BROADBAND SUMMIT 2019

VML
VIRGINIA MUNICIPAL LEAGUE

VCTA | Broadband Association of Virginia

VACo
Virginia Association of Counties

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MID-ATLANTIC BROADBAND COMMUNITIES CORPORATION

Dominion Energy®

ACA CONNECTS

DHCD- Helping Locals Plan and Build

Evan Feinman
Chief Broadband Advisor

Courtney Dozier
Deputy Broadband Advisor

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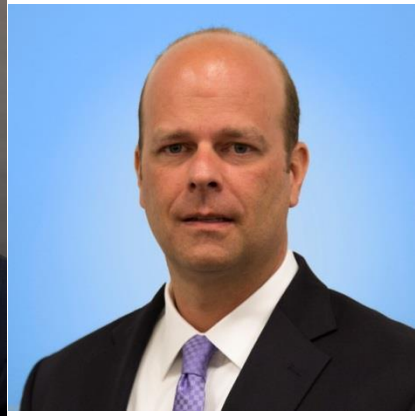
Making the Business Case for Broadband

Dave Coombs
Comcast Business Services

Matt Smolnik
New Kent County

Thom Watkins
Cox Business



Craig Venable
Shentel Business

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MAKING THE BUSINESS CASE FOR BROADBAND

Residential

VS.

Commercial

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Deploying Commercial Broadband

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Permitting

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Top Barriers

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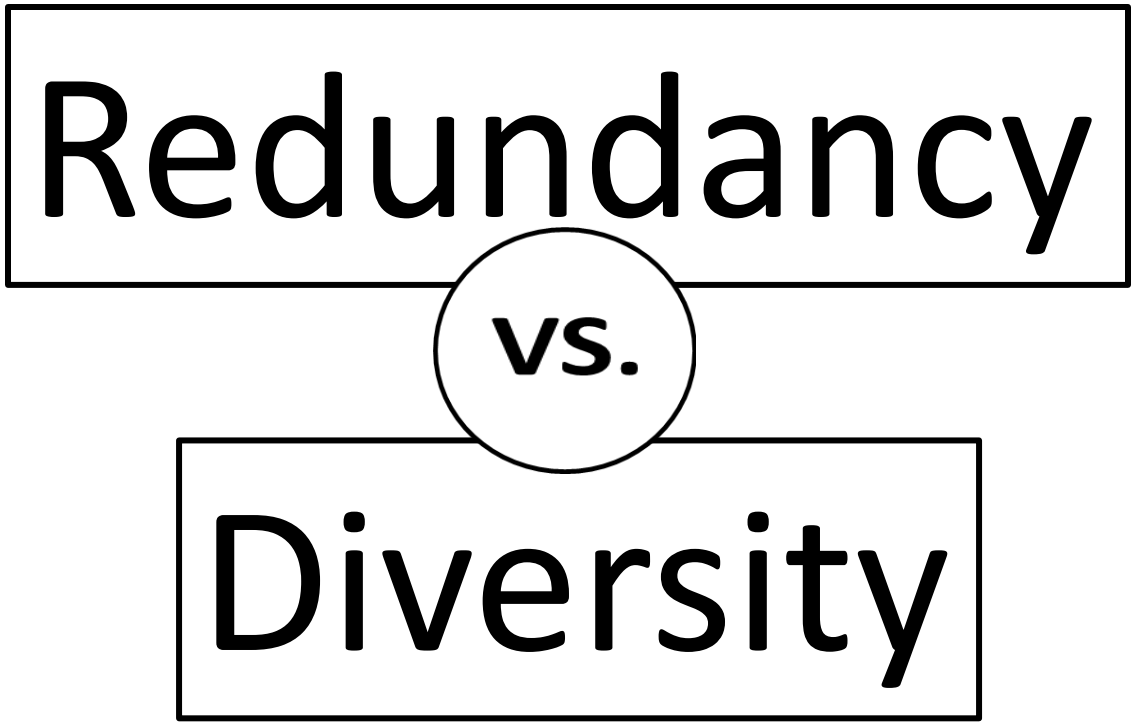
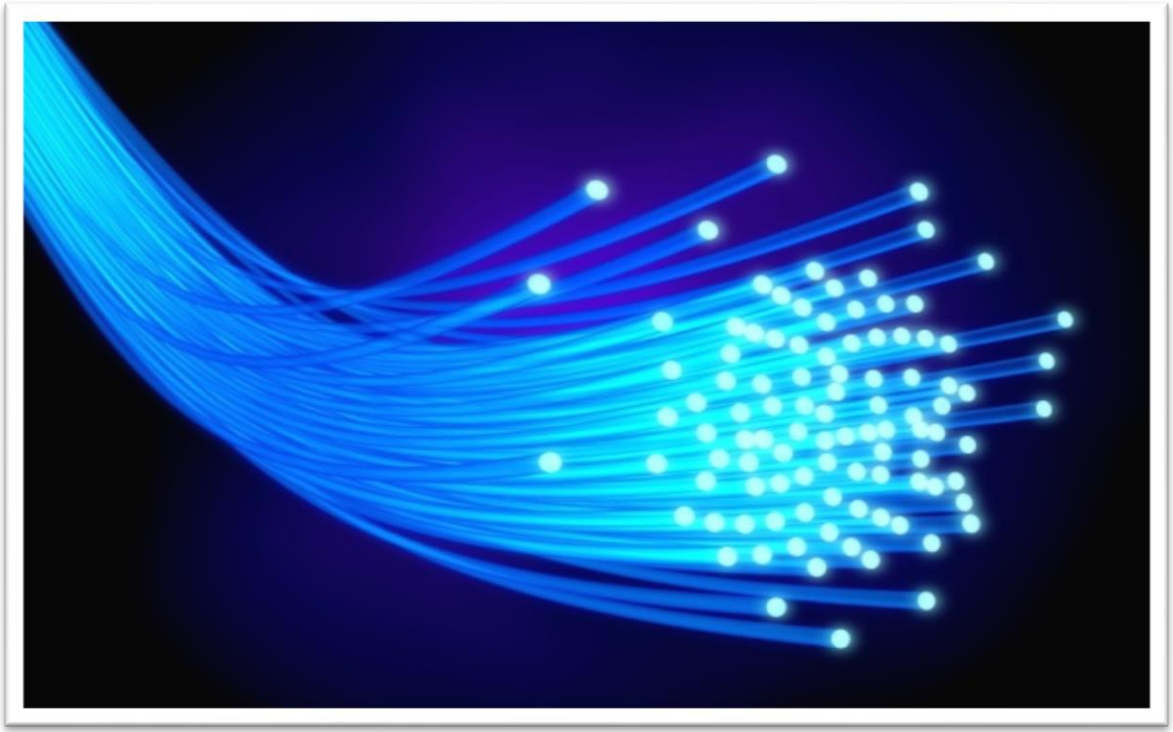


Fiber



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Commercial Anchors

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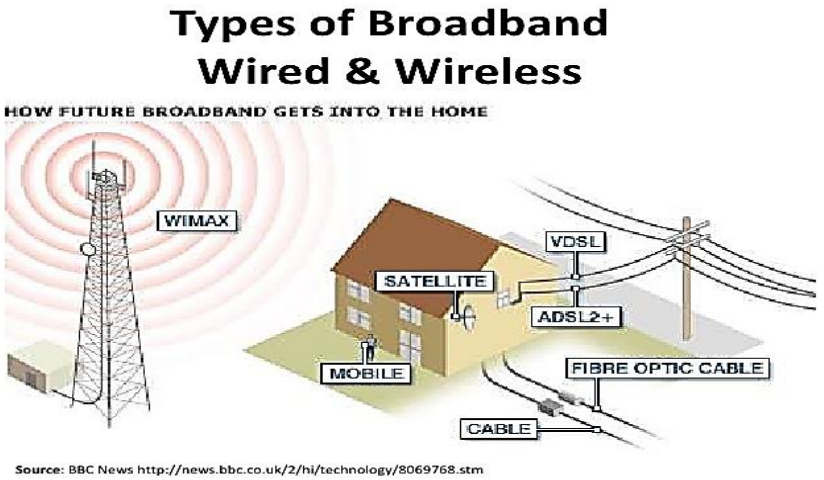
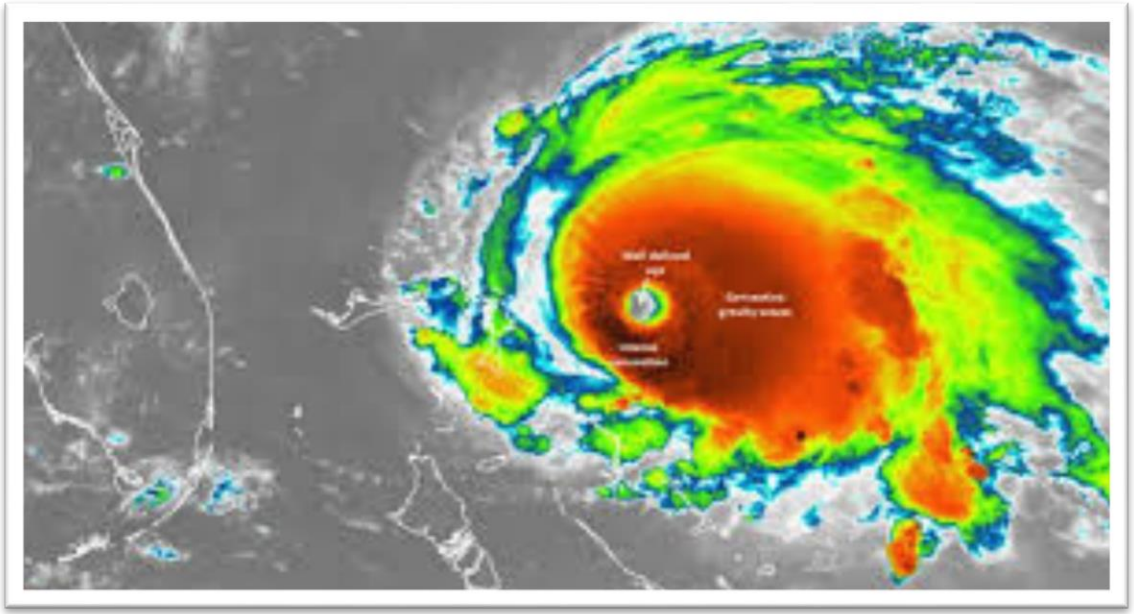
Managed Services



Storm Preparedness



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Greenfields

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Case Studies on VaTI and Tobacco Commission Grants

Barrett Stork
Cox Virginia

Terry Ellis
Comcast

Scott Randall
Atlantic Broadband

Jimmy Carr
All Points Broadband

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Rural Broadband Deployment—Comcast as a Partner

Terry Ellis
VP Government & Regulatory Affairs
Comcast

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Aspects That Promote Wide Participation in Broadband Grant Programs

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- Target unserved areas for best use of scarce funds
- Technology neutral (and not limited to ETCs)
- Competitive bidding to reach the largest number of locations at the highest possible speed
- Flexibility in protecting taxpayer dollars (performance bonds, line of credit)
- Reasonable match requirement – “alters the economics”
- Reasonable construction timetable, with make-ready provisions

Expanding Broadband in Virginia

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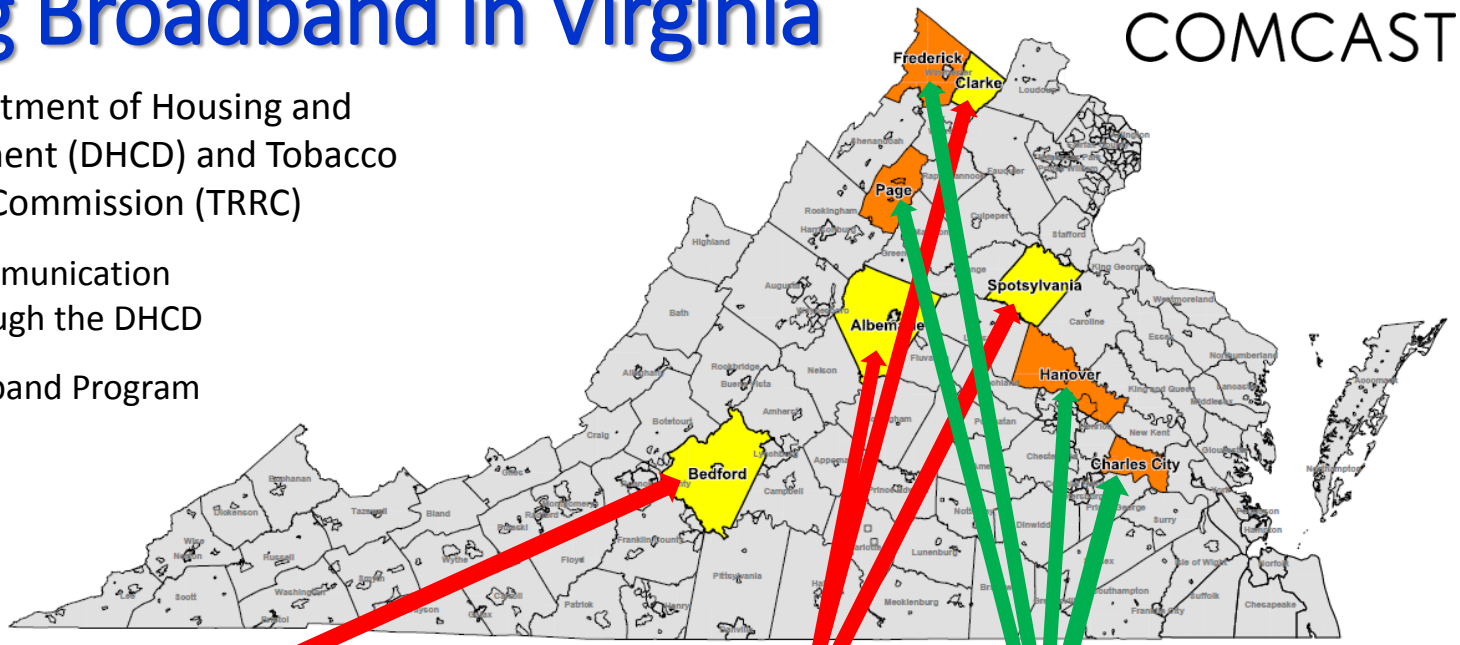
Partnering with Department of Housing and Community Development (DHCD) and Tobacco Region Revitalization Commission (TRRC)

- The Virginia Telecommunication Initiative (VATI) through the DHCD
- The Last Mile Broadband Program through the TRRC



$3.5M
7,000 homes connected

$800K
300 homes connected

2019 VATI
application pending
3,063 homes passed

VATI Project with Gloucester County

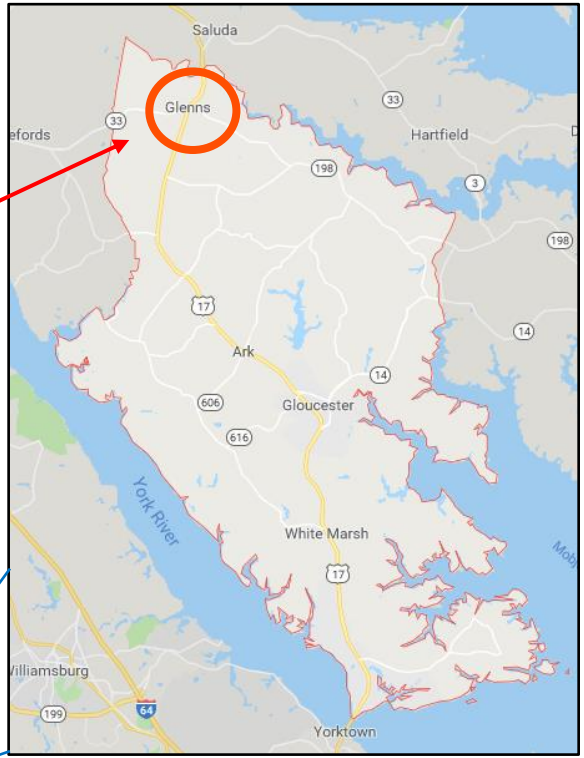
9-5-19

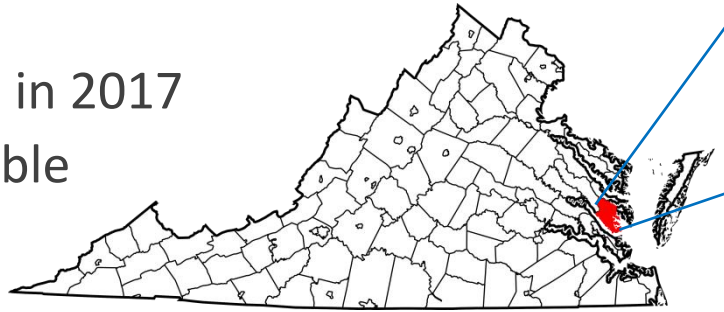
Barrett Stork
Director of Government & Regulatory Affairs
Cox Virginia

Cox Rural Expansion Project with Gloucester County

Virginia Telecommunications Initiative (VATI)

- VATI fund created in 2016 - $1 million
- Partnered with Gloucester County in 2016
- 5.7 mile FTTH build in Glenns community
- Nearly 120 homes/businesses
- Project Cost - $339k
  - $193k - VATI
  - $146k - Cox
- Project completed in 2017
- Gigabit now available





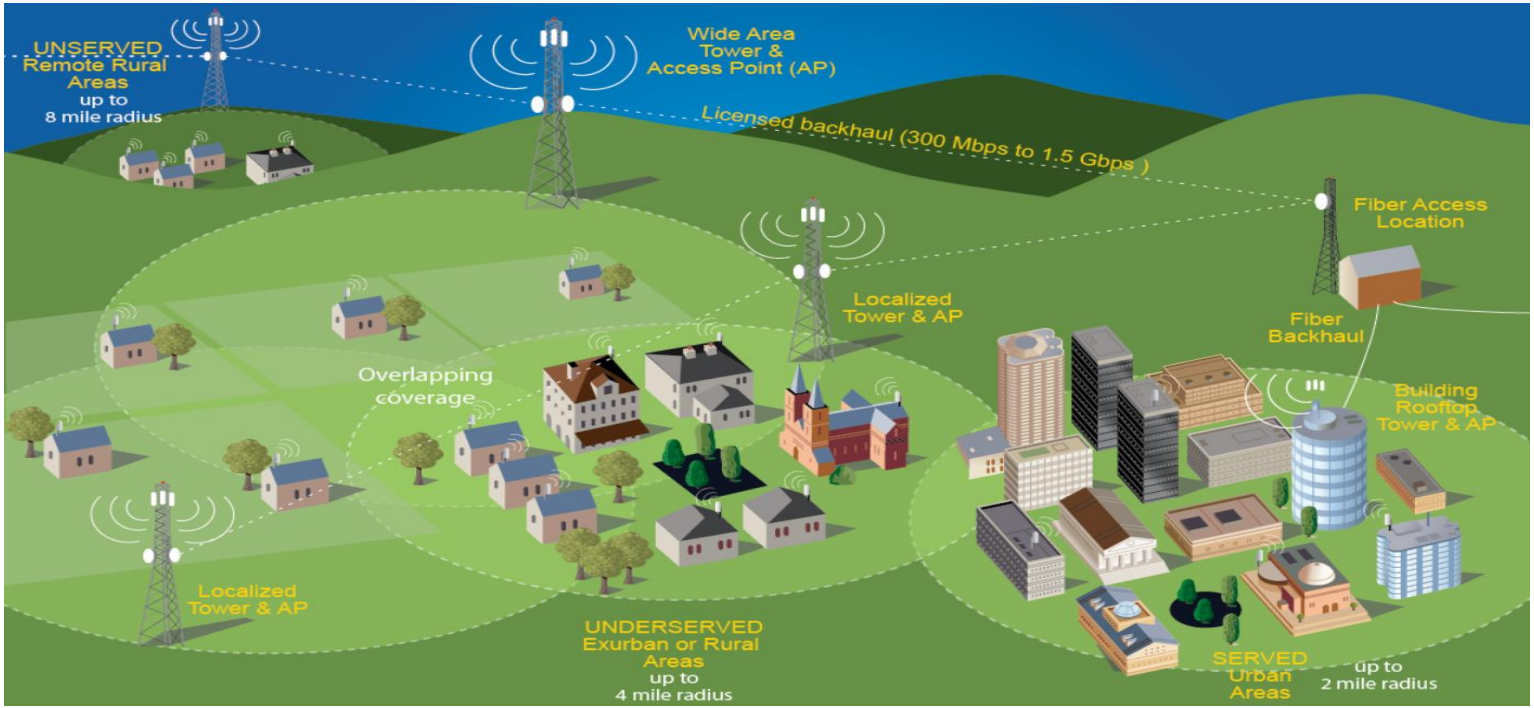
RURAL BROADBAND AND FIXED WIRELESS

Broadband Summit
September 5, 2019

About the Speaker

- Fixed Wireless industry representative on the Virginia Broadband Advisory Council
- CEO of All Points Broadband, a Loudoun-based company is the largest fixed-wireless ISP in the mid-Atlantic, operating in VA, WV, MD, KY, deploying fixed wireless and fiber-to-the-home technology
- 2-time honoree on the *Inc. 5000* list of America's fastest growing privately-held companies (#1 ISP in 2018)

Fixed Wireless Network Overview



Broadband Deployment: Fundamental Principles

- Broadband delivery is subject to the laws of finance
  - *Broadband delivery is capital intensive – providers must make significant upfront investments to deploy networks and offer service*
  - ***More than 50% of these capital costs are in the "last mile" – between the distribution network and the home***
- Broadband delivery is subject to the laws of physics
  - *All access technologies have pros and cons (cost, capacity, reliability)*
  - *Fixed wireless can be deployed and upgraded faster than other access technologies*
  - *Fixed wireless is limited by the availability and propagation characteristics of RF spectrum*

Rural and Semi-Rural Broadband: Common Misconceptions

- Misconception: Megabits per second (example: 15 Mbps) is a measure of *speed*

  - *Reality:* ***Mbps is a measure of a connection's total capacity – how much data can flow through the "connection" at any given time***
  - ***Reality: If you have a 15 Mbps connection and are streaming two HD videos at the same time over that connection (using 2x5 = 10 Mbps), you have 5 Mbps of available capacity. A consumer will not notice any change by purchasing a 50 Mbps connection.***

- Misconception: "Speed" (which is connection capacity) is the limiting factor in most areas

  - *Reality: For many residential users in rural and semi-rural areas, sufficient connection capacity is available for common applications (streaming video)*
  - *Reality: The limiting factor for residential consumers in rural markets is data-allowances (total data transmitted each month): typical households consume 150-200GB of data each month, which is not available from satellite or mobile-based offerings*

Rural and Semi-Rural Broadband: Common Misconceptions

- Misconception: There is inadequate long-haul and middle-mile fiber in most rural markets
  - *Reality: There is significant long-haul and middle-mile fiber in most of Virginia.*
  - *Reality: The principal issue for the digital divide is the "last-mile" (connecting individual homes to distribution networks). Last-mile costs represent more than 50% of the capital investments to deliver broadband.*
- Misconception: "Open-access" middle-mile networks offer a *magic bullet* in unserved or underserved markets
  - *Reality: There is no magic bullet*
  - *Reality: Access to distribution represents only 5-10% of an internet service provider's recurring cost of service delivery*

The Federal Communications Commission is Advancing Fixed Wireless

- 5G is coming – most of the early action will be in fixed wireless

- In the FCC's most recent rural broadband support mechanism:

    - *More than 50% of funding was awarded to fixed-wireless operators*
    - *Fixed Wireless will offer download speeds of 25 Mbps to 100 Mbps*

- The FCC is in the process of making licensed, "mid-band" spectrum available for fixed wireless and other uses

    - *Mid-band spectrum enables fixed wireless to offer increased speed and improved reliability*
    - *Mid-band spectrum gives fixed wireless the ability to offer service through trees and foliage (non- and near-line-of sight)*

        - *<u>Overcoming the most significant obstacle to fixed wireless service delivery</u>*

Strategies to Support Additional Investment and Deployment

- For the public sector:
    - *Collaborate with and support the local providers who are already investing in the community so that they will increase their investment*
    - *Facilitate the deployment of new infrastructure to expand access*
    - *Adopt strategies that reflect the fundamental laws (finance & physics)*
- Role of Providers:
    - *Support efforts to improve broadband mapping and data availability*
    - *Participate in public-private partnerships and identify barriers to investment*

Broadband Affordability Programs

Sarah Buck
Cox Virginia

Marie Schuler
Comcast

Eric Collins
Charter Communications

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COX Connect2Compete®

COX

Program Details

- Low-cost, home internet with wifi for $9.95/mo.
- Nationwide roll out in 2013
- Open to eligible low-income families

Successes

- Endorsed by FCC Chairman Pai
- National Partnerships
- Nearly more than 450,000 people connected to in-home internet since 2013 nationwide
- Survey results indicate C2C is making a difference

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Internet Essentials: Eligibility and Expedited Review

Since the initial launch in 2011, program eligibility has expanded 11 times. For the Fall Tour, we will expand again. Internet Essentials will now be available to even more low-income households beyond those participating in the National School Lunch Program and receiving housing assistance, including Medicaid, SNAP, SSI and others. This expansion includes seniors and people with disabilities, and doubles the number of households eligible.

Core Eligibility:

1) Live in an area where Comcast Internet service is available.
2) Have not subscribed to Comcast Internet within the last 90 days.
3) Have no outstanding debt to Comcast that is less than a year old.

LOW-INCOME HOUSEHOLDS

receiving public assistance

EXPEDITED REVIEW

3 distinct review processes

Students attending Title I schools

HUD households with addresses shared by HUD

Low-Income households in high-poverty areas

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Future of Broadband

Rick Cimerman
NCTA- The Internet &
Television Association

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FCC Overview

Alan Tilles
Shulman Rogers

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Utility Middle Mile Pilot Program

Ron Jefferson
Appalachian Power Company

Nathan Frost
Dominion Energy

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