEMENT DEVELOPMENT AND IMPLEMENTATION

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) MAPPING INFORMATION PLATFORM (MIP)

Baker managed the overall development, implementation, and operations of the Mapping Information Platform (MIP). The MIP consolidated and decommissioned several legacy systems and provided external interface connections to several customers of Flood Hazard Mapping information. The MIP required an enterprise architecture approach to design with a unique requirement for both management and production capabilities across the nation using large (e.g. 90 Terabytes) real time accessible data storage capabilities to access GIS and non-GIS based engineering artifacts. The MIP was built to provide for the production, management, sharing, and extraction capabilities for the large increase in Flood Hazard Mapping projects that would start in March of 2004 and complete in 2009. Baker and IBM partnered to lead the solution definition, prototype development, requirements development, design, testing, deployment, and operations of the MIP. Various project management artifacts following CMMI guidelines and industry standards were produced for FEMA to adhere to Department of Homeland Security requirements and FEMA information technology requirements. Artifacts such as overall project management plans, configuration document management plan, test strategy, test plan, deployment plan, release management plan, architecture documents, requirements documents, information system security plan, and design documents were produced and are being managed for FEMA.

Customer's Name: FEMA Mitigation Branch 500 C Street S.W. Washington, D.C. 20472

Contact: Doug Bellomo

Telephone No: 202.646,2903

E-mail: doug.bellomo@dhs.gov

General Value: \$1,000,000

Length of Project: March 2004 – Sept 2005

- vii. MIP Production: Web based via Citrix GIS production tools developed on top of ESRI's map objects foundation and Job Tracking Extension commercial off the shelf product providing new producers of flood insurance rate maps a more efficient and higher quality tool for producing FEMA map products.
- viii. MIP Management: Web based three tiered architecture system to allow for the management of thousands of projects and activities. ESRI's Arc IMS, custom dashboards, and reporting capabilities through Business Objects ad-hoc reporting and Crystal Reports cots products are the backbone to providing users the capability of managing their projects.
- ix. MIP Data Sharing: Web based search and retrieve capability to allow for producers to upload, validate, and share engineering and mapping artifacts is powered IBM Content Manager, IBM WebSphere's Portal, and ESRI's ARC IMS commercial off the shelf products.

ESRI, BAE Systems, IBM Global Services, Harvard Design & Mapping, Watershed Concepts Inc, MapText, SAIC, and Business Objects were part of an integrated project team to design, develop, test, and deploy the MIP.

Scope creep and industry expectations for a system that is being built as a new national program is being defined was hard to manage. Expectations were very high for the system that was put together prior to the details of the program being determined causing rework on the system to match the volatile program requirement changes.

Michael Baker Jr. Inc.

50

Performance results: Industry standard best practices for managing software engineering projects Capability Maturity Model Integrated (CMMI) level three (3) was achieved within one year's time of contract award with FEMA. Release 1 of the MIP was deployed within 90 days of contract award. Release 3 of the MIP was deployed within 18 months of contract award and the MIP was fully operational with trained users within 24 months of contract award.

E9-1-1 AND PARCEL DATA CONVERSION & GIS SERVICES BEAVER COUNTY, PA

Beaver County contracted with Michael Baker Jr., Inc., (Baker) to provide a wide range of E9-1-1 and GIS related services including consulting, database design, data development, facilities validation, application development and training. The county has a population of approximately 177,000 encompassing an area of 434 square miles. It is comprised of approximately 90,000 parcels represented on nearly 1,000 parcel maps of various scale. The 2006 Pennsylvania Map Program (PAMAP) digital orthophotography is the base control for GIS data development.

The database design adheres to the National Emergency Number Association (NENA) and Pennsylvania Geospatial Data Sharing Standards (PGDSS), integrating feature and attribute definitions to support both E9-1-1 and parcel application requirements.

Each centerline segment in the County Planning Department's existing street centerline layer is evaluated against the corresponding PAMAP orthophoto physical evidence. "Heads-Up" digitizing techniques are used to spatially adjust, add new, or remove obsolete street centerline vector linework. Customized ArcMap tools are utilized to perform graphic and attribute manipulation, assuring street network connectivity and adherence to the GIS data model.

Customer's Name:
Beaver County Commissioners
Beaver County Courthouse
Third Street
Beaver, PA 15009

Contact:
Mike Kohlman, Assessor

Telephone No:
724.728.3934 x11338

E-mall:
mkohlman@beavercountypa.gov

General Value:
\$1,452,500

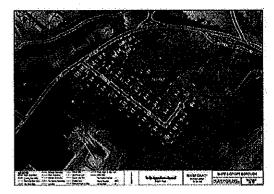
Length of Project:
2007 – 2009

All of the existing hard copy parcel maps are scanned and geopositioned to the PAMAP orthophotography. A combination of conversion methodologies are then used to develop the seamless parcel GIS. Best-fit compilation is used primarily in the urban areas and where the existing parcel linework fits well to the ortho physical evidence. COGO (Coordinate Geometry) is used for parcels generally within rural and questionable areas requiring improved accuracy. The existing map parcel numbers are stored as an attribute record for each parcel recode. Other parcel related features, such as administrative boundaries, parcel dimensions, etc., are also converted as GIS layers and facilitate map generation similar to the existing hard copy parcel maps.

Integration and consulting services are also provided to support the County's development of an Enterprise GIS. These services include hardware/software review and recommendation, system design parameters,

implementation guidelines, maintenance protocols, etc. On-site assistance with software installation, system configuration and testing are also provided.

Baker is also providing data editing and update maintenance tools for. On-site training focuses on applying these maintenance tools to daily business processes. Detailed training manuals and telephone support are also provided to support the County GIS maintenance personnel.



WEST VIRGINIA ENTERPRISE GEOSPATIAL SYSTEM DESIGN AND IMPLEMENTATION STATE OF WEST VIRGINIA

The West Virginia Statewide Addressing and Mapping Board (WVSAMB) is charged with developing an integrated addressing and photogrammetric base mapping system for the entire State of West Virginia. The system includes aerial photography for the development of digital maps and a



computerized Geographic Information System (GIS) that will interface with and contribute to the needs of the following: county Enhanced 911 services, state and local government agencies, telephone companies, US Postal Service, and utility systems, with a special focus on public safety and emergency response. The data to be supplied by the successful bidder will be a foundation of this system.

The West Virginia Legislature created the West Virginia Statewide Addressing and Mapping Board in the 2001 session (Senate Bill 460, codified as *W. Va. Code Section 24E-1-1 et seq.*). The mission of the Board is to advance the infrastructure of West Virginia by overseeing two major tasks: 1) providing new high quality digital mapping of the entire State of West Virginia; and, 2) assigning a standard city-style address to every

identifiable structure in the state. primarily under the Incentive Regulation Plan of Verizon West Virginia Inc., approved by the Public Service Commission of West Virginia in Case Nos. 00-1318-T-GI, et al., on October 3, 2001.

Baker was selected as the project manager for the duration of the \$16,500,000 project over five years. In addition to writing the mapping and addressing specifications and managing the State's mapping and addressing contractors, Baker was charged with the design of a world-class addressing and mapping system; determining operational,

Customer's Name: West Virginia Statewide Department of Administration

Contact: Jimmy Gianato, Chairman 1124 Smith St., LM-10 PO Box 11928

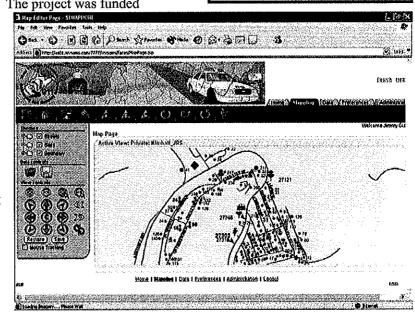
Charleston, WV 25301

Telephone No: 304.344.4538

E-mail: |glanato@wvmaps.gov

General Value: \$16,500,000

Length of Project: Sept 2002 - Sept 2007



technical, budgetary, and support requirements; developing rules, standards, policies and procedures; developing security procedures; standardized formats for mapping and addressing databases; and system implementation.

Baker recommended, designed, and prototyped a complete Oracle solution. Using the Oracle MapViewer, multiple counties, state agencies, and other stakeholders perform map maintenance and viewing through a highly performant and secure web interface. Baker developed procedures to convert and ingest ESRI ArcSDE data and data from other formats into the Oracle10g Spatial (SDOGeom)

format. Color digital orthophotography is also being ingested into the Oracle Georaster format for web-distributed viewing. The system architecture allows for disconnected editing of portable XML vector datasets in the field with integrated blue-tooth GPS receivers so that counties can capture new structure sites and then easily synchronize the information to the central Oracle database. The system will scale to multiple public health and safety applications for use by multiple state agencies.



Attachment 8: Technology Advisory Services

3.8 TECHNOLOGY ADVISORY SERVICES

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) Mapping Information Platform (MIP)

Baker managed the overall development, implementation, and operations of the Mapping Information Platform (MIP). The MIP consolidated and decommissioned several legacy systems and provided external interface connections to several customers of Flood Hazard Mapping information. The MIP required an enterprise architecture approach to design with a unique requirement for both management and production capabilities across the nation using large (e.g. 90 Terabytes) real time accessible data storage capabilities to access GIS and non-GIS based engineering artifacts. The MIP was built to provide for the production, management, sharing, and extraction capabilities for the large increase in Flood Hazard Mapping projects that would start in March of 2004 and complete in 2009. Baker and IBM partnered to lead the solution definition, prototype development, requirements development, design, testing, deployment, and operations of the MIP. Various project management artifacts following CMMI guidelines and industry standards were produced for FEMA to adhere to Department of Homeland Security requirements and FEMA information technology requirements. Artifacts such as overall project management plans, configuration document management plan, test strategy, test plan, deployment plan, release management plan, architecture documents, requirements documents, information system security plan, and design documents were produced and are being managed for FEMA.

Customer's Name: FEMA Mitigation Branch 500 C Street S.W. Washington, D.C. 20472 Contact: Doug Bellomo Telephone No: 202.646.2903 E-mail: doug.bellomo@dhs.gov General Value: \$1,000,000 Length of Project: March 2004 — Sept 2005

- x. MIP Production: Web based via Citrix GIS production tools developed on top of ESRI's map objects foundation and Job Tracking Extension commercial off the shelf product providing new producers of flood insurance rate maps a more efficient and higher quality tool for producing FEMA map products.
- xi. MIP Management: Web based three tiered architecture system to allow for the management of thousands of projects and activities. ESRI's Arc IMS, custom dashboards, and reporting capabilities through Business Objects ad-hoc reporting and Crystal Reports cots products are the backbone to providing users the capability of managing their projects.
- xii. MIP Data Sharing: Web based search and retrieve capability to allow for producers to upload, validate, and share engineering and mapping artifacts is powered IBM Content Manager, IBM WebSphere's Portal, and ESRI's ARC IMS commercial off the shelf products.

ESRI, BAE Systems, IBM Global Services, Harvard Design & Mapping, Watershed Concepts Inc, MapText, SAIC, and Business Objects were part of an integrated project team to design, develop, test, and deploy the MIP.

Scope creep and industry expectations for a system that is being built as a new national program is being defined was hard to manage. Expectations were very high for the system that was put together prior to the details of the program being determined causing rework on the system to match the volatile program requirement changes.

Performance results: Industry standard best practices for managing software engineering projects Capability Maturity Model Integrated (CMMI) level three (3) was achieved within one year's time of contract award with FEMA. Release 1 of the MIP was deployed within 90 days of contract award. Release 3 of the MIP was deployed within 18 months of contract award and the MIP was fully operational with trained users within 24 months of contract award.

E9-1-1 AND PARCEL DATA CONVERSION & GIS SERVICES BEAVER COUNTY, PA

Beaver County contracted with Michael Baker Jr., Inc., (Baker) to provide a wide range of E9-1-1 and GIS related services including consulting, database design, data development, facilities validation, application development and training. The county has a population of approximately 177,000 encompassing an area of 434 square miles. It is comprised of approximately 90,000 parcels represented on nearly 1,000 parcel maps of various scale. The 2006 Pennsylvania Map Program (PAMAP) digital orthophotography is the base control for GIS data development.

The database design adheres to the National Emergency Number Association (NENA) and Pennsylvania Geospatial Data Sharing Standards (PGDSS), integrating feature and attribute definitions to support both E9-1-1 and parcel application requirements.

Each centerline segment in the County Planning Department's existing street centerline layer is evaluated against the corresponding PAMAP orthophoto physical evidence. "Heads-Up" digitizing techniques are used to spatially adjust, add new, or remove obsolete street centerline vector linework. Customized ArcMap tools are utilized to perform graphic and attribute manipulation, assuring street network connectivity and adherence to the GIS data model.

Customer's Name:
Beaver County Commissioners
Beaver County Courthouse
Third Street
Beaver, PA 15009

Contact:
Mike Kohlman, Assessor

Telephone No:
724.728.3934 x11338

E-mail:
mkohlman@beavercountypa.gov

General Value:
\$1,452,500

Length of Project:
2007 – 2009

All of the existing hard copy parcel maps are scanned and geopositioned to the PAMAP orthophotography. A combination of conversion methodologies are then used to develop the seamless parcel GIS. Best-fit compilation is used primarily in the urban areas and where the existing parcel linework fits well to the ortho physical evidence. COGO (Coordinate Geometry) is used for parcels generally within rural and questionable areas requiring improved accuracy. The existing map parcel numbers are stored as an attribute record for each parcel recode. Other parcel related features, such as administrative boundaries, parcel dimensions, etc., are also converted as GIS layers and facilitate map generation similar to the existing hard copy parcel maps.

Integration and consulting services are also provided to support the County's development of an Enterprise

GIS. These services include hardware/software review and recommendation, system design parameters, implementation guidelines, maintenance protocols, etc. On-site assistance with software installation, system configuration and testing are also provided.

Baker is also providing data editing and update maintenance tools for. On-site training focuses on applying these maintenance tools to daily business processes. Detailed training manuals and telephone support are also provided to support the County GIS maintenance personnel.



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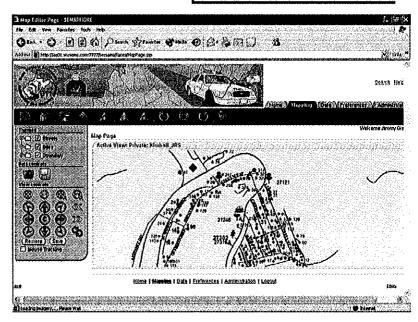
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identifiable structure in the state. The project was funded primarily under the Incentive Regulation Plan of Verizon West Virginia Inc., approved by the Public Service Commission of West Virginia in *Case Nos. 00-1318-T-GI, et al.*, on October 3, 2001.

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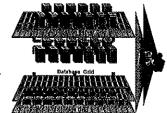
Customer's Name: West Virginia Statewide Department of Administration Contact: Jimmy Gianato, Chairman 1124 Smith St., LM-10 PO Box 11928 Charleston, WV 25301 Telephone No: 304.344.4538 E-mail: jglanato@wvmaps.gov General Value: \$16,500,000 Length of Project: Sept 2002 - Sept 2007



budgetary, and support requirements; developing rules, standards, policies and procedures; developing security procedures; standardized formats for mapping and addressing databases; and system implementation.

Baker recommended, designed, and prototyped a complete Oracle solution. Using the Oracle MapViewer, multiple counties, state agencies, and other stakeholders perform map maintenance and viewing through a highly performant and secure web interface. Baker developed procedures to convert and ingest ESRI ArcSDE data and data from other formats into the Oracle10g Spatial (SDOGeom)

format. Color digital orthophotography is also being ingested into the Oracle Georaster format for web-distributed viewing. The system architecture allows for disconnected editing of portable XML vector datasets in the field with integrated blue-tooth GPS receivers so that counties can capture new structure sites and then easily synchronize the information to the central Oracle database. The system will scale to multiple public health and safety applications for use by multiple state agencies.



Attachment 9: Major Project Implementation (to include Project Management)

3.9 Major Project Implementation (to include Project Management)

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) MAP SERVICE CENTER

As a subcontractor to ZAI-AMELEX under a five-year IDIQ, Baker is spearheading the use of innovative technology to transform FEMA's Map Service Center (MSC), a paper-based distribution center of flood risk data housing more than 150,000 product types and 20 million inventory items, into an Internet-driven electronic distribution center.

Currently, as part of FEMA's National Flood Insurance Program, the Map Service Center supplies paper Flood Insurance Rate Maps (FIRMs) identifying flood hazards posed to areas throughout the U.S. Parties such as property owners seeking to purchase flood insurance ensure that there is a high volume of requests for FIRMs. FEMA is undertaking a variety of initiatives to make digitized forms of this data accessible to those who request it. Baker has developed the strategic vision for the improved MSC.

Baker is supporting the design, development, and implementation of the MSC. The Center is housed on a three-terabyte storage area network, scaleable to 30 terabytes. More than 200,000 scanned reports and floodplain maps are now online.

To make the mapping data accessible to the public, the re-designed Map Service Center will uses a WebServer to Database Server ("end-to-end") VPN solution.

Users access the digitized mapping data via an E-Commerce engine interfaced with the FEMA and U.S.

Treasury financial management systems for automatic acceptance and transfer of credit card receipts. Using a map interface and geographical query, they select mapping products by geographical location.

For its back-office operations, the new system uses J.D. Edward's OneWorld Enterprise Resource Planning (ERP) system, fully integrated with the storefront operations run on IBM's WebSphere CommerSuite. Baker designed and installed the Center's digital geodata warehouse using the Oracle 8i and ESRI ArcSDE spatial database management systems, capable

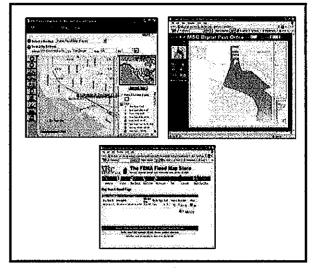
Customer's Name:
FEMA Office of Acquisition
Management
500 C Street, SW
Washington, DC 20472

Contact:
Kathy Miller

Telephone No:
202.646.3316

General Value:
\$9,500,000

Length of Project:



of housing more than 2 terabytes of information. The Baker-proposed IT security architecture, approved by FEMA, incorporates Perimeter Defense, Firewall, VPN, PKI, and Digital Signatures.

The overall solution uses HTTP, IIOP and CORBA protocols and was developed based on XML and JAVA technologies.

AMERESCO-FORT MONMOUTH GIS/CMMS/KNOWLEDGE BASE

The Michael Baker Corporation was contracted by Ameresco Solutions, Inc. for Fort Monmouth Directorate of Public Works (DPW) Fort Monmouth, New Jersey, in January 2004 to upgrade an existing MAXIMO 4.x system to MAXIMO 5.2 and re-engineer business processes for a more efficient organization. Coupled with the MAXIMO upgrade was the development and implementation of a Geographic Information System (GIS), integrated by a web portal "Knowledge Base." Baker created an integrated Facilities Management System that enables DPW personnel to better manage their assets while allowing customers access to information concerning their facilities and work requirements. This project was challenging not only because of the integration of technologies, but also because of the specific requirements within the technologies.

Computerized Maintenance Management Systems (CMMS) challenges included:

- MAXIMO CMMS software was upgraded to MAXIMO 5.2
- Contract Management System Application Development
- Implementation of 102 handheld units for work order and material; data collection
- Set-up 60 truck warehouses
- Bench Stock Implementation
- **Business Process Re-engineering**
- Key Performance Indicators (KPIs) redevelopment in Actuate
- Change Management Process Implementation
- Training
- Information Dissemination

User Participation and Communication

Baker also developed a Geographic Information System (GIS) strategic plan, mapping data, GIS data themes, a knowledge base plan, inter/extra/intranet pages, links to various document libraries, and applications.

Customer's Name: Fort Monmouth DPW U.S. Army Garrison

Building 167 Riverside Ave. SELFM-PW-E

Fort Monmouth, New Jersey 07703

Contact:

Robert Melascaglia

Telephone No: 732,532.6355

General Value:

\$1,669,763

Length of Project:

2004 - 2006

NATIONAL PIPELINE MAPPING SYSTEM NATIONWIDE

Baker was reselected to maintain the national geospatial data repository for the National Pipeline Mapping System (NPMS). Baker's maintenance effort involved data collection, data conversion, database merging and management, and GIS analysis.

The U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (USDOT PHMSA) is charged with ensuring the reliable and safe transport of hazardous liquid and gas commodities through a vast nationwide network of pipelines. PHMSA uses GIS as an asset management tool for this network and as a means to disseminate critical data. The foundation of this GIS is the NPMS geospatial data repository, which Baker has managed on PHMSA's behalf since 1998. The NPMS is a seamless geospatial database that contains data submitted by transmission pipeline, liquefied natural gas (LNG) plant, and breakout tank operators. The NPMS is the only complete, noncommercial source of transmission pipeline data available for government and public use. Since the 2002 Pipeline Safety Improvement Act was passed, transmission pipeline and LNG plant operators have been required to submit their transmission pipeline and LNG plant location and attribute data to NPMS every year.

NPMS data is used by Federal, state, and local government agencies in analysis of pipeline vulnerability to potential disasters and for planning, safety, and disaster response efforts. Baker currently holds a 10-year contract to develop, upgrade, and manage repository operations for the

Customer's Name:

US Department of Transportation Office of Pipeline Safety 400 7th Street Washington, DC 20590

Contact:

Warren Osterberg Contracting Officer 202-366-6942

Amy Nelson GIS Coordinator 202-493-0591

General Value: \$4,849,898 (Fee)

Length of Project: 1998-current

NPMS. Baker's work includes providing GIS tools that assist in policy decisions, constantly measuring the usage of the system, and creating and maintaining a secure infrastructure. In addition, Baker provides custom programming for ArcGIS, database creation and maintenance, data conversion, on-site support, and GIS analysis.

Policy. PHMSA uses the reports and analysis generated by the NPMS system to develop policy for overall IT operations. PHMSA entire data architecture is currently being redesigned to better integrate pipeline and hazardous material data at all levels of the organization. The NPMS system is seen as a key component of this redesign, and Baker has taken part in assisting PHMSA in the task.

Planning. Baker is constantly involved in capacity planning with the NPMS system. Baker monitors system capacity on a regular basis and prepares reports and recommendations to PHMSA regarding its findings. Baker is currently devising a significant upgrade to the technical architecture of the system, with upgrades to hardware, software, and customized interface to be completed in the next six months.

Security. The NPMS system is a public facing system that must adhere to all federal and NIST security criteria. All planning for system expansion and modification are completed such that the security of the NPMS system will never be in question. Formal security testing is done periodically by Baker although the system is monitored continually for threats. The hardware for the NPMS system is located in a secure hosting facility used by Baker with 24/7 security, including a biometrically controlled entrance to the facility.

Enterprise Architecture. Baker is PHMSA's GIS contractor for all Enterprise Architecture decisions for the Office of Pipeline Safety (OPS). Working closely with OPS, Baker designed and implemented two generations of GIS architecture over the last 10 years and is in the midst of implementing the third generation

during the next six months. This generation is more closely tied to general IT architectural changes being investigated and implemented within PHMSA.

Information Technology Architecture Management and Planning Support. Baker is now in its third implementation of GIS hardware and software in support of the NPMS system and constantly reviews the existing system against industry trends, agency policies, and agency needs. Baker recommends when significant investment should be made for performance or security reasons.

Program and Project Management. Baker has been providing management support to OPS for the governance strategies and plans with regard to GIS use and implementation for the last 10 years. The latest round of formal recommendations fully supports governance strategies, policies and procedures.

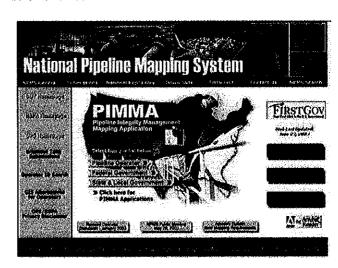
Organizational Development and Human Capital Management Support. Because GIS use continues to expand within OPS and PHMSA, Baker occasionally assists OPS with organizational development issues surrounding GIS implementation. Baker reviews and recommends appropriate tools for specific user types. The third generation system will likely have wide ranging organizational impacts and allow for a much broader use of GIS capabilities within both OPS and PHMSA.

Customer Relationship Management. The NPMS system developed and maintained by Baker for OPS is used by all of OPS's customers, including the 900-plus pipeline operators who are obligated to provide data to all federal, state, and local agencies that access the NPMS data on a daily basis. Baker has developed an extensive program that is in direct contact with the pipeline operators data users. This contact allows Baker to receive user feedback on the usability of the system and incorporate comments in recommendations to OPS for upgrades of the system

Studies, Analysis, and Program Support. Baker is the primary contractor for all GIS studies, analysis, and program support to OPS and PHMSA. Both OPS and PHMSA look to Baker to provide vital input and information on almost any aspect of GIS design or implementation. Recent activities included assisting in the overall IT architecture for PHMSA design when it must integrate with a geospatial database, a review of the viability of linear referencing systems for all pipeline submissions and reporting, and specialized mapping and products for disaster assistance response and recovery.

Communication Support. Baker is one of OPS's main communication arms to 900+ pipeline operators. Baker communicates with each pipeline operator once annually at minimum, providing all types of support for each operator's yearly submission to OPS. In many ways, Baker is an extension of OPS - most operators do not realize they are talking to a contractor. A number of communications tools have been imbedded in the NPMS website over the last 10 years to make submission and review of the submissions easier.





Attachment 11: Migration of Legacy Systems

3.11 MIGRATION OF LEGACY SYSTEMS

AT&T CABLECAD DATA MIGRATION NORTHERN CALIFORNIA

Baker assembled and directed a project team, including subcontractors AML Solutions Group Ltd. and Graphic Technologies, Inc., to migrate facilities data for nineteen wire centers in the Sacramento, California area. Data was migrated from an Enghouse CableCad-based system to the AT&T developed FRAMME-based system. Automated Record Engineering System (ARES), based on Intergraph's earlier FRAMME flagship utility products, included Bentley Microstation as the graphic engine.

Baker's team developed detailed object mapping for all source features and associated attributes that were available for migration into the target system. This object mapping included a gap analysis of items requiring special processing or modification during migration.

Baker then managed the team's development of a migration program in CableCad UDC to export the geographic coordinates, data attribution and text annotation coordinates for all of the objects that reside in the legacy CableCad system. The data was exported into ASCII format with the coordinates of the features adjusted to closely match a new ARES landbase.

A second program was developed that read the exported flat files and created FRAMME features within ARES. This program utilized the ARES Rulebase and the FRAMME Feature State Table (FST) to create FRAMME features in an ARES workset. This approach utilized all of the feature definitions and graphic/data validations within the ARES Rulebase to ensure proper feature creation and placement.

After creating the ARES dataset, Baker evaluated the spatial adjustment to the new landbase on a grid-by-grid basis. Migration Function tools were utilized to "fine tune" or adjust each feature to match the "positional accuracy" of the original CableCad data as closely as possible, and to ensure that ARES white space management rules were applied. The

Customer's Name:
AT&T
3707 Kings Way
Sacramento, CA 95821

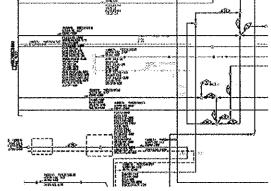
Contact:
Kerry J. Smyth

Telephone No:
916.972.4641

E-mall:
ks6469@sbc.com

General Value:
\$2,000.000

Length of Project:
2004 – 2006



facilities were then posted to the ARES server that utilized the inherent FRAMME capabilities to break the linear features (creating all of the reference components and pointers), place all of the graphic features into the proper design file and commit all of the data attributes to the Oracle database.

Manhole details were digitized from source hard copy manhole diagram drawings. Manhole reference cables were linked to cables already migrated from CableCad, reducing the data entry effort and errors.

Prior to data delivery, AT&T's Quality Assurance System software was utilized for final data verification. Baker also developed various validation scripts to facilitate the verification process and all exceptions reporting associated with the respective wire center's delivery.

E9-1-1 AND PARCEL DATA CONVERSION & GIS SERVICES BEAVER COUNTY, PA

Beaver County contracted with Michael Baker Jr., Inc., (Baker) to provide a wide range of E9-1-1 and GIS related services including consulting, database design, data development, facilities validation, application development and training. The county has a population of approximately 177,000 encompassing an area of 434 square miles. It is comprised of approximately 90,000 parcels represented on nearly 1,000 parcel maps of various scale. The 2006 Pennsylvania Map Program (PAMAP) digital orthophotography is the base control for GIS data development.

The database design adheres to the National Emergency Number Association (NENA) and Pennsylvania Geospatial Data Sharing Standards (PGDSS), integrating feature and attribute definitions to support both E9-1-1 and parcel application requirements.

Each centerline segment in the County Planning Department's existing street centerline layer is evaluated against the corresponding PAMAP orthophoto physical evidence. "Heads-Up" digitizing techniques are used to spatially adjust, add new, or remove obsolete street centerline vector linework. Customized ArcMap tools are utilized to perform graphic and attribute manipulation, assuring street network connectivity and adherence to the GIS data model.

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Beaver County Commissioners
Beaver County Courthouse
Third Street
Beaver, PA 15009

Contact:
Mike Kohlman, Assessor

Telephone No:
724.728.3934 x11338

E-mail:
mkohlman@beavercountypa.gov

General Value:
\$1,452,500

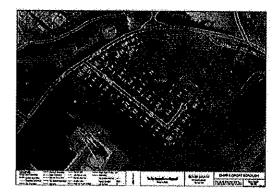
Length of Project:
2007 – 2009

All of the existing hard copy parcel maps are scanned and geopositioned to the PAMAP orthophotography. A combination of conversion methodologies are then used to develop the seamless parcel GIS. Best-fit compilation is used primarily in the urban areas and where the existing parcel linework fits well to the ortho physical evidence. COGO (Coordinate Geometry) is used for parcels generally within rural and questionable areas requiring improved accuracy. The existing map parcel numbers are stored as an attribute record for each parcel recode. Other parcel related features, such as administrative boundaries, parcel dimensions, etc., are also converted as GIS layers and facilitate map generation similar to the existing hard copy parcel maps.

Integration and consulting services are also provided to support the County's development of an Enterprise GIS. These services include hardware/software review and recommendation, system design parameters,

implementation guidelines, maintenance protocols, etc. On-site assistance with software installation, system configuration and testing are also provided.

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SMALLWORLD GIS DATA CONVERSION PROJECT DELMARVA POWER

Baker served as Conversion Manager for Conectiv's (Delmarva Power) Smallworld GIS Data Conversion Project. Conectiv is an electric generation and distribution company formed by the merger of Atlantic Electric of New Jersey and the Delmarva Power and Light Company. The Conectiv service area encompasses Southern New Jersey and the Delmarva Peninsula including the state of Delaware and portions of Maryland and Virginia.

Conectiv's Smallworld data model was customized by Cook-Hurlbert to interface with their Expert Designer application software. Baker's challenge was to manage the data conversion for two distinct areas, with unique requirements, by two different vendors. The Atlantic District included the integration of field inventory data.

Baker provided the services of an on-site Conversion Manager whose responsibilities included:

- Analysis of the data conversion requirements to populate the Connectiv Smallworld data model
- Development of a comprehensive Data/Source Matrix
- Mapping of legacy database attribute codes to the GIS data model
- Definition of graphic placement rules
- Documentation of project correspondence
- · Facilitation of project meetings and conference calls
- Monitoring of Project Schedule
- Investigation and response to Vendor Conversion Questions
- Development of a comprehensive data delivery inspection process
- Analysis and approval of each vendors data conversion project plan
- Analysis and approval of Atlantic District filed inventory process
- Development of conversion post processes
- Participation in development of GIS plotting application

Customer's Name:

Delmarva Power New Castle Regional Office 195 & Rt. 273, P.O. Box 9239 Newark, DE 19714-9239

Contact:

J. Cabot Wright

Telephone No:

856.351.7246

E-mail:

cabot.wright@pepcoholdings.com

General Value:

\$\$350,000

Length of Project:

18 Months

Attachment 12: Project Quality Assurance Review and Associated Services

3.12 PROJECT QUALITY ASSURANCE REVIEW AND ASSOCIATED SERVICES

WEST VIRGINIA ENTERPRISE GEOSPATIAL SYSTEM DESIGN AND IMPLEMENTATION STATE OF WEST VIRGINIA

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Customer's Name: West Virginia Statewide Department of Administration

Contact:

Jimmy Gianato, Chairman 1124 Smith St., LM-10 PO Box 11928 Charleston, WV 25301

Telephone No: 304.344.4538

E-mail:

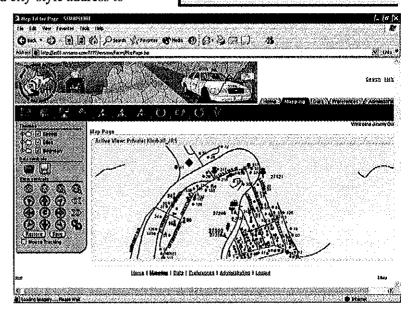
jgianato@wvmaps.gov

General Value:

\$16,500,000

Length of Project:

Sept 2002 - Sept 2007



system; determining operational, technical, budgetary, and support requirements; developing rules,

standards, policies and procedures; developing security procedures; standardized formats for mapping and addressing databases; and system implementation.

Baker recommended, designed, and prototyped a complete Oracle solution. Using the Oracle

MapViewer, multiple counties, state agencies, and other stakeholders perform map maintenance and viewing through a highly performant and secure web interface. Baker developed procedures to convert and ingest ESRI ArcSDE data and data from other formats into the Oracle10g Spatial (SDOGeom) format. Color digital orthophotography is also being ingested into the Oracle Georaster format for web-distributed viewing. The system architecture allows for disconnected editing of portable XML vector datasets in the field with integrated blue-tooth GPS receivers so that counties can capture new structure sites and then easily synchronize the information to the central Oracle database. The system will scale to multiple public health and safety applications for use

by multiple state agencies.

U.S. GEOLOGICAL SURVEY NATIONAL BIOLOGICAL INFORMATION INFRASTRUCTURE (USGS NBII)

Baker was awarded a contract by the USGS Center for Biological Informatics to aid in the development of the distributed geospatial infrastructure and technologies for the National Biological Information Infrastructure (NBII). Baker is providing on-call GIS services to USGS on a task order basis.

The National Biological Information Infrastructure (NBII) serves as an electronic gateway to biological data and information products maintained by federal, state, and local government agencies; non-government institutions; and private sector organizations in the United States and around the world.

Current tasks include:

- > Geospatial program management
- > ArcIMS development
- ArcPAD development
- ArcSDE implementation
- > Open GIS WMS implementation

Customer's Name:

U.S. Geological Survey 12201 Sunrise Valley Reston, VA 20192

Contact:

Mike Frame

Telephone No:

703.648.4164

General Value:

\$3,000,000

Length of Project:

Current

To date, projects have included:

- > Supported the migration of the Bird Conservation ArcIMS into the Node from the development environment, assisted in training and knowledge transfers, and provided assistance in future development of the application.
- > Conducted a detailed review of twelve Internet Mapping sites, built and managed by NBII's nodes and partners.
- Assisted in the standardization of the "look and feel" of the sites, ensured they meet NBII's requirements, by offering development advice and tools for the NBII Nodes and partners.
- > Assisted in the evaluation of NBII Internet mapping sites for usability, and the development of recommendations for program-wide implementation.



SMALLWORLD GIS DATA CONVERSION PROJECT DELMARVA POWER

Baker served as Conversion Manager for Conectiv's (Delmarva Power) Smallworld GIS Data Conversion Project. Conectiv is an electric generation and distribution company formed by the merger of Atlantic Electric of New Jersey and the Delmarva Power and Light Company. The Conectiv service area encompasses Southern New Jersey and the Delmarva Peninsula including the state of Delaware and portions of Maryland and Virginia.

Conectiv's Smallworld data model was customized by Cook-Hurlbert to interface with their Expert Designer application software. Baker's challenge was to manage the data conversion for two distinct areas, with unique requirements, by two different vendors. The Atlantic District included the integration of field inventory data.

Baker provided the services of an on-site Conversion Manager whose responsibilities included:

- Analysis of the data conversion requirements to populate the Conectiv Smallworld data model
- Development of a comprehensive Data/Source Matrix
- Mapping of legacy database attribute codes to the GIS data model
- Definition of graphic placement rules
- Documentation of project correspondence
- Facilitation of project meetings and conference calls
- Monitoring of Project Schedule
- Investigation and response to Vendor Conversion Questions
- Development of a comprehensive data delivery inspection process
- Analysis and approval of each vendors data conversion project plan
- Analysis and approval of Atlantic District filed inventory process
- Development of conversion post processes
- Participation in development of GIS plotting application

Customer's Name: Delmarva Power New Castle Regional Office

195 & Rt. 273, P.O. Box 9239 Newark, DE 19714-9239

Contact:

J. Cabot Wright

Telephone No:

856.351.7246

E-mall:

cabot.wright@pepcoholdings.com

General Value:

\$\$350,000

Length of Project:

18 Months

Section IV – RFQ Required Documents

VENDOR PREFERENCE CERTIFICATION
PURCHASING AFFIDAVIT
ADDENDUM ACKNOWLEDGEMENT

EXHIBIT 10

REQUISITION NO.:ITECH10

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NO.'S:

NO. 1 ..X....

NO. 2X

NO. 3

NO. 4

NO. 5

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS. VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

SIGNATURE

Michael Baker Jr., Inc.

COMPANY

1/19/2010

DATE

REV. 11/96

Section V – Terms and Condition Comments

5.1 RFQ GENERAL TERMS AND CONDITIONS

RFP Section to 1.5.1 – Baker suggests adding language: "The State and Agency agrees, to the fullest extent of the law, to indemnify, hold harmless and defend Vendor, its officers, directors and employees against all damages, liabilities or costs, arising out of changes made by anyone other than Vendor or from any use of the documentation without the prior written consent of vendor."

RFP Section 1.5.1.6 – Baker suggests deleting "in the trace".

RFP Section 1.5.2 – Baker suggests adding the following language to the beginning of item 3 "Any claim to the extent arising from the negligence or....".

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with **West Virginia Code**, §5A-3-37. (Does not apply to construction contracts). **West Virginia Code**, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bld) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bld in accordance with the **West Virginia Code**. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1.	Application is made for 2.5% resident vendor preference for the reason checked: Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or, Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or, Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,		
2.	Application is made for 2.5% resident vendor preference for the reason checked: Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,		
3.	Application is made for 2.5% resident vendor preference for the reason checked: Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,		
4.	Application is made for 5% resident vendor preference for the reason checked: Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,		
5.	Application is made for 3.5% resident vendor preference who is a veteran for the reason checked: Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,		
6.	Application is made for 3.5% resident vendor preference who is a veteran for the reason checked: Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.		
Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has falled to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.			
By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.			
Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.			
Bidder	Michael Baker Jr., Inc. Signed:		
Date:_	1/19/2010 Title: Assistant Vice President		
*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.			

RFQ No. ITECH 10

STATE OF WEST VIRGINIA Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

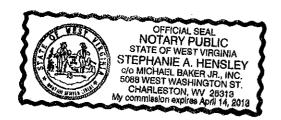
"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (**West Virginia Code** §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

Vendor's Name: Michael Baker Jr., Inc	1	
Authorized Signature:	ffull Dat	e:
State of West Virginia	V	
County of Karowka, to-wit:		
Taken, subscribed, and sworn to before me this $\underline{191}^{t}$ day	of Javay	, 20 <u> </u> 0.
My Commission expires <u>april 14, 2013</u>	, 20	
AFFIX SEAL HERE	NOTARY PUBLIC	yolu a. Hy



WITNESS THE FOLLOWING SIGNATURE