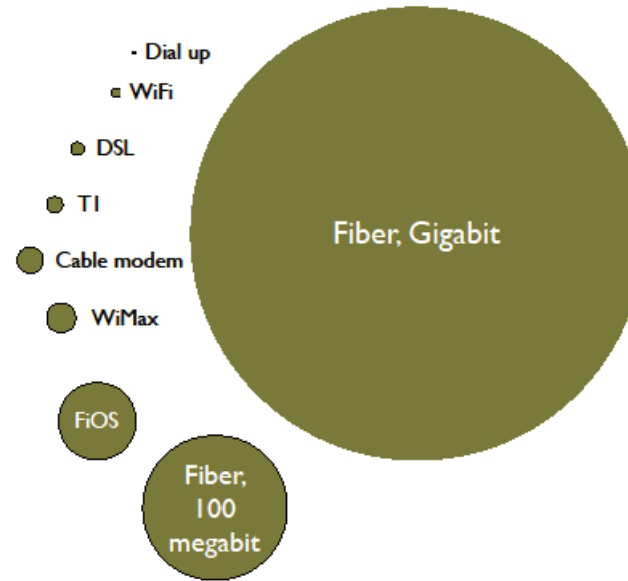


BROADBAND COMPARISON

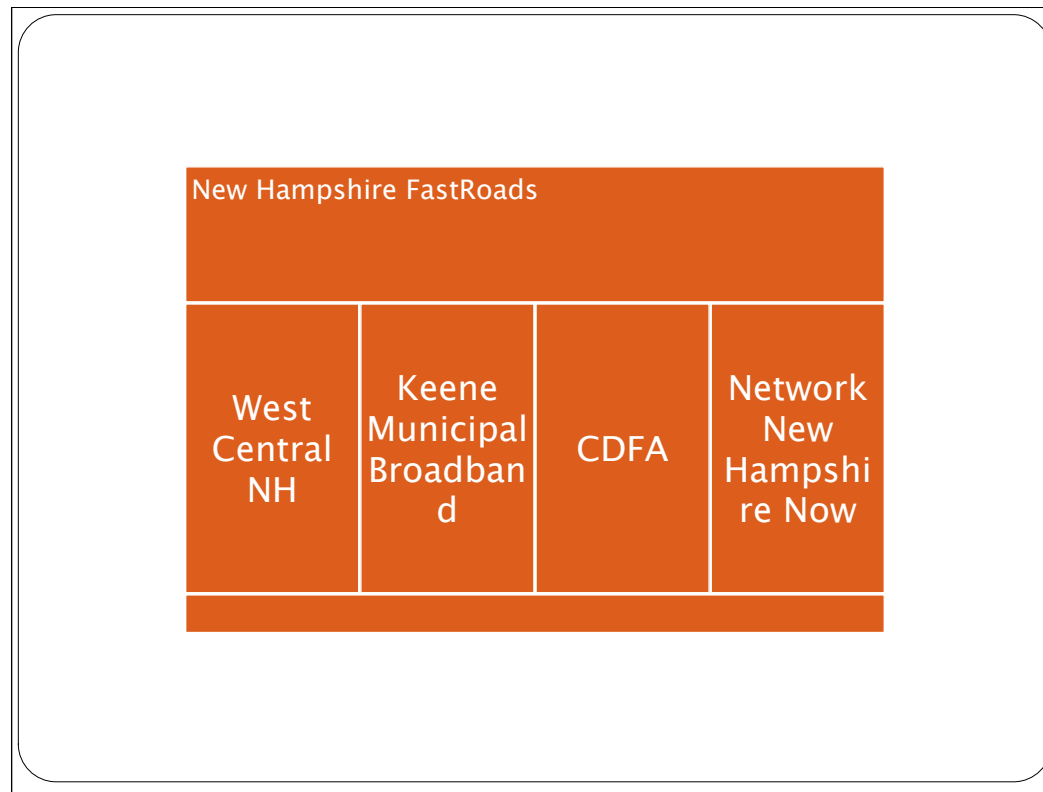


WiFi and WiMax can't deliver HDTV, in fact have difficulty delivering standard television. Variants of DSL and sata

Enfield Last Mile Fiber to the Home

New Hampshire
FastRoads





Recognizing a Need

Collaboration

WCNH – eight communities in rural New Hampshire recognizing the need and working collaboratively to investigate the potential of bringing a broad range of new Internet-enabled services.

Keene Municipal Broadband – ad hoc Keene Municipal Broadband committee to focus on open access broadband options for Keene and the Monadnock Region.

CDFA – Community Development Finance Authority – funds a needs assessment and the development of a Business Plan and Pro forma financial statements for an Open Access Fiber to the Premise Network

Network New Hampshire Now – Submits a grant proposal including the Last Mile proposal that then becomes New Hampshire FastRoads,

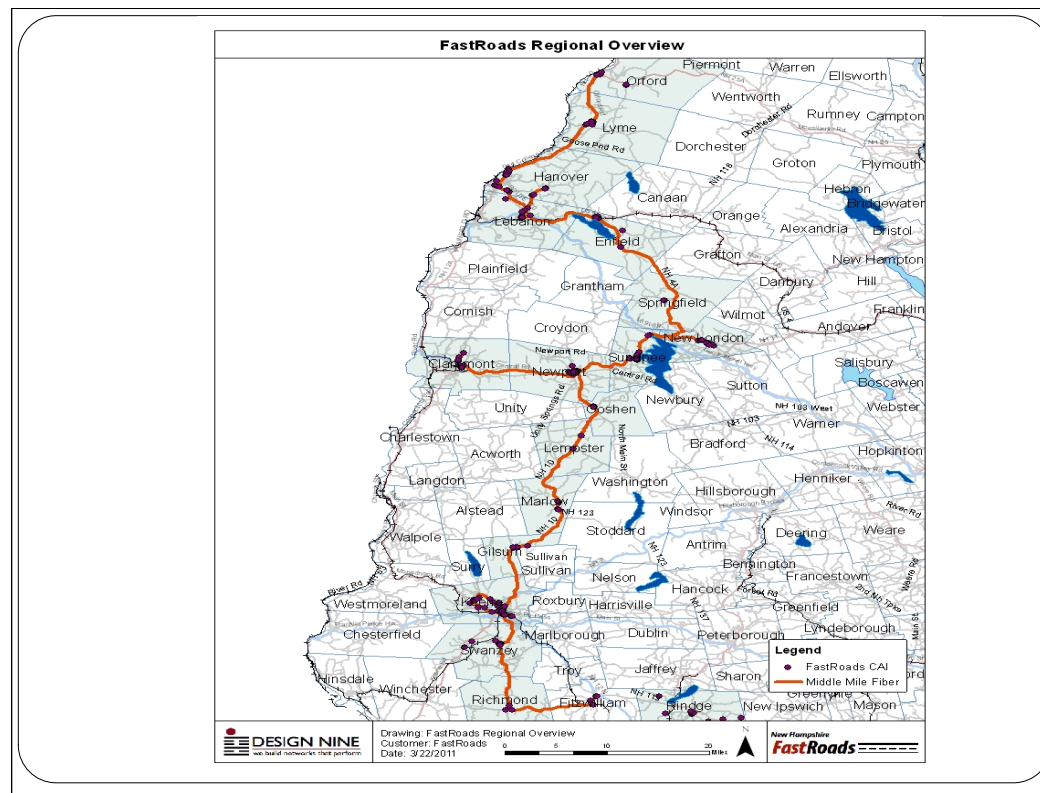
New Hampshire FastRoads is an LLC under Monadnock Economic Development Corporation

FastRoads Board

- Julia N. Griffin, Town Manager, Town of Hanover – Chair
- Carlotta Lilback Pini, Town Administrator, Town of Rindge – Vice Chair
- Jessie Levine, Assistant Town Manager, Town of Hanover – Secretary
- Robert Elliott, Chief Financial Officer, Monadnock Economic Development Corporation – Treasurer
- Steven P. Schneider, Town Manager, Town of Enfield
- John G. Dugan, President, Monadnock Economic Development Corporation
- Rebecca Landry, IMS Director, City of Keene
- Mark Scarano, Executive Director of Grafton County Economic Development Council
- Tom Strickland, President, Sequoya Technologies
- Wayne Gersen, Previous Superintendent of Schools, Hanover, NH (SAU 70)

FastRoads Federal Grant

- 2009 American Recovery and Reinvestment Act
- National Telecommunications Infrastructure Agency Broadband Technology Opportunities Program
- \$7.6 Million Construction Project
 - \$5.4 Million NTIA ARRA Funds
 - \$2.2 Million Match Funds
- Two Last Mile Fiber to the Home
 - Enfield – 835 homes
 - Rindge – 525 homes
- Community Anchor Institution Access



Middle Mile fiber from Orford north of Hanover to Rindge on the Massachusetts border

It travels a path, paraphrasing Robert Frost, “taking the road less traveled” in order to reach more of the unserved areas of the region

And As Robert Frost said it “that has made all the difference”

Phase One Summer 2012

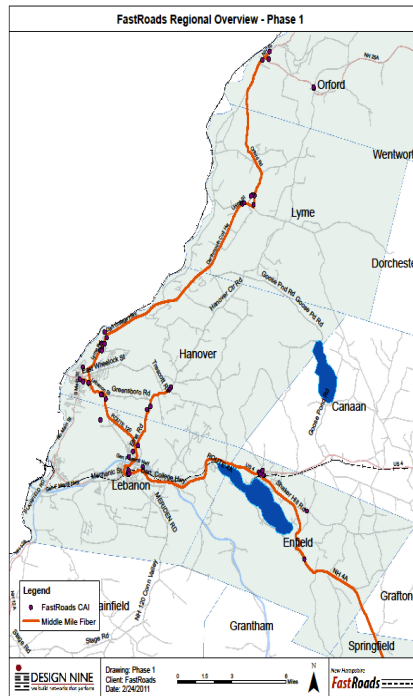
Orford to Enfield – 76 Community Anchor Institutions in each town and city

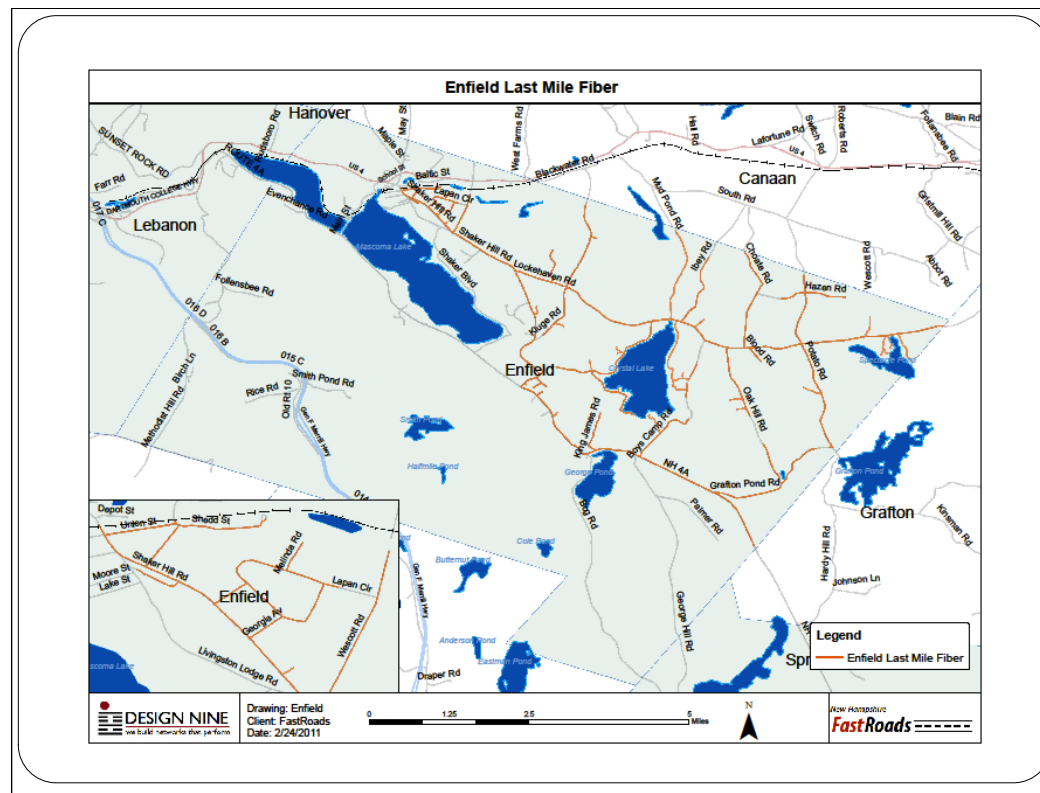
Last Mile Project in Enfield 835 Premises

Phase 2

Keene to Rindge 85 CAI -Last Mile Project in Rindge to 519 Premises

Phase 3 Springfield to Gilsum – 101 Community Anchor Institutions





Unserved/ Underserved

Unserved – Those with no options other than Satellite or Dial-Up

Underserved – Those with limited options to Big Broadband

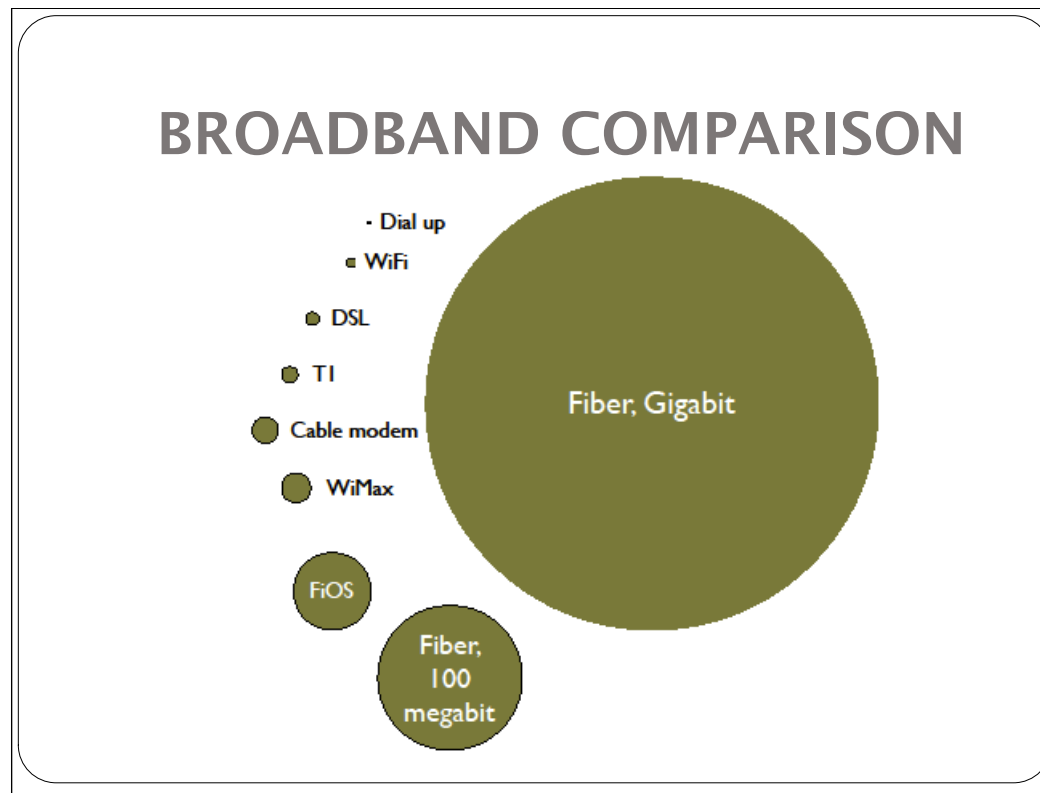
FIBER IS THE ANSWER

- Consumer Demands
- Affordable
- Meets the needs of the future
- Removes Barriers to growth
- Encourages Product



FTTH- is the only technology that will deliver enough bandwidth, reliably and at a low enough cost, to meet the consumer demands of the next decade.

- FTTH is affordable now, which is why hundreds of companies using hundreds of different business cases worldwide are racing to install it in thousands of locations.
- FTTH is also the only technology that will meet the needs of the foreseeable future, when 3D, “holographic” high-definition television and games (products already in use in industry, and on the drawing boards at big consumer electronics firms) will be in everyday use. Think 20 to 30 Gigabits per second in a decade. Copper can’t do even 1/1000th of that bandwidth, and then not for more than a few hundred yards.
- FTTH will enable products that we have yet to conceive of, but that we are certain will become necessities for living well and working well in the decades ahead. Look what just the past few years has brought: Mobile video, iPods, HDTV, telemedicine, remote pet monitoring... and thousands of other products.



WiFi and WiMax can't deliver HDTV, in fact have difficulty delivering standard television.

Variants of DSL and satellite links can deliver HDTV only with difficulty, low reliability, and high operating costs.

New digital cameras create images up to 15 megabytes. At upload speeds generally available by DSL, it takes well over a minute to transmit a 10 MB picture

Big Broadband

Our definition of Big Broadband is that which can deliver at least 100 Mbps and as high as 1 Gbps, symmetrical, with or without oversubscription

In contrast, **Resident** DSL services begin at 768 K download/128 K upload and, **dependent upon location**, can receive 15 Mbps down/1 Mbps up.

Resident Cable Access is available Premium "up to 15 Mbps download/ up to 2 Mbps Upload" and Basic "up to 10 Mbps download/ up to 2 Mbps Upload"

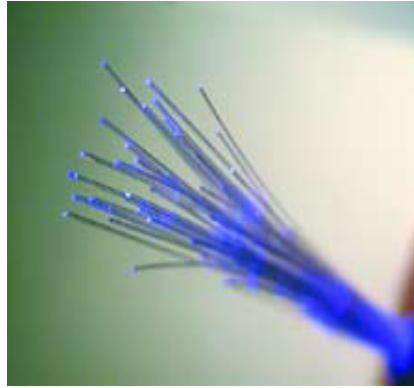
“ One bundle of
fiber cable not
much thicker than
a pencil can carry
ALL of the world’s
current
communications
traffic.”



FTTH Council, The

FastRoads Benefits

Fiber to the Home



- Multimedia Communications
- Telehealth
- Small Office/Home Office
- Education
- Home Automation
- Recreation
- Simultaneous Access by Multiple devices

Multimedia communications – high definition video conferencing; FaceTime or Skype, family pictures, video clips, staying connected – sharing our lives

Telehealth – Physician Access to records and tests; Remote patient monitoring, Specialist Consultation

Education – Blizzard Bags, shared AP classes, Access to high definition materials across the globe, continuing your education, on-line degree options

Home Automation – Security, Heat/Air Conditioning, Lights

Home Office – Back up to the CLOUD, access business applications at work (VPN), Share documents with a customer (Engineer, Architect, Photos, Designs

Recreation – High Definition, multimedia, streaming video, interactive gaming, travel the world

PROPERTY VALUES

Real estate ads in Korea carry from one to four stars to describe the bandwidth available.

A



Infrastructure makes private property more valuable.

A house is generally worth more if the road is paved, if it has access to public streets, public schools and other utilities. If you are a consumer, can you afford to buy a home that can not accommodate the needs of today and the technology that your job might require. Today's physicians need access to powerful broadband to access the new electronic health records, review tests, and access research data.

COMMUNITY DEVELOPMENT

- Virtual connections between offices
- Work from home
- Development of new businesses
- Small business growth



Virtual interconnections between business offices, municipal buildings, school districts – Allowing for shared resources, collaborative activities, and timely information

Work from home opportunities for greater productivity

- This is New Hampshire where the weather is variable; increased productivity of employees who can work from home in the snow,
- At the price of gasoline, working from home will conserve our use of Fossil Fuels,
- In today's economy where the positions may not be available in New Hampshire the ability to work from home for a corporation outside of NH may be the solution,
- ability to be on-call and respond from home is an effective and efficient solution for many businesses.

Development of new businesses associated with telecommunication, web services, and communication services.

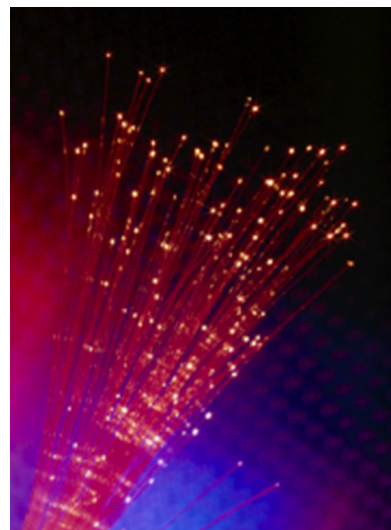
- In other areas of the country, municipal fiber networks have seen the development of businesses that specialize in data storage, back-up and recovery, data center support, e-commerce, cloud based software tools, and collaborative learning environments;
- In collaboration with alternative providers, this new fiber network can operate as the main path or the alternate path for disaster recovery. This has not been an option for most businesses in New Hampshire because of lack of infrastructure or lack of affordability.
- A robust infrastructure makes it easy to partner with businesses in or out of the region, the state and the country

small business growth through e-commerce, access to software and services, and high quality communication tools.

- e-commerce web presence, cloud solutions, High Quality video conferencing, affordable IP telephony
- Growth of mid-size telecommunication or IP services companies without the capital expense of having to build infrastructure
- Allows other start-up and small businesses access to affordable sufficient bandwidth

FastRoads Goals

- Access affordable broadband
- Fiber to the premises for quality service
- Open Access
- Collaboration with providers to extend the coverage
- Extend broadband to unserved/underserved areas of NH



- Create a Fiber rich region
- Access Affordable & Scalable Options
- Open Access / Open Competition / New Services /New Companies
 - Opens the doors to other specialties; such as: back-up, disaster recovery options, educational, medical (between offices or at home alerts), Voice over IP, movies-on-demand
 - It allows for new or start-up telecommunication/service provider businesses to develop with **affordable middle-mile access**.
- Excellent QoS
- Availability
- Although it may not be a viable solution for all locations, it is a worthwhile goal for quality of service and ease of expansion.
- Collaboration with providers to extend the coverage to the broader community – Wireless Providers, Mid-size telecommunication companies, Incumbent carriers, Cable providers
- Continued development of FTTP

FastRoads Project Update



Phase 1 Orford to Enfield

- Route Validated
- Pole Attachment Applications Submitted
- Fiber Design Complete
- Community Anchor Institution Commitments

FastRoads Next Steps Phase 1

- February – April
 - Residential connection commitments
 - Pole make-ready work
 - Service Provider Agreements
- April through Summer
 - Construction
 - Connect CAI

WHAT'S NEXT?

- Look carefully at the route chosen
- Determine the advantages for you
- Commit to a connection and service
- If you are not on the map and you want to connect, let us know where you are
- If you have no options and are not on this map, Please let us know, we are planning our next projects
- Pick up my business card