

Statement of Services  
LOUISVILLE/JEFFERSON COUNTY INFORMATION CONSORTIUM

# Management and Implementation of LOJIC Technical Architecture Improvements

January 2, 2018



## GEOGRAPHIC TECHNOLOGIES GROUP®

The World's Leading GIS Strategic Planning Company

Our team believes in the process of strategically planning and designing true enterprise, sustainable, and enduring GIS solutions that change the way local governments operate.

**Planned and Designed Innovative and Award-Winning GIS Strategic Improvements**

**300+ Enterprise, Sustainable, & Enduring GIS Infrastructure Recommendations**

**Designed & Coordinated the Support and Deployment of Esri Managed Cloud Services**

**Experts in GIS for Local Government**

**Effective GIS Collaboration Strategies**

**Renowned Database Clean-Up and Software Installation Services**

**Numerous Award-Winning Departmental Enterprise Solutions**



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Esri  
• Special Achievement  
in GIS (Unalaska, AK)

URISA  
• Best Web GIS  
• Best Public Sector GIS  
(Guelph, ON, Canada)





**GEOGRAPHIC  
TECHNOLOGIES  
GROUP®**

We take pride in being an award-winning GIS company that provides full-service enterprise GIS solutions and software for government.

# UNDERSTANDING GOVERNMENT

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DATA CONVERSION,  
COLLECTION AND CREATION



DATA AND DATABASE  
MIGRATION



MAPPING AND ANALYSIS



GEO-DATABASE DESIGN  
AND DEPLOYMENT



GIS STRATEGIC  
IMPLEMENTATION PLANNING



GIS AND GPS TRAINING



GIS APPLICATION  
DEVELOPMENT



GIS OUTSOURCING AND  
TECHNICAL SUPPORT  
SERVICES



GIS AND INFORMATION  
TECHNOLOGY INTEGRATION



GLOBAL POSITIONING  
SYSTEMS (GPS)  
FIELD INVENTORY



November 30, 2017  
Louisville/Jefferson County Information Consortium  
700 West Liberty Street  
Louisville, KY 40203

Dear Selection Committee,

Geographic Technologies Group's (GTG) core competency is planning, designing and implementing true enterprise, scalable, sustainable and enduring GIS solutions for government organizations. We have the very best team in the United States to make this happen. The GTG team has secured multiple national and international awards for GIS implementation. Partnering with our clients, we won Esri's 2016 international Special Achievement in GIS award (SAG) and URISA's 2016 gold medal for Best Public Sector GIS, and 2016 silver medal for Best Web GIS.

Our expertise includes all aspects of GIS services on an annual basis. Our detailed expertise includes the following:

- Esri Managed Cloud Services (EMCS)
- Server and network administration tools, procedures, scripts, etc. including back-up procedures, replication, and disaster recovery
- Geodatabase clean up and configuration
- Data migration
- LGIM
- Geodatabase Design and Maintenance
- Application Development and Customization Services
- ArcGIS Server Implementation
- Complete Esri Solutions
- Application Design Services
- Custom Code / Widget Development
- ArcGIS Server Customization and Development Services
- Web App Builder - Internet and Intranet Solutions
- Esri Maps and Apps
- Other Enterprise GIS Services

The entire GTG team would like to thank you for allowing us to propose on this project. Our expertise in GIS services and government will provide LOJIC with the very best solution. Should you have any questions during the review of the proposal, please call me at 919-429-6370.

Respectfully Submitted,

A handwritten signature in cursive script that reads 'Matthew McLamb'.

Mr. Matthew McLamb, BS, MA  
CTO, Geographic Technologies Group (GTG)  
[mmclamb@geotg.com](mailto:mmclamb@geotg.com)

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GTG has proven to be a company with thorough in-depth knowledge of system architecture design and strategic planning for local governments. We highly recommend them for anyone looking to improve their GIS department. ””

**-Athens-Clarke County, Georgia**

Mary R. Martin – GIS Administrator  
mary.martin@athensclarkecounty.com  
706.613.3515



PUBLICATION BY CURTIS HINTON & DAVID HOLDSTOCK

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# Qualifications, Services, and Clientele



Geographic Technologies Group (GTG) is recognized as one of the leading GIS planning and consulting companies in the world. Our team provides professional GIS implementation and technology services. GTG was founded specifically to help towns, cities, and counties of all sizes design, build, and implement cost effective GIS technology. Guiding local governments in GIS since 1997, GTG celebrates more than two decades of growth and success. A corporate culture of quality, understanding government operations, and commitment to our clients allows GTG to continue to build an outstanding GIS portfolio.

## GIS-Related Honors and Awards

GTG is an award-winning GIS company receiving a multitude of honors and awards in recent years. Awards and honors include:



- Esri's 2017 Best Citizen Engagement Award
- Esri's 2016 Special Achievement in GIS Award
- Esri's 2012 Special Achievement in GIS Award
- Esri's 2011 International Award for Mobile Applications
- An Esri Business Partner of the Year
- URISA and American City and County Excellence Award in GIS
- URISA Exemplary Systems in Government Award
- Herb Stout Award for Exemplary Use of GIS Technology in Local Government

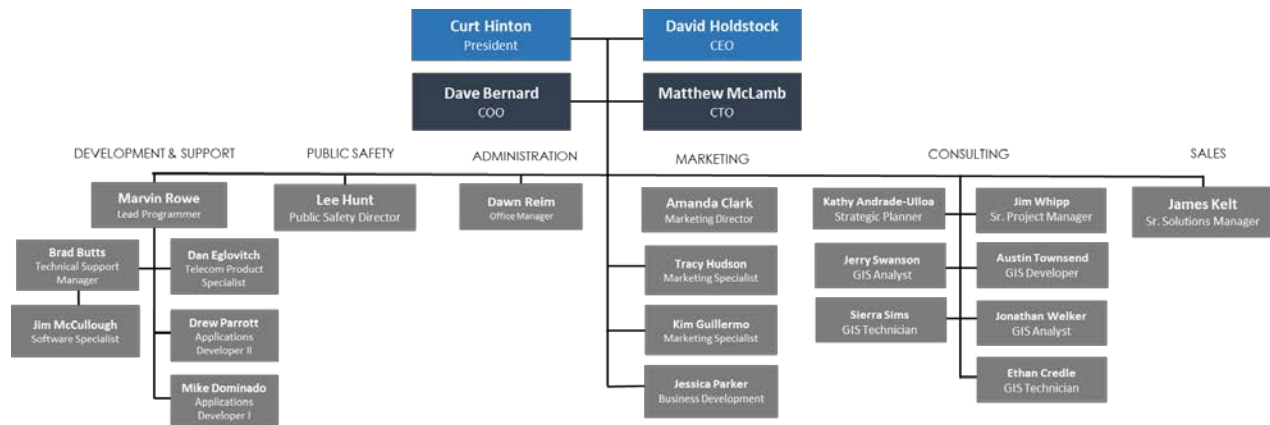
## Esri Experts

GTG is the leading local government Esri expert. We were the first Esri Business Partner to achieve the following distinctions: Esri Gold Partner, Esri ArcGIS Online and the ArcGIS for Local Government specialties. As a group of Esri technologists, we are experts in EMCS and migration to ArcGIS Servers, including Esri's LGIM.



## Office Locations and Organizational Structure

GTG's headquarters is based in Goldsboro, NC. Other offices are located in Raleigh, NC and Longview, TX. GTG's project success is based on our significant expertise in all aspects of GIS. GTG's project team is comprised of GIS professionals that are subject matter experts. GTG's team has over 60 combined years of experience in GIS architecture, data integration, innovative geospatial solutions, and cloud based services.



## Similar Projects

City of Hoover, Alabama | Contact: Melinda James Lopez, [jamesm@ci.hoover.al.us](mailto:jamesm@ci.hoover.al.us)

**Project Description:** GTG worked with the City to organize their GIS data and supporting GIS software. GTG fully inventoried all data, developed a mapping document, and then migrated their data to the Local Government Information Model. GTG also provided the City with the following services: GIS Services including ArcGIS Server and Desktop Implementation, Geodatabase Design and Development, Data Mining Processes, Data Migration to the Local Government Information Model, Off the Shelf Software Solutions implementation as well as custom application development, and training.

City of Roswell, Georgia | Contact: Patrick Baber, [pbaber@roswell.gov](mailto:pbaber@roswell.gov)

**Project Description:** GTG developed a comprehensive GIS Strategic Plan for the City of Roswell, and has worked extensively with the organization to improve the quality, access, and efficiency of GIS data and services. As part of this effort, GTG conducted a Digital Data Assessment (spatial, tabular, and geometric) and migrated the City to Esri's Local Government Information Model. Additionally, GTG cooperated with the City of Roswell to upgrade existing hardware and software, including a reconfiguration of the City's server environment for optimal performance internally and externally. Migration of the core geodatabases to the LGIM enabled use of template applications and tools that operate with the LGIM; Now, The City of Roswell advantageously employs numerous desktop, mobile, and web-based Esri products and applications, and boasts over 100 users of GIS data and services throughout the organization.

City of Guelph, Ontario | Contact: Chris Sambol, [chris.sambol@guelph.ca](mailto:chris.sambol@guelph.ca)

**Project Description:** GTG developed a work plan for the City of Guelph which evaluated the City's existing Esri software deployment and made recommendations for enhancing the configuration to support the City enterprise. Included in the work plan was a technical specifications report which took a deeper dive into the architecture deployment at the City and made recommendations for expanding the architecture to support new users both internally at the City as well as citizens. GTG worked closely with the City to deploy new Esri applications, including Web AppBuilder, Story Maps, Park Locator, Collector App, and Operations Dashboard. This involved the installation, configuration, and deployment of on-premise Esri software.

## Our Services



### STRATEGIC PLANNING

Our exceptional team at GTG develops award-winning GIS strategic plans and insightful roadmaps for local government organizations. We offer a unique approach to GIS implementation and a positive and dramatic change in the way GIS is implemented and managed within your organization.



### ENTERPRISE IMPLEMENTATION

We can provide you expert implementation assistance for any of your needs to include: hardware, software, applications, training, data, and databases. Our experts have assisted 500+ clients with Enterprise Implementation.



### DATA CREATION, CONVERSION, AND COLLECTION

Let us show you how our team plans, designs, and builds reliable GIS data for government. We specialize in geodatabase configuration, data creation, conversion, and management, and data migration and integration.



### LOCAL GOVERNMENT INFORMATION MODEL

We can show you how our team has developed the most effective and practical solutions for migrating your GIS database to Esri's Local Government Information Model (LGIM). We help clients migrate from their current software to a full deployment of ArcGIS Server Enterprise and associated Desktop ArcGIS software.



### TRAINING, EDUCATION, AND KNOWLEDGE TRANSFER

Embrace how our technical experts have developed GIS training, education, and knowledge transfer plans specifically tailored to the needs of local government. We work for local government. We know how to train and educate all stakeholders within your organization – guaranteeing the sustainability of your program.



### STAFF AUGMENTATION AND ON-CALL TECHNICAL SUPPORT

We offer towns, cities, and counties an opportunity to use our advanced on-call and staff augmentation services. We offer nationally recognized experts and technical staff to support your GIS initiative. Using the best people is an essential ingredient for success.



### APPLICATION DEVELOPMENT

Our team of programming engineers continues to develop applications for the effective and efficient management of local government. We have developed custom and off-the-shelf applications for all departments within local government. Let us show you how we can streamline your operations.



### LAND MANAGEMENT AND PARCEL FABRIC SOLUTIONS

Let us help you implement the very best land management solutions to include the Esri Parcel Fabric and a host of land management tools. Our team will show you how to store, edit, and guarantee the accuracy and your parcel and land records digital data. Our team are using Esri's Land Administration Platform to meet your cadastral and land record needs:

- Parcel Fabric
- ArcGIS for Desktop
- Inventory Services
- ArcGIS for Land Records
- Deed Drafter
- Cama Integration
- ArcGIS Online
- Citizen Engagement
- Address Management





“Geographic Technologies Group (GTG) are experts in data management, integration and migration, consensus building, collaboration and local government operations.”

**-Columbus Consolidated Government, Georgia**  
 Jeff Griffin – Former GIS Manager  
 JHGriffin@maconbibb.us  
 478.621.6388

PROPOSED  
TEAM



PUBLICATION BY CURTIS HINTON & DAVID HOLDSTOCK

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# Proposed Team

Geographic Technologies Group has more than 20 professionals with extensive knowledge of and commitment to all aspects of the project. The proposed project team has exceptional experience and training as it relates to LOJIC’s Scope of Services. The GTG project team will be responsible for completing all services and tasks within the Scope of Services. GTG will not utilize any sub-consultants or sub-contractors as part of this project.

## Project Manager



**Matthew McLamb**  
Chief Technology Officer  
9 Years of Experience

## Technical Advisor

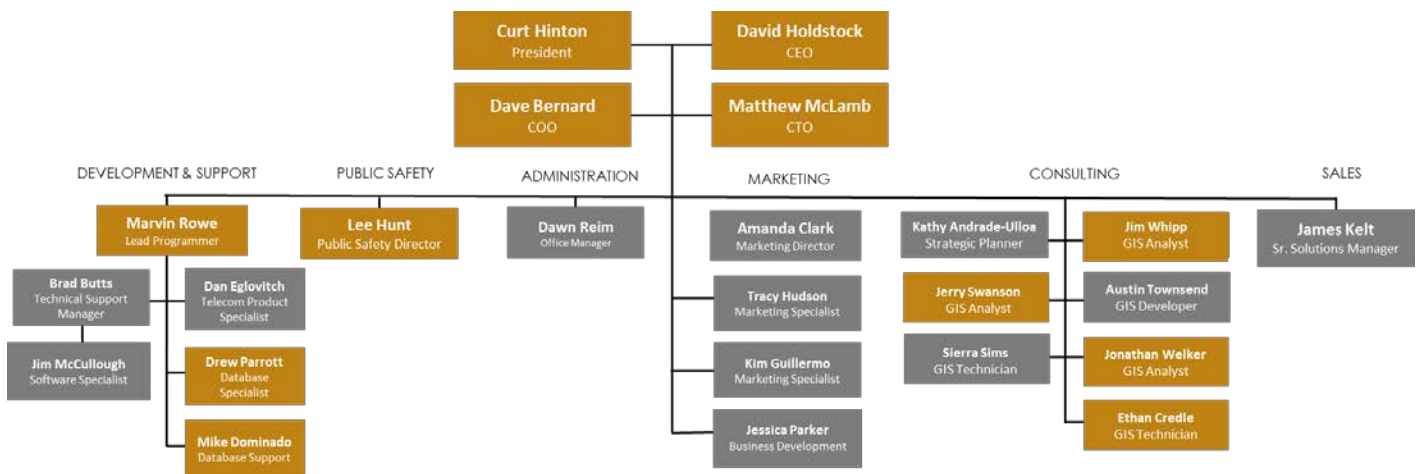


**David Holdstock**  
CEO  
25 Years of Experience

## Technical Advisor



**Curt Hinton, GISP**  
President  
25 Years of Experience



## Staff Involvement in Projects

**Matthew McLamb, CTO:** Will oversee the project and will be ultimately responsible for all GIS services. Involved in all Work Areas.

**David Holdstock, CEO:** Will help GTG’s team maintain project schedules, conduct meetings, and manage project deliverables on time and within budget. Involved with Work Areas 1 and 8.

**Curtis Hinton, President:** Will help GTG’s team maintain project schedules, conduct meetings, and manage project deliverables on time and within budget. Involved with Work Areas 1 and 8.

**Marvin Rowe, Lead Programmer:** Will be involved with network management and configuration, data integration and data management. Involved in Work Areas 2, 4, and 7.

**Jonathan Welker, GIS Analyst:** Will be involved with integration and GIS implementation, as well as technical assistance and database clean-up. Will be involved in Work Areas 2-5.

**Jim Whipp, GIS Analyst:** Will be involved with integration and GIS implementation, as well as technical assistance and database clean-up. Will be involved in Work Areas 5 and 6.

**Jerry Swanson, GIS Analyst:** Will be involved with network management and configuration, integration and GIS implementation, as well as technical assistance. Will be involved in Work Areas 2-7.

**Lee Hunt, GIS Specialist:** Will be involved with integration and GIS implementation, as well as technical assistance and database clean-up. Will be involved in Work Areas 3, 5 and 6.

**Ethan Credle, GIS Technician:** Will be responsible for database clean-up, refinement, and configuration. Will be involved in Work Area 6.

**Drew Parrott, Database Specialist:** Will be involved with network management and configuration, data integration and data management. Involved in Work Areas 2, 3, 4, and 7.

**Mike Dominado, Database Support:** Will be involved with network management and configuration, data integration and data management. Involved in Work Areas 2, 4, 5, and 7.

# MATTHEW MCLAMB, BS, MA

## Chief Technology Officer



### Year Joined GTG

2008

### Education

**Mount Olive College**, Mt. Olive, NC – Bachelor of Science: Computer Information Systems

**North Carolina State University**, Raleigh, NC – Master of Research: GIS and Technology

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Mr. McLamb has been employed with GTG for nearly ten years and has extensive experience with ESRI's ArcGIS Online solution and ESRI's LGIM for local government organizations. Mr. McLamb is the project lead for the Town of Windsor's GIS Implementation which includes utility GIS tasks in conjunction with ArcGIS Online and ESRI's LGIM. Mr. McLamb has managed many system architecture design and implementation projects surrounding the Esri platform. He has also deployed various ArcGIS Online solutions such as the Flex Viewer for ArcGIS, Story Maps, the Collector Application. Mr. McLamb understands how ArcGIS Online and ArcGIS for Server integrate with existing systems and workflows.

### EXPERIENCE

- Completed a multitude of migrations from existing software environments to a full deployment of ArcGIS Server Enterprise v10.x and associated Desktop ArcGIS software
- Expert with Esri's Portal for ArcGIS and federation with ArcGIS Server
- Expert in ArcGIS Server Enterprise 10.5 and Desktop ArcGIS software
- Experience in geodatabase clean-up and migration, configuration, and addressing issues of geodatabase partition and federation
- On-premise servers, server roles, server configuration with workload separation, capacity management, auto-scaling, and network connections with users
- Completed migrations of core geodatabases to Esri Local Government Information Model (LGIM)



### PROJECTS

Mr. McLamb has worked with multiple organizations on GIS implementations and services. The following clients are recent projects:

- City of Guelph, ON, Canada
- City of Unalaska, AK
- City of West Hollywood, CA
- Town of Windsor, CA
- City of West Hollywood, CA
- Town of Davie, FL



# DAVID HOLDSTOCK, BA, MS, GISP

## CEO



### Year Founded GTG

1997

### GIS Education

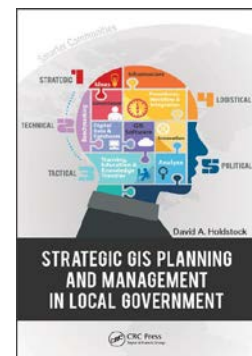
**Greenwich University**, London, U.K. – Bachelor of Arts, Honors: Geography – School of Humanities

**North Carolina State University**, Raleigh, NC – Master of Science: Natural Resource Management - GIS Research Program

### Certifications

**Geographic Information Systems Professional (GISP)**

Mr. David Holdstock, BA, MS, GISP is one of North America’s leading authorities on GIS Consulting and Strategic Implementation Planning in local government. He has secured GIS implementation awards for multiple organizations including the City of Guelph, Canada, and the City of Unalaska, AK. Mr. Holdstock’s recent 2017 book **“Strategic GIS Planning and Management in Local Government”** and his future 2018 **“Best GIS Practices in Local Government”** book establishes him as the leading authority. Mr. Holdstock incorporated Geographic Technologies Group, Inc. (GTG) in 1997 with offices throughout the United States. Mr. Holdstock has over 25 years of GIS experience, and has planned, designed, and coordinated the implementation of GIS technology for over 300 government organizations. As CEO, his duties include GIS management, GIS planning, assessment, design, and implementation, client contact, and project technical supervisor.



Author of 2016  
*Strategic GIS Planning  
and Management in  
Local Government*

## EXPERIENCE

- Worked on over 200 GIS migration and implementation projects
- Deployment of and integration with ArcGIS server 10.5
- ESRI Software expertise – ArcGIS Online, ArcGIS for Server, LGIM, and Desktop GIS
- Former GIS Manager For World’s Leading Transportation Engineering Company – PPQD, NY
- GIS/GPS Program Director At North Carolina State University – Institute for Transportation Research and Education (ITRE)
- Extensive Publications About GIS Implementation

## PROJECTS

Mr. Holdstock has served as Project Manager for multiple organizations. The following clients are recent projects:

- City of Wilmington, NC
- City of Berkeley, CA
- City of West Hollywood, CA
- Town of Windsor, CA
- Campbell County, WY
- Rio Rancho, NM
- Town of Davie, FL

# CURT HINTON, BA, MA, GISP

## President



### Year Founded GTG

1997

### Education

University of North Carolina, Chapel Hill, NC – Bachelor of Arts: Geography and Psychology

University of North Carolina, Chapel Hill, NC – Master of Arts: Geography

### Certificates

Geographic Information Systems Professional (GISP)

Mr. Curt Hinton established an award winning company, Geographic Technologies Group, Inc. (GTG) in 1997 with business partner Mr. David Holdstock. Mr. Hinton has planned, designed, and coordinated the implementation of GIS technology for over 800 government organizations. As President of GTG his duties include, GIS Strategic Planning, client contact and satisfaction, and project technical supervisor. Mr. Hinton has more than 25 years of GIS experience. As Wilson, North Carolina's GIS Coordinator, Hinton spearheaded the development and implementation of GIS for the City of Wilson. Mr. Hinton was successful in securing for the City of Wilson state, national, and international awards for the exemplary comprehensive use and city-wide implementation of GIS.

## EXPERIENCE

- Specializes in integrating GIS with existing information and technology investments
- Has hands-on experience implementing GIS for all city and county departments
- Performed over 200 GIS migrations and implementations
- Extensive experience in GIS for fire, planning, building, and street maintenance
- ESRI Software – ArcGIS Online, ArcGIS for Server, LGIM, and Desktop GIS
- Author and Presenter at numerous GIS Conferences

## PROJECTS

Mr. Hinton has served as Project Manager for the multiple organizations. The following clients are recent projects:

- City of Guelph, ON, Canada
- City of Boynton Beach, FL
- City of Fulshear, TX
- City of Johnson City, TN
- City of West Hollywood, CA
- Town of Windsor, CA
- City of Pasadena, CA



# MARVIN ROWE, BS, MBA

## Lead Programmer



### Year Joined GTG

2017

### Education

Temple University, Philadelphia, PA – MBA in Management

Ohio State University, Columbus, OH – BS in Mathematics, honors graduate

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Mr. Rowe is an Information Technology professional with proven success as a designer, developer, architect, manager, consultant, mentor, and technician. His services have been utilized by the IRS, Dell, and other large organizations.

### EXPERIENCE

- ArcGIS administration and appropriate security using appropriate scripts and APIs from Esri with necessary customization
- On-premise servers, server roles, server configuration with workload separation, capacity management, and autoscaling, and network connections with LOJIC users
- Designed and maintained SQL Server, Oracle, Access, Sybase, VSS and TFS databases
- Developed and implemented numerous web-based applications, while enhancing their security
- Expert of migration of data and applications
- Produces **technical specifications reports**
- Experience dealing with mission-critical software
- Establishes coding/design standards
- Competes back-up procedures, replication, and disaster recovery

### EXPERTISE

The following summarizes his technical areas of expertise:

- C#
- VB.Net
- ASP.Net
- ADO.Net
- CSS
- MVC
- MVVM
- WPF
- WCF
- XAML
- XML
- XSLT
- HTML
- XHTML
- JavaScript
- jQuery
- AD
- LINQ
- RabbitMQ
- SQL
- HQL
- EF
- POS
- SSMS
- SSIS
- SSRS
- Crystal

# JONATHAN WELKER, BS, MA

## GIS Analyst



### Year Joined GTG

2013

### Education

**Appalachian State University**, Boone, NC – Bachelor of Science:  
Geography and Community and Regional Planning

**Appalachian State University**, Boone, NC – Master of Arts: Geography (GIS)

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Mr. Jonathan Welker currently serves as a GIS Specialist for Geographic Technologies Group. Mr. Welker has been employed with GTG since completing his Geography Master of Arts degree with a concentration in GIS. While attending school, he also provided GIS services as an intern for NASA's Carbon Monitoring System (CMS). Mr. Welker provided technical support and cartographic services for Avoyelles Parish, Louisiana, served as the field technician for address point collection and verification for the City of Charleston, WV, and created many of the pertinent geographic layers and data for the Town of Windsor's ArcGIS Online portal.

### HIGHLIGHTS

- Provides GIS software training for all levels of expertise
- Integrated Multiple Enterprise Systems with GIS
- Builds and Maintains Geometric Networks
- Expert in the following:
  - ArcGIS for Server
  - ArcGIS Online
  - Esri's WebApp Builder
  - Data Development
  - ArcGIS installation and training

### KEY EXPERIENCE

Mr. Welker has assisted with GIS implementation, data conversion/integration and training for multiple organizations. The following clients are some more recent projects:

- Town of Windsor, CA
- City of Healdsburg, CA
- City of West Hollywood, CA
- City of Goose Creek, SC
- City of Roswell, GA



# JIM WHIPP, BS

## GIS Analyst



### Year Joined GTG

2016

### Education

James Madison University, Harrisonburg, VA – Bachelor of Science: Geography

### Location

Goldsboro, NC Office

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Mr. Jim Whipp currently serves as a GIS Technician for Geographic Technologies Group. Mr. Whipp has been employed with GTG since 2016. While attending school, he also provided GIS services as an intern for the City of Harrisonburg’s Public Works Department. Mr. Whipp has done numerous data inventories including address collection and verification for Person County, North Carolina, as well as asset collection for the City of Providence, Rhode Island. Mr. Whipp has also worked on many data migration projects with Esri applications.

### EXPERIENCE

- Knowledgeable in metadata content and procedures for metadata update
- Worked on migrations of web-based applications to the ArcGIS Server Enterprise environment
- Experienced in GIS integration with external databases and applications and determination
- Lead report writer for technical specifications
- Has assisted with numerous Data Inventory projects
- Cleans up data, ensuring it is to its correct specifications
- Expert in ArcGIS 10.5, Esri Collector Application, and the Esri Parcel Fabric

### PROJECTS

Mr. Whipp has assisted with GIS data collection and maintenance for many organizations. The following clients are recent projects:

- Caroline County, MD – Data Inventory
- Person County, NC – Data Inventory
- City of Providence, RI – Data Inventory
- Town of Addison, TX – Data Inventory
- Broken Arrow, OK – Data Clean Up
- Hoffman Estates, IL – Data Clean Up

:

# JERRY SWANSON, BS

## GIS Analyst



### Year Joined GTG

2013

### Education

Humboldt State University – Natural Resources: Emphasis on GIS

### Location

Traverse City, Michigan Office

Mr. Swanson has been employed with GTG for almost 5 years and has extensive experience with ESRI's ArcGIS Online solution, ArcGIS Server, Portal for ArcGIS and ESRI's LGIM for local government organizations. Mr. Swanson has been the lead technical analyst for the numerous GIS projects including Town of Windsor, CA, West Hollywood, CA, Greenville Utilities, and Morristown, TN among others. Mr. Swanson has deployed various ArcGIS Online solutions such as the Flex Viewer for ArcGIS, Story Maps, the Collector Application, and has installed and configured Portal for ArcGIS. Mr. Swanson understands how ArcGIS Online and ArcGIS for Server integrate with local government systems and workflows.

## EXPERIENCE

- ArcGIS administration and appropriate security using appropriate scripts and APIs from Esri with necessary customization
- On-premise servers, server roles, server configuration with workload separation, capacity management, and autoscaling, and network connections with users
- Server and network administration tools, procedures, scripts, etc. including back-up procedures, replication, and disaster recovery
- Working experience with Esri Managed Cloud Services (EMCS) and on-premise GIS server software
- Expert in ArcGIS Server Enterprise 10.5 and Desktop ArcGIS software
- Integrated Multiple Enterprise Systems with GIS
- Technical Documentation Creation
- CAD to GIS Conversion (Safe Software FME)

## PROJECTS

Mr. Swanson has assisted in the creation and conversion of data for multiple organizations. The following clients are recent projects:

- Rio Rancho, NM
- Greenville Utilities Commission
- City of Morristown, TN
- U.S. Virgin Islands
- City of West Hollywood, CA

Assisted with multiple Esri Special Achievement in GIS (SAG) Award winning GIS implementations



# LEE HUNT, BS, PH.D

## Public Safety Director- GIS Specialist



### Year Joined GTG

2017

### Education

State University of New York - Buffalo, New York— Anthropology

### Location

Goldsboro, NC Office

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Mr. Eleazer “Lee” Hunt serves as the Public Safety Director for Geographic Technologies Group. In addition to being a former Police Officer, he has held many positions revolving around Information Services, Crime Analysis, Software Development, and GIS Analysis. He has experience in teaching, GIS technology implementation, managing GIS resources, and developing GIS-based research methodology. He also has experience working full-time at Esri while completing law enforcement training. He applied this experience for enhanced understanding of the needs and obstacles of police officers in order to better design applications for the law enforcement Esri clients.

### EXPERIENCE

- Managed implementation of GIS Technology
- Written numerous Needs Assessments and Implementation Strategy Reports
- Implemented advanced geo-spatial tools and statistical tools for analysis
- Initiated the Crime Analysis unit including identification of best practices, methodology, hardware, application software, analysis capabilities, and procedures.
- Authored grant proposals, developed research methodologies, and guided staff on data analysis
- Providing digital land base and street routing software and developed enhancement plans
- Part of a team that built a new dispatch system based on mapping and geo-positioning

### EXPERTISE

- Policy Development and Long-Range Planning
- Project management of advanced analytics for the implementation of geo-spatial oriented software
- Development and management of implementation plans for technical projects
- GIS Analysis
- Software Development
- Crime Analysis
- GIS Strategic Planning

# ETHAN CREDLE, BS

## GIS Technician



### Year Joined GTG

2015

### Education

East Carolina University, Greenville, NC - Bachelor of Science: Applied Geography

### Location

Goldsboro, NC Office

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Mr. Ethan Credle, serves as a GIS Technician for Geographic Technologies Group. He obtained a GIS Certificate from East Carolina University. He primarily performs data migration, collection, and manipulation using Collector for ArcGIS, data collection using Trimble GPS, Heads Up digitizing in ArcGIS Desktop, Image Georeferencing, Web application deployment and customization, and Map book creations.

## EXPERIENCE

- ArcGIS Online implementation
- Web Application Deployment and Customization
- ArcGIS Server Enterprise 10.5 components
- Desktop ArcGIS Software
- Esri Managed Cloud Services (EMCS)
- Data Collection using Collector for ArcGIS
- Data Collection using Trimble GPS
- Creation of Reporting and Standard Operating Procedures
- Extensive experience performing Terrain and Spatial Analyses
- Experience using ERDAS Imagine for Image processing analysis

## PROJECTS

Mr. Credle has worked on numerous GIS consulting projects using an array of GIS software. The following clients listed below are recent projects:

- City of Concord, CA
- Westmoreland County, VA
- Person County, NC
- City of Broken Arrow, OK
- Wayne County, NC
- City of Providence, RI
- City of Roswell, GA



# DREW PARROTT, BS

## Database Specialist



### Year Joined GTG

2011

### Education

East Carolina University— Bachelor of Science: Computer Science

### Location

Goldsboro, NC Office

Mr. Jonathon Parrott has two years of computer programming experience. During college, Mr. Parrott studied language and compiler development, operating system development, Java, data structures, project management, and other various business related courses. He was also a member of ACM (Association for Computer Machinery). Mr. Parrott worked on several projects including development of C++ and Java applications. Upon graduating from East Carolina University, Mr. Parrott joined GTG as a mobile application developer for public safety and land management products as well as custom client applications.

## HIGHLIGHTS

Mr. Parrott is an expert in the following:

- Frameworks/Objects/Protocols: ASP.Net, .NET 3.0, .NET 3.5, .NET 4.0, .NET 4.5,
- SOAP, REST, Arcgis for Android, Arcgis for iOS
- Programming Languages: C, Java (J2ME), Java (J2SE), C#, VB.Net, Objective-C
- Scripting Languages: Javascript, SQL
- Markup Languages: XML, HTML, CSS, XAML, JSON
- GIS Software: ArcGIS 10.x, ArcGIS Server 10.x
- Databases: MS SQL Server 2008, MS SQL Server 2012, Oracle
- Platforms: Windows, Mac OS X, Android, iOS

## KEY EXPERIENCE

- ArcGIS Server
- ArcGIS Online
- ArcGIS Mobile
- JavaScript
- HTML5
- Microsoft .NET
- Software Upgrades and Installation
- Technical Writing and Application Functional Specifications
- Application Configuration

# MIKE DOMINADO, AAS

## Database Support



### Year Joined GTG

2015

### Education

Wake Technical Community College – Associates in Applied Science:  
Electrical/Electronic Technology, Associates in Computer Programming

### Location

Goldsboro, NC Office

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Mr. Mike Dominado serves as GIS programmer for Geographic Technologies Group. He has developed chat applications to handle multi-threaded client requests on local server ports by using input and output streams to read and write data to and from the number of clients on the server. He has experience building and developing a Windows 8.1 phone application that allows the user to look at a list of nearby stores they are interested in and be able to pull up the directions and go to it with convenience. He is working on updating current software applications such as 311GIS and MapNimbus to the latest standards such as HTML5/JavaScript.

## HIGHLIGHTS

- Using Azure SQL Database as a back end for storage of information
- Applying ASP .NET Web API in conjunction with RESTful service to handle http requests to retrieve information from the database as a backend service.
- Implementing XAML with C# as a front end to build the GUI for users to interact with:
- Managing project development via Team Foundation Version Control with usage of the SCRUM methodology.

## KEY EXPERIENCE

- ArcGIS Server
- ArcGIS Online
- JavaScript
- Adobe Flex
- HTML5
- Microsoft .NET
- Software Upgrades and Installation
- Technical Writing and Application Functional Specifications
- Application Configuration



GTG has helped us take a major step in enabling a truly enterprise GIS Solution. GTG's staff has an incredible understanding of system architecture, business processes and workflow, user requirements and data management, as well as multi-jurisdictional issues, GIS governance, data-sharing and total enterprise implementation. ” ”

**-City of Hoover, Alabama**

Melinda James Lopez - Director of Information Management and Reporting  
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PROJECT  
UNDERSTANDING

PUBLICATION BY DAVID HOLDSTOCK

**GEOGRAPHIC TECHNOLOGIES GROUP®**

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# Project Understanding, Approach and Deliverables

## Understanding of LOJIC Structure and Technical Environment

Geographic Technologies Group (GTG) understands the structure of LOJIC, the current technical environment, and the objectives of this **Technical Architecture Improvement Project (TAIP)**. In the following sections, our team details the scope of services, work assignments, and deliverables, including but not limited to the following:

- Identification of all **project tasks and subtasks**
- A **work flow chart**
- A list and **description of deliverables** and key milestones
- Project Gantt chart
- A breakdown of **on-site and off-site work** at LOJIC

Our team understands the following key project related facts:

1. LOJIC embraces strong customer service
2. LOJIC provides the main partner organizations and the broader user community in Jefferson County with GIS data, applications, and support.
3. LOJIC continues to provide users with the following key products and services:
  - Regular update and access to critical GIS base map data.
  - Coordination with partners and other organizations for update and storage of a wide range of other GIS datasets.
  - Administration of Esri enterprise software license.
  - Access to frequently needed GIS data in a variety of formats.
  - Access to a large range of custom map products.
  - Licensing of LOJIC data and system access.
  - Online, interactive applications.
  - Training services and technical support.
  - Special projects and custom development services.
4. LOJIC offers GIS data support for Oldham County and Bullitt County.  
LOJIC is the data hub and shared source for nearly 1,000 local spatial databases, nearly all of which are home-grown and maintained by LOJIC team or partner agencies. A sample of major LOJIC geo-data includes:
  - **Orthoimagery / LiDAR:** 4-inch, 4-band, 1-meter classified LiDAR elevation data
  - **Plan/Topo Mapping:** photogrammetric accuracy, 2-foot terrain contours, 94 data classes



- **Properties:** 325,000 land parcels, ownership, characteristics, assessment, historical, sales
- **Site Addresses/Centerlines:** source for E911/CAD, asset management, permits, routing, range of geocoding applications for interactive address navigation, mapping and analysis
- **Utilities:** sanitary sewer, storm drainage, water, gas, power
- **Planning/Service Districts:** zoning, land use, form districts, preservation districts, political/administrative/emergency districts, demographics
- **Floodplains:** FEMA flood zones and insurance rate areas

Our team also understands the status of the currently deployed software, existing web applications, and the status of each LOJIC supported integration.

**Table A: Current LOJIC Software**

Software/Solution	Version
Geodatabase Version	10.2.1
ArcGIS for Desktop (ArcMap) Advanced	10.2.1
ArcGIS for Desktop (ArcMap) Basic	10.2.2
ArcGIS Pro	1.4.1
ArcGIS Web Adaptor	10.2.2
ArcGIS for Server Advanced	10.0, 10.2.1
ArcGIS API for JavaScript	3.7, 3.8, 3.9, 3.10

**Table B: Current LOJIC Web Applications**

LOJIC Web Applications	System Environment
CSO/SSO Notification Application	Web MSD - External
EGIS	Web LOJIC - Internal
HARP	Web LOJIC - Internal
EGIS - SRs	Web LOJIC - Internal
IOAP Project Viewer	Web MSD - External
ProjectWIN - Overflow notification - XML file	Web MSD - External
Floodplain Determinations	Web MSD - External
Mowing Web Application	Web MSD - External
LOJIC Online	Web LOJIC - External
Metro Area Zip Codes	Web ArcGIS Online -External
Survey Control	Web ArcGIS Online -External
Zoning	Web MSD - External
Metro Council Districts	Web MSD - External
Neighborhoods	Web MSD - External
Lidar Grid	Web ArcGIS Online -External
Map It!	Web MSD - External

**Table C: LOJIC Supported Integration with the Most Critical External Systems**

External Integration	Main User	Description
Infor/Hansen	MSD	Resource interface for ETL of LOJIC data to Hansen/Infor; AGS-based Upstream viewers for GIS query/view/interaction with Hansen/Infor data
Telog Remote Monitoring	MSD	Rain gauge telemetry and modeling
Sidwell Parcel Data Management	PVA	Parcel editing, records administration and GIS-CAMA integration
E-Ring CAMA	PVA	CAMA software used by PVA; integrates with parcel data and Sidwell
Intergraph CAD	LMG	ETL of LOJIC streets, addresses and other data into CAD
Accela	LMG	Metro asset and work order management platform; intended to consume suite of LOJIC web services; planned deployment Summer 2018.

## Overview

There are eight (8) specific work areas required to complete the TAIP. The following details each work area:



### **WORK AREA 1: PREPARATION OF DETAILED SPECIFICATIONS AND WORK PLAN**

**Deliverable:** TECHNICAL SPECIFICATIONS REPORT AND DETAILED TECHNICAL ARCHITECTURE IMPROVEMENT PROJECT (TAIP) WORK PLAN

**Duration:** Throughout Entire Project

**ON/OFF Site:** Offsite and Onsite

**Project Team:** David Holdstock, Curt Hinton and Matt McLamb

As stated in the RFP: This Work Area includes GTG’s detailed evaluation of the current LOJIC architecture, gathering and evaluating additional information as necessary to augment background information provided in this scope of services. The tasks and schedule for the following work areas will be further refined during Work Area 1. This phase will include work with the LOJIC project manager and team to make decisions on specific technical architecture components to be developed and implemented in subsequent tasks. Based on its evaluation of requirements and



potential solutions, the contractor will review options and recommendations with the LOJIC project team and build a consensus on specifications which will encompass the following:

1. On-premise servers, server roles, server configuration with workload separation, capacity management, and auto scaling, and network connections with LOJIC users. It is assumed that the servers will use Windows Server 2012 R2 and VM tools for server virtualization.
  - GTG will conduct current assessment of on premise servers, server roles and configuration to determine current capacity. GTG will work with LOJIC and MSD staff to project future needs and recommended enhancements to current architectural environment.
  - GTG will review current network connections with LOJIC users and with assistance of LOJIC and MSD staff evaluate potential changes and future needs
  - GTG will evaluate, along with input from Esri and MSD IT staff, the potential pitfalls of using ArcGIS Pro with XenApp. It is noted that the use of ArcGIS Pro with XenApp is strongly discouraged due to XenApp being unable to support more than two or three sessions of ArcGIS Pro per server.
2. Server and network administration tools, procedures, scripts, etc. including back-up procedures, replication, and disaster recovery (working with LOJIC and MSD IT staff).
  - GTG will assess and document administration tools, procedures, and scripts currently in use at LOJIC.
  - GTG will recommend changes, additions or removal of such tasks to increase efficiency and reflect any new architectural changes
  - GTG will review current back up procedures, replication processes and disaster recovery with LOJIC and MSD staff and ensure needs are met moving forward
3. Potential use of Esri Managed Cloud Services (EMCS). Contractor recommendations will be based on a review of EMCS proposals and decisions about review of options on level of services based on LOJIC needs, costs, and the appropriate mix of EMCS services vs. on-premise server and software.
  - GTG will provide an assessment and review of EMCS to LOJIC decision makers and how cloud based services will impact current environment
  - GTG will provide a benefit analysis of EMCS including level of service, needs of LOJIC and cost
  - GTG will provide scenarios for mixture of EMCS and on-premise servers and software and a recommendation of options for LOJIC



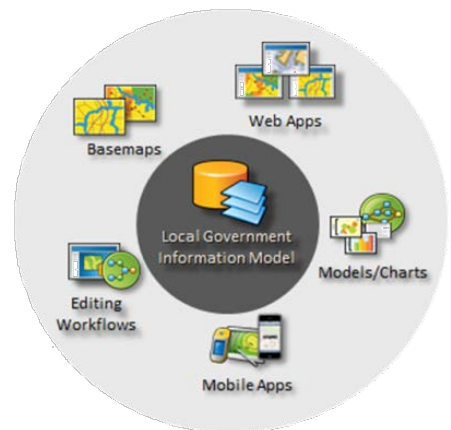
- The review of EMCS and other cloud service providers will occur during Work Area 3
  
- 4. On-premise GIS server software with a migration to ArcGIS Server Enterprise 10.5 components and other GIS software from Esri or other vendors. Decisions about on-premise servers, server roles, and network connections will be made in coordination with decisions about use of EMCS (see above) with the intent to optimize functional, service to users, and cost.
  - GTG will administer the software migration to ArcGIS Server Enterprise 10.5 and related GIS software upgrades
  - GTG will assist in decision making about on-premise servers, server roles, and network connections with the purpose of enhancing function to users and cost
  
- 5. Desktop ArcGIS software (including ArcMap 10.5 and/or ArcGIS Pro and necessary extensions with an assumption that there will be a gradual reduction in the number of Desktop ArcGIS users). This should include a review of selected ArcMap users to understand level of customization and use of locally stored data or tools to determine work involved to migrate desktop users to server-based applications or new ArcGIS Desktop software.
  - GTG will review specific ArcGIS Desktop users recommended by LOJIC for current needs and uses of tools, data accessibility, and impacts of server based application migration
  - GTG will provide an assessment for differences in local vs. server based application in regards to ArcMap and ArcGIS Pro and meeting end users' needs
  - GTG with LOJIC staff, will recommend plan of action for moving forward based on architectural decision of desktop versus server based user needs



- 6. Geodatabase clean-up and migration based on an evaluation of the status of work by LOJIC staff to review current feature classes with necessary deletion, merging, schema consistency, and migration to ST\_Geometry (from the current Oracle binary geometry data type).
  - GTG will work with LOJIC staff to assist in the evaluation of current geodatabases, specifically the current feature classes and how they are utilized in the current environment
  - GTG will review feature classes with LOJIC with an understanding of their current role and recommend any potential deletion, merges, schema changes to LOJIC staff

- Once geodatabase cleanup has occurred, GTG will provide hands on guidance and support for LOJIC’s database migration to utilization of the LGIM
    - GTG will assist in migration from current Oracle based binary geometry type to a SQL based ST\_Geometry data type
7. Geodatabase configuration addressing issues of geodatabase partition and federation (with necessary replication). This also should cover geodatabase configuration using appropriate caching, compression, spatial and table indexing, pre-fetching, and other tools for optimal performance and response time for vector feature classes and image data. This will use ArcGIS DataStore with the migration to ArcGIS Server Enterprise.
- GTG will provide LOJIC specific SOP for the configuration of current and future geodatabases, this will include best management practices for caching, database compression, spatial indexing, and other tools to increase performance of image and vector data
  - GTG will provide expertise in regards to ArcGIS DataStore and its relation to ArcGIS Server Enterprise based on the needs of LOJIC future architecture

8. Migration of core geodatabases to Esri Local Government Information Model (LGIM) to enable use of template applications and tools that Esri and Esri business partners to operate with the LGIM. If LOJIC makes a decision to implement, the LGIM will not replace the LOJIC production geodatabase but will be maintained as a separate geodatabase with ETL processes. The Contractor will examine requirements and benefits of use of the LGIM and make recommendations to LOJIC on data content and approach to populate the LGIM.



- GTG will leverage LGIM expertise to recommend migration efforts where LOJIC sees fit
    - GTG will provide LOJIC with requirements and benefits of the LGIM model and how work flows can be enhanced using Esri’s integrated toolset and applications
    - GTG understands that LOJIC is not looking to replace current production databases with LGIM, but to provide benefits for certain work flows and processes
9. Metadata content and procedures for metadata update and tools for user access to metadata for search and data discovery of LOJIC data.
- GTG will provide SOP’s for metadata creation and best management practices for user access to metadata content
10. Migration of existing LOJIC Web-based applications and migration to the new ArcGIS Server Enterprise environment.
- GTG will lead the enterprise migration to ArcGIS Enterprise 10.5 and ensure web-based applications will successfully accompany the upgrade process

11. GIS integration with external databases and applications and determination of best approach to maintain necessary integration including Hansen/Infor, Accela, and ICAD emergency dispatch system. The following systems will be analyzed for integration:
  1. Infor/Hansen (MSD),
  2. Telog remote monitoring data feeds (MSD),
  3. Sidwell parcel data management and E-Ring CAMA systems (PVA),
  4. Intergraph Computer-Aided Dispatch System (LMG),
  5. Accela Cloud-based Asset, Permitting, Inspection (LMG-under implementation)
  - GTG understands that LOJIC depends on these external systems to be supported and will need the systems to coincide as the architecture improvements occur
  - GTG will lead the software set-up and processes for the integrations to take place and will conclude with the deployment of the five separate external systems, with appropriate testing to occur thereafter to ensure LOJIC's needs are met

This Work Area will culminate in at least two deliverables: a) a technical specifications report that covers the technical components listed above and b) a work plan with tasks and timing covering all project activities and deliverables. The work plan to be delivered will be in a work breakdown structure (WBS) to provide a visual representation and detailed plan encompassing Work Area 1 and all related sub tasks. This WBS will be dynamic as project needs change depending on recommendations and decisions related to the various Work Areas. GTG will utilize MS Project to show the task hierarchy and timing.

As the lead contractor on this proposal, GTG will be the lead liaison for all Work Areas as listed, and offer a supporting role to MSD IT Staff as in the case of Work Area 2. Esri's role will be dependent on whether EMCS is chosen as a viable solution for LOJIC, which then the synchronization of existing services with the on-premise servers will need support from Esri for completion. Without EMCS being chosen as a solution, Esri will play a support role in a software vendor capacity. GTG may also recommend LOJIC to consume EEAP credits for certain additional technical support that is outside of this scope.

GTG also understands the importance of MSD IT staff participation in this project, including a majority of the Work Area activities. IT support will be the foundation for many tasks and processes in the scope, especially in Work Areas 4,5,6 and 7. GTG's relationship with MSD IT staff is an integral part of a successful project. GTG will work in conjunction with MSD IT staff to ensure GTG's expertise coincides smoothly with MSD IT staff's technical skill set. GTG will provide flexibility to accommodate MSD IT's resources and staff availability during the activities of this Work Area.

GTG has a strong understanding of the scope of work that LOJIC proposes. With that being said, GTG also understands that through the duration of the project and specific Work Areas, that certain aspects of the scope will be modified to accommodate LOJIC's needs. This consideration will be applied to each Work Area to meet the stated objectives.

This Work Area should be continually worked on throughout the duration of the project. Some activities, listed under other Work Areas, as approved by the LOJIC Project Manager, will proceed before the full completion of this Work Area.



## WORK AREA 2: ON-PREMISE LOJIC HARDWARE AND NETWORK IMPROVEMENTS

**Deliverable:** HARDWARE AND NETWORK IMPROVEMENTS

**Duration:** 7 Weeks

**ON/OFF Site:** Onsite

**Project Team:** Matt McLamb, Jerry Swanson, Marvin Rowe, Drew Parrott

GTG understands the tasks outlined in Work Area 2 will be carried out with close coordination with Work Area 3 and Work Area 4. GTG will take a leading role in the review of requirements for the deployment of an on-premise server and provide recommendations on server roles and configurations to meet LOJIC needs. GTG will also work in conjunction with MSD IT staff to assist in identifying the quantity of physical servers and provide recommendations for server specifications. GTG realizes that this Work Area involves procuring hardware and licensing in coordination with MSD IT staff, which may cause some lag time for this activity. GTG will work closely with MSD IT staff during this stage of the project and adjust activities accordingly.

From a supportive standpoint, GTG will work with the MSD IT staff on vendor selection to meet the agreed upon server specifications in addition to establishing LAN and WAN connection specifications. GTG will be available onsite to assist in server installation and preliminary testing on the LOJIC network. GTG will provide consultation for the various server configurations including spinning up of virtual machines, establishing server roles and assist in load balancing from a GIS server standpoint. GTG will take into account

Work Area 2 Activity	Contractor Role	LOJIC and Partner Roles	Comment
Review requirements and make recommendation for on-premise server roles	Lead	Support	
Identify specific number of physical servers and prepare specifications	Co-Lead	Co-Lead	Contractor works jointly with MSD IT
Support procurement of servers including preparation of bid specifications and vendor selection	Support	Lead (MSD IT)	
Define specifications for local and wide area network connections	Support	Lead (MSD IT)	
Support server and network installation and testing	Support	Lead (MSD IT)	

Work Area 2 Activity	Contractor Role	LOJIC and Partner Roles	Comment
Provide recommendations and support for server configuration (VM environment, roles, load balancing)	Support	Lead (MSD IT)	



## WORK AREA 3: SUPPORT CONFIGURATION AND DEPLOYMENT OF CLOUD SERVICES

**Deliverable:** CONFIGURATION AND DEPLOYMENT OF Esri MANAGED CLOUD SERVICES

**Duration:** 14 Weeks

**ON/OFF Site:** Offsite and Onsite testing

**Project Team:** Matt McLamb, Jerry Swanson, Lee Hunt and Drew Parrott

GTG understands that LOJIC is considering the potential use of Esri Managed Cloud Services or other cloud services to handle all or most of the LOJIC publication database and user data access and applications. GTG will evaluate the pros and cons of utilizing a cloud hosting service (EMCS, Azure, AWS, others) and make recommendations for LOJIC moving forward. GTG understands that LOJIC would benefit from reclaiming a talented Application Developer by utilizing cloud services for key GIS functions, but the overall benefits and drawbacks will be fully evaluated and provided to LOJIC for consideration moving forward.

GTG will take the lead role by working with the selected cloud service provider to understand the necessary requirements and data flow processes if a cloud based solution is selected. GTG has already reviewed the Esri proposal for EMCS provided to LOJIC and is ready to provide feedback to Esri and LOJIC on this proposal. This will include reviewing all documentation provided by Esri in relation to EMCS and provide feedback to both LOJIC and Esri on terms and conditions of the proposed agreement. In addition, GTG will provide suggestions for revision, if necessary, and conduct a thorough review with comments provided to LOJIC and Esri. GTG understands that MSD IT is considering significant improvements to its architecture. This can impact the potential use of cloud based solutions, and this will be a part of the review and decision-making process with LOJIC and MSD IT.

In a support capacity, if necessary GTG will be involved during the negotiations between the selected cloud based solution and LOJIC. This role will include providing consultation and recommending the adjustment of certain aspects of the agreement when needed. The main goal is to ensure LOJIC is receiving services that meet the overall goal of proposed enhancements of this proposal. As stated in Work Area 1, LOJIC has not made the decision to move forward with a cloud based solution and a major component of this Work Area will be to review all considerations of using a cloud solution



and deciding if the solution fits LOJIC’s needs. If an agreement is reached, GTG will advise LOJIC and work with the provider on the implementation of their solution and make certain the approach fits LOJIC needs. If a solution is selected, during the pre-deployment stage, GTG will oversee the testing of services related to the deployment and review the life cycle of the implementation including set-up, testing, and deployment. This will involve working with LOJIC in a monitoring role and allowing the selected vendor to conduct their SOP of the deployment. Monitoring of this phase of the implementation will include commentary to both the vendor and LOJIC. If a cloud based solution is selected, the final phase of Work Area 3 will be to support the roll out the service and observe operations on-site after the system goes live, including assisting in any issues that arise during the initial roll out of the solution for the benefit of LOJIC.



Work Area 3 Activity	Contractor Role	LOJIC and Partner Roles	Other
Make recommendations on appropriate roles for cloud vs on-premise server resources	Lead	Support	
Review Esri proposals and cite comments, questions, and suggestions for revision of terms (as needed)	Lead	Support	
Participate in negotiations with selected cloud service, leading to ratification of contractor for services (as needed)	Support	Lead	
Suggest steps and approach for cloud service implementation (as needed)	Support	Support	Selected Cloud Vendor is the Lead
Oversee pre-deployment testing and keep track of testing results and pass/fail status (as needed)			
Set-up, test, and deploy cloud service (as needed)	Monitor	Support	Selected Cloud Vendor is the Lead
Monitor and comment on cloud configuration and implementation work (as needed)	Support	Lead	Cloud Vendor Participation
Monitor operations after go-live and identify any problems or issues (as needed)	Monitor/Support		



## WORK AREA 4: CONFIGURATION OF USER ACCOUNTS, SECURITY, AND ADMINISTRATION FOR ON-PREMISE SYSTEMS

**Deliverable:** CONFIGURATION OF USER ACCOUNTS, SECURITY, AND ADMINISTRATION

**Duration:** 15 Weeks

**ON/OFF Site:** Offsite and Onsite testing

**Project Team:** Matt McLamb, Jerry Swanson, Marvin Rowe, Mike Dominado

During the Work Area 4 activities of the implementation, GTG will play a supporting role in the administration of user accounts in relation to all Esri based software that resides on premise. This software includes ArcGIS Server Enterprise, ArcGIS Desktop, and ArcGIS Online. This phase will include a review of current users, the addition of new users if needed, and the removal of users if applicable. This review will encompass users of all current GIS software applications including ArcGIS Server, ArcGIS Desktop, Portal for ArcGIS and ArcGIS Online. The review will consist of documenting the current structure and roles of users, in both a visual and oral report. The resulting report will then be utilized by working with LOJIC and MSD IT staff to develop a game plan on making any user adjustments for the new upgraded systems.

Since LOJIC understands their user’s needs, GTG will provide a supporting role to LOJIC on best management practices of user roles including the determination of administrators, publishers, users and any users that require a customized role. Each user account will be evaluated using the GTG generated user review report and appropriate permissions will be granted in conjunction with LOJIC’s needs and MSD IT’s recommendations from an IT standpoint. GTG understands the important of MSD IT staff participation in this Work Area in relation access of user accounts, active directory, testing, and the setup of automated tools. These activities are a key factor for this Work Area and coordinating with MSD IT staff to ensure scheduling and staff availability is crucial for completion. GTG will provide flexibility to accommodate MSD IT’s resources and staff availability during the activities of this Work Area.

LOJIC has a desire to implement Active Directory using Windows authentication for the access of on-premise systems. GTG understands that the nature of LOJIC and the various Partner organizations that access data across their system. The variable of multiple Active Directory integrations for data access and user roles, will be led by the MSD IT team with assistance from GTG in relation to GIS data access within the on-premise servers.

Work Area 4 Activity	Contractor Role	LOJIC and Partner Roles	Other
Review current accounts and identify new users or inactive users	Support	Lead	MSD IT participation
Evaluate and identify user roles and credentials for each identified user account	Support	Lead	MSD IT participation

Work Area 4 Activity	Contractor Role	LOJIC and Partner Roles	Other
Work with LOJIC and MSD IT to verify Active Directory account	Support	Lead (MSD IT)	
Use Esri tools to set-up accounts	Lead	Support	MSD IT participation
Conduct tests to verify proper account set-up	Lead	Support	MSD IT participation
Configure and set-up automated tools for account administration	Lead	Support	MSD IT participation
Carryout account administration (addition of users, changing of user credentials) during the project period	Support	Lead (MSD IT)	



## WORK AREA 5: ON-PREMISES GIS SOFTWARE INSTALLATION, CONFIGURATION, AND DEPLOYMENT

**Deliverable:** SOFTWARE INSTALLATION, CONFIGURATION, AND DEPLOYMENT

**Duration:** 8 Weeks

**ON/OFF Site:** Onsite

**Project Team:** Matt McLamb, Jerry Swanson, Jim Whipp, Mike Dominado, Lee Hunt

GTG understands that Work Area 5 involves the migration of the current system environment to the robust deployment of ArcGIS Enterprise 10.5 and the adjoining ArcGIS Desktop suite of software. By using previous work completed in Work Area 1, recommendations for the previously mentioned software configurations will be utilized and implemented. GTG will take a leading role in the implementation of all components of ArcGIS Server Enterprise 10.5 including ArcGIS Server, Portal for ArcGIS, ArcGIS Image Server, and ArcGIS Web Adaptor. All these components interact in varying capacities and GTG will conduct testing to ensure the connections between the various GIS server mechanisms will be in sync with one another.



Portal for ArcGIS offers valuable advantages to organizations to control and administrate a centralized GIS portal for a multitude of users. GTG will take the lead role in the successful install and configuration of Portal for ArcGIS and determine the synergy that exists between on-premise servers and EMCS, if LOJIC decides to move forward with the solution. This involves determining the

use of a federated server and other back-end configurations of Portal for ArcGIS. This task also includes reviewing and ensuring users have access to services provided from the Portal for ArcGIS platform. Through internal discussion, GTG will determine if multiple portals are necessary to fit LOJIC's needs.

GTG understands the support role that MSD IT staff will play in this Work Area in regards to the installation and configuration of software on the various on-premise servers. A key component of the success of this Work Area will be coordinating with MSD IT staff to ensure all IT related security and permission protocols are enabled and followed. GTG will provide flexibility to accommodate MSD IT's resources and staff availability during the activities of this Work Area.

GTG recognizes LOJIC's objective to reduce the current number of ArcGIS Desktop users with a phased approach to scale back the estimated 140 end users. The determination to reduce the number of ArcGIS Desktop users includes assessing the current user environment and the roles the users play within the entire enterprise system. Reduction of users will be accomplished from establishing a user baseline as well as future user needs with direction from LOJIC and the LOJIC Steering Committee. With future trends pointing towards the utilization of ArcGIS Pro from Esri and industry experts, GTG will provide LOJIC with recommendations to introduce and elevate the use of ArcGIS Pro 2.x through initial and long-term deployment plans. A main consideration for this deployment will be the current work flows of LOJIC's user and how they can be incorporated into ArcGIS Pro at its current capacity and projected enhancements. As mentioned previously, the use of ArcGIS Pro in conjunction with XenApp will need further evaluation and input from Esri before deploying enterprise-wide.

\*It should be noted that the activities for this Work Area will change accordingly if LOJIC does not decide to utilize EMCS

Work Area 5 Activity	Contractor Role	LOJIC and Partner Roles	Other
Install ArcGIS Enterprise base components	Lead	Support	MSD IT participation and Esri support
Install other ArcGIS Enterprise components identified by LOJIC	Lead	Support	MSD IT participation and Esri support
Install and configure Portal for ArcGIS	Lead	Support	MSD IT participation and Esri support
Test and accept ArcGIS Enterprise components	Lead	Support	MSD IT participation and Esri support
Examine current ArcGIS Desktop use and make recommendations for phased reduction of seats	Support	Lead	MSD IT participation

Work Area 5 Activity	Contractor Role	LOJIC and Partner Roles	Other
Make a determination for user access to ArcMap 10.5 and ArcGIS Pro	Support	Lead	MSD IT participation
Install and configure ArcMap 10.5 and ArcGIS Pro on selected user workstations	Lead	Support	MSD IT participation and Esri support



## WORK AREA 6: DATABASE CLEAN-UP, REFINEMENT, AND CONFIGURATION

**Deliverable:** DATABASE CLEAN-UP, REFINEMENT, AND CONFIGURATION DETAILED REPORT AND IMPROVEMENTS

**Duration:** 10 Weeks

**ON/OFF Site:** Onsite and Offsite

**Project Team:** Matt McLamb, Jerry Swanson, Jim Whipp, Ethan Credle

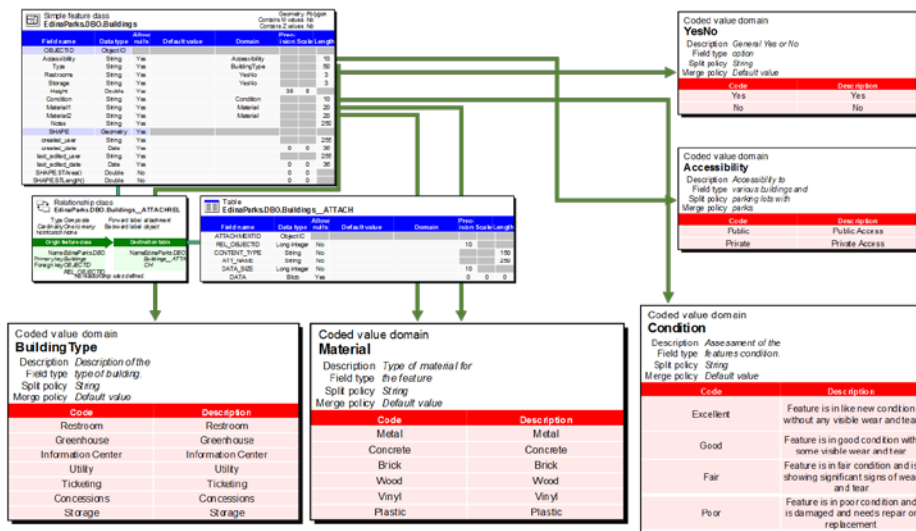
GTG will work with support from Esri to assist LOJIC staff in the evaluation of current geodatabases, specifically the current feature classes and how they are utilized in the existing environment. GTG will be taking the lead role on this Work Area and act as the lead liaison for database clean-up, refinement and configuration. Esri's role will be in a supporting capacity and GTG will work with Esri staff when activity specific tasks call for support. This will specifically be the case if the EMCS solution is chosen by LOJIC in conjunction with GTG and MSD IT staff. If the EMCS route is selected, Esri will be handling the configuration of services for data update and synchronization of on-premise data with EMCS, as stated in the EMCS proposal, option 1. GTG also may advise LOJIC to apply the use of EEAP credits for additional support from Esri if need be. This consideration will be reviewed at the start of this Work Area and finalized in conjunction with LOJIC's needs.

This evaluation will include reviewing feature classes with LOJIC with an understanding of their current role and recommend any potential deletion, merges, schema changes to LOJIC staff. GTG understands the support role that MSD IT staff will play in this Work Area. It will be critical to work in coordination with MSD IT staff for a successful outcome. GTG will provide flexibility to accommodate MSD IT's resources and staff availability during the activities of this Work Area. GTG understands that MSD IT and LOJIC have setup a clean Esri Oracle environment that is ready for data to be loaded. GTG will conduct a thorough assessment of the LOJIC database and will identify what GTG can do based on the recommendations and what LOJIC should do. GTG will work closely

with LOJIC to develop a roadmap to move forward with any suggested database changes or updates. GTG will not conduct any data analysis or review of data accuracy as part of this project.

GTG will provide LOJIC specific Standard Operating Procedures (SOP's) for the configuration of current and future geodatabases, this will include best management practices for caching, database compression, spatial indexing, and other tools to increase performance of image and vector data. GTG will also review and recommend the use of geodatabase replication and federation, with regards to both on-premise and cloud environments (TBD). After the recommendation for database replication and federation has been reviewed by LOJIC with consul from Esri, GTG will create and configure such processes within the on-premise system. Once database set up is completed, GTG and LOJIC will provide a supporting role to the selected cloud vendor as they lead the configuration of services for data updates and synchronization for on-premise data with the cloud based solution (TBD).

The final task of Work Area 6 is to review and recommend the potential use of Esri's Local Government Information Model (LGIM) to LOJIC team members. GTG is an expert in LGIM usage and migration and will leverage technical knowledge to see how the LGIM fits into LOJIC's current database architecture. GTG understands that while LOJIC does not want to replace the LGIM with the current production databases, but after further evaluation, may opt to utilize the LGIM as a secondary database for enhancing tools and applications built within the LGIM. After LGIM data determinations have been compared, GTG will make recommendations on LGIM data migration where LOJIC sees fit.



Work Area 6 Activity	Contractor Role	LOJIC and Partner Roles	Other
Evaluate status of database clean-up and configuration	Lead	Support	Support from Esri
Make recommendations to LOJIC staff about approach or tools that might improve database reconfiguration	Lead	Support	Support from Esri



Work Area 6 Activity	Contractor Role	LOJIC and Partner Roles	Other
Make recommendations for geodatabase federation and replication considering on-premise vs cloud service roles	Lead	Support	Support from Cloud Vendor (TBD)
Identify performance-enhancing features (compression, caching, indexing, etc.)	Lead	Support	Support from Esri
Create and set-up on-premise federated databases and replication	Lead	Support	Support from Esri
Configure services for data update and synchronization of on-premise data with selected cloud solution	Support	Support	Cloud Vendor (TBD) is Lead
Examine, make recommendations, and define approach for deployment of the Esri LGIM	Lead	Support	



## WORK AREA 7: INTEGRATION WITH EXTERNAL SYSTEMS AND DATABASES

**Deliverable:** INTEGRATION WITH EXTERNAL SYSTEMS AND DATABASES

**Duration:** 27 Weeks

**ON/OFF Site:** Onsite and Offsite

**Project Team:** Matt McLamb, Jerry Swanson, Marvin Rowe, Drew Parrot, Mike Dominado

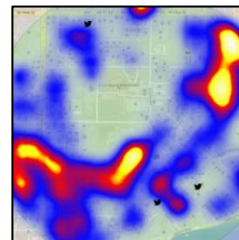
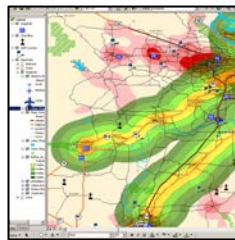
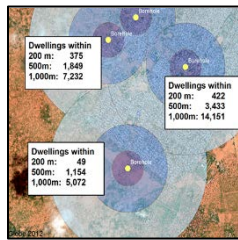
GTG is an industry leader in external system integrations and understands the relationship that disparate databases have with an enterprise GIS. GTG is aware that LOJIC currently supports the GIS functions within the following systems:

- Infor/Hansen (MSD),
- Telog remote monitoring data feeds (MSD),
- Sidwell parcel data management and E-Ring CAMA systems (PVA),
- Intergraph Computer-Aided Dispatch System (LMG), and
- Accela Cloud-based Asset, Permitting, Inspection (LMG-under implementation)

GTG understands that LOJIC and its partners depends on these external systems to be supported and will need the systems to coincide as the architecture improvements occur. GTG will work as the lead on Work Area 7 with support from LOJIC and MSD IT staff on preparing an approach to keep the current external systems intact as well as the new systems moving forward. GTG understands the integral role that MSD IT staff will play in this Work Area. As the information technology expert in relation to the current and future external systems, it is crucial to work in

coordination with MSD IT staff for a successful integration. GTG will provide flexibility to accommodate MSD IT's resources and staff availability for the duration of this Work Area.

GTG will work closely with the end-users of each of these applications (MSD, PVA, and LMG) to ensure these applications are compatible with Esri 10.5 and the latest version of Oracle. GTG will work closely with the end-users to contact each of the vendors and notify them of the upcoming upgrade and deployment date to ensure they are ready. GTG will act as the lead regarding the testing of the systems following the migration to Esri 10.5. The goal is to continue support for these external systems as LOJIC enhances their current architectural environment outlined in Work Areas 1-6.



Work Area 7 Activity	Contractor Role	LOJIC and Partner Roles	Other
Notify external system vendors of upcoming upgrade	Lead	Support	
Examine technical environment and methods supporting integration with current external system integration	Lead	Support	
Define best technical approaches and methods for each external system	Lead	Support	
Test and deploy external integrations	Lead	Support	



## WORK AREA 8: OPTIONAL SERVICES

**Deliverable:** TECHNICAL ON-CALL SERVICES; DEPLOYMENT OF Esri'S WEB APPBUILDER

**Duration:** 1 week Web AppBuilder Deployment; On-call services on an as needed basis

**ON/OFF Site:** Offsite and Onsite

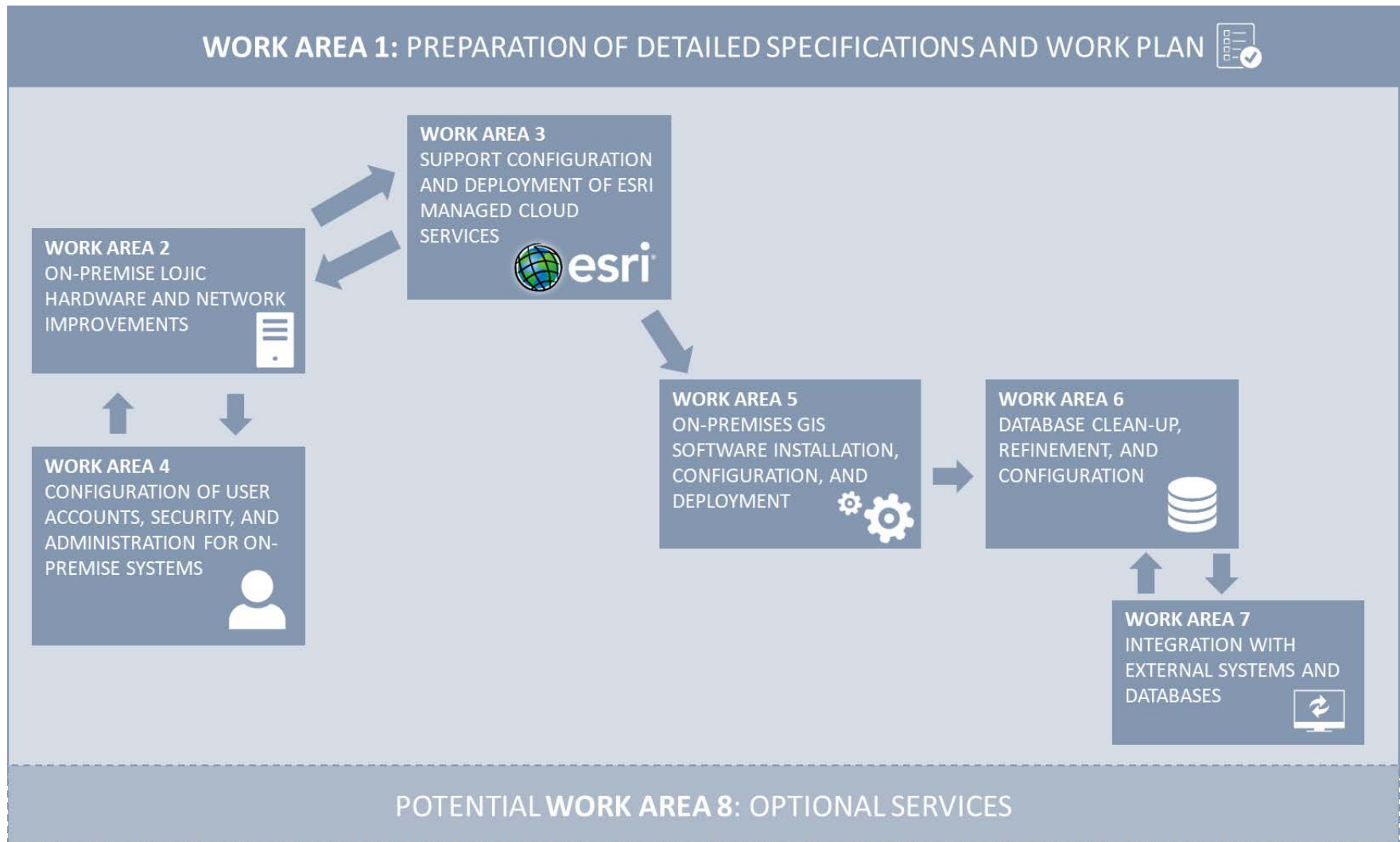
**Project Team:** Full GTG Team

GTG staff are available for additional GIS services that LOJIC may need. This includes items that may or may not be in the scope. These additional services are billed hourly. GTG's hourly rates are included below for reference.

GTG's core competencies include GIS-based mapping and spatial analysis. Our experienced and knowledgeable team of GIS analysts, specialists, and technicians is available to provide a variety of services, including deploying Esri's Web AppBuilder for online customized maps and widgets. GTG will identify and work with LOJIC to develop web maps/apps that you may need that aren't included in the scope.

# Workflow Chart

The following is a graphical depiction of the required workflow.



# GANTT Chart

The following is a schedule showing the anticipated timeframe for each task and sub-task.

Task	Month 1				Month 2				Month 3				Month 4			
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
<b>WORK AREA 1: PREPARATION OF DETAILED SPECIFICATIONS AND WORK PLAN</b>	[Gantt bar spanning all weeks]															
<b>WORK AREA 2: ON-PREMISE LOJIC HARDWARE AND NETWORK IMPROVEMENTS</b>	[Gantt bar spanning all weeks]															
Review requirements and make recommendation for on-premise server roles																
Identify specific number of physical servers and prepare specifications																
Support procurement of servers including preparation of bid specifications and vendor selection																
Define specifications for local and wide area network connections																
Support server and network installation and testing																
Provide recommendations and support for server configuration (VM environment, roles, load balancing)																
<b>WORK AREA 3: SUPPORT CONFIGURATION AND DEPLOYMENT OF CLOUD SERVICES</b>	[Gantt bar spanning all weeks]															
Make recommendations regarding cloud vs on-premise server resources																
Review ESRI proposals and cite comments, questions, and suggestions for revision of terms (as needed)																
Participate in negotiations with selected cloud service, leading to ratification of contractor for services (as needed)																
Suggest steps and approach for cloud service implementation (as needed)																
Oversee pre-deployment testing and keep track of testing results and pass/fail status (as needed)																
Set-up, test, and deploy cloud service (as needed)																
Monitor and comment on cloud configuration and implementation work (as needed)																
Monitor operations after go-live and identify any problems or issues (as needed)																
<b>WORK AREA 4: CONFIGURATION OF USER ACCOUNTS, SECURITY, AND ADMINISTRATION FOR ON-PREMISE SYSTEMS</b>	[Gantt bar spanning all weeks]															
Review current accounts and identify new users or inactive users																
Evaluate and identify user roles and credentials for each identified user account																
Work with LOJIC and MSD IT to verify Active Directory account																
Use Esri tools to set-up accounts																
Conduct tests to verify proper account set-up																
Configure and set-up automated tools for account administration																
Carryout account administration (addition of users, changing of user credentials) during the project period																
<b>WORK AREA 5: ON-PREMISES GIS SOFTWARE INSTALLATION, CONFIGURATION, AND DEPLOYMENT</b>	[Gantt bar spanning all weeks]															
Install ArcGIS Enterprise base components																
Install other ArcGIS Enterprise components identified by LOJIC																
Install and configure Portal for ArcGIS																
Test and accept ArcGIS Enterprise components																
Examine current ArcGIS Desktop use and make recommendations for phased reduction of seats																
Make a determination for user access to ArcMap 10.5 and ArcGIS Pro																
Install and configure ArcMap 10.5 and ArcGIS Pro on selected user workstations																
<b>WORK AREA 6: DATABASE CLEAN-UP, REFINEMENT, AND CONFIGURATION</b>	[Gantt bar spanning all weeks]															
Evaluate status of database clean-up and configuration																
Make recommendations to LOJIC staff about approach or tools that might improve database reconfiguration																
Make recommendations for geodatabase federation and replication taking into account on-premise vs EMCS roles																
Identify performance-enhancing features (compression, caching, indexing, etc.)																
Create and set-up on-premise federated databases and replication																
Configure services for data update and synchronization of on-premise data with EMCS																
<b>WORK AREA 7: INTEGRATION WITH EXTERNAL SYSTEMS AND DATABASES</b>	[Gantt bar spanning all weeks]															
Notify external system vendors of upcoming upgrade																
Examine technical environment and methods supporting integration with current external system integration																
Define best technical approaches and methods for each external system																
Test and deploy external integrations																
<b>WORK AREA 8: OPTIONAL SERVICES</b>	[Gantt bar spanning all weeks]															

Task	Month 5				Month 6				Month 7			
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
<b>WORK AREA 1: PREPARATION OF DETAILED SPECIFICATIONS AND WORK PLAN</b>												
<b>WORK AREA 2: ON-PREMISE LOJIC HARDWARE AND NETWORK IMPROVEMENTS</b>												
Review requirements and make recommendation for on-premise server roles												
Identify specific number of physical servers and prepare specifications												
Support procurement of servers including preparation of bid specifications and vendor selection												
Define specifications for local and wide area network connections												
Support server and network installation and testing												
Provide recommendations and support for server configuration (VM environment, roles, load balancing)												
<b>WORK AREA 3: SUPPORT CONFIGURATION AND DEPLOYMENT OF CLOUD SERVICES</b>												
Make recommendations regarding cloud vs on-premise server resources												
Review ESRI proposals and cite comments, questions, and suggestions for revision of terms (as needed)												
Participate in negotiations with selected cloud service, leading to ratification of contractor for services (as needed)												
Suggest steps and approach for cloud service implementation (as needed)												
Oversee pre-deployment testing and keep track of testing results and pass/fail status (as needed)												
Set-up, test, and deploy cloud service (as needed)												
Monitor and comment on cloud configuration and implementation work (as needed)												
Monitor operations after go-live and identify any problems or issues (as needed)												
<b>WORK AREA 4: CONFIGURATION OF USER ACCOUNTS, SECURITY, AND ADMINISTRATION FOR ON-PREMISE SYSTEMS</b>												
Review current accounts and identify new users or inactive users												
Evaluate and identify user roles and credentials for each identified user account												
Work with LOJIC and MSD IT to verify Active Directory account												
Use Esri tools to set-up accounts												
Conduct tests to verify proper account set-up												
Configure and set-up automated tools for account administration												
Carryout account administration (addition of users, changing of user credentials) during the project period												
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Install and configure Portal for ArcGIS												
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Examine technical environment and methods supporting integration with current external system integration												
Define best technical approaches and methods for each external system												
Test and deploy external integrations												
<b>WORK AREA 8: OPTIONAL SERVICES</b>												



4

“Geographic Technologies Group delivered a fantastic, detailed and understandable GIS strategic roadmap that emphasized an ROI for our Esri investment. A superb consulting company. We would recommend them to any government organization.”

**-City of Guelph, Ontario, Canada**

Chris Sambol- GIS Analyst

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PROJECT  
COORDINATION

PUBLICATION BY CURTIS HINTON

**GEOGRAPHIC TECHNOLOGIES GROUP®**

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# Project Coordination and Management

## Project status monitoring, reporting, and other project communications

The project team will hold regular project meetings weekly at a time agreed upon by GTG, LOJIC, and other necessary stakeholders. GTG will lead each meeting and topics will be limited to technical and logistical issues related to project progress. All stakeholders with agenda items or new/outstanding issues should attend. An issues log and action items list will be the primary outputs from the weekly project meetings.

Each Friday, GTG will prepare a weekly status report, enumerating the project work efforts of the week. Included will be a status of each task and deliverable, the results of the weekly project meeting, new/completed action items, and new/closed technical issues from the issues log. The weekly report will be distributed to all necessary stakeholders.

The issues log will be maintained by GTG. This log will list any issues and provide a mutually agreed upon solution or clarification. If an issue's resolution impacts the project's scope, quality, schedule, or financial plans, issue resolution must be approved by GTG and LOJIC; otherwise the team may agree to and close non-impact issues. Agreed and closed issues become part of the project plan and will serve as guideposts for any similar technical issue.

### Sample Issues Log:

ID	Urgency	Issue	Raised By	Proposed Resolution	Date Raised	Resolution	Date Resolved	Age	Status
I-001	MED	Nursing Homes	GTG	Traditional skilled nursing homes and rehabilitation facilities will be addressed as a single unit. The noted exception are individually addressed, condominium- or apartment -style assisted living and retirement facilities, which will have handled as there are individually addressable units with private entrances.	09/27/11	Accepted as proposed.	09/27/11	0	Closed
I-002	MED	Hospitals	GTG	Hospitals will be treated as a single address. Any clinics or offices with marked, exterior entrances will be treated as separate addresses in the same bldg. Each building in a hospital campus will likely have unique addresses.	09/27/11	Accepted as proposed.	09/27/11	0	Closed
I-003	MED	Hotels	GTG	Hotels and motels will be treated as a single address. If a hotel or motel has separately addressed buildings, each building will be treated as a single address.	09/27/11	Accepted as proposed.	09/27/11	0	Closed
I-004	MED	New building points	SCo	Once the building points are provided, GTG will integrate new building points into the address assessment process with the start of the next unprocessed working unit.	10/04/11	Accepted as proposed.	11/18/11	45	Closed
I-005	MED	Problem addresses	SCo	GTG's internal 'notes' field will be passed to the County as part of the deliverable. The notes field will be used to communicate problems with addresses identified in the field and will aid the County's data acceptance effort, provide items for this issues log. The data model will be updated to reflect this change.	10/11/11	Accepted as proposed.	10/11/11	0	Closed
I-006	MED	Storage units	GTG	The address for a storage unit office, if any, will be captured. Individual units will not be captured. If there are more than 1 addressed bldg, each bldg. will be captured; if not addressed, they will be marked for deletion.	10/24/11	Accepted as proposed.	11/01/11	8	Closed
I-007	MED	Parks and Recreation Facilities	SCo	Considering outdoor parks and recreation areas, specific facilities such as athletic fields, courts, stands, shelters, performance areas, restrooms, concession stands, pavilions or picnic areas, will not be collected unless visibly addressed. Any bldg. points not visually addressed will be flagged for deletion.	10/18/11	Accepted as proposed.	11/01/11	14	Closed
I-008	HI	Dormitories and Student Housing	GTG	Due to the transient nature of the population, combined with centralized housing services (postal, dining, security, laundry, controlled entry, common rooms), GTG recommends dormitories and student housing not be considered individual addressing units and each dormitory will be captured as a single address.	10/28/11	Accepted as proposed.	11/01/11	4	Closed

## Approach for deliverable submittal and review

Due dates for each deliverable will be set at onset of each work area with collaboration between GTG and LOJIC staff. Additionally, GTG and LOJIC will agree on dates for milestone/draft deliverables to be made available and reviewed with LOJIC staff and stakeholders. Initial feedback and guidance will be gathered during the draft deliverable review to guide the remaining tasks for that deliverable. When the final deliverable is provided to LOJIC there will be a period of review time to allow LOJIC ample opportunity to review the product provided. The length of time for this review will be mutually reviewed and agreed upon by GTG and LOJIC as the time needed for the review of each deliverable may vary. Once LOJIC reviews and collects feedback for the deliverable, it should be provided to GTG during the final deliverable review. If additional steps are needed to close out the task/deliverable, GTG will perform the steps necessary and provide a timeframe to LOJIC based on the requests provided. For each deliverable, GTG and LOJIC will sign off on the completion of the task/deliverable. This documentation will be part of the final project closeout materials.

## Expected Roles and Support by LOJIC staff

It is expected that LOJIC staff and LOJIC partner representatives attend the weekly project meetings and contribute to the issues report both in tracking items and assisting with resolutions. Additionally, it is expected that LOJIC will provide a point of contact that can be contacted with questions or clarification throughout the duration of the project. Similarly, GTG will provide a point of contact for the duration of this project. LOJIC will work closely with GTG to identify the best method for remotely connecting to the LOJIC network and accessing the new servers. GTG prefers a VPN connection to the network, but has other methods that can be employed if a VPN connection is not possible.

## Office Space Requirements

When on-site at LOJIC, GTG desires a location to setup and work using GTG provided hardware. GTG staff will bring their own laptops and other necessary hardware to perform the on-site functions and tasks. GTG will need Internet and LOJIC network access while on-site. If LOJIC prefers to provide hardware that is a part of the LOJIC domain, that is acceptable and can be utilized by staff when on-site.

## Other Project Management and Coordination Practices

**Chair Person** – The Meeting Chair Person is responsible for distributing the meeting agenda, facilitating the meeting and distributing the meeting minutes. The Chair Person will ensure that the meeting starts and ends on time and that all presenters stay on point and adhere to their allocated time frames.

**Scribe** - A Scribe may be appointed by the Meeting Chair to document the meeting's attendees, start and end times, topics discussed, decisions made, and Action Items assigned. The Scribe will provide their notes to the Meeting Chair at the end of the meeting which will be used by the Meeting Chair to create the Meeting Minutes.

**Meeting Agenda** - The Meeting Chair will prepare and distribute a Meeting Agenda to all attendees, invited guests (SME's) and stakeholders in advance of a meeting. The Agenda should identify each presenter for

each agenda topic along with a suggested time limit for that topic. The first item in the agenda should be to introduce any new stakeholders, followed by a review of any open Action Items or Outstanding Issues. Agenda items may be proposed by any stakeholder.

**Meeting Minutes** – The Meeting Chair will prepare and distribute Meeting Minutes to all attendees and stakeholders within 2 business days following the meeting. For each item on the agenda, the minutes should include a review of each topic, summary of discussions, and decisions made. Outstanding and new action items detailing the responsible party, task assigned and due date will be published in the Meeting Minutes. Unresolved Issues must be documented. Changes to the Issues Log (new, resolved, closed) will be published in the Meeting Minutes. The Meeting Minutes will list the dates, times and locations (or method) of any upcoming regularly scheduled or ad hoc meeting.

**Action Items** – Outstanding Action Items are recorded in each meeting agenda and Outstanding and New Action Items will be listed in the following Meeting Minutes. Action items will include the action item, the owner / responsible party of the action item, and the due date. Each Action Item will be assigned a unique ID and Title. Meetings will start with a review of the status of outstanding Action Items and end with a review of any new Action Items resulting from the meeting.

**Outstanding Issues** - The Issue Log is a tool used to record deferred meeting agenda items. Unresolved Items merit further discussion later, require further research or completed Action Items, or should be addressed through a different forum. An Unresolved Issue should identify the owner of an item as that person who will be responsible for ensuring follow-up, usually the person who initially brought up the item. All Unresolved Items are to be included in Meeting Agenda and Minutes until closed through resolution or abandonment.

**Time Zones** - GTG staff are generally located in the Eastern Time zone and LOJIC staff are located in the Eastern Time Zone. Whenever a time is referenced, it shall be assumed to be Eastern Time unless otherwise noted.



“A unanimous choice. Geographic Technologies Group is the leading GIS consulting company in North America. Their knowledge of geodatabase configurations, data clean-up, and data migration processes is invaluable.”

**-City of Roswell, Georgia**  
Patrick Baber- GIS Manager  
pbaber@roswell.gov  
770.541.3741



PUBLICATION BY DAVID HOLDSTOCK

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Innovative, hard-working, and very knowledgeable government GIS experts. Our GIS success can be tied directly to the excellence of GTG's services. ”

**-City of Unalaska, Alaska**

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# Acceptance of Terms and Conditions

Geographic Technologies Group (GTG) acknowledges and accepts the terms and conditions outlined in Appendix C.





Incorporated in 1997, Geographic Technologies Group® (GTG®) has a history of providing superior GIS solutions and support to organizations throughout the United States. Conceived and organized specifically to assist local government with planning, designing, and building award-winning GIS solutions, GTG® understands that GIS is not an add-on discipline; it requires a comprehensive and planned approach.

### **We Understand Local Government**

GTG® offers a comprehensive and insightful understanding of local government operations and has a cadre of experts representing all areas of local government: planning, engineering, finance, and information technology. GTG® has worked with towns, cities, and counties across the entire United States to evaluate existing practices and design optimum GIS solutions.

### **We Assess, Design and Plan**

GTG® delivers unique, tailored solutions developed only after carefully analyzing needs, budgets, goals, and resources. The Return on Investment standards ensures that our clients can evaluate the costs of implementation and set priorities. Our strategic implementation planning methodology is unique to the industry. When it is time to implement your plan, GTG® will develop a framework that ensures hardware, software, data storage, best practices, responsibilities, and standards are clearly defined. GTG® strives for continued improvement and client satisfaction by building feedback collection methods into all project plans.

### **We Have Outstanding Credentials**

We have received state, national, and international awards for local government GIS implementation and, more importantly, we have earned the trust and confidence of America's most highly respected local government organizations.



# CONTACT US

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