Business Model Options for Broadband Deployment

NTIA Webinar Series

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Participants

Moderator

- Sandeep Taxali – Senior Specialist for Broadband Development, Broadband USA, NTIA, U.S. Department of Commerce

Presenters

- Tim Scott – Director of Fiber Infrastructure, City of Centennial
- Elliot Noss – CEO, Ting Networks
- Brad Moline – President, ALLO Communications
- Brett C. Hill – CEO, FTS Fiber Networks

Range of broadband business models that involve public-private collaboration

Key Topics

- External and internal factors that led to the chosen business model
- Successes and challenges encountered through the planning, deployment, and operation phases
- Lessons learned and best practices that can be applied to your community

Defining "Business Model" for Broadband

- Involves the set of choices with regard to technology, network, market, services, and funding.

Technology & Network Design

- Technology
  - ✓ Wireless, wireline, hybrid
- Network Scope
  - ✓ Last-mile, middle-mile, integrated
- Geographic Span
  - ✓ Single community, multiple communities, statewide, national
- Deployment Approach
  - ✓ New build, upgrades, leases (e.g., IRU), combination

Market & Services

- Market
  - ✓ Household, enterprise, community institution
- Last-mile Services Approach
  - ✓ Retail vs. wholesale (carrier's carrier)
  - ✓ Services: Broadband, voice, video
- Wholesale Services
  - ✓ Backhaul, IP transit, etc.
  - ✓ Lit services, dark fiber, both

Financial

- Funding Sources
  - ✓ Private capital: Equity, debt, internal funding
  - ✓ Government assistance: Subsidy, loans, tax credits, etc.
  - ✓ Upfront payment by target customers
- Financial Evaluation Criteria
  - ✓ Rate of return requirements
  - ✓ Time horizon (e.g., payback requirements)

Public Private Partnership Approaches

- Business models may involve varying degrees of collaboration between private firms and local government, especially for unserved/underserved areas.

Examples ←→

Public-Owned/ Private Enabled	Private-Owned/ Public Supported	Joint Ownership
<u>Deployment/Operations</u> • Private sector designs/builds; public entity operates • Private sector designs, builds, operates (DBO) <u>Revenue Model</u> • Exclusive contract to ISP (reward/risk sharing) • Open access network (any ISP can purchase capacity)	<u>Planning</u> • Public entity facilitates access to RoW, conduit, poles, easements, etc. <u>Capital Assistance</u> • Public entity provides financial (e.g., subsidy, loans, etc.) or assets (e.g., conduit, fiber, etc.) <u>Revenue Support</u> • Demand aggregation (e.g., bulk capacity and/or revenue commitment)	<u>Market Basis (example)</u> • Joint capacity sharing with public entity serving community institutions and private entity serving business and residents <u>Network Basis (example)</u> • Public entity owns middle-mile and private entity owns laterals

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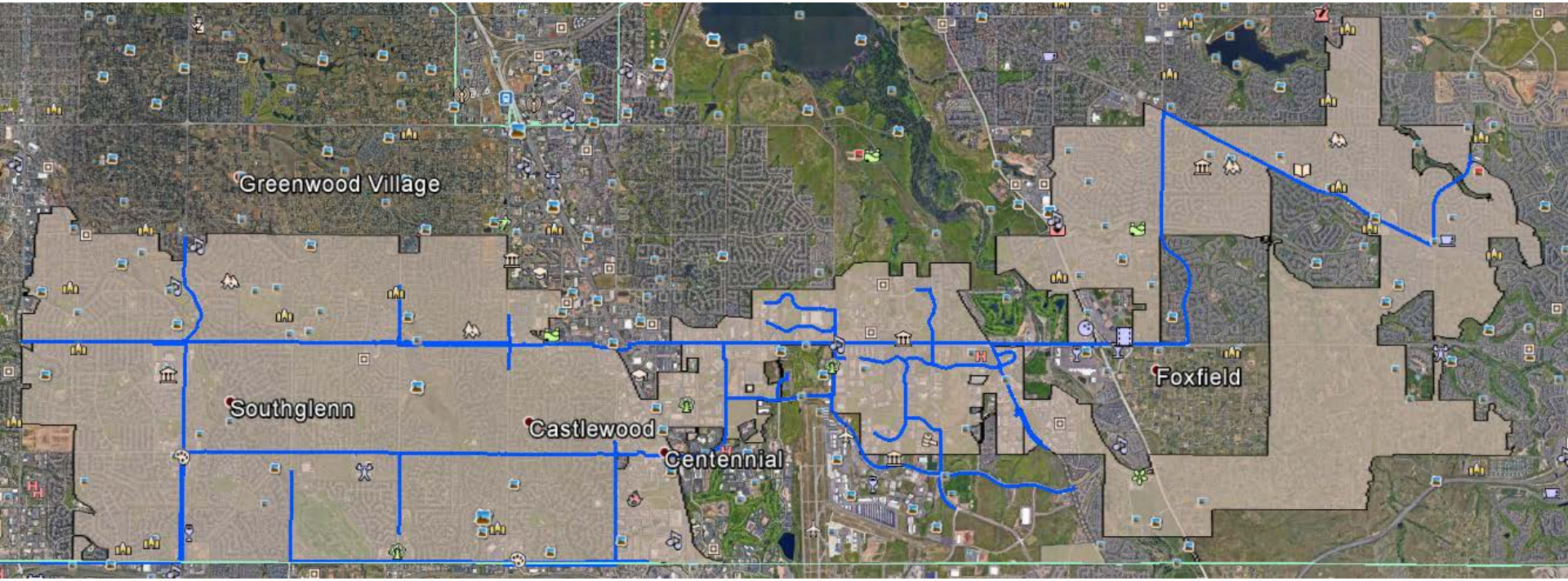
About Centennial

- Incorporated February 7, 2001
- Population – 107,201
- Contract model – 66.25 full-time equivalent positions
- ~14 miles wide, southern edge of Denver metro area

Centennial Fiber and Conduit (2013)



Policy Decisions and Steps Taken

- SB 152 ballot question - Placed on November 2013 ballot – passed overwhelmingly (76%)

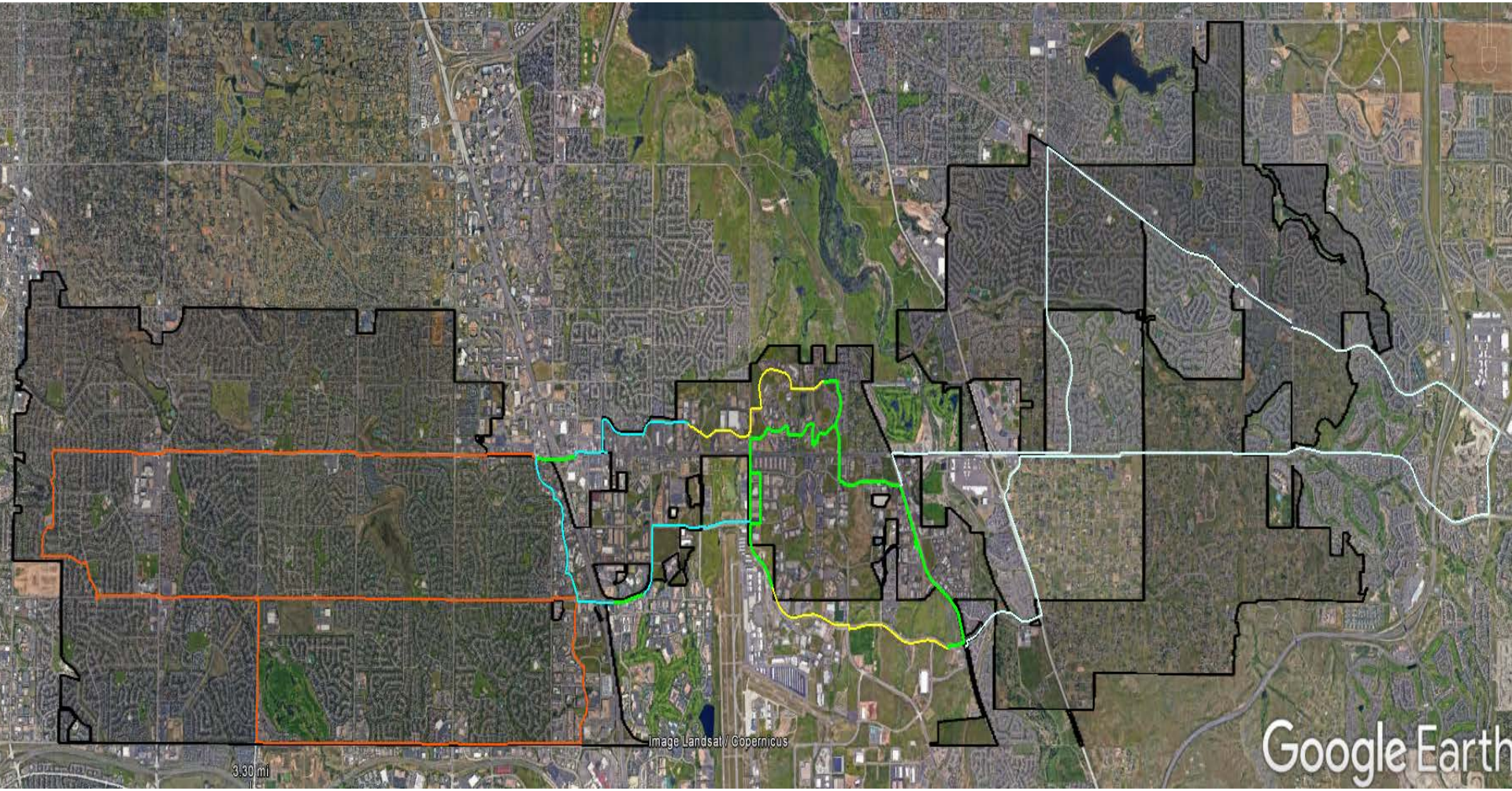
- Council directed and funded a three-part process:
  - Asset Inventory and Opportunity Analysis (2014/2015)
  - Strategic Planning and Feasibility Study (2015/2016)
  - Development and adoption of Fiber Master Plan (2015/2016)

- Implementation of Fiber Master Plan is underway

Plans and Goals

- Understanding and adoption of the Fiber Master Plan by Council was crucial (3/9/16)
- Education and understanding with the Fiber Steering Committee:
  - Infrastructure - dark fiber, funded as infrastructure
  - Competition important – create the environment
  - “Carrier grade” requires the right specs, access opportunities, testing and documentation
  - City-wide build – core streets, passing as many CAIs, commercial sites and potential residential areas as possible

Fiber Backbone



Moving beyond Planning and Feasibility

- Selection of an experienced design and engineering firm is crucial
- Well written RFP resulted in eight great responses
- We asked for an Owners Project Manager (OPM) and contracted in early July (local knowledge is good but so is carrier experience and understanding local government)
- Final desktop design, collaboratively work on updates and suggestions
- Final design and construction drawings for two central phases released with construction work almost complete
- General Contractor (GC) selected to build the infrastructure, conduit validation, boring, fiber and handhole placement, fiber testing
- OPM manages the GC, quality control, safety, final as-built reviews, field inspections
- Backbone construction 2017 into 2018 / consider lateral extensions
- Demonstrate some early wins!

Lessons learned

- Importance of asset inventory and tracking
- Initial expectation setting
- Clear and consistent policy direction and leadership
- Council updates. Public updates when appropriate
- Set and manage expectations, seek small wins, expect there to be bumps on the road….
- Reference the original plan, set the path and stay on it
- Focus on infrastructure and fiber and making it attractive for adoption

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Overview of Ting's Partnership Models

- Partnership model with City of Centennial
- Other partnership structures
  - Westminster, MD
  - Charlottesville, VA
  - Holly Springs, NC
  - Sandpoint, ID

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Brad Moline

President, ALLO Communications

About ALLO

- **Competitive Fiber-to-the Premise Provider since 2005**
- **7 Communities – Populations**
  - 1,500 to 25,000 (6 markets)
  - 275,000 (1 market)
- **Full Service Provider**
  - Engineering Design
  - Construction Operations
  - Sales & Marketing
  - Installation
  - Network Operations
  - Back Office Systems

Proven Operations

- **Proven FTTP Design**
  - Current population of 350,000
  - Aerial and underground
- **Proven Technology**
  - Calix, Infinera, OFS
- **Proven Operational Processes**
  - 130+ Customer Operations Staff
  - 25 Network Operations Center Staff
  - OSS/BSS Systems (Scalable)
  - Less than 0.5% monthly churn
- **Proven Product Suite**
  - Broadband, Internet, Video, Telephone, HostedPBX
- **Proven Marketing and Share Program**
  - Majority Market Share

Proven Operations

- **PPP Projects**
  - 6 Markets
    - Right of way, pole attachment, permitting efficiency
    - ALLO funded and operated
  - Lincoln, NE
    - Right of way, pole attachment, permitting efficiency
    - ALLO funded and operated
    - 300 miles of leased conduit
    - Various Smart City and other arrangements
- **ALLO Operates in Other Models**
  - Municipal Owned – ALLO operates (White Label)
  - Municipal Owned – ALLO leases and operates
  - Third Party Owned – ALLO operates

Allo
A elnet COMPANY

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FTS Fiber's RFP Response to Kent County

- 3 Phase Approach
- Core network of ~110 miles
- Underground construction to maximize security
- Provide the lowest loss and latency available
- Allow other carriers and service providers access to local businesses and residences, outside of the 54 sites
- Delivered within 2 years
  - Includes redundant laterals from the backbone to all priority sites and redundant optical connections on all sites

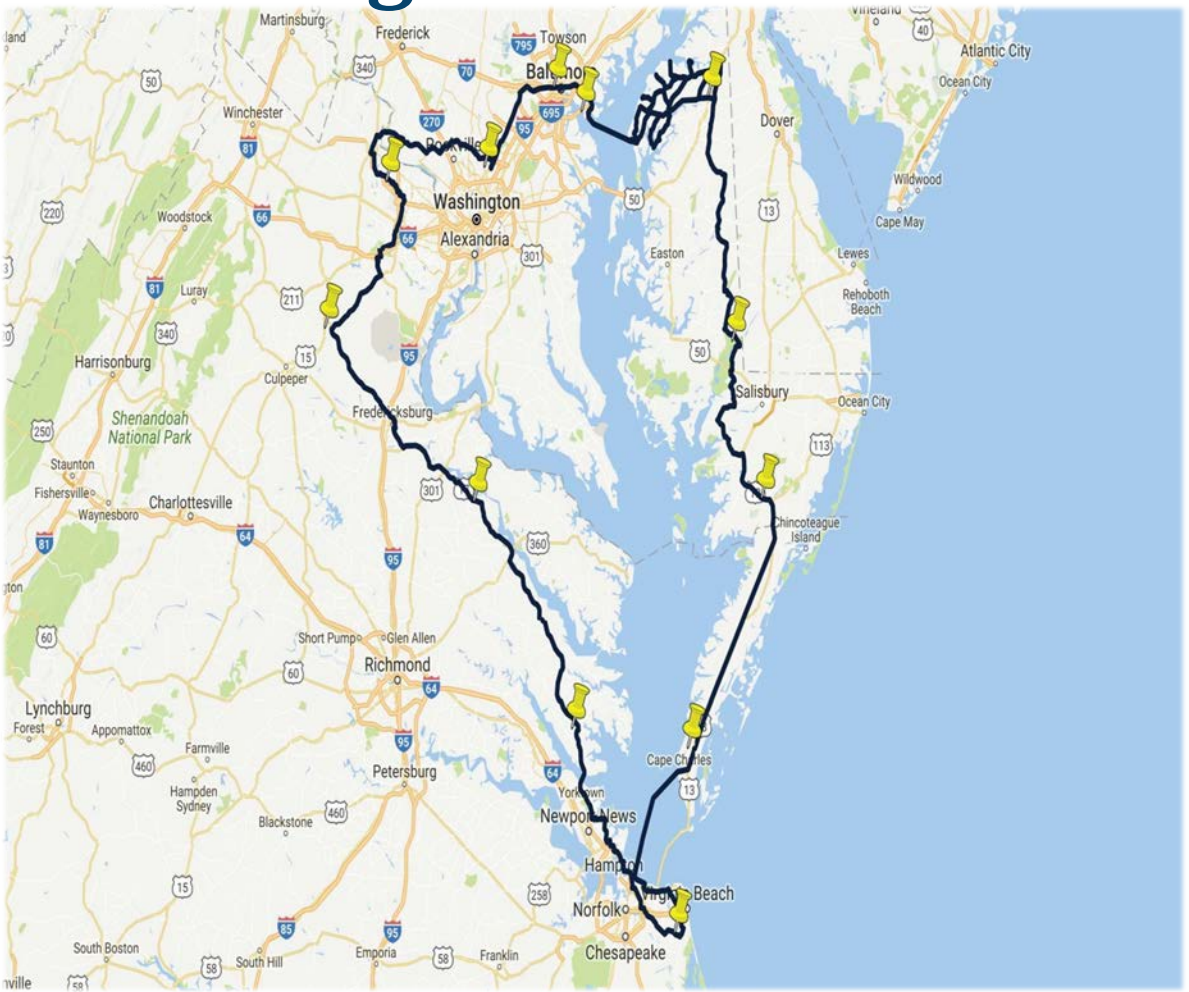
Dark Fiber Network Benefits

- **Neutral/Open Access** - all service providers can lease or Indefeasible Right of Use (IRU) our fiber
- **Scalable** - minimal network updates required to increase bandwidth for future demand
- **State-of-the-Art Technology** - lower latency supports more rapid sending and receiving of data
- **Diverse, Secure** - built underground where possible and distinct from the competition to provide maximum security and decreased risk of tampering or outages caused by surrounding environment
- **Long Term Investment** - fiber has a life span ~35+ years.
- **Supports Emerging Technologies** - cellular services (5G), small cell technology, distributed antenna system (DAS), Fiber to the Home, etc.

Market Sectors

- Carriers
- International Subsea Cables
- Data Centers
- Internet Service Providers (ISP)
- Content Providers
- Enterprise
- Counties and Municipalities
- Wireless and Small Cell Technology
- E-Rate (Schools and Libraries)

FTS Fiber's Long-Haul Network



FTS Fiber's Middle Mile Network

WWW.GIGCOUNTY.COM

Kent County's
54 Anchor Institutions:

- Schools
- Libraries
- Hospitals
- Water Towers
- Community Centers
- Fire Stations
- Police Stations
- Town Offices
- Courthouse
- Public Works
- Visitor Centers
- Maintenance
- Emergency Services
- Humane Society

FTS Fiber's Last Mile Network - FTTH

Business Model Webinar

Questions and Comments

- Please type your questions in the chat or Q&A box.
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Broadband USA

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