

unit testing, system testing, integration testing, performance testing, usability testing and user acceptance testing. Prepare data or scripts for input, validate results, document discrepancies, retest after patches are applied, perform regression test when code is modified. Work with developer to analyze potential bugs and document steps to recreate them.

Examples of required skillset:

- a. Ability to quickly gain an understanding of the business functions of the software application
- b. Develop test plans, scenarios and test cases for unit test, system test, integration test, performance test, regression test, and user acceptance test.
- c. Manage a team of testers or to test independently, as appropriate
- d. Monitor, analyze and report on test results in a manner understandable to the business users and system sponsors.
- e. Ensure resolution of test discrepancies
- f. Develop data or scripts that will test the conditions specified in the test plan
- g. Verify results to determine if the test was successful or not
- h. Document successful and successful test attempts
- i. Work with developer to communicate failed tests and to seek appropriate resolutions
- j. Experience working with industry standard issue tracking software, such as JIRA

4. GIS Programmer - GIS programmer will work on projects related geospatial mapping.

Examples of required skillset:

- a. Prior experience working with ArcGIS ESRI software (especially ArcGIS Server and ArcGIS Desktop)
- b. Solid experience in JavaScript and Python (including ArcPy)
- c. Integration experience using Web API's in JSON, XML, ESRI Javascript API, and HTML 5
- d. Knowledge of Microsoft.NET platform and C#
- e. Knowledge of relational, spatial databases especially Microsoft SQL Server (including spatial datatypes)
- f. Knowledge of data translations (especially spatial formats.)
- g. Knowledge of spatial formats such as file/personal geodatabase, SDE, raster, and shapefile UX

5. User Experience (UX) Developer - The UX Developer will be responsible for creating front-end design solutions for both web and mobile platforms. The role involves working closely with project managers, analysts, developers and testers to determine ideal design solutions. Conduct usability testing to make sure design satisfies all project requirements.

Examples of required skillset:

- a. Design mock-up templates using a combination of tools such as HTML, CSS, Photoshop and other standard industry design tools.
- b. Develop responsive design in HTML5 and CSS3 for mobile compatibility

- c. Experience with JavaScript
- d. Experience designing graphics and UI for mobile development
- e. Expertise in Adobe Creative Suite
- f. Design custom logos and images
- g. Understanding of up to date web standards and specifications
- h. Experience with distributed source control systems – GIT

6. **Web Graphic Designer-** The Web Graphic Designer will be responsible for developing layout, font types, design logos, custom images and other visuals for responsive web site design.

Examples of required skillset:

- a. Experience working with website for a responsive design using HTML5 and CSS3
- b. Expertise in Adobe Creative Suite
- c. Design custom logos and images
- d. Understanding of up to date web standards and specifications

7. **IoT Developer** - This position requires the developer to have a strong understanding of machine-to-machine communications and big data analysis in order to enable smart Internet of Things applications.

Examples of required skillset:

- a. Understanding of principles of software development - Object Oriented Design, Design Patterns, Single Page Applications, Test-Driven Development
- b. Solid experience working in Java and .NET platforms
- c. Utilize software tools for M2M applications
- d. Experience working with sensors, end-points, and big data
- e. Experience in big data analytics tool such as SPLUNK for data exploration
- f. Demonstrated experience with hardware interfaces using Raspberry Pi or another programmable SOC
- g. Integration experience using interfaces and Web API's in JSON and XML formats
- h. Experience with distributed source control systems – GIT

Data Analytics & Decision Support

- A. **Data Scientist** - Data Scientist must have the necessary statistical modelling, mathematical, big data analytics and predictive modelling skills to build required algorithms necessary to ask right questions and build objective visualizations and findings from it. Data Scientist must have knowledge of integrating multiple systems and datasets to provide new insights.

Examples of required skillset:

- a. Prior experience working as a data architect and managing information schema for large organizations;
- b. Experience with big data analytic tools such as Hadoop, Hive, MapReduce, SPLUNK, Elastic Search;
- c. Understanding and good working knowledge of SQL and NoSQL;
- d. Experience in machine learning, statistical modelling, and predictive analysis; and
- e. Extensive experience with a statistical programming language.

- B. **Business Intelligence (BI) Analyst** - Business Intelligence Analyst will gather data from a number of sources for comparative analysis to solve business-related data problems. BI Analyst will develop solutions, reporting and visualizations using Business Intelligence tools.

Examples of required skillset:

- a. Experience in data solutions, information architecture and data warehousing concepts;
- b. Understanding and good working knowledge of SQL and NoSQL;
- c. Knowledge of data transformation using ETL tools; and
- d. Experience developing dashboards and reports using standard industry tools.

- C. **Big Data Analyst** - Big Data Analyst will be required to turn datasets into meaningful and actionable items. Must have experience with data mining, big data tools such as SPLUNK, and a data analytical mind.

Examples of required skillset:

- a. Configure and setup dashboards for meaningful viewing by management;
- b. Work with a variety of data including applications and network related;
- c. Experience with big data analytics tools such as SPLUNK;
- d. Establish growth plan for long-term sustainability; and
- e. Develop business cases and other useful metrics related to big data.

- D. **Big Data Solutions Architect** - Responsible for building big data solutions using big data engines such as Hadoop. Big Data Solutions Architect will be responsible for managing full life-cycle of big data solution. This will include creating requirements analysis, platform selection, design of technical architecture, design of the application design and developing, testing, and deployment of proposed solution.

Examples of required skillset:

- a. Experience developing big data solutions and implementations using tools such as Hadoop, MapReduce, Hive;
- b. Experience in programming with SQL and NoSQL;
- c. Extensive experience in data normalization and developing information schema for large scale database solutions;
- d. Firm understanding of modern programming languages; and
- e. Experience with ETL tools and extraction of data.

- E. **SQL Developer** - SQL Developer shall provide skills and expertise in database programming for new and existing SQL Server based applications.

Examples of required skillset:

- a. Database programming for SQL Server platforms (2008 and up);
- b. Tune up and rewrite efficient queries for performance optimization;
- c. Prior experience working in software development team environment;
- d. Database modeling and design using Erwin and Visio;
- e. Experience with SQL Analytics, SQL Profiler and XML Programming;

- f. Experience building reports using SSRS; and
- g. Experience with distributed source control systems – GIT.

F. **Report Developer** - Report developer must have extensive experience in designing reports and write SQL queries.

Examples of required skillset:

- a. Gather requirements and working with application owners to understand business processes;
- b. Experience developing reports in standard industry reporting tools;
- c. Strong experience writing SQL procedures and queries;
- d. Testing, support and troubleshoot report errors; and
- e. Possess analytical skills and experience with financial data and numbers.

Electronic Records Management

1. **OnBase System Administrator/Advanced System Administrator** - OnBase System Administrators will be responsible for maintaining a secure, accessible, and recoverable OnBase operating platform installed in multiple environments (development, test, Q/A, production) and typically across more than one OnBase version and/or build. Administrators must have broad skill sets across multiple computing disciplines, including networks and operating environments. Administrators must apply a strong understanding of OnBase technology, OnBase Community input, and best practices to insure the health and operational readiness of the OnBase platform. Close collaboration with other IT professionals from both the County and third-party providers is essential to the growth and interoperability of OnBase within the County's dynamic technical environment and Information Management structure. Administrators will plan, schedule, test, and execute OnBase software version upgrades on a regular basis. Administrators will also perform the same functions when changes are made to connecting technology platforms, ensuring OnBase operability throughout the change management process.
2. **OnBase Support Engineer** - OnBase Support Engineers will be the first line of support to record, diagnose, troubleshoot, and solve OnBase user support issues across a broad portfolio of OnBase solutions. They also will perform move/add/change tasks for a host of OnBase related peripheral hardware and software. OnBase Support Engineers must maintain close collaboration across technology discipline, including OnBase developers and administrators, network engineers, end-user computing engineers, database administrators, and others as needed to resolve support issues. Documentation and knowledge transfer to Tier 2 support resources is required for issue escalation as needed. A strong understanding of OnBase technology and the County's OnBase portfolio, experience with end user computer environments, and excellent customer support skills will be essential for candidates who fill this role.
3. **OnBase Solution Developer** - OnBase Solution Developers will build and launch OnBase solutions and serve as Tier 2 solution support. They must possess an OnBase competency with a broad complimentary technology skill set in databases, custom scripting languages, operating environments, and other third-party tools to develop customized OnBase solutions. Relevant OnBase certifications are required, most

notably OnBase API and/or OnBase Workflow. OnBase Solution Developer must have experience with a broad range of OnBase modules. Developers must stay up to date with OnBase software versions and associated capability in order to bring the best technology available into their solution designs. Developers must work closely with Business Analysts, Project Managers, and users on solution design and function. They must also partner with OnBase product leads, engineers, and support staff throughout the development process to fix OnBase software issues and request software enhancements.

4. **OnBase Business Analyst** - OnBase Business Analysts will guide users, managers, budget specialists, solution developers, and other groups through the entire OnBase solution development and launch lifecycle. Analysts must understand the current business and technical environment and identify areas for efficiency and compliance gains. Analysts must maintain a broad understanding of the OnBase product suite. They also require competency in requirements analysis, process mapping, project management, relationship management, and project reporting to various levels of County staff. Analysts will work side by side with solution developers, project managers, and solution contributors to ensure user requirements and expectations are met. Analysts will be the liaisons between solution developers and end users. Analysts will provide product education and demonstrations and assist solution developers with product testing.

ERP HR and Financial Support

1. **Functional Analyst** – Will be responsible for support core HR and Financial system modules and building strong business partnerships. Business analysis role will involve working with business users to create business requirement documents and functional process design and testing documents. Work with development team to convert business requirements into technical design documents and user guides. Configuration of ERP system modules. Develop test plans, support and coordinate user acceptance testing and training. Lead small projects and ERP system enhancement efforts from conception through deployment using standard SDLC methodology. Manage on time project delivery and business expectations and ensure customer satisfaction.
2. **Technical Developer** – Will be responsible for functional and technical implementation, configuration and setup of Oracle applications/modules and development and support of RICE (Reports, Interfaces, Conversions & Extensions) components. Provide technical support and expertise in the design, implementation, and maintenance of core ERP systems and databases that support the data analysis, research, and reporting. This includes designing and developing databases and processing large volumes of data using databases and data from disparate data systems. The developer will also perform Extract, Transform, and Load (ETL) processes, modification and development of workflows, and run ad-hoc queries against databases and generate custom and ad-hoc reports.
3. **Database Administrator (DBA)** – Will be responsible for creating and maintaining all databases required for development, testing, training and production usage. Perform the capacity planning required to create and maintain the databases. Perform ongoing tuning of the database instances. Plan and implement backup and recovery of the Oracle database. Control migrations of programs, database changes, reference data changes and menu changes through the development life cycle. Put standards in place to ensure that all application design and code is produced with proper integrity, security

and performance. The DBA shall perform reviews on the design and code frequently to ensure adherence to the site standards. Evaluate releases of Oracle and its tools and third-party products to ensure that the site is running the products that are most appropriate. Administer all database objects, including tables, clusters, indexes, views, sequences, packages and procedures. Plan and implement backup and recovery of the Oracle database. Implement and enforce security for all of the Oracle Databases. Troubleshoots with problems regarding databases, applications and development tools.

Hosting and Server Administration

1. **Server Administrator** – Will be responsible for providing server support to ensure operational efficiency by installing, maintaining software updates, designing and implementing new system structures, monitoring server activity, and auditing server security. This includes planning for and responding to service outages and other server related problems. Administrators will manage and monitor drive space and provide high level training and technical support to others. Must be able to work with Network and direct attached storage configuration and management, including iSCSI and fiber attached storage. Analyze and advise on software and hardware upgrades. Develop a comprehensive domain structure for County and maintain activity logs and statistics. Knowledge should include a professional understanding of Windows Active Directory, DHCP, DNS, IIS, rights management, basic networking, anti-virus and enterprise storage management.
2. **Virtual Machine Administrator** – Will provide the foundation of virtual infrastructures and thin OS independent architecture for enhanced reliability and robustness. Make optimal use of available hardware resources, including upgrades. Deliver performance acceleration features that support mission critical applications and enable advanced capabilities. Must be able on use bare metal restore. Install, configure and analyze virtual servers with VM hosts on server operating systems environment to meet current and future requirements for enterprise computing solutions. Explore and provide information about Cloud Migration VM Strategies and technologies, such as Clustering and Network Load Balancing, is also essential. Provide the Failover architect for host failures. Examples of virtual solutions are Hyper-V and VMWare.
3. **O365 Engineer** – Will be responsible for day-to-day operations related to Microsoft O365 onboarding and offboarding. Able to work with Active Directory and Active Directory federation services related to email, Exchange on premises, and single sign-on. Able to work with users to fix their issues related to SharePoint, Skype for Business and Microsoft Exchange Online. Communicate changes to the user community. Proven design, planning and implementation experience on a technical level with Microsoft Exchange, Active Directory, and Infrastructure technologies, including DirSync and AADS. Extensive automation experience (i.e.PowerShell, VBScript).
4. **O365 Administrator** – Will be responsible for providing services to create, maintain, and upgrade the O365 environment, which includes Microsoft online exchange email and SharePoint online. Define complex system requirements and objectives based on business needs and deliver high quality solutions based on single sign-on technologies and secure gateways. Troubleshoot and resolve system service failures by identifying and analyzing the situation and provide corrective actions. Provide senior-level expertise

on decisions and priorities regarding systems architecture. Facilitate the establishment and implementation of standards, processes, and documentation that guide the design of technology solutions, including architecting and implementing solutions. Manage and maintain AD and ADFS (Active Directory Federation Services) services. Work closely with development teams to test applications and assist in providing direction for defect fixes and system enhancements. Simplify complex ideas and present the information in group settings. Advanced knowledge of Power Shell.

5. **Active Directory Administrator** – Will be responsible for supporting and maintaining the Microsoft Active Directory, Microsoft Exchange, Microsoft Windows Server and other applications in the County by providing installation, maintenance, troubleshooting, security, administration, account management and resolution of software and hardware issues as well as developing new system designs. Extensive knowledge of Windows Server operating systems and Active Directory and AD synching schemas.
6. **Active Directory Engineer** – Will be responsible for installing, securing, maintaining, troubleshooting, administering and upgrading Microsoft Windows Server operating systems with all required server roles on assigned servers and Microsoft Exchange. Assist other System Administrators as needed. Work with O365 engineer to assist in Domain Controller and resolving any issues related to sync process between the domain controllers. Provide daily, weekly and yearly reports and follow the policies related to user management, shared mail box accounts, and delegation.
7. **Cloud Engineer** – Must have experience with cloud services - including open source technology, software development, system engineering, scripting languages and multiple cloud provider environments. Additionally, Cloud engineers need to be familiar with one or more of the following: OpenStack, Amazon Web Services, Rackspace, Google Compute Engine, Microsoft Azure and Docker. Experience with APIs, orchestration, automation and DevOps are also important.
8. **Storage Engineer** - Systems Engineer will plan and manage the installation, configuration and tuning of SAN and storage hardware and software upgrades. Maintain partnerships and leveraging market technologies associated with SAN vendors, product enhancements and product roadmap. Develop, implement and oversee policies and procedures to ensure consistent storage provisioning, uptime, regulatory compliance and data protection. Manage and provide current disk/tape storage usage statistics and providing future projected growth estimates. Responsible for management of all centralized storage technologies. This technology includes the various NAS environments, storage networks, DAS environments and all other technologies classified as a storage technology. Manage and maintain the company's storage-based systems and the deployment of these storage technologies. Understand business objectives and seek ways to help the company meet these goals with storage technology.
9. **Storage Architect** – The Enterprise Storage Architect duties will include installation, configuration, management and troubleshooting of storage systems and management of Storage Area Network, Network Attached Storage, Direct Attached Storage devices and related software. Develop a thorough understanding of the competitive enterprise storage market. Effectively translate enterprise storage product features and functions into relevant IT solutions that support a customer's business initiatives. Architect solutions for high availability and robust disaster recovery using virtualization software or third-party technologies to support critical enterprise services.

10. **Backup Engineer** – Must have extensive knowledge of storage, server, and blade technology, processes, industry expertise and educate customers on value of storage infrastructure and management. Build in-depth knowledge of clients' technical and business priorities, challenges and initiatives that can be translated into Storage and Virtualization solution opportunities. Perform complex analysis of storage, backup and DR environments under limited supervision. Exercise initiative in architecting enterprise data storage designs, programming, and modifications of backup storage applications programs for small, mid-size and large environments using a variety of different operating systems (UNIX, Windows, Linux etc.). Perform product evaluations and comparative deep dive analysis and make recommendations to customers for best of breed product and offerings. Design and implement backup de-duplication and recovery plans. Design and implement health check operations for storage and backup environments. Resolve and troubleshoot technical issues on data storage and backups. For the data storage backup environment, provide written deliverables for action plans, long-term strategies, migration plans, best-practice recommendations, and capacity planning. Plan the implementation of recovery of systems and services and participate in scheduled disaster recovery exercises.
11. **Data Center Manager** – Will be responsible for preparing plans for development and installation of data center according to present and future requirements. Monitor all software and hardware products and ensure compliance to data center standards and systems. Administer installation and maintenance of the data center. Monitor all activities related to analysis and implement all data center plans. Supervise design and evaluation of all server systems according to measurement of process. Perform troubleshooting on data center, identify issues and assist in timely resolution of same. Manage and perform research to design new advanced data center. Ensure adherence to all established guidelines and management practices for employees. Coordinate with various departments and perform integration of critical systems into infrastructure. Coordinate with IT, enhancement and business teams and develop strategies to ensure achievement of data center capacity.
12. **Microsoft System Center Administrator** – Will be responsible for managing medium to large environments. Should be able to manage effectively and troubleshoot all aspects of System Center, including Operations Manager, Configuration Manager and additional modules as requested, and understand the product configuration, flow and logging in detail. The candidate must understand fully the base OS and SCOM Management Packs and be able to discuss in detail Management Packs: Active Directory, Exchange, IIS or SQL, including configuration, tuning and customization. In addition, experience in other Microsoft Management technologies, including Active Directory services (AD), SMS, System Center Essentials and WSUS. Manage the installation of new software releases, system upgrades, and patch installs that resolve monitoring-related software problems. Assist in the installation, maintenance, and general support of monitoring systems. Routinely review monitoring systems and services to ensure stability and security. Assist in interpretation of diagnostic data obtained from monitoring solutions.

Define and recommend monitoring standards for fault-detection, availability, capacity and performance trending for assigned applications and services. Develop and distribute trend reports detailing availability, performance and capacity metrics for assigned applications and services. Engineer methods to optimize the availability, capacity,

performance and cost of assigned applications and services. Analyze, define, develop, test and implement monitoring standards for platforms and applications utilizing relevant scripting languages.

Project/Program Management Support

- A. **Program Manager** – The Program Manager will be responsible for managing one or more highly complex or enterprise-wide IT program(s) consisting of multiple projects. Develop the program strategy, support business case and enterprise-wide high-level project plans. Ensure integration of projects and adjust project scope, timing, and budgets based on the needs of the business. Communicate with IT leadership, business leadership and IT business consultants to communicate program strategy, direction and changes. Responsible for delivering all projects contained in the IT project portfolio on time, within budget and meeting the strategic and business requirements. Responsible for tracking key project milestones and recommending adjustments to project managers. Partners with senior leadership of the business community to identify and prioritize opportunities for utilizing IT to achieve the goals of the enterprise.
- B. **Project Manager** – The Project Manager will conduct, plan, coordinate, and track information technology projects and full lifecycle tasks. Examples include assessing customer requirements and advising on appropriate solutions; identifying technology solutions and conducting an assessment of fit; identifying resources; facilitating and directing multi-disciplinary teams; planning and developing schedules. The Project Manager will be responsible for overall coordination, status reporting and stability of project-oriented work efforts. The Project Manager will establish and implement project management processes and methodologies for the IT community to ensure projects are delivered on time, within budget, adhere to high quality standards and meet customer expectations. Assemble project plans and teamwork assignments, direct and monitor work efforts on a daily basis, identify resource needs, perform quality review and escalate functional, quality, timeline issues appropriately. Coordinate communication with all areas of the enterprise that impact the scope, budget, risk and resources of the work effort being managed. Organize and publish project-related documentation in various sources.
- C. **Business Analyst** – Will work with County staff to provide analysis in defining, planning, managing, and implementing methodologies, techniques and tools for the complete life-cycle of both business process reengineering and information systems development projects. Conduct analysis and evaluation of programs, operations and procedures. Support strategic planning, develop benchmarks and metrics, and conduct research on emerging technologies. Participate in the development and implementation of performance measures, as well as cost benefit and performance analysis. Conduct research and ensure the use of proper terminology. Translate technical information into clear readable documents to be used by technical and non-technical personnel. Oversee collation of information into meaningful reports and presentation materials.
- D. **Procurement Analyst** – Will be responsible for overseeing the collection and organization of information for preparation of reports, proposals, guidebooks, procurement documents (e.g., RFI, RFP, contracts), memos, training materials and user manuals as needed. Write and edit customer deliverables and utilize information

technology procurement regulations and industry best practices. Work with staff to analyze business and technical solutions to meet client goals. Gather, analyze, and compose technical information. Conduct research and ensure the use of proper terminology. Translate technical information into clear readable documents to be used by technical and non-technical personnel.

- E. **Project Lead** – Will be responsible for overall coordination, status reporting and stability of project-oriented work efforts. Establish and implement project management processes and methodologies for the IT community to ensure projects are delivered on time and within budget, adhere to high quality standards and meet customer expectations. Responsible for assembling project plans and teamwork assignments, directing and monitoring work efforts on a daily basis, identifying resource needs, performing quality review; and escalating functional, quality, timeline issues appropriately. Responsible for tracking key project milestones and adjusting project plans and/or resources to meet the needs of customers. Coordinate communication with all areas of the enterprise that impact the scope, budget, risk, and resources of the work effort being managed. Assist Project Manager(s) and/or Program Manager(s) in identifying and prioritizing opportunities for utilizing IT to achieve the goals of the enterprise.
- F. **Communications Specialist** - Work with technology teams to develop communications and marketing materials supporting ongoing development and operations, as well as online and web-based projects, for internal and external customers. Execute marketing campaigns and customer/community outreach, survey customers, create reports/presentations as-needed and engage in market research and analysis. Communicate verbally, written and electronically to small and large audiences. Recommend communication/marketing strategies to management. Activities include creation and design of content of multiple media types that includes video and social media communications.
- G. **Documentation and Training Specialist** - Coordinate and participate in collection, interpretation, writing and dissemination of technical documentation in support of communications and information systems projects. Establish procedures for data acquisition and administration. Translate technical information into clear, readable documents to be used by technical and non-technical audiences. Write and edit procedural manuals for users. Create and maintain on-line tutorials and learning materials. Conduct technology training sessions. Resolve level-one computer glitches that occur in a lab environment security communication plans as required and directed by designated County staff. Translate designs and programs to documentation.
- H. **Records Conversion Specialist** - The Records Conversion Specialist will operate scanning equipment to perform efficient storage and retrieval of records, documents and drawings. This position will prepare internal and external documents for scanning, including box intake, tracking, disassembly (removal of staples, paper clips, and other binding) and reassembly of document packages. The Records Conversion Specialist will also determine appropriate scanner and scanner settings based on document type, planned processing and document characteristics. The Records Conversion Specialist will perform optical character recognition and text correction on documents requiring content-based retrieval. In addition, this position will perform image, text, and property

reviews to confirm loading, quality, and location of documents stored in various County systems. In addition, the Records Conversion Specialists will store image and text files within County Electronic Records Management Systems create/update properties to enhance retrieval, and perform quality control on scanned images, checking for missing pages, skewed and low-quality images.

- I. **Records Management Analyst** - The Information Management Analyst will oversee the creation, dissemination, research, storage and disposition of County records and information. The Records Management Analysts will formulate policy, perform strategic analysis and planning, conduct program outreach, coordinate training, develop metrics, and ensure that sound information governance and accountability measures are in place. The Information Management Analyst will ensure compliance with public records laws, regulations, and guidance and advise staff on any issues in this area. Additionally, the Information Management Analyst will be familiar with agency goals, objectives, and priorities and ensure that the Records and Information Management program supports the organization's mission and needs.

Accounts Payable Specialist – Will process invoices and perform administrative office duties. Follow procurement guidelines to purchase and track County information technology orders.

Network/Telecommunications Systems and Infrastructure

1. **Network Engineer** – Will be responsible for assisting in the planning, forecasting, implementation, and identification of resource requirements for network systems (including wireless, video, remote access and VoIP) of moderate complexity. Participate in planning, architecture design and engineering. Integrate and schematically depict communication architectures, topologies, hardware, software, transmission and signaling links and protocols into complete network configurations. Evaluate new products, perform network problem resolution and assist in the development and documentation of technical standards and interface applications. Monitor protocol compatibility, perform system tuning and make recommendations for improvement. Senior level may require experience with infrastructure of network systems internal to government organizations, or as supplied by cable franchise companies, as well as a P.E. license issued by an accredited state board.
2. **Network Administrator** - Monitor, troubleshoot and maintain network (LAN, WAN, wireless and VoIP) multiplexers, hubs and routers, and uses remote monitoring tools. The duties of this position can be broad and may include such tasks as installing new workstations and other devices, adding and removing individuals from the list of authorized users, archiving files, overseeing password protection and other security measures, monitoring usage of shared resources, and handling malfunctioning equipment. Select, develop, integrate and implement network management applications for Internet components.
3. **Network/Telecommunications Analyst** – Will be responsible for designing, installing and troubleshooting network systems (including wireless and VoIP) to meet the functional objectives of the business. Involved with the configuration and maintenance of physical and logical network components. Assist in the design of the network architecture, design the network infrastructure, plan and design LAN/WAN/wireless/VoIP/video solutions, gather, analyze and compose technical information, and collate information into

meaningful reports and presentation materials. Perform capacity and resource planning, assessing network risks and contingency planning. Responsible for the implementation and maintenance of network management software; research, analyze and implement software patches or hardware changes to fix any network deficiencies. Provide Tier 2 support. Will be involved in the evaluation of new products and services; may manage vendor service level agreements and billing analysis.

4. **Telecommunications Engineer** – Will be responsible for engineering and/or analytical tasks and activities associated with areas within the telecommunications function (e.g., network design, engineering, implementation, diagnostics or operations/user support). The scope of responsibility for this position includes, but is not limited to, the configuration, deployment, testing, maintaining, monitoring and troubleshooting of telecommunications and cable TV network components to provide a secure, high performance network. Perform complex tasks relating to telecom network operations, installation, and/or maintenance for local, off-site and/or remote locations. Duties will also include quality assurance and testing of transmission mediums and infrastructure components. Experience should include: moves, adds and changes (MACs), fault isolation and resolution, and end-user support. Requires broad knowledge of telecom systems, dial plans, switching architecture, telephony and wiring.
5. **Telecommunications Technician** - Technical position supporting enterprise infrastructure systems, including voice/data network, telecommunications systems, and legacy vendor communications interfaces, and related software and hardware, with a main focus on coordinating and performing technical moves, adds and changes (MACs) throughout the County. Acts as liaison to the telephone and cable TV companies and troubleshoots internal telecommunications issues as well as external interface issues between vendors, County network and cable TV subscribers. Duties will also include quality assurance and testing of transmission mediums and infrastructure components.
6. **Controls Specialist** - Monitors performance of Distributed Control Systems, Supervisor Control and Data Acquisition (SCADA), Programmable Logic Controllers and Advanced Process Control applications. Analyzes and resolves problems due to process and control system interactions. Coordinates with system vendors for system maintenance/repair, upgrades to hardware or software, etc. Tunes base levels and advanced control loops. Maintains multi-variable and custom control strategies at levels necessary to achieve optimum unit performance. Develops and analyzes predictive/trend reports and required performance reports to measure and ensure compliance with regulatory requirements. Documents system changes. Develops training programs and/or organizing technical training for operations staff on control system applications.
7. **Field Engineer** - Researches, develops and designs underground outside plant (OSP) conduit infrastructure and fiber optic cabling. Plans and prepares drawings for construction of new, and removal or relocation of existing, overhead or underground lines, cables, and conduits. Prepares detailed construction and installation drawings, schedules, and estimates for equipment, labor, and material costs. Oversees construction and maintenance of OSP infrastructure according to industry standards and local, state and federal regulations. Maintains records of fiber splicing and topography. Develops mitigation and restoration procedures for emergency conditions such as fiber damages, power failures and other disasters. Performs routine inspection of OSP

networks. Supports construction supervision of physical cable and fiber plant with: pre-construction walk-outs, problem area identification, make-ready construction, cable requirements, determination, splice locations, break-out locations, aerial and underground cable installation, construction crew supervision, construction quality control inspection, fiber splice coordination and review of as-built maps.

8. **Field Operations Technician** - Installs, provisions, tests, troubleshoots, splices and maintains high-speed fiber optic transmission infrastructure and equipment. Performs and assists with maintenance and configuration of all core technologies deployed. Performs final acceptance and testing of all newly installed equipment and rings. Works with related test tools and equipment, such as optical time-domain reflectometer (OTDR), polarization mode dispersion (PMD), optical spectrum analyzer, sniffers, etc. Performs hardware and software updates or changes to equipment. Documents new and existing fiber such as pathways/conduits, termination points, splice matrixes, usage, and customers. Uses GPS device to give an exact location of hand holes, as well as splice points, and demarcation points into buildings. Contacts customers in the event of a fiber cut, dispatches and oversees fiber sub-contractors. Helps with the selection of a fiber management program/vendor.
9. **Engineering Aide** - Provides administrative support to engineers on projects as needed.
10. **Inspector** - Responsible for safety and code compliance of service provider cable sites. Performs inspection of physical site and creates documentation related to those inspections and verified repairs by network operators. Supports engineering tasks with site surveys, testing of installed fiber optic cable using optical power meters, proof of performance and monitor testing of cable and broadband communications systems.
11. **Computer Aided Design (CAD) Operator** - Designs and completes CAD documents to industry standards. Works with staff to produce plans and drawings to convey instructions and location of fiber infrastructure. Uses CAD software tools, such as AutoDesk, GIS software and site package information to create accurate drawings with design data and metadata. Creates full zoning and construction sets and corrects red lines.
12. **Field Representative** - Provides customer support, including answering inbound calls and email; manages the monthly documentation process; performs data entry, product troubleshooting and service issue resolution. Handles problem resolution and escalations for customers, including billing inquiries and documentation issues, and maintains established SLAs at all times. Collects, organizes and reports moderately complex information and may provide recommendations to management to facilitate the improvements. Detailed monthly reports along with occasional ad hoc reporting will be required.
13. **Infrastructure Business Analyst** - Serves as a liaison between the business community and the IT organization in order to provide technical solutions to meet user needs. Possesses expertise in the business unit(s) they support, as well as an understanding of the IT organization's systems and capabilities. Analyzes business partners' operations to understand their strengths and weaknesses to determine opportunities to automate processes and functions. Assists in the business process redesign and documentation as needed for new technology. Translates high level business requirements into functional specifications for the IT organization and manages changes to such specifications.

Educates the IT organization on the direction of the business. Negotiates agreements and commitments by facilitating communication between business unit(s) and IT from initial requirements to final implementation. Possesses an understanding of technological trends and uses this knowledge to bring solutions to business units supported to enhance the enterprise's competitive edge. May make recommendations for buy versus build decisions.

14. **Cable TV Analyst** - Contributes high-level tasks on business consulting and research projects relating to County cable TV franchise terms and conditions and is responsible for the completion of identified tasks. Oversees the collection and organization of information for preparation of reports, proposals, guidebooks and related documents, memos, training materials and user manuals as needed. Writes and edits customer deliverables and works with County staff and analysts to analyze business and technical solutions to meet client goals. Oversees collation of information into meaningful reports and presentation materials, some of which may be presented to County Board Advisory Commissions. Conducts research and ensures the use of proper terminology in delivered results. Translates technical information into clear readable documents to be used by technical and non-technical personnel. Directs project administrative functions. Provides expertise and supports evaluations of program results and potential changes to program results related to telecommunications investments, along with analysis and presentations of alternatives. Senior Level requires demonstrated understanding of Telecommunications, Broadband, and Cable TV industry.
15. **Radio Operations Manager** - Interface with County Leadership and department directors on the direction of the County-wide radio system. Operational and technology planning of the County-wide radio system. Budget/resource planning and cost recovery. Manage customer relationships and negotiate agreements. Report on performance and health of the system. Track emerging trends, including conference participation. Outreach to federal, state and local partners/support to regional initiatives.
16. **Radio Technical Lead** - Support radio infrastructure (Including BDAs). Manage physical infrastructure/ancillary of radio systems. Documentation of entire radio system. Network and physical security planning. Continuity/disaster recovery planning. Coverage management and radio network testing. Asset management and replacement strategy. Oversight of maintenance (radio system, assets, and physical infrastructure). Fault management of radio systems throughout the entire County.
17. **Radio Operations Administrator** - Process Design and implementation of radio systems throughout the County. Asset allocation and tracking. Measures, Analysis, and Reporting. Communications of information related to the County-wide radio system. Training end users and partners. Contract management. Customer satisfaction surveys. User agreements and invoicing. FCC license management.
18. **Intelligent Transportation Systems (ITS) Engineer** - Serves as Task Lead in the development of traffic studies and design plans, including ITS infrastructure, traffic signal, and integration of traffic control systems. ITS Engineer will be responsible for integrating various data streams and configuring databases to organize and archive data. This position will also assist in managing the fiber-optic traffic signal communications network, CCTV system and other ITS systems.

19. **Senior Intelligent Transportation Systems (ITS) Engineer** - Assist in review and management of a variety of ITS projects. This includes the systems engineering, ITS database management, and technical review required to design, maintain, and evaluate ITS assets. Specific project responsibilities will include but are not limited to Systems engineering; GIS asset management for system planning; Database management; Developing Specifications for implementation of new systems; Design/Build of Bluetooth Data Collection systems, dynamic messaging systems, permanent count programs, and other ITS applications; and review/design fiber splicing for traffic signal.
20. **Traffic Engineer** - Assist in review and management of a variety of traffic analysis projects. This includes the VISSIM model development/review, traffic analysis using Synchro, signal optimization and technical review required to evaluate transportation alternatives. Specific project responsibilities will include but are not limited to coordination of traffic signals; developing complex signal timing plans; traffic simulation development/review; developing specifications for traffic signal systems; safety studies, signal warrants and corridor analysis.
21. **Signal Design Engineer** - Assist in review and management of a variety of traffic signal projects. This includes the signal design development/review, site plan reviews and coordination with developers' projects and technical review required to evaluate transportation alternatives. Specific project responsibilities will include but are not limited to developing complex signal design plans in AutoCAD; traffic simulation development / review; developing specifications for traffic signal systems; safety studies, signal warrants and corridor analysis.
22. **Streetlight Engineer** - Assist in review and management of streetlight projects in the County. This includes the streetlight design development/review, site plan reviews and coordination with developers' projects and technical review required to evaluate streetlight alternatives. Specific project responsibilities will include but are not limited to developing complex street lighting plans in AutoCAD; photometric analysis/review; developing specifications for streetlight systems.
23. **Traffic Signal Specialist** – Maintains, repairs, inspects and installs traffic signals to include associated traffic control devices, Intelligent Transportation Systems (ITS), video detection/observation systems, and fiber-optic Ethernet networks. Bench tests, troubleshoots, and repairs traffic signal equipment to component level; modifies and/or updates existing traffic control devices and equipment to improve traffic flow; Manages County's Intelight-based signal system and responds to citizen complaints; experience in CCTV troubleshooting; knowledge of fiber communication, patch panels and layer 2 switches.

Security

1. **Security/System Architect** – Will be responsible for the development and implementation of enterprise information security architectures and solutions. Serve as a security expert in application development, database design, network, and/or platform (operating system) efforts. Help project teams comply with enterprise and IT security policies, industry regulations, and best practices. Research, design, and advocate new technologies, architectures, and security products that will support security

requirements for the enterprise and its customers, business partners, and vendors. Contribute to the development and maintenance of information security strategy and architecture. Evaluate and develop secure solutions based on approved security architectures. Analyze business impact and exposure based on emerging security threats, vulnerabilities, and risks. Work with other functional area and security specialists to ensure adequate security solutions are in place throughout all IT systems and platforms to mitigate identified risks sufficiently and to meet business objectives and regulatory requirements. Communicate security risks and solutions to business partners and IT staff as needed.

2. **Security Analyst** - Analyze security measures for more than one IT functional area (e.g., data, systems, network and/or Web) across the enterprise. Develop, implement, communicate and provide training on security assessments, policies and procedures. Track, monitor, and enforce security policies; review security violation reports; and investigate possible security exceptions and updates. Maintain and document security controls. Prepare reports on security matters to develop security risk analysis scenarios and response procedures. Evaluate and recommend products and/or procedures to enhance productivity and effectiveness.
3. **Security Specialist** – Will be involved in the operations of network security management for systems across the enterprise. Ensure systems are in compliance and enforce policies against unauthorized access, modification and/or destruction. Configure and support security tools such as firewalls, anti-virus software, patch management systems, etc. Define access privileges, control structures and resources. Perform vulnerability testing, risk analyses and security assessments/audits. Identify abnormalities and report violations. Research and recommend security upgrades. Oversee and monitor routine security administration. Develop and update business continuity and disaster recovery protocols. Respond immediately to security incidents and provide post-incident analysis. Assist in the development and implementation of security policies, procedures and enforcement measures. Review networking initiatives for security compliance. Prepare status reports on security matters to develop security risk analysis scenarios and response procedures. Involved in the continual improvement of the network infrastructure and implementation of new security-based technologies. Evaluate and recommend security products for various platforms in the networking environment. Educate users about network security policies and consults on security issues.

Technical Support Services

1. **Technical Support Specialist** - A Technical Support Specialist Level 1 must provide first level technical support to internal customers. Assess and work to resolve incidents related to account administration, hardware and software performance, and mobile computing. Enter, track and document resolution via an incident/request tracking system. If unable to resolve requests at first contact, collect and document necessary information for appropriate escalation to technical teams. A Technical Support Specialist Level 1 must be experienced in Windows, iOS and Android operating systems, as well as on premise and cloud platforms, such as Microsoft's O365.

A Technical Support Specialist Level 2 must receive and resolve second level technical support for internal customers requiring analysis and application of multiple technical skills in computing or mobile problem resolution and network connectivity or other

associated hardware or application support areas. Simulate or re-create user problems to identify and document exact nature of problems and resolve difficulties. Assist in testing or providing technical advice about new technology, including evaluation of new or upgraded software to determine usefulness to the organization.

2. **Order and Provisioning Specialist** – An Order and Provisioning Specialist must process requests and complete orders for computing and mobile devices, interface with vendors for price quotes and order tracking, record and track assets from vendor delivery to end-user delivery and support asset manager with regular reporting and analysis of vendor accounts, as well as asset inventory, tracking and disposition.
3. **Asset Manager** – An Asset manager must manage IT equipment and software from procurement to end of life cycle. Maintain and update asset inventory system, track assets and report on inventory for audit purposes. Maintain or update internal asset management processes following industry best practices, as well as County policies and guidelines. Maintain a centralized library/database of agreements and contracts for current and historical purposes.
4. **Application Support Specialist** – An Application Support Specialist must provide end-user support related to enterprise-level applications. Analyze issues, provide training and solutions, and coordinate with internal groups and vendors. Assist in testing or providing technical advice about updates or changes to existing applications and help assess impacts on users. Contribute solutions for new/unique problems to the group knowledge base. Assist in evaluating new technologies and products.
5. **End-User Device Deployment** – This position is responsible for the receipt, installation and remediation of new end-user devices. Technicians transport the equipment to the user sites, install and test equipment, and remove old equipment while following the operating procedures for asset deployment and asset disposition. Technicians must provide basic post-installation end-user support as required.
6. **Image Management Technician** – An Image Management Technician must create/update and deploy standard and specialized Windows 8 and above images across a user base of 4,000+ using Microsoft System Center Configuration Manager and Symantec Ghost. An Image Management Technician must be experienced with a variety of technologies used for imaging and deployments in a Windows-based environment.
7. **Customer Service Coordinator** – A Customer Service Coordinator will be responsible for customer service practices for the Technical Service Center. Develop and implement strategies to increase the quality and efficiency of support, track and report on metrics, build strong relationships with departmental customers, and ensure alignment of IT initiatives and procedures with customer needs.
8. **Desktop Virtualization Engineer** – A Desktop Virtualization Engineer will be responsible for the implementation, management and top-level support of virtual desktop technologies. Provide analysis and consultation and work with County IT staff in development of appropriate supporting infrastructure. Coordinate all work with network and application teams, as well as internal customers across the enterprise.
9. **Microsoft SCCM Administrator** – A Microsoft SCCM Administrator will support software distribution, security patch management, operating system deployment, scripting technologies, and group policy management in an Active Directory infrastructure.

10. **Audio Video (A/V) Technician** – An A/V Technician will install and maintain audiovisual systems by following specifications, schematics, codes, and safety protocols. Administer installation process logistics. Maintain and troubleshoot audiovisual systems and equipment. Provide end user training and support. Complete small projects.

Audio Video (A/V) Control Systems Programmer – An A/V Control Systems Programmer will install, program and configure various audio-visual control systems (i.e. AMX, Creston). Write code for audio visual control systems and equipment. Create and develop graphic universal interfaces for touch panels. Troubleshoot and diagnose control programming and equipment problems. Contribute on projects from initial estimating phase through final i

EXHIBIT -B
SOFTTHINK PRICE SCHEDULE

(Issued Separately)

EXHIBIT C
NONDISCLOSURE AND DATA SECURITY AGREEMENT
(CONTRACTOR)

The undersigned, an authorized agent of the Contractor and on behalf of Softthink Solutions, Inc., (“Contractor”), hereby agrees that the Contractor will hold County-provided information, documents, data, images, records and the like confidential and secure and protect them against loss, misuse, alteration, destruction or disclosure. This includes, but is not limited to, the information of the County, its employees, contractors, residents, clients, patients, taxpayers and property as well as information that the County shares with the Contractor for testing, support, conversion or other services provided under Arlington County Agreement No. 16-311-RFPLW (the “Project” or “Main Agreement”) or that may be accessed through other County-owned or -controlled databases (all of the above collectively referred to as “County Information” or “Information”).

In addition to the DATA SECURITY obligations set in the County Agreement, the Contractor agrees that it will maintain the privacy and security of County Information, control and limit internal access and authorization for access to such Information and not divulge or allow or facilitate access to County Information for any purpose or by anyone unless expressly authorized. This includes, but is not limited to, any County Information that in any manner describes, locates or indexes anything about an individual, including, but not limited to, his/her (“his”) Personal Health Information, treatment, disability, services eligibility, services provided, investigations, real or personal property holdings and his education, financial transactions, medical history, ancestry, religion, political ideology, criminal or employment record, social security number, tax status or payments, date of birth, address, phone number or anything that affords a basis for inferring personal characteristics, such as finger and voice prints, photographs, or things done by or to such individual, or the record of his presence, registration, or membership in an organization or activity, or admission to an institution.

Contractor also agrees that it will not directly or indirectly use or facilitate the use or dissemination of County information (whether intentionally or by inadvertence, negligence or omission and whether verbally, electronically, through paper transmission or otherwise) for any purpose other than that directly associated with its work under the Project. The Contractor acknowledges that any unauthorized use, dissemination or disclosure of County Information is prohibited and may also constitute a violation of Virginia or federal laws, subjecting it or its employees to civil and/or criminal penalties.

Contractor agrees that it will not divulge or otherwise facilitate the disclosure, dissemination or access to or by any unauthorized person, for any purpose, of any Information obtained directly, or indirectly, as a result of its work on the Project. The Contractor shall coordinate closely with the County Project Officer to ensure that its authorization to its employees or approved subcontractors is appropriate and tightly controlled and that such person/s also maintain the security and privacy of County Information and the integrity of County-networked resources.

Contractor agrees to take strict security measures to ensure that County Information is kept secure; is properly stored in accordance with industry best practices, and if stored is encrypted as appropriate; and is otherwise protected from retrieval or access by unauthorized persons or for unauthorized purposes. Any device or media on which County Information is stored, even temporarily, will have strict security and access control. Any County Information that is accessible will not leave Contractor’s work site or the County’s physical facility, if the Contractor is working onsite, without written authorization of

the County Project Officer. If remote access or other media storage is authorized, the Contractor is responsible for the security of such storage device or paper files.

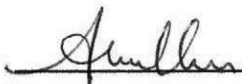
Contractor will ensure that any laptops, PDAs, netbooks, tablets, thumb drives or other media storage devices, as approved by the County and connected to the County network, are secure and free of all computer viruses, or running the latest version of an industry-standard virus protection program. The Contractor will ensure that all passwords used by its employees or subcontractors are robust, protected and not shared. The Contractor will not download any County Information except as agreed to by the parties and then only onto a County-approved device. The Contractor understands that downloading onto a personally owned device or service, such as personal e-mail, Dropbox, etc., is prohibited.

Contractor agrees that it will notify the County Project Officer immediately upon discovery or becoming aware or suspicious of any unauthorized disclosure of County Information, security breach, hacking or other breach of this agreement, the County's or Contractor's security policies, or any other breach of Project protocols concerning data security or County Information. The Contractor will fully cooperate with the County to regain possession of any Information and to prevent its further disclosure, use or dissemination. The Contractor also agrees to promptly notify others of a suspected or actual breach if requested.

The Contractor agrees that all duties and obligations enumerated in this Agreement also extend to its employees, agents or subcontractors who are given access to County information. Breach of any of the above conditions by Contractor's employees, agents or subcontractors shall be treated as a breach by the Contractor. The Contractor agrees that it shall take all reasonable measures to ensure that its employees, agents and subcontractors are aware of and abide by the terms and conditions of this agreement and related data security provisions in the Main Agreement.

It is the intent of this *Non-Disclosure and Data Security Agreement* to ensure that the Contractor has the highest level of administrative safeguards, disaster recovery and best practices in place to ensure confidentiality, protection, privacy and security of County information and County-networked resources and to ensure compliance with all applicable local, state and federal laws or regulatory requirements. Therefore, to the extent that this *Non-Disclosure and Data Security Agreement* conflicts with the Main Agreement or with any applicable local, state, or federal law, regulation or provision, the more stringent requirement, law, regulation or provision controls.

At the conclusion of the Project, the Contractor agrees to return all County Information to the County Project Officer. These obligations remain in full force and effect throughout the Project and shall survive any termination of the Main Agreement.

Authorized Signature:  _____

Printed Name and Title: Anuradha Brahmavara (President)

Date: 11/21/2019