Nothing in this job description restricts management's right to assign or reassign duties and responsibilities to this job at any time.

DUTIES Serves as a Geographic Information Systems Solution Developer in the Enterprise Business Innovation & Analytics (EBIA) Department of the Office of Technology (Office), Metropolitan Washington Airports Authority (Airports Authority). Partners with software engineers, analysts, and business stakeholders in the creation and maintenance of Geographic Information Systems (GIS) applications on web and mobile platforms for the Airports Authority that are visually striking, cohesive, user-friendly, and with engaging interfaces. Assists the EBIA team to continuously innovate and revamp the Airports Authority's GIS web applications to keep the traveling public, Airports Authority end-users, and business stakeholders informed of activities occurring at the Ronald Reagan Washington National Airport (DCA), Dulles Washington International Airport (IAD) and along the Dulles Toll Road (DTR). Performs related functions.

--Designs and prototypes new features and enhancements for existing features for Airports Authority GIS applications on web and mobile platforms utilizing best-of-breed experience design and design thinking. Moves seamlessly from whiteboard sketches and paper prototypes to designing interactive prototypes via Hypertext Markup Language (HTML), Cascading Style Sheet (CSS), JavaScript (JS), etc.

--Develops GIS web applications. Designs, codes, debugs, tests, and deploys GIS applications that meet end-user requirements using .NET framework, ArcGIS Server APIs, HTML5/ JavaScript, and other web technologies. Creates and maintains ArcGIS Server services, integrating ArcGIS Server services with ArcGIS Online and Portal for ArcGIS and web applications with ArcGIS Online using oAuth, and managing user accounts and groups on ArcGIS online and Portal for ArcGIS. Develops and extends GIS web applications using ArcGIS WebApp Builder. Researches, evaluates, and recommends enhancements to GIS spatial databases, geodatabases, map databases, and GIS software to ensure geospatial information is consistently available, useful, and relevant.

--Develops field and mobile applications. Designs, codes, debugs, tests, and evaluates GIS applications for Field Work, Way Finding, micro-location, and Indoor Geo-Location on web and mobile platform. Uses various web, native OS and hybrid technologies, development tools, and interchange formats such as HTML5/ JavaScript, DOJO, JQuery, AJAX, JSON, Node.js, Angular JS, iOS, Objective C/Swift, Cocoa, Android SDK, and Java.

--Assists with coordinating, facilitating, and collaborating with a network of Airports Authority departmental personnel and consultants in the development, implementation, management, and integration of enterprise GIS applications with non GIS applications to manage complex data originating from disparate source systems using technologies such as XHTML, Javascript, CSS, XML, Python, SQL, JavaScript API for ArcGIS, Esri REST APIs, mobile SDKs, C#.Net, ArcObjects, Oracle Map Builder, Oracle Spatial, Oracle Spatial Topology Data Modeling and Oracle Map Viewer. [Examples include: (a) the Office of Public Safety's Computer Aided Dispatch (CAD) systems, Closed Circuit Television (CCTV) systems, and access control systems; (b) the Office of Engineering's Computer Aided Design and Drafting (CADD) system

and Documentation and Drawings Management System (DDMS); (c) the Property and Revenue Management (PROPworks) system; (d) the Maintenance Management System (CMMS); (e) the Office of Technology's document management systems such as SharePoint; and (f) Business Intelligence (BI) systems such as Oracle Business Intelligence Enterprise Edition (OBIEE) and Enterprise Resource Planning (ERP) systems.]

--Provides technical support in designing and developing client-side application interfaces for mobile, digital display, kiosk and web GIS applications using a range of technologies and tools including Dot.Net, C#, Node.js, DOJO, JQuery, JavaScript Object Notation (JSON), Extensible Markup Language (XML), Hypertext Transfer Protocol (HTTPS), Hyper Text Markup Language (HTML) 5, Cascading Style Sheets (CSS) 3, Bootstrap, Git, Java/JavaScript, Advanced JavaScript libraries such as Node.js, Angular.js and web Application Program Interfacing (API)

--Creates device-agnostic web/intranet pages and mobile applications that are compatible across innumerable computer systems and web browsers to allow the traveling public, Airports Authority end-users, and business stakeholders to access online information from various computing devices, such as desktop computers, laptops, mobile/smartphones, and tablets.

--Assists in the documentation of GIS standards and procedures to ensure consistency in the development and operation of GIS applications. Develops and writes GIS training materials in collaboration with GIS engineering personnel and other stakeholders and users as requested.

--Works to maintain established Service Level Agreement (SLA) targets for supporting GIS applications for the Airports Authority. Provides after hours GIS Application support when required.

--May use a motor vehicle airside and landside, on and off Airport complexes, to visit jobs sites, attend meetings, and perform related functions.

 --Communicates and interacts effectively with internal and external business contacts including, but not limited to, other members of the unit/team, other Airports Authority employees (such as managers, supervisors, professionals, and support staff), vendors/suppliers/tenants, airport users, and the general public.

--Uses a computer and (a) modern office suite software (such as MS Office) to communicate (email), plan, schedule, word process, prepare presentations and graphics, manipulate data (spreadsheets and databases), and perform or conduct research (Internet use); (b) enterprise system/software to collect, store, manage and interpret data, for time and attendance reporting, and other functions; and (c) specialty systems/software used in the Office for application development and other software development functions.

--Performs related duties as assigned.

Critical features of this job are described under the headings below. They may be subject to change through reasonable accommodation or otherwise.

MINIMUM QUALIFICATIONS (MQs)

To be rated qualified for this job, an applicant must meet all of the MQs listed below at the time of vacancy announcement closure.

1. A Bachelor's Degree in Computer Science, Engineering, Management Information Systems, or a field which provides a strong foundation for successfully performing the DUTIES in this job description, or an equivalent combination of education, experience and training that totals four years.

2. Three years of <u>progressively responsible</u> experience in software development that includes substantive work in most of the DUTIES in this job description, including: (a) developing applications/systems utilizing GIS platforms such as Esri's ArcGIS Desktop or Server software suites and (b) developing interactive websites and client-side GIS Applications for both web and mobile platform in a GIS Web Application developer capacity.

   Education and training beyond what is needed to satisfy MQ 1 above may be substituted for up to one of these three years of experience (MQ 2) on a week-to-week basis provided the education and training provide evidence of the knowledge, skills and abilities required.

PREFERRED QUALIFICATIONS

The qualifications listed below (if any) are preferred and <u>may be</u> considered in the selection process, but they are <u>not</u> required to be rated qualified for this job.

1. Experience using ArcGIS Desktop, ArcGIS Server, ArcGIS Online, Portal for ArcGIS, JavaScript, and HTML5 to design and develop web, intranet, and mobile applications.

2. Experience developing mobile app solutions using iOS, Android or Mobile Application Development Platform; (b)Dot.Net, C#, HTTPS, HTML, CSS, JS, Java/JavaScript, Angular.js, Node.js, JQuery, JSON, XML, Cordova/PhoneGap and web API.

KNOWLEDGE, SKILLS, ABILITIES AND OTHER FACTORS (KSAOs)

The following KSAOs are required for successful performance of this job and are a basis for rating and ranking applicants who are found to meet the MQs. *Local, Federal, airport industry or Airports Authority-specific bodies of knowledge listed below may be acquired on the job, typically; ability to rapidly acquire them is required at the time of vacancy announcement closure.*

1. Knowledge of current and emerging GIS subject matter, issues and application development to assist with GIS planning, developing GIS applications, coordinating with other Airport Authority departments such as engineering as well as bordering jurisdictions, and perform related functions.

2. Knowledge of client-side application interfaces for mobile, digital display, kiosk and web applications using a range of technologies and tools including Node.js, JQuery, JavaScript

Object Notation (JSON), Extensible Markup Language (XML), Hypertext Transfer Protocol (HTTPS), Hyper Text Markup Language (HTML) 5, Cascading Style Sheets (CSS) 3, Bootstrap, Git, Java/JavaScript, Advanced JavaScript libraries such as Node.js, Angular.js and web Application Program Interfacing (API)

3. Knowledge of integration of enterprise GIS applications with non GIS applications to manage complex data originating from disparate source systems using technologies such as XHTML, JavaScript, CSS, XML, Python, SQL, JavaScript API for ArcGIS, Esri REST APIs, mobile SDKs, C#.Net, ArcObjects, Oracle Map Builder, Oracle Spatial, Oracle Spatial Topology Data Modeling and Oracle Map Viewer. Knowledge of integrating custom-built applications with ArcGIS Online using oAuth/SAML2.0. Examples include working on the: (a) Office of Public Safety's Computer Aided Dispatch (CAD) systems, Closed Circuit Television (CCTV) systems and access control systems; (b) Office of Engineering's Computer Aided Design and Drafting (CADD) system and Documentation and Drawings Management System (DDMS); (c) Property and Revenue Management (PROPworks) system; (d) Maintenance Management System (CMMS); and the Office of Technology's document management systems such as SharePoint, BI systems such as OBIEE, and ERP systems.

4. Knowledge of mobile architecture and application design. Understanding of the Android and/or iOS platform including knowledge of location services, Bluetooth, WIFI Direct, local storage, and encryption. Knowledge of and skills in UI development for the Android and iOS platform including custom interfaces and component development. Knowledge of key solution technologies including Angular, JQuery, DOJO, JavaScript, C#, HTML5, Cordova/PhoneGap, Web services, JSON, HTTP/S, REST API concepts. Knowledge of mobile technologies including: iOS, Objective C/Swift, COCOA, Android SDK, Java, and ArcGIS Runtime SDK for iOS and Android. Knowledge of various version control systems (TFS, GIT, Subversion, etc.)

5. Knowledge of SharePoint and web portal integration using APIs to extend GIS by increasing sharing and collaboration between different teams and departments, fostering a better flow of information and improving efficiency while reducing effort duplication. Knowledge of GIS architecture to develop a unified central platform that can manage, help visualize data, and provide the tools that go beyond the current GIS to include indoor geolocation, document storage, and BI.

6. Skill in problem solving to select, organize, and logically process relevant information (verbal, numerical, or abstract) to solve a problem. This includes the ability to recognize subtle aspects of problems, identify relevant information, and make balanced recommendations and decisions. Examples include: (a) reviewing, categorizing and prioritizing GIS trouble tickets, (b) tracking and reporting on items to increase the quality of service and manage end-user expectations, (c) integrating GIS with the Airports Authority's property management and maintenance management information systems, (d) writing Oracle database queries, (e) analyzing data to produce maps, reports, and other GIS related items/documentation.

7. Interpersonal skills to interact effectively with business contacts in a businesslike, customer service-oriented manner. This includes the ability to work well with individuals throughout all levels of the Airports Authority. Examples include collaborating with Office management, personnel from various Airports Authority departments including engineers and GIS technical personnel to advance the utilization of GIS applications within the Airports Authority's SharePoint site.

8. Skill to analyze data and established procedures within the organization to assess the usability of new and existing web and app features and design new concepts that optimize the overall user-experience.

9. Skill in oral communication to understand verbal information (including facts, descriptions, ideas, concepts, conflicting assertions and arguments), and to express such information verbally so that others will understand, and concerning some issues, be convinced or persuaded. This includes the ability to encourage effective oral communication by others, such as senior leadership, business stakeholders, and project managers. Examples include presenting design concepts, prototypes, test findings, and recommendations to both technical and non-technical audiences during meetings and presentations, and presenting before senior Office management and business leaders.

10. Skill in written communication to understand written information (facts, descriptions, ideas, concepts, conflicting assertions and arguments), draw inferences, form hypotheses and develop logical arguments, and to express such information in writing so that others will understand, and concerning some issues, be convinced or persuaded. This includes skill in reviewing the written work of others, such as the preparation of status reports and documentation for new processes, policies, and procedures.

11. Skill in using a computer and (a) modern office suite software (such as MS Office) to communicate (email), plan, schedule, word process, prepare presentations and graphics, manipulate data (spreadsheets and databases), and perform or conduct research (Internet use); (b) enterprise system/software to collect, store, manage and interpret data, for time and attendance reporting, and other functions; and (c) specialty systems/software used in the Office for application development and other software development functions.

RESPONSIBILITY Is responsible for extending the functionality and features of the Airports Authority's GIS applications, the integration of the Airports Authority's SharePoint site, and development of new applications based on quality assurance and GIS application standards. Work supports the strategic goals of the Airports Authority in the creation of a centralized SharePoint platform that enhances GIS information sharing, cross-team collaboration, and reduces the duplication of GIS efforts across the Airports Authority.

Reports to the GIS Program Manager (Supervisor). The Supervisor assigns ongoing functional responsibilities and makes special assignment within a framework of established goals, objectives, priorities, and results desired. The incumbent plans and carries out work independently within this framework, keeps the Supervisor informed, and brings highly complex matters to the attention of the Supervisor with options for action. Work is expected to be

complete, thorough, accurate and, as appropriate to the assignment, insightful and creative and is subject to review in process and upon completion, in terms of quantity, quality, timeliness, customer service, teamwork adherence to guidelines, and other factors, including specific performance management requirements.

Guidelines and references include but are not limited to, Office policies, procedures, and standards (e.g. Office of Technology Standards, Change Management Process, Root Cause Analysis Procedure, Technology Advisory Committee Project Submittal Procedure, Electronic Communications System Policy, and Enterprise Technology Management Policy, etc.); Information Technology Infrastructure Library (ITIL), PMO best practices, GIS manuals and accompanying systems software manuals, etc. The incumbent selects the most appropriate guideline to use in any instance.

EFFORT The work is primarily sedentary, but requires moving about to obtain work information and typically involves exerting light physical effort such as opening/closing file drawers, retrieving files, etc. The incumbent may sit for extended periods while performing desk work. Regularly uses a computer, a telephone, and other office equipment. Regularly reviews information on computer screens, printouts, contracts, and regulations containing small print.

WORKING CONDITIONS Works primarily in an adequately lighted, ventilated, and temperature controlled office and conference rooms.

OTHER SIGNIFICANT JOB ASPECTS None