



The State of New Hampshire

Telecommunication Advisory
Board

6/30/10



STATE OF NEW HAMPSHIRE
**American Recovery
and Reinvestment Act**

Department of Resource and Economic Development

- Commissioner George Bald
- Roy Duddy, Interim Division Director DED
- Christopher Way, Business Services Manager
- Business Resource Center DED
 - Business retention & recruitment, government procurement, energy, employee retention
- Paul Leary, Chief of Communications
 - Forest and Lands



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Why is Broadband Important?

Telecommunications Advisory Board:

- a tool to improve productivity, quality of life and share information
- Telemedicine, education, small business
- A recruitment and retention tool
- For every 1 percentage point increase in broadband penetration in a state, employment is projected to increase by 0.2–0.3% per year.

* Brookings Institute, 2007.



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Broadband Stimulus Funds

- 7.2 billion nationwide for broadband related projects
- 4.5 billion from NTIA
- 2.5 from RUS
- Allocated by September 30, 2010



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Broadband Stimulus Package

Key Federal agencies

- Department of Commerce, National Telecommunications and Information Agency (NTIA)
 - Competitive grants (80/30 match)
 - Mapping grants
- Department of Agriculture- Rural Utilities Service
 - Loans, guarantees, grants-rural areas
- 2 Rounds of funding



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The Process

- Competitive Grants - Applications were made directly to the federal agency. States did not receive a block amount.
- Applicants were non-profits, public/private partnerships
- Guaranteed one grant per state.
- Statutory Purposes and Priorities met to enhance scoring.
- Rule change after Round 1 comments received on process by applicants.



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Broadband Stimulus Summary of NH Projects

•Round 1

| | | |
|----------------------|--------------------|------------------------|
| NTIA/BTOP | 55 Projects | \$1,374,229,977 |
| BTOP/BIP | 7 Projects | \$ 134,918,760 |
| RUS/BIP | 6 Projects | \$ 236,199,916 |
| Total Round 1 | 68 Projects | \$1,745,348,653 |

•Round 2

| | | |
|----------------------|--------------------|-----------------------|
| NTIA/BTOP | 32 Projects | \$ 603,604,860 |
| RUS/BIP | 10 Projects | \$ 103,037,090 |
| Total Round 2 | 42 Projects | \$ 706,641,950 |



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NH Governor's Review NH Recommended Projects

•Round 1

| | | |
|----------------------|--------------------|----------------------|
| NTIA/BTOP | 9 Projects | \$ 11,541,402 |
| BTOP/BIP | 4 Projects | \$ 55,877,367 |
| RUS/BIP | 3 Projects | \$ 14,346,414 |
| Total Round 1 | 16 Projects | \$ 81,765,183 |

•Round 2

| | | |
|-----------------------|-------------------|----------------------|
| NTIA/BTOP | 3 Projects | \$ 73,836,644 |
| RUS/BIP (linked only) | 1 Projects | \$ 5,543,096 |
| Total Round 2 | 4 Projects | \$ 79,379,740 |

* Final figures include Match





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NTIA Categories

- Comprehensive Community Infrastructure (Middle Mile)
- Public Computer Centers
- Sustainable Broadband Adoption



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NTIA Priorities (Middle Mile)

- **New or upgraded service to Community Anchor Institutions (CAI)**
- **Public-Private Partnerships**
- **Bolster growth in economically distressed areas**
- **Commitment to serve Community Colleges**
- **Public Safety Entities**
- **Last Mile component in unserved or underserved areas (20%)**
- **Non-Federal Match that equals or exceeds 30%**



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RUS Categories

- Last Mile*
 - Middle Mile
 - Satellite
- * Combined remote and rural funding



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RUS Priorities

- Grant/loan combinations equal to 75/25.
- Removed unserved and underserved requirement but imposed a 50% of premises requirement in the proposed funded area that does not have access to 5Mbps symmetric broadband.
- Concentration on funding Last Mile Projects.
- Will consider Middle Mile Projects from current RUS loan or grant recipients only.
- Middle Mile Projects must serve Community Anchor Institutions.



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New Hampshire Grant Award Round 1

The Bretton Woods Telephone Company, \$985,000 grant for 20 Mbps two-way broadband service to all potential customers and stimulate tourism in the area to substantially improve the local economy. This Fiber to The Premise service will be available to more than 400 locations.



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Network New Hampshire Now

Carol Miller
Director of Broadband Technology
DRED, Division of Economic Development

Brian Shepperd
Director of Engineering & Information Technology
NH Public Television, NHPTV

Fastroads
Michael Blair
GIS Consultant,
SWRPC

www.networknhnow.org



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Statement of Purpose

Community, educational, and technology leaders created Network New Hampshire Now (NNHN), to build an integrated open access middle mile and last mile fiber optic network with a focus on unserved and underserved areas of the state. NNHN will significantly increase the capacity and capability of the state's telecommunications infrastructure while making future last mile build-out easier and less expensive. The business model provides affordable broadband service choices to New Hampshire communities and aligns with all seven BTOP priorities. Grant Request was for 44 Million with a 22 Million match





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Project Partners

- USNH
- UNH
- CCSNH
- DRED
- NH State Police
- NH National Guard
- Dept of Transportation
- NH Public TV
- Fastroads
- CDFA
- Community Loan Fund
- MEDC
- WCNH
- NCIC
- Several Municipalities
- Service Providers



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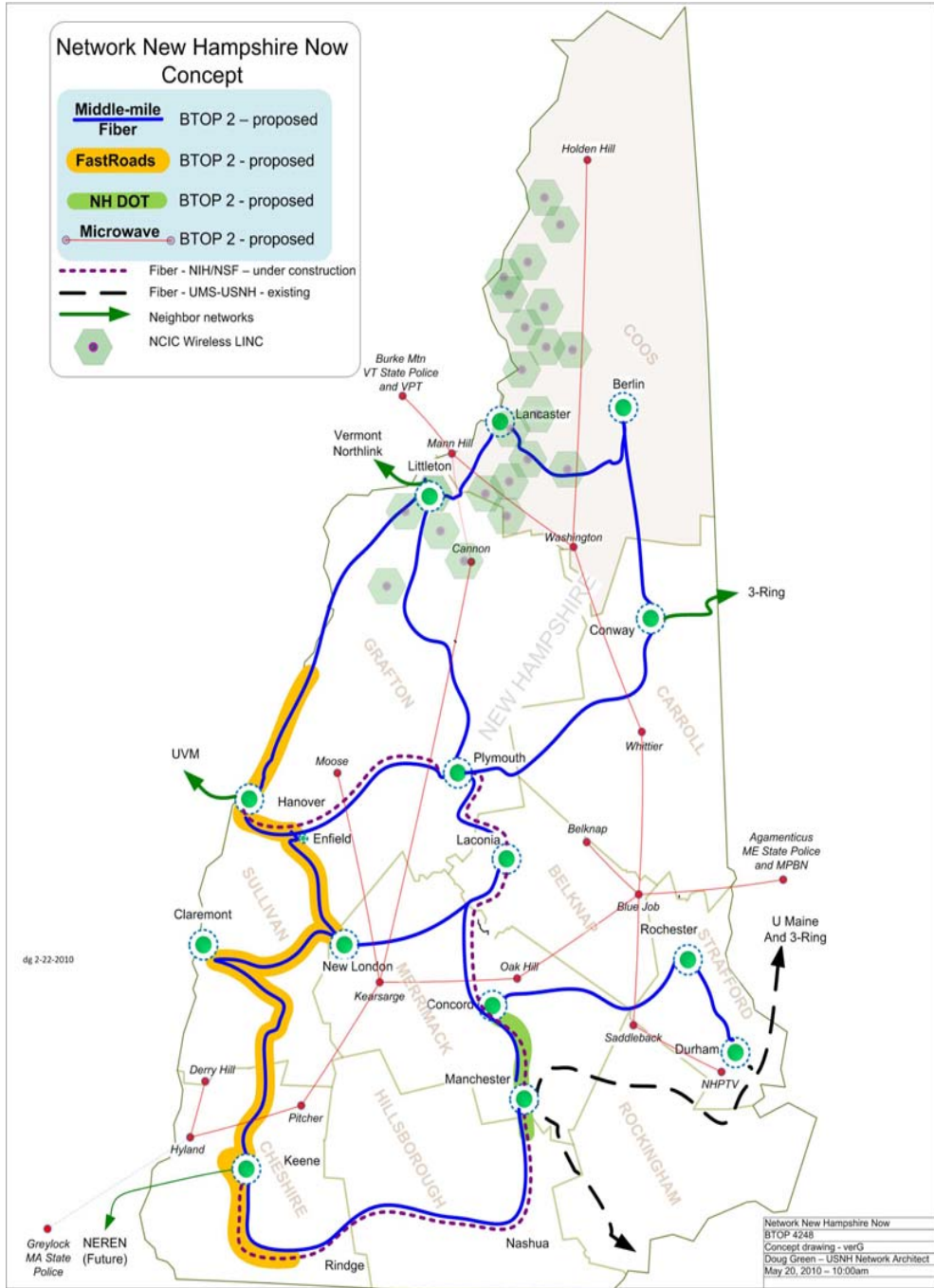
NNHN Planned Phases

- **NNHN will build new and connect to existing middle mile fiber in all 10 state counties management by New Hampshire Fiber Network (NHFN).**
- **A middle mile microwave network will be constructed and connected to the fiber network for public safety, transportation, public TV and mobile broadband communications on existing mountaintops in NH.**
- **A last mile fiber extension will occur in Rindge and Enfield NH with Fastroads.**
- **The Department of Transportation in addition will have fiber in the Right of Way (ROW) from Manchester south for intelligent highway monitoring.**
- **Waiting to hear on award. Rolling award announcements to start in July 2010 – September 30, 2010.**



Network New Hampshire Now Concept

- Middle-mile Fiber** BTOP 2 - proposed
- FastRoads** BTOP 2 - proposed
- NH DOT** BTOP 2 - proposed
- Microwave** BTOP 2 - proposed
- Fiber - NIH/NSF** - under construction
- Fiber - UMS-USNH** - existing
- Neighbor networks**
- NCIC Wireless LINC**



Network New Hampshire Now
 BTOP 4248
 Concept drawing - varG
 Doug Green - USNH Network Architect
 May 20, 2010 - 10:00am



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Microwave Project

- Discussions started during development of the Broadband Action Plan
- Evaluated:
 - Duplicate networks
 - Tower loading issues
 - Lack of bandwidth and funding
- ARRA Funding Provides Opportunity



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Public Safety Microwave Team

- DRED
- State Police
- Department of Transportation
- New Hampshire Public Television
- Army National Guard



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Goals

- Leverage existing microwave facilities
- Create a consolidated, high-speed, fault tolerant, ring network
- Fulfill key ARRA principle by serving public safety and core stakeholders.
- Provide Greater Bandwidth



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Goals

- Achieve cost savings through consolidation of maintenance & operations
- Free tower space for commercial entities
- Strategically place handoffs to fiber optic networks



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Design Overview

- Scalable 300 mbps (150 Mbps Duplex)
- Hot Standby Radios
- Antennas and Waveguide
- MPLS Type Technology
- High Speed Routers
- Secure VLAN Technology
- Fiber Interconnect (Short-Haul)



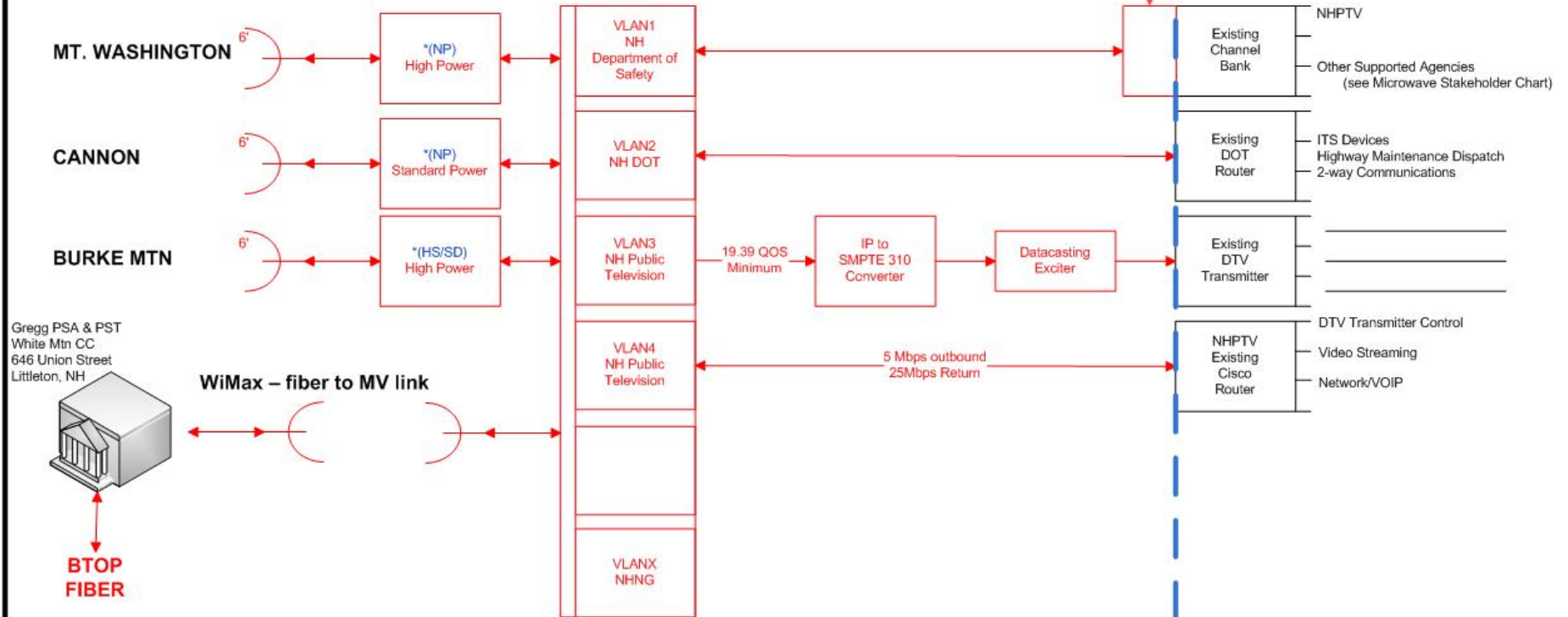
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14 - MANN HILL MICROWAVE SITE

BTOP Equipment – New Equipment

New Interface Card

Existing Equipment



Gregg PSA & PST
White Mtn CC
646 Union Street
Littleton, NH

WiMax – fiber to MV link

BTOP FIBER

* RADIO TYPE KEY

| | |
|---------|--|
| MHSB | Monitored Hot Standby |
| (NP) | Non-protected High Power |
| (HS/SD) | Hot Standby/Space Diversity High Power |

| Bandwidth Allocation 150 Mbps each direction | QOS | BURST |
|--|------------|-------|
| VLAN1 Dept of Safety | 35 | 75 |
| VLAN2 DOT | 35 | 75 |
| VLAN3-4 - NHPTV | 25 | 65 |
| VLANX - NHNG | 15 | 55 |
| Total Bandwidth | 110 | |



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Next Steps (If Awarded)

- Team formalized (NHPTV Lead)
- Create Detailed Site Drawings
- Send Overview to Vendors
- Vendor Presentations
- RFP Process (Sept – Dec)
- Construction in Spring 2011



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QUESTIONS



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Fastroads

SouthWestern New Hampshire
New Hampshire Community Finance Authority
Last Mile Projects
Rindge and Enfield



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NH Broadband Mapping (NHBMP)

\$1.7 Million awarded Jan 2010

2 Year grant for Mapping Data

4 Year grant for planning

Michael Blair, Project Coordinator

CSRC/GRANIT

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www.iwantbroadbandnh.org



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NTIA Additional Mapping Grants Available

- \$1,915,234 for data updates for years 3, 4, and 5 of the project
- \$ 791,933 for State Broadband Capacity Building
- \$ 950,472 Statewide Technical Assistance Program
- \$ 1,022,777 Nine Regional Tehcnology Planning Teams
- Total Grant \$4,680,416 submitted July 1, 2010



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National Broadband Plan Part 1

1. Establish competition policies
 - Market by Market info on pricing and competition
 - Develop disclosure requirements for providers
 - Review of wholesale competition rules
 - Free up and allocate spectrum for unlicensed use
 - Update rules for wireless backhaul spectrum
 - Expedite action on data roaming
 - Change rules to ensure a competitive and innovative video set-top box market



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National Broadband Plan Part 1(cont.)

- Clarify Congressional mandate allowing state and local entities to provide broadband in their communities and do so in ways that use public resources more effectively.
- Clarify the relationship between users and their online profiles to enable continued innovation and competition in application and ensure consumer privacy.



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National Broadband Plan

Part 2

2. Ensure efficient allocation and use of government owned and government-influenced assets.
 - Spectrum
 - Make 500Mghz of spectrum newly available within 10 years
 - Enable incentives and mechanisms to repurpose spectrum for more flexible uses
 - Ensure greater transparency of spectrum thru FCC-dashboard
 - Expand opportunities for innovation spectrum access models.



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National Broadband Plan Part 2 (cont.)

- **Infrastructure**
 - Establish low and more uniform rental rates for access to poles
 - Improve ROW management for cost and time savings
 - Facilitate efficient new infrastructure construction
 - Provide ultra-high speed broadband to select US Department of Defense installations



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National Broadband Plan

Part 3

3. Create incentives for universal availability and adoption of broadband.
 - Ensure universal access to broadband network services.
 - Create the Connect American Fund (CAF)
 - Create a Mobility Fund (MF)
 - Transition the “legacy” High-Cost component of the USF
 - Reform intercarrier compensation
 - Design CAF and MF in a tax-efficient manner
 - Broaden the USF contribution base



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National Broadband Plan Part 3 (cont.)

- Create mechanisms to ensure affordability to low-income Americans
- Expand Lifeline and Link-Up programs
 - Subsidies provided to be used for broadband
- Ensure every American has opportunity for digital literacy
 - Launch a National Digital Literacy Corps



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National Broadband Plan

Part 4

4. Update policy, standards, and incentives to maximize use for national priorities.
 - Health Care
 - Transform the Rural Health Care Program (USF)
 - Expand reimbursements for e-care
 - Modernize regulations like device approval, credentialing, privileging, and licensing
 - Drive innovative applications and analytics by ensuring patients have control over their health data and interoperability of data



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National Broadband Plan Part 4 (cont.)

- Education
 - Improve connectivity to schools and libraries by upgrading the E-Rate program.
 - Accelerate online learning by enabling the creation of digital content and learning systems by removing regulations barriers and promoting digital literacy
 - Personalize learning and improve decision-making by fostering adoption of electronic educational records and improving financial data transparency



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National Broadband Plan Part 4 (cont.)

- Energy and the environment
 - Modernize the electric grid with broadband
 - Unleash energy innovation in homes and buildings by making energy data readily accessible to consumers
 - Improve the energy efficiency and environmental impact of the information and communication technology (ICT) sector



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National Broadband Plan Part 4 (cont.)

- **Economic opportunity**
 - Support broadband choice to drive job creations, growth and productivity gains
 - Expand opportunities for job training and placement through an online platform
 - Integrate broadband assessment and planning into economic development efforts



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National Broadband Plan Part 4 (cont.)

- Government performance and civic engagement
 - Allow state and local governments to purchase broadband from federal contracts
 - Improve government performance and operations through cloud computing, cybersecurity, secure authentication and online service delivery
 - Increase civic engagement by making government more open and transparent, creating a robust public media ecosystem and modernizing the democratic process



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National Broadband Plan Part 4 (cont.)

- Public safety and homeland security
 - Support deployment of a nationwide, interoperable public safety mobile broadband network with \$6.5 billion over 10 years
 - Promote innovation in the development and deployment of Next-gen 911 and emergency alert systems
 - Promote cybersecurity and critical infrastructure survivability to increase confidence, trust and adoption of broadband



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National Broadband Plan Long-Term Goals (10 Year)

1. 100 million homes with affordable access to speeds of 100Mb/50Mb.
2. USA lead the work in mobile innovation.
3. Everyone should have affordable access to robust broadband service and the means and skills to subscribe if they so choose.
4. Every community have affordable access of at least 1 gig to anchor institutions.
5. Every first responder have access to a nationwide, wireless, interoperable broadband public safety network.
6. America leads in the clean energy economy with every American able to broadband to track and manage their real-time energy consumption.



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FCC seeking comment on Best Legal Framework for implementing National Broadband Plan

- Whether the Commission's "information service" classification of broadband internet service remains legally sound and adequate to support effective performance of the Commission's responsibilities
- The legal and practical consequences of classifying broadband connectivity as a "telecommunications service" to which all the requirements of Title II of the Communications Act would apply
- A "third way" under which the FCC would reaffirm that internet content and applications remain generally unregulated under Title I of the Communications Act

Comments from the public are due July 15, 2010, and reply comments are due on August 12, 2010



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States Crucial Role

- FCC wants states to take a leading role in advancing the National Broadband goals and improve broadband service delivery
- Coordination among various public and private entities
- More flexibility about using federal funds
- Eliminate policy barriers to the physical build-out of infrastructure.





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States Challenges

- Cost – Coverage for unserved and underserved communities remains unfeasible
- Mapping current access – who has it and at what speed
- Physical infrastructure – negotiating federal, state and county jurisdictional issues
- Capacity – only an estimated 15 states have agencies or authorities that focus on Broadband expansion.



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State Options

- State Universal Service Fund
- Tax Credits Incentives
- Revolving Loan Fund
- Broadband Sustainability Fund
- Technology Fund – NHCF





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Municipal Options

- **Municipal Bonding – Governance issues**
 - Authority, Scope and guideline
 - Public private partnerships
 - Bonding strategies
 - Risk Management and safeguards
 - Local rights and initiatives vs state responsibilities
 - Oversight models
 - Coordination options
 - Incentives and tools



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NH Advantage

- **Telecommunications Advisory Board looking at the issue since 2000.**
- **Legislation passed July 2009 for Telecom Position**
- **Supportive Governor's Office and State Agencies**
- **Support Congressional Delegation**



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Broadband Action Plan

- **BDMP report commission by the TAB in 2008**
 - **Refocus the TAB to a sub-committee structure**
 - **6 Sub Committees**
 - **Legislative Subcommittee**
 - **Government Subcommittee**
 - **Supply Subcommittee**
 - **Regulatory Subcommittee**
 - **Demand Subcommittee**
 - **BAP Steering Committee**
- **25 Action Items from critical to medium priority**



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TAB & the Broadband Action Plan

▪Next Steps

- Elect Officers
- Steering Committee
- Assign members to sub committees
- Build consensus
- Review and revise the BAP as needed
- Move forward with action item recommendations
- Set Director's Agenda for the next 12 months



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Broadband: Who is Responsible?

- **Government?**
 - The Connect American Fund will not dictate where broadband facilities will actually get built.
 - Should the state PUC start getting into the business of mandating broadband access?
 - Should there be a new carrier of last resort responsibility for Broadband?

- **Service Providers?**
 - Should service providers have an obligation to build broadband facilities everywhere regardless of where the business case makes sense?

- **End User?**
 - Is universal broadband unrealistic?
 - Should users simply accept the fact that there are limited resources?
 - Is it a choice to live in an area where broadband is not available?



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Open Discussion

How are we going to get broadband to the people who need it most?



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