

# Town of Caroline

## Municipal Broadband

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*HUNT* ENGINEERS | ARCHITECTS | SURVEYORS

2023

# Background

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## Town of Caroline Statistics

Total Population:	3,368
Total Area:	54.8 Sq.Mi.
People per Square Mile:	61.5
Households:	1,455
People per Household:	2.3
Poverty Rate:	3.8%

Source: U.S. Census Bureau (2021). American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for Caroline town, Tompkins County, NY <<http://censusreporter.org/profiles/06000US3610912606-caroline-town-tompkins-county-ny/>>

# Goals

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- Provide high speed internet at an affordable cost.
- Serve Unserved Customers
- Provide the Best Service Feasible
- Spend Public Dollars on a Public Service.

# Demographics

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## Age

- Under 18- 23.3%
- 18 - 64 - 62%
- 65 and over - 14.7%

## Income

- Per capita income - \$42,664
- Median household income -\$82,004

## Technology Usage

- Has one or more types of devices: 93.1%
- Desktop or Laptop 87.1%
- Desktop or Laptop alone 7.6%
- Smartphone or tablet 85.5%
- Smartphone or tablet alone 5.9%
- No Computer 6.9%

Source: U.S. Census Bureau (2021). American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for Caroline town, Tompkins County, NY <<http://censusreporter.org/profiles/06000US3610912606-caroline-town-tompkins-county-ny/>>

# Demographic Take Aways

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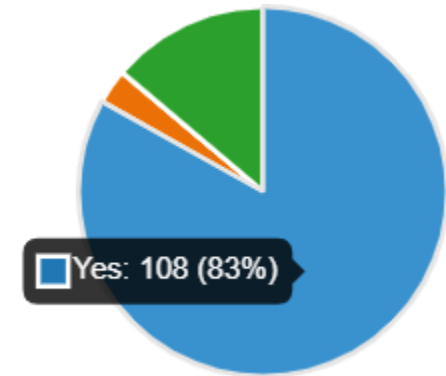
- Number of Households per Sq. mile is relatively low.
- Over 85% of the population is the primary demo that uses technology.
- Per capita income indicates the need for an affordable service.
- 93% of the population has multiple devices in the home.

Source: U.S. Census Bureau (2021). *American Community Survey 5-year estimates*. Retrieved from *Census Reporter Profile page for Caroline town, Tompkins County, NY* <<http://censusreporter.org/profiles/06000US3610912606-caroline-town-tompkins-county-ny/>>

# Broadband Survey

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- 9% Response Rate
- Average Cost of Internet is \$78, Spectrum \$85 service was the most common.
- 83% of Respondents would be interested in better internet service.
- Cost was just as much of an issue as availability.



Interested in Better Service

# Existing Broadband Landscape

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- Spectrum
- Frontier
- Verizon
- Points Broadband
- Haefele Connect
- Hughes Net
- Starlink

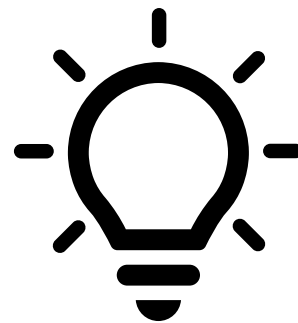
# Rural Electrification Act



## Background:

- Act passed by Congress on May 20<sup>th</sup>, 1936.<sup>1</sup>
- Provided financing for power companies and cooperatives to install electric & telephone to rural unserved residents.<sup>1</sup>
- Many rural electric cooperatives bought wholesale electric and distributed it with their own infrastructure.<sup>1</sup>
- Some facilities have been sold and some cooperatives still exist today.<sup>1</sup>

Result: Everyone has access to electricity!



1. "Rural Electrification Act of 1936 | USDA.gov". [www.rd.usda.gov](http://www.rd.usda.gov). Retrieved 2022-02-20.



# What is Municipal Broadband?

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- Municipally owned own infrastructure that delivers broadband as a service.
- Multiple ways to accomplish, all with different levels of risk and reward.
- Everyone vs Anyone – Unlike other public utilities, broadband is voluntary and economy of scale must be achieved by a superior service.
- Competition exists however fiber systems provides inherent competitive advantages.

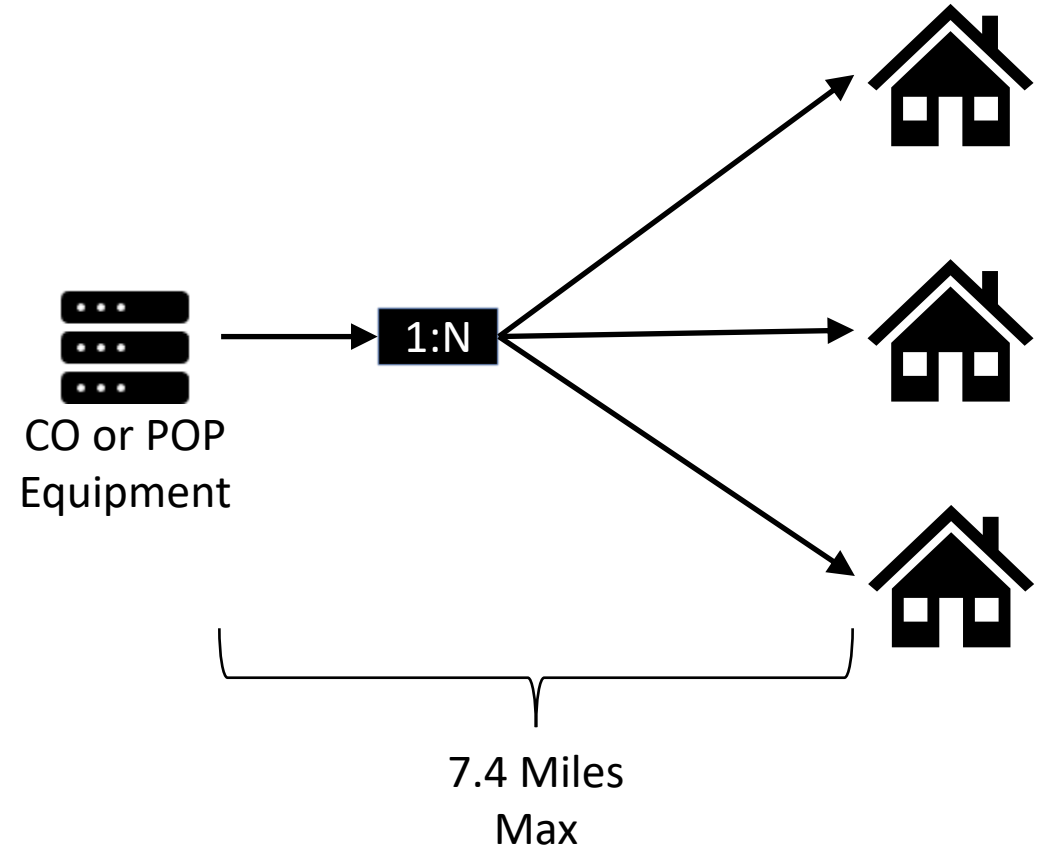
# Local Development Corporation

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- Caroline Broadband?
- Private, Non-profit entity that benefits a local government's economic development.
- Separates the entity from the Town.
- Develop a Charter that works better for a competitive service.

# Topology & Components

- FTTH required one equipment location within roughly 7 miles of subscribers.
- One fiber can serve 32-64 customers in a typical design.
- Supports speeds of 10 Gbps symmetrical and increasing.
- Lasers monitor the network and can determine the exact location of a fault.



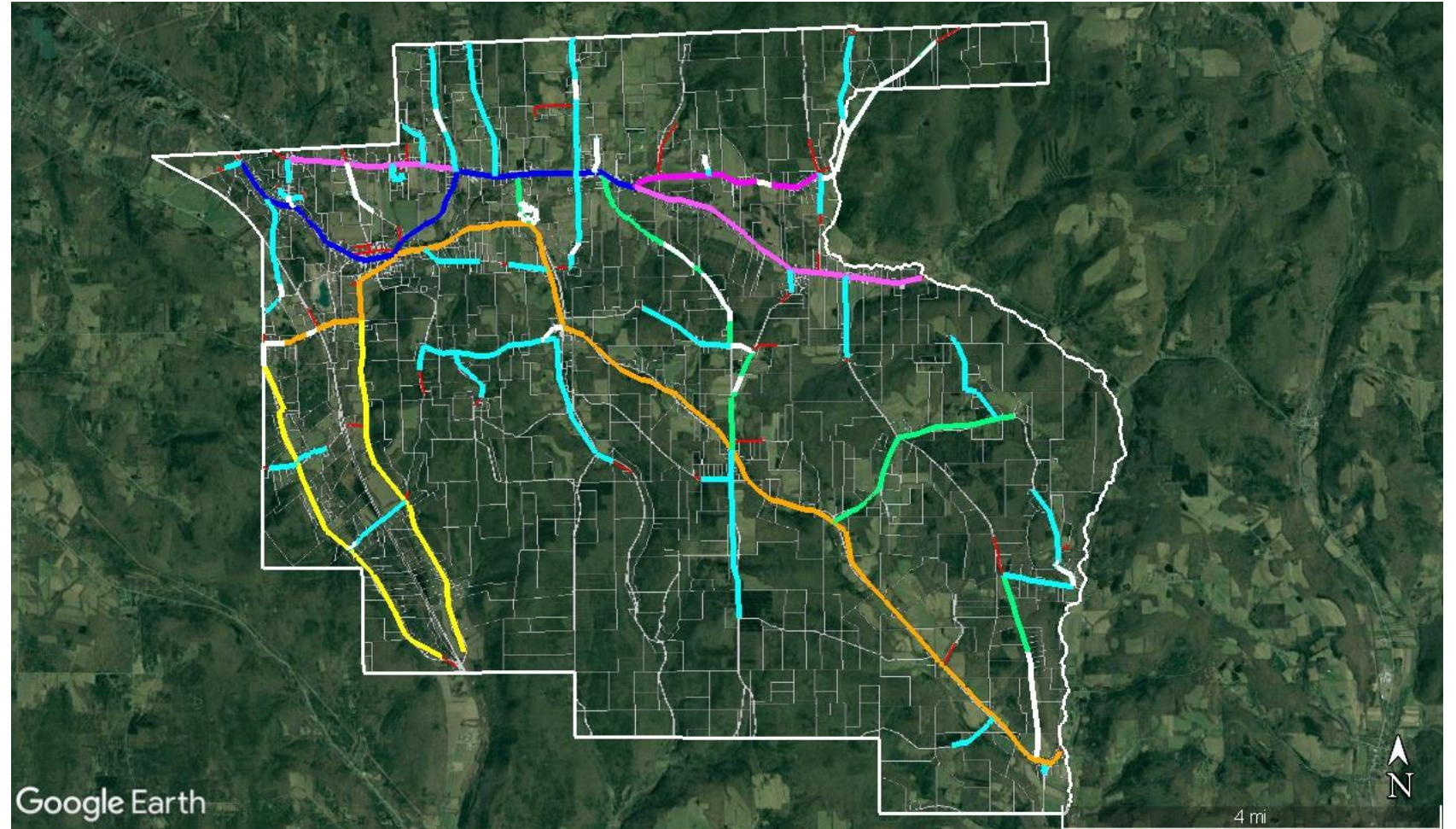
# High Level Design

5.2 Miles of “Backbone” Cable.

64 Miles of “Distribution” Cable.

Two Points of Presence.

Connection to Dryden for IMA  
Opportunity



# What does it take to provide Broadband?

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## Contractors:

Fiber Installers – Initial Construction

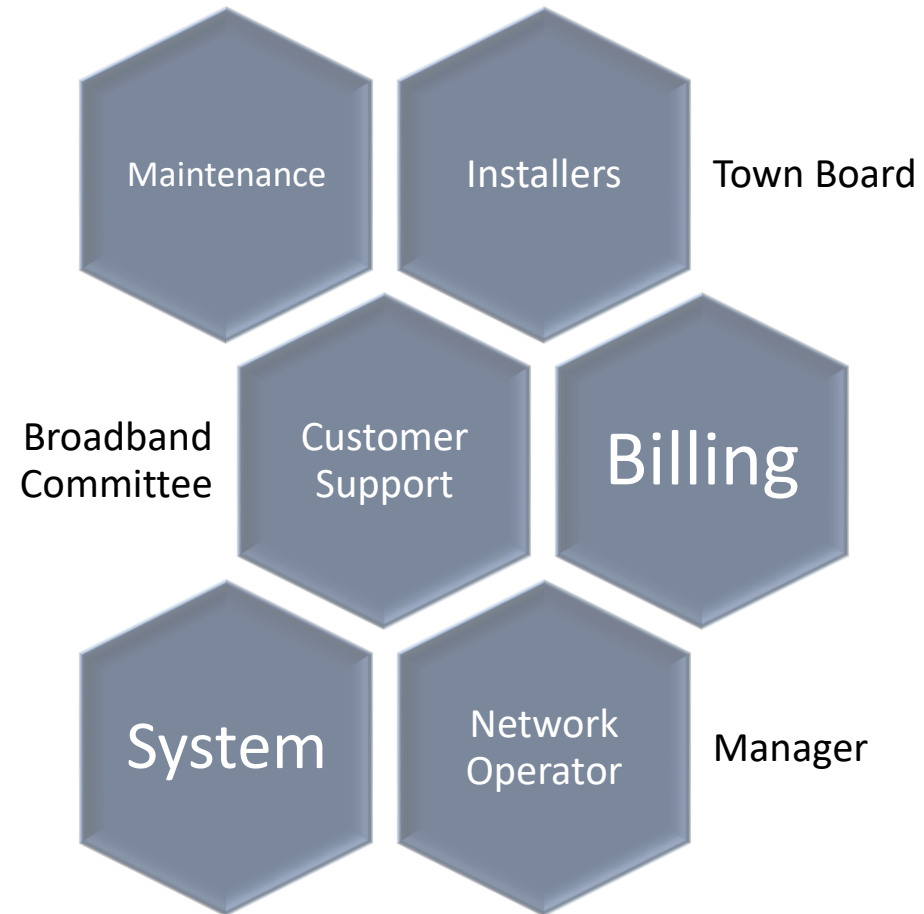
Fiber Repair – Ongoing Service

Customer Installers – From the curb to the home.

Customer service – Support customers.

Network Operators – “Run” the network equipment.

Customer Billing – Handle customer billing and interface with the customer management system.



# Sub-Contractors & Partners

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Partners are key, leverage their resources.



Finding Local Sub-contractors



The Town of Dryden example.

# Project Costs

Project Cost Estimate				
	Phase 1	Phase 2	Phase 3	Subtotal
Central Office	\$24,700	\$0	\$0	\$24,700
Branch Office	\$24,700	\$0	\$0	\$24,700
Network Equipment	\$210,000	\$0	\$0	\$210,000
Transport Cable	\$286,000	\$0	\$0	\$286,000
Distribution Cable	\$774,000	\$1,290,000	\$1,238,400	\$3,032,400
Total	\$1,270,000	\$1,290,000	\$1,238,400	\$3,798,400
Contingency	\$127,000	\$129,000	\$123,840	\$1,494,400
Total Construction	\$1,397,000	\$1,419,000	\$1,362,240	\$4,178,240
Incidentals	\$139,700	\$141,900	\$136,224	\$417,824
Total Project Cost	\$1,507,000	\$1,560,900	\$1,498,464	\$4,566,364
Customer Equipment	\$20,000	\$40,000	\$60,000	\$60,000
Customer Installs	\$70,000	\$140,000	\$210,000	\$210,000

# Financing

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- Initial Capital Project
  - State and Federal Funding
  - Municipal Bond
  - Bond Anticipation Note
- Utilize BAN and Bonding to structure debt wisely. Models often operate at a loss in years 1 & 2.
- Scope smaller projects in the first two years that focus on maximizing availability to customers.
- Always be looking for grants, specifically infrastructure.
- Separate the “Base Infrastructure” from the “Home Installations” financially.
- Prepare for negative cashflow in the first one or two years.



# FTTH Financial Overview

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## Projected Earnings

Year	EBITA
0	NA
1	\$(30,500)
2	\$(9,300)
3	\$109,141
4	\$227,505
5	\$282,790
6	\$337,994
7	\$377,114
8	\$395,147
9	\$409,782
10	\$424,418
11	\$427,345
12	\$430,272
13	\$433,199
14	\$436,126

## Key Highlights

- The proposed build-out would cost an estimated \$4.9M
- Consistent earnings annually after Year 2.
- Cash flow vs. Maintenance Costs are positive.
- Earnings (EBITDA) meets capital construction costs between years 15.

# Operational Costs

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- Wholesale Bandwidth #1 - \$3,500/ month
- Wholesale Bandwidth #2 - \$4,500/month
- Customer Service/Network Management - \$4,500/month
- Conduit/Pole Fees - \$1,600/month
- Maintenance Fund - \$5,000/month
- Misc. Monthly Costs - \$1,000/ month
- Total: \$20,100
- About 300 subs sustain operations.

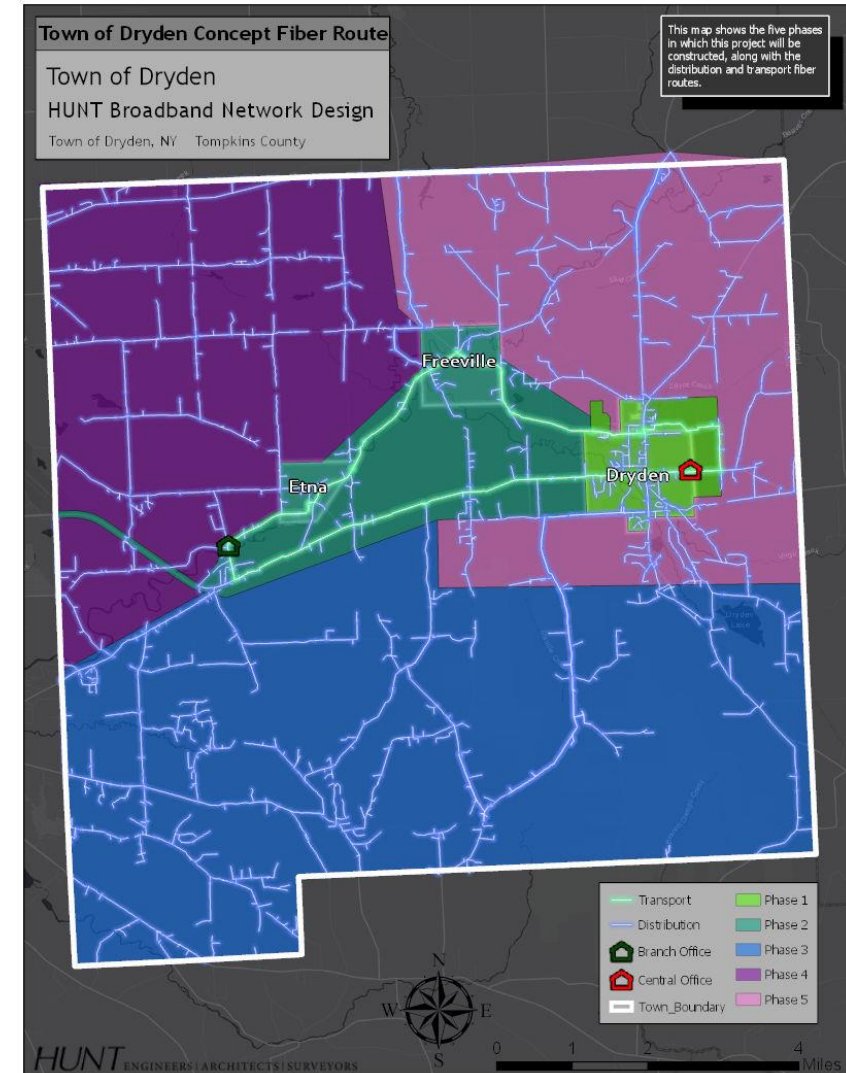
# Town of Dryden



DRYDEN FIBER



- Approximately 6,000 households; 94 sq/mi.
- Municipally Owned and Operated FTTH System.
- Internet service only.
- Subcontractor model with committee oversight.
- Dryden will attempt a *Rate-Reduction* cost model.
- Operate in the free market, no restriction of competition.
- Competitive Advantages include
  - faster speeds,
  - symmetrical bandwidth,
  - superior technology
  - Flat Rate with reduction potential



# Buildout to Date

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Pinckney Point of Presence  
(Etna, NY)



Central Office  
(Village of Dryden)

Freeville Point of Presence  
(Freeville, NY)



# Questions?

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