

2021 Budget Notes Office of the Chief Information Security Officer

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Description

The COVID-19 pandemic has accelerated the need for the City of Toronto to digitally transform its services to meet the demands of its residents and workforce, to build additional business resiliencies, and to support our recovery efforts.

This increased demand to create an effective remote workforce coupled with new digital services for residents is leading to an expanded online risk that may be exploited. We are responding to these challenges by modernizing our cyber program led by the recently formed Office of the Chief Information Security Officer ("CISO").

The CISO vision includes three strategic pillars:

- 1. To play a key role in transforming Government through Digitization;
- 2. To provide cyber support to Toronto Residents in order to enable equitable outcomes; and
- 3. To improve the quality of life of Torontonians by becoming the global leader in urban cyber innovation thereby allowing for social and financial opportunities.

Why We Do It

The Office of the CISO's short term objective is to continue protecting the City's assets (digital infrastructure and information). Our long-term vision is to implement a program that will enable the development of proactive services in contribution to solving some of society's challenges such as diversity and inclusion, cyber bullying, cyber poverty, missing persons, and cyber health care within the next five years.

In addition to the societal benefits, the Office of the CISO continues to fulfill its mandate to:

- Minimize the impact of cyber incidents that result in financials loss, reputational damage, service disruption, legal liability and loss of life through the delivery of relevant cyber governance;
- Support the City's strategic priorities of keeping Toronto moving and building resilience by contributing to improvement initiatives (ModernTO, Financial Transformation, and COVID-19 Recovery);
- Promote financial sustainability by containing costs through automated, efficient and/or streamlined processes.

The City of Toronto aims to deliver these outcomes equitably, efficiently and with excellent customer service to help improve the lives of Torontonians and work to earn their trust and confidence.

Budget at a Glance

/	2021 OPERATING BUDGET							
	\$Million	2021	2022	2023				
	Revenues	\$ 0.4	\$ 0.4	\$ 0.4				
	Gross Expenditures	\$ 28.4	\$28.4	\$28.1				
	Net Expenditures	\$ 28.1	\$28.1	\$27.7				
	Approved Positions	62.0	62.0	62.0				

2021 - 2030 10-YEAR CAPITAL PLAN							
\$Million	2021	2022-2030	Total				
Gross Expenditures	\$4.0	\$18.6	\$22.6				
Debt	\$4.0	\$18.6	\$22.6				

Note: Includes 2020 carry forward funding to 2021.

What Service We Provide

Cyber Services

Digital Government

Who We Serve: All City Divisions, Councillors, and the Public What We Deliver:

Digital Government

- Strategy, governance, and advisory accountabilities City-wide.
- Cyber culture, awareness and training.
- Managing digital risk and support the operationalization of digital programs and cloud initiatives.
- Modernizing infrastructure, oversight over cyber compliance, and enhancing the Cyber Practice.
- Detection, prevention, and mitigation of cyber risk including the City's critical infrastructure.

Business Resilience

- Improve business resilience and support the processes enabling business transactions.
- Provide and support COVID-19 emergency response and recovery initiatives.
- Assess risk and protect against unauthorized access for public facing business applications.
- Data Rights Protection to safeguard personal and health information of City staff and the Public

How Much Resources (gross operating budget): \$28.4 million

2021 Operating Budget & 2021 - 2030 Capital Plan

Office of the Chief Information Security Officer

How Well We Are Doing

Service	Service Measure	2018 Actual	2019 Actual	2020 Target	2020 Projection	2021 Target	2022 Target	Status
		9	Service Le	vel Meas	ures			
Cyber Diplomacy	% of cyber policies and standards reviewed annually by Office of the CISO					100%		
& Governance	% of cyber awareness training completed annually across teams with privileged access					85%		
Threat	% of scheduled scans completed per quarter					100%		
Management	% of existing endpoints monitored by Threat Management solution (servers, workstations, mobiles)					90%		
Digital Trust	% of Privacy Impact Assessment conducted for critical risk projects					100%		
Business Application Resilience	% of risk assessments conducted for critical risk projects					100%		
Digital Forensics & Investigations	% of investigations reviewed within 30 days					90%		
Urban Technology Protection	% of risk assessments conducted for critical risk projects					100%		

*The Office of the CISO will be creating a baseline in 2021. It is a new division as of January 2020.

COVID-19 IMPACT AND RECOVERY	OVID-19 IMPACT AND RECOVERY							
2020 Impact	2021 Impact and Recovery							
 Financial Impact (Operating) The Office of the CISO is projecting to incur \$1.2 million operating costs relating to COVID, including \$1.1 million for COVID 19 Risk Assessment and \$0.1 million for staff 	 Financial Impact (Operating) 2021 Operating Budget does not have COVID-19 impacts. 							
Financial Impact (Capital) Nil	 Financial Impact (Capital) 2021 Capital Budget does not have COVID-19 impacts. 							
 Service Level Changes Significant increase in requests for cyber services to support rapid development of COVID-19 related response and recovery applications. Ongoing comprehensive risk assessments of newly deployed and enhanced technology due to COVID-19. Implemented threat monitoring and threat intelligence solution to identify increasing volume of COVID-19 cyber threats. Procured infrastructure and application vulnerability scanning solution to identify weaknesses within our environment. 	 Service Level Changes Professional services to support Emergency Management Response & Recovery. Ongoing threat monitoring and threat intelligence to identify increasing volume of COVID-19 cyber threats. Ongoing infrastructure and application vulnerability scanning to identify weaknesses within our environment. 							

EXPERIENCES, CHALLENGES AND PRIORITIES

Our Experience and Success

- Created independent division in January 2020 and classified as a critical service.
- Established COVID-19 threat intelligence function.
- Enhanced City's cyber defence and protection of digital assets.
- Cyber risk assessments on enhanced technology to support COVID-19 response and recovery.

Key Challenges and Risks

- Increased level of cybercrime globally.
- Increase level of attacks and incidents.
- Increased risk of ransomware attacks.
- Decentralization of cyber functions.
- Higher attrition rate and specialized skillsets.
- Audit remediation.
- Maturity level and unassessed risks.

Priority Actions

Investments to enhance the City's resilience to cyber risks in order to minimize the impact of a cyber attack resulting in potential financial loss, reputational damage, service disruption, legal liability and loss of life.

Digital Government

- Strategy, governance, and advisory accountabilities City-wide.
- Cyber culture, awareness and training.
- Managing digital risk and support the operationalization of digital programs and cloud initiatives.
- Modernizing infrastructure, oversight over cyber compliance, and enhancing the Cyber Practice.
- Detection, prevention, and mitigation of cyber risk including the City's critical infrastructure.

Business Resilience (including Modernization and Recovery)

- Improve business resilience and support the processes enabling business transactions.
- Provide and support COVID-19 emergency response and recovery initiatives.
- Assess risk and protect against unauthorized access for public facing business applications.
- Data Rights Protection to safeguard personal and health information of City staff and the Public.
- Enhance digital forensic capabilities to investigate fraud, waste, theft, cyber breaches and violations.
- Remediation of Auditor General findings to resolve cyber recommendations.

RECOMMENDATIONS

The City Manager and Chief Financial Officer and Treasurer recommend that:

1. City Council approve the 2021 Operating Budget for Office of the CISO of \$28.438 million gross, \$0.383 million revenue and \$28.055 million net for the following services:

Service:

	Gross Expenditures (\$000s)	Revenue (\$000s)	Net Expenditures (\$000s)
Cyber Security	\$28,437.7	\$382.5	\$28,055.2
Total Program Budget	\$28,437.7	\$382.5	\$28,055.2

- 2. City Council approve the 2021 staff complement for Office of the CISO of 62.0 positions entirely comprised of operating positions.
- 3. City Council approve 2021 Capital Budget for Office of the CISO with cash flows and future year commitments totaling \$22.628 million as detailed by project in Appendix 6a.

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2021 **OPERATING BUDGET**

2021 OPERATING BUDGET OVERVIEW

(In \$000s)	2019 Actual**	2020 Budget**	2020 Projection */**	2021 Base Budget	2021 New / Enhanced	2021 Budget	Change v Projec	
By Service	\$	\$	\$	\$	\$	\$	\$	%
Revenues								
Cyber Security	51.5	503.0		172.9	209.7	382.5	382.5	N/A
Total Revenues	51.5	503.0		172.9	209.7	382.5	382.5	N/A
Expenditures								
Cyber Security	1,220.9	11,278.5	8,754.1	16,681.6	11,756.1	28,437.7	19,683.6	224.8%
Total Gross Expenditures	1,220.9	11,278.5	8,754.1	16,681.6	11,756.1	28,437.7	19,683.6	224.8%
Net Expenditures	1,169.4	10,775.5	8,754.1	16,508.8	11,546.4	28,055.2	19,301.0	220.5%
Approved Positions	9.0	39.0	39.0	39.0	23.0	62.0	23.0	59.0%

* 2020 Projection based on Q3 Variance Report

** Currently included in Technology Services Budget

COSTS TO MAINTAIN EXISTING SERVICES

Total 2021 Base Budget expenditures of \$16.682 million gross reflecting an increase of \$7.928 million in spending above 2020 projected year-end actuals (prior to enhancements), predominantly arising from:

- The 2021 annualization of the 39 positions transferred from TSD to CISO to meet the City's Security priorities; and
- The 2021 increase of \$4.201 million in Service and Rent reflects the deferral in 2020 expenses into 2021 arising from delays in MSSP implementation and professional services for technical assessments.

Given the financial impacts of COVID-19 on 2020 actuals, a further comparison of the 2021 Recommended Budget to the 2020 Council approved Budget is provided below:

• 2021 Base Budget totalling \$16.509 million in net expenditures reflects a \$5.733 net increase above the 2020 Council approved Budget.

COSTS TO ENHANCE SERVICES

New and Enhanced Service expenditures of \$11.756 million gross, enabling:

 Additional funding of \$11.756 million for Priority Security Items for Cyber Modernization and Digitization of support services

EQUITY IMPACTS OF BUDGET CHANGES

No significant equity impacts: The changes in the Office of the CISO's 2021 Operating Budget do not have any significant equity impacts.

2021 OPERATING BUDGET KEY DRIVERS

The 2021 Operating Base Budget for The Office of CISO is \$16.682 million gross or 90.6% higher than the 2020 Projected Actuals. Table 2a below summarizes the key cost drivers for the base budget, while Table 2b summarizes New and Enhanced requests

Key Cost Drivers	2019	2020	2020	2021 Base	Change V Projec	
(In \$000s)	Actuals *	Budget *	Projection */ **	Budget	\$	%
Expenditures						
1 Salaries and Benefits	847.7	1,784.0	2,114.9	7,096.6	4,981.6	235.5%
2 Materials & Supplies		0.3		23.4	23.4	
3 Equipment	1.9		102.1	11.7	(90.4)	(88.5%)
4 Service and Rent	371.4	9,494.2	5,349.2	9,549.9	4,200.7	78.5%
5 Contribution To Capital						
6 Contribution To Reserves						
7 COVID-19 Impact			1,187.9		(1,187.9)	(100.0%)
Total Expenditures	1,220.9	11,278.5	8,754.1	16,681.6	7,927.5	90.6%
Revenues						
1 Provincial Subsidies						
2 User Fees & Donations						
3 Draw from Reserve Funds				172.9	172.9	
4 Other Revenues (Inc. IDR's)	51.5	503.2				
Total Revenues	51.5	503.2		172.9	172.9	
Net Expenditures	1,169.4	10,775.3	8,754.1	16,508.8	7,754.6	88.6%
Approved Positions	9.0	39.0	39.0	39.0		

* 2020 Projection based on Q3 Variance Report

** Currently included in Technology Services Budget

Salaries & Benefits:

• Salaries & Benefits: \$4.982 million increase is mainly due to the 2021 annualization of the 39 positions transferred from TSD to CISO to meet the City's Security priorities.

Materials and Supplies:

 Materials & Supplies: \$0.023 million projection in 2021 is mainly due to office supplies & equipment for the newly established division.

Services and Rents:

 Service and Rent: \$4.201 million increase is mainly due to professional fees and cloud license subscriptions for managed security service providers (MSSP), infrastructure & application, vulnerability management, professional membership/dues, cloud storage, cyber awareness program, and risk assessment.

Table 2b: 2021 New / Enhanced

		202	21		2022	Equity	Supports Key Issue /
New / Enhanced Request	Revenue	Gross	Net	Positions	Annualized Gross	Impact	Challenge
In \$ Thousands					· · ·		
1 Priority 1 Cyber Security Items	209.7	11,756.1	11,546.4	23.0	13,478.9	None	-
Total New / Enhanced	209.7	11,756.1	11,546.4	23.0	13,478.9		

Investments totalling \$11.546 million net in 2021 are included in the budget to enhance the City's resilience to cyber risks in order to minimize the impact of a cyberattack resulting in potential financials loss, reputational damage, service disruption, legal liability and loss of life. The investments are composed of the following enhancements:

- Continued support for the Emergency Management Response and Recovery initiatives related to COVID-19;
- Remediation of Auditor General findings to resolve cyber recommendations;
- Case management solution for privacy and forensics data;
- Enhance threat detection & response for critical infrastructure to identity and mitigate cyber attacks;
- Cyber practice development to provide additional support to divisions in building resilience and managing their cyber risks;
- Enhance digital forensic capabilities to investigate fraud, waste, theft, cyber breaches and violations and;
- Strengthen access solution to manage users with elevated permissions to critical systems.

Note:

^{1.} For additional information on 2021 key cost drivers refer to <u>Appendix 2</u>, and <u>Appendix 4</u> for the 2021 New and Enhanced Service Priorities.

2022 & 2023 OUTLOOKS

Table 3: 2022 and 2023 Outlooks

(\$000s)	2020 Projection*	2021 Budget	2022 Outlook	2023 Outlook
Revenues		382.5	382.5	382.5
Gross Expenditures	8,754.2	28,437.7	28,438.6	28,064.1
Net Expenditures	8,754.2	28,055.2	28,056.1	27,681.6
Approved Positions	39.0	62.0	62.0	62.0

* 2020 Projection based on Q3 Variance Report

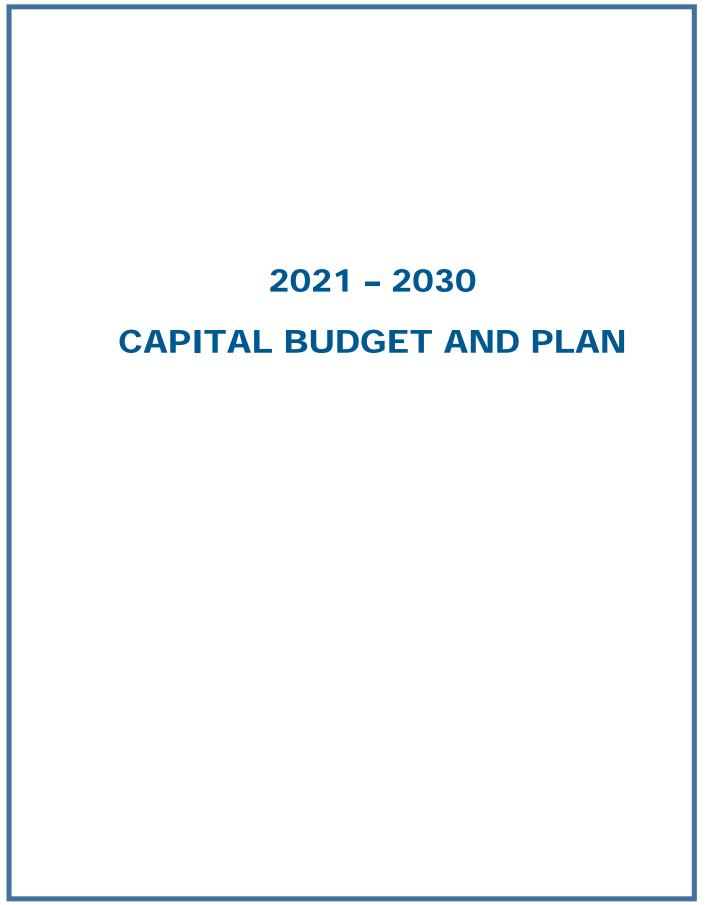
Key drivers

The 2022 Outlook with total gross expenditures of \$28.438 million reflects the following:

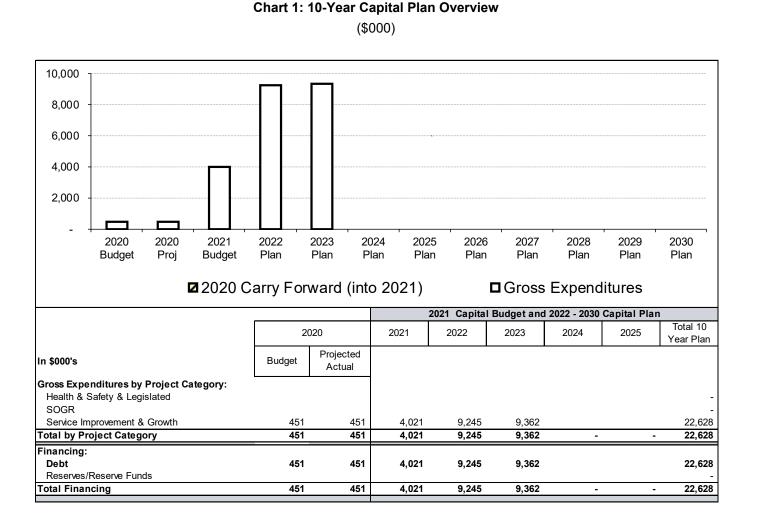
- Full year salaries & benefits for the 39 FTEs projected to be hired in 2020.
- Additional 23 FTEs to build cyber practice which increases the salaries and benefits and equipment.
- Comprehensive Threat assessment on City's ability to detect, protect and respond to cyber threats.
- Integration of election technologies with cyber tools.
- Increases in cloud and authentication technology due to the anticipated migration of business applications to cloud solution.
- Build the City's digital resilience to support the City's digital transformation initiatives.

The 2023 Outlook is projected to decrease by \$0.374 million or 2 per cent below the 2022 gross expenditures due to the following:

• Reduction in professional fees with the creation of the internal team to improve the City's cyber maturity and meet the demands of the City's digital transformation.



2021 - 2030 CAPITAL BUDGET & PLAN OVERVIEW



New Projects

(\$22.6 Million)

2021 adds \$4.021 million for infrastructure and hardware to enable the following security initiatives:

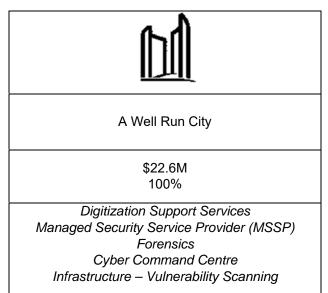
- Managed Security Service Provider (\$3.202 million)
- Forensics, Digitization Support & Vulnerability Scanning (\$0.819 million)

Note:

For additional information, refer to <u>Appendix 6</u> for a more detailed listing of the 2021 and 2022-2030 Capital Budget & Plan by project.

2021 – 2030 CAPITAL BUDGET AND PLAN

\$22.6 Million 10-Year Gross Capital Program



How the Capital Program is Funded

City of 1	Foronto	Provincial Funding	Federal Funding	
\$22. 100		\$0.0 M 0%	\$0.0 M 0%	
Debt	\$ 22.6 M			

CAPACITY TO SPEND REVIEW

The 10-Year Capital Plan has been developed with consideration of historical demonstrated ability to spend within any given year of the ten year capital plan. A review was undertaken to ensure budgets align with Office of the CISO's ability to spend and the markets capacity to deliver.

A key component in determining an appropriate level of annual cash flows includes historical capacity to spend reviews by project categories (Chart 2 below) as well as the level of projected 2020 underspending that will be carried forward into 2021 to complete capital work.

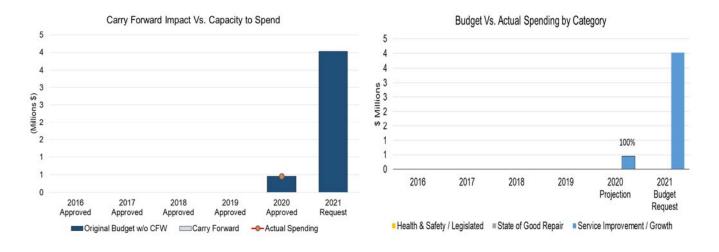
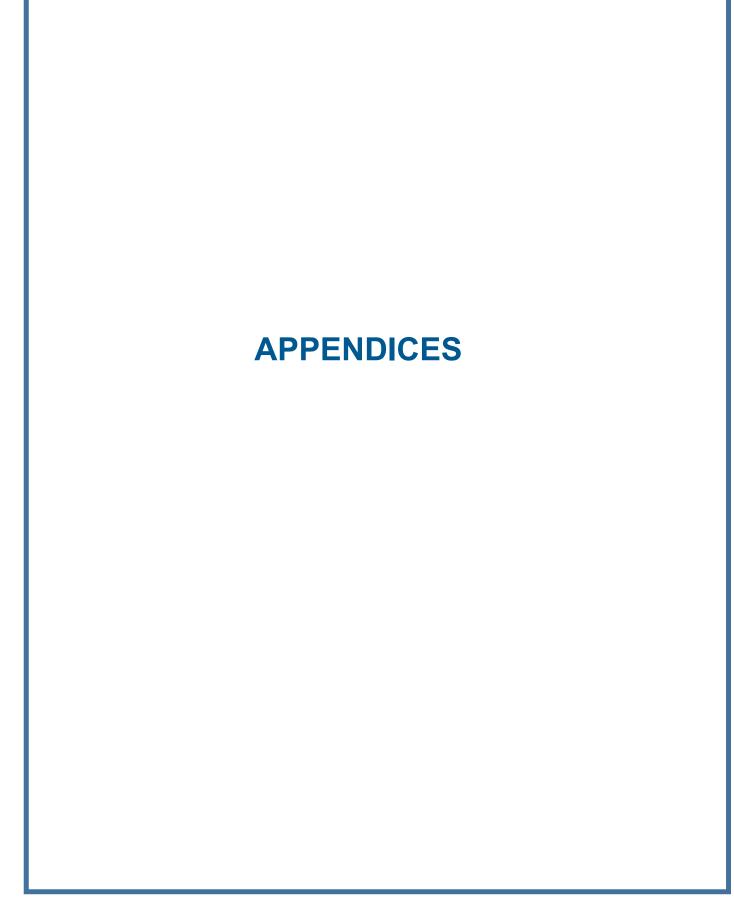


Chart 2 – Capacity to Spend

Capacity to Spend Review Impact on the 10-Year Plan

The Office of CISO division was established in 2020, therefore historical spend for previous years is not applicable. The 2020 budget of \$0.451 million will be fully spent in 2020.



COVID-19 Financial Impact - Operating

	(\$000s)										
		2020		2021							
COVID-19 Impacts	Revenues	Gross	Net	Revenues	Gross	Net					
Revenue Loss											
N/A											
Sub-Total											
Expenditure increase											
Salaries & Benefits (Over-Time)		50.0	50.0								
Professional Services for COVID 19 Risk Assessment		1,137.9	1,137.9								
Sub-Total		1,187.9	1,187.9								
Savings due to Underspending											
N/A											
Sub Total											
Savings due to Management Actions											
N/A											
Sub-Total											
Support from Other Levels of Gov't											
N/A											
Sub-Total											
Total COVID-19 Impact		1,187.9	1,187.9								

2021 Operating Budget by Revenue / Expenditure Category

Category	2018 Actual**	2019 Actual**	2020 Budget	2020 Projection*	2021 Budget	2021 Change from 2020 Projected Actual		
(In \$000s)	\$	\$	\$	\$	\$	\$	%	
Provincial Subsidies								
Federal Subsidies								
Other Subsidies								
User Fees & Donations								
Licences & Permits Revenue								
Transfers From Capital	196.5							
Contribution From Reserves/Reserve Funds					382.5	382.5		
Sundry and Other Revenues		51.5	503.2					
Inter-Divisional Recoveries								
Total Revenues	196.5	51.5	503.2		382.5	382.5		
Salaries and Benefits	1,122.1	847.7	1,784.0	2,164.9	10,177.2	8,062.2	381.2%	
Materials & Supplies	0.3		0.3		23.4	23.4		
Equipment	83.2	1.9		102.1	92.3	(9.8)	(9.6%)	
Service and Rent	407.5	371.4	9,494.2	6,487.1	18,144.8	12,795.6	239.2%	
Contribution To Capital								
Contribution To Reserves/Reserve Funds								
Other Expenditures						(1,187.9)	(100.0%)	
Inter-Divisional Charges						. , , , ,	. ,	
Total Gross Expenditures	1,613.1	1,220.9	11,278.5	8,754.1	28,437.7	19,683.6	224.8%	
Net Expenditures	1,416.5	1,169.4	10,775.3	8,754.1	28,055.2	19,301.0	220.5%	
Approved Positions	5.0	9.0	39.0	39.0	62.0	23.0	59.0%	

* Year-End Projection Based on Q3 2020 Variance Report ** Prior Year Actuals adjusted retroactively to remove interdepartmental charges and recoveries

Summary of 2021 Service Changes

Summary of 2021 New / Enhanced Service Priorities Included in Budget

Summary of 2021 New / Enhanced Service Priorities Not Included in Budget

2021 Capital Budget; 2022 - 2030 Capital Plan Including Carry Forward Funding

Project Code	(In \$000s)	2021 Budget	2022 Plan	2023 Plan	2024 Plan	2025 Plan	2026 Plan	2027 Plan	2028 Plan	2029 Plan	2030 Plan	2021 2030 Total	Health & Safety & Legislated	SOGR	Growth & Improved Service
	New Projects														
CY001	Digitization Support Services	585										585			585
CY002	MSSP	3,202	351	468								4,022			4,022
CY003	Forensics	117	117	117								351			351
CY004	Cyber Command Centre		8,777	8,777								17,554			17,554
CY005	Infrastructure - Vulnerability Scanning	117										117			117
	Total Expenditures (including carry forward from 2020)	4,021	9,245	9,362								22,628			22,628

Appendix 6a

2021 Cash Flow and Future Year Commitments Including Carry Forward Funding

Project Code	(In \$000s)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total 2021 Cash Flow & FY Commits	Previously Approved	Change in Scope	New w/ Future Year
	New Projects														
CY001	Digitization Support Services	585										585			585
CY002	MSSP	3,202	351	468								4,022			4,022
CY003	Forensics	117	117	117				1				351			351
CY004	Cyber Command Centre		8,777	8,777				Ì				17,554			17,554
CY005	Infrastructure - Vulnerability Scanning	117		,								117			117
	Total Expenditure (including carry forward from														
	2020)	4,021	9,245	9,362								22,628			22,628

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Appendix 6b

2022 - 2030 Capital Plan

Reporting on Major Capital Projects: Status Update

N/A

Appendix 8

Summary of Capital Needs Constraints

N/A

Appendix 9

2021 User Fee Changes (Excludes User Fees Adjusted for Inflation)

Inflows and Outflows to/from Reserves and Reserve Funds 2021 Operating Budget

Program Specific Reserve / Reserve Funds

Reserve / Reserve		Contributio	ns / (With	drawals)
Fund Name		2021	2022	2023
XQ1003	Beginning Balance	32,134	31,751	31,369
Water Stabilization	Withdrawals (-)			
	Office of the Chief Information Security Officer Withdrawals - Operating	-383	-383	-383
	Other Division/Agency Withdrawals - Operating	0	0	0
	Office of the Chief Information Security Officer Withdrawals - Capital	0	0	0
	Other Division/Agency Withdrawals - Capital	0	0	0
	Total Withdrawals	-383	-383	-383
	Contributions (+)			
	Office of the Chief Information Security Officer Withdrawals - Operating	0	0	0
	Other Division/Agency Contributions - Operating	0	0	0
	Contributions - Other	0	0	0
	Total Contributions	0	0	0
	Total Reserve / Reserve Fund Draws / Contributions	-383	-383	-383
	Balance at Year-End	31,751	31,369	30,986

Corporate Reserve / Reserve Funds

N/A

Inflows and Outflows to/from Reserves and Reserve Funds 2021 – 2030 Capital Budget and Plan

Glossary

Approved Position: Permanent or temporary positions that support the delivery of City services and service levels as approved by Council.

Actuals: An actual financial amount paid (or received) for the delivery of City services (these exclude any commitments to be paid in the future).

Capacity to Spend: Ability to spend money along with the capacity to deliver projects as demonstrated by historic spending patterns and approved contractual obligations.

Capital Budget: A Capital Budget is the City's plan to acquire / build assets or extend the useful life of existing assets; an example of a capital expenditure is the construction of a new community centre.

Capital Needs Constraints: The capital needs that cannot be accommodated within the capital plan that the Division or Agency have the capacity to deliver.

Complement: Positions that support the delivery of City services and service levels as approved by Council.

Efficiencies: Reductions in the cost of delivering a service without a reduction in service level.

New / Enhanced: New and enhanced service changes resulting in an increase in service levels from what was previously approved by Council.

Operating Budget: An Operating Budget is the City's annual plan to provide services to the residents of Toronto; the budget includes all revenues and expenses needed to provided services; an example of an operating cost would be the cost to run the TTC subways.

Operating Impact of Completed Capital Projects: The additional expense (or savings) and positions needed to operate or maintain a new asset; an example would be the additional expense and staff needed to operate a recently completed community centre.

Rate Supported Budget: Budget fully funded by user fees such as Solid Waste, Toronto Water and Toronto Parking Authority

Staff Recommended Operating / Capital Budget: An operating or capital budget recommended by City Manager and Chief Financial Officer and Treasurer to City Council for consideration and approval.

State of Good Repair (SOGR): The cost of maintaining assets to ensure they are able to support the delivery of City services and meet service outcomes

Tax Supported Budget: Budget funded by property taxes.

User Fees: Program generated fee and rental revenue for the use of its services (such as the TTC fare, ice rental fees and various City permits).

Value Based Outcome Review (VBOR): The City conducted a Value Based Outcome Review in 2019 for all of its operations and agencies to identify specific opportunities and strategies to maximize the use of tax dollars, enhance its financial sustainability while achieving service outcomes. These opportunities will help the City chart its financial course in the next four years.

Voluntary Separation Program – On July 28th, 2020, City Council approved the implementation of a Voluntary Separation Program for staff who are eligible to retire with an unreduced pension providing a lump sum payment of up to three months' salary to eligible employees, subject to the terms of the program guidelines, funded through savings generated from a combination of permanently eliminating vacated positions and/or holding the positions vacant for a minimum of six months.