



BROADBAND PLANNING SERVICES | ENGINEERING | CONSTRUCTION | OPEN ACCESS OPERATIONS

TOWN OF FRISCO, COLORADO

Feasibility Report

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Executive Summary

The Town of Frisco, Colorado (“the Town”) has commissioned this broadband study to evaluate the feasibility of enhancing connectivity in the Town via a Fiber to the Premise (FTTP) network that will provide high-speed internet services to Town-owned facilities, Community Anchor Institutions, and potentially residents and businesses. Broadband infrastructure is essential to the delivery of high-speed internet access to end users and has rapidly become a necessary ingredient to the economic health and growth of communities. Despite the well-documented societal benefits of broadband internet, a significant digital divide still exists in the U.S., particularly in hard-to-reach or rural areas.

The objective of this report is to present a feasibility study that is comprehensive in nature, including a robust network design for all potential phases of the project, demographic and competitive data, community survey results, operational models and their associated financial profiles, and ultimately, clear recommendations on next steps for the Town to move from theoretical design to an operational network that meets and exceeds the needs of the Town for decades to come.

Key Tasks and Stakeholders

Bonfire performed the following key tasks as part of this feasibility study:

- Overview of key demographics and their effect on bandwidth usage
- Document existing broadband services available in the Town
- Methodology and results of the community survey, as well as interviews with key stakeholders
- Analysis and comparison of all middle mile fiber network connections available from public and private sources
- Network high-level design, bill of materials, and construction cost estimates for each potential project phase
- Review of various operating models for continuing operations of a Town-wide network
- Review of available grant opportunities and Frisco’s prospects of an award
- ROI review for inclusion of unincorporated neighborhoods in the network
- Collation of key findings to inform the Town’s Master Plan

Stakeholders

Key stakeholders involved throughout the project:

Town of Frisco

- Chris McGinnis – Public Works Director and Town Engineer
- Vanessa Agee – Director of Marketing and Communications

Bonfire

- Justin Roller – EVP
- Bryson Ward – VP of Engineering
- Boyd Hebdon – VP of Support Services
- Jason Wiseman – Principal Engineer
- Josh Orlowitz – Director of Product and Strategy
- Drew Pappas – Director of Business Development
- Tyler Threw – Program Manager
- Jackie English – Product Manager
- Josh Anderson – Sr. Corporate Strategy Analyst

- Amy Goldstein – Senior Engineer
- Alexis Goolgasian – GIS Developer

Key Findings:

- Frisco is demographically attractive as a broadband market, and could support new entrants to the market (either municipal or private)
- 47% of residential respondents feel Very Satisfied or Satisfied with their current internet service, but pricing and quality are areas where residents would like to see improvements
- The dissatisfaction among business respondents is more pronounced, as issues with internet result in lost sales and revenue. Over four-fifths of businesses indicated they would switch providers if it meant having more reliable internet
- 64% of residential customers are paying between under \$100 for their monthly internet-only service
- 43% of residents and 82% of businesses are interested in switching providers
- 82% of businesses and 29% of residents expressed wanting better reliability from their current internet service provider
- 99% of the Town is covered by Xfinity cable, providing speeds that are above the FCC baseline speed requirements to be considered a served location
- Currently, only a Public Private Partnership (P3) structure is feasible given base case assumptions; however, by taking the right actions, the Town can change the financial profile of the network to make all business cases feasible. Potential levers to be explored by the Town to impact these business cases include:
 - Adoption of microtrenching specifications that are attractive to both the Town and a private ISP, with a focus on minimal ground disturbance and cost to deploy, and maximum network longevity
 - Transitioning portions of the build to microtrench deployment to decrease build costs
 - Access to a decreased cost of capital
 - Reduced overhead for a municipally operated network

Recommendations and Next Steps

Based on the above findings, Bonfire recommends the Town of Frisco take the following strategic actions:

- Adopt microtrenching specifications to reduce build costs and minimize disruption in key areas
- Consider a Public Private Partnership (P3) with a private ISP interested in providing service to both the Town-owned facilities and Community Anchor Institutions in Phases 1A/B, and the broader community as shown in Phases 2-8. When structured with aligned risks and incentives, a P3 model can provide significant benefits to the residents and businesses of Frisco and result in a financially sustainable network. The Town should conduct an RFP process to gather multiple bids and ensure the best possible terms and maximization of the Town's contribution. We look forward to working with the Town to implement this plan and provide superior, affordable broadband to the community.
- Additionally, the Town should consider its own appetite and desires in owning and operating a Fiber to the Premise network, both in a third-party Open Access Model or in a Municipally Owned and Operated model. Both models give the Town more control over the network, but come with operational and execution risks (e.g., building up headcount, training, sales and marketing, etc.) that may make the options become unattractive regardless of what this feasibility study shows.

Business Model	Network KPIs (over 30 years)	Result of Analysis
Phase 1A	8 Addresses Served 100% Penetration \$0 Rev. (\$1.5M) EBITDA (\$4.3M) FCF	Achievable with Current Funds
Phase 1A & 1B	21 Addresses Served 100% Penetration \$0 Rev. (\$2.2M) EBITDA (\$9.2M) Levered FCF	Requires Additional Funds to Complete

Business Model	Network KPIs (over 30 years, Levered): Phases 2-4	Network KPIs (over 30 years, Levered): Phases 2-8	Financial and Operating Structure
Fiber to the Curb	4.1K Addresses Passed 40% Penetration \$20.8M Rev. \$18.7M EBITDA (\$11.7M) Levered FCF	5.6K Addresses Passed 40% Penetration \$28.4M Rev. \$25.0M EBITDA (\$24.2M) Levered FCF	Frisco builds a fiber network to every premise in the build area and contracts an ISP to complete and own customer connections and manage the network. Financed via 30-year municipal bond.
Municipally Owned Third Party Open Access Operations	4.1K Addresses Passed 40% Penetration \$58.9M Rev. \$32.6M EBITDA (\$4.3M) Levered FCF	5.6K Addresses Passed 40% Penetration \$78.7M Rev. \$43.7M EBITDA (\$14.2M) Levered FCF	Frisco builds a fiber network to every premise in the build area and pays for customer connections when service is ordered. A third-party Network Operator manages the network, and ISPs provide end customer service. Financed via 30-year municipal bond.
Municipally Owned and Operated	4.1K Addresses Passed 40% Penetration \$77.6 Rev. \$22.5M EBITDA (\$10.1M) Levered FCF	5.6K Addresses Passed 40% Penetration \$103.4M Rev. \$45.5M EBITDA (\$6.3M) Levered FCF	Frisco builds a fiber network to every premise in the build area and pays for customer connections when service is ordered. Frisco self-manages the network and acts as the end-customer ISP. Financed via 30-year municipal bond.

Bonfire recommends the following high-level roadmap for building a Town network and standing up operations of the network over the next two years:

4Q2024:

October:

- Provide the feasibility study to a wider range of stakeholders
- Engage in deep discussions on the most viable path forward
- Create alignment and perform any vote required to formally agree on preferred Network Operating Model and Build Area

If Phases 1A Only Network is chosen:

November:

- Complete 1A Network Engineering
- Craft and publish Construction RFP

1Q2025:

Select Construction Partner

2Q2025:

Kickoff Construction

If Phases 1A & B Only Network is chosen:

November:

- Complete 1A Network Engineering
- Begin 1B Network Engineering

December:

Complete 1B Network Engineering

1Q2025:

- Craft and publish Construction RFP
- Select Construction Partner

2Q2025:

Kickoff Construction

If Phases 2-8 Network is chosen:

1Q2025:

- Craft Network Operator RFP
- Select Network Operator
- Issue RFP for additional Network Engineering (Low Level Design) as needed, selecting Engineering Partner

2Q2025:

- Engage municipal bond advisor
- Craft Construction RFP

3Q2025:

- Complete Network Engineering
- Issue Construction RFP and select vendor

4Q2025:

Issue municipal bond

2Q2026:

Kickoff Construction and Network Operations

Technical Definitions of Broadband Technologies

The official Federal Communications Commission (FCC) broadband definition is a minimum of 100 Mbps download and 20 Mbps upload. This standard was approved by the FCC in March 2024 as an increase to the previous standard of 25 Mbps download and 3 Mbps upload. The benchmark increase was made primarily to align with the standards used in multiple federal and state broadband funding programs, most notably the Broadband Equity, Access and Deployment (BEAD) program of 2024.

The Department of the Treasury, for all funding that has been or will be made available for broadband, requires that broadband projects meet a standard of reliably delivering at least 100 Mbps symmetrical download and upload speeds, or in cases where it is not practical to do so, reliably delivering at least 100 Mbps download speed and at least 20 Mbps; in this case, the upload speed should be scalable to 100 Mbps.

DSL, fixed wireless, coaxial cable, and fiber optic cable are the primary media outlets used for high-speed, fixed internet access today. Currently in the Town of Frisco, DSL, wireless, and coaxial cable are used by service providers to offer services.

DSL stands for Digital Subscriber Line. DSL uses the existing copper telephone lines to deliver an internet connection to a home or business. This allows a household to use the internet and make telephone calls at the same time over the same copper line. DSL speeds delivered to a house are asymmetrical, meaning the upload speeds are often significantly slower than the download speeds. The fastest DSL speeds in the Town of Frisco are marketed at 40 Mbps download and 3 Mbps upload.

Fixed Wireless Access (or FWA) works in a very similar way to cell phones. However, instead of your cell phone constantly being moved and oriented differently, FWA relies on a small receiver dish that is placed on a customer's home or office. This dish is fixed in place, hence the name fixed wireless. This dish receives a wireless signal from a nearby wireless tower. From there, your data travels to a centralized location to connect to the world wide web. Fixed wireless access can support symmetrical speeds, but providers in the market today typically market asymmetrical speeds. Speeds vary depending on the type of FWA that a provider uses. Legacy FWA usually offers speeds of 25 Mbps or lower for both download and upload. However, a new technology called mmWave (millimeter wave) FWA enables service providers to achieve multi-hundred Mbps download and upload speeds at various distances.

Coaxial cable is the existing copper cables that the cable television companies have historically used to deliver linear television. They have developed a protocol to deliver high-speed internet access over these existing cables; the most recently deployed version of this protocol is DOCSIS 3.1. DOCSIS stands for Data Over Cable Service Interface Specification and is a telecommunication standard used globally. DOCSIS 3.1 speeds delivered to the house are asymmetrical, meaning the upload speeds are often significantly slower than the download speeds. The fastest DOCSIS 3.1 speeds in the Town of Frisco are marketed at 1,200 Mbps download and 35 Mbps upload.

Fiber optic cables are very thin strands of glass. Instead of using electrical pulses, as in the case of DSL over copper telephone lines, fiber optic cables transmit data via light waves. Because fiber optic cables use light waves instead of electrical waves, information is transmitted nearly at the speed of light. Another important characteristic of fiber optic infrastructure is that there is far less signal loss between the data center and the end user's premise. The result of a fiber optic cable network is 1 Gbps (note: 1 Gbps = 1,000 Mbps), or faster, symmetrical speeds for end users. While there is no known limit to the maximum capacity of data over fiber optic cables, providers in the U.S. typically offer 1,000 Mbps download and 1,000 Mbps upload speeds, with residential packages as high as 5,000 Mbps download and 5,000 Mbps upload becoming prevalent in major markets.

Lit fiber refers to a fiber optic infrastructure that is currently in use. Lit fiber networks utilize light pulses to transmit data through fiber optic cables that contain thin strands of glass in them. Lit fiber networks are installed and operated by a service provider in most cases. Nonetheless, there are many times when the owners of lit fiber networks will lease lit fiber services out to others so that they can use the network for their own purposes.

Dark fiber refers to a fiber optic infrastructure that is not currently in use. Fiber optic cables in dark fiber networks do not have any light pulses passing through them. Dark fiber can be "lit" when the owner of the dark fiber chooses to utilize it to provide services or when the owner of the dark fiber wants to lease it out to an ISP who can "light" the dark fiber.

Demographic Analysis

Bonfire used the US Census Bureau's latest available demographic data to understand key metrics related to broadband, and benchmark Frisco against the County, State, the US, and other regional cities where municipal broadband has been a success.

This benchmarking exercise shows us that the Town is holistically attractive for a broadband expansion, with key indicators including 100% computer usage within the Town and 100% of the Town's population over age 25 having completed high school. A summary of the comparison of the key demographics is detailed below.

At 43.8, Frisco's median age is slightly higher than the State (37.7) and nation (39.0), but still lies well within the optimal range for broadband adoption, as demonstrated by the Town's 95% broadband adoption rate (vs 91.8% statewide).

17% of the Town's population is under the age of 18 while only 14% of the population is over the age of 65; this leaves 69% of the population between those categories, in the age ranges most likely to subscribe to broadband service. In comparison, nationwide, persons under the age of 18 make up 22% of the population and persons above the age of 65 make up 18% of the population.

The Town's average household income is \$101,140, which exceeds state averages by 15% and national averages by 35%. While broadband's ubiquity has led to adoption by households at all income levels, Frisco's higher than average median income may lead consumers towards purchasing premium speed tiers (1 Gbps+).

The above demographics demonstrate that Frisco is a well-connected, well-resourced, and digitally literate community, supporting ample demand for modern, high-speed broadband service such as Fiber to the Premise (FTTP).

Current Broadband Services

Residents and businesses in the Town of Frisco have access to a range of internet services from existing service providers in the Town. However, many of these products do not meet the FCC's definition of broadband speeds. Using the FCC's National Broadband Map and self-reported services from each provider, Bonfire has analyzed each of the Town's internet providers in detail, with a focus on those who provide terrestrial (non-satellite) broadband speeds in the Town today. Below are all internet service providers operating in Frisco today:

- Xfinity (Comcast) provides broadband services over cable to a majority of the Town
- Lumen (Century Link) provides DSL service to a majority of the Town
- Verizon provides Licensed Fixed Wireless to some addresses in the Town
- T-Mobile provides Licensed Fixed Wireless to some addresses in the Town
- AT&T provides Licensed Fixed Wireless to some addresses in the Town
- Viasat provides Geostationary Satellite internet to all addresses in the Town
- HughesNet provides Geostationary Satellite internet to all addresses in the Town
- Starlink (SpaceX) provides Low Earth Orbit Satellite internet to all addresses in the Town

Current Broadband Assessment – Key Takeaways:

- 99% of locations in and immediately adjacent to the Town have coverage of 100/20 Mbps+ from at least one provider

- Xfinity is the only ISP providing high speed (100/20 Mbps or greater) service to a majority of the Town
- Xfinity pricing is highly promotional, with steep increases after a 2-3-year promotional period

Xfinity

The Cable TV provider, Xfinity, delivers DOCSIS 3.1 cable services to 99% of the Town¹. Xfinity currently offers residential internet plans and bundles that range from 50 Mbps to 1,200 Mbps download speeds and 10 Mbps to 35 Mbps upload speeds, respectively. Xfinity has virtually ubiquitous coverage throughout the Town and it offers its 1,200 Mbps/35 Mbps internet package to all addresses that it covers.

¹ Source: FCC Fixed Broadband Availability Data as of 12/31/2023

Figure: Xfinity Residential Broadband Pricing

Speed	Package	Promo Pricing	Regular Rate Pricing	Installation Fee	Notes
50/5	Internet Essentials	\$9.95	\$9.95	\$0 for self-installation, with technicians available upon request	Proof of eligibility (previous ACP enrollment, Medicaid, SNAP, etc.) required
100/20	Internet Essentials Plus	\$29.95	\$29.95		Proof of eligibility (previous ACP enrollment, Medicaid, SNAP, etc.) required
150/10	Connect	\$19.99	\$54.00		Regular rate pricing is reduced to \$30 with a one-year term contract. Includes \$10/mo automatic payments and paperless billing discount
300/10	Connect More	\$35.00	\$66.00		Includes \$10/mo automatic payments and paperless billing discount
500/10	Fast	\$55.00	\$76.00		Includes \$10/mo automatic payments and paperless billing discount
800/15	Superfast	\$65.00	\$86.00		Includes \$10/mo automatic payments and paperless billing discount
1000/20	Gigabit	\$75.00	\$96.00		Includes \$10/mo automatic payments and paperless billing discount
1200/35	Gigabit Extra	\$80.00	\$106.00		Includes \$10/mo automatic payments and paperless billing discount

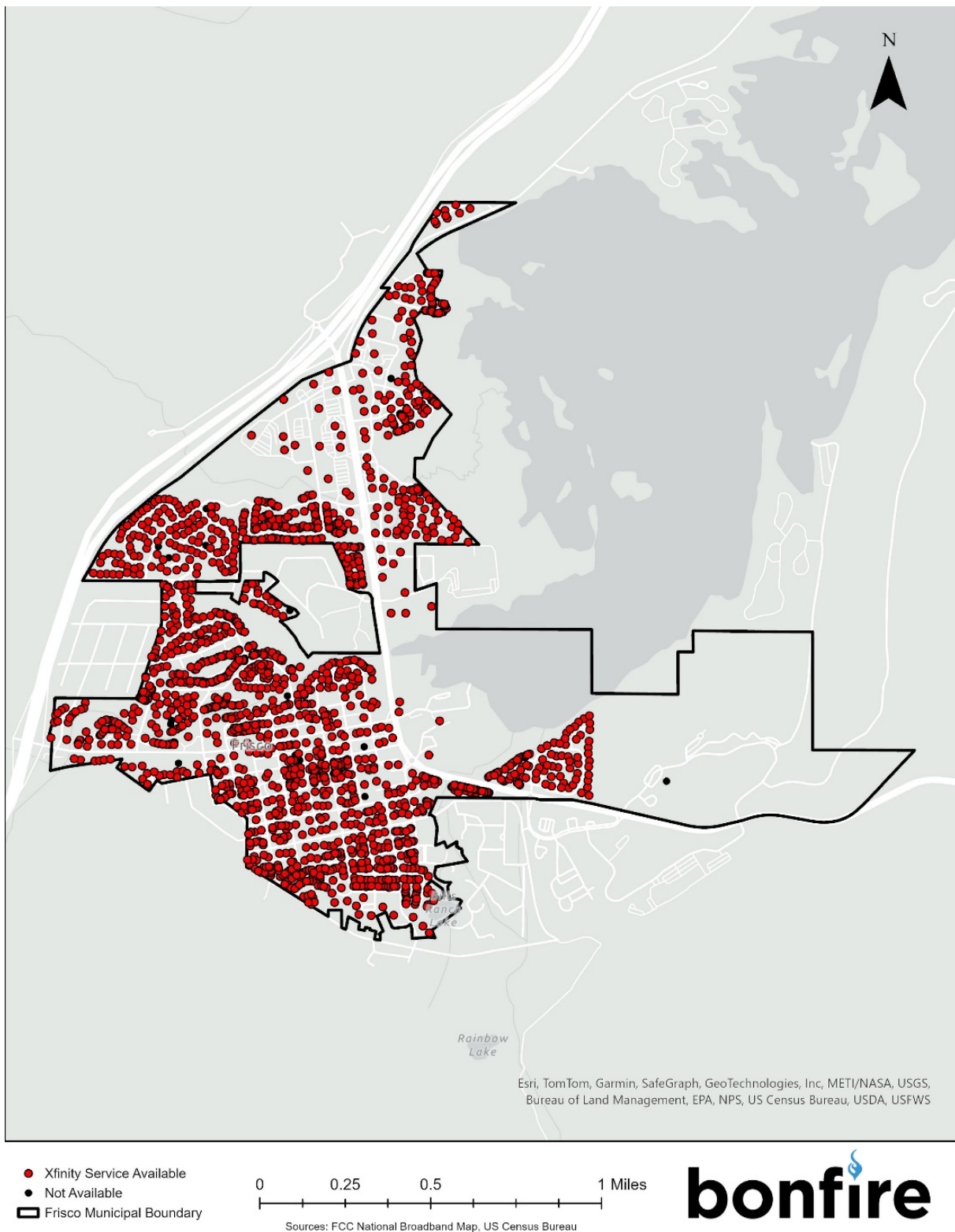
Note: Speeds are shown as Mbps download over Mbps upload. These speeds are advertised by providers and should be considered the maximum possible speed. Actual speeds may be lower. Prices do not include an xFi Gateway, which costs \$15.00 per month to rent.

Figure: Xfinity Business Broadband Pricing

Speed	Pricing	Installation Fee	Notes
150/25	1st Month: \$149.94 Months 2-12: \$49.99 Months 13-24: \$59.99 Months 25-36: \$145.18	\$99.95, included in 1 st Month's fee	Includes \$10/mo automatic payments and paperless billing discount
300/35	1st Month: \$169.94 Months 2-12: \$69.99 Months 13-24: \$79.99 Months 25-36: \$222.80	\$99.95, included in 1 st Month's fee	Includes \$10/mo automatic payments and paperless billing discount
500/35	1st Month: \$249.94 Months 2-12: \$149.99 Months 13-24: \$169.99 Months 25-36: \$272.80	\$99.95, included in 1 st Month's fee	Includes \$10/mo automatic payments and paperless billing discount
800/35	1st Month: \$119.99 Months 2-12: \$119.99 Months 13-24: \$139.99 Months 25-36: \$362.75	Free professional installation	Includes \$10/mo automatic payments and paperless billing discount
1250/35	1st Month: \$159.99 Months 2-12: \$159.99 Months 13-24: \$189.99 Months 25-36: \$512.75	Free professional installation	Includes \$10/mo automatic payments and paperless billing discount

Note: Speeds are shown as Mbps download over Mbps upload. These speeds are advertised by providers and should be considered the maximum possible speed. Actual speeds may be lower. Prices do not include an xFi Gateway, which costs between \$22.95 and \$37.95 (dependent on speed tier ordered) per month to rent.

Figure: Xfinity's coverage in the Town of Frisco²



² Sources: xfinity.com/planbuilder, FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

Lumen

Lumen (formerly CenturyLink) provides DSL service to 86% of addresses in the Town of Frisco; addresses where Lumen service is not available are dispersed throughout the Town, with no specific areas lacking coverage. Speeds are limited to a maximum of 40 Mbps Download and 3 Mbps Upload, with most addresses offered 20 Mbps Download and 1.5 Mbps Upload, or less. Lumen offers a single “best efforts” plan for residential service at \$55 per month, with an option to purchase a router for \$200 or lease it for \$15 per month. Business internet is also offered at \$55 per month, with the option to add a phone line for an additional \$40 per month. Services are provided on a month-to-month basis, with no term contracts or promotional pricing.

Figure: Speeds Offered in Frisco by Lumen

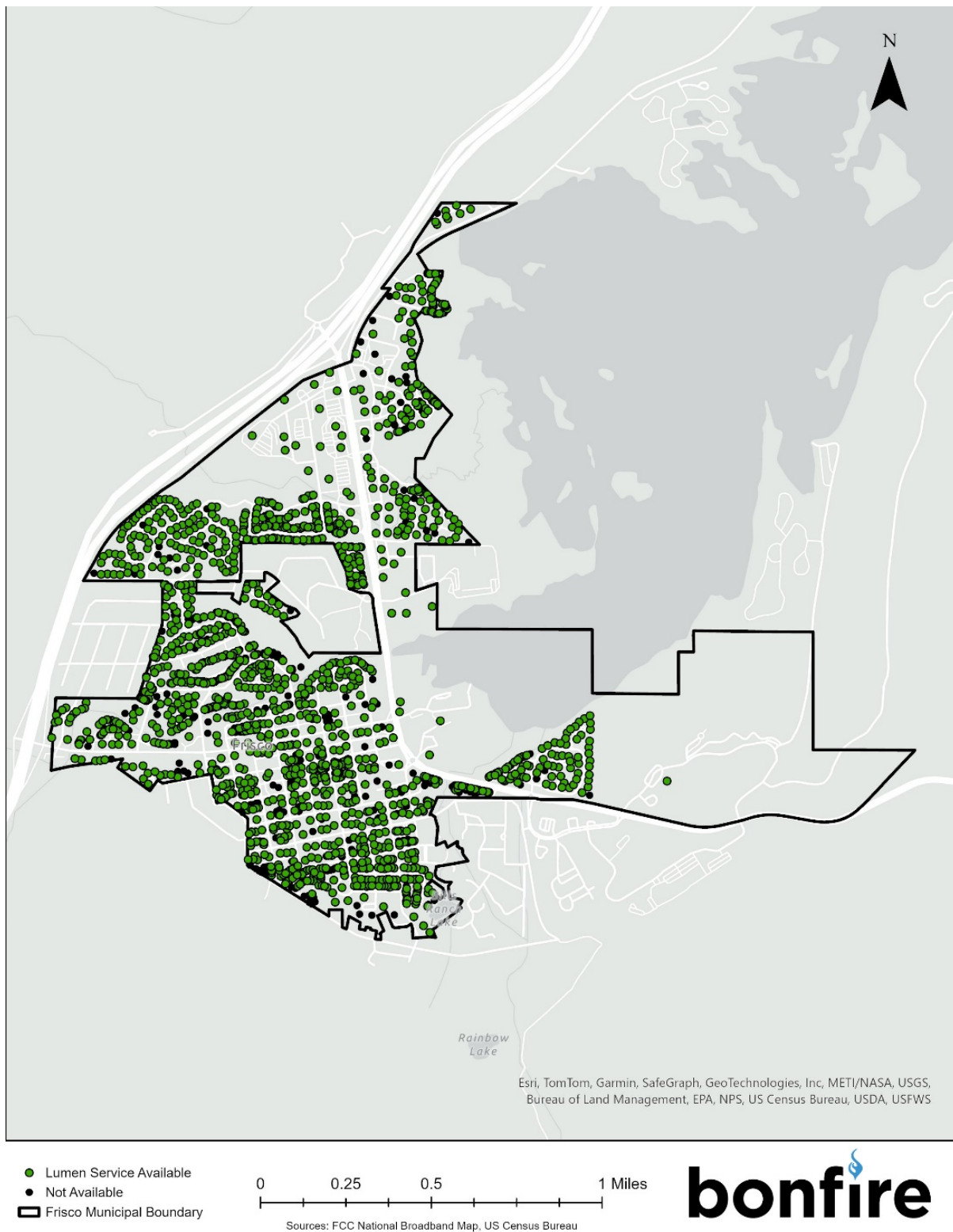
Speed (download/upload, in Mbps)	Percentage of Lumen Footprint in Frisco
40/3	<1%
10/1 or less	99%

Figure: Lumen Broadband Pricing

Speed	Pricing	Installation Fee
Best efforts up to 40 Mbps download, 3 Mbps upload	\$50.00	\$149 full-service installation, \$25 for self-install inside the premise

Note: These speeds are advertised by providers and should be considered the maximum possible speed. Actual speeds may be lower. Prices do not include a modem/router device which costs \$15.00 per month to rent or \$200 to purchase.

Figure: Lumen's coverage in the Town of Frisco³



³ Sources: centurylinkquote.com/cart, FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

Verizon

Verizon provides Licensed Fixed Wireless to 33% of the Town, concentrated along the Main Street corridor and the businesses along North Summit Boulevard.

Figure: Speeds Offered in Frisco by Verizon

Speed (download/upload, in Mbps)	Percentage of Verizon Footprint in Frisco
50/5	47%
50/3	10%
10/1	43%

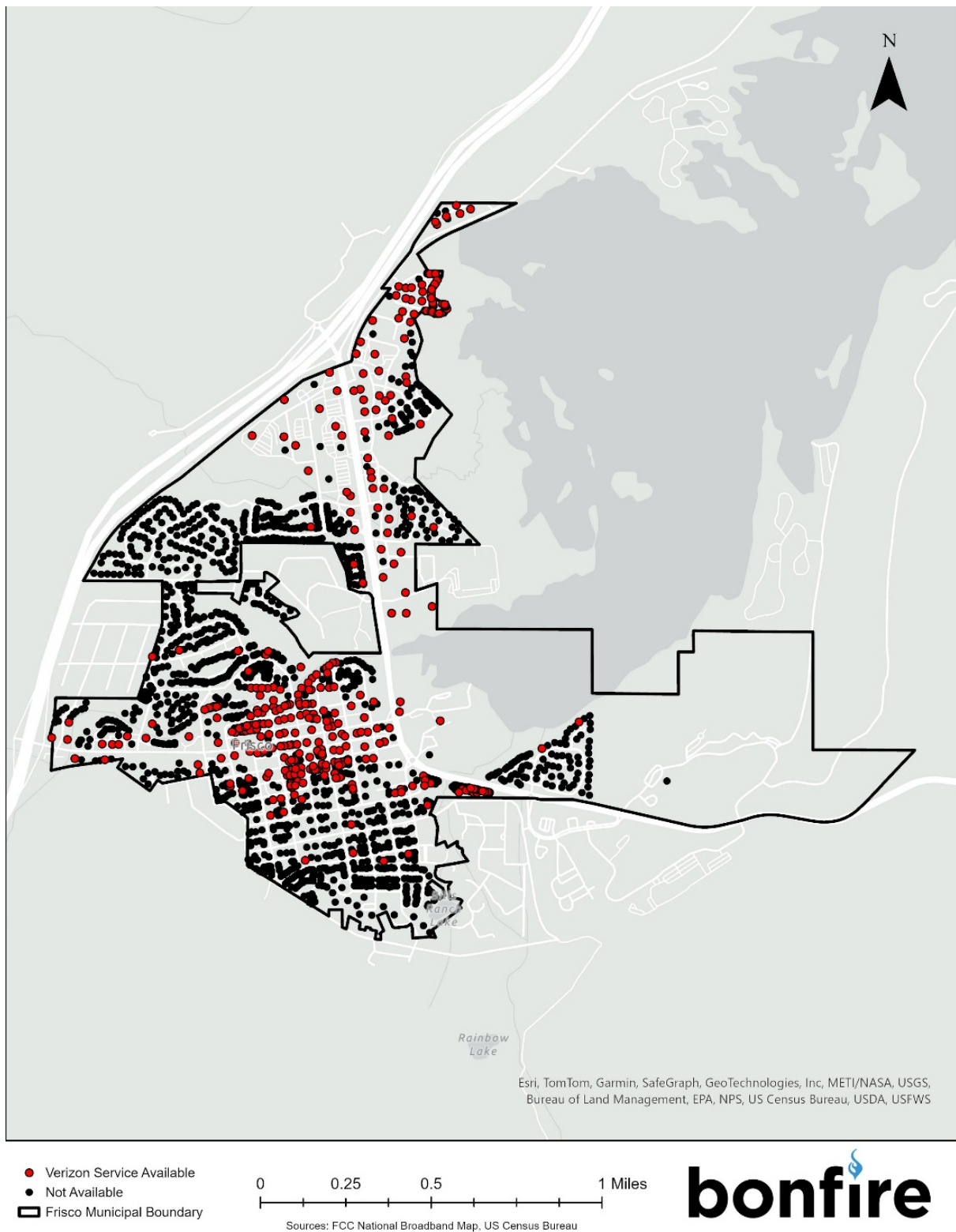
Figure: Verizon Residential Pricing

Speed	Package	Pricing	Installation Fee	Notes
100/10	5GHome	\$50.00	Free self-installation	Includes \$10/mo automatic payments discount. Router included. 3-year price guarantee. Equipment included.
300/20	5GHome Plus	\$70.00	Free self-installation	Includes \$10/mo automatic payments discount. Router included. Equipment included.

Figure: Verizon Business Pricing

Speed	Package	Pricing	Installation Fee	Notes
100/20	5G Business Internet	\$69.00	Free self-installation	Includes \$10/mo automatic payments discount. Router included for 3 years, then \$11.11/mo. 10-year price guarantee.
200/20	5G Business Internet	\$79.00	Free self-installation	Includes \$10/mo automatic payments discount. Router included for 3 years, then \$11.11/mo. 10-year price guarantee.

Figure: Verizon's coverage in the Town of Frisco⁴



⁴ Sources: [verizon.com/sales/home/progressiveplan.html](https://www.verizon.com/sales/home/progressiveplan.html), FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

T-Mobile

T-Mobile offers business-only Licensed Fixed Wireless coverage throughout Frisco. While T-Mobile claims to serve 65% of addresses via the National Broadband Map, they provide business-only service, making a majority of residential addresses they claim to serve ineligible to receive service. T-Mobile provides a single best-efforts package with speeds of 0.2/0.2 Mbps, offering Fixed Wireless Access service via their existing wireless cell phone network.

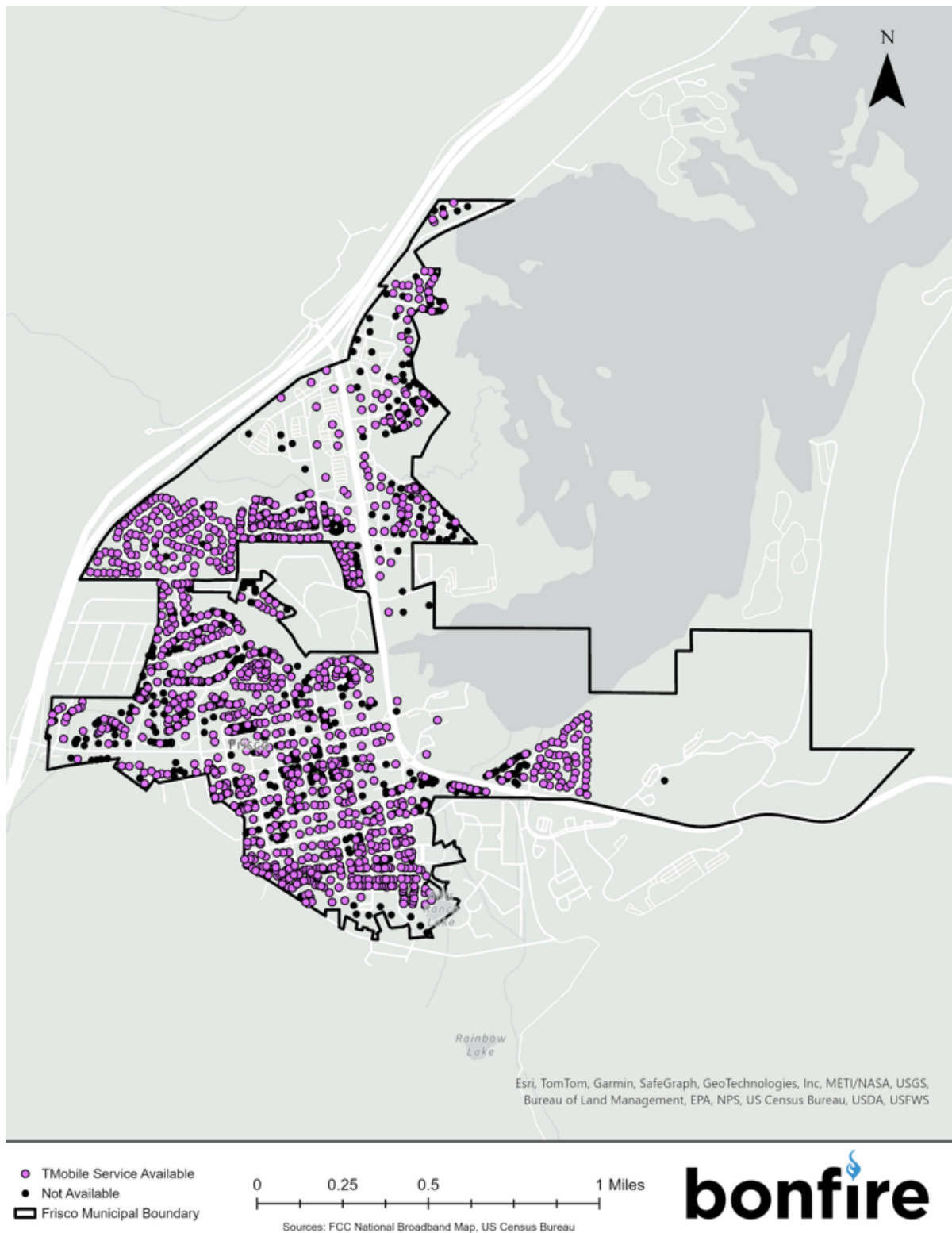
Figure: Speeds Offered in Frisco by T-Mobile

Speed (download/upload, in Mbps)	Percentage of T-Mobile Footprint in Frisco
0.2/0.2	100%

Figure: T-Mobile Business Pricing

Speed	Package	Pricing	Installation Fee	Notes
Best efforts up to 292/119	Business Internet Unlimited	\$60.00	Free self-installation	Router included

Figure: T-Mobile's coverage in the Town of Frisco⁵



⁵ Sources: t-mobile.com/business/add-plans-and-services, FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

AT&T

AT&T offers a third Licensed Fixed Wireless option to approximately 17% of the Town, with coverage available in the southwest area of the Town, along with the businesses along North Summit Boulevard and some nearby residences. 100/20 Mbps service (considered a qualifying broadband service by the FCC's latest standard) is provided to 18% of AT&T's footprint, with all other addresses served by 25/3 Mbps.

Figure: Speeds Offered in Frisco by AT&T

Speed (download/upload, in Mbps)	Percentage of AT&T Footprint in Frisco
100/20	18%
25/3	82%

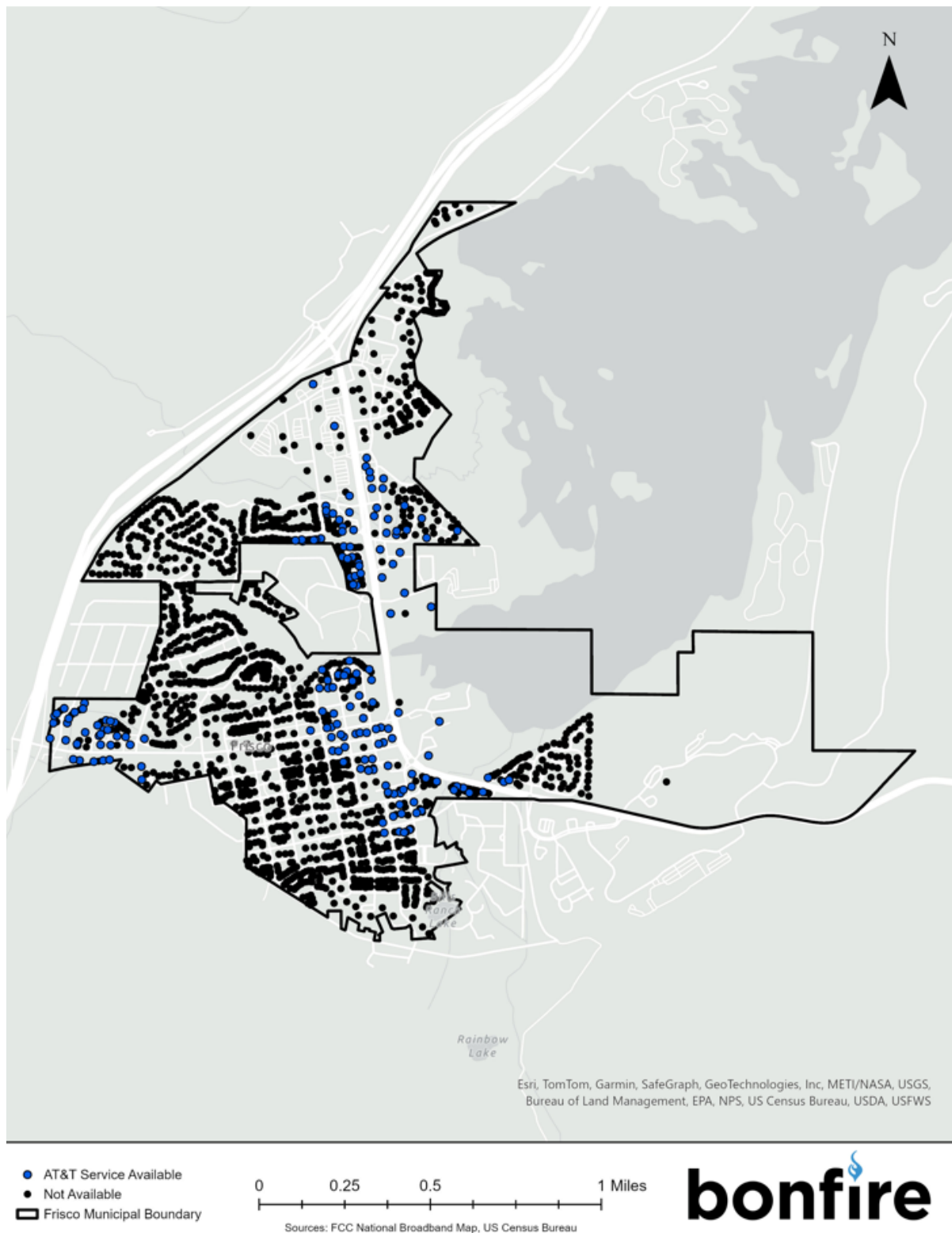
Figure: AT&T Residential Pricing

Speed	Package	Pricing	Installation Fee	Notes
225/30	Internet Air	\$65.00	Free self-installation	Router included

Figure: AT&T Business Pricing

Speed	Package	Pricing	Installation Fee	Notes
Best efforts up to 389/33	Internet Air for Business	\$65.00	Free self-installation	Router included

Figure: AT&T's coverage in the Town of Frisco⁶



⁶ Sources: att.com/buy/internet/plans ,FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

Satellite Providers

Satellite coverage is ubiquitous in the Town and surrounding areas, with HughesNet, Starlink and Viasat offering service. Speeds and pricing available are below.

Residential

HughesNet⁷

Speed	Package	Pricing	Installation Fee	Notes
50/5	Select	Months 1-12: \$49.99 Months 13+: \$74.99	\$199.95	Includes \$5/mo automatic payments discount. Equipment leased for additional \$14.99/mo. Two-year contract required.
100/5	Elite	Months 1-12: \$64.99 Months 13+: \$89.99	\$199.95	Includes \$5/mo automatic payments discount. Equipment leased for additional \$14.99/mo. Two-year contract required.

Starlink⁸

Speed	Package	Pricing	Installation Fee	Notes
Best efforts up to 220/25	Standard	\$120.00	\$249 for equipment kit	No contract required. Priority service available for additional fee.

Viasat⁹

Speed	Package	Pricing	Installation Fee	Notes
Best efforts up to 86/5	Unleashed	\$99.99	\$0-500, individual case basis	Equipment leased for additional \$14.99/mo. No contract required

⁷ Sources: hughesnet.com/get-started, FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

⁸ Sources: starlink.com/orders, FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

⁹ Sources: buy.viasat.com/en-US/r/, FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

Business

HughesNet¹⁰

Speed	Package	Pricing	Installation Fee	Notes
50/5	Select Pro	Months 1-12: \$59.99 Months 13+: \$84.99	\$199.95	Includes \$5/mo automatic payments discount. Equipment leased for additional \$14.99/mo. Two-year contract required.
100/5	Elite Pro	Months 1-12: \$74.99 Months 13+: \$99.99	\$199.95	Includes \$5/mo automatic payments discount. Equipment leased for additional \$14.99/mo. Two-year contract required.

Starlink¹¹

Speed	Package	Pricing	Installation Fee	Notes
Best efforts up to 220/25	Standard	\$120.00	\$499 for equipment kit	No contract required. Priority service available for additional fee.

Viasat¹²

Speed	Package	Pricing	Installation Fee	Notes
Best efforts up to 86/5	Unleashed	\$99.99	\$0-500, individual case basis	Equipment leased for additional \$14.99/mo. No contract required

Community Survey

There is often a significant difference between the advertised and purchased product and the reality experienced by the customer. To understand this gap in detail, Bonfire worked with the Town of Frisco to deploy a community survey and speed testing tool. Frisco hosted a survey webpage on the Town website and invited residents to take a survey and speed test. This hands-on approach provides the clearest picture of the actual broadband service each household receives. While service providers might point to potential differences being due to user error or home setup issues, these scenarios nonetheless reflect the everyday internet experience of Frisco residents, anchor institutions and businesses.

¹⁰ Sources: hughesnet.com/get-started, FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

¹¹ Sources: starlink.com/orders/, FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

¹² Sources: buy.viasat.com/en-US/r/, FCC National Broadband Map Provider Availability Data as of Dec 31, 2023. Speeds are self-reported by the ISP and may not reflect true address-level availability.

Community Speed Test Results

Bonfire's speed testing initiative resulted in 229 speed tests across Xfinity, CenturyLink, and Copper Mountain Wi-Fi. The results of the speed tests represent a 95% Confidence Interval with 7% margin of error (using Cochran's Formula). The table below shows the count of speed tests recorded by each provider throughout the County.

Service Provider	Total Tests Completed
Xfinity	225
CenturyLink	1
Copper Mountain Wi-Fi	3
Total	229

The figure below shows the median download and upload speeds of all speed tests throughout the Town across all providers. As previously mentioned, the Federal Communications Commission (FCC) recently adopted new benchmark speeds of a minimum download speed of 100 megabits per second (Mbps) and a minimum upload speed of 20 Mbps. On average, the Town's speeds meet the FCC's minimum definition of broadband speeds. CenturyLink speed test results did not meet the FCC minimum definition of broadband speeds, though, there was only one speed test result for this service provider within Frisco Town limits. Xfinity median speeds are safely above FCC minimum requirements, though the upload speeds are only barely meeting these requirements. This result can be expected for cable technology, through which Xfinity provides services.

However, the FCC has also set a goal for 1 gigabit per second (Gbps) download speeds and 500 Mbps upload speeds "to give stakeholders a collective goal toward which to strive – a better, faster, more robust system of communication for American consumers." Given that Frisco is interested in the current and future broadband needs, it is important to note that none of the providers for which there is speed test data can presently meet these speed forecasts. Put simply, the Town of Frisco is not currently served by any provider that has demonstrated the ability to meet residential and business broadband needs of the future.

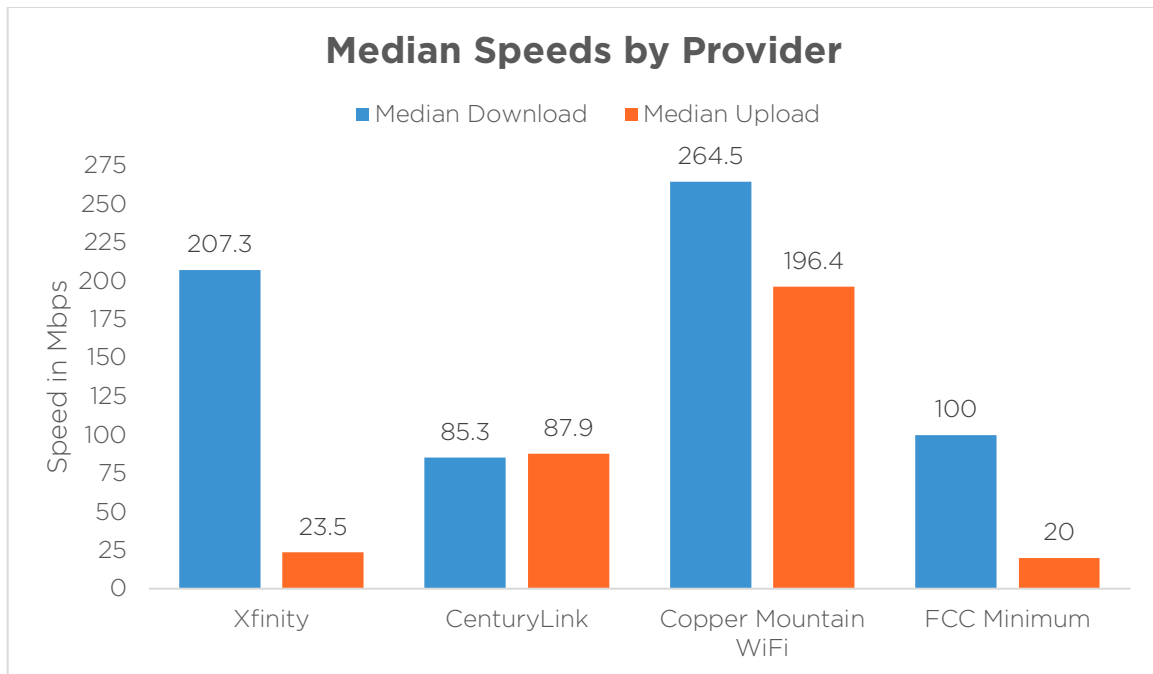
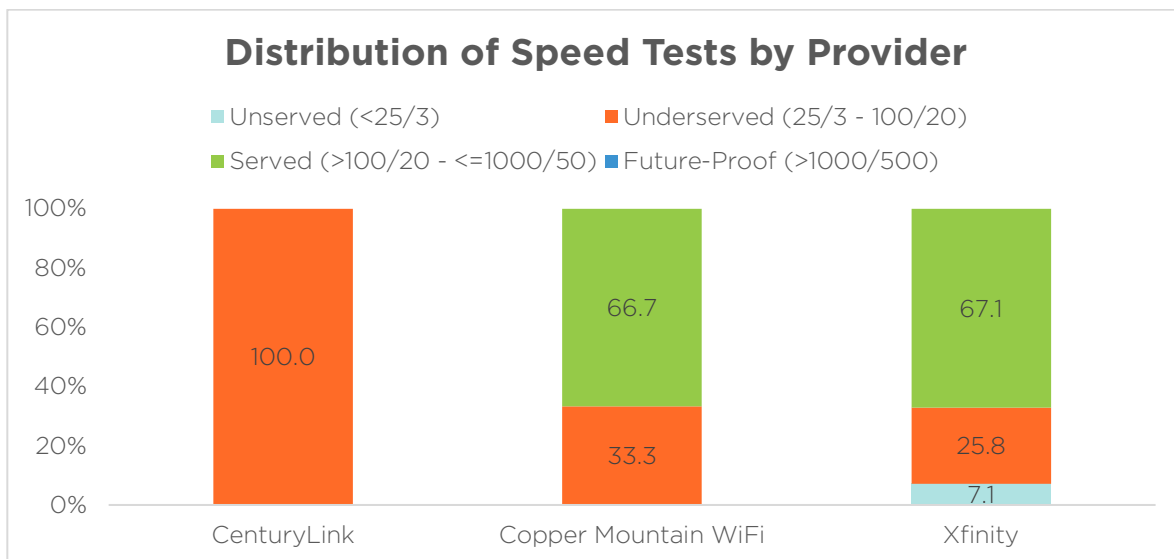


Figure: Median Speeds by Provider, Town-wide

The figure below shows additional detail by provider, highlighting the distribution of residents qualifying as unserved (less than 25 Mbps download/3 Mbps upload) or underserved (less than 100 Mbps download/20 Mbps upload). In total, 7% of survey respondents are unserved, 26% of respondents are underserved, 66% of respondents are served with minimum broadband speeds, and 0% of respondents are served with future-proof broadband speeds.

Figure: Distribution of Speeds by Provider, Town-wide



Community Survey Results

Bonfire also conducted a survey in tandem with the speed test. The survey had 212 respondents representing a 95% Confidence Interval with a 7% error rate (using Cochran's formula). The goal of the survey was to gain an understanding, directly from residents, businesses, and Community Anchor Institutions (CAIs) of internet usage habits, service quality satisfaction, current service issues, and willingness to switch if the Town were to pursue any number of operational models to provide more choice within the area.

Residential Survey Results

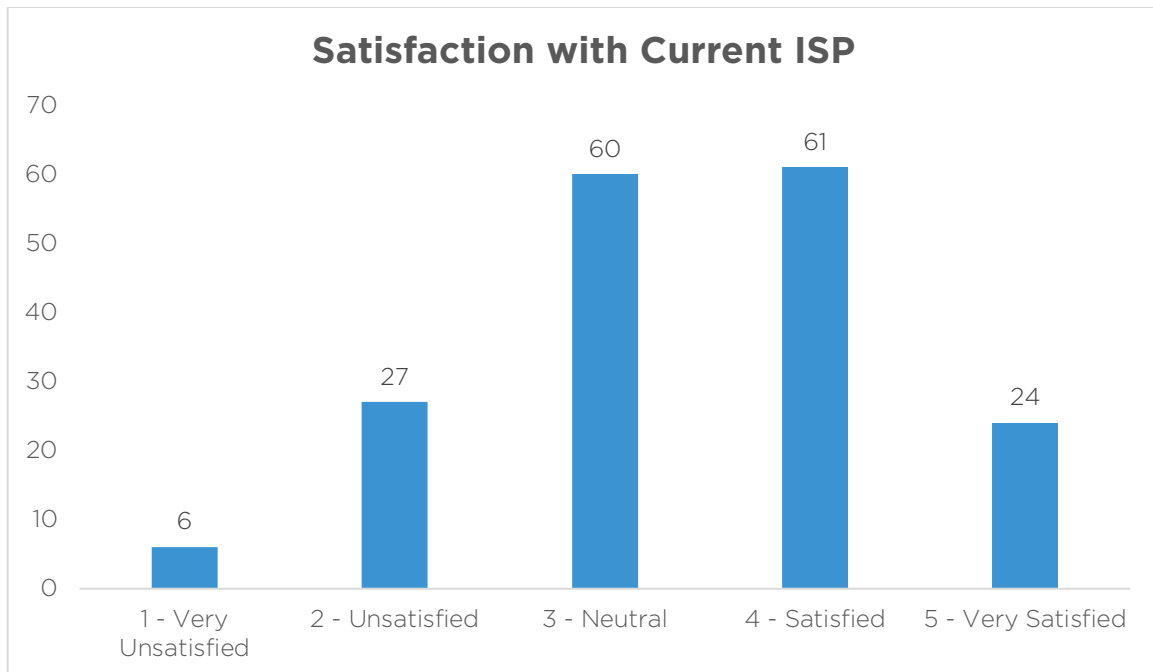
Of the 212 total survey responses, 178 (84%) are Frisco residents (the remaining 16% were Frisco businesses). Approximately 68% of these residential responses were from single family households, whereas 32% of residential survey responses were from individuals living in multi-dwelling units. Responses from residential property owners comprised 89% of the total responses, indicating that the survey adequately reflects the behaviors and sentiments of homeowners that comprise 54% of the Town of Frisco residents. Conversely, renters might be underrepresented by the survey results, comprising 11% of survey responses but nearly 46% of Town residents.

Figure: Comparison of Age Range of Survey Respondents and Town of Frisco Population

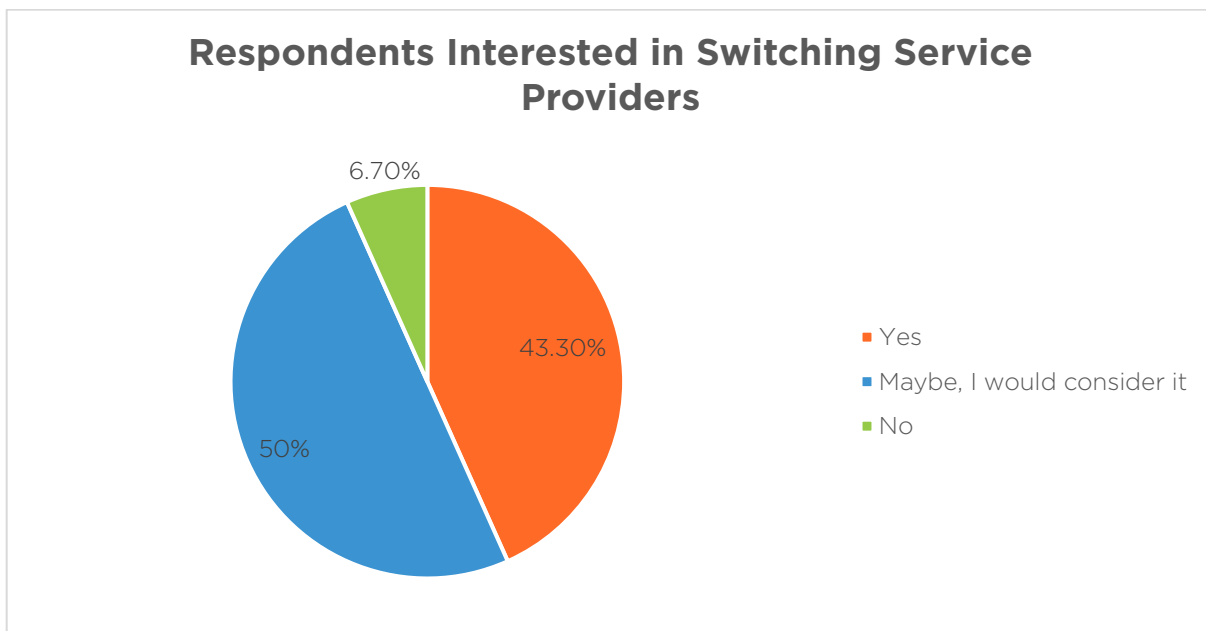
Age Range	Survey Respondents	Town of Frisco Population
18-29	1.1%	8.1%
30-49	30.7%	31.2%
50-64	45.3%	24.1%
>65	22.4%	14.9%

The residential survey data aligns with US Census data surrounding average household size; 47% of respondents live in a household with two internet-using residents, 21% of respondents live in a household with three internet users, and 23% of respondents live in a household with four or more internet users. Additionally, the results of the survey data reflect the emerging, crucial technology needs in the Town of Frisco, where 63% of respondents are either hybrid or fully remote workers or students. Relatedly, when asked "What internet activities are most important to you?", 63% of respondents listed remote work or school related tasks as most important. Other very important internet-reliant activities included general research and learning (43%) and browsing and online shopping (42%). This underscores the importance of the Town of Frisco ensuring the provision of adequate broadband internet for their residents, who are dependent on broadband for their livelihood, learning and the community's economic vitality.

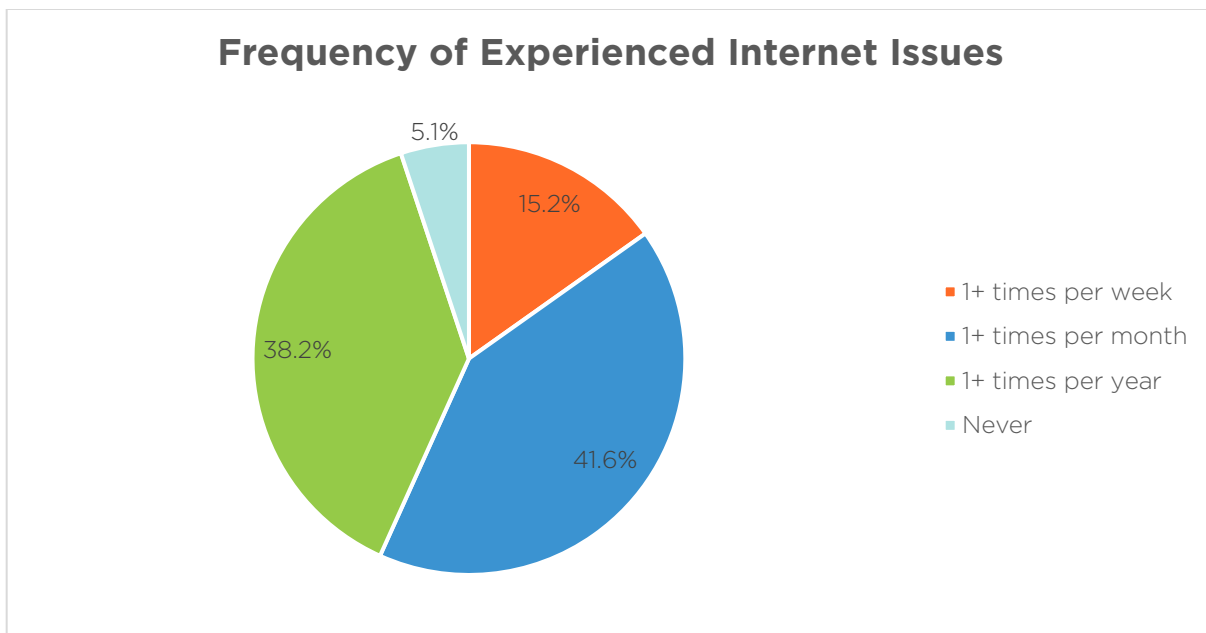
As also reflected in the speed test data, the vast majority of survey respondents are Comcast/Xfinity subscribers (95%) with CenturyLink subscribers being a distant second (4%). Overall, residential subscribers are evenly split on their satisfaction with their ISP, where 52% of respondents indicate they are very unsatisfied to neutral with their service provider while 48% are satisfied to very satisfied with their service provider.



Subscribers in the Town of Frisco indicated that their most desired improvement for their internet services included faster speeds (32%), lower prices (31%), and higher reliability (29%). A small portion (12%) of respondents expressed wanting expanded product offerings from their service providers. Approximately half of respondents receive bundled products other than strictly broadband internet, including phone, mobile phone, and television. Due to these desired improvements, roughly 43% of respondents indicated an interest in switching service providers to increase satisfaction with services, with another 50% of respondents expressing a willingness to consider switching providers.



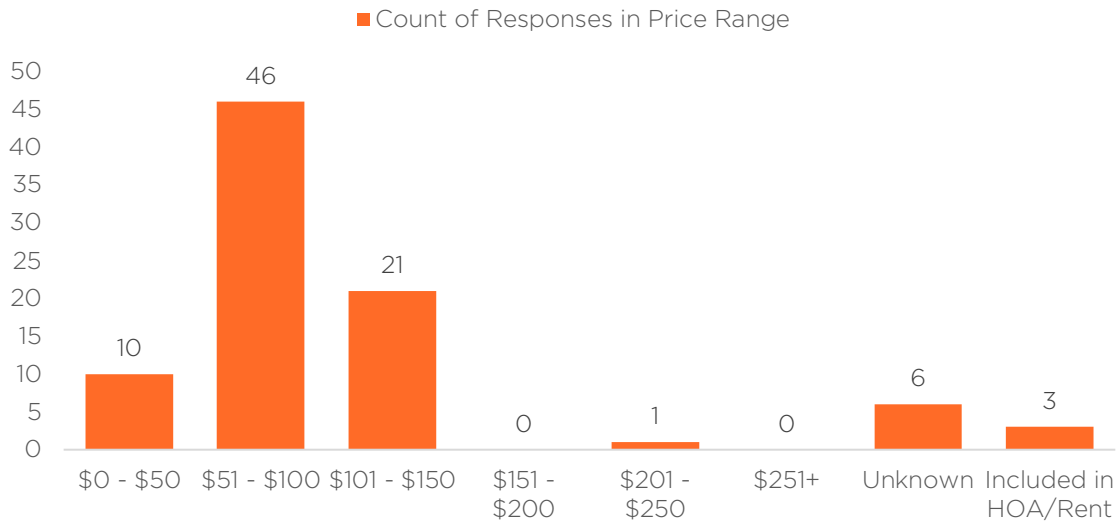
Further reinforcing the issue of low reliability as a reason for the reported willingness to switch providers, 57% of respondents reported experiencing trouble with their internet services 1 or more times per month (42% reported monthly issues, 15% reported weekly issues).



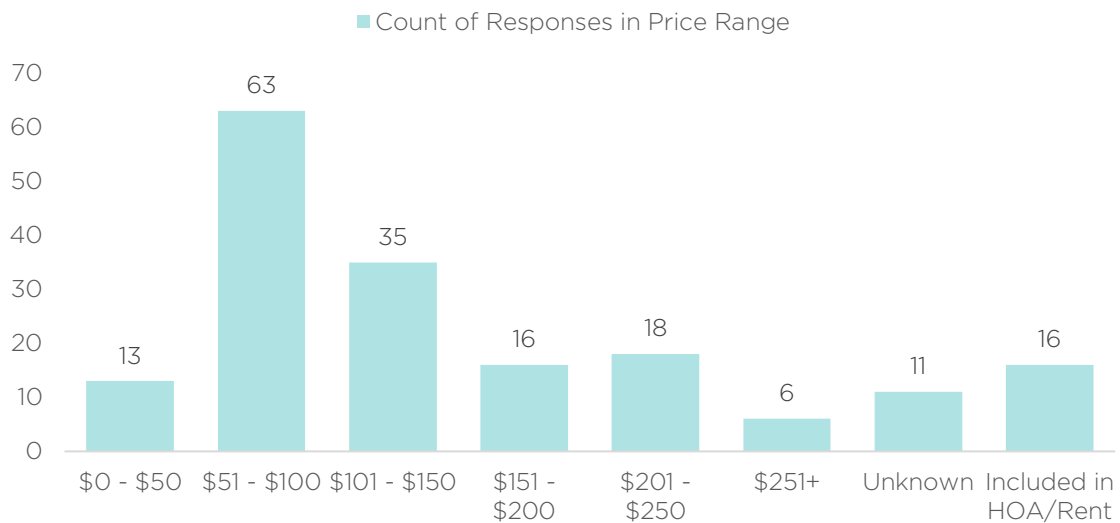
Residents of Frisco overpaying for services that are not adequately meeting their needs, especially their future needs. Most residents are paying over \$100 monthly for their services, while residents purchasing internet and TV services are typically paying \$150 - \$250 for the bundle. Non-bundled internet services average \$50 - \$100. These prices should be expected for faster speeds, at least 500 Mbps or more. Residents indicate that they want better value, specifically for residents who are looking for, but cannot receive, packages under \$50.

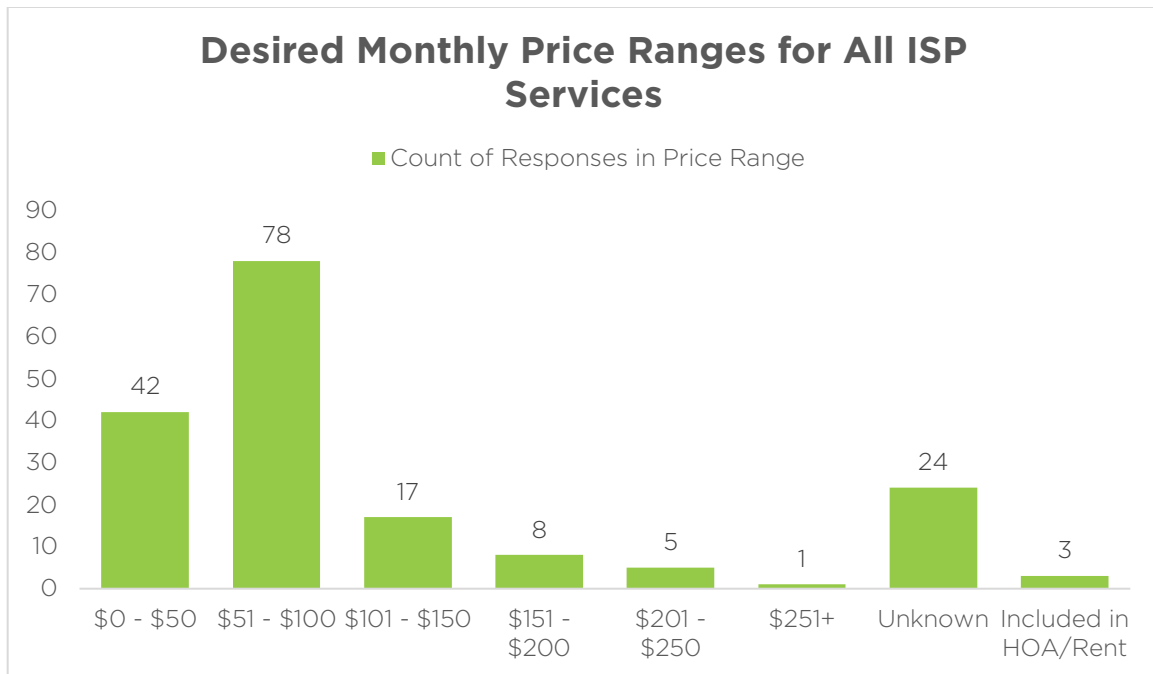
This, coupled with the facts that residents are using their internet connection for remote work or school and 32% of residents have 10+ devices connected to their internet underscores the fact that their needs in the present are just barely being met, and without increased speeds, their needs may not be met in the coming years. As more “smart” devices emerge for consumers and more residents in Frisco work or school remotely, these continued demands will further hinder an underperforming supply of broadband internet services in the Town.

Reported Monthly Price Ranges for Only Internet Services



Reported Monthly Price Ranges for All ISP Services





Community Anchor Institution Survey Results

Community Anchor Institutions (CAIs) are also critical to understanding the broadband needs in the Town of Frisco. The Colorado Broadband Office defines CAIs as: schools, libraries, hospitals, health clinics, health centers, or medical providers, law enforcement, emergency medical service providers, or other public safety agencies, correctional facilities, institutions of higher education, public housing organizations, or community support organizations that facilitate the greater use of broadband services by vulnerable populations.

While Bonfire was not able to directly interview any CAI located in Frisco, generally, broadband internet requirements for these types of institutions is as follows:

- For schools and libraries: services are typically received through the E-Rate program, providing funding for telecommunication services, internet access, and infrastructure. This funding is supported through a contractual, bidding process.
- For hospitals, health clinics and centers, emergency and non-emergency medical service providers: these facilities depend on broadband for various tasks, requiring higher bandwidth speeds and greater dedicated connections for larger offices/centers.
- For law enforcement and correctional facilities: services should be provided via dedicated, secure connections, usually as part of a larger municipal network connection for all municipal buildings, such as Frisco's proposed phases 1A/B.

For community support organizations: internet services can be purchased from any available service provider, where price is likely to be a very important factor in determining service. There are low-cost, wireless service providers available for non-profits, including Mobile Citizen¹³.

Writ large, CAIs require an internet connection to successfully support the community and address digital divides that exist. The types of broadband connections vary depending on the type of anchor institution; many anchor institutions can be served through municipal networks

¹³ [Low-Cost Internet & Mobile Hotspots for Nonprofits - Mobile Citizen](#).

and/or existing programs (like E-Rate), but non-municipally owned medical buildings, higher education institutions, and community support institutions, all rely on existing service providers to meet their needs. According to Colorado Community Anchor Institution data, Frisco does not have any CAIs that are not municipally owned (through the Town or the County) or eligible for E-Rate (such as Summit County Schools)¹⁴. The Town of Frisco does have some non-profits that likely would qualify as a community support institution that are not currently represented in the existing Colorado Community Anchor Institution data, but these organizations are largely seen as “served” by FCC standards and would be served by any future fiber network developed in within Town limits.

Business Survey Results

The Town of Frisco has over 300 businesses that utilize broadband services. Bonfire interviewed 11 local businesses to complete the picture of broadband needs in the community.

Business Name	Type	Reliance on High-Speed Internet (on a scale of 1 – 5, 5 being highest)
Next Page	Retail	5
Antlers Liquor and Wine Cellar	Retail	5
Arrow Insurance Management	Professional Services	5
Butterhorn Bakery	Food and Beverage	4
10 Mile Music Hall	Entertainment	5
Evo3 Workspace	Real Estate	5
Rocky Mountain Credit Union	Financial Institution	4
RJR Ventures	Automotive	5
AC Hotel	Hospitality	5
Mark Clapsadle, Architect	Professional Services	4
Snowshoe Motel	Hospitality	5

Frisco businesses indicated an extremely high reliance on broadband internet services, with all businesses being reliant and 72% of businesses being very reliant. Businesses expressed a much lower satisfaction with their current services, compared to the residential survey. Business customers describe consistent difficulties with their internet services, ranging from losing service daily, weekly and monthly at least, as well as being very affected by higher crowds in Town and rainstorms. Many interviewees also expressed that these issues affect their point-of-sale system, which negatively impacts their sales revenue. Some report not being able to reliably look up products in a wholesale catalog to quote a customer for a price, others report losing sales due to point-of-sale system failure.

64% of business customers report that better reliability is their most desired improvement to their broadband internet experience. Interestingly, at least three interviewed businesses also noted that they do pay for a failover option if their primary network connection is not working and oftentimes, they say the failover option does not work effectively either. Additionally, these businesses emphasized the lack of choice of providers as bothersome to mitigate their reliability issues. Nearly 82% of businesses stated they were in a contracted service, many of which are contracted only because there is no other option; this 82% of businesses also stated they would happily switch business internet providers if another option were available, especially for improved reliability. Ultimately, businesses in Frisco are not well-served by their current provider and would appreciate Town efforts to bring a reliable, fiber-based solution that would advance economic development within the community.

¹⁴ [Colorado Community Anchor Institutions | Colorado Community Anchor Institutions | Colorado Geospatial Portal](#)

Network Design

Bonfire has worked closely with the Town to design a Phased, Town-wide network, also inclusive of areas adjacent to but outside of Town limits. Bonfire's design leverages existing City duct where available, is 100% underground and involves a strategic blend of point-to-point (P2P, which requires more complex, active, monitored electrical components) and Passive Optical Network (PON, which requires fewer electrical components and relies on passive splitters) technologies to cater to diverse connectivity needs efficiently. The deployment design began with an in-depth assessment of the Town's geographic layout, demographic distribution, and existing infrastructure to determine optimal fiber routes and deployment strategies. The design also integrates the capacity for Town Wi-Fi.

For municipal infrastructure requiring high bandwidth and dedicated connections, point-to-point fiber optic links have been employed. Leaving from the Central Office located at the Frisco Adventure Park, the P2P connections will provide secure and reliable transmission paths for critical services for the Town of Frisco's government offices and utility networks. The design considers factors such as latency, signal integrity, and redundancy to ensure uninterrupted operation and resilience against potential disruptions. Point-to-point options have also been factored in for businesses in the two core business districts.

Simultaneously, the network design deploys a Passive Optical Network (PON) architecture that extends fiber connectivity directly to residences and businesses, delivering symmetrical gigabit internet access and advanced digital services. The PON design utilizes a centralized optical line terminal (OLT) from the Public Works building on School Road and the Central Office at the Frisco Adventure Park to efficiently distribute broadband.

The use of microduct bundles in fiber network construction offers flexibility and scalability, allowing for easy expansions with additional fiber cables as the demand for bandwidth grows over time. Microducts were chosen for their lightweight and ease of installation, which proves crucial in areas with limited space, accelerating deployment while minimizing disruption to ongoing services and daily activities. Microduct bundles also facilitate the use of microtrenching techniques, which involves minimal disruption to existing infrastructure such as pavement. This approach not only reduces environmental impact but also mitigates community disruption during installation.

Figure: 2-way, 7-way and 12-way Microduct bundles¹⁵



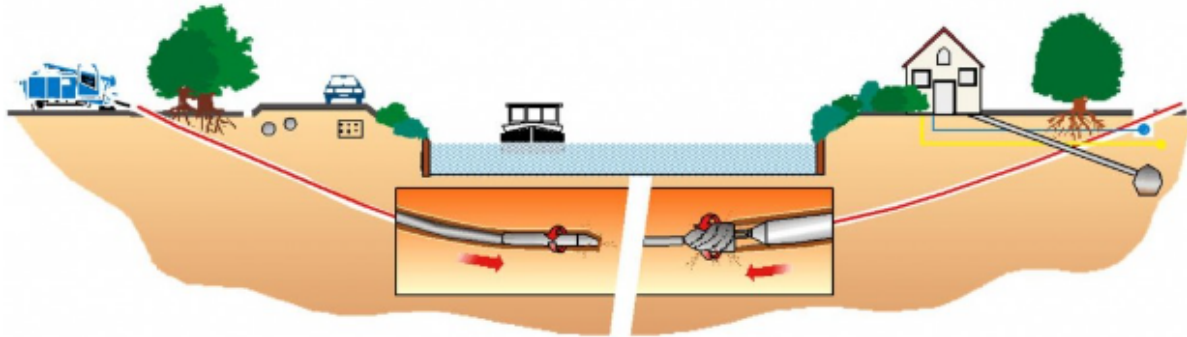
Underground Fiber Placement Methods

Bore

Boring, also known as horizontal directional drilling (HDD), involves drilling a horizontal path underground using a boring machine. The bore path, typically ranging from 2 to 8" inches in diameter, allows duct to be placed without disturbing the surface above. This technique is particularly advantageous for crossing obstacles such as roads, railways, or rivers, ensuring minimal surface disruption.

¹⁵ Source: hexatronic.com/en-us/fiber-solutions/products?product=microduct-assembly-7/3.5-mm-with-tracer-mpb30278-plus-uvf&cat_id=32116

Figure: Diagram of HDD/Boring¹⁶



Plow

In this method, a cable plow is used to cut through the ground and simultaneously lay the fiber optic cable in the created trench. The trench depth can vary but typically ranges from 18 to 48 inches. This method is known for its efficiency from both a labor hours and cost perspective and is generally employed in rural or open areas where surface disruption is acceptable. The plow method is most suitable for long-distance fiber optic cable installations.

Figure: Utility Plow¹⁷



Trench

Traditional trenching involves excavating a trench to place the fiber optic cable, which is then backfilled and restored. Trench depths typically range from 18 inches to several feet, depending on the project requirements. This method is versatile and widely used, though it can be labor-intensive and cause significant surface disruption, necessitating careful planning and

¹⁶ Source: vilkograd.com/activities/directional-drilling-with-radio-control-hdd-method/horizontal-directional-drilling-with-radio-control/?lang=en

¹⁷ Source: bronrwf.com/product/bron-175

restoration efforts. In new construction developments, fiber optic cables are often placed in an “open” or “joint trench” along with other utilities, to prevent the need for future disruption of the ground surface.

Figure: Fiber optic conduit laid in a joint trench¹⁸



Microtrench

Microtrenching uses a narrower and shallower trench compared to traditional trenching, typically 1 to 2 inches wide and 12 to 24 inches deep. This technique minimizes surface disruption and is ideal for urban environments where space and infrastructure considerations are critical and reduces surface restoration time and efforts and allows hard surfaces to maintain integrity longer. Microtrenching has become increasingly popular in densely populated areas to reduce impact on existing roadways and sidewalks and the opportunity for rapid deployment (3-5x the speed of boring) when compared to more traditional placement methods. For mountain communities such as Frisco, microtrenching also represents predictable deployment costs, as the shallower depth allows for avoidance of solid bedrock found at boring depths. Microtrenching techniques also allow for a more consistent saw cut, reducing the need for cobble and rock adder that happen during HDD and standard trenching.

While Bonfire’s initial HLD was completed as a 100% bore design, we expect to identify opportunities to leverage both trench and microtrench during a low-level engineering design process. We recommend the Town explore microtrenching where feasible as an opportunity to decrease cost and make the build more attractive. This exploration should include adopting microtrenching specifications that will be both attractive for private development, and sustainable given Frisco’s mountain climate.

¹⁸ Source: duraline.com/installations/trench-installations

Figure: Microtrenching and backfilling of a microtrench post cable installation¹⁹



Network Phasing

Bonfire has worked closely with the Town to design a Phased, Town-wide network, also inclusive of areas adjacent to but outside of Town limits. Bonfire's design leverages existing City duct where available and is 100% underground.

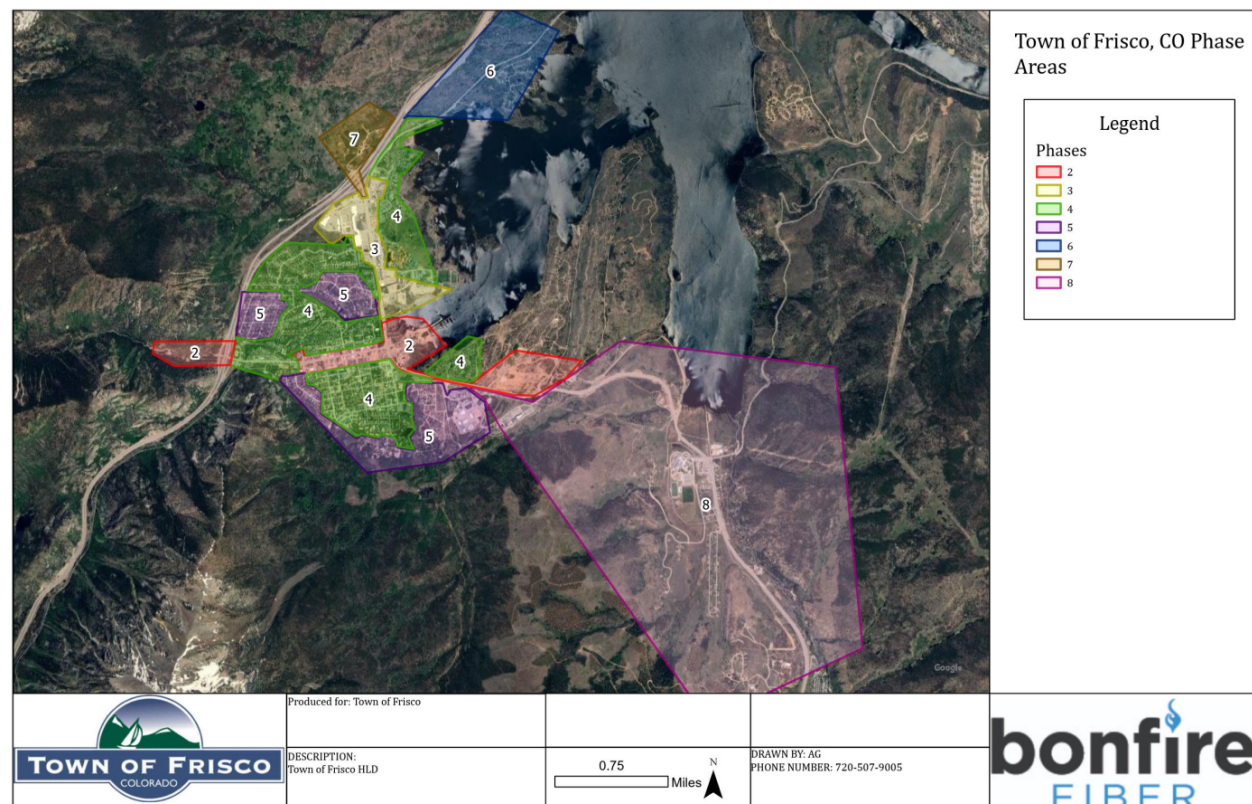
¹⁹ Source: nextecsystem.com/en/nextec-diamond-trenching-system/how-it-works

Phases within the Town boundary follow the phasing approach as envisioned by the Town and outlined in the Request for Proposal. Phases outside of the Town boundary allow the Town the opportunity to provide fiber to additional homes and businesses and earn revenue from additional potential customers. Descriptions of each phase area are below:

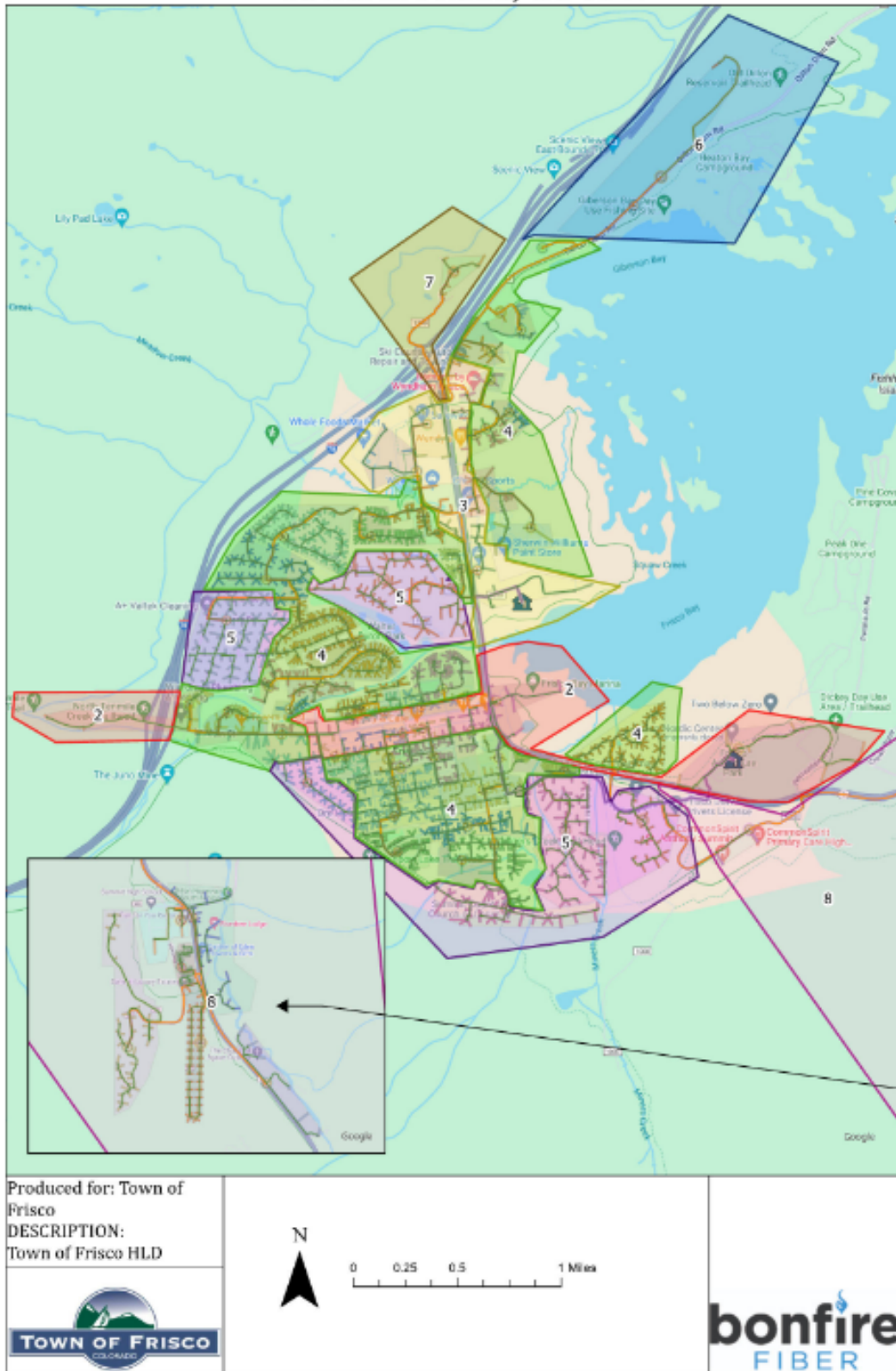
Phase Number	Bore Footage	Total Route Footage*	Demand Points	Recommendation
1A	12,975'	15,961'	8	Only construct as part of larger, Town-wide build
1B	31,231'	31,231'	13	Only construct as part of larger, Town-wide build
2	31,296'	31,296'	484	Construct via preferred business model
3	33,866'	33,866'	296	Construct via preferred business model
4	89,808'	89,808'	3,305	Construct via preferred business model
5	39,218'	39,218'	387	Construct via preferred business model
6	3,595'	3,595'	837	Construct via preferred business model
7	4,072'	4,072'	6	Construct via preferred business model
8	53,312'	53,312'	276	Construct via preferred business model

*Differences between Bore and Route Footage are caused by use of existing Town conduit in Phase 1A and parallel boring to maintain route diversity in Phase 1B.

Figures: Overview of Town-Wide High-Level Design

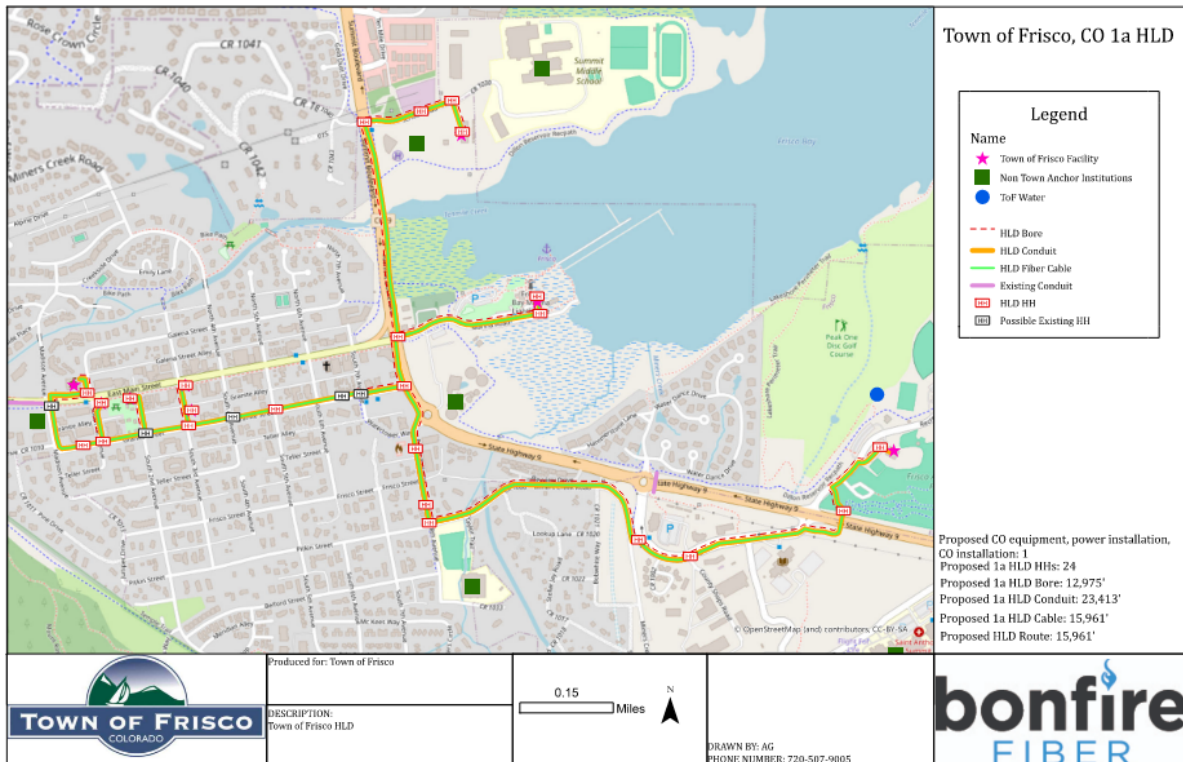


Town of Frisco, CO HLD



Phase 1A: Phase 1A provides fiber directly from the Central Office to the eight Town of Frisco facility buildings specified in the RFP.

Figure: Phase 1A HLD



Phase 1B: Phase 1B provisions six non-Town Anchor Institutions and seven Town of Frisco water facilities with fiber.

Figure: Phase 1B HLD

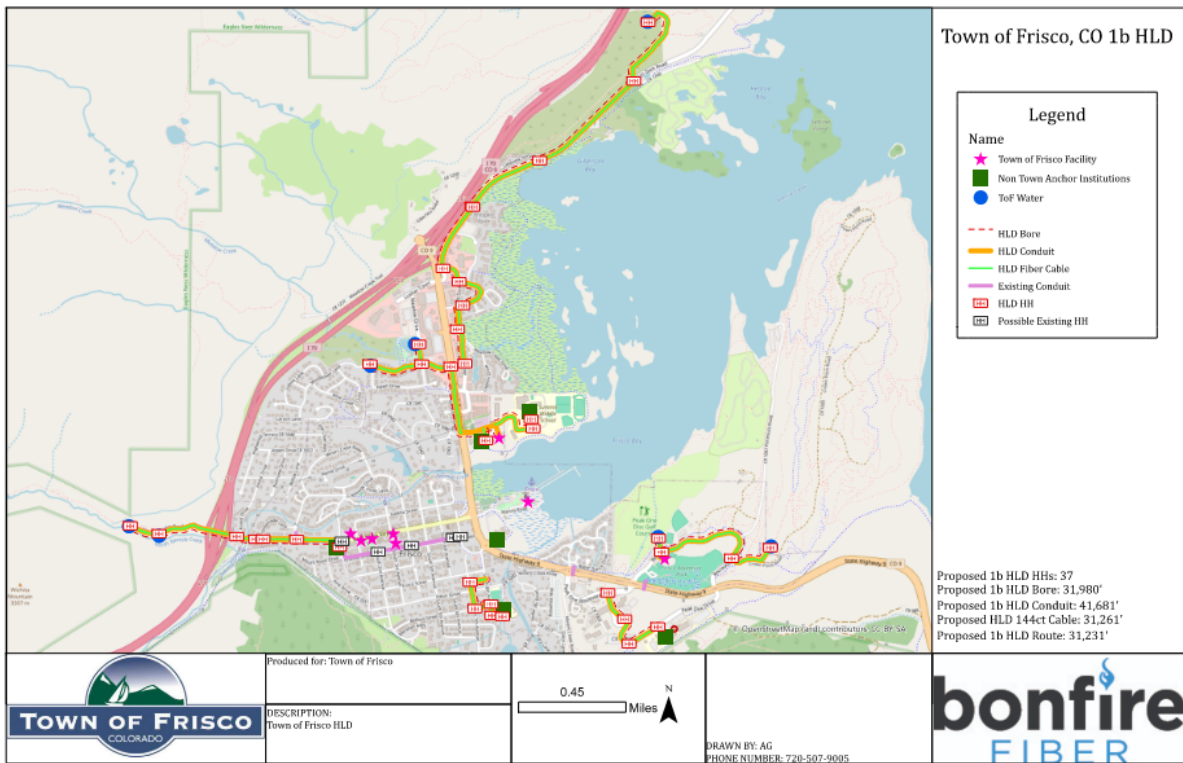
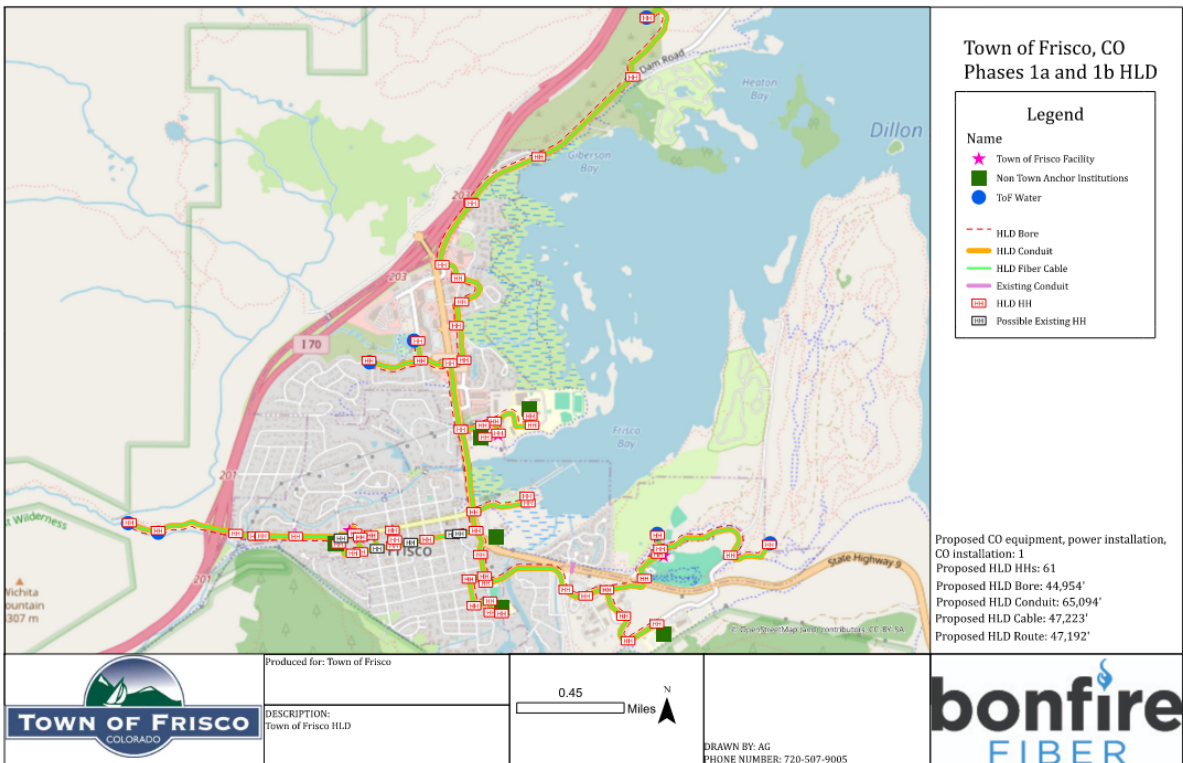


Figure: Phases 1A & 1B combined HLD



Phase 2: Phase 2 provides fiber for the Town of Frisco's downtown district businesses. Fiber has been allocated to provide businesses and living units within this phase options for PON (standard passive optical network), point-to-point, and Town Wi-Fi.

Phase 3: Phase 3 will provide fiber services for the business district on the north side of Town along Summit Boulevard with fiber PON or point-to-point internet services.

Phase 4: Phase 4 will serve all residences within Town Limits.

Phase 5: Phase 5 provides fiber for dense residential neighborhoods in the unincorporated areas directly adjacent to Town. Each Distribution Design Area within Phase 5 can be individually added to or subtracted from the network build.

Phase 6: Phase 6 would provide fiber to a large future multi-dwelling unit (MDU) with 830+ planned units.

Phase 7: Allocates fiber for a small residential neighborhood northwest of Interstate 70.

Phase 8: Phase 8 would serve Summit High school and surrounding businesses and residential neighborhoods.

Design Recommendations

The proposed fiber network design for the Town incorporates several strategic recommendations. Utilizing microduct bundles will optimize installation efficiency. Minimizing placement along the highway will reduce the amount of permitting. Implementing an Optical Line Terminal (OLT) for redundancy mitigates the risk of single points of failure, ensuring continuous service reliability. To maintain operational integrity and reduce cost, design boundaries based on the Tenmile Creek divide are advised, avoiding unnecessary bridge attachments or underground boring near bridges. Microtrenching in denser downtown and business areas will expedite construction timelines and minimize disruptions to traffic flow (though, microtrenching is not included in our design). Furthermore, detailed low-level design will pinpoint optimal trenching locations, minimizing construction cost across the network. In accordance with the Town's dig-once ordinance, low level design will identify and propose any material and access structures for adjacent phases during the target phase design. These integrated strategies aim to establish a robust and resilient fiber infrastructure tailored to the Town's specific geographic and operational needs.

Intrastate Collaborations

Middle Mile

The Town has several options for connecting its FTTP network to existing middle mile fiber for purposes of data transport to the broader internet. In Summit County, there is currently one public middle mile provider and one private middle mile provider capable of connecting the Frisco network back to a major interconnection point in Denver, such as 910 15th S.

Project THOR

Project THOR, a middle mile network constructed by Northwest Colorado Council of Governments, provides over 400 miles of middle mile fiber across 14 communities served by NWCCOG, with the expressed purpose of "bringing accessible, affordable, reliable broadband to rural communities across Northwest Colorado."²⁰ Project THOR makes middle-mile connectivity available to local governments, municipal networks, community organizations, and

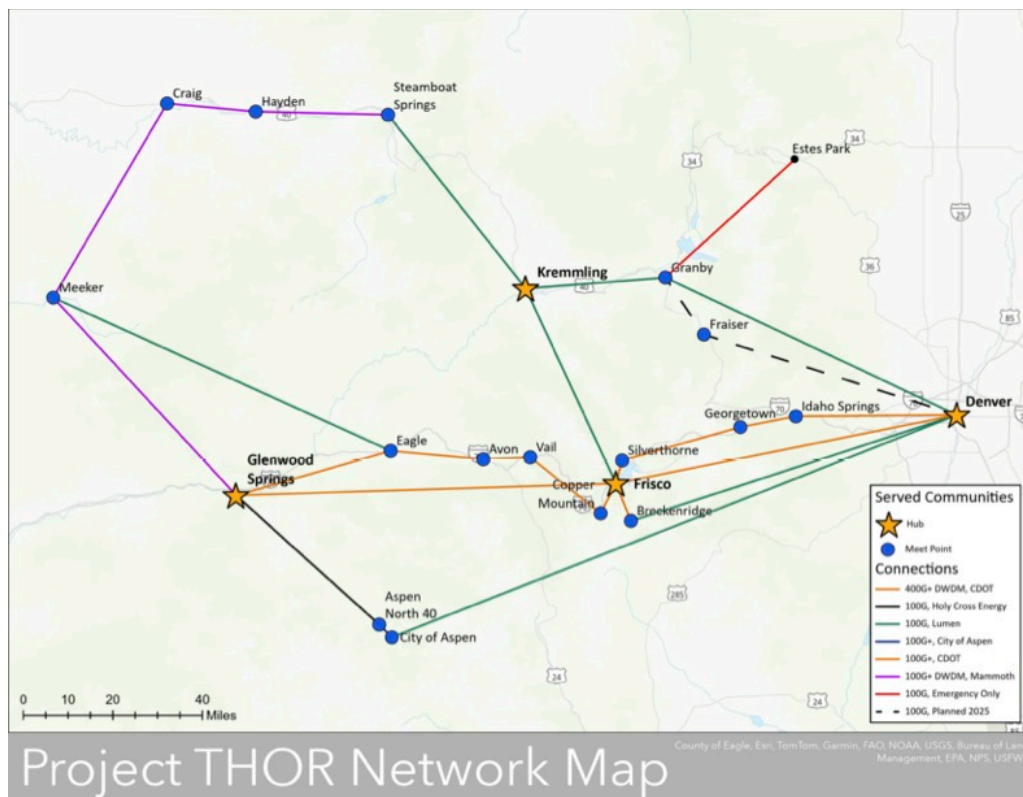
²⁰ Source: nwccog.org/programs/broadband-program/project-thor

private ISPs; as shown below, the network is composed of geographically diverse fiber rings, preventing an interruption of service for residents, businesses, and critical community services in the event of a fiber cut. Project THOR is funded via a combination of project partner contributions and the Colorado Department of Local Affairs (DOLA). Notably, THOR is an open access network, available to serve both local governments and private ISPs.

Project Thor provided pricing for 10Gb lit transport from Frisco to Denver on a 36-month contract:

Protected Transport (redundant route path): \$2,800/month

Unprotected Transport (single route path): \$1,500/month



Lumen

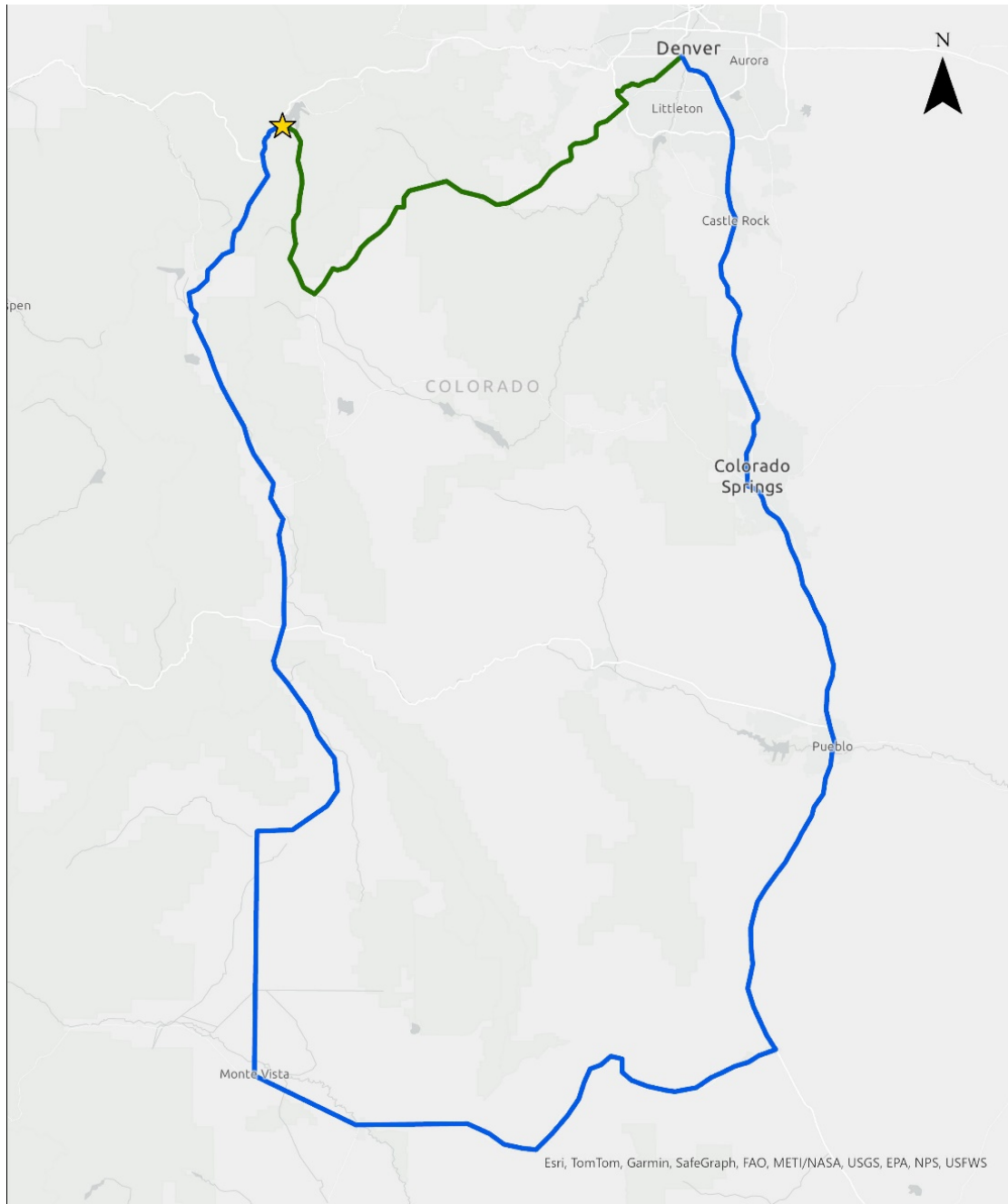
Lumen (CenturyLink) is the only private middle mile provider with transport capabilities between Frisco and Denver. To obtain pricing and service offerings available, Bonfire worked with Capcon Networks, an independent network consulting firm based in Austin, TX. Capcon found that Lumen could provide diverse transport to Denver via the below primary (green) and secondary (blue) routes across different regions of the state. Approximate monthly lease costs obtained by Capcon for 10 Gb transport on a 60-month contract was as follows:

Primary Route - \$3,300/month

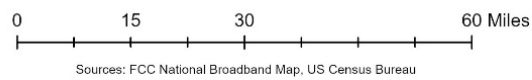
Secondary Route - \$3,400/month

Because Frisco would need to lease both routes to create a redundant middle mile route, this pricing represents a significant increase over the cost of Project THOR.

Figure: Lumen Available middle mile routes



- ★ Frisco
- Primary Route
- Secondary Route



bonfire

Summit County

Bonfire and the Town met with Neal Stolz, Information Systems Director for Summit County. He indicated that the County would be excited to partner with the Town by facilitating access to the Project THOR network. As a network co-owner, the County currently provides middle mile service via THOR to several other entities within Summit County, and indicated there would be no issue accommodating Frisco's middle mile requirements.

CDOT

Bonfire and the Town also met with Leslie Gaylord of CDOT's Partnerships and Fiber team, who confirmed that CDOT would be supportive, responsive and engaged should the Town move forward on any FTTP initiative requiring access to CDOT right of way (ROW). She emphasized that CDOT desires strong collaboration with all involved stakeholders in their projects, and that a majority of distinctives in any agreement between the Town and CDOT would be open to negotiation and discussion. CDOT did not indicate any interest in partnering with the Town from a financial or network operations perspective.

Private Providers

Bonfire conducted interviews with two private internet service providers (Xstream Internet of Castle Rock, CO and Vero Networks of Boulder, CO) to gauge interest in serving the Town with Fiber to the Premise, discuss various operating models, and understand each provider's requirements and incentives. While each provider had unique recommendations and perspective for the Town, common themes included:

- Providers were open to a variety of operating models within a P3 structure, but each valued ownership of some or all network assets as assurance of a long tenure operating in the market. Both providers were open to a long term lease agreement under the right commercial terms.
- They expect build costs to be a challenge due to ground conditions and areas of relative low density, but see opportunities to mitigate these, including microtrenching, bulk billing agreements, and negotiated rights of entry with owners of multi-dwelling units.
- Both providers would value a capital contribution from the Town, via cash injection or construction of a portion of the network which the provider could leverage to serve the broader Town.
- Both providers would value exclusivity in their operations and service of customers on the network to bolster their economics and the attractiveness of the market.

Operating Models

Various business models exist in the telecommunications industry today, and there is no one size that fits all. Each municipality has its own nuances and characteristics that affect which model works best. Bonfire has reviewed the full spectrum of opportunities for the Town, for both the Phase 1A & B network connecting Town-owned facilities and Community Anchor Institutions, as well as the Phase 2-8 network connecting all addresses in the Town and surrounding areas. For the purposes of this study, Bonfire has analyzed the operational nuances and the return profile for what we believe to be the strongest contenders that provide the most value to the Town and its residents. For the Phases 2-8 network, these operating models include: Public Private Partnership, Municipally Owned Third-Party Open Access Operations, Municipally Owned and Operated, and Fiber to the Curb.

Phase 1A & B: Network connecting Town-Owned Facilities and other Critical Infrastructure

For the Phase 1A & B network connecting Town-owned Facilities and other critical community anchor institutions, the Town should expect to self-manage the network via their IT Department to provide and manage lit services for these facilities. In this case, the Town would

have to bear the cost to light this dark fiber as well as the operational burden of managing the network for the Town-owned facilities. However, the Town would have the benefit of an exclusive and prioritized connection to their facilities, which would represent a significant improvement in reliability, customization, and quality from incumbent service providers serving these facilities today.

As an alternative, the Town could receive lit services to each of these facilities from a broader Town-wide network (discussed below), in essence becoming a customer of the network and any third-party service providers operating on the network. Depending on ownership and roles and responsibilities in a Town-wide network, the Town may give up control of the service quality and be required to pay a monthly subscription to an ISP, but would also have no operational burden to monitor and maintain the service to each building. Conversely, a Town-owned and operated network would provide the Town with full autonomy in serving these facilities, but would also represent a significant financial and operational undertaking as thousands of other premises would be served by the network as well.

Phases 2-8: Broader Town-wide Network Public Private Partnership (P3)

In this model, the Town partners with a private entity to finance, build, and operate a fiber to the home network. In most P3 scenarios, the private entity will fund a large portion of the cost of building the network and they also take responsible for management and oversight of the design, construction, and operation of the network. The private entity then chooses to either operate the network and provide retail services to residents or outsource one or both tasks to a third party. This model allows the Town to leverage the expertise and resources of the private sector and receive a Town-wide FTTP network with less investment requirement versus fully funding the network themselves; in an optimal P3 scenario, the Town should also expect to receive a portion of network revenue as well as spare fiber and conduit for use by the Town. This can be accomplished via a signed franchise agreement, revenue share agreement, or alternative arrangement agreeable to both parties. The private entity benefits from the ownership and operations of the network and the revenue associated with end user service and potentially lease/ Indefeasible Right of Use (IRU) as well. The result is a win-win partnership that brings high-speed, reliable internet access to residents at an affordable cost. Given that any agreement between the Town and a private ISP would be bespoke and negotiable in its terms, compensation, and details, modeling a likely scenario is not a worthwhile or useful exercise. If the Town moves forward with a P3 agreement, the details in this report will help equip the Town with the information and considerations it needs to enter into the most beneficial agreement. In any P3 scenario, the Town should consider offering the \$5 million it has allocated towards broadband over the next five years as a capital contribution to aid the ISP in the cost of construction and network start-up. This contribution would make an P3 more attractive to private ISPs and would situate the Town in a good position to receive a revenue share or other payment structure from the P3.

Like any scenario, this model is not without its drawbacks, which the Town should consider before entering into an agreement with a private entity. Without ownership of the network, the Town would have limited control over key network decision distinctives, such as network design, day to day operations, and pricing. When considering a P3, selecting the right partner and negotiating favorable terms is crucial to ensure successful outcomes for the Town and all residents.

Fiber to the Curb (FTTC)

The Fiber to the Curb (FTTC) model stands out as a strategic and innovative approach to broadband infrastructure deployment. To leverage FTTC, the Town would construct a fiber optic network extending to all addresses, terminating at the curb or neighborhood node. Unlike traditional Fiber to the Premise (FTTP) models, FTTC then involves engaging a third-party

service provider to operate the network and act as the ISP to the customer, beginning by installing and owning the customer connection or “drop.” Under a FTTC model, the ISP would pay a lease fee to the Town for access to the FTTC network, usually over a long-term period, such as 30-years. This allows the Town to access the municipal bond market and underwrite the project by securing the lease payments.

This model presents unique mutual advantages to both the Town and a third-party provider. For the Town, FTTC would reduce the total cost of the network, and would shift the operational burden and cost of drops to the service provider, while still ensuring that all addresses are connected. For the service provider, FTTC allows them to service end-customers without the financial investment associated with constructing and owning a full FTTP network. At the same time, the service provider owns the customer connection, making customers less likely to switch.

FTTC also presents some key disadvantages that should be considered. First, while the Town may own the network to the curb, quality of customer experience is fully dependent on the contracted ISP who owns the drops. Second, though being municipally owned, FTTC does not give customers the freedom to choose their service provider that is found in a true open access model. Finally, for the Town, connecting all homes and businesses will still require the Town to bear most of the capital costs to build and own the network, without full control of operations and quality of service / customer experience.

Municipally Owned Third Party Open Access Operations

In this model, the Town builds and owns the network infrastructure, and hires a Network Operator to manage the network; the network operator then invites multiple private ISPs to provide end customer service to residents and businesses. The Town will hire a general contractor and finance the cost to build a fiber network to the curb as well as all customer premise drops. The Town will then contract with a Network Operator to assume responsibility of all day-to-day activities of the network, including onboarding and managing qualified private ISPs, configuring and managing the network, installation (or facilitating installation) and activation of customer premises, and troubleshooting/break fix of any network outages.

Following an Open Access model, residents of the Town will have the option to choose from a marketplace of ISPs, and since the network is fully funded by the Town, each ISP has no capital contribution and thus can focus on differentiation of product offering, price and customer service. The private ISPs handle all customer relationships, while the cost of the customer premise drop, and thus the ownership of the fiber drop asset, will be the Town's responsibility. The Town owns the entire fiber network from the central office to the customer premise, while the Network Operator manages the ISPs. The Network Operator and ISPs do not have any asset ownership, and thus do not have to bring any capital to the project. The result of an open marketplace enabled by an open access is customer choice, better customer service, lower prices, and more competition.

Municipally Owned & Operated

In this model, the Town assumes all roles in a vertical integration of the network: infrastructure owner, operator and ISP. The Town will hire a general contractor and finance the cost to build a fiber network to the curb as well all as customer premise drops. In addition, the Town will act as the retail service provider for all the addresses it passes. This is the most operationally intensive of the models, as the Town is responsible not only for the network design and buildout, but also all operations and maintenance and customer relationships. This model can be especially successful when incumbent operators have monopoly status with high prices, legacy infrastructure, inferior service quality, and/or low customer satisfaction. Adding a single ISP does not significantly expand choice or competition as compared to an Open Access model; however, if the Town is in full control of pricing and only needs to meet its debt

obligations, this can be an efficient way to bring high-speed, affordable internet access to residents. Under this model the Town is a full-service ISP, owning everything from the infrastructure to the customer relationship, and is competing against the incumbents head-to-head.

As shown in the figure below, these operating models present a varying level of control and operational responsibility to the Town, and the benefits of each should be weighed against the cost to deploy and operate and the level of control it provides.

ISP/ NOp P3	Fiber to the Curb	Municipally Owned 3 rd Party Open Access Operations	Municipally Owned and Operated
Retail Services	Retail Services	Retail Services	Retail Services
Network Operations	Network Operations	Network Operations	Network Operations
Customer Install	Customer Install	Customer Install	Customer Install
Infrastructure Owner	Infrastructure Owner	Infrastructure Owner	Infrastructure Owner

3rd Party Responsibility
 Frisco Responsibility

Financial Analysis

To make an informed business decision, the Town of Frisco must consider the financial profiles of each of the operating scenarios laid out in the section above. This section seeks to examine the financial feasibility of each of the models defined in this report. Bonfire's analysis illustrates the high-level financial results of each model, enabling the Town to make informed decisions on key questions such as the scope, ownership, and operations of a network. Bonfire has separately provided the Town with complete financial models in Excel format which the Town can provide to its financial advisors.

In summary, this section shows the financial results of each operating model for a Phase 1A & B network, a Town-only network (Phase 2-4) and a Broader (Phases 2-8) network. Across all scenarios, the results are that all three operating models are not financially viable under current circumstances. Given the costs to construct the network, each scenario results in a net cash deficit beyond the Town's \$5 million contribution. Even with the Town raising a municipal bond, a cash deficit exists, and the models show that there will be issues with the Town meeting certain covenants of the bond, namely maintaining an acceptable debt service coverage ratio. These results are not surprising to Bonfire given the high construction cost per passing, driven predominantly by rock/cobble adders. Since the fiber business is one where the rates charged to customers have fairly defined bookends based on market competition, there is only so much revenue per home that the business can generate. As such, above a certain construction cost

per passing threshold, the business case begins to breakdown. This is the main reason why fiber is generally deployed in denser urban and denser suburban areas, especially where there are existing telephone poles and/or favorable ground conditions. These characteristics lower the cost per passing for the business case.

However, a clear path towards viability exists for each model: by establishing a microtrenching standard, the cost of rock/cobble adders would evaporate from the construction cost. On the edges, the Town can also consider supplementary levers to make each business case more attractive, such as adjusting headcount to use more existing staff or adjusting pricing; however, as described above, there are only so many tweaks that can be made before the business case becomes built on unrealistic and unachievable assumptions.

Below are the key assumptions and results associated with each scenario, from the perspective of build scope and operating model:

Phase 1A & B: Network connecting Town-Owned Facilities and other Critical Infrastructure

Revenue Assumptions:

- Business Year 1 Weighted Average Revenue per User (ARPU) per premise: \$0.00 per month – assuming no revenue to the network from other Town facilities/departments or Community Anchor Institutions
- Business Installation Charge (one time): \$0.00

Capex Assumptions:

- Upfront Construction Capex (Engineering, Materials, Labor and Equipment):
 - Phase 1A: \$1,830,213
 - Phases 1A & B: \$5,970,108
- Customer premise drop Capex: \$0.00 – included in cost of build

Opex Assumptions:

- Colocation Rent
 - \$0.00 per month – assuming the Town will provide its own space for Colocation of network equipment
- Transport/Middle Mile
 - \$2800.00 per month, rising to \$3736.61 per month – assuming the Town will leverage Project THOR to provide Transport of network traffic to Denver
- Direct Labor Cost
 - \$0.00 per month – assuming the network managed by existing employees given size/scope
- Fiber Maintenance
 - \$923.57 per month rising to \$2,958.56 per month
- Software
 - \$3.00 per month per premise managed, rising to \$7.07 per month per premise managed

Results:
Phase 1A

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total Network Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ISP Take	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue to Frisco	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capex											
Engineering	\$ -	\$ 22,187	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 1,458,704	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 219,201	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 174,083	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 174,083	\$ -	\$ -	\$ -	\$ -
Total Construction Capex	\$ -	\$ 1,874,175	\$ -	\$ -	\$ -	\$ -	\$ 174,083	\$ -	\$ -	\$ -	\$ -
Drop Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Drop Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Drop Capex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capex	\$ -	\$ 1,874,175	\$ -	\$ -	\$ -	\$ -	\$ 174,083	\$ -	\$ -	\$ -	\$ -
Opex											
Network Opex	\$ -	\$ 42,971	\$ 43,307	\$ 43,646	\$ 43,989	\$ 44,335	\$ 45,555	\$ 45,908	\$ 46,265	\$ 52,575	\$ 58,562
Operational Opex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Network Operator Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Opex	\$ -	\$ 42,971	\$ 43,307	\$ 43,646	\$ 43,989	\$ 44,335	\$ 45,555	\$ 45,908	\$ 46,265	\$ 52,575	\$ 58,562
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ (42,971)	\$ (43,307)	\$ (43,646)	\$ (43,989)	\$ (44,335)	\$ (45,555)	\$ (45,908)	\$ (46,265)	\$ (52,575)	\$ (58,562)
<i>Memo: EBITDA Margin</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Project FCF (EBITDA - Capex)	\$ -	\$ (1,917,146)	\$ (43,307)	\$ (43,646)	\$ (43,989)	\$ (44,335)	\$ (219,638)	\$ (45,908)	\$ (46,265)	\$ (52,575)	\$ (58,562)
Project Cash Balance	\$ -	\$ (1,917,146)	\$ (1,960,453)	\$ (2,004,099)	\$ (2,048,088)	\$ (2,092,423)	\$ (2,312,062)	\$ (2,357,970)	\$ (2,404,235)	\$ (3,349,793)	\$ (4,259,770)
Required Funding	\$	(4,259,770)									

Phase 1 A & B

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total Network Revenue	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ISP Take	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue to Frisco	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capex											
Engineering	\$ -	\$ 76,871	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 4,963,198	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 759,457	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 214,545	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 214,545	\$ -	\$ -	\$ -	\$ -
Total Construction Capex	\$ -	\$ 6,014,071	\$ -	\$ -	\$ -	\$ -	\$ 214,545	\$ -	\$ -	\$ -	\$ -
Drop Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Drop Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Drop Capex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capex	\$ -	\$ 6,014,071	\$ -	\$ -	\$ -	\$ -	\$ 214,545	\$ -	\$ -	\$ -	\$ -
Opex											
Network Opex	\$ -	\$ 63,670	\$ 64,006	\$ 64,346	\$ 64,688	\$ 65,035	\$ 66,457	\$ 66,810	\$ 67,167	\$ 73,881	\$ 80,273
Operational Opex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Network Operator Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Opex	\$ -	\$ 63,670	\$ 64,006	\$ 64,346	\$ 64,688	\$ 65,035	\$ 66,457	\$ 66,810	\$ 67,167	\$ 73,881	\$ 80,273
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ (63,670)	\$ (64,006)	\$ (64,346)	\$ (64,688)	\$ (65,035)	\$ (66,457)	\$ (66,810)	\$ (67,167)	\$ (73,881)	\$ (80,273)
<i>Memo: EBITDA Margin</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Project FCF (EBITDA - Capex)	\$ -	\$ (6,077,741)	\$ (64,006)	\$ (64,346)	\$ (64,688)	\$ (65,035)	\$ (281,002)	\$ (66,810)	\$ (67,167)	\$ (73,881)	\$ (80,273)
Project Cash Balance	\$ -	\$ (6,077,741)	\$ (6,141,747)	\$ (6,206,093)	\$ (6,270,782)	\$ (6,335,816)	\$ (6,616,818)	\$ (6,683,628)	\$ (6,750,795)	\$ (8,031,131)	\$ (9,238,130)
Required Funding	\$ (9,238,130)										

For either build scenario, a Town-owned network covering key facilities undeniably presents a new cost center to the Town of Frisco. However, it also presents an opportunity to provide world-class service to key locations the community depends on, and to take advantage of higher speeds and reliability for the crucial work of governing, learning, and caring for the community. The Town can look to offset some of the costs of this project by adopting microtrenching specs and microtrenching where possible, considering lease or monthly fee agreements with non-Town owned facilities such as hospitals and schools, and staging the build out over time when additional funds may be available in the Town budget to pay for build costs incrementally.

Phases 2-8: Broader Town-wide Network

Global Assumptions (All Scenarios):

The following assumptions were used across all scenarios to guide and inform the financial profile of the network:

Build Size and Types of Customers

	Phase 2-8	Phase 2-4
Short Term Rentals	1,248	900
Second Homes	2,024	1,459
Primary Homes	1,803	1,273
Total Residential Units	5,075	3,632
Business Units	503	453
Enterprise Units	13	12
Total Units	5,591	4,097

Unit counts were based on data received from Summit County and validated to be accurate via the Federal Communications Commission (FCC) Broadband Serviceable Location Fabric version 5, with data as of June 30, 2024. The following establishments were view as enterprise opportunities, where tenants are likely to require a higher level of reliability, bandwidth, internet speed, and dedicated support due to the size of the building, complexity of requirements, or number of daily users.

- St. Anthony Summit Medical Center
- Centura Healthcare Facility at 58 School Road Unit 8
- SAR Search and Rescue Building
- Summit Middle School
- Frisco Elementary School
- The Peak School
- US Bank
- Alpine Bank / Equity Financial Services
- First Bank Frisco
- Bank of the West
- Charles Schwab
- Colorado State Police
- Walmart

Additionally, Bonfire reviewed the total footprint of the build based on the quantity and size of multi-dwelling unit (MDU) properties. Across Frisco, 72% of addresses were housed in a multi-dwelling or multi-occupancy property (two units or more). Notably, 28% of addresses were in a property housing more than 50 units (accounting for the planned development in Phase 5). Given the high quantity and volume of MDUs in and around the Town, the Town will need to tailor a network strategy to accommodate the nuances of serving these types of buildings. These nuances typically include rights of entry, review of existing bulk agreements, and understanding existing infrastructure in each building before engineering a solution to serve each property.

Size of Dwelling	Count	Total Address Points	% of Total
Over 50 Units	10	1,566	28%
20 to 50 Units	32	1,016	18%
10 to 20 Units	28	377	7%
4 to 10 Units	88	484	9%
2 to 4 Units	258	569	10%
Single Family Units	1,579	1,579	28%
Grand Total	1,995	5,591	100%

Build Staging

Phases 2-8	Y1	Y2	Y3
Annual Construction Productivity	33%	33%	33%

Construction Pricing

Pricing for both a Town-owned (Phases 1A & B) and broader (Phases 2-8) project were obtained by Bonfire via a Request for Bid to five local fiber optic construction firms. Of those solicited, Ervin Cable (nationwide) and Sturgeon Electric (Henderson, CO) both returned pricing to Bonfire. Bonfire’s Estimating and Proposals team used this local pricing, along with industry knowledge, to triangulate on the most reasonable pricing for each item in the Bill of Materials (BOM) across the categories of Labor, Materials, and Equipment. Engineered was

priced at \$1.71/ft globally, which matches the agreed price between the Town of Frisco and Bonfire Engineering & Construction (BEC) for Engineering of Phase 1A.

Customer Penetration

Terminal Penetration – the maximum rate at which customers to whom the network is available will choose to subscribe to the network.

- Modeled at 40% across all scenarios, this represents 4 in 10 eligible passings subscribing to the network. Based on data from other municipalities, we believe this is both conservative and attainable given the current competitive landscape, attractive demographics, and value a Town-owned FTTP network would provide.

Financing Assumptions:

- Municipal Bond
 - 30-year term
 - 4.75% Interest rate
 - Capitalized interest for 3 years
 - Lender Debt Service Coverage Ratio requirement: 1.4x

Scenario 2: Fiber to the Curb

Revenue Assumptions:

The Town will receive a monthly per passing fee from the partner ISP of \$10.00 per month, growing at 2.5% annually. This assumption is based on a recent public deal between Ting (an ISP) and the Colorado Springs Utility, in which Ting agreed to pay \$9.88 per passing to CSU in exchange for access to their FTTC network.²¹ This represents the Town's sole source of revenue in this scenario. In return for keeping the majority of subscriber revenue, the ISP handles all operations and a majority of operating expenses for the network in a FTTC model.

Capex Assumptions:

- Upfront Construction Capex (Engineering, Materials, Labor and Equipment):
 - Phase 2-4: \$13.5M
 - Phases 2-8: \$22.0M
- Customer premise drop Capex (Y1-6, when terminal penetration is reached): \$0.00 – included in ISP's costs

Opex Assumptions:

- Colocation Rent
 - \$0.00 per month – assuming the Town will provide its own space for Colocation of network equipment
- Transport/Middle Mile
 - \$0.00 per month – paid by the ISP
- Direct Labor Cost
 - \$0.00 per month – assuming the network managed by existing employees given size/scope
- Fiber Maintenance
 - 0.5% of total network capex, annually
- Software
 - \$0.00 per month – this cost is included in the ISP's costs

²¹ Source: gazette.com/premium/colorado-springs-utilities-says-leasing-capacity-would-pay-for-proposed-fiber-optic-network/article_02f2ae94-cb36-11ec-b851-a713e62ef43f.html

Results:
Phases 2-4:

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$ -	\$ 81,940	\$ 251,966	\$ 430,441	\$ 529,443	\$ 542,679	\$ 556,246	\$ 570,152	\$ 584,405	\$ 785,960	\$ 1,006,096
ISP Take	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue to Frisco	\$ -	\$ 81,940	\$ 251,966	\$ 430,441	\$ 529,443	\$ 542,679	\$ 556,246	\$ 570,152	\$ 584,405	\$ 785,960	\$ 1,006,096
Capex											
Engineering	\$ -	\$ 88,333	\$ 88,333	\$ 88,333	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 4,018,540	\$ 4,018,540	\$ 4,018,540	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 240,820	\$ 240,820	\$ 240,820	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Total Construction Capex	\$ -	\$ 4,492,729	\$ 4,492,729	\$ 4,492,729	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Drop Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Drop Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Drop Capex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capex	\$ -	\$ 4,492,729	\$ 4,492,729	\$ 4,492,729	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Opex											
Network Opex	\$ -	\$ 22,464	\$ 44,927	\$ 67,391	\$ 67,391	\$ 67,391	\$ 68,116	\$ 68,841	\$ 69,566	\$ 73,918	\$ 78,269
Operational Opex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Network Operator Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Opex	\$ -	\$ 22,464	\$ 44,927	\$ 67,391	\$ 67,391	\$ 67,391	\$ 68,116	\$ 68,841	\$ 69,566	\$ 73,918	\$ 78,269
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ 59,476	\$ 207,038	\$ 363,050	\$ 462,052	\$ 475,288	\$ 488,129	\$ 501,310	\$ 514,839	\$ 712,043	\$ 927,827
Memo: EBITDA Margin	N/A	73%	82%	84%	87%	88%	88%	88%	88%	91%	92%
Project FCF (EBITDA - Capex)	\$ -	\$ (4,433,252)	\$ (4,285,691)	\$ (4,129,679)	\$ 462,052	\$ 475,288	\$ 343,094	\$ 356,275	\$ 369,803	\$ 712,043	\$ 927,827
Project Cash Balance	\$ -	\$ (4,433,252)	\$ (8,718,943)	\$ (12,848,622)	\$ (12,386,570)	\$ (11,911,283)	\$ (11,568,189)	\$ (11,211,914)	\$ (10,842,111)	\$ (4,311,653)	\$ 3,076,225
Required Funding	\$	(12,848,622)									
Cash Flow Metrics (w/ Leverage)											
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 1,046,902	\$ 1,046,902	\$ 1,046,902	\$ 1,046,902	\$ 1,046,902	\$ 1,046,902	\$ 1,046,902
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 9,067,398	\$ (4,285,691)	\$ (4,129,679)	\$ (584,850)	\$ (571,614)	\$ (703,808)	\$ (690,627)	\$ (677,098)	\$ (334,859)	\$ (119,075)
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$	10,067,398	\$ 6,781,707	\$ 3,652,028	\$ 4,067,178	\$ 4,495,564	\$ 3,791,756	\$ 3,101,129	\$ 2,424,031	\$ (3,608,331)	\$ (6,689,469)
Required Funding	\$	(6,689,469)									

Phases 2-8:

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$ -	\$ 111,820	\$ 343,847	\$ 587,404	\$ 722,507	\$ 740,570	\$ 759,084	\$ 778,062	\$ 797,513	\$ 1,072,566	\$ 1,372,976
ISP Take	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue to Frisco	\$ -	\$ 111,820	\$ 343,847	\$ 587,404	\$ 722,507	\$ 740,570	\$ 759,084	\$ 778,062	\$ 797,513	\$ 1,072,566	\$ 1,372,976
Capex											
Engineering	\$ -	\$ 145,446	\$ 145,446	\$ 145,446	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 6,586,499	\$ 6,586,499	\$ 6,586,499	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 396,526	\$ 396,526	\$ 396,526	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Total Construction Capex	\$ -	\$ 7,336,608	\$ 7,336,608	\$ 7,336,608	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Drop Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Drop Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Drop Capex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capex	\$ -	\$ 7,336,608	\$ 7,336,608	\$ 7,336,608	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Opex											
Network Opex	\$ -	\$ 36,683	\$ 73,366	\$ 110,049	\$ 110,049	\$ 110,049	\$ 111,090	\$ 112,130	\$ 113,171	\$ 119,415	\$ 125,659
Operational Opex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Network Operator Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Opex	\$ -	\$ 36,683	\$ 73,366	\$ 110,049	\$ 110,049	\$ 110,049	\$ 111,090	\$ 112,130	\$ 113,171	\$ 119,415	\$ 125,659
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ 75,137	\$ 270,480	\$ 477,355	\$ 612,458	\$ 630,521	\$ 647,995	\$ 665,931	\$ 684,342	\$ 953,151	\$ 1,247,316
Memo: EBITDA Margin	N/A	67%	79%	81%	85%	85%	85%	86%	86%	89%	91%
Project FCF (EBITDA - Capex)	\$ -	\$ (7,261,471)	\$ (7,066,127)	\$ (6,859,253)	\$ 612,458	\$ 630,521	\$ 439,857	\$ 457,794	\$ 476,205	\$ 953,151	\$ 1,247,316
Project Cash Balance	\$ -	\$ (7,261,471)	\$ (14,327,598)	\$ (21,186,851)	\$ (20,574,393)	\$ (19,943,872)	\$ (19,504,014)	\$ (19,046,220)	\$ (18,570,016)	\$ (9,940,293)	\$ (107,075)
Required Funding	\$	(21,186,851)									
Cash Flow Metrics (w/ Leverage)											
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 1,709,586	\$ 1,709,586	\$ 1,709,586	\$ 1,709,586	\$ 1,709,586	\$ 1,709,586	\$ 1,709,586
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 14,785,036	\$ (7,066,127)	\$ (6,859,253)	\$ (1,097,128)	\$ (1,079,065)	\$ (1,269,729)	\$ (1,251,792)	\$ (1,233,381)	\$ (756,435)	\$ (462,270)
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$	15,785,036	\$ 9,718,908	\$ 3,859,656	\$ 3,762,528	\$ 3,683,463	\$ 2,413,734	\$ 1,161,942	\$ (71,439)	\$ (11,956,750)	\$ (19,219,394)
Required Funding	\$	(19,219,394)									

While multiple cities nationwide have opted for a Fiber to the Curb operating model for its operational ease, the economics of this model present multiple challenges when applied to the Town of Frisco.

Major FTTC success stories such as Colorado Springs, Huntsville, AL, and others, began with an existing municipally owned electric utility, with FTTC as an expansion of services by the utility. Importantly, these cities had an existing electrical revenue base to draw on for both construction capex and continuing operations during network start-up. Additionally, Frisco's cost per passing given its smaller size and rocky ground conditions is projected at \$3,077 for Phases 2-4 and \$3,937 for Phases 2-8. The fiber industry generally sees \$1,500/per passing and below as the benchmark for commercially attractive markets. Other challenges, including the interest rate environment, level of debt required per passing, and typical market expectations of a \$7-10/per passing monthly fee from the ISP to the network owner, amount to an operating model that is untenable given current market dynamics.

However, by employing a handful of key levers, the Town has an opportunity to bring this model closer to reality. Key levers include:

- Adoption of microtrenching specs and microtrenching wherever possible. By microtrenching at a depth of 24" or less, a majority of rock and cobble can be avoided; while a ground condition survey would be needed to confirm the exact benefits, removing the full cost of rock and cobble adders from the build has significant cost savings potential (\$4.5M for Phases 2-4, and \$8M for Phases 2-8). The network's debt

financing compounds the cost of these construction adders by almost 2X throughout the 30-year life of the bond.

- Access to more affordable debt markets; a decrease in cost of capital from 4.75% to 4.5% could save the Town \$1.6M in debt service over the life of a 30-year bond. While not necessary to make FTTC scenarios tenable, this could only improve the profile of each investment.

Below is the effect of the removal of rock/cobble adders on each build scenario- an economic model that is both reasonable and attainable for the Town. While the cash need is reduced to zero, this does not fully satisfy the standard lender requirement of a 1.4x Debt Service Coverage Ratio; because of this, the Town may need to collateralize some reserves to ensure compliance with lender terms.

Phases 2-4, no rock/cobble adders:

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$ -	\$ 81,940	\$ 251,966	\$ 430,441	\$ 529,443	\$ 542,679	\$ 556,246	\$ 570,152	\$ 584,405	\$ 785,960	\$ 1,006,096
ISP Take	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue to Frisco	\$ -	\$ 81,940	\$ 251,966	\$ 430,441	\$ 529,443	\$ 542,679	\$ 556,246	\$ 570,152	\$ 584,405	\$ 785,960	\$ 1,006,096
Capex											
Engineering	\$ -	\$ 88,333	\$ 88,333	\$ 88,333	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 2,399,607	\$ 2,399,607	\$ 2,399,607	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 240,820	\$ 240,820	\$ 240,820	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Total Construction Capex	\$ -	\$ 2,873,796	\$ 2,873,796	\$ 2,873,796	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Drop Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Drop Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Drop Capex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capex	\$ -	\$ 2,873,796	\$ 2,873,796	\$ 2,873,796	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Opex											
Network Opex	\$ -	\$ 14,369	\$ 28,738	\$ 43,107	\$ 43,107	\$ 43,107	\$ 43,832	\$ 44,557	\$ 45,282	\$ 49,634	\$ 53,985
Operational Opex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Network Operator Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Opex	\$ -	\$ 14,369	\$ 28,738	\$ 43,107	\$ 43,107	\$ 43,107	\$ 43,832	\$ 44,557	\$ 45,282	\$ 49,634	\$ 53,985
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ 67,571	\$ 223,228	\$ 387,334	\$ 486,336	\$ 499,572	\$ 512,413	\$ 525,594	\$ 539,123	\$ 736,327	\$ 952,111
Memo: EBITDA Margin	N/A	82%	89%	90%	92%	92%	92%	92%	92%	94%	95%
Project FCF (EBITDA - Capex)	\$ -	\$ (2,806,225)	\$ (2,650,569)	\$ (2,486,462)	\$ 486,336	\$ 499,572	\$ 367,378	\$ 380,559	\$ 394,087	\$ 736,327	\$ 952,111
Project Cash Balance	\$ -	\$ (2,806,225)	\$ (5,456,794)	\$ (7,943,256)	\$ (7,456,920)	\$ (6,957,349)	\$ (6,589,971)	\$ (6,209,412)	\$ (5,815,325)	\$ 1,006,540	\$ 8,637,258
Required Funding	\$	(7,943,256)									
Cash Flow Metrics (w/ Leverage)											
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 669,656	\$ 669,656	\$ 669,656	\$ 669,656	\$ 669,656	\$ 669,656	\$ 669,656
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 5,829,532	\$ (2,650,569)	\$ (2,486,462)	\$ (183,320)	\$ (170,084)	\$ (302,278)	\$ (289,097)	\$ (275,569)	\$ 66,671	\$ 282,455
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$	6,829,532	\$ 5,178,964	\$ 3,692,502	\$ 4,509,181	\$ 5,339,097	\$ 5,036,819	\$ 4,747,722	\$ 4,472,153	\$ 3,258,149	\$ 4,192,309
Required Funding	\$	-									

Phases 2-8 no rock/cobble adders:

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$ -	\$ 111,820	\$ 343,847	\$ 587,404	\$ 722,507	\$ 740,570	\$ 759,084	\$ 778,062	\$ 797,513	\$ 1,072,566	\$ 1,372,976
ISP Take	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue to Frisco	\$ -	\$ 111,820	\$ 343,847	\$ 587,404	\$ 722,507	\$ 740,570	\$ 759,084	\$ 778,062	\$ 797,513	\$ 1,072,566	\$ 1,372,976
Capex											
Engineering	\$ -	\$ 145,446	\$ 145,446	\$ 145,446	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 3,920,823	\$ 3,920,823	\$ 3,920,823	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 396,526	\$ 396,526	\$ 396,526	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Total Construction Capex	\$ -	\$ 4,670,932	\$ 4,670,932	\$ 4,670,932	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Drop Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Drop Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Drop Capex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Capex	\$ -	\$ 4,670,932	\$ 4,670,932	\$ 4,670,932	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Opex											
Network Opex	\$ -	\$ 23,355	\$ 46,709	\$ 70,064	\$ 70,064	\$ 70,064	\$ 71,105	\$ 72,145	\$ 73,186	\$ 79,430	\$ 85,674
Operational Opex	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Network Operator Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Opex	\$ -	\$ 23,355	\$ 46,709	\$ 70,064	\$ 70,064	\$ 70,064	\$ 71,105	\$ 72,145	\$ 73,186	\$ 79,430	\$ 85,674
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ 88,465	\$ 297,137	\$ 517,340	\$ 652,443	\$ 670,506	\$ 687,980	\$ 705,916	\$ 724,327	\$ 993,136	\$ 1,287,301
Memo: EBITDA Margin	N/A	79%	86%	88%	90%	91%	91%	91%	91%	93%	94%
Project FCF (EBITDA - Capex)	\$ -	\$ (4,582,467)	\$ (4,373,795)	\$ (4,153,591)	\$ 652,443	\$ 670,506	\$ 479,843	\$ 497,779	\$ 516,190	\$ 993,136	\$ 1,287,301
Project Cash Balance	\$ -	\$ (4,582,467)	\$ (8,956,261)	\$ (13,109,853)	\$ (12,457,409)	\$ (11,786,903)	\$ (11,307,061)	\$ (10,809,282)	\$ (10,293,092)	\$ (1,183,547)	\$ 9,049,522
Required Funding	\$ (13,109,853)										
Cash Flow Metrics (w/ Leverage)											
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 1,088,427	\$ 1,088,427	\$ 1,088,427	\$ 1,088,427	\$ 1,088,427	\$ 1,088,427	\$ 1,088,427
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 9,453,684	\$ (4,373,795)	\$ (4,153,591)	\$ (435,983)	\$ (417,921)	\$ (608,584)	\$ (590,648)	\$ (572,237)	\$ (95,291)	\$ 198,875
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$ 10,453,684	\$ 7,079,889	\$ 3,926,298	\$ 4,490,314	\$ 5,072,394	\$ 4,463,810	\$ 3,873,162	\$ 3,300,925	\$ (650,652)	\$ (1,301,851)	
Required Funding	\$ (1,666,113)										

Scenario 3: Municipally Owned Third Party Open Access Operations

Revenue Assumptions:

Weighted Average Revenue per User (ARPU) in Year 1:

Residential: \$77

Business: \$144

Enterprise: \$1,124

Installation Pricing (one-time fee paid at install):

Residential: \$99

Business: \$199

Enterprise: \$499

Customer Churn: 0.8%

Capex Assumptions:

- Upfront Construction Capex (Engineering, Materials, Labor and Equipment):
 - Phase 2-4: \$13.5M
 - Phases 2-8: \$22.0M
- Customer premise drop Capex (Y1-6, when terminal penetration is reached):
 - Phase 2-4: \$4.0M
 - Phases 2-8: \$5.5M

Opex Assumptions:

- Network Management Software
 - \$1.00 per month per premise managed, rising to \$2.36 per month per premise managed over 30 years
- Colocation Rent
 - \$0.00 per month – assuming the Town will provide its own space for Colocation of network equipment
- Transport/Middle Mile
 - \$2,800.00 per month, rising to \$3,736.61 per month – assuming the Town will leverage Project THOR to provide Transport of network traffic to Denver
- Direct Labor Cost
 - \$0.00 per month – assuming the network managed by a third party Network Operator
- Fiber Maintenance
 - 0.5% of total network capex, annually
- Insurance
 - \$5 per \$1,000 of Total Network Revenue
- Bad Debt
 - 0.5% of Total Network Revenue
- Network Operator Fee
 - The greater of \$300,000/year or 35% of Monthly Recurring Charges
 - \$400,000 start-up fee paid in Year 1

Results:
Phase 2-4

		Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$	-	\$ 176,838	\$ 552,977	\$ 1,057,699	\$ 1,490,159	\$ 1,773,087	\$ 1,955,376	\$ 2,050,314	\$ 2,111,780	\$ 3,010,273	\$ 4,045,053
ISP Take	\$	-	\$ 35,051	\$ 122,464	\$ 241,338	\$ 350,714	\$ 421,570	\$ 467,679	\$ 492,378	\$ 507,149	\$ 723,074	\$ 971,751
Revenue to Frisco	\$	-	\$ 141,788	\$ 430,513	\$ 816,360	\$ 1,139,445	\$ 1,351,518	\$ 1,487,696	\$ 1,557,936	\$ 1,604,631	\$ 2,287,199	\$ 3,073,302
Capex												
Engineering	\$	-	\$ 88,333	\$ 88,333	\$ 88,333	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$	-	\$ 4,018,540	\$ 4,018,540	\$ 4,018,540	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$	-	\$ 240,820	\$ 240,820	\$ 240,820	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$	-	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Total Construction Capex	\$	-	\$ 4,492,729	\$ 4,492,729	\$ 4,492,729	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Drop Labor	\$	-	\$ 348,245	\$ 487,598	\$ 600,729	\$ 346,005	\$ 212,115	\$ 104,446	\$ 16,388	\$ 16,388	\$ 16,388	\$ 16,388
Drop Materials	\$	-	\$ 69,649	\$ 97,520	\$ 120,146	\$ 69,201	\$ 42,423	\$ 20,889	\$ 3,278	\$ 3,278	\$ 3,278	\$ 3,278
Total Drop Capex	\$	-	\$ 417,894	\$ 585,117	\$ 720,875	\$ 415,206	\$ 254,538	\$ 125,335	\$ 19,666	\$ 19,666	\$ 19,666	\$ 19,666
Total Capex	\$	-	\$ 4,910,623	\$ 5,077,846	\$ 5,213,604	\$ 415,206	\$ 254,538	\$ 270,371	\$ 164,701	\$ 164,701	\$ 19,666	\$ 19,666
Opex												
Network Opex	\$	-	\$ 57,735	\$ 84,704	\$ 113,176	\$ 118,735	\$ 122,460	\$ 125,734	\$ 127,990	\$ 129,776	\$ 148,994	\$ 169,451
Operational Opex	\$	-	\$ 1,768	\$ 5,530	\$ 10,577	\$ 14,902	\$ 17,731	\$ 19,554	\$ 20,503	\$ 21,118	\$ 30,103	\$ 40,451
Network Operator Fee	\$	-	\$ 700,000	\$ 300,000	\$ 300,000	\$ 390,566	\$ 467,996	\$ 518,219	\$ 544,890	\$ 561,233	\$ 800,132	\$ 1,075,268
Total Opex	\$	-	\$ 759,504	\$ 390,233	\$ 423,753	\$ 524,202	\$ 608,187	\$ 663,507	\$ 693,383	\$ 712,127	\$ 979,228	\$ 1,285,170
Cash Flow Metrics (w/o Leverage)												
Project EBITDA (Revenue - Opex)	\$	-	\$ (617,716)	\$ 40,280	\$ 392,607	\$ 615,243	\$ 743,331	\$ 824,190	\$ 864,553	\$ 892,504	\$ 1,307,971	\$ 1,788,133
Memo: EBITDA Margin			N/A	-436%	9%	48%	54%	55%	55%	55%	56%	58%
Project FCF (EBITDA - Capex)	\$	-	\$ (5,528,339)	\$ (5,037,566)	\$ (4,820,997)	\$ 200,036	\$ 488,792	\$ 553,819	\$ 699,852	\$ 727,802	\$ 1,288,305	\$ 1,768,467
Project Cash Balance	\$	-	\$ (5,528,339)	\$ (10,565,905)	\$ (15,386,902)	\$ (15,186,865)	\$ (14,698,073)	\$ (14,144,254)	\$ (13,444,402)	\$ (12,716,600)	\$ (560,854)	\$ 13,969,856
Required Funding	\$		(15,386,902)									
Cash Flow Metrics (w/ Leverage)												
Debt Service	\$	-	\$ -	\$ -	\$ -	\$ 1,299,387	\$ 1,299,387	\$ 1,299,387	\$ 1,299,387	\$ 1,299,387	\$ 1,299,387	\$ 1,299,387
Levered Project FCF (EBITDA - Capex)	\$	-	\$ 11,228,318	\$ (5,037,566)	\$ (4,820,997)	\$ (1,099,351)	\$ (810,595)	\$ (745,569)	\$ (599,535)	\$ (571,585)	\$ (11,082)	\$ 469,080
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$		12,228,318	8,190,752	4,369,755	4,270,404	4,459,809	3,714,241	3,114,706	2,543,121	(893,779)	643,059
Required Funding	\$		(1,107,973)									

Phase 2-8

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$ -	\$ 235,845	\$ 737,316	\$ 1,410,193	\$ 1,986,628	\$ 2,363,761	\$ 2,606,737	\$ 2,733,273	\$ 2,815,213	\$ 4,012,991	\$ 5,392,454
ISP Take	\$ -	\$ 46,557	\$ 162,665	\$ 320,564	\$ 465,844	\$ 559,960	\$ 621,207	\$ 654,013	\$ 673,633	\$ 960,440	\$ 1,290,751
Revenue to Frisco	\$ -	\$ 189,288	\$ 574,651	\$ 1,089,629	\$ 1,520,785	\$ 1,803,800	\$ 1,985,530	\$ 2,079,260	\$ 2,141,580	\$ 3,052,551	\$ 4,101,703
Capex											
Engineering	\$ -	\$ 145,446	\$ 145,446	\$ 145,446	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 6,586,499	\$ 6,586,499	\$ 6,586,499	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 396,526	\$ 396,526	\$ 396,526	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Total Construction Capex	\$ -	\$ 7,336,608	\$ 7,336,608	\$ 7,336,608	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Drop Labor	\$ -	\$ 475,235	\$ 665,404	\$ 819,790	\$ 472,179	\$ 289,465	\$ 142,533	\$ 22,364	\$ 22,364	\$ 22,364	\$ 22,364
Drop Materials	\$ -	\$ 95,047	\$ 133,081	\$ 163,958	\$ 94,436	\$ 57,893	\$ 28,507	\$ 4,473	\$ 4,473	\$ 4,473	\$ 4,473
Total Drop Capex	\$ -	\$ 570,282	\$ 798,484	\$ 983,748	\$ 566,614	\$ 347,358	\$ 171,040	\$ 26,837	\$ 26,837	\$ 26,837	\$ 26,837
Total Capex	\$ -	\$ 7,906,890	\$ 8,135,092	\$ 8,320,356	\$ 566,614	\$ 347,358	\$ 379,177	\$ 234,974	\$ 234,974	\$ 26,837	\$ 26,837
Opex											
Network Opex	\$ -	\$ 72,564	\$ 115,272	\$ 160,031	\$ 167,492	\$ 172,450	\$ 176,841	\$ 179,842	\$ 182,201	\$ 207,066	\$ 233,741
Operational Opex	\$ -	\$ 2,358	\$ 7,373	\$ 14,102	\$ 19,866	\$ 23,638	\$ 26,067	\$ 27,333	\$ 28,152	\$ 40,130	\$ 53,925
Network Operator Fee	\$ -	\$ 700,000	\$ 300,000	\$ 362,051	\$ 521,250	\$ 624,593	\$ 691,624	\$ 727,222	\$ 749,034	\$ 1,067,874	\$ 1,435,077
Total Opex	\$ -	\$ 774,923	\$ 422,645	\$ 536,184	\$ 708,609	\$ 820,680	\$ 894,533	\$ 934,397	\$ 959,387	\$ 1,315,070	\$ 1,722,743
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ (585,634)	\$ 152,005	\$ 553,445	\$ 812,176	\$ 983,120	\$ 1,090,998	\$ 1,144,863	\$ 1,182,193	\$ 1,737,481	\$ 2,378,960
Memo: EBITDA Margin	N/A	-309%	26%	51%	53%	55%	55%	55%	55%	57%	58%
Project FCF (EBITDA - Capex)	\$ -	\$ (8,492,524)	\$ (7,983,087)	\$ (7,766,910)	\$ 245,562	\$ 635,762	\$ 711,821	\$ 909,889	\$ 947,219	\$ 1,710,644	\$ 2,352,123
Project Cash Balance	\$ -	\$ (8,492,524)	\$ (16,475,611)	\$ (24,242,521)	\$ (23,996,959)	\$ (23,361,197)	\$ (22,649,376)	\$ (21,739,487)	\$ (20,792,269)	\$ (4,765,893)	\$ 14,455,205
Required Funding	\$	(24,242,521)									
Cash Flow Metrics (w/ Leverage)											
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 2,033,394	\$ 2,033,394	\$ 2,033,394	\$ 2,033,394	\$ 2,033,394	\$ 2,033,394	\$ 2,033,394
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 17,729,748	\$ (7,983,087)	\$ (7,766,910)	\$ (1,787,832)	\$ (1,397,632)	\$ (1,321,573)	\$ (1,123,505)	\$ (1,086,175)	\$ (322,750)	\$ 318,729
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$	18,729,748	\$ 11,746,661	\$ 4,979,751	\$ 4,191,919	\$ 3,794,287	\$ 2,472,714	\$ 1,349,209	\$ 263,034	\$ (8,111,317)	\$ (9,224,158)
Required Funding	\$	(9,787,855)									

The economics of an open access model are significantly more disaggregated, with a portion of Monthly Recurring Revenue kept by the ISP (~20-30% throughout the model), a portion paid to the Network Operator (35%), and a remainder kept by the Network Owner. From a cost perspective, all construction, drop, and equipment replacement capex are paid by the network owner, along with a majority of network operating expenses. From an operations standpoint, a seasoned and scaled Network Operator can prove to be a cost savings over in-house operations by the municipality (discussed in detail in scenario 4), as resources and personnel can be shared across multiple networks.

True, 3-layer open access models are gaining momentum across the country for a variety of reasons, including consumer choice, competition on price and quality of service, and reduced financial and operational footprint by having multiple ISPs operate on the same infrastructure. As shown here in comparison to other operating models, contracting with a Network Operator takes advantage of the scale and experience of a third party who operates multiple networks, providing long term cost savings when compared to insourcing labor and equipment to run the network municipally.

The significant difference in cash need between the Phase 2-4 network and Phase 2-8 can be explained by the economics of an open access model. The additional footage and addresses added when including Phases 5-8 increase the relative cost per passing in construction capex, and also increase the cost of drop (install) capex in the early years of the model. This results in a higher debt service burden, adding significant cost to a levered business case.

As with Fiber to the Curb, construction costs and the current interest rate environment prevent an open access network from being feasible today, but the cash need for a Phase 2-4 to

become feasible is under \$1M. Applying the same levers here (removal of rock/cobble adders and 4.5% interest rate) provides a viable path to breaking even and generating value for the Town over a 30-year horizon:

Phase 2-4, no rock/cobble adders

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$ -	\$ 176,838	\$ 552,977	\$ 1,057,699	\$ 1,490,159	\$ 1,773,087	\$ 1,955,376	\$ 2,050,314	\$ 2,111,780	\$ 3,010,273	\$ 4,045,053
ISP Take	\$ -	\$ 35,051	\$ 122,464	\$ 241,338	\$ 350,714	\$ 421,570	\$ 467,679	\$ 492,378	\$ 507,149	\$ 723,074	\$ 971,751
Revenue to Frisco	\$ -	\$ 141,788	\$ 430,513	\$ 816,360	\$ 1,139,445	\$ 1,351,518	\$ 1,487,696	\$ 1,557,936	\$ 1,604,631	\$ 2,287,199	\$ 3,073,302
Capex											
Engineering	\$ -	\$ 88,333	\$ 88,333	\$ 88,333	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 2,399,607	\$ 2,399,607	\$ 2,399,607	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 240,820	\$ 240,820	\$ 240,820	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Total Construction Capex	\$ -	\$ 2,873,796	\$ 2,873,796	\$ 2,873,796	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Drop Labor	\$ -	\$ 348,245	\$ 487,598	\$ 600,729	\$ 346,005	\$ 212,115	\$ 104,446	\$ 16,388	\$ 16,388	\$ 16,388	\$ 16,388
Drop Materials	\$ -	\$ 69,649	\$ 97,520	\$ 120,146	\$ 69,201	\$ 42,423	\$ 20,889	\$ 3,278	\$ 3,278	\$ 3,278	\$ 3,278
Total Drop Capex	\$ -	\$ 417,894	\$ 585,117	\$ 720,875	\$ 415,206	\$ 254,538	\$ 125,335	\$ 19,666	\$ 19,666	\$ 19,666	\$ 19,666
Total Capex	\$ -	\$ 3,291,690	\$ 3,458,913	\$ 3,594,672	\$ 415,206	\$ 254,538	\$ 270,371	\$ 164,701	\$ 164,701	\$ 19,666	\$ 19,666
Opex											
Network Opex	\$ -	\$ 49,641	\$ 68,514	\$ 88,892	\$ 94,451	\$ 98,176	\$ 101,450	\$ 103,706	\$ 105,492	\$ 124,710	\$ 145,167
Operational Opex	\$ -	\$ 1,768	\$ 5,530	\$ 10,577	\$ 14,902	\$ 17,731	\$ 19,554	\$ 20,503	\$ 21,118	\$ 30,103	\$ 40,451
Network Operator Fee	\$ -	\$ 700,000	\$ 300,000	\$ 300,000	\$ 390,566	\$ 467,996	\$ 518,219	\$ 544,890	\$ 561,233	\$ 800,132	\$ 1,075,268
Total Opex	\$ -	\$ 751,409	\$ 374,044	\$ 399,469	\$ 499,918	\$ 583,903	\$ 639,223	\$ 669,099	\$ 687,843	\$ 954,944	\$ 1,260,886
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ (609,621)	\$ 56,469	\$ 416,891	\$ 639,527	\$ 767,615	\$ 848,474	\$ 888,837	\$ 916,788	\$ 1,332,255	\$ 1,812,417
<i>Memo: EBITDA Margin</i>	N/A	-430%	13%	51%	56%	57%	57%	57%	57%	58%	59%
Project FCF (EBITDA - Capex)	\$ -	\$ (3,901,312)	\$ (3,402,444)	\$ (3,177,780)	\$ 224,320	\$ 513,076	\$ 578,103	\$ 724,136	\$ 752,086	\$ 1,312,589	\$ 1,792,751
Project Cash Balance	\$ -	\$ (3,901,312)	\$ (7,303,756)	\$ (10,481,536)	\$ (10,257,216)	\$ (9,744,139)	\$ (9,166,037)	\$ (8,441,901)	\$ (7,689,814)	\$ 4,757,340	\$ 19,530,890
Required Funding	\$	(10,481,536)									
Cash Flow Metrics (w/ Leverage)											
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 922,141	\$ 922,141	\$ 922,141	\$ 922,141	\$ 922,141	\$ 922,141	\$ 922,141
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 7,990,453	\$ (3,402,444)	\$ (3,177,780)	\$ (697,821)	\$ (409,065)	\$ (344,039)	\$ (198,005)	\$ (170,055)	\$ 390,448	\$ 870,610
Project Cash Balance (Inclusive of \$5mm Town Contribution)	\$	8,990,453	\$ 6,588,008	\$ 4,410,228	\$ 4,712,407	\$ 5,303,342	\$ 4,959,304	\$ 4,761,298	\$ 4,591,243	\$ 5,972,701	\$ 11,524,838
Required Funding	\$	-									

Phase 2-8, no rock/cobble adders

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$ -	\$ 235,845	\$ 737,316	\$ 1,410,193	\$ 1,986,628	\$ 2,363,761	\$ 2,606,737	\$ 2,733,273	\$ 2,815,213	\$ 4,012,991	\$ 5,392,454
ISP Take	\$ -	\$ 46,557	\$ 162,665	\$ 320,564	\$ 465,844	\$ 559,960	\$ 621,207	\$ 654,013	\$ 673,633	\$ 960,440	\$ 1,290,751
Revenue to Frisco	\$ -	\$ 189,288	\$ 574,651	\$ 1,089,629	\$ 1,520,785	\$ 1,803,800	\$ 1,985,530	\$ 2,079,260	\$ 2,141,580	\$ 3,052,551	\$ 4,101,703
Capex											
Engineering	\$ -	\$ 145,446	\$ 145,446	\$ 145,446	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 3,920,823	\$ 3,920,823	\$ 3,920,823	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 396,526	\$ 396,526	\$ 396,526	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Total Construction Capex	\$ -	\$ 4,670,932	\$ 4,670,932	\$ 4,670,932	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Drop Labor	\$ -	\$ 475,235	\$ 665,404	\$ 819,790	\$ 472,179	\$ 289,465	\$ 142,533	\$ 22,364	\$ 22,364	\$ 22,364	\$ 22,364
Drop Materials	\$ -	\$ 95,047	\$ 133,081	\$ 163,958	\$ 94,436	\$ 57,893	\$ 28,507	\$ 4,473	\$ 4,473	\$ 4,473	\$ 4,473
Total Drop Capex	\$ -	\$ 570,282	\$ 798,484	\$ 983,748	\$ 566,614	\$ 347,358	\$ 171,040	\$ 26,837	\$ 26,837	\$ 26,837	\$ 26,837
Total Capex	\$ -	\$ 5,241,214	\$ 5,469,416	\$ 5,654,680	\$ 566,614	\$ 347,358	\$ 379,177	\$ 234,974	\$ 234,974	\$ 26,837	\$ 26,837
Opex											
Network Opex	\$ -	\$ 59,236	\$ 88,615	\$ 120,046	\$ 127,507	\$ 132,465	\$ 136,856	\$ 139,857	\$ 142,216	\$ 167,081	\$ 193,756
Operational Opex	\$ -	\$ 2,358	\$ 7,373	\$ 14,102	\$ 19,866	\$ 23,638	\$ 26,067	\$ 27,333	\$ 28,152	\$ 40,130	\$ 53,925
Network Operator Fee	\$ -	\$ 700,000	\$ 300,000	\$ 362,051	\$ 521,250	\$ 624,593	\$ 691,624	\$ 727,222	\$ 749,034	\$ 1,067,874	\$ 1,435,077
Total Opex	\$ -	\$ 761,594	\$ 395,989	\$ 496,199	\$ 668,624	\$ 780,695	\$ 854,547	\$ 894,412	\$ 919,402	\$ 1,275,085	\$ 1,682,758
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ (572,306)	\$ 178,662	\$ 593,430	\$ 852,161	\$ 1,023,105	\$ 1,130,983	\$ 1,184,848	\$ 1,222,178	\$ 1,777,466	\$ 2,418,945
Memo: EBITDA Margin	N/A	-302%	31%	54%	56%	57%	57%	57%	57%	58%	59%
Project FCF (EBITDA - Capex)	\$ -	\$ (5,813,520)	\$ (5,290,754)	\$ (5,061,249)	\$ 285,547	\$ 675,747	\$ 751,806	\$ 949,874	\$ 987,204	\$ 1,750,629	\$ 2,392,108
Project Cash Balance	\$ -	\$ (5,813,520)	\$ (11,104,274)	\$ (16,165,523)	\$ (15,879,976)	\$ (15,204,229)	\$ (14,452,423)	\$ (13,502,549)	\$ (12,515,345)	\$ 3,990,853	\$ 23,611,802
Required Funding	\$	(16,165,523)									
Cash Flow Metrics (w/ Leverage)											
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 1,412,235	\$ 1,412,235	\$ 1,412,235	\$ 1,412,235	\$ 1,412,235	\$ 1,412,235	\$ 1,412,235
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 12,398,396	\$ (5,290,754)	\$ (5,061,249)	\$ (1,126,688)	\$ (736,487)	\$ (660,429)	\$ (462,360)	\$ (425,031)	\$ 338,394	\$ 979,873
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$	13,398,396	\$ 9,107,642	\$ 5,046,393	\$ 4,919,705	\$ 5,183,218	\$ 4,522,789	\$ 4,060,429	\$ 3,635,398	\$ 3,194,781	\$ 8,693,385
Required Funding	\$	-									

Scenario 4: Municipal Owned and Operated

Revenue Assumptions:
Weighted Average Revenue per User (ARPU) in Year 1:

Residential: \$77
Business: \$144
Enterprise: \$1,124

Installation Pricing (one-time fee paid at install):

Residential: \$99
Business: \$199
Enterprise: \$499

Customer Churn: 1.25%

Capex Assumptions:

- Upfront Construction Capex (Engineering, Materials, Labor and Equipment):
 - Phase 2-4: \$13.5M
 - Phases 2-8: \$22.0M
- Customer premise drop Capex (Y1-6, when terminal penetration is reached; materials only, drop labor performed by in-house technicians):
 - Phase 2-4: \$0.7M

- Phases 2-8: \$0.9M

Opex Assumptions:

- Network Management Software
 - \$3.50 per month per premise managed, rising to \$8.25 per month per premise managed over 30 years
- Colocation Rent
 - \$0.00 per month – assuming the Town will provide its own space for Colocation of network equipment
- Transport/Middle Mile
 - \$2,800.00 per month, rising to \$3,736.61 per month- assuming the Town will leverage Project THOR to provide Transport of network traffic to Denver
- Direct Labor Cost (see salary breakdown below)
 - \$80k per month rising to \$189k per month over 30 years
- Fiber Maintenance
 - 0.5% of total network capex, annually
- Insurance
 - \$5 per \$1,000 of Total Network Revenue
- Bad Debt
 - 0.5% of Total Network Revenue
- Office Space
 - \$1,500 per month
- Vehicle Costs
 - \$1,500 per month

Employee Salaries – compared with like for like jobs from publicly available Town data, plus industry insight from Bonfire’s Network Operations team:

	Full Time Equivalent (FTE)	FTE Loaded Cost Assumption (Annual, 25% Loading Rate)
Director of Network Operations	1	\$ 187,500
Senior Systems Engineer	1	\$ 156,250
Transport Engineer	1	\$ 156,250
Customer Service Rep	1	\$ 81,250
Fiber Optic Technician	2	\$ 100,000
In-Market Marketing Manager	1	\$ 92,500

- Allocated Employee Overhead costs
 - 10%
- Sales and Marketing Acquisition Cost per Unit
 - \$150 for all customer types

Results Phases 2-4:

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
Total End-user Spend	\$ -	\$ 176,838	\$ 553,116	\$ 1,058,032	\$ 1,490,730	\$ 1,773,793	\$ 1,956,160	\$ 2,051,135	\$ 2,112,600	\$ 3,011,093	\$ 4,045,873	
ISP Take	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Revenue to Frisco	\$ -	\$ 176,838	\$ 553,116	\$ 1,058,032	\$ 1,490,730	\$ 1,773,793	\$ 1,956,160	\$ 2,051,135	\$ 2,112,600	\$ 3,011,093	\$ 4,045,873	
Capex												
Engineering	\$ -	\$ 88,333	\$ 88,333	\$ 88,333	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Labor	\$ -	\$ 4,018,540	\$ 4,018,540	\$ 4,018,540	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Materials	\$ -	\$ 240,820	\$ 240,820	\$ 240,820	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Equipment	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	
Total Construction Capex	\$ -	\$ 4,492,729	\$ 4,492,729	\$ 4,492,729	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -	
Drop Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Drop Materials	\$ -	\$ 69,649	\$ 97,833	\$ 120,896	\$ 70,485	\$ 44,009	\$ 22,653	\$ 5,121	\$ 5,121	\$ 5,121	\$ 5,121	
Total Drop Capex	\$ -	\$ 69,649	\$ 97,833	\$ 120,896	\$ 70,485	\$ 44,009	\$ 22,653	\$ 5,121	\$ 5,121	\$ 5,121	\$ 5,121	
Total Capex	\$ -	\$ 4,562,378	\$ 4,590,562	\$ 4,613,624	\$ 70,485	\$ 44,009	\$ 167,689	\$ 150,157	\$ 150,157	\$ 5,121	\$ 5,121	
Opex												
Network Opex	\$ -	\$ 62,262	\$ 100,142	\$ 143,392	\$ 162,343	\$ 174,737	\$ 183,621	\$ 188,848	\$ 192,421	\$ 237,689	\$ 288,052	
Operational Opex	\$ -	\$ 1,040,683	\$ 1,093,031	\$ 1,145,385	\$ 1,150,706	\$ 1,169,730	\$ 1,191,259	\$ 1,214,800	\$ 1,251,243	\$ 1,783,964	\$ 2,397,490	
Network Operator Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Opex	\$ -	\$ 1,102,945	\$ 1,193,173	\$ 1,288,777	\$ 1,313,049	\$ 1,344,467	\$ 1,374,881	\$ 1,403,648	\$ 1,443,664	\$ 2,021,653	\$ 2,685,542	
Cash Flow Metrics (w/o Leverage)												
Project EBITDA (Revenue - Opex)	\$ -	\$ (926,107)	\$ (640,056)	\$ (230,744)	\$ 177,681	\$ 429,326	\$ 581,280	\$ 647,487	\$ 668,937	\$ 989,440	\$ 1,360,332	
Memo: EBITDA Margin	N/A	-52.4%	-116%	-22%	12%	24%	30%	32%	32%	33%	34%	
Project FCF (EBITDA - Capex)	\$ -	\$ (5,488,485)	\$ (5,230,618)	\$ (4,844,369)	\$ 107,196	\$ 385,317	\$ 413,591	\$ 497,330	\$ 518,780	\$ 984,319	\$ 1,355,210	
Project Cash Balance	\$ -	\$ (5,488,485)	\$ (10,719,103)	\$ (15,563,472)	\$ (15,456,276)	\$ (15,070,959)	\$ (14,657,368)	\$ (14,160,037)	\$ (13,641,258)	\$ (4,577,775)	\$ 6,338,630	
Required Funding	\$	(15,563,472)										
Cash Flow Metrics (w/ Leverage)												
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 1,163,684	\$ 1,163,684	\$ 1,163,684	\$ 1,163,684	\$ 1,163,684	\$ 1,163,684	\$ 1,163,684	
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 9,518,171	\$ (5,230,618)	\$ (4,844,369)	\$ (1,056,489)	\$ (778,367)	\$ (750,093)	\$ (666,354)	\$ (644,905)	\$ (179,366)	\$ 191,526	
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$	10,518,171	\$ 6,287,553	\$ 2,443,184	\$ 2,386,696	\$ 2,608,329	\$ 1,858,236	\$ 1,191,882	\$ 546,978	\$ (4,353,750)	\$ (5,074,187)	
Required Funding	\$	(5,414,488)										

Phase 2-8:

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$ -	\$ 235,845	\$ 737,502	\$ 1,410,638	\$ 1,987,392	\$ 2,364,703	\$ 2,607,785	\$ 2,734,369	\$ 2,816,309	\$ 4,014,087	\$ 5,393,550
ISP Take	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue to Frisco	\$ -	\$ 235,845	\$ 737,502	\$ 1,410,638	\$ 1,987,392	\$ 2,364,703	\$ 2,607,785	\$ 2,734,369	\$ 2,816,309	\$ 4,014,087	\$ 5,393,550
Capex											
Engineering	\$ -	\$ 145,446	\$ 145,446	\$ 145,446	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 6,586,499	\$ 6,586,499	\$ 6,586,499	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 396,526	\$ 396,526	\$ 396,526	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Total Construction Capex	\$ -	\$ 7,336,608	\$ 7,336,608	\$ 7,336,608	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Drop Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Drop Materials	\$ -	\$ 95,047	\$ 133,508	\$ 164,981	\$ 96,188	\$ 60,057	\$ 30,914	\$ 6,989	\$ 6,989	\$ 6,989	\$ 6,989
Total Drop Capex	\$ -	\$ 95,047	\$ 133,508	\$ 164,981	\$ 96,188	\$ 60,057	\$ 30,914	\$ 6,989	\$ 6,989	\$ 6,989	\$ 6,989
Total Capex	\$ -	\$ 7,431,655	\$ 7,470,116	\$ 7,501,589	\$ 96,188	\$ 60,057	\$ 239,051	\$ 215,126	\$ 215,126	\$ 6,989	\$ 6,989
Opex											
Network Opex	\$ -	\$ 78,742	\$ 136,340	\$ 201,265	\$ 227,003	\$ 243,789	\$ 255,837	\$ 262,892	\$ 267,689	\$ 328,105	\$ 395,590
Operational Opex	\$ -	\$ 1,056,512	\$ 1,116,922	\$ 1,176,973	\$ 1,172,524	\$ 1,186,477	\$ 1,203,521	\$ 1,222,970	\$ 1,259,658	\$ 1,795,958	\$ 2,413,608
Network Operator Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Opex	\$ -	\$ 1,135,254	\$ 1,253,262	\$ 1,378,239	\$ 1,399,527	\$ 1,430,266	\$ 1,459,359	\$ 1,485,862	\$ 1,527,347	\$ 2,124,064	\$ 2,809,198
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ (899,409)	\$ (515,760)	\$ 32,400	\$ 587,865	\$ 934,437	\$ 1,148,427	\$ 1,248,508	\$ 1,288,962	\$ 1,890,023	\$ 2,584,352
Memo: EBITDA Margin	N/A	-381%	-70%	2%	30%	40%	44%	46%	46%	47%	48%
Project FCF (EBITDA - Capex)	\$ -	\$ (8,331,064)	\$ (7,985,876)	\$ (7,469,189)	\$ 491,677	\$ 874,381	\$ 909,376	\$ 1,033,382	\$ 1,073,836	\$ 1,883,035	\$ 2,577,364
Project Cash Balance	\$ -	\$ (8,331,064)	\$ (16,316,940)	\$ (23,786,129)	\$ (23,294,452)	\$ (22,420,071)	\$ (21,510,695)	\$ (20,477,313)	\$ (19,403,477)	\$ (1,576,402)	\$ 19,646,325
Required Funding	\$	(23,786,129)									
Cash Flow Metrics (w/ Leverage)											
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 1,839,804	\$ 1,839,804	\$ 1,839,804	\$ 1,839,804	\$ 1,839,804	\$ 1,839,804	\$ 1,839,804
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 15,394,709	\$ (7,985,876)	\$ (7,469,189)	\$ (1,348,127)	\$ (965,423)	\$ (930,428)	\$ (806,422)	\$ (765,968)	\$ 43,231	\$ 737,560
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$	16,394,709	\$ 9,408,833	\$ 2,939,644	\$ 2,591,517	\$ 2,626,093	\$ 1,695,666	\$ 889,243	\$ 123,275	\$ (4,127,297)	\$ (1,302,611)
Required Funding	\$	(4,275,177)									

A Municipally Owned and Operated operating model has several key economic differences from the other operating models discussed above. From a revenue perspective, all revenue is retained by the Town, as they act as both the Network Operator and ISP. Insourcing all network activities leads to significant upfront operating expenses, but staff can perform some duties (installs, customer service, etc.) that would be outsourced at cost in other operating models. One key advantage is that while some headcount and some operating expenses may need to increase as the network footprint grows, a majority of roles and expenses can remain the same, achieving economies of scale; this is demonstrated in the minimal change in cash need between a Phases 2-4 build and a Phases 2-8 build.

As with Scenarios 2 and 3, financial results look both attractive and attainable when removing adders and adjusting interest rates to 4.5%. While the network could become Free Cash Flow positive as early as year 9 and would not create a cash deficit, the Town should still monitor its position against its Debt Service Coverage Ratio, as additional assets may need to be placed as collateral until the network reaches a DSCR of 1.4x.

Phase 2-4, no rock/cobble adders:

		Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$	-	\$ 176,838	\$ 553,116	\$ 1,058,032	\$ 1,490,730	\$ 1,773,793	\$ 1,956,160	\$ 2,051,135	\$ 2,112,600	\$ 3,011,093	\$ 4,045,873
ISP Take	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue to Frisco	\$	-	\$ 176,838	\$ 553,116	\$ 1,058,032	\$ 1,490,730	\$ 1,773,793	\$ 1,956,160	\$ 2,051,135	\$ 2,112,600	\$ 3,011,093	\$ 4,045,873
Capex												
Engineering	\$	-	\$ 88,333	\$ 88,333	\$ 88,333	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$	-	\$ 2,399,607	\$ 2,399,607	\$ 2,399,607	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$	-	\$ 240,820	\$ 240,820	\$ 240,820	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$	-	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Total Construction Capex	\$	-	\$ 2,873,796	\$ 2,873,796	\$ 2,873,796	\$ -	\$ -	\$ 145,036	\$ 145,036	\$ 145,036	\$ -	\$ -
Drop Labor	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Drop Materials	\$	-	\$ 69,649	\$ 97,833	\$ 120,896	\$ 70,485	\$ 44,009	\$ 22,653	\$ 5,121	\$ 5,121	\$ 5,121	\$ 5,121
Total Drop Capex	\$	-	\$ 69,649	\$ 97,833	\$ 120,896	\$ 70,485	\$ 44,009	\$ 22,653	\$ 5,121	\$ 5,121	\$ 5,121	\$ 5,121
Total Capex	\$	-	\$ 2,943,445	\$ 2,971,629	\$ 2,994,692	\$ 70,485	\$ 44,009	\$ 167,689	\$ 150,157	\$ 150,157	\$ 5,121	\$ 5,121
Opex												
Network Opex	\$	-	\$ 54,168	\$ 83,953	\$ 119,108	\$ 138,059	\$ 150,453	\$ 159,337	\$ 164,564	\$ 168,137	\$ 213,405	\$ 263,768
Operational Opex	\$	-	\$ 1,040,683	\$ 1,093,031	\$ 1,145,385	\$ 1,150,706	\$ 1,169,730	\$ 1,191,259	\$ 1,214,800	\$ 1,251,243	\$ 1,783,964	\$ 2,397,490
Network Operator Fee	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Opex	\$	-	\$ 1,094,851	\$ 1,176,983	\$ 1,264,493	\$ 1,288,765	\$ 1,320,183	\$ 1,350,597	\$ 1,379,364	\$ 1,419,380	\$ 1,997,369	\$ 2,661,258
Cash Flow Metrics (w/o Leverage)												
Project EBITDA (Revenue - Opex)	\$	-	\$ (918,013)	\$ (623,867)	\$ (206,460)	\$ 201,965	\$ 453,610	\$ 605,564	\$ 671,771	\$ 693,221	\$ 1,013,724	\$ 1,384,616
Memo: EBITDA Margin		N/A	-519%	-113%	-20%	14%	26%	31%	33%	33%	34%	34%
Project FCF (EBITDA - Capex)	\$	-	\$ (3,861,458)	\$ (3,595,496)	\$ (3,201,152)	\$ 131,480	\$ 409,601	\$ 437,875	\$ 521,614	\$ 543,064	\$ 1,008,603	\$ 1,379,494
Project Cash Balance	\$	-	\$ (3,861,458)	\$ (7,456,954)	\$ (10,658,106)	\$ (10,526,626)	\$ (10,117,025)	\$ (9,679,150)	\$ (9,157,536)	\$ (8,614,472)	\$ 740,418	\$ 11,899,664
Required Funding	\$		(10,658,106)									
Cash Flow Metrics (w/ Leverage)												
Debt Service	\$	-	\$ -	\$ -	\$ -	\$ 786,438	\$ 786,438	\$ 786,438	\$ 786,438	\$ 786,438	\$ 786,438	\$ 786,438
Levered Project FCF (EBITDA - Capex)	\$	-	\$ 6,280,306	\$ (3,595,496)	\$ (3,201,152)	\$ (654,959)	\$ (376,837)	\$ (348,563)	\$ (264,824)	\$ (243,375)	\$ 222,164	\$ 593,056
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$		7,280,306	4,684,810	2,483,658	2,828,699	3,451,862	3,103,299	2,838,475	2,595,100	2,512,730	5,807,592
Required Funding	\$		-									

Phase 2-8, no rock/cobble adders:

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y20	Y30
Total End-user Spend	\$ -	\$ 235,845	\$ 737,502	\$ 1,410,638	\$ 1,987,392	\$ 2,364,703	\$ 2,607,785	\$ 2,734,369	\$ 2,816,309	\$ 4,014,087	\$ 5,393,550
ISP Take	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Revenue to Frisco	\$ -	\$ 235,845	\$ 737,502	\$ 1,410,638	\$ 1,987,392	\$ 2,364,703	\$ 2,607,785	\$ 2,734,369	\$ 2,816,309	\$ 4,014,087	\$ 5,393,550
Capex											
Engineering	\$ -	\$ 145,446	\$ 145,446	\$ 145,446	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor	\$ -	\$ 3,920,823	\$ 3,920,823	\$ 3,920,823	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials	\$ -	\$ 396,526	\$ 396,526	\$ 396,526	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment Replace/Refresh Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Total Construction Capex	\$ -	\$ 4,670,932	\$ 4,670,932	\$ 4,670,932	\$ -	\$ -	\$ 208,137	\$ 208,137	\$ 208,137	\$ -	\$ -
Drop Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Drop Materials	\$ -	\$ 95,047	\$ 133,508	\$ 164,981	\$ 96,188	\$ 60,057	\$ 30,914	\$ 6,989	\$ 6,989	\$ 6,989	\$ 6,989
Total Drop Capex	\$ -	\$ 95,047	\$ 133,508	\$ 164,981	\$ 96,188	\$ 60,057	\$ 30,914	\$ 6,989	\$ 6,989	\$ 6,989	\$ 6,989
Total Capex	\$ -	\$ 4,765,979	\$ 4,804,440	\$ 4,835,913	\$ 96,188	\$ 60,057	\$ 239,051	\$ 215,126	\$ 215,126	\$ 6,989	\$ 6,989
Opex											
Network Opex	\$ -	\$ 65,414	\$ 109,683	\$ 161,280	\$ 187,018	\$ 203,804	\$ 215,852	\$ 222,907	\$ 227,704	\$ 288,120	\$ 355,605
Operational Opex	\$ -	\$ 1,056,512	\$ 1,116,922	\$ 1,176,973	\$ 1,172,524	\$ 1,186,477	\$ 1,203,521	\$ 1,222,970	\$ 1,259,658	\$ 1,795,958	\$ 2,413,608
Network Operator Fee	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Opex	\$ -	\$ 1,121,925	\$ 1,226,605	\$ 1,338,253	\$ 1,359,542	\$ 1,390,281	\$ 1,419,373	\$ 1,445,877	\$ 1,487,362	\$ 2,084,079	\$ 2,769,213
Cash Flow Metrics (w/o Leverage)											
Project EBITDA (Revenue - Opex)	\$ -	\$ (886,080)	\$ (489,103)	\$ 72,385	\$ 627,850	\$ 974,423	\$ 1,188,412	\$ 1,288,493	\$ 1,328,947	\$ 1,930,009	\$ 2,624,337
Memo: EBITDA Margin	N/A	-376%	-66%	5%	32%	41%	46%	47%	47%	48%	49%
Project FCF (EBITDA - Capex)	\$ -	\$ (5,652,059)	\$ (5,293,543)	\$ (4,763,528)	\$ 531,662	\$ 914,366	\$ 949,361	\$ 1,073,367	\$ 1,113,821	\$ 1,923,020	\$ 2,617,349
Project Cash Balance	\$ -	\$ (5,652,059)	\$ (10,945,603)	\$ (15,709,131)	\$ (15,177,469)	\$ (14,263,103)	\$ (13,313,742)	\$ (12,240,375)	\$ (11,126,553)	\$ 7,180,344	\$ 28,802,922
Required Funding	\$	(15,709,131)									
Cash Flow Metrics (w/ Leverage)											
Debt Service	\$ -	\$ -	\$ -	\$ -	\$ 1,218,645	\$ 1,218,645	\$ 1,218,645	\$ 1,218,645	\$ 1,218,645	\$ 1,218,645	\$ 1,218,645
Levered Project FCF (EBITDA - Capex)	\$ -	\$ 10,063,357	\$ (5,293,543)	\$ (4,763,528)	\$ (686,983)	\$ (304,279)	\$ (269,283)	\$ (145,278)	\$ (104,823)	\$ 704,375	\$ 1,398,704
Project Cash Balance (inclusive of \$5mm Town Contribution)	\$	\$ 11,063,357	\$ 6,769,814	\$ 3,006,286	\$ 3,319,303	\$ 4,015,024	\$ 3,745,741	\$ 3,600,463	\$ 3,495,640	\$ 7,178,801	\$ 16,614,932
Required Funding	\$	-									

Planning for the Future

When thinking about future needs that could increase both broadband demand and network revenue, it's important to keep in mind the burgeoning demand for high-speed internet and the associated increase in the number of devices that require an internet connection. According to OpenVault's latest Broadband Insights Report²², monthly broadband data usage has increased 8% nationwide in the last 12 months, and 31% from Q1 2021 to Q1 2024. Additionally, more than 34% of broadband subscribers now subscribe to a 1 Gbps+ download speed tier, with 75% of Americans subscribing to a product with at least 200 Mbps download speed.

As more people work remotely and rely on the internet for entertainment, education, and communication, as demonstrated by the Frisco residential survey, the need for reliable and fast broadband services will continue to grow. With other variables remaining equal, Frisco should expect revenue growth as both quantity of subscribers and bandwidth demand continue to increase over time. Capitalizing on these changing market trends by providing additional services and increased speed tiers will only amplify that growth.

Alternatively, advancements in technology such as the emergence of advanced satellite and fixed wireless technologies could potentially threaten network broadband revenue. Both satellite and fixed wireless providers can provide high-speed internet access to areas where traditional broadband infrastructure is not available. These providers could obtain or grow market share in Frisco based on price, quality of service, or other competitive advantages, leading to a decrease in demand for a municipal network's services. While possible, this can be

²² Source: [QVBI - OpenVault](#) Broadband Insights Report 1Q24

easily mitigated by educating the public on the benefits of FTTP, affordable pricing, and a strong customer service operation that is in tune with the needs and wants of the Town.

In short, future needs that could increase broadband revenue include the growing demand for high-speed internet and the rise in the number of connected devices. Advancements in technology such as the development of satellite internet could potentially decrease broadband revenue by providing an alternative to traditional broadband services. It's important for broadband providers to stay up to date with these changes and adapt their services accordingly to remain competitive.

Broadband providers could also explore new revenue streams by offering value-added services such as home security, home automation, and telemedicine. These services could be bundled with broadband subscriptions to provide customers with a more comprehensive and convenient solution. Additionally, broadband providers could partner with content providers to offer exclusive content and services to their subscribers.

The future of broadband revenue is likely to be influenced by a combination of factors, including the growing demand for high-speed internet, the rise in the number of connected devices, and advancements in technology such as the development of satellite internet. Broadband providers that stay up to date with these changes and adapt their services accordingly are likely to remain competitive and continue to generate revenue.

Grant Review

As society's reliance on broadband for connectivity, education, and enterprise grows, we are experiencing an unprecedented level of interest, engagement and funding in broadband infrastructure. Grant dollars are flowing from federal and state resources to communities, ISPs and organizations across the country with the goal of enhancing availability, accessibility and affordability of broadband for all Americans. Bonfire has partnered with Learn Design Apply Inc, a leading telecommunications and infrastructure grant consultant, to review the full spectrum of opportunities for the Town of Frisco to receive federal, state, regional, and private funding for an FTTP network.

Below is a summary of grant opportunities reviewed and Frisco's eligibility based on grant criteria:

Grant Program	Administering Agency	Level of Government	Description	Frisco's Status
Broadband Equity, Access and Deployment (BEAD)	NTIA, Colorado Broadband Office	Federally funded, administered by the State	Historic program providing funding to cover unserved and underserved locations nationwide with reliable broadband (100 Mbps download / 20 Mbps upload)	Largely ineligible as 99%+ of premises in Frisco have at least one wired or fixed wireless connection option capable of providing at least 100 Mbps download / 20 Mbps upload.
ReConnect	USDA	Federal	Federal program focused on connecting premises in rural areas who have no broadband service today. ReConnect 5 (latest	

			round) had an eligibility threshold of 25 Mbps download / 3 Mbps upload	
Community Connect	USDA	Federal	Federal program funding for rural areas that lack any existing broadband speed of at least 10 Mbps download/ 1 Mbps upload	
Telecommunications Infrastructure Loans & Loan Guarantees	USDA	Federal	Provides financing for construction or maintenance of telephone and broadband services in rural areas	Ineligible as the Town is not the recognized telecommunications provider in the area
Colorado DOLA Energy Impact Assistance Fund	CBO, DOLA	State	Funding specifically for open access middle mile projects in energy and mineral resource communities	Ineligible as Frisco's project options would all be considered last mile, and lack of community qualification as an energy community
Congressionally Directed Spending / Community Project Funding	US Congress	Federal	Funding request made to elected representatives to support a community project	Eligible as a public entity, with applications made to both Senators and Representatives sometime in Q1 each year. See the next page for more details.
Advance Colorado Capital Projects Fund	Colorado Broadband Office	Federally funded, administered by the State	Funding provided to broadband projects that improve access to high-speed internet for Coloradans.	Ineligible as the grant application window closed in September 2023, and prioritized unserved locations (<1% of addresses in Frisco)
Community Broadband Funding	Connect Humanity	Private	Connect Humanity invests in broadband projects in underserved communities via a variety of flexible investment options.	Potentially eligible, but outside the scope of Connect Humanity's usual investment criteria of low-income communities.

While opportunities for grant support for a Frisco network are limited, the Town should explore Congressionally Directed Spending as a funding avenue, while also staying in touch with granting agencies and consultants to stay informed on new opportunities as they arise across all levels of the grant ecosystem.



Earmarks / Congressionally Directed Spending (CDS) / Community Project Funding (CPF)

Funding Entity: Congress

Amount Allocated: Varies year to year but typically includes a rule that the total amount of earmarks cannot exceed 1% of national discretionary spending

Total Number of Awards: House representatives are limited to 15 each; no limit on the number of requests for Senators

Purpose: While the Senate calls it Congressionally Directed Spending and the House calls it Community Project Funding, the general public generally calls it earmarks. Generally speaking, an earmark is funding requested by an elected Senator or House Representative for a specific project in a specific location. Not all appropriations subcommittees accept earmark requests. Earmarks often bypass the competitive allocation process. They are a way for lawmakers to secure funding for their constituents or special interests without going through the standard review and prioritization by the agencies responsible for distributing federal funds. Applicants can submit projects reflecting extremely varied scopes.

Submission Deadline: Typically Late March to Mid April

Eligible Applicants:

- Any Public Entity
 - School Districts
 - Local Governments
 - State Governments
 - Institutions of Higher Education

Links for Frisco, Colorado

[Click here for the House of Representatives CPF Appropriations Website](#)

[Click here for Colorado District 2 Representative Joe Neguse's CPF Website](#)

[Click here for the Senate CDS Appropriations Website](#)

[Click here for Colorado Senator Michael Bennet's CDS Website](#)

[Click here for Colorado Senator John Hickenlooper's CDS Website](#)

