



OFFICE OF THE CITY AUDITOR COLORADO SPRINGS, COLORADO

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24-12 Colorado Springs Utilities Operational Fiber Network Expansion

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Purpose

The purpose of this audit was to monitor project management, governance, and construction of installation of Colorado Springs Utilities (Utilities) Operational Fiber Network Expansion (fiber) project.

Highlights

We conclude processes and controls for project management and project governance should be improved. Our review identified six observations and one opportunity for improvement. We also noted one commendable materials management practice.

Utilities' leadership of the fiber program has changed during the course of the audit. The auditors recognize the new leadership team is actively working to address the issues and making production schedule improvements a priority.

Background

In 2022, Utilities began construction of an operational fiber network. The fiber network was projected to cost \$600 million and scheduled to be completed in 2028. Utilities' public communications for fiber indicated the city-wide network would enhance utility operations, allow better service to customers, and meet community needs by enabling multi-gigabit internet activity. The design included excess capacity which would be leased to third parties. Revenues from the lease were projected to offset construction cost in the long term. The Utilities Board 2023 approved budget included \$78.8 million for the fiber project. At year end, less than half the project budget, approximately \$37 million was spent. The 2024 budget included \$68.4 million for the fiber project.

Most of the construction work will be performed in the City of Colorado Springs (City) right of way (ROW). The City and Utilities signed an executive agreement in 2022 for permitting and inspection of fiber construction in the ROW. Due to the scope of this project, the agreement specified streamlined processes and payments

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Management Response

Management agreed to address their issues. We will follow up on management actions in a future report.

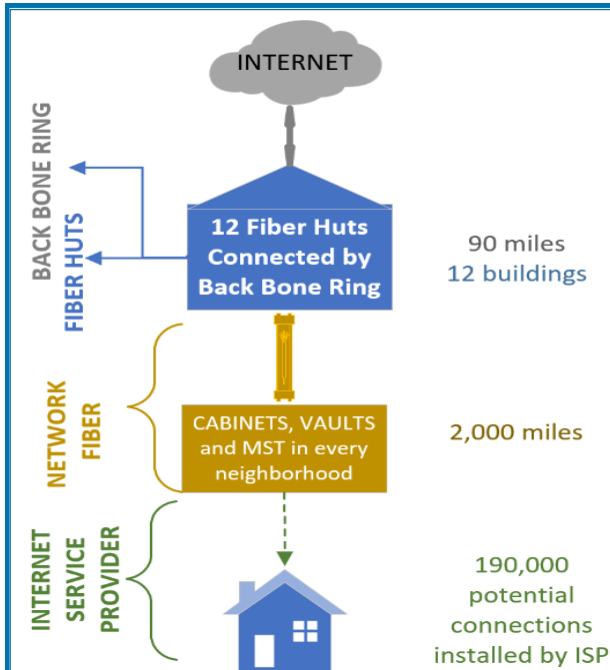
Recommendations:

1. Implement controls to ensure contractors complete restoration efforts and close out permits timely.
2. Refrain from granting excessive permits to fiber contractors.
3. Document a plan for efficient utilization and allocation of operational fiber.
4. Provide financial modeling information for review.
5. Implement controls to track customer complaints from initiation to resolution.
6. Refine the timing and quantities of future materials orders.

Opportunity:

1. Take action to manage vendor workplace culture.

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by Utilities to cover the cost of inspections. Contractors must follow City standards for work in the ROW. The contractors paid fees to the City when the work caused a decrease in the useful life of the pavement.

The fiber network throughout the City will consist of 12 fiber huts connected by a 90 mile long backbone ring and 2,000 miles of network fiber installation. The network fiber installation was

FIBER PROGRESS		
	2023 BUDGET	2023 ACTUAL
COST	\$79 M	\$37 M
SCHEDULE	2023 PLANNED	2023 INSTALLED
Back Bone Ring	45 Miles	19 Miles
Fiber Huts	6 Qty	5 Qty
Network Fiber	215 Miles	84 Miles

divided into 12 fiber hut regions that correspond with the planned fiber huts.

Utilities entered into several contracts to execute this project. One firm was engaged to provide feasibility, design, engineering, and construction management services. The construction of the fiber huts, backbone fiber ring, and network fiber were contracted to other firms. Utilities purchased the materials to be installed.

Installation of the fiber huts appeared to be on schedule. However, installation of backbone fiber ring and network fiber was behind schedule due to operational challenges. Because the installation of the network fiber was the largest and most expensive component of the project, delays in this area had a greater impact on the budget and overall performance.

Utilities has entered into a long term lease of a portion of the excess capacity with an internet service provider tenant. The fiber lease tenant will provide connections to individual residences and businesses.

For this audit we reviewed available data provided by Utilities and publicly available information regarding the fiber project. We participated in status update meetings, met with key employees, and attended multiple field visits to observe construction and inventory processes. We plan to continue auditing this project during 2024.

The issues on the following pages address potential improvements in project governance, project management, and coordination between the City and Utilities. Several of the observations are addressed to both City and Utilities for management responses because of their shared responsibility. We would like to thank Colorado Springs Utilities and the City Right of Way team for their support and cooperation during this audit.

Commendable Practice:

We observed commendable materials management practices in the quarterly complete count process. Materials held on site were segregated and clearly identified. Staff duties and functions during the count created effective segregation. A systematic “blind count” for initial counts and a thorough reconciliation process were used. The process was well documented, and resulted in a close correlation between physical and system counts.

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Observation 1

Permits with plan of action items were not addressed appropriately.

The fiber construction contractors were required to obtain permits to conduct work in the City's right of way (ROW). Permits were issued for up to 1,000 feet of installed work per permit. The ROW team inspected the work to determine work was completed per current engineering criteria. Permits were closed after the contractors passed City inspection. If the work was not satisfactory, a plan of action (POA) was submitted outlining required steps to correct defective work. Additionally, the City ROW team had the authority to issue a stop work order.

As of 01/20/2024, out of 405 total permits issued, 35 permits required POA items. Most of these POA items were related to restoration activities. Per the Executive Agreement (EA) between City and Utilities, fiber contractors were required to restore the ROW within five days. The City does not have a good consequence mechanism for lack of restoration. Failure to restore the ROW may result in increased customer dissatisfaction, potential damage to City roadways, and adverse impact to the fiber construction schedule.

Management Response

The City and Utilities management concurs with the recommendation. The City will work with Utilities to develop procedures to close out permits in a more timely fashion by the end of Q2 2024.

Recommendation

Management should implement adequate controls to ensure POA items are completed timely and require contractors to complete their restoration efforts and close out the permits timely. Management should review the EA to determine if there are opportunities to strengthen controls regarding the restoration process.

Observation 2

Open permits exceeded the maximum allowable limit and were open too long. For the network fiber installation, permits were open on average for 187 days, and ROW permits issued for two contractors exceeded the maximum allowable limit.

City permits were issued for up to 1,000 feet per permit and inspected by the ROW team. Permits were closed after the contractors completed work and passed City inspection. The EA with City and Utilities for fiber specified the processes and number of allowed permits per contractor.

Allowing the contractors to continue obtaining new permits while there were excessive open permits increased the likelihood defective workmanship will go unaddressed. Leaving the permits open prevented other contractors from applying for a permit in the same area.

Management Response

The City and Utilities management concurs. The City will not issue permits beyond the limits set in the executive agreement. Additional policies, and if appropriate code changes, for stronger controls and enforcement will be considered in Q4 2024.

Recommendation

With the support of Utilities' management, City ROW team should adhere to and enforce the requirements stated in the EA and should not issue permits that exceed the maximum allowable limit to the contractors and subcontractors. City ROW team should consider additional policies, and if appropriate code changes, for stronger controls and enforcement in this area.

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Observation 3

Documented plans for utilization and allocation of Colorado Springs Utilities' fiber were not available.

Detailed plans to utilize the fiber network for Utilities' operational uses were not available. The fiber network design included an allocation of strands to be run to each Utilities location based on the size and functions of that location so the fiber would be available when needed.

As of January 2024, fiber use cases from the business units had not been documented. Integrated Resource Plan (IRP) did not include features and functions that would leverage the availability of fiber.

Management Response

Utilities management agrees with the recommendation. To date, only conceptual utilization has been documented to support project approval and initiation. The next iteration of the Integrated Resource Plans (IRPs) will be utilized to present use case opportunities by appropriate service line. The identified opportunities will not be exhaustive of all applications of the infrastructure as the evolving nature of the end use technologies continues to present alternatives to operational implementation. These IRPs will be developed and completed by 2025.

Recommendation

Utilities management should have a documented plan for efficient utilization and allocation of Colorado Springs Utilities' operational fiber assets.

Observation 4

Supporting details for information provided via some public facing communications regarding total program cost, rate impacts, cost recovery plans, and 3rd party revenue data was not provided for auditors to validate the data. Data on assumptions made and the associated risks to the program, such as dependencies between construction progress and cost recovery plans, were not clearly stated. Without access to data regarding the financial implications of the fiber program, we were unable to provide assurance to governance.

Management Response

We agree with this recommendation. Utilities will provide third-party cost and revenue models used for our Utilities budgeting and forecasting purposes by 4/30/2024. Utilities will further work with the City Auditors Office over the second quarter 2024 to improve the auditability of underlying fiber project financial information found on our public facing websites and other publicly available information.

Recommendation

We recommend Utilities management work with the auditors to provide necessary financial modeling information to allow a review of the fiber program.

Utilities management should review Utilities Board and public information for accuracy and thoroughness concerning the fiber project.

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Observation 5

Utilities did not have a process to track complaints from initiation through to resolution. Auditors were not able to verify the completeness of year-to-date customer complaints received related to the Fiber project. Additionally, Auditors were not able to verify the complaints were resolved timely.

The aggressive construction schedule and use of multiple sub contractors may potentially lead to improper restoration efforts.

Failure to address customer complaints timely may increase the potential for customer dissatisfaction.

At the time of our report, Utilities management was working diligently to address customer complaints and issues with the contractor.

Management Response

Utilities management agrees with the recommendation to improve documentation and tracking of customer complaints. At the time of this report, Utilities management has already implemented multiple changes to the communication, construction process, and complaint resolution efforts which are yielding positive results.

Recommendation

Utilities management should implement controls to track and document customer complaints from initiation to resolution. Additionally, this mechanism should allow management to verify that contractors are addressing customer complaints timely.

Observation 6

Inventory Ordering accuracy were needed.

To date, orders for materials to be installed for the fiber project were based on high level preliminary designs. For some parts, a 10% waste factor was added on to the preliminary quantity. Purchased materials were stored at the prime contractor's warehouse, however some materials were reallocated from the warehouse to projects not within the prime contractor's scope of work, and additional materials were purchased from other sources.

To date, no reconciliation had been performed to compare actual installed quantities to planned quantities.

All of these factors have the potential to result in variances between ordered and installed quantities, either for the overall project, or for particular fiber hut region (FHR) areas. Over the course of this multiyear project, these variances have the potential to accumulate and be significant for all inventory, or for a particular item.

Management Response

Utilities agrees that the reconciliation of the inventory balances with the project installation represents an opportunity to control project costs and will begin implementing these changes in the second quarter of 2024. The designs for future fiber hut regions (FHR) are now being completed in advance of release of the work and the material quantities are identified at the final design. This practice will minimize the exposure to excess inventory over the completion of the project as stockage levels will be refined/managed accordingly throughout the project lifespan.

Recommendation

Management should incrementally refine the timing and quantities of future materials orders, to reflect data from inventory system counts, more detailed designs and installed quantities, as this information becomes available.

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Opportunity 1

Lack of positive workplace culture was observed.

In 2023, during several onsite visits, the auditors observed the working relationship between third party fiber and inspection contractors lacked positive workplace culture.

Tension between the workers may impact productivity and quality of work, which may result in an increase in cost and/or scheduling delays.

Management Response

Utilities Response: Utilities management agrees to promote positive workplace culture. This item has been addressed as of April 2024. When appropriate, Utilities and the City took steps over the past several months to address third party fiber contractors behavior impacting the efficiency and performance of the personnel performing construction activities prior to the audit being finalized.

City Response: The City will collaborate with Utilities to continue implementation of strategies for improved workplace culture.

Recommendation

Management should implement adequate controls to promote/maintain a healthy work environment and positive workplace culture.