ARAPAHOE COUNTY

Arapahoe County

5334 South Prince Street
Littleton, CO 80120
303-795-4630
Relay Colorado 711

Board Summary Report

File #: 25-284 **Agenda Date:** 5/20/2025 **Agenda #:**

To: Board of County Commissioners

Through: Bryan D. Weimer, Director, Public Works and Development Department

Prepared By:
Jim Katzer, Transportation Division Manager, Public Works & Development

Presenter: Jim Katzer, Transportation Division Manager, Public Works & Development; James Beall, Capital Improvements Project Manager, Public Works & Development; Diane Kruse, Project Manager, NeoConnect

Subject:
10:00 AM *Arapahoe County Fiber Services Study

Purpose and Request:
The purpose of this study session is to present an overview of existing fiber services within Arapahoe County, discuss service providers and their offerings, discuss current grant funding underway, identify areas that lack sufficient services, and highlight best practices by local governments to improve broadband infrastructure. This is the first of three planned study sessions with the Board of County Commissioners (BOCC) regarding the Fiber Services Study.
The goals of this meeting are:

1. To inform the BOCC of current services and best practices
2. To clarify the BOCC's goals for service levels within the County

Background and Discussion: The Fiber Services Study kicked off in January 2025 to help the County develop a long-term vision for fiber related services. The study aims to develop goals and strategies to provide fiber services, focusing on both improving broadband connectivity across unincorporated Arapahoe County and providing a robust fiber network for Intelligent Transportation Systems (ITS) and data needs.

This study broadens the focus beyond just county government operations to consider comprehensive broadband infrastructure planning throughout the County. This study considers a regional perspective to ensure both incorporated and unincorporated areas benefit from improved broadband access.

Why Fiber Infrastructure Matters, Industry Context
Fiber optic infrastructure serves as the foundation for economic development in communities across the region. Through well-structured public-private partnerships, counties can secure specific buildout commitments, establish low-income discount programs, and ensure connectivity to key community anchor institutions, creating long-term economic opportunities. This infrastructure powers smart city technologies that transform municipal operations, from advanced traffic management systems to coordinated emergency response networks, environmental monitoring platforms, and intelligent utility management that increases efficiency across public services.

Government operations are enhanced significantly through fiber connectivity. Dedicated fiber optic lines connecting municipal buildings to emergency facilities dramatically improve County service delivery and emergency response coordination. This connectivity creates a resilient backbone for critical government functions during both normal operations and emergencies.
The importance of digital access became starkly apparent during recent years. When the pandemic forced residents to work, learn, and access services from home, it accelerated the recognition that reliable broadband access is essential for education, healthcare access, and economic participation. Fiber infrastructure helps bridge this digital divide by providing the capacity needed for these bandwidth-intensive applications, particularly in underserved and rural areas.

Modern transportation systems increasingly rely on fiber connectivity for everything from connected vehicle networks to real-time traffic signal coordination and intelligent transportation systems. This same infrastructure supports contemporary healthcare delivery through telehealth applications, including remote patient monitoring, virtual doctor visits with high-definition video quality, secure transfer of medical imaging, and specialist consultations regardless of geographic distance.

The business community requires robust broadband for competitiveness in today's economy. Companies depend on high-capacity connections for cloud-based operations, remote work capabilities, real-time collaboration across locations, large data transfers, and participation in global markets. Without adequate connectivity, local businesses struggle to compete in an increasingly digital marketplace.

Fiber optic technology delivers unparalleled data transmission capabilities. Scientists have recently achieved data transfer rates of 301 terabits per second (Tbps), which is equivalent to transferring 1,800 4K movies over the internet in just one second. This is approximately 1.2 million times faster than the average U.S. fixed broadband speed of 242.38 megabits per second (Mbps).
Perhaps most importantly, fiber infrastructure represents a future-proof technology investment. With a lifespan of 20-30+ years and the ability to be upgraded through equipment changes rather than replacing the physical fiber, this infrastructure provides exceptional long-term value compared to other connectivity technologies. As data needs continue to grow exponentially, fiber's virtually unlimited capacity ensures it will meet community needs for decades to come.

Current Broadband Landscape in Arapahoe County
99.4% of Arapahoe County residents and businesses have access to 100/20 Megabits per second (Mbps) in broadband service, which is considered served. Based on our research, approximately 30-46% of Arapahoe County has access to fiber internet service.
Major fiber providers include CenturyLink/Quantum Fiber (reaching 42.66% of county residents), Ting Fiber (3.65% coverage in southwest, central, and south areas), Bijou Telephone Cooperative Association, Eastern Slope Rural Telephone Association, Maverix Broadband, and TDS Telecom.
While fiber coverage is limited, cable internet through Xfinity reaches approximately 98% of the County, and DSL service is available to about 74% of the County. Fixed wireless and satellite options serve the most remote areas. Governor Polis’s goal for the State is to have 99% of the homes and businesses connected to a broadband service that meets the standard of 100/20 Mbps. However, the County may seek a goal of having fiber available to homes and businesses to ensure future broadband needs are met. Approximately 54-70% of the County lacking access to fiber infrastructure.

The County currently maintains a limited fiber network that connects some of the County facilities for government operations, including municipal buildings, emergency facilities, and traffic signals in

unincorporated areas. This existing infrastructure could potentially serve as a foundation for expansion. The expansion of the County's fiber could connect more County facilities, be expanding to the County's forecasted growth areas and could potentially be available for lease to Internet Service Providers to expand their fiber coverage within the County.

The Information Technology (IT) Department has been involved in the project and received a copy of the board summary report. The IT Department will be asked to provide input on the County's future fiber network needs along with impacts on County resources for fiber development scenarios.

The County is a member of the South Denver Fiber Consortium along Aurora, Centennial, Douglas County, Greenwood Village, and Littleton. This group was created to share data, information, and partnership opportunities related to new and existing use of fiber optic networks among local governments.

Surrounding Community Examples
Several Colorado communities have implemented successful fiber initiatives that could serve as models for Arapahoe County:

1. **Arvada**: Partnered with Jefferson County School District and the fire department to build fiber throughout the city, levering its Dig-Once Policy and Shadow Conduit Policy.
2. **Fort Morgan**: Invested $1.5 million to build a backbone fiber network and partnered with ALLO Communications through a 20-year lease agreement. The City allocated an additional $4 million to ensure connectivity to all homes.
3. **Boulder**: Completed a 50-mile fiber backbone and partnered with ALLO Communications to provide service to 80% of the city by 2028, with a goal of 97% coverage by 2030.
4. **Colorado Springs Utilities**: Building a citywide fiber network with Ting Internet as the anchor tenant through a 25-year lease agreement. The project aims to deliver multi-gigabit service to approximately 200,000 homes and businesses.
5. **Centennial and Greenwood Village**: Leveraged existing fiber networks connecting traffic lights and city offices and negotiated a public-private partnership with Ting Internet to build out fiber to every home and business. Offered financial incentives for faster buildout schedules.
6. **Longmont and Estes Park**: Built fiber to every home and business within the City and is offering robust broadband services to end users.

Broadband Best Practices for Local Governments
Our research has identified several approaches local governments can take to improve broadband infrastructure and these will be discussed further in the Study Session:

Policy Options

1. **Broadband-Friendly Policies**
    - Streamlining permitting processes
    - Favorable rights-of-way access policies
    - Building codes requiring fiber readiness
    - "Dig once" and "Shadow Conduit" policies to install conduit during other construction projects

2. **Public-Private Partnerships**
    - County builds backbone infrastructure, private companies provide service
    - Joint investment models
    - Long-term lease agreements

- Revenue sharing arrangements

3. **Direct Investment**
   - County builds and maintains fiber network
   - Options for ownership and operational models
   - Potential for utility-based approach
4. **Co-Investment Strategies**
   - Partner with neighboring jurisdictions
   - Work with existing local providers
   - Leverage state and federal funding opportunities

Partnership Models

- **Open Access Networks**: Municipal backbone with multiple ISPs providing service
- **Dark Fiber Leasing**: County builds and maintains fiber, private companies provide service
- **Utility Approach**: County operates as full service provider
- **Shared Investment Model**: County and private partners share costs and benefits

Potential Funding Sources

- Federal: Broadband Equity, Access and Deployment (BEAD) Program, American Rescue Plan Act (ARPA)
- State: Advance Colorado Broadband grant program, Department of Local Affairs (DOLA) grants
- Local: County capital improvement funds, special districts, public-private partnership capital

Fiscal Impact: The fiscal impact will depend on the level of County involvement and implementation approach selected. Full financial models will be presented in the second study session based on the direction provided by the BOCC.

Alternatives: There are several alternatives for the County's involvement with broadband fiber. Based on our research and comparable community initiatives, we have identified several potential levels of County involvement.
- **Policy Facilitator**: Focus on streamlining regulations, permitting processes, and establishing "dig once" policies without direct infrastructure investment.
- **Infrastructure Investor**: Develop backbone infrastructure while partnering with private providers for service delivery.
- **Full Service Provider**: County builds, owns, and operates a comprehensive fiber network.
- **Public-Private Partnership Facilitator**: Coordinate among multiple stakeholders to leverage resources and expertise.

Alignment with Strategic Plan:

☒Be fiscally sustainable

☒Provide essential and mandated service

☒Be community focused

Staff Recommendation: Staff recommends the BOCC consider developing goals in broadband development and preferred role in building out the County's fiber network. The following options include making sure all homes and businesses are served with 100/20 Mbps in service, have access to fiber, have choice of providers, or to simply expand the County's fiber network. During the next study session several of these options will be

presented. Detailed capital costs for expansion of the County's network and potential involvement in facilitating broadband development will also be discussed during the next study session.

Concurrence: IT has been involved in the study and has reviewed this report.