




Hamilton

**CITY OF HAMILTON
OFFICE OF THE CITY AUDITOR**

TO:	Chair and Members Audit, Finance and Administration Committee
COMMITTEE DATE:	April 22, 2021
SUBJECT/REPORT NO:	Cyber Security Audit (AUD21004) (City Wide)
WARD(S) AFFECTED:	City Wide
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SUBMITTED BY:	Charles Brown City Auditor Office of the City Auditor
SIGNATURE:	

Discussion of Confidential Appendices "A", "B", "C", "D" and "E" to this report in Closed Session, would be pursuant to Section 9.1, Sub-section (a) of the City's Procedural By-law 21-021 and Section 239(2), Sub-section (a) of the *Ontario Municipal Act, 2001*, as amended, as the subject matter pertains to the security of the property of the municipality or local board.

RATIONALE FOR CONFIDENTIALITY

Appendices "A", "B", "C", "D" and "E" to Report AUD21004 are being considered in Closed Session as they contain information that pertains to the information technology security posture of critical City infrastructure, related technology applications and the underlying data.

RATIONALE FOR MAINTAINING CONFIDENTIALITY

The City Auditor recommends that Appendices "A", "B", "C", "D" and "E" to Report AUD21004 remain confidential, because in addition to the rationale noted above, the City Auditor in their capacity as an Auditor General for compliance and value for money audits (as approved by Council per Report AUD19005) has a duty of confidentiality as per the *Municipal Act, 2001 Section 223.22*.

RECOMMENDATION (CLOSED SESSION)

None.

RECOMMENDATION (OPEN SESSION)

- (a) That Confidential Appendices "A", "C" and "E" to Report AUD21004, respecting the Cyber Security Audit be received;
- (b) That the Management Responses, as detailed in Confidential Appendices "B" and "D" of Report AUD21004 be approved;
- (b) That the General Manager of Finance and Corporate Services be directed to instruct the appropriate staff to have the Management Responses (attached as Confidential Appendix "B" to Report AUD21004) implemented;
- (c) That the General Manager of Public Works be directed to instruct the appropriate staff to have the Management Responses (attached as Confidential Appendix "D" to Report AUD21004) implemented; and
- (d) That the Appendices "A", "B", "C", "D" and "E" to Report AUD21004, respecting Cyber Security Audit Report, and Cyber Security Recommendations and Management Responses, remain confidential and restricted from public disclosure.

EXECUTIVE SUMMARY

Over the past few years, cyber security attacks to municipalities in Canada and the United States have become a regular and unwelcome occurrence. It was important and necessary that the City of Hamilton's Office of the City Auditor conduct a comprehensive

cyber security audit to assess the City's current cyber security position and make recommendations for how to prevent cyberattacks from happening to the City of Hamilton.

Alternatives for Consideration – Not Applicable

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: None.

Staffing: None.

Legal: None.

HISTORICAL BACKGROUND

The Office of the City Auditor Work Plan 2019-2022 (AUD19007) included a project on Cyber Security. It was determined by the City Auditor that an audit was the most appropriate type of project to address the risks associated with cyber security.

It should also be noted that a review of Information Security and Identity and Access Management was completed by the OCA (then known as the Audit Services Division) and was received by the Audit, Finance and Administration Committee in May 2014. Report AUD14014 did not have a follow up audit performed. Given that information technology is a field that changes rapidly, rather than performing a follow up, the Cyber Security audit was included in the Council-approved 2019-2022 Work Plan. The audit was completed and addresses many of same topic areas as AUD14014, with an expanded scope of work to include vulnerability scanning and penetration testing.

Audits for Software Asset Management (AUD12001) and Hardware Asset Management (AUD15024) were previously completed and received by the Audit, Finance and Administration Committee.

Some of the findings from AUD21004 are similar to the findings in AUD12001, AUD14004, and AUD15024.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

City of Hamilton Information Technology Security Policy

IT Password Policy

User Account Policy

Security Incident Response Policy

Payment Card Industry Data Security Standard (PCI DSS)

Environmental Protection Act

Municipal Freedom of Information and Protection of Privacy Act

Ontario Water Resources Act

Personal Health Information Protection Act, 2004

Safe Drinking Water Act, 2002

RELEVANT CONSULTATION

Confidential Appendix "B" to Report AUD21004 includes management responses which were provided by the Information Technology (IT) Division in the Corporate Services Department.

Confidential Appendix "D" to Report AUD21004 includes management responses which were provided by the Hamilton Water Division in the Public Works Department.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

The Office of the City Auditor (OCA) took a holistic approach by looking at many facets important to IT security. The audit incorporated a comprehensive testing strategy involving 2 major components – assessment of risk exposures using recognized frameworks - and technical testing performed by outside experts. The testing and evaluation conducted by the Office of the City Auditor team was supplemented with specialty technical expertise obtained from an external firm, Valencia IIP Advisors Ltd. (Valencia) who conducted vulnerability scanning and penetration testing to assess the exposure to outside hacking of the City's network.

The overall objectives of this audit were to:

- Assess the cyber security risks and exposure at City of Hamilton
- Assess the security level of the City's network
- Assess the cyber security risk for critical systems

- Assess and evaluate the compliance level of the City's network using the NIST framework
- Assess and evaluate the access control management of the City's network

IT is complex and requires the successful coordination of people, processes, planning, and governance. Our audit report contains findings and recommendations for all four of these areas.

ALTERNATIVES FOR CONSIDERATION

Not applicable.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Built Environment and Infrastructure

Hamilton is supported by state-of-the-art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

Our People and Performance

Hamiltonians have a high level of trust and confidence in their City government.

APPENDICES AND SCHEDULES ATTACHED

Confidential Appendix "A" to Report AUD21004 - Cyber Security Audit Report

Confidential Appendix "B" to Report AUD21004 - Cyber Security Recommendations and Management Responses

Confidential Appendix "C" to Report AUD21004 - Hamilton Water Cyber Assessment

Confidential Appendix "D" to Report AUD21004 - Hamilton Water Cyber Assessment Recommendations and Management Responses

Confidential Appendix "E" to Report AUD21004 - Cyber Security Audit Presentation