



City of Phoenix

Mission Statement

To improve the quality of life in Phoenix through efficient delivery of outstanding public services.

Project Team

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Project Number

1240048

This report can be made available in alternate format upon request.

Citywide Broadband Circuits

May 17, 2024

Report Highlights

Broadband Circuit Expenditures

Some circuits were billed rates that did not match the State of Arizona Carrier Broadband Contract. The City could realize annual savings of approximately \$32,000 once all circuits align with the current contract.

Broadband Circuit Management.

Departments correctly placed orders for broadband circuits through the required Telecom Service Requests (TSR) process.

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Executive Summary

Purpose

Our purpose was to determine whether fees charges by broadband service providers aligned with cooperatively negotiated contracts.

Background

In July 2016, City Council authorized the City to enter into an agreement with various telecommunication service providers to disburse funds related to Citywide broadband expenses. In May 2020, the State of Arizona conducted a new solicitation and awarded the Carrier and Broadband Provider Services contract to 11 Internet Service Providers (ISP). The agreement provided the ability for the State to procure broadband services from any of the chosen providers based on geographic availability as well as reduced rates. The contract, initially set for a 3-year term was renewed for two additional years through June 30, 2025.

The City is a member of the State of Arizona Cooperative program and is authorized to leverage over 900 statewide contracts. In June 2021, The City of Phoenix entered into a Letter of Agreement (LOA) with CenturyLink Communications, LLC dba Lumen Technologies Group (Lumen) as well as Cox Arizona Telecom, LLC (Cox). The linking agreements carried a one-year term and have been renewed annually through the end of fiscal year 2024. In June 2023, the City Council authorized \$17,700,000 for telecom services, including broadband circuits.

Examples of how the City uses broadband service providers include:

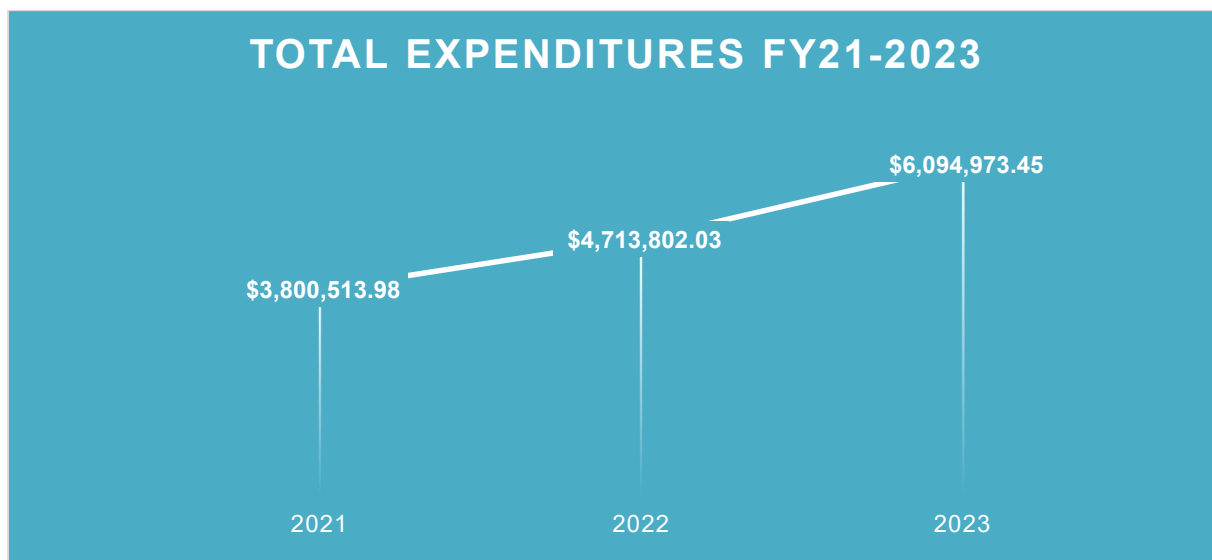
- Provide staff and residents access to the internet
- Allow staff and contractors access to City resources remotely via VPN

The procurement of broadband circuits is handled by the Information Technology Services Department (ITS) and each City department has a designated telecom liaison that is responsible for creating and submitting requests.

In fiscal year 2023, the City paid approximately \$6.1M to Cox and Lumen for various telecom services which represents 34% of its payment ordinance of \$17.7M.

As technology evolves, the City continues to invest in broadband services to enhance its infrastructure. We have provided the total amounts paid to our two primary providers over the past three fiscal years.

Total payments to Broadband Service Providers FY21-23



Broadband expenses have increased by 60% since 2021.

Results in Brief

Overall, most circuit charges aligned with contracted rates.

The City has a total of 13 internet access circuits. Our review showed that 7 of the 13 (54%) circuits are currently paying rates that do not match the contract in place at the time the circuit was implemented, as well as the current contract. We validated that the City procured those circuits at rates below the State contract price at the time of implementation; however, since newer rates have been published on the current contract, the City can recognize additional savings at the next renewal. We calculate those savings to be approximately \$1,807 per month or \$21,000 annually.

In addition, the City has 261 metro ethernet circuits. We examined 24 metro ethernet circuits and found 18 circuit charges were accurate. Additionally, we identified 10 circuits that can recognize savings at the next renewal. We calculated those savings to be approximately \$914 per month or \$11,000 annually. Prior to the audit close, ITS successfully renewed all 10 metro-ethernet circuits at the correct rates.

We've listed a summary of our review in **Attachment A – Price Comparison Against State Contracts**.

Department Responses to Recommendations

<p>Rec. # 1.1: Work with Internet Service and Metro Ethernet Providers to modify the price plans for circuits that do not match the pricing outlined in the current Arizona State Contract for Carrier Communications Services.</p>	
<p>Response: ITS has already remediated all of the metro ethernet circuits detailed in this audit. Internet circuits are in process and will be completed 90 days from the publish date of this audit.</p>	<p><u>Target Date:</u> 08/17/24</p>
<p>Explanation, Target Date > 90 Days: [Type response here]</p>	
<p>Rec. # 1.2: ITS – Correct circuit information, such as contract end dates, in VeraSMART so that the tool reflects accurate information.</p>	
<p>Response: ITS will remediate by 12/31/24 because new staff is being on-boarded. New system has to be learned, there are current operational obligations, research and verification of over 500 lines.</p>	<p><u>Target Date:</u> 12/31/24</p>
<p>Explanation, Target Date > 90 Days:</p>	
<p>Rec. # 2.1: ITS – Update City IT Standard NT1.7 – <i>External Network Connections</i> Accountability Requirements to reflect current business practices</p>	
<p>Response: ITS will update the standard by 12/31/24.</p>	<p><u>Target Date:</u> 12/31/24</p>
<p>Explanation, Target Date > 90 Days: ITS is in the process of creating and revising many ITS standards. The process to create or revise, review, edit, and approve a standard takes longer than 90 days.</p>	

1 – Internet Circuit Expenditures

Background

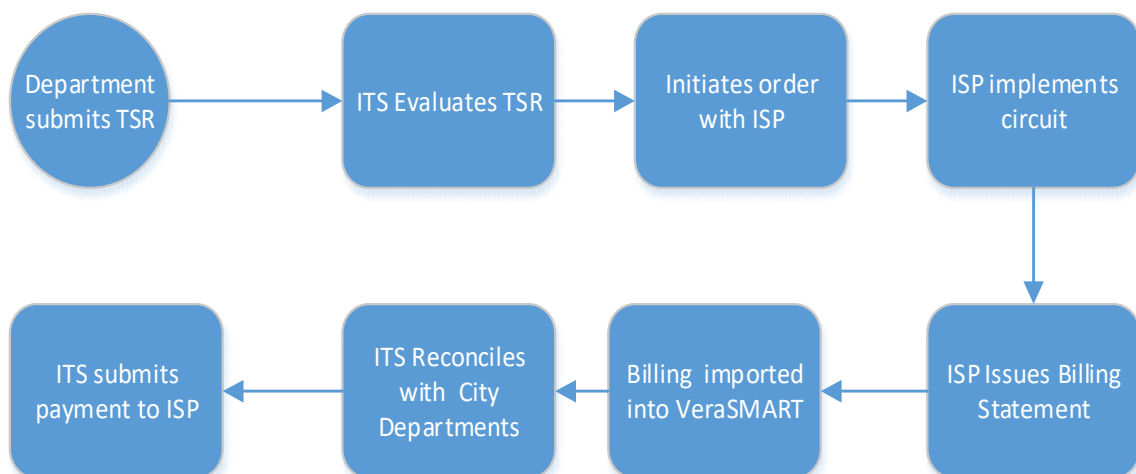
Administrative Regulation (A.R) 3.10 – *General Procurement Procedures* requires a linking or bridging agreement when procuring services from a public procurement authority. To comply with this provision, the City entered into a Letter of Agreement (LOA) with Lumen and Cox to authorize the purchase of telecommunications using the State of Arizona Carrier Broadband contract. The agreement authorized the City to purchase broadband circuits at negotiated prices including other terms and conditions.

The City connects its buildings through four primary types of circuits:

- **Dedicated Internet Access (DIA)** – Fiber connections to the internet provided by Lumen.
- **Cable Modem Internet** – Fiber connections to the internet provided by Cox.
- **Metro Optical Ethernet (MoE)** – Cox/Lumen branded connections that link two office buildings.
- **Digital Subscriber Line (DSL)** – low bandwidth installations using plain old telephone service (POTS) lines.

Listed below is a high-level illustration of how City departments procure internet circuits through Telecom Service Requests (TSRs). The process uses the City’s telecom billing system, VeraSMART.

Broadband Circuits Ordering Process



Invoices are paid by ITS with applicable journal entries to City Departments.

In fiscal year (FY) 2023, the City paid approximately \$6.1M to Cox and Lumen for various services:

FY23 Payments to Broadband Service Providers

Category	Cox	Lumen
Telephone	\$236,433	\$5,379,873
Cellular Phone Charges	\$290	\$2,678
Cable Television Charges	\$56,089	\$0
Long Distance Charges	\$0	\$770
Data Communication	\$140,724	\$249,902
Special Contractual Services	\$28,211	\$0
Total		\$6,094,973

The City paid \$6.1M which represents 34% of the payment ordinance of \$17.7M

Since broadband connections are generally billed with fixed rates, we compared the costs of a sample of circuits against the State of Arizona contract.

Results

Overall, most circuit charges aligned with contracted rates.

During FY23, the City was billed for 274 circuits that were established through either the 2016 agreement, or the 2020 agreement, each with separate pricing terms. We noted language in both contracts that allow the City to adopt the “*lowest corresponding price*,” which is defined as “*the lowest price that a service provider charges to non-residential customers, who are similarly situated customers for similar services.*” Based on this

stipulation, the service provider should have reduced the costs of circuits when the new carrier contract was signed in 2020 because the 2020 contract has lower prices.

Though the City has an overarching contract, each circuit order requires the execution of a Carrier Service Order (CSO) – a document signed by both sides stipulating terms and conditions such as price, minimum service period, and any one-time build costs. We compared the invoice charges, CSO documentation, and contract terms from the contract in place when the circuit was procured as well as the former contract to determine if the price charged was accurate, and if the City was receiving the lowest price offered by the service provider.

We reviewed 39 of the 274 circuits and noted a price discrepancy for 9 (23%) of the sampled circuits. A discrepancy indicates that the billed price was either higher or lower than the contract price. ITS staff noted challenges with getting service providers to modify pricing to align with the contracted rates before contract expiration; however, prior to audit close, we received confirmation that ITS modified the pricing for metro-ethernet circuits to match the state contract. ITS will continue working with the service providers to modify pricing for internet circuits. Since broadband circuits have varying start and end dates, the City needs to monitor contract terms and amend pricing to align with state-contracted rates. Of the 39 circuits reviewed, the City could save approximately \$32,000 per year if the lower rate was received, including the circuit rates modified during the audit.

A summary of our analysis is listed in **Attachment A – Price Comparison Against State Contracts**.

An application to manage the telecom budget is being used but contains some incorrect data.

In June 2021, the City entered into an agreement with Calero Software for the acquisition and maintenance of VeraSMART – a software-as-a-service (SaaS) expense management tool to help manage its telecom budget and reconcile charges with City departments. Calero personnel periodically import billing statements from the ISP's into the tool allowing ITS to reconcile charges and run reports. The portal contains an inventory of circuits including pricing, cost centers, and contract end dates. We found some data to be incorrect within the application including some contract expiration dates and contract numbers. ITS staff are aware of the data issues. Correcting the data will allow users of the application to proactively identify cost savings as the circuits become eligible for renewal. For example, users of VeraSMART can run a report to identify connections nearing contract expiration or those purchasing from legacy contracts to determine if a modification is warranted.

Recommendations

- 1.1 ITS – Work with Internet Service and Metro Ethernet Providers to modify the price plans for circuits that do not match the pricing outlined in the current Arizona State Contract for Carrier Communications Services.

1.2 ITS – Correct circuit information, such as contract end dates, in VeraSMART so that the tool reflects accurate information.

2 –Internet Circuit Management

Background

In 2008, the City formally transferred responsibility and authority of telecom circuits from Public Works to ITS through A.R 1.73 – *Control of Communications Services and Systems*. Subsequently, ITS published a Telecom Liaisons Manual instructing departments requesting a telecom circuit to submit that request through the City’s Enterprise Resources Planning system, SAP. In addition, City IT Standard NT1.7 – *External Network Connection* requires departments that currently have external network connections to submit a memorandum to the Chief Information Officer providing the following information annually each September:

- Description of the external network connection, including the business need it supports, city personnel authorized to use the connection, external agency personnel authorized to use the connection, data being transferred or exchanged, required hours of availability, current security procedures, current maintainer of the connection’s technical environment, and future plans.
- Physical location of the city end of the network connection, including the circuit number used by the data link carrier (i.e., Lumen, Cox, etc.).
- Physical location and circuit number of the external agency connection.
- Complete description of the connectivity involved in providing the network connection, including a diagram with components identified. This technical description should include make and model numbers for channel service/data service units, routers, bridges, or modems.

We interviewed personnel and performed testing on a sample of circuits to determine whether circuit orders are using the Telecom Service Request (TSR) authorization process. In addition, we requested evidence illustrating the completion of the most recent department memos as required by City IT Standard NT1.7 – *External Network Connection*.

Results

Requests for broadband circuits were documented as required by the Telecom Liaisons Manual.

The TSR is the first step in gathering stakeholder approvals and is intended to document technical and budgetary considerations for each broadband circuit. Once a TSR enters the ITS workflow, resources are assigned and ITS works with service providers to implement the circuit. We selected a sample of 15 circuits (representative of most city departments) and were able to trace 14 (93%) to the completion of a TSR.

The City IT Standard governing external network connections is outdated and does not reflect current practices.

City IT Standard NT1.7 – *External Network Connection* requires a memorandum to the Chief Information Officer documenting connections between the City network and external entities. The intent of the memo was to ensure that adequate security controls were in place for external connections. This policy was created in 1998 and not updated since 2006. Given that the responsibility for all internet circuits migrated to ITS in 2008, it became unnecessary for departments to issue a separate memo. In addition, the Business Investment Request Framework, required by A.R.1.94 – *Business Investment Framework*, considers security and accountability for IT investments that could connect to external entities. ITS staff noted that City IT Standard NT1.7 is outdated, and staff are updating the standard.

Recommendations

- 2.1 ITS – Update City IT Standard NT1.7 – *External Network Connections* Accountability Requirements to reflect current business practices.

Attachment A – Price Comparison Against State Contracts

Internet Access Circuits

Circuit Address	Bandwidth	Carrier	Billed Price	Old Contract Price	Current Contract Price	Price Plan Code
2936 N 36th St	CBI 10Mbps x 2 Mbps	Cox	\$55.00	\$69.00	\$ 54.00	AZIA-00001
400 W Southern	CBI 10Mbps x 2 Mbps	Cox	\$66.00	\$69.00	\$ 54.00	AZIA-00001
2425 W Lower Buckeye	CBI 1 Gbps x 35 Mbps	Cox	\$499.00	Not listed	\$ 585.00	AZIA-00014:2
615 N 48th St (Cox)	10 Gbps	Cox	\$2,850.00	\$22,145.00	\$ 3,670.00	AZIA-00087
3400 E Sky Harbor Blvd	1 Gbps	Lumen	\$2,200.00	\$6,470.00	\$ 1,000.00	AZIA-00078
1702 E Rental Car Way	1 Gbps	Lumen	\$2,200.00	\$6,470.00	\$ 1,000.00	AZIA-00078
3800 E Sky Harbor Blvd	50 Mbps	Lumen	\$700.00	\$1,267.00	\$ 400.00	AZIA-00065

ITS will continue working with the service providers to modify the price plans to match the state-contracted rates.

Metro Ethernet Circuits

Circuit Address	Bandwidth	Carrier	Billed Price	Old Contract Price	Current Contract Price	Price Plan Code
4032 N 59th Ave	20 Mbps	Lumen	\$ 330.00	\$ 330.00	\$ 250.00	AZCN-00541
4416 S 32nd St	20 Mbps	Lumen	\$ 330.00	\$ 330.00	\$ 250.00	AZCN-00541
16602N 40th St	20 Mbps	Lumen	\$ 330.00	\$ 330.00	\$ 250.00	AZCN-00541
150 S 12th St	10 Mbps	Lumen	\$ 310.00	\$300.00	\$ 225.00	AZCN-00537
20225 N 35th Ave	20 Mbps	Lumen	\$ 330.00	\$ 330.00	\$ 250.00	AZCN-00541
43814 N New River Rd	10 Mbps	Lumen	\$ 394.94	\$ 300.00	\$ 225.00	AZCN-00539
6215 N 15 th Ave	30 Mbps	Lumen	\$ 350.00	\$ 350.00	\$ 280.00	AZCN-00543
2680 S 28 th Dr	200 Mbps	Lumen	\$ 675.00	\$ 675.00	\$ 510.00	AZCN-00561
2701 E Squaw Peak Dr	7 Mbps	Lumen	\$ 245.00	\$ 245.00	\$ 220.00	AZCN-00531
28366 W Patterson Rd	20 Mbps	Lumen	\$ 330.00	\$ 330.00	\$ 250.00	AZCN-00541

Prior to audit close, ITS renewed the metro ethernet circuits in this table at the correct rates.

Scope, Methods, and Standards

Scope

We reviewed invoices from the telecommunication providers from July 2022 – June 2023 and compared them with rates in the State of Arizona Carrier Broadband Contract.

The internal control components and underlying principles that are significant to the audit objectives are:

- Control Activities
 - Management should design control activities to achieve objectives and respond to risks.
- Control Environment
 - The oversight body should oversee the entity's internal control system.
 - Management should establish an organizational structure, assign responsibility, and delegate authority to achieve the entity's objectives.
- Risk Assessment
 - Management should identify, analyze, and respond to significant changes that could impact the internal control system.
- Monitoring Activities
 - Management should remediate identified internal control deficiencies on a timely basis.

Methods

We used the following methods to complete this audit:

- Conducted a Citywide survey to understand responsibility for ordering circuits.
- Reviewed VeraSMART export of wireline circuit inventory.
- Interviewed personnel involved in the management of broadband circuits.
- Reviewed State of Arizona Carrier Broadband Contract pricing exhibits
- Conducted testing to determine if rates billed match the pricing exhibits.

Unless otherwise stated in the report, all sampling in this audit was conducted using a judgmental methodology to maximize efficiency based on auditor's knowledge of the population being tested. As such, sample results cannot be extrapolated to the entire population and are limited to a discussion of only those items reviewed.

Data Reliability

The data from the City's financial management system, SAP, was previously determined to be reliable through an independent audit review.

Standards

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Any deficiencies in internal controls deemed to be insignificant to the audit objectives but that warranted the attention of those charged with governance were delivered in a separate memo. We are independent per the generally accepted government auditing requirements for internal auditors.