



# BROADBAND SUMMIT

JAN 26-27, 2023

SAWGRASS MARRIOTT  
ST. JOHNS COUNTY

# The Market Has Spoken

If it's not fiber, it's not broadband.

**Gary Bolton**

President

Fiber Broadband Association





An aerial photograph of a rural farm scene at sunset. A long, straight road runs vertically through the center of the image. On the left side of the road, there are several large, cylindrical metal silos and a large white barn. On the right side, there is a red barn with a white silo and a smaller white house. The fields are a mix of green and brown, indicating different crops or stages of harvest. The sun is low on the horizon, creating a warm, golden glow across the sky and fields. The text "A Once In A Generation Opportunity" is overlaid in the center of the image.

*A Once In A Generation Opportunity*



# *Quest for Digital Equity*



# Digital Equity

## Top 3 Indicators for Generational Poverty

1. Housing Costs >30% of Income
2. Lack of Access to Broadband & Computers
3. Lack of Higher Education



5/21 UAH/Huntsville Chamber  
Census Data Study





# AFTER THE PANDEMIC

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## OUR NEW WORLD



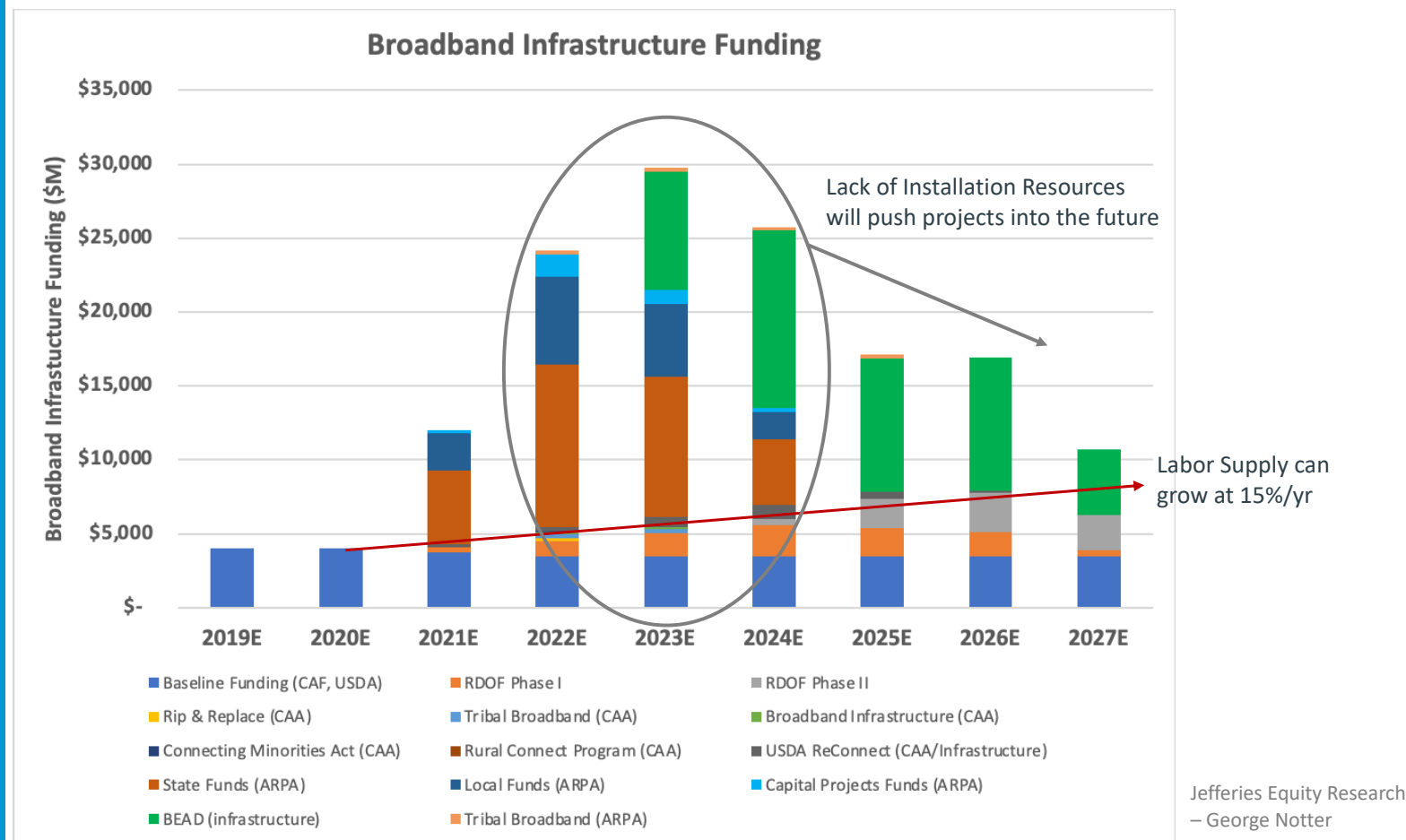
# Fiber: The Next 100-year Network



- The copper phone network lasted about 100 years
- Today's 10Gbps technology uses 1/10,000th of the capacity of optical fiber
- Fiber is the next 100-year network
  - A network built with any other technology will need to be replaced soon

# 7x

## Increase in Broadband Infrastructure Public Funding





# The Administration's Marching Orders

- NTIA has determined that “**Priority Broadband Projects**” are those that use **end-to-end fiber-optic architecture**.
  - **Only end-to-end fiber will** “ensure that the network built by the project can easily scale speeds over time to ... meet the evolving connectivity needs of households and businesses” and “support the deployment of 5G, successor wireless technologies, and other advanced services.”<sup>65</sup>
  - End-to-end fiber networks can be updated by replacing equipment attached to the ends of the fiber-optic facilities, allowing for quick and relatively inexpensive network scaling as compared to other technologies.
  - Moreover, new fiber deployments will facilitate the deployment and growth of 5G and other advanced wireless services, which rely extensively on fiber for essential backhaul.

# There Are Nearly 140 M Broadband Addressable U.S. Homes

## Census Data And FBA/ RVA Provider Study 2022



129.9 Million Households (single and multi family)



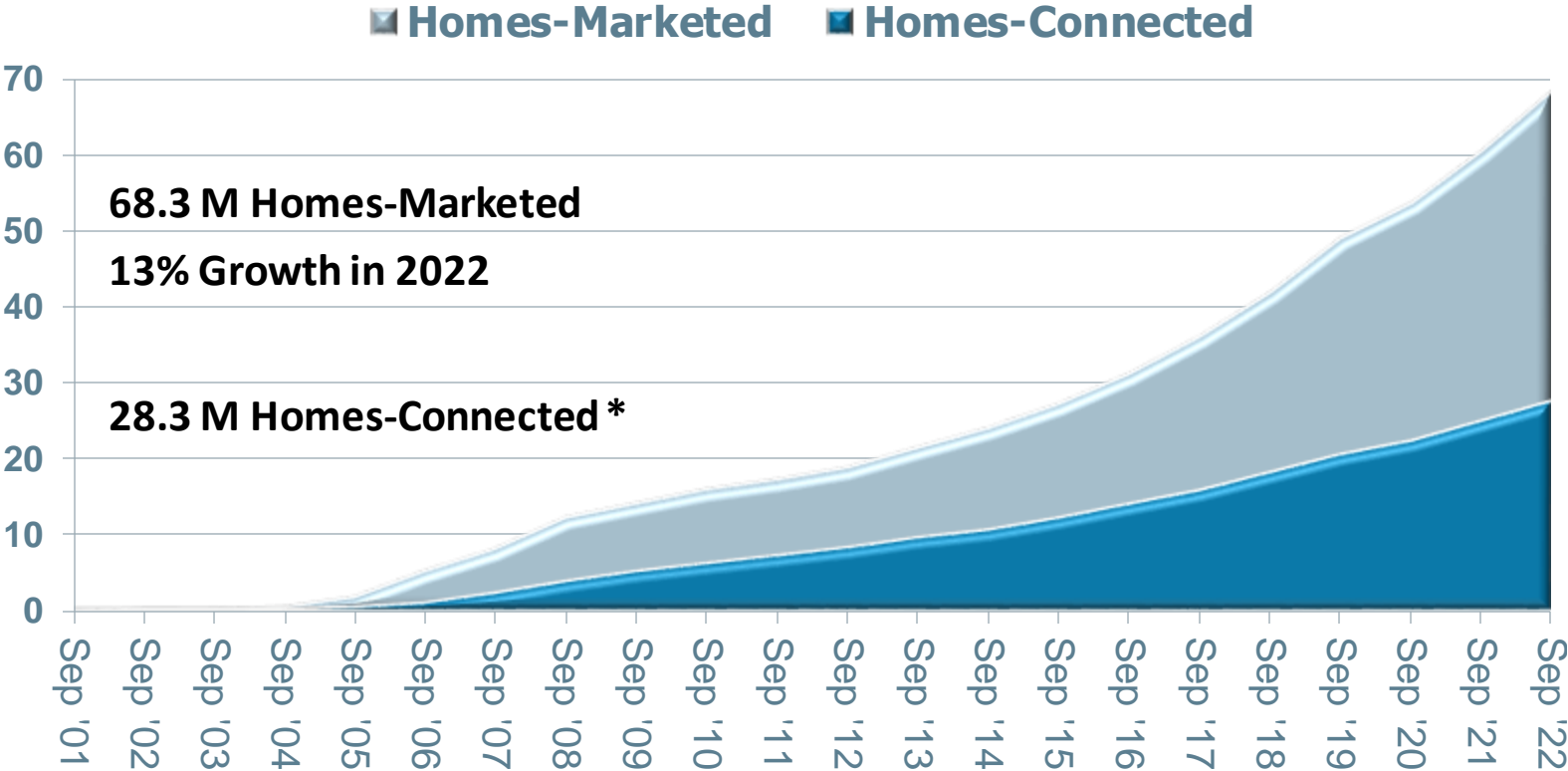
Est 8.7 Million Second Homes/ Airbnb





# Fiber Broadband Now Passes Over 68 Million U.S. Homes

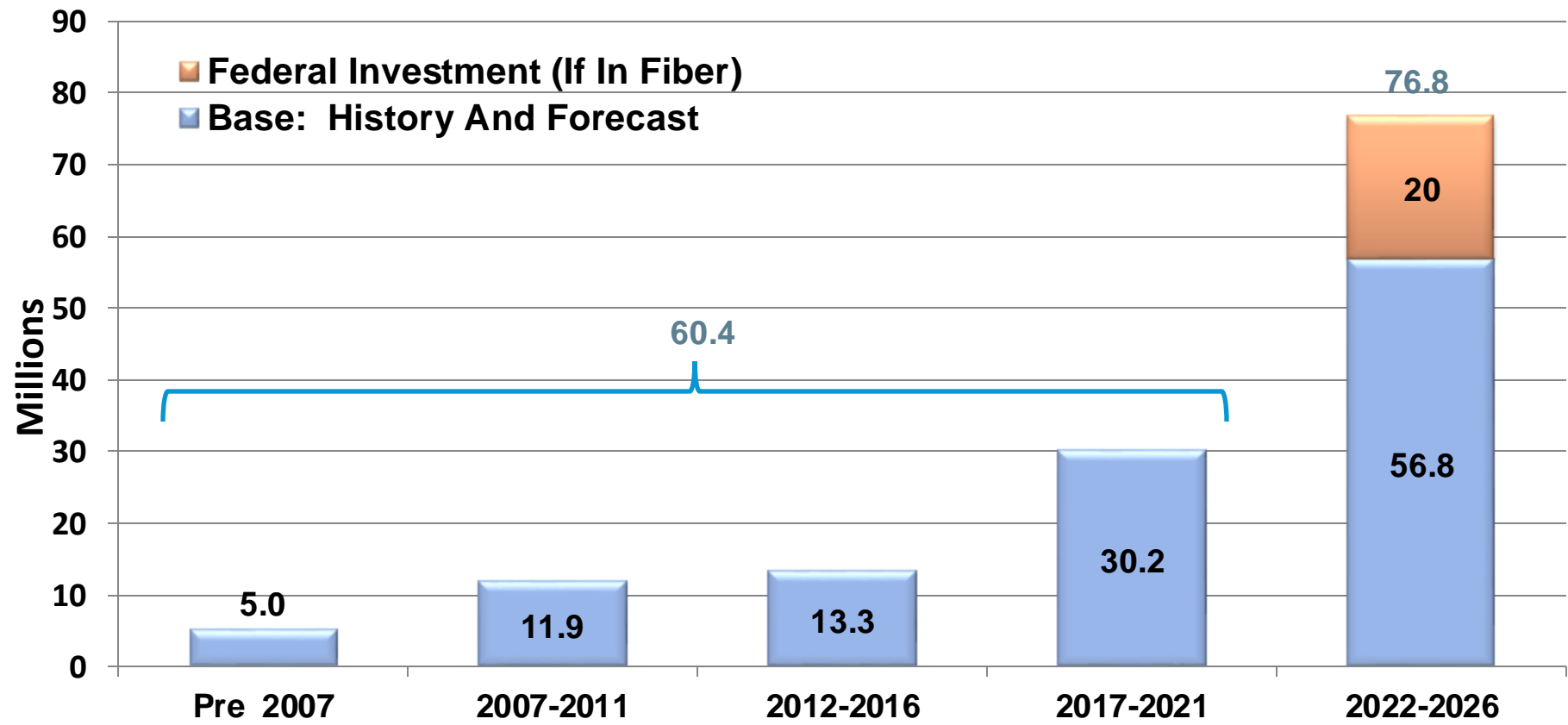
## FBA/ RVA Provider Study 2022



\* 27.6 M Internet homes connected plus 0.7 M television or landline connections



# Based On Demand More FTTH Could Be Built Than In All Previous Years



*\*This Early 22-26 forecast could be somewhat optimistic given potential supply constraints, federal infrastructure moneys going to non-fiber, etc.*





## The Metaverse Requires:

Symmetric bandwidth

Reduce latency

Consistent quality  
of experience



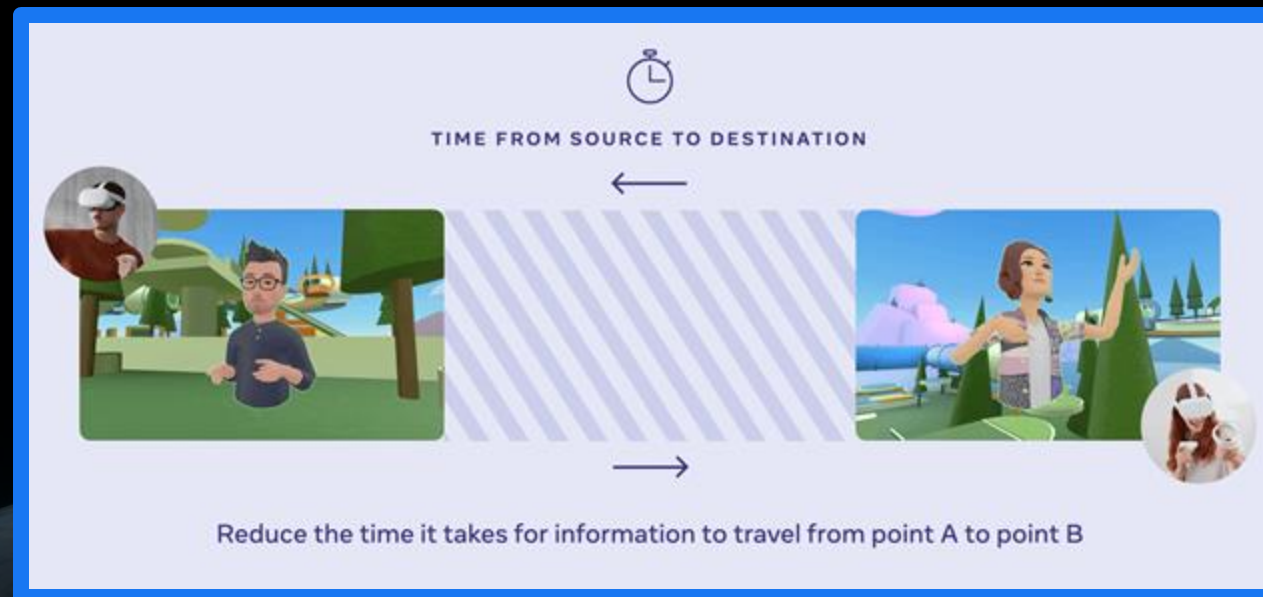


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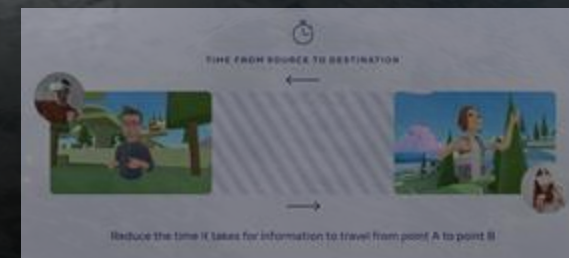
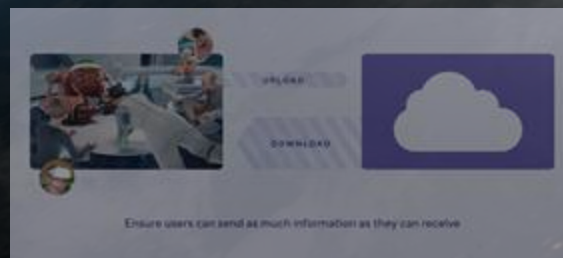


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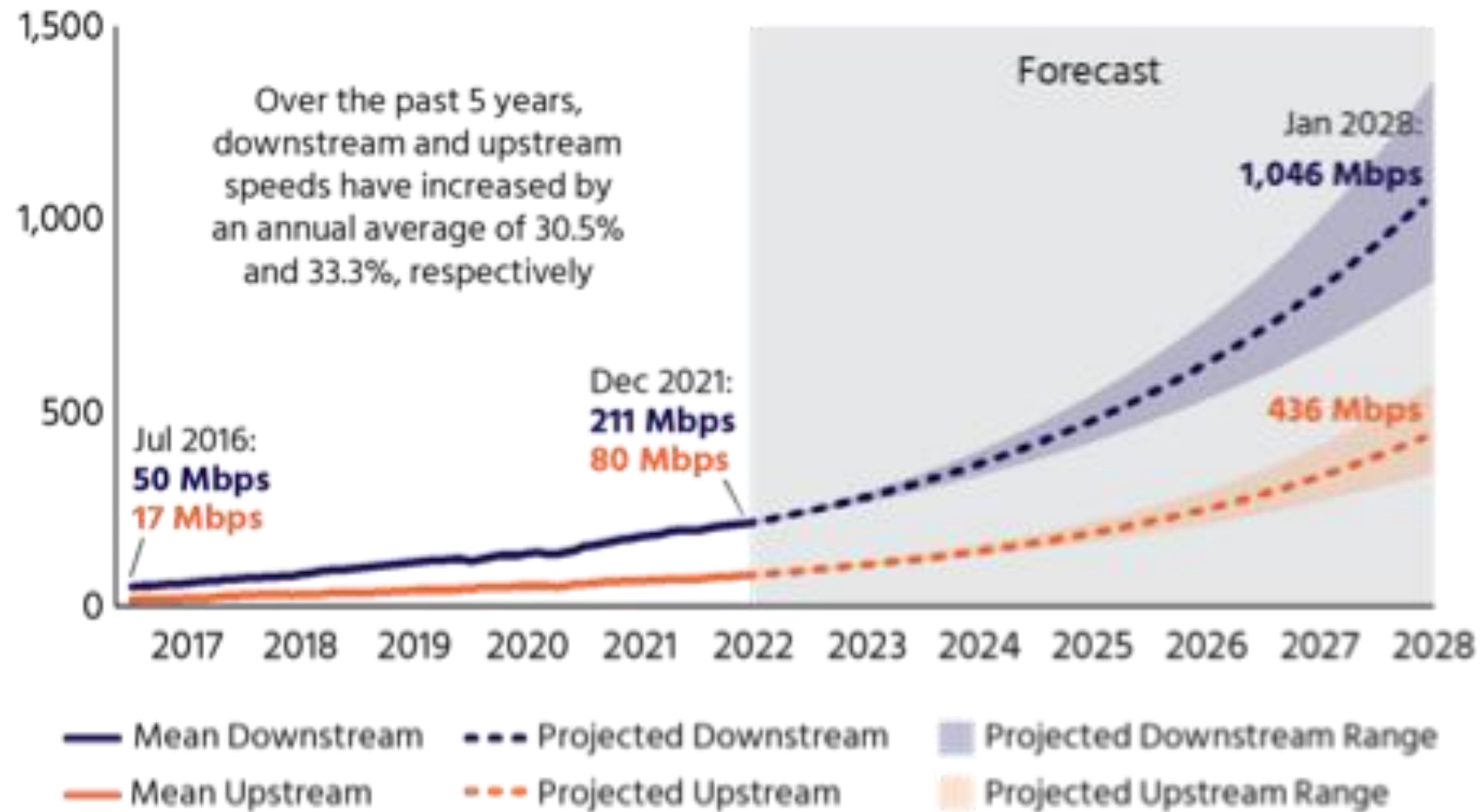
Reduce latency

Consistent quality  
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# Residential Broadband Requirements Will Accelerate

## Historical and Projected Average US Internet Speeds (Mbps)



Note: forecast is based on full period CAGR with a 15% margin of error. Source: Ookla (2016-2021)

# 88%

**of NA Operators  
offer 1G+ service  
under \$100**

Jaimie Lenderman Omdia (Fiber for Breakfast 2022)



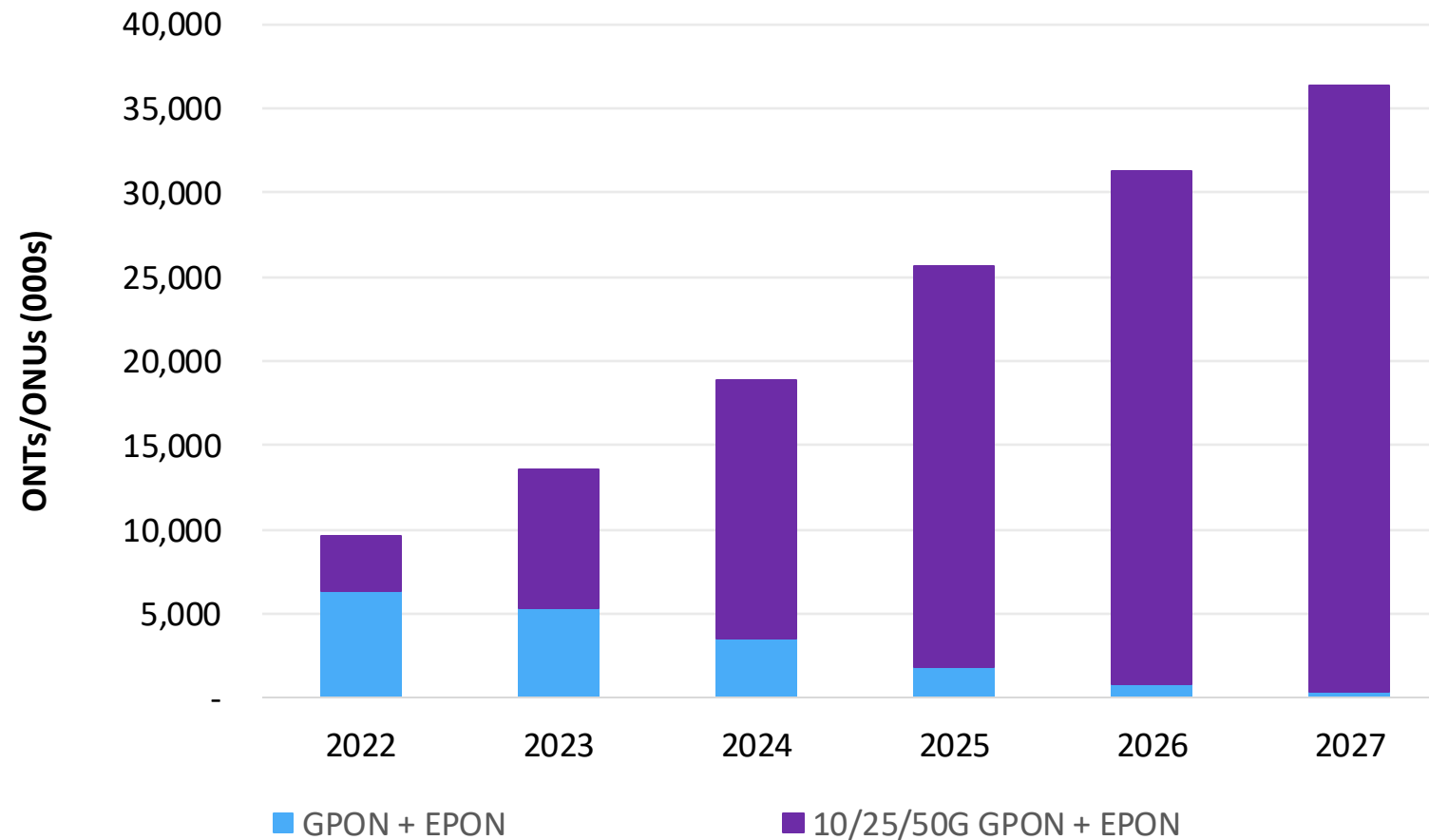
## Service Provider marketing strategies and subscriber perception

- **1G and faster take up rates still nascent, but marketing has shaped consumer perception.**
  - Operators should offer 1G even if most subscribers take up <1G.
- **If competitive gigabit service becomes available, there is risk of sub churn.**
  - A sub may perceive the competitor's network as superior, even if they do not take the gigabit service.
  - Especially true with symmetrical service



# 10G Symmetric has Crossed the Tipping Point

PON ONT/ONU ports, North America, 2022-27



- Several operators are installing 10G ONT/ONUs at the customer premise.
- The cost difference between 10G PON and older gen has declined to less than cost of a truck roll.
- Operator can eliminate the cost of a truck roll in the future by deploying 10G now.

# 25G PON Now In Commercial Deployment

**TECH**

## The nation's fastest communitywide internet? New 25-gig service launches at \$1,500 per month



**Saleen Martin**

USA TODAY

Published 4:49 p.m. ET Aug. 31, 2022 | Updated 6:50 p.m. ET Sept. 2, 2022



- AT&T, EPB, Google Fiber, and LUS Fiber committing to deploy 25G PON
- 25G PON trials include AIS (Thailand), Bell (Canada), Chorus (New Zealand), CityFibre (UK), Delta Fiber, Deutsche Telekom AG (Croatia), Fiberhost (Poland), Frontier Communications, Hotwire (USA), KPN (Netherlands), Openreach (UK), Proximus (Belgium), Telecom Armenia (Armenia), TIM Group (Italy), and Türk Telekom (Turkey)

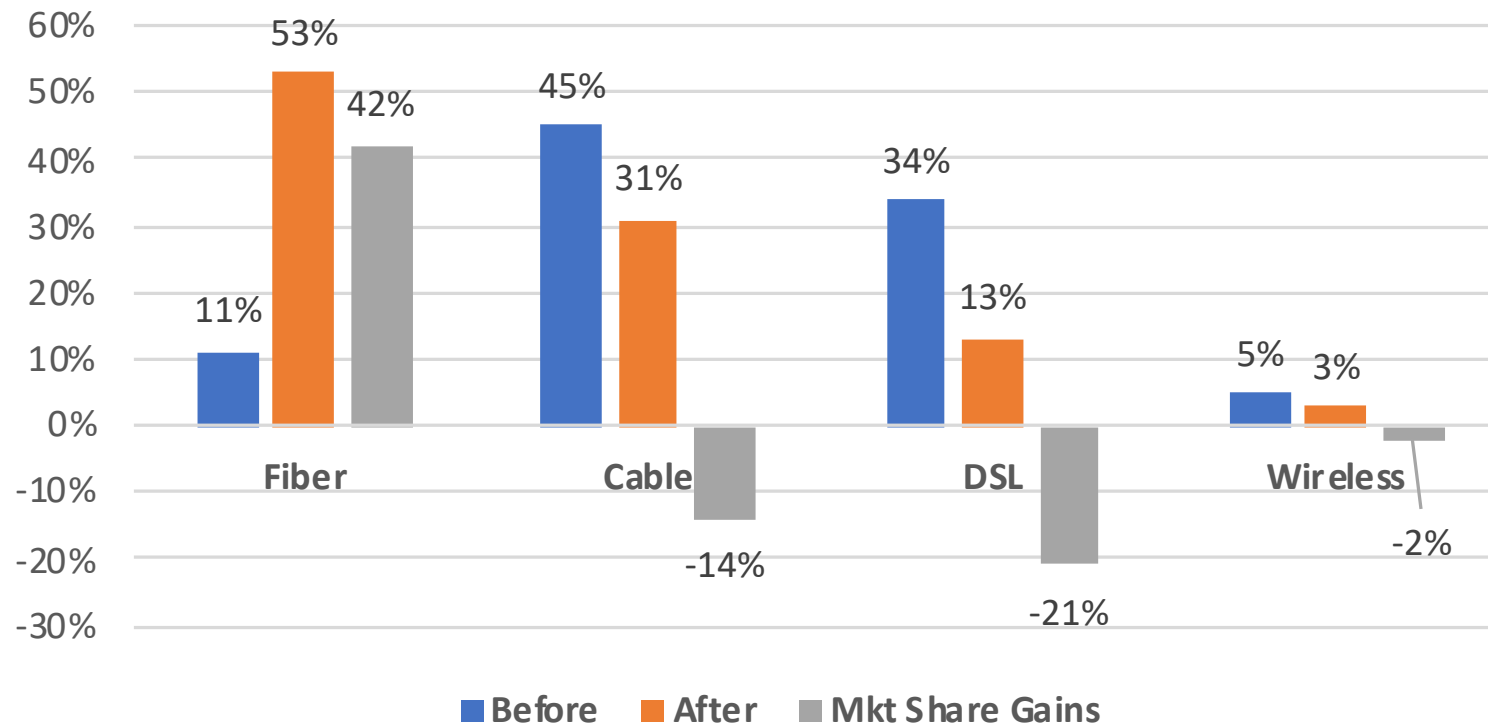


# What Consumers Want...

## Market Share Gains from Consumer Churn

Same Residence in Past 3 Years (where fiber is available)

*RVA Consumer Survey 2019*





# FTTH Improves Lives For Those Of Lower Incomes

Significant Impacts: Households Under \$60K, Age 25-65  
2022 FBA/RVA Broadband Consumer Study

**+10-15 basis pts**



Sometimes work from home  
FTTH 58.6%, Other 43%

Work for “high tech” firm  
FTTH 38.2%, Other 28.5%

**Better Work Opportunities**

**+2.6 basis pts**



Have a home-based business  
FTTH 23.3%, Other 20.7%

**Home-based Businesses**



**+6.7-7.5 basis pts**



Family good access to health care  
FTTH 32.6%, Other 25.1%

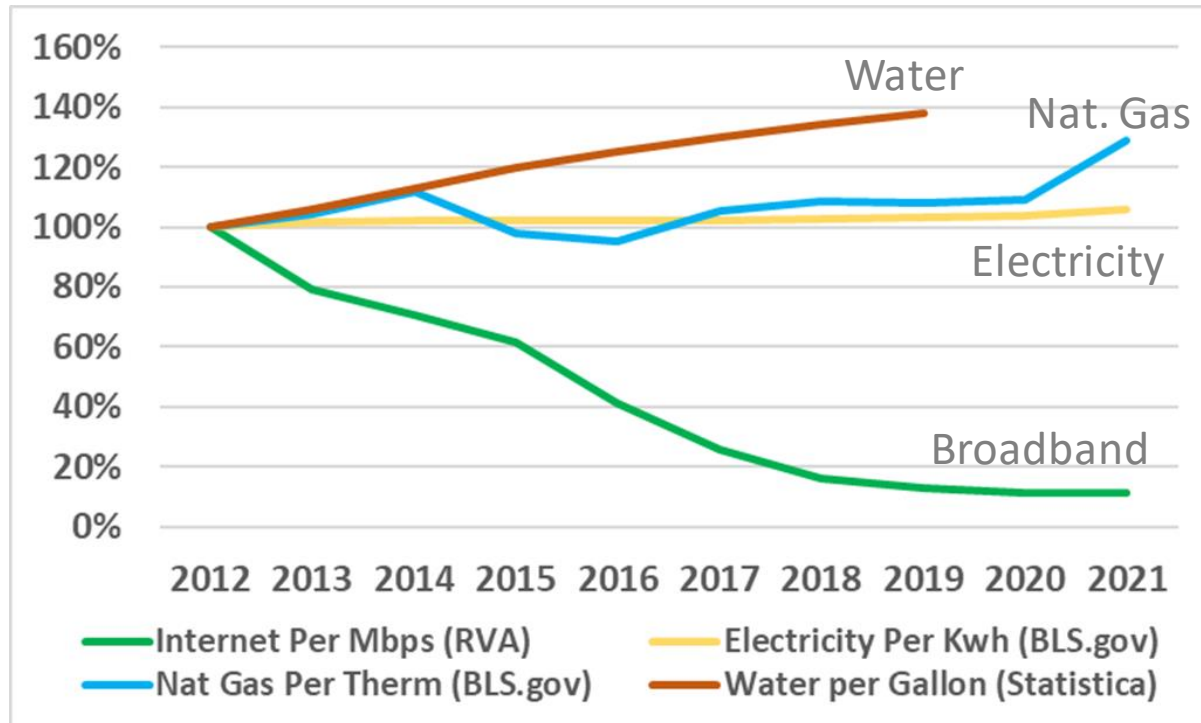
Children good access to education  
FTTH 34.9%, Other 28.2%

**Healthcare & Education**

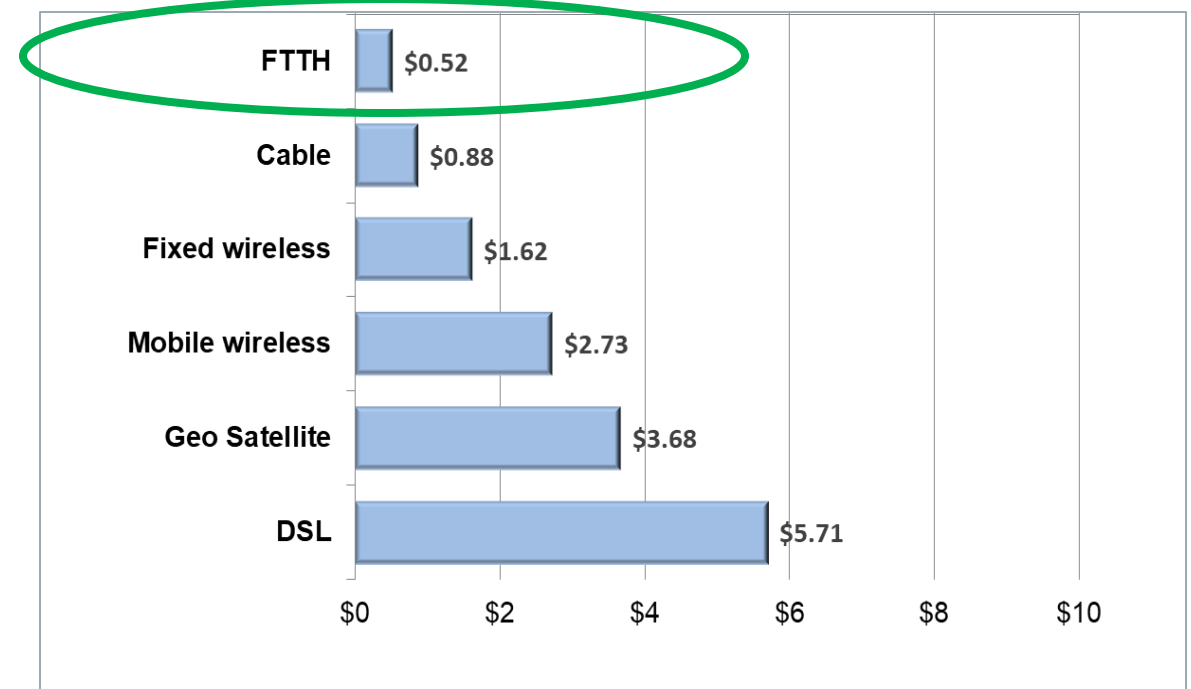
# FTTH Reduces Broadband Cost



Broadband Cost Change Per Unit Of Measure



Cost Per Mbps – Blended Download And Upload



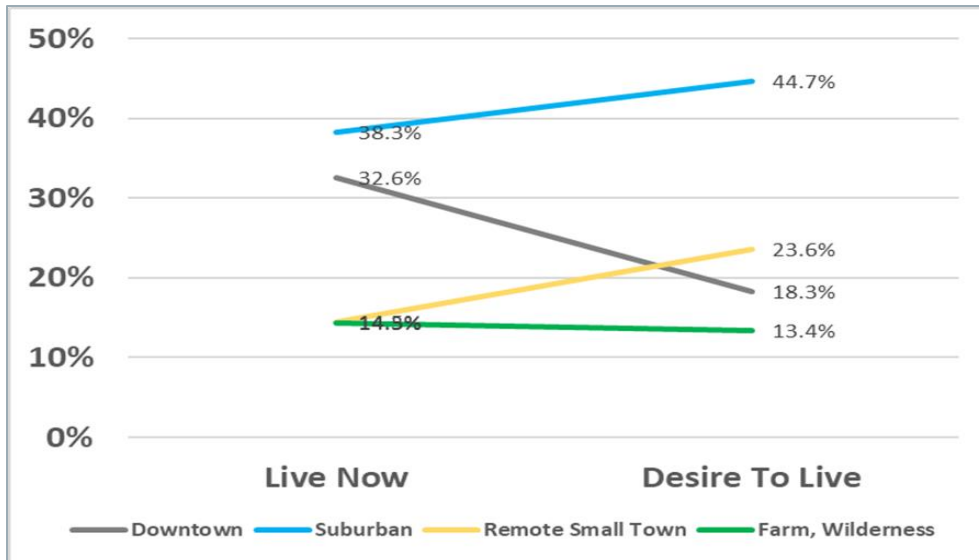
FBA/RVA Broadband Consumer Studies (2022)

# FTTH Facilitates Rural Migration Trends

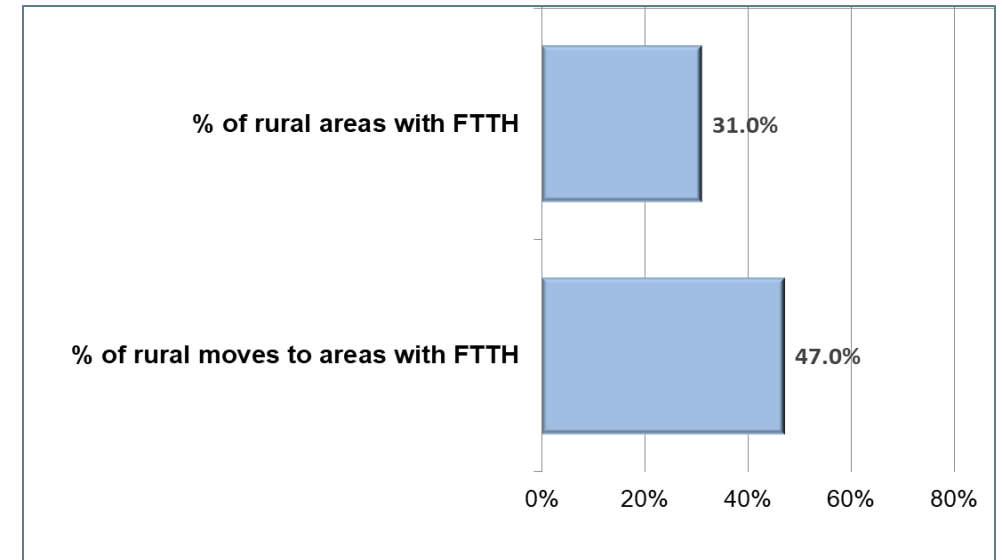
Those desiring more rural living cite affordability, safety, and high-speed broadband as particularly important. They are trading off desires for walkable retail with nature, and greenspace. (Note: the apparent dramatic shift will be dampened by various factors)

About half of those moving to rural settings in the past year moved to areas with FTTH providers (although only 31% of rural areas actually have FTTH).

## Desires For Future Living



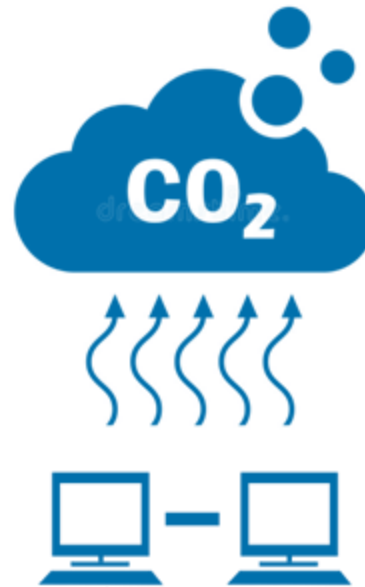
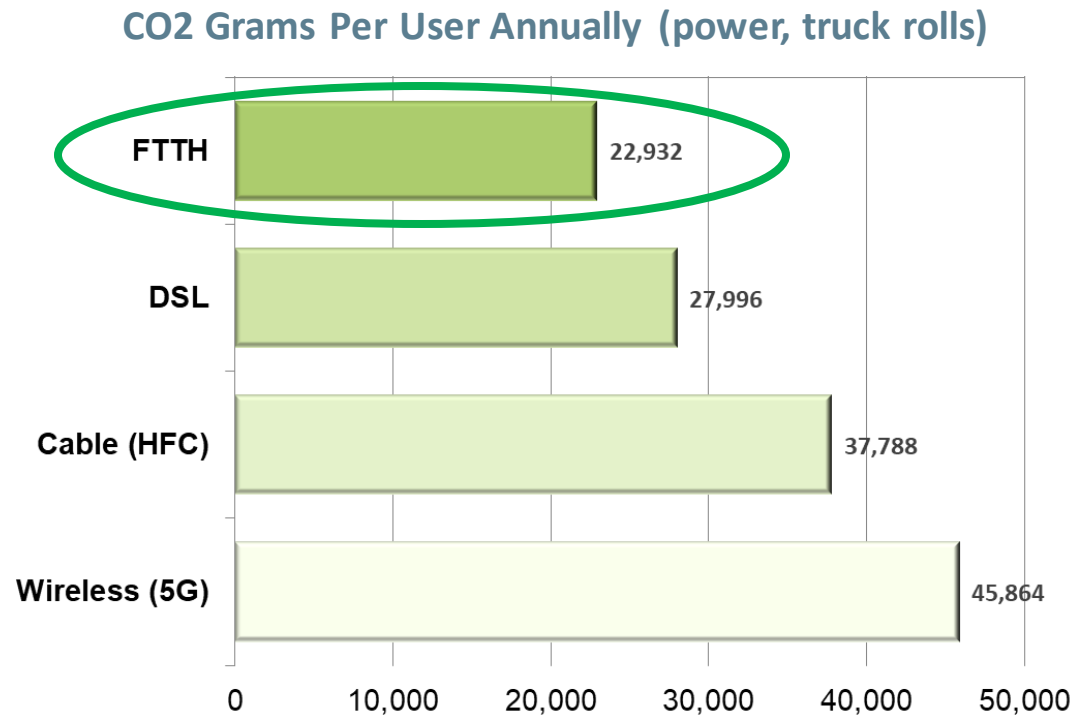
## Rural Moves Biased To FTTH Areas



FBA/RVA Broadband Consumer Studies (2022)



# FTTH Directly Reduces Carbon Output

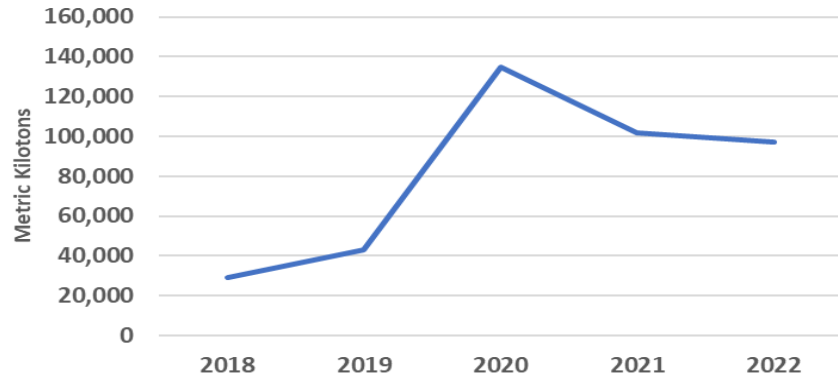


Moving all households to FTTH by 2030 would reduce carbon emissions by about 1.4 Million metric tons annually –

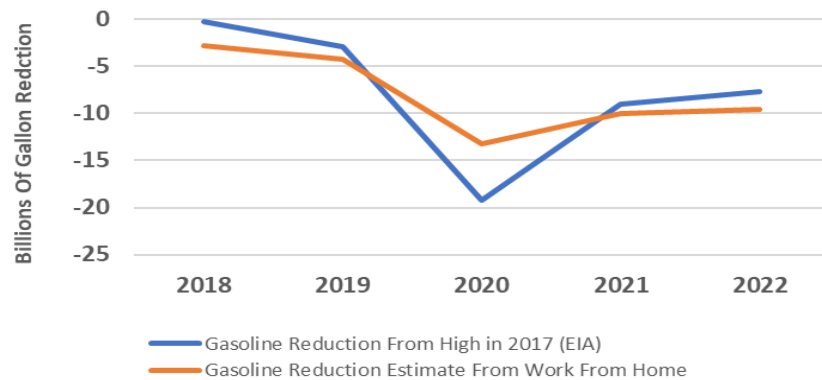
**34% reduction in Internet CO2.**

# FTTH Indirectly Reduces Carbon Output

CO2 Saved Because Of Work From Home

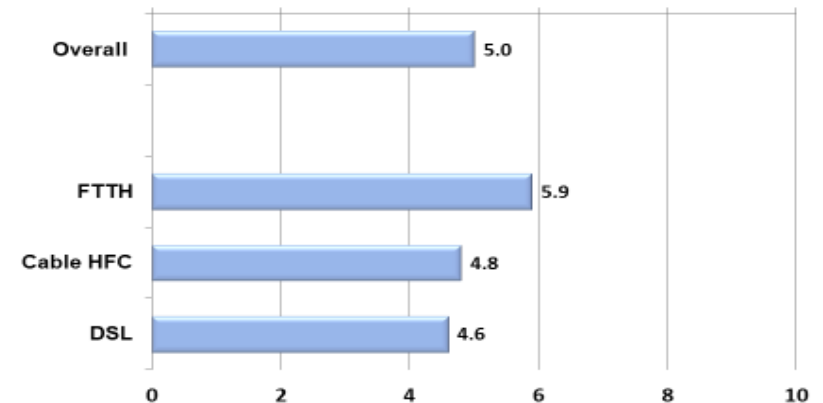


Vehicle Gasoline Reduction Estimates



Work from home reduces CO2 because of fewer commute miles (cushioned by more errand miles and more home energy use). FTTH users show the most work from home, some of which is not merely correlation but caused by FTTH enabling a higher quality experience. (Est 50% of difference is causal.)

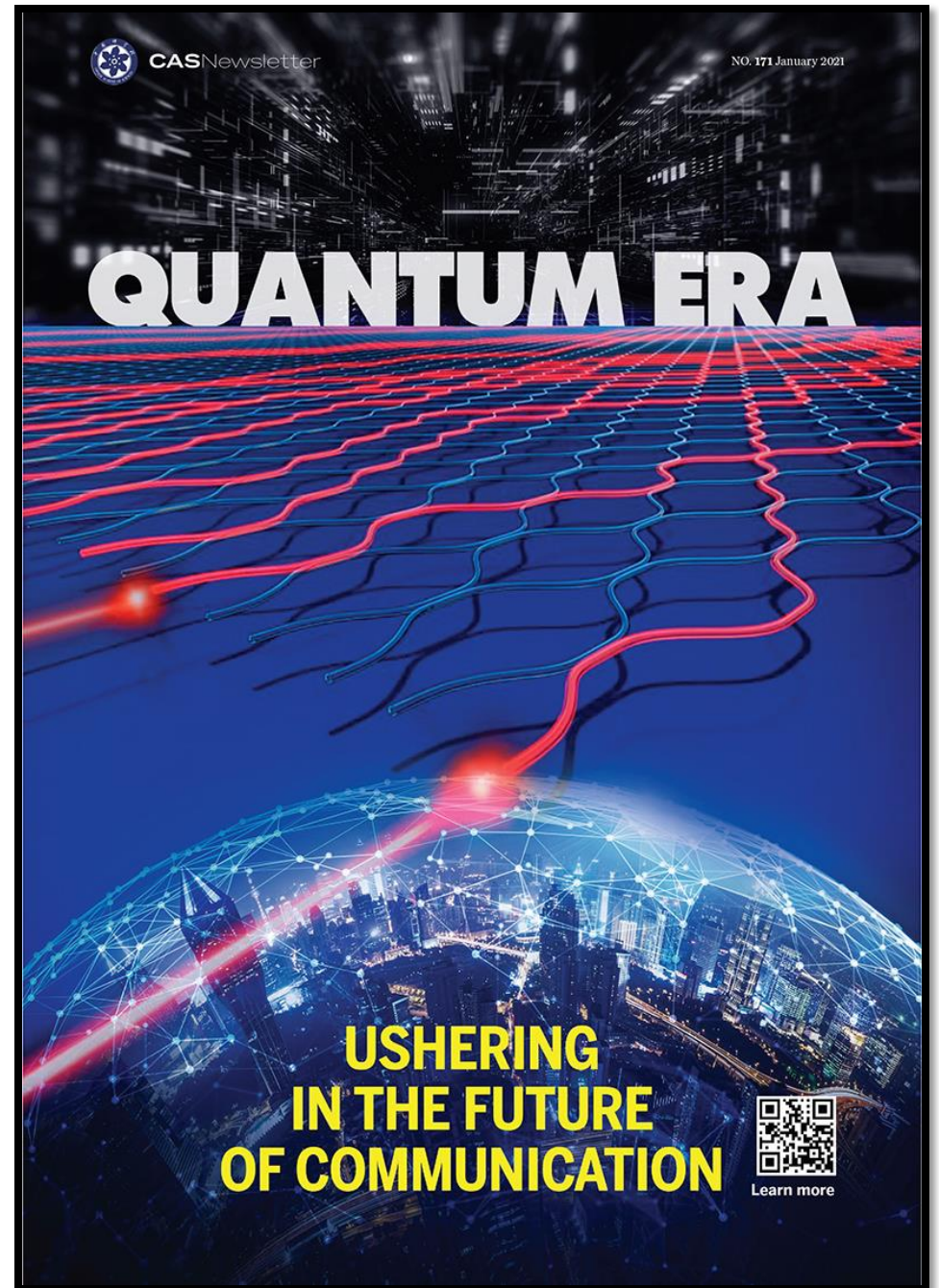
Average Days Worked From Home Per Month



Adding direct and indirect estimates – FTTH could cause CO2 reductions of 50,056 Kilotons annually:

**Equivalent of taking 10.8 M vehicles off the road.**

# Chattanooga Launches the World's First Quantum Network

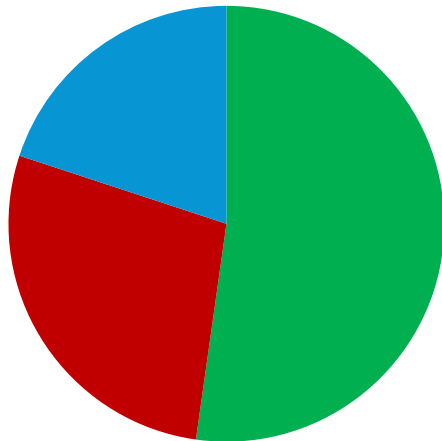




# Economic Impact – Chattanooga Case Study

Business, Household,  
Community Effects  
20%

Smart Grid  
28%



Economic  
Development  
52%

## Realized Economic Benefits

- ❖ Jobs ≈ 9,516
- ❖ Value ≈ \$2.69 billion
- ❖ Value-to-cost ≈ 4.42x
- ❖ Realized benefits exceed projected net benefits, and at a quicker pace.

17B Table 1. Summary of Estimates (2011 - 2020)

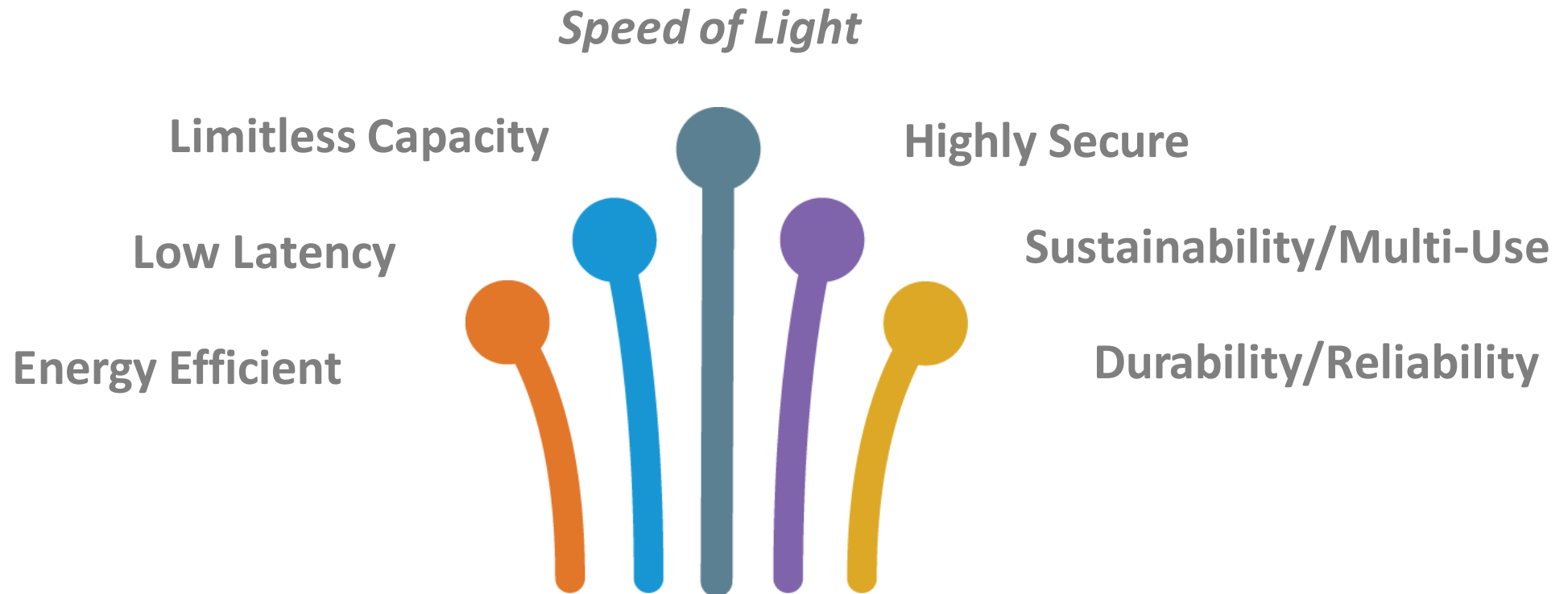
Category	Source	\$ Millions	% of total
Economic Development	Business Investments	\$962.8	35.7%
	Startup Funding	\$244.4	9.1%
	Real Estate Development	\$141.6	5.3%
	PILOT	\$59.9	2.2%
Smart Grid	Smart Grid	\$750.2	27.8%
Business Effects	Productivity Gains	\$74.31	2.8%
Household Effects	Consumer Surplus	\$128.8	4.8%
	Residential Bill Savings	\$144.9	5.4%
Community Effects	Healthcare	\$18.17	0.7%
	Telecommuting	\$90.62	3.4%
	Education	\$29.83	1.1%
	Publicity	\$47.49	1.8%
	Other	\$3.65	0.1%
Total Value		\$2,696.73	100.0%
Total Jobs		9,516	
Incremental Value-to-Cost ratio		4.42x	

## Realized Smart Grid Benefits

- ❖ 2.11M customer interruptions avoided
- ❖ 43% reduction in outage minutes on average
- ❖ \$421M in benefits during major weather events
- ❖ Reduced 1,865 MW of demand and 10,331 MWh of electricity consumption

# What's the Definition of Broadband

**Fiber Broadband:** *If it's not fiber, It's not Broadband*



**Fiber Broadband is the gold standard on every dimension**

# FBA OpTIC™

- Fiber Optic Technician Training
- 3 Year Certification
- 2,000-hour National Registered Apprenticeship U.S. Dept. of Labor
- Pilot completed May 18, 2022
- 50% Knowledge – 50% Hands-On Training

## 23 Modules

- Splicing
- Customer & Outside Plant Install
- Safety
- Testing & Troubleshooting
- Fiber Geometry & General knowledge







# The Market Has Spoken



- **Pandemic WFH / online school has changed the network dynamics**
  - Symmetric applications
  - Quality of bandwidth is critical
- **Entering significant Fiber investment cycle**
  - Public and Private Capex
  - Fiber to every American in 4yrs
- **Fiber is critical infrastructure**
  - Jobs, Economic Impact, Smart Grid, Public Safety
  - 5G is Fiber
- **The sustainable definition of broadband is Fiber**
  - *If it's not fiber, it's not broadband*

# Thank You!

**Gary Bolton**

President & CEO

Fiber Broadband Association

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