Fiber Deployment
5G and
What’s Next?

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Agenda:

- About the Fiber Broadband Association
- Fiber Deployment is on the Rise
- Why Fiber?
- What’s Next?
- Regulatory, Policy Issues and Research
About the Fiber Broadband Association

Our Mission
The Fiber Broadband Association's mission is to accelerate deployment of all-fiber access networks by demonstrating how fiber-enabled applications and solutions create value for network operators and their customers, promote economic development and enhance quality of life.

Our Vision
To be the voice for ultra high-speed wireline broadband deployment throughout the Americas.
About the Fiber Broadband Association

- **Fiber Broadband Starter Kit & Workshop** for companies, organizations, communities to learn how to build all-fiber networks.

- **Thought Leadership** on all things fiber through our Optics online magazine.

- **Collaborate** with industry allies to propel fiber deployment forward for a broadband future here and around the globe.

- **Connect** vendors, manufacturers, contractors, network operators, engineering firms and all contributors to fiber deployment -the Fiberverse.

- **Remove barriers** to deployment while supporting pro-fiber policies in all forums.
Fiber Broadband Association: Chapters, Committees & Groups

- **Fiber Council Global Alliance** (Europe, Asia, MENA, Africa)
- **Chapters and Affiliates**
  - Fiber Broadband Association – LATAM
  - Fiber Optics Sensing Association
- **Committees**
  - Public Policy Committee
  - Conference Planning Committee
  - Technology Committee
  - Marketing Committee
- **Groups**
  - Deployment Specialist Working Group
  - Canadian Policy Committee
  - Women in Fiber
Fiber Deployment is on the Rise

United States

• 41 Million Homes Marketed
• 17% Growth over 2018
• 18.6 Million Homes Connected

North America

• 59.9 Million Homes Marketed
• 22% Growth in 2017
• 23.8 Million Homes Connected

According to a 2018 study from RVA, LLC
Total Fiber Deployment Is At Record Levels – And Small Cell Is Just Starting

RVA Ongoing Analysis

Reviewing fiber route miles, i.e. the number of linear miles fiber is deployed overhead or underground – whether single or multiple fiber strands/ lines.
Fiber Adds To Home Value

RVA Consumer Study May 2016

- MDU Condo Own ($8,528/ $300,000) 2.8%
- MDU Rent ($80/ $1000) 8.0%
- Home price ($9,734/ $300,000) 3.2%
Why Fiber? 5G

- OFFICE: Workplace Wi-Fi, VOIP and cloud applications
- HOSPITAL: Telehealth and remote monitoring
- FARM: Precision agriculture and monitoring
- HOME: IoT devices
- CITY HALL: Digital services
- TRAFFIC LIGHT: Sensor technology
- SCHOOL: Connected classrooms
- SMALL CELL: 5G wireless connection

5G proposed

- 4G
- 5G mmWave (e.g. 24.25-27.5 GHz, 27.5-39.5 GHz)

*Source: Qualcomm
Why Fiber? 5G Use Cases

**Use Cases Demand 5G**
- Enhanced Mobile Broadband-capacity/speed
- Low Latency-gaming and autonomous vehicle
- Massive machine to machine communication
- Many IOT Devices

**Fronthaul/Backhaul/Midhaul**
- More fiber needed with 5G architecture.
- Fronthaul – computing/processing in centralized place.
- Backhaul – transmit information to final destination.

**Wireless Growth Demands Fiber**
- To meet 5G/wireless demands: estimated 1.4 million miles of fiber needed in top 25 US metros. A $150-180 billion investment in the US in new fiber over 5-7 years.
Why Fiber? 5G Densification

To go to 4G requires 25X more fiber
To go to 5G requires at least 16X more fiber

3G
1 site every 10 km
Cell density=1 cell/100 km²

4G
1 site every 2km
Cell density= 5 x 5
= 25 cells/100 km²

5G
1 site for every 0.5 km
Cell density= 20 x 20
= 400 cells
Why Fiber? Smart Cities

Energy Efficiency
EPB in Chattanooga built out a fiber network to reliably manage its energy and electrical systems.

Healthier Cities
Hiawatha Broadband in Minnesota piloting project to use its fiber as a platform for home monitoring of patients with dementia.

Civic IoT
US Ignite and cities around the U.S. (and the world) are developing a smart city app store predicated on big bandwidth.

Safer Streets
Verizon and the City of Boston are using sensors and advanced traffic signal controls to measure traffic, improve safety.

Connected Community
Santa Monica City Net provides fiber-supported Wi-Fi to its residents in public places.
Why Fiber? Smart Cities

According to 2018 research from RVA, LLC:

Fiber Cities are more likely to be Smart Cities

- Cities with fiber have, on average, 37% more deployed small cells and just over 35% more smart city applications

- 33% of cities without fiber report small cell activity, versus 60% of cities with fiber to the residence
Why Fiber? Smart Homes

Modern homes require a huge amount of bandwidth—more than 100 MBPS!—and fiber broadband offers the fastest, most reliable connections.
What’s Next?

Rural growth

• More than 19 million Americans lack access to broadband—and the vast majority live in rural communities.

• 24% of rural Americans lack access to 25 Mbps service. By contrast, less than 2% of urban Americans lack this same broadband access.
What’s Next?

Opportunities for Deployment
Regulatory, Policy & Research

**Barriers to Deployment**
- Encourage forward-leaning rights of way, pole attachment, battery back-up policies and more to help build fiber faster

**Funding Policies**
- RDOF: $20B/10 years
- RUS Reconnect Fund $600M
- Connect America Fund Phase II
- Weighting Methods should recognize benefits of fiber

**Community Broadband**
- Fiber network ownership agnostic
- Support state legislative changes to allow electric co-op & muni network deployment

**Legislative**
- Pallone Bill $40B over 10 years to rural areas
- Dig Once Bills
- Infrastructure packages

**FBA Research**
- Availability of High Speed Broadband Can Reduce Unemployment Rate
- Rural Deployment Cost Study to Deploy All-Fiber Networks
- Impact of Fiber Networks on GDP
The FBA

Fiber Broadband Association Membership

• Join a Committee or Group
• Benefit from FBA’s educational webinars and certification programs
• Network with key leaders in the industry; stay current on issues
• Learn more at: www.fiberbroadband.org/join

FBA Regional Meeting
Nov 5-7, 2019, Fort Collins, CO

• Attend FBA’s Broadband Starter Kit Workshop
• Learn from industry leaders about deploying and growing fiber networks
• Network with industry leaders
• Learn more at: www.fiberbroadband.org