Audit Committee
Audit Analytics Team

2020 Mid-Year Audit Analytics Update
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Continuous auditing is a method to identify and analyze risks through automated, scheduled analysis of the city’s financial and process data.

- Connect to and analyze information.
- Report results through an internal dashboard and memos.
Agenda

- Continuous audit and risk analytics update.
- Risk-finding analytics that informed 2020 audits.
- New risk assessments and improvements.
- Audit support.
- Community engagement and internal training.
Continuous Audit Update

In 2020, we monitored previously implemented continuous audit scripts in seven areas. Data set and records include:

- **GenTax** – 915,863
- **Short-term rentals** – 2,059
- **Purchase cards** – 194,410
- **Travel cards** – 24,610
- **Purchase orders** – 120,727
- **Unauthorized purchase** – 699
- **Expense reports** – 25,100
- **Supplier invoices** – 271,200
Continuous Audit: GenTax

- Write-offs: Segregation of duties is working as intended.
- Timeliness of accepting tax returns: Over 98% of tax returns are accepted within seven days.
GenTax Processing: Returns Processed within Seven Days

Source: Auditor’s Office analysis of GenTax records.
On March 10, 2020:

- Nonessential travel suspended.
- Large public gatherings cancelled.
- Employees directed to work from home when possible.
Travel Card Purchases Over Time*

Source: Auditor’s Office analysis of purchase card data.
*These metrics are used only for risk assessment purposes and may require additional audit work to validate.
Continuous Audit: Purchase Cards

- Purchase card spending declined starting in March 2020.
- Split transactions appear to be decreasing.
- Pass-through vendor spending continues to grow.
Purchase Card Pass-Through Vendors*

Source: Auditor’s Office analysis of purchase card data.

*These metrics are used only for risk assessment purposes and may require additional audit work to validate.
Continuous Audit: Supplier Invoices

Physical checks held for pickup

- Trend continues downward.
- Less variation in monthly count since 2019.
Spending Using Checks Held for Pickup

Source: Auditor’s Office analysis of supplier invoice data.

*These metrics are used only for risk assessment purposes and may require additional audit work to validate.
Unauthorized Purchase Orders

• After-the-fact and code violations have decreased from their relative high point in April and June of 2018. Average of less than five violations per month has held steady through June 2020.

• Fiscal rule violations declined through January 2019 but steadily increased in the second quarter of 2020.
Count of Unauthorized Purchases

Source: Auditor’s Office analysis of standard comments report.

*These metrics are used only for risk assessment purposes and may require additional audit work to validate.
Purchase Orders

• Duplicates with purchase cards and travel cards.
• Geolocation of shipping addresses.
• Results reported internally.
Our risk analyses informed audits in 2020:

- **Denver Public Library**: Even-dollar purchase order analysis.
- **Travel Expenses**: Analysis of travel card and travel-related expense reports.
- **Base Salary and Merit Allocations**: Focus on gender and race.
• We performed an even-dollar analysis on purchase orders: Payments were being made to performers outside the purchasing process.

• We provided audit support for payroll approval and identified a 93% compliance rate for payroll approvals.
Travel Cards:

- Using merchant category codes, we identified high-risk transactions for the team to review.
- We reduced the number of transactions from nearly 24,000 to 500.
Travel Expenses Audit*

• Analyzed travel-related expense reports.
• Used composite model of three risk factors.

Source: Auditor’s Office analysis of expense reports.  
*These metrics are used only for risk assessment purposes and may require additional audit work to validate.
Risk-Finding Analytics: Base Salary and Merit Allocation Audit

• We used a regression analysis to examine equity questions related to:
  o Base salary within job codes and across agencies.
  o Merit allocations.

• Conclusions will be presented at a future Audit Committee meeting.
New Analytics and Improvements

• **Journal Entries on Financial Data – Risk Finding Analytics.**
  - Focus on manual entries.
  - Multiple risk assessors.

• **Tested and Improved Analytics’ Accuracy and Reporting – Continuous Audit and Risk Finding Analytics.**
  - Compared high-risk outputs to general population.
  - Summarized all previous risks assessment analytics by agency.
Audit Support

• Syringe Access and Sharps Disposal Programs: Mapping syringe, drug use, and overdoses.
• Denver Art Museum: Survey and sampling support.
• Travel Expenses: Analysis, sampling, testing, and review.
• Base Salary and Merit Allocations: Analysis and sampling support.
Community Engagement and Training

Conferences

• Association of Certified Fraud Examiners’ National Conference.
• Association of Local Government Auditors’ 2020 Summer Series.

Internal Training

• Attribute development.
• Arbutus audit software.
• Excel.
• Tableau.
Next Steps

- Complete journal entry analytics.
- Develop risk analytics to examine expenses on non-working days.
- Begin risk assessment of COVID-related expenses.
- Analyze hiring and performance measures.
- Continue to cross-train auditors to expand data skills.
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