



Data Center Challenges

1. Massive Bandwidth Demand

A modern data center may require:

- 10 Gbps to 400 Gbps
- Multiple terabits per second
- City infrastructure will not be able to support. The City has a Maximum of 10 Gbps; anything more will result in overages in the Idaho Regional Optic Network (IRON) cost.

The municipal network wasn't designed for this scale; the city would be required to upgrade:

- Core switches
- Optical equipment
- Network electronics
- Fiber counts – Multiple Networks

These upgrades can cost hundreds of thousands or even millions of dollars and would do little to support residential customers that the system is designed to serve. Improvement would only support data centers.

2. Redundancy Requirements

Data centers require extremely high reliability.

Most require:

- Two or more physically separate fiber routes.
- Diverse conduit paths.

The City system currently relies on a single ring or fiber route, necessitating substantial investment to meet standards. This process would require months of drilling and installing redundant fiber conduits and lines.

3. Capacity Management

Data centers consume a large share of the network's capacity; the city does not have adequate bandwidth for a data center and the following:

- City operations
- Public safety
- Schools
- Businesses
- Future growth

These items are the primary focus of the municipal system and are the primary reason the infrastructure exists.

4. Maintenance Expectations

Data centers often expect:

- 24/7 network monitoring.
- Very rapid outage response.
- Strict service-level agreements (SLAs).
- Planned maintenance windows.

This would require additional staffing or contracted network management.

5. Security

Connecting a major commercial customer increases the importance of:

- Cybersecurity.
- Physical security of fiber routes.
- Network segmentation.
- Access controls.
- Disaster recovery planning.

This will lead to redrilling thousands of feet of line to meet the data center requirement without jeopardizing the City infrastructure.

Infrastructure Improvements That May Be Needed

Depending on the project's size, the city may need to invest in:

- Additional fiber strands (144-, 288-, or 432-count fiber).
- New underground conduit.
- Redundant fiber loops.
- Carrier-neutral meet-me rooms.
- Optical transport equipment.
- High-capacity switches and routers.
- Backup power systems.
- Network monitoring systems.