

## Data Analytics Program Update

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### EXECUTIVE SUMMARY

The purpose of this report is to provide an update of the City Auditor's Office Data Analytics Program to inform Audit Committee on the upcoming launch of three new service approaches. The City Auditor's Office (CAO) overall data analytics initiative was endorsed by Audit Committee in 2016. Since that time, new data analytic tools have been implemented, more than 75 scripts have been developed, three CAO dedicated resources have been allocated and preparation has occurred to confidently launch the following expansion of services:

#### Continuous Auditing

This auditing service will report to Audit Committee on a quarterly basis trending results from continuous data monitoring on selected specific areas of transactional data to monitor operational compliance.

#### Risk Based Analytics Reporting

This auditing service will be guided by new or escalating risk areas, and will answer, based on a deep dive analysis of data, whether Administration's specific objectives and outcomes are being achieved through effective risk management. The new methodology will provide greater agility and improved timeliness in reporting.

#### Data Analytics Advisory Services

This advisory service will support Administration's data analytic advisory requests, as well as continuing to utilize data analytic tools to enhance the efficiency and effectiveness of our risk-based audits, and investigations related to the delivery of the Whistle-blower Program.

Over the long term, it is anticipated that significant benefits will be provided through the delivery of these new expanded services to both Administration and Council through the provision of broader risk assurance, and timely identification of non-compliance activity.

### ADMINISTRATION RECOMMENDATION

1. That Audit Committee receive this report for the Corporate Report.

### PREVIOUS COUNCIL DIRECTION / POLICY

Bylaw number 48M2012 "Audit Committee Bylaw" states in section 1 g) Audit Committee "oversees the integrity of The City's system of internal controls, legal compliance regarding financial matters, Codes of Conduct, and other policies, as determined by the Audit Committee" and in section 6 a) The Audit Committee "monitors Administration's compliance with existing policies and legislation".

Bylaw 30M2004 (as amended) established the position of City Auditor and the powers, duties and functions of the position. The City Auditor is accountable to Council and subject to the oversight of Audit Committee under Bylaw 48M2012 (as amended).

### BACKGROUND

In 2016, the CAO received approval from Audit Committee to support a focused initiative on the development and application of data analytics. In the CAO's One Calgary submission, Council's

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expectation of minimum level of service provided by the CAO has been identified as being directly aligned with the expanding level of City Services. The CAO proactively adjusted delivery services in order to build greater resiliency to meet Council's increased requirements and further support good governance and the trust implicit within the Citizen Priority of a Well-Run City.

The CAO purchased Galvanize Analytics, Power BI and added additional server capacity to enable better data analysis and stronger visualizations of data. The CAO uses analytics gleaned from City data to provide greater insight into areas of potential risk exposure which support all aspects of the mandate to deliver effective assurance, advisory and investigative services. To accomplish this, the CAO originally dedicated and defined two new roles to this initiative, who have collectively developed and maintained over 75 scripts. In April 2020, a Senior Data Analytics Auditor was added to this program to support launch and delivery of continuous auditing and risk-based data analytic reporting.

### **INVESTIGATION: ALTERNATIVES AND ANALYSIS**

In 2019, The CAO conducted a pilot program across three data analytic desktop reviews. The pilot program was successful from the perspective of both Administration and the CAO. Results of the pilot confirmed the reliability of the data and analysis and Administration indicated they found the CAO reporting provided insight that guided opportunities for improving compliance and operational efficiency. Each of the desktop reviews were completed in less than 50% of the average elapsed time of a traditional audit and did not require a significant amount of support time from the business under evaluation.

The CAO is now expanding its service lines in 2020 upon obtaining an additional staff resource with the launch of the following:

#### Continuous Auditing

This auditing service will continuously monitor areas of inherent risk exposure and provide quarterly compliance assurance and trending on selected areas of focus via quarterly scorecard reporting. For the 2020 year, the first scorecard will occur by year-end.

By using data-driven indicators of risk and electronic testing of controls, we will provide Administration with ongoing independent assurance that focused control systems are working effectively, and risk is appropriately managed through compliance. This will assist Administration in their oversight to identify areas where internal controls may be inadequate and enhance a risk-control mindset. The CAO will continue to monitor this data over a period of time. If results from continuous auditing indicate areas of anomalies are increasing, then a formal compliance audit by the CAO may result.

As the CAO is independent and should not be considered as a management control, we will share our continuous auditing scripts with Administration where they are relevant and could enhance existing administrative monitoring tools.

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### Risk Based Analytics Reporting

This auditing service will focus on analysis of data to answer whether Administration's specific objectives and outcomes are being met. This independent and objective analysis will provide timely insight to Administration and will deliver targeted assurance to Council through Audit Committee briefings. Assurance will be provided using a data-driven approach that will include data analysis across multiple city systems. Although coverage cannot be applied to every objective/risk exposure, this approach has the advantage of being more agile and responsive than a traditional risk-based audit with less burden on Administration.

Selected topics for analysis will be discussed with Administration prior to commencing the risk-based analytics

### Data Analytics Advisory Services

This advisory service will provide data analytics driven services as requested by Administration, in addition to supporting traditional audits, and whistle-blower investigations. The purpose of data analytic advisory services is to provide insight and analysis of data to reduce risks, improve risk strategies, identify business trends and improve overall business decision making.

### **Stakeholder Engagement, Research and Communication**

We will engage with Administration on an ongoing basis to communicate our new service approaches and to ensure we continue to deliver value. To date we received full support from IT and associated data owners who have assisted us with install of our data analytic software, and provided us with inquiry access to requested data warehouses.

### **Strategic Alignment**

The Data Analytics Program and the delivery of the expansion of service will further assist Council and Audit Committee in their oversight of Administration and its accountability for stewardship over public funds and in achieving value for money in City operations.

### **Social, Environmental, Economic (External)**

N/A

### **Financial Capacity**

#### **Current and Future Operating Budget:**

The planned launch of the desktop review program is funded within the existing operating budget of the CAO.

#### **Current and Future Capital Budget:**

N/A

### **Risk Assessment**

The activities of The CAO serve to promote accountability, mitigate risk, and support an effective governance structure. The Data Analytics Program will improve effective risk management, through timely and increased notification of non-compliance activity.

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**REASON FOR RECOMMENDATION:**

Bylaw 48M2012 (as amended) states: "In accordance with Bylaw 30M2004, oversees and ensures the accountability of the City Auditor on behalf of Council".

**ATTACHMENT**

1. Data Analytics Program Update