

**COUNTY OF MILWAUKEE**  
**INTER-OFFICE COMMUNICATION**

**DATE:** February 28, 2018

**TO:** Supervisor Theodore Lipscomb Sr., Chairman, County Board of Supervisors  
Dean Legler, Director of Compensation, Department of Human Resources

**FROM:** Teig Whaley-Smith, Director, Department of Administrative Services  
*Prepared by: Laurie Panella, Chief Information Officer, Department of Administrative Services - Information Management Services Division*

**SUBJECT:** **Request to create one additional position in the Department of Administrative Services - Information Management Services Division.**

**Issue**

The Director of Department of Administrative Services is requesting authorization to create 1.0 full time employee (FTE) position for IT Security Engineer in the Department of Administrative Services - Information Management Services Division (DAS-IMSD). This position will help protect Milwaukee County (County) against cybersecurity threats.

**Background**

Milwaukee County is a billion-dollar enterprise with approximately (~) 4000 employees, ~3800 computers, ~275 servers, ~23,000 devices running on the guest network at peak periods. Information security is a 24x7x365 operation. Hackers and attackers do not take holidays, so the County information security team tries to monitor for malicious activity such as ransomware even on traditional days off.

The current DAS-IMSD cybersecurity team consists of 2 employees: Information Security Manager and a Security Analyst. Our current team is reactionary by nature and only has the time to keep essential operations running. This increases the propensity for the County to be inflicted with some type of debilitating malware or virus that could bring County operations to a halt as previously seen in other municipalities. Currently, due to staffing shortage, there is no technical backup for the Information Security Analyst when he takes vacation, or should he become ill. Because there are ever-present cyber security threats (for example, ransomware and other malware, phishing, and attack threats against infrastructure), the Information Security Manager acts as an operations analyst when the Information Security Analyst is out of the office. Though this action adequately covers security operations for a brief period, it is not at the level of expertise of an Information Security Engineer who has the specific skills and expertise to perform these technical and forensics tasks and manage cybersecurity tools. This process also prevents the Information Security Manager from performing her own job functions adequately, since security operations is an interactive full-time job.

DAS-IMSD proposes expanding its security team by adding an IT Security Engineer position. This position would strengthen County's information security posture and reduce potential vectors for attack. This person would run penetration tests on new and legacy

applications and systems, including requests from General Mitchel International Airport (GMIA) and Milwaukee County Transit Services (MCTS); proactively perform threat hunting for the County computing environment, purposely looking for indicators of compromise and advanced persistent threats in existing system and network devices including desktops and laptops. In addition to the aforesaid, the IT Security Engineer would continue to support and improve the County security architecture and environment; and complete the County-wide implementation of security products.

In addition to the above, this IT Security Engineer would recommend new solutions based on ever evolving cyber security threats, which continue to get more sophisticated and stealth, and changing technology such as the new and evolving Smart Community technology and use of computers like drones, IoT security management platforms, and network technology specifically for low long communications of sensor data – all technology that we do not have in place today. The IT Security Engineer will support the selection, testing, and implementation of new information security solutions; and perform research and participate in cyber response with the Wisconsin Statewide Intelligence Center (WSIC) regarding new threats to local government entities, learning forensics and threat remediation on actual attacks.

Last but not the least, the Information Security Analyst and the IT Security Engineer would be a team in peak event periods or periods of critical threats. Additionally, both roles would be able to provide backup for each other during holidays, vacations, time off, thereby having continuity of operations regarding skills and technical expertise.

#### *Cybersecurity Future State:*

Information security and its underlying infrastructure are vulnerable to a wide range of risks stemming from both physical and cyber threats and hazards. Sophisticated cyber actors and nation-states are constantly looking to exploit vulnerabilities to steal information and money and are developing capabilities to disrupt, destroy, or threaten the delivery of essential government services.

Substantial growth in Internet access and networked devices, commonly referred to as IoT, or Internet of Things, has facilitated widespread opportunities and innovation. This extraordinary level of connectivity, however, has also introduced progressively greater cyber risks for government agencies. As threat capabilities evolve so to must Milwaukee County's knowledge and staff in the Information Security department. With the addition of a Security Engineer, we will have a team of 3. Over the next several years DAS-IMSD will need to add application, server and network security engineers and architects to make sure that the systems and software we are building and using for County employees and constituents meets or exceeds current and future security requirements.

Additionally, new regulations will be established, and existing regulations will continue to evolve. DAS-IMSD will need a strong governance program and will expect to grow the DAS-IMSD governance area to support the County information security program as a result.

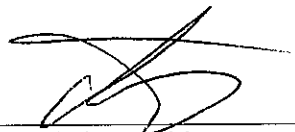
And lastly, DAS-IMSD will not only need to continuously keep current and future systems updated to manufacturer supported versions to avoid technical debt in the County but will

also need funding to acquire the latest tools and technology to protect Milwaukee County from cyber threats. New tools and technology over the next several years will tend to be based on machine learning and artificial intelligence and will be heavily influenced by automation rather than manual activities. Technical debt is the aggregation of systems and software that are not properly maintained due to a lack of business driver, human resources or funding resources. Milwaukee County will need to continuously devote funding to maintain systems and software, and if necessary, decommission systems and software when appropriate. As a result, DAS-IMSD will need to continuously maintain the skills and expertise necessary to understand, implement and execute new solutions going forward to maintain the best possible security posture for Milwaukee County.

**Recommendation**

Department of Administrative Services recommends the Milwaukee County Board of Supervisors authorize the Chief Information Officer, DAS-IMSD, or her designee, to create the following position:

<b>Position Description</b>	<b>FTE</b>
IT Security Engineer	1.0



Teig Whaley-Smith  
 Director, Department of Administrative Services

- Cc: County Executive Chris Abele  
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