STAFF REPORT
TO FINANCE AND AUDIT COMMITTEE

CITY OF PRINCE GEORGE

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DATE: April 16, 2021

TO: STANDING COMMITTEE ON FINANCE AND AUDIT

NAME AND TITLE: Walter Babicz, Acting City Manager

SUBJECT: Options for Cyber Security Risk Review

ATTACHMENT(S):
1. 5-Year Capital Plan for Security Projects
2. 2021 Operating Budget for Security Systems

RECOMMENDATION(S):

That the Standing Committee on Finance and Audit:

1. RECEIVES FOR INFORMATION the report dated April 16, 2021, from the Acting City Manager, titled "Options for Cyber Security Risk Review"; and

2. CONSIDERS the three options to assess the City's cyber security risk, as presented in the report dated April 16, 2021, from the Acting City Manager, titled "Options for Cyber Security Risk Review."

PURPOSE:

This report is in response to the following resolution passed at the February 22, 2021 meeting of the Standing Committee on Finance and Audit:

> That the Standing Committee on Finance and Audit DIRECTS Administration to report back to the Committee regarding options for an independent review of the City's cyber security risk.

As the City becomes more reliant on computers, software, networks and data, the risk of a Cyber security incident increases. Cyber-security initiatives are intended to reduce the risk of a cyber-security incident.

Cyber Security refers to the protection of city assets and city staff from cyber threats that include software or communications disruption, data exposure or loss, and targeted social engineering attacks. Protection refers to the prevention, detection and response to cyber-threats and cyber-attacks.

City assets include electronic / digital systems such as financial or payroll software, city communications systems, customer data, and infrastructure such as water and waste control.

This report is intended to provide the Standing Committee on Finance and Audit, with an overview of the City's cyber security efforts, progress and plans and provide options for an independent review of the City's cyber security risk, as directed by the Committee.

BACKGROUND:
Cyber security is a young industry that has relatively few industry standards or frameworks. Current standards include NIST, ISO 27001 / 27002, HIPPA, GDPR and others.

The City IT Services department generally follows the NIST Cybersecurity framework. Developed by US based private sector organizations, the NIST cybersecurity framework has evolved to include governments, communities and organizations across the globe. See **Image 1** below for forecasted adoption of the NIST Cybersecurity framework.

Image 1
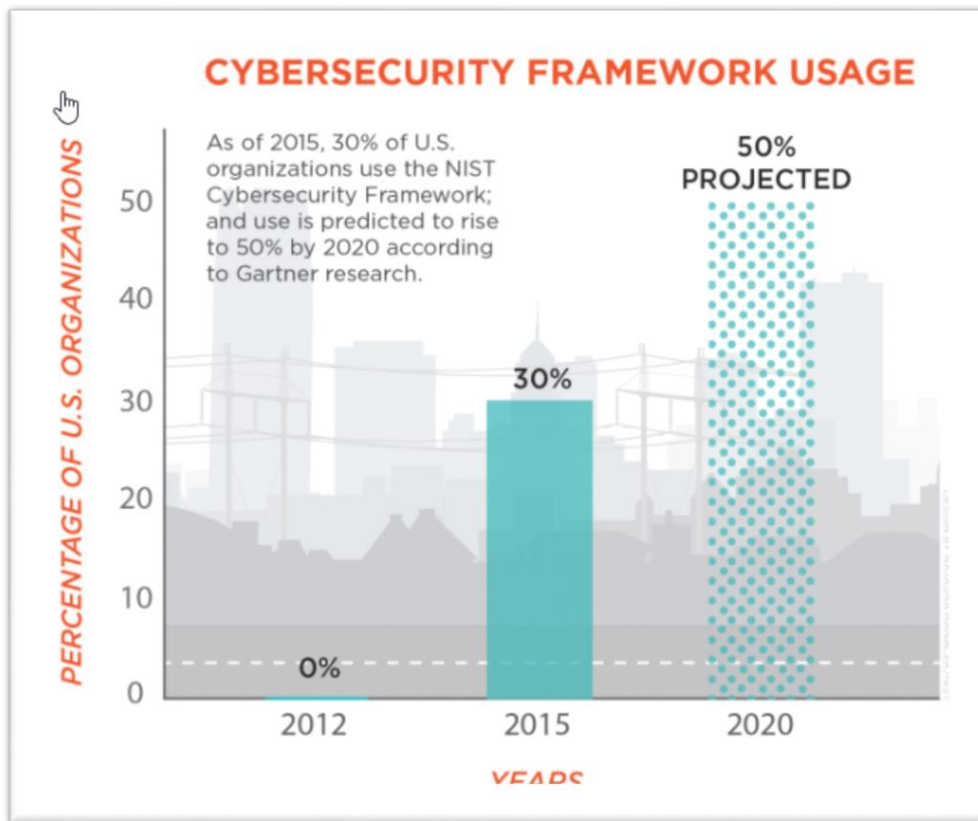
The NIST Cybersecurity Framework is a set of continuous functions intended to achieve specific cybersecurity outcomes. See **Image 2** for a summary of the NIST Framework and functions.

IT Services utilizes the NIST Cybersecurity Framework to identify cyber security areas of focus, and to develop actions to address. As cyber threats continually evolve, these areas of focus and related actions change frequently.

The following are options to assess the City's Cyber Security risk.

Option 1 – Maintain Status Quo: No assessment. IT Services continues to follow the NIST Cybersecurity framework going forward, and invest in security technology and services as part of its 5 year capital roadmap.

Option 2 - Perform a Cyber Security Health Check: Conduct an independent Cyber Security assessment to identify key cyber security issues across the City.

Option 3 – Perform Security Tests: Conduct independent penetration tests of city systems including firewalls, networking, applications, databases and accounts. Penetration tests attempt to find exploitable weaknesses in the City's cyber security defenses.

FINANCIAL CONSIDERATIONS:

Option 1 – Maintain Status Quo: In its 5-year capital plan - IT Services has identified over $1.2 million over 5 years, for security related capital projects. See Attachment 1, 5-Year Capital Plan for Security Projects, for more details.

> **Note:** IT Services funds approximately $250k per year on security related hardware, software and services. This is approximately 6% of the total IT Operating budget. See Attachment 2, 2021 Operating Budget for Security Systems, for more details.

Option 2 – Perform a Cyber Security Health Check: The outcome of the Cyber Security Health check will be a report of the security gaps as well as recommendations and actionable items to improve the City's cyber maturity. The estimated cost for a Cyber Security Health Check is $25k - $40k.

Option 3 – Perform Security Tests: The outcome of the penetration tests will identify cyber security risks related to technology and/or technology configurations, and provide specific action items to address these risks.   Depending on the scope of the testing, the estimated cost is $12k - $34k

> **Note:** IT Services has recurring security tests in its 5-year capital plan. The next security test will occur in 2022.

> **Note:** IT or City staff cannot address all action items. Software or hardware vendors are often responsible for making changes to their systems to address security risks.

SUMMARY AND CONCLUSION:

Cyber Security is complex, expensive and time consuming, but is critical to ensure the safety and integrity of all digital systems and services.   While cyber security incidents at the city are relatively rare, security incidents at large organizations reliant on computers, software, networks and data such as the City, are a question of when… not if.

RESPECTFULLY SUBMITTED:

Walter Babicz, Acting City Manager

PREPARED BY: Bill McCloskey, Manager, Information and Technology Services

Meeting Date: May 10, 2021

Hardware / Hardware Services Projects ($1000's)

Capital Type	Operations	CF	2021	2022	2023	2024	2025		Total
N	CheckPoint High Availability	0	35	0	0	0	0		35
R	SIEM / Infrastructure Monitoring Tool	0	0	50	0	0	0		50
R	Network Edge Switch and WAP Replacement	10	25	35	35	35	35		175
B	Network Masich Place Checkpoint Firewall	6	4	0	0	0	0		10
N	F5 High Availability and Enhancements	0	0	50	0	0	0		50
B	Secure Print Expansion	0	0	5	5	5	5		20
	Operations Total	16	64	140	40	40	40	0	340

Capital Type	Site Admin	CF	2021	2022	2023	2024	2025		Total
B	SAN Switch Improvements	0	0	0	60	0	0		60
	Site Admin Total	0	0	0	60	0	0		60

| | **Hardware / Hardware Services Total** | 16 | 64 | 140 | 100 | 40 | 40 | | 400 |

Software / Software Services Projects ($1000's)

Capital Type	Applications	CF	2021	2022	2023	2024	2025		Total
M	Application Security Audit	0	10	0	0	0	0		10
N	Automated Testing Software		0	0	40	0	0		40
B	Builder Upgrade	0	10	0	15	0	15		40
B	Cityware (JDE) - Architecture Upgrade	0	10	0	0	15	0		25
M	Cityware (JDE) - Major Upgrade	0	0	0	200	0	0		200
M	Cityware (JDE)- Year End Payroll / Tools Upgrade	0	20	70	20	20	20		150
	Applications Total	0	50	70	275	35	35		465

Capital Type	Leadership	CF	2021	2022	2023	2024	2025		Total
N	Microsoft 365 Implementation	0	25	125	0	0	0		150
B	Mobility Services Project	20	0	0	0	0	0		20
N	Multi-Factor Unified Authentication	0	0	5	30	65	0		100
N	Physical and Virtual Security	0	0	10	10	10	10		40
	Leadership Total	20	25	140	40	75	10		1240

Capital Type	Operations	CF	2021	2022	2023	2024	2025		Total
M	Security Audit	0	0	25	0	0	25		50
	Operations Total	0	0	25	0	0	25		50

Capital Type	Site Admin	CF	2021	2022	2023	2024	2025		Total
N	3rd Generation End Point Protection	0	0	35	35	0	0		70
N	Anti-Malware Licensing	0	5	5	5	5	5		25
N	Password Compliance Tool	0	0	20	0	0	0		20
N	Varonis Data Classification Tool	0	0	0	50	0	0		50
	Site Admin Total	0	5	60	90	5	5		165

| | **Total Software / Software Services** | 20 | 80 | 295 | 405 | 115 | 75 | | 1920 |

Budget Unit: 124530										
Description: Maintenance Contracts										

				Budget						US funds .70 exch + PST
										US funds .70 exch
Object Code	**Work order**	**Description**		**Budget**	**Actual**	**Variance**				
7530	81750	Hardware		$ 28,440	-	28,440				
7530	81749	Software		$ 226,700	-	226,700				
		Total Maintenance Budget		$ 255,140	-	255,140				

Hardware Expenditures
Work Order 81750

Object	Vendor - Description	Hardware - Description	Part / Item / SKU #	Budget	Invoice Amount	Variance	Invoice Date	Next Fiscal Projected Budget	Maintenance Start Month	Exchange
	Barracuda	Barracuda Spam Gateway	BSF300 a-e, BSF300 a-h	2,200.00		0.00		-	Nov	US
	IBM	SAN Switches at Yard Gen 1	S/N - 10493HF	650.00		0.00		-	Apr	Canada
	IBM	SAN Switches at Yard Gen 1	S/N - 10493GD	650.00		0.00		-	Apr	Canada
	IBM	V7000 Gen 2 Storwize Disk Controller HWMA	S/N - 7821D0L	7,500.00		0.00		-	Apr	Canada
	IBM	V7000 Gen 2 Storwize Disk Controller SWMA	S/N - 7821D0L	4,000.00		0.00		-	Apr	Canada
	IBM	V7000 Gen 2 Storwize Expansion	S/N - 78228XH	4,000.00		0.00		-	Apr	Canada
	IBM	V7000 Gen 2 Storwize Expansion	S/N - 7821CFW	4,000.00		0.00		-	Apr	Canada
	Ion	Checkpoint		4,440.00		0.00		-	Feb	Canada
	HVE Connexions Overland Storage	SnapServer	S/N - AT44500192	1,000.00		0.00		-	Nov	US
		Hardware Total		**28,440.00**	**0.00**	**0.00**		**0.00**		

Software Expenditures
Work Order 81749

Object	Vendor - Description	Software - Description	Part / Item / SKU #	Budget	Invoice Amount	Variance	Invoice Date	Next Fiscal Projected Budget	Maintenance Start Month	Exchange
	Blackberry	Advantage Support Perpetual Silver (140)	TS.ADPSI.RNW	1,500		0.00		-	Nov	Canada
	Blackberry	Blackberry Spark UEM Express Suite Device (125)	SPK.UEM.E.SD.AD	6,000		0.00		-	Nov	Canada
	CDW	Ruckus End user Watchdog Support (21)	S51-0001-1LSG	400		0.00		-	Mar	Canada
	CDW	Veeam	V-VASENT-VS-P01AR-00	15,000		0.00		-	Nov	Canada
	CDW	Thycotic Secret Server (25)	SS-SPT-24x7-1yr	7,300		0.00		-	Oct	Canada
	CIRA	D-Zone Firewall Service and DNS Service	D-Zone-FW, D-Zone-AC	3,000		0.00		-	Mar	Canada
	ION (Checkpoint)	Checkpoint Support for Software Gateways	CPES-SS	5,900		0.00		-	Feb	Canada
	ION (Checkpoint)	Checkpoint Support for Appliance Gateways	CPES-SS-STANDARD-ADD	5,600		0.00		-	Feb	Canada
	ION (Checkpoint)	Checkpoint Next Gen. Threat Prevention Blades (1430 x 2)	CPSB-NGTP-1430-1Y	550		0.00		-	Feb	Canada
	ION (Checkpoint)	Checkpoint Next Gen. Threat Prevention Blades	CPSB-NGTP-4600-1Y	6,300		0.00		-	Feb	Canada
	ION (F5)	F5 Premium Service for Big-IP Virtual Edition	ZGRSBSKS	4,500		0.00		-	June	Canada
	ION (Interscan)	Interscan Web Security Virtual Appliance for ICAP - 1 user	IHRA352	1,150		0.00		-	Dec	Canada
	ION (RSA)	RSA Maint		800		0.00		-	Nov	Canada
	Kaspersky (Soaptech)	Kaspersky EndPoint Security for Windows		31,000		0.00		-	May	US
	KnowBe4	Phishing Simulation / Training Tool	1000KMSPN000D12-G	12,500		0.00		-	June	US
	Microsoft	MS - Enterprise Agreement (EA) - SQL Server Standard (26)	7NQ-00292	21,000		0.00		-	Jan	Canada
	Microsoft	MS - Enterprise Agreement (EA) - System Centre Standard Core CAL (2)	9EN-00195	400		0.00		-	Jan	Canada
	Microsoft	MS - Enterprise Agreement (EA) - Windows Server Data Centre (7)	9EA-00273	10,000		0.00		-	Jan	Canada
	Microsoft	MS - Enterprise Agreement (EA) - Windows Server External Connector (7)	R39-00396	3,200		0.00		-	Jan	Canada
	Microsoft	MS - Enterprise Agreement (EA) - Windows Server Standard Core (22)	9EM-00267	5,000		0.00		-	Jan	Canada
	Quest	Kace Systems Mgmt Addtl Managed Computer Maint Renewal (60)	EEB-KCE-PS	692		0.00		-	Mar	Canada
	Quest	Kace Systems Mgmt Addtl Managed Computer Maint Renewal (25)	EEB-KCE-PS	251		0.00		-	Mar	Canada
	Quest	Kace Systems Mgmt Appliance W/100 Managed Computer Maint Renew (1)	EEA-KCE-PS	3,247		0.00		-	Mar	Canada
	Quest	Kace Systems Mgmt Addtl Managed Computer Maint Renewal (460)	EEB-KCE-PS	4,954		0.00		-	Mar	Canada
	Quest	Kace Systems Deployment Addtl Managed Computer Maint Renewal (25)	FFB-KCE-PS	111		0.00		-	Mar	Canada
	Quest	Kace Systems Deployment Appliance W/100 Managed Comp Maint Ren (1)	FFA-KCE-PS	1,642		0.00		-	Mar	Canada
	Quest	Kace Systems Deployment Addtl Managed Computer Maint Renewal (460)	FFB-KCE-PS	2,103		0.00		-	Mar	Canada
	Rockwell (Techconnect) (Westburne)	WWTC PLC DeviceNetManager (Scada)		2,300		0.00		-	Dec	Canada
	Scalar	Varonis Collect S&S (1)	CL-1-5-MS	1,200		0.00		-	Dec	Canada
	Scalar	Varonis DatAdvantage Directory Services (600)	DADS-501-750MS	6,500		0.00		-	Dec	Canada
	Scalar	Varonis DatAdvantage for Windows (600)	DAW-501-750MS	6,500		0.00		-	Dec	Canada
	Scalar	Varonis DatAlert (501)	DLS-501-750MS	5,500		0.00		-	Dec	Canada
	Scalar	Varonis DatAdvantage Directory Services (150)	DADS-101-250OS	11,000		0.00		-	Dec	Canada
	Scalar	Varonis DatAdvantage for Windows (150)	DAW-101-250OS	11,000		0.00		-	Dec	Canada
	Scalar	Varonis DatAlert (150)	DLS-101-250OS	11,000		0.00		-	Dec	Canada
	Steeves & Associates	ASM Service	Invoice 3603	10,000		0.00		-	Nov	Canada
	Solarwinds	Solarwinds Log & event lic		5,800		0.00		-	Nov	US
	Sync	Sync (15)		600		0.00		-	Sept	Canada
	ZOHO Corporation	Annual Maintenance Fee for ManageEngine		1,200		0.00		-	August	US
		Software Total		**226,700.00**	**0.00**	**0.00**		**0.00**		

		Software Budget Total		226,700	-	-				
		Hardware Budget Total		28,440	-	-				
		Software and Hardware Budget Total		255,140	-	-				
				2021 Budget	**2021 Actual**	**2021 Variance**				

										By Quarter
										%