

# City of Springfield

Report on Data Analytics Procedures – Analysis of  
Purchasing Card Data

December 2, 2020



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Purchasing Card Data**

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Mr. David Holtmann  
Director of Finance  
City of Springfield  
218 E. Central  
Springfield, MO 65802

We have performed data analytics procedures related to the employee and purchasing card data of the City of Springfield (the City). Our work was limited in scope and not intended to be a complete review of all transactions, operations and procedures. Therefore, our procedures would not necessarily disclose all improprieties or errors. The City's management is responsible for the design and implementation of programs and controls to prevent and detect fraud.

These procedures do not constitute an audit and, accordingly, we are not expressing an opinion on the City's financial statements. This report is limited solely to providing management with the results of the data analytics procedures for follow-up and makes no final representations as to conclusions of any potential improprieties, errors or unusual transactions.

We have relied on information supplied to us in performing the analysis contained in this report. If additional information should come to our attention at a later date, our report could change. We reserve the right to modify this report if additional information is provided but are not required to do so.

This report is solely for the use of the City's management and should not be used by any other party for any other purposes. This report is the property of **BKD, LLP**. If any party intends to publish or otherwise reproduce this report and make reference to our firm name, BKD must be provided with the printer's proofs or masters for our review and approval before printing or other reproduction and provided with a copy of the final reproduced material for our approval before it is distributed, including posting our report on any website.

We greatly appreciate the opportunity to assist with this project. Please let us know if you have any questions.

**BKD, LLP**

*BKD, LLP*

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## Data Mining Procedures

We are pleased to offer this report to the City of Springfield (the City), which outlines the data analytics services we performed related to your employee and purchasing card data. The City provided us with employee master and purchasing card detail files (the “Files”) in electronic format. A summary of these files is below:

### Summary of Files

File	Applicable Date Range
Employee master – active	As of July 7, 2020
Employee master – terminated	As of July 7, 2020
Purchase card detail – BOA	June 28, 2016 – August 29, 2019
Purchase card detail – US Bank	March 12, 2019 – March 30, 2020

The employee master – active file contained 4,577 employees. The employee master – terminated file contained 998 employees who had been terminated between April 18, 2019 and June 25, 2020. Our analysis also included purchasing cards encompassing 172,809 payments during the period June 28, 2016 through March 30, 2020.

We analyzed the Files to identify patterns potentially indicative of irregularities, errors or fraud. We provided our results to management to review, and BKD performed research as necessary related to the patterns identified.

The procedures we performed, along with the risks assessed, are below:

Employee and Purchasing Card Data	Procedure	Risks Assessed
	Identify transactions on weekends or holidays	IP, PU
	Identify transactions on employee PTO/vacation days	IP, PU
	Identify transactions at high risk merchants	IP, PU
	Identify potential split transactions	IP
	Identify payments over authorized spending limits	IP
	Identify potential gift card purchases	IP, PU
	Identify unusual purchases in line item detail	IP, PU
	Analyze for compliance with the City’s policies	IP

### Risks Assessed Legend

PU = Personal Use  
 IP = Inappropriate payments

### Analysis of Purchasing Card Data

Our analysis of purchasing data focused on identifying characteristics indicative of personal transactions and abuse. The remainder of this section summarizes the key results of our testing of purchasing card data and is not intended to be an exhaustive discussion of tests performed. We provided detail of our results to management for review, and BKD performed follow-up on the patterns identified.

## Transactions on Unusual Dates

- **Weekends:** In organizations where normal operating days are Monday through Friday, the use of purchasing cards on a weekend can be indicative of potential personal use of a card. Exceptions to this include the use of purchasing cards by maintenance or other employees required to work on a weekend, or emergency purchases. It is important to note, we used the transaction date in this analysis rather than the date the charge posted. In the US Bank detail, we noted 3,167 weekend transactions totaling \$508,182.69. Fifty individual cardholders had more than 20 percent of their transactions occur on a weekend. In the Bank of America detail, we noted 8,591 weekend transactions totaling \$1,290,263.93. Sixty-five individual cardholders had at least 20 percent of their transactions occur on a Saturday or Sunday.

BKD requested the supporting documentation for multiple weekend transactions from both the US Bank detail and the Bank of America detail, which included monthly bill payments, travel expenses and various retail purchases. The weekend transactions for which we analyzed the supporting documentation included the required detailed receipt/invoice and expense report signed by the cardholder and the cardholder's approver. The expense reports included a documented business purpose for the transactions, and the transactions did not appear to be personal and/or inappropriate.

- **Holidays:** In organizations closed on holidays, the use of purchasing cards on these dates can be indicative of potential personal use of a card. Similar to weekend transactions, exceptions to this include the use of purchasing cards by maintenance or other employees required to work on a holiday, or emergency purchases. It is important to note, we used the transaction date in this analysis rather than the date the charge posted. In total, we identified 388 holiday transactions from US Bank totaling \$83,564.97. Ninety-three of these transactions occurred on major holidays (New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, or Christmas) totaling \$17,801.45. We noted 1,110 holiday transactions from Bank of America totaling \$262,927.80 occurring on a holiday. Of these, 225 occurred on a major holiday totaling \$52,727.66.

BKD requested the supporting documentation for multiple holiday transactions from both the US Bank detail and the Bank of America detail, which included monthly bill payments, fuel/travel expenses, a computer software upgrade purchase, a team retreat purchase, and various retail/online purchases. The holiday transactions for which we analyzed the supporting documentation included the required detailed receipt/invoice and expense report signed by the cardholder and the cardholder's approver. The expense reports included a documented business purpose for the transactions and the transactions did not appear to be personal and/or inappropriate. There were several holiday transactions where the invoice/receipt indicated that the purchase actually occurred a day or so before the holiday, but the activity did not appear on the purchasing card account until the day of the holiday (this was typically observed for online purchases). For the holiday transactions where the invoice/receipt indicated that the purchase actually occurred on the holiday, the expense report indicated that either the purchase was for a department that would operate on a holiday, such as the Fire Department, or the purchase was for items that appeared to be appropriate for the operations of the particular department, such as birthday supplies for the Children Family Center.

- **Shopping Holidays:** In addition to standard holidays, Black Friday and Cyber Monday, the "shopping holidays" on the Friday and Monday following Thanksgiving Day, are high risk dates for personal use on purchasing cards. While these are weekdays when many

organizations are open, we recommend additional scrutiny of transactions on these dates. We noted 182 transactions totaling \$49,422.77 that occurred on a shopping holiday in the US Bank detail. From the Bank of America detail, we noted 478 transactions totaling \$121,222.24 occurring on a shopping holiday.

BKD requested the supporting documentation for multiple shopping holiday transactions from both the US Bank detail and the Bank of America detail, which included a payment for a marketing related trivia show sponsorship, a fuel cards purchase, and various retail/online purchases. The shopping holiday transactions for which we analyzed the supporting documentation included the required detailed receipt/invoice and expense report signed by the cardholder and the cardholder's approver. The expense reports included a documented business purpose for the transactions and the transactions did not appear to be personal and/or inappropriate.

- **PTO Transactions:** In addition to weekends and holidays, use of purchasing cards on a day of PTO can be indicative of potential personal use of the card. It is important to note, we used the transaction date in this analysis rather than the date the charge posted. Upon examination of the US Bank detail, we identified 1,082 transactions totaling \$386,555.07 that occurred when an individual was on PTO. There were nine individuals who had total payments exceeding \$10,000. In the Bank of America detail, we noted 1,564 transactions totaling \$461,672.54 that occurred when an individual was on PTO. There were six individuals who had total payments exceeding \$10,000.

We requested the supporting documentation for multiple PTO transactions from both the US Bank detail and the Bank of America detail, which included monthly bill payments, a fuel expense, a team retreat purchase, and various retail/online purchases. The PTO transactions for which we analyzed the supporting documentation included the required detailed receipt/invoice and expense report signed by the cardholder and the cardholder's approver. The expense reports included a documented business purpose for the transactions and the transactions did not appear to be personal and/or inappropriate. There were several PTO transactions where the invoice/receipt indicated that the purchase actually occurred a day or so before the PTO day, but the activity did not appear on the purchasing card account until the PTO day (this was typically observed for online purchases).

### **Transactions at High Risk Merchants**

Certain merchants are considered higher risk related to purchasing card activity due to the nature of the merchants. Some of the merchants considered high risk include Paypal, Apple, Kindle, iTunes, Xbox, Square, Facebook, and other online vendors (WWW. or .COM in the name). For US Bank, we identified 3,484 transactions, across 462 cardholders, totaling \$690,696.08 paid to high risk merchants. We noted seven individuals who had more than 50 percent of their transactions with a single high-risk merchant. In the Bank of America detail, we identified 7,195 transactions, across 586 cardholders, totaling \$1,318,617.36 paid to high risk merchants. We noted six individuals who had more than 50 percent of their transactions with a single high-risk merchant.

BKD requested the supporting documentation for multiple high-risk merchant transactions from both the US Bank detail and the Bank of America detail, which included purchases from Paypal, Square, and other online vendors. The high-risk merchant transactions for which we analyzed the supporting documentation included the required detailed receipt/invoice and expense report signed by the cardholder and the cardholder's approver. The expense reports included a documented business purpose for the transactions and the transactions did not appear to be personal and/or inappropriate.

## Potential Split Transactions

The City’s Purchasing Card Manual states, “A purchase split into two or more purchasing card transactions to avoid the prescribed limit is strictly prohibited...” We obtained a listing of the individual transaction limits and looked for instances of transactions being split to circumvent the purchasing limit. If an individual did not have a supplied transaction limit, we assigned \$5,000 as the limit. We analyzed the transaction detail to identify instances where an individual went to the same merchant on the same day and the transactions were individually below the assigned limit, but in aggregate were above the assigned limit. In the US Bank detail, we noted 226 transactions totaling \$265,440.55 that are potentially split transactions. This occurred across 34 cardholders. For Bank of America, we noted 64 transactions totaling \$90,779.54 across 13 cardholders.

BKD requested the supporting documentation for multiple potentially split transactions from both the US Bank detail and the Bank of America detail, which included monthly bill payments, two purchases made for a door installation, and two purchases made for E.coli analysis supplies. The monthly bill payments for which we analyzed supporting documentation appeared to be for Verizon bills with different account numbers and, therefore, did not appear to be split transactions. The two purchases made for E. coli analysis supplies occurred on the same day, but appear to be due to the vendor splitting the order into two shipments. However, the two purchases made for the door installation were made to the same vendor on the same date and appear to be a split transaction.

## Payments over Authorized Spending Limit

The City’s Purchasing Card Manual states, “Each transaction must not exceed \$5,000 or the cardholder’s assigned transaction limit, whichever is less.” By analyzing the US Bank detail, we identified 21 transactions totaling \$56,501.14 across 17 cardholders where the individual made a purchase above the authorized limit. We noted three individuals who had more than one transaction over their assigned limit. During the transition of the City’s p-card program from Bank of America to US Bank, the purchase limit on many cards were changed to \$1 to prevent the cards from being used. Therefore, we were unable to analyze Bank of America purchasing card detail for transactions where purchases were above the authorized limit.

BKD requested the supporting documentation for multiple transactions over the assigned spending limit from the US Bank detail, which included travel expenses and the purchase of washers and dryers. The transactions over the assigned spending limit for which we analyzed the supporting documentation included the required detailed receipt/invoice and expense report signed by the cardholder and the cardholder’s approver. The expense reports included a documented business purpose for the transactions and the transactions did not appear to be personal and/or inappropriate. Exceptions to the assigned limit appeared to have been approved for these transactions.

## Gift Card Purchases

One possible indication of personal use of a purchasing card is the purchase of gift cards. Though there can be legitimate purchases of gift cards for business purpose (*i.e.*, incentive programs for employees), they are frequently abused in many organizations. We analyzed the data for transactions in a round \$25 increment paid to merchants with a retail merchant category code. In the US Bank detail, we noted 221 potential gift card purchases totaling \$93,875. We noted five individual cardholders who had at least five transactions fitting this definition. We identified 775 transactions totaling \$297,050 that are potential gift card purchases in the Bank of America detail. We noted 21 individuals who had at least five transactions fitting this definition.

BKD requested the supporting documentation for multiple potential gift card transactions from both the US Bank detail and the Bank of America detail. The potential gift card transactions for which we analyzed the supporting documentation included the required detailed receipt/invoice and expense report signed by the cardholder and the cardholder’s approver. The expense reports included a documented business purpose for the transactions and the transactions did not appear to be personal and/or inappropriate. Only three of those transactions were for actual gift cards. The supporting documentation for those three transactions also included a log that was signed by each recipient of a gift card.

## Analysis of Line Item Purchase Detail

When the data is available, it is beneficial to examine line item purchase detail for key words that can be associated with personal use. We looked for words indicative of purchases in the following categories: gifts, electronics, alcohol, entertainment, clothing, furniture and donations. Upon examination of the US Bank data, we noted 962 transactions totaling \$114,390.92 falling into one of these categories. The category of electronics had the highest total payment amount of \$33,460.89. In the Bank of America detail, we identified 1,980 transactions totaling \$205,986.51. The furniture category had the highest payment amount of \$76,093.26.

BKD requested the supporting documentation for multiple transactions in an assigned category from both the US Bank detail and the Bank of America detail. The transactions in an assigned category for which we analyzed the supporting documentation included the required detailed receipt/invoice and expense report signed by the cardholder and the cardholder’s approver. The expense reports included a documented business purpose for the transactions and the transactions did not appear to be personal and/or inappropriate.

## Compliance with the City Policies

The City provided BKD with a copy of the Purchasing Card Manual. After reading this manual, BKD performed additional procedures to search for characteristics that might indicate violation of certain City policies. The following additional procedures were performed:

- **Telecom or Computer Purchases:** The City’s policies strictly prohibit telecommunications equipment, computer hardware, and software purchases unless coordinated with Information Systems and the Purchasing Division. In the US Bank detail, we noted 1,495 transactions totaling \$892,096.74 with a Merchant Category Code associated with telecom or computer purchases. We noted three individuals with total purchases over \$50,000. Upon analysis of the Bank of America detail, we noted 3,855 transactions totaling \$2,173,821.62 associated with a Merchant Category Code related to telecom or computer purchases. We noted nine individuals who had total purchases over \$500,000.

BKD requested the supporting documentation for multiple telecom and computer transactions from both the US Bank detail and the Bank of America detail. The telecom and computer transactions for which we analyzed the supporting documentation included the required detailed receipt/invoice and expense report signed by the cardholder and the cardholder’s approver. The expense reports included a documented business purpose for the transactions and the transactions did not appear to be personal and/or inappropriate.

- **Potential Airline Add-Ons:** The City’s policies state only two checked bags may be expensed and upgrades are not allowed for flights. We looked for transactions associated with airlines over \$70 and less than \$100. Upon analysis of the US Bank detail, we identified three potential airline add-on purchases totaling \$238.28 across three accounts.

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In the Bank of America detail, we identified five potential airlines add-on purchases totaling \$411.91 across five accounts.

BKD requested the supporting documentation for one potential airline add-on transaction from the US Bank detail and one potential airline add-on transaction from the Bank of America detail. The supporting documentation provided indicated that both transactions were for a flight change fee and not an airline add-on. The expense reports for these transactions were approved by the cardholder's supervisor.

- **Transactions with Sales Tax:** Because the City is exempt from sales tax, the purchasing card policy states, "Cardholders should make every effort to ensure sales tax is not charged on City purchases..." The US Bank information included sales tax detail. We identified 6,079 transactions with sales tax totaling \$67,915.34. We noted three individuals had over 100 transactions with sales tax. The Bank of America information did not include sales tax detail.

BKD requested the supporting documentation for multiple transactions with sales tax from the US Bank detail. After analyzing the supporting documentation, it appeared that the sales tax information from the US Bank detail differed from the sales tax information on the receipts/invoices. There were some cases where the receipt/invoice indicated that no sales tax was paid despite the information from the US Bank detail indicating sales tax was paid, as the sales tax was deducted from the payment or later refunded. There were some cases where the receipts/invoices for transactions we analyzed for other reasons discussed in previous paragraphs indicated sales taxes were paid despite the information from the US Bank detail indicating sales tax was not paid.

Thank you for the opportunity to assist you with this assessment of p-card transactions. We are happy to answer any questions you may have.