

# Massachusetts Broadband Issues and Opportunities – The Role of the Connects

Western Massachusetts Broadband Workshop  
Sponsored by USDA and Senator Edward Kennedy

Presentation by:



**Berkshire Connect, Inc.**



# The Connects



Berkshire Connect, Inc.



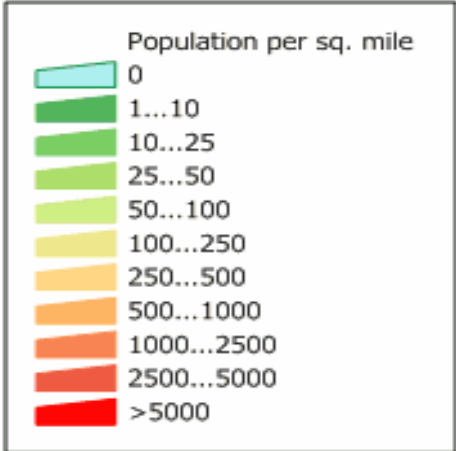
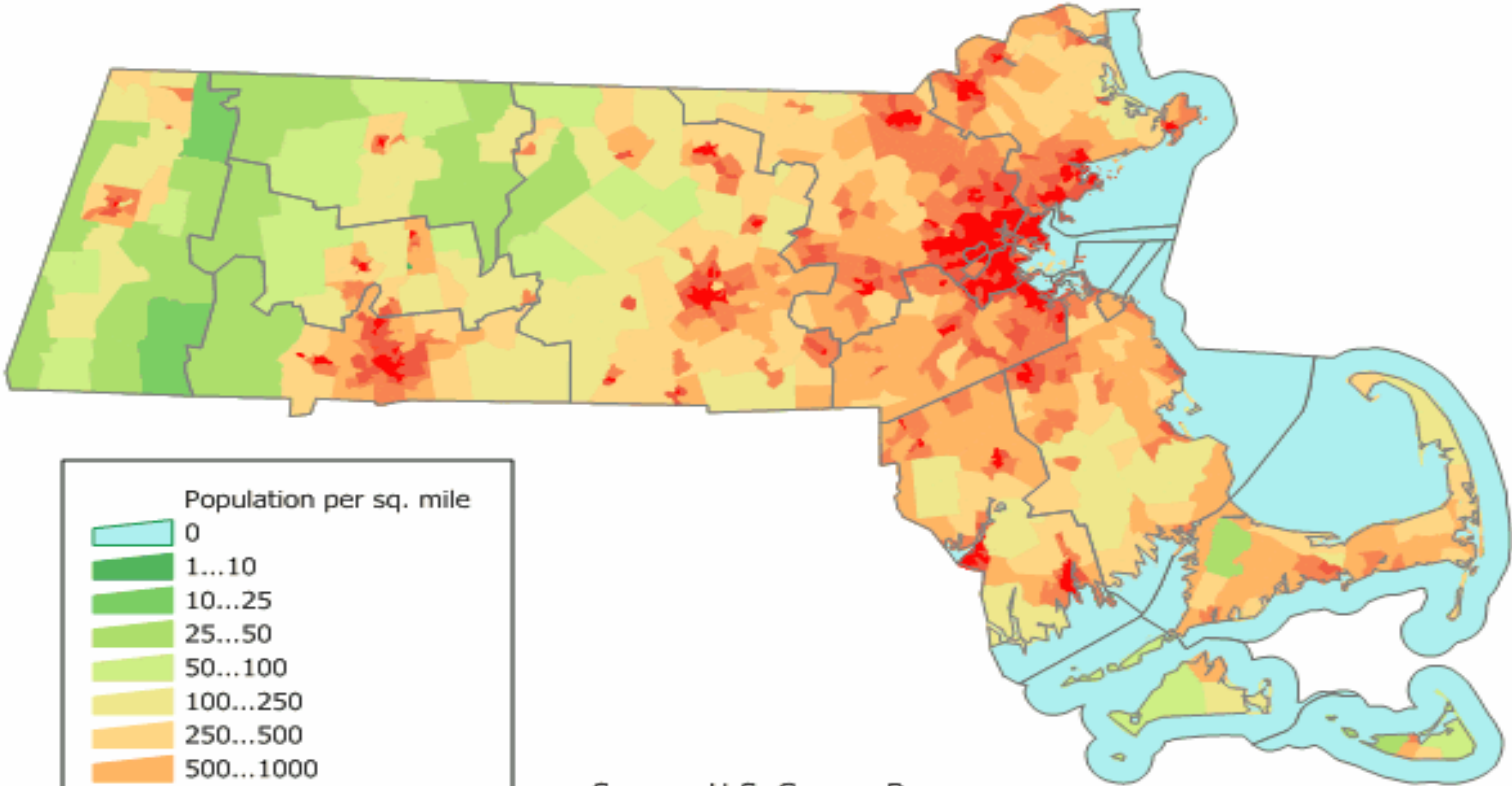
## MISSION:

To create an advanced telecommunications landscape that will provide *affordable, reliable, and redundant* high capacity broadband services *throughout* Berkshire, Franklin, Hampden and Hampshire counties in western Massachusetts.

# Massachusetts Counties



# Massachusetts Population Density



Source: U.S. Census Bureau  
Census 2000 Summary File 1  
population by census tract.

## Who are the *Connects*?

### Berkshire Connect, Inc.

- Began in 1997
- Successful facilities-based, demand aggregation effort in 2000 – a national model

### Pioneer Valley Connect

- Began as “Franklin Connect” in 1999
- Grew to Pioneer Valley Connect in 2003
- Preferred provider selected in 2005

# The Connects Collaboration

- 2006 award from the John Adams Innovation Institute (JAII) of the Massachusetts Technology Collaborative.
- With these resources, the Connects were able to pursue answers to key questions.
  - What is broadband?
  - Where is broadband?
  - Why isn't broadband available everywhere?
  - What is the best model for deploying broadband?

# What is Broadband?

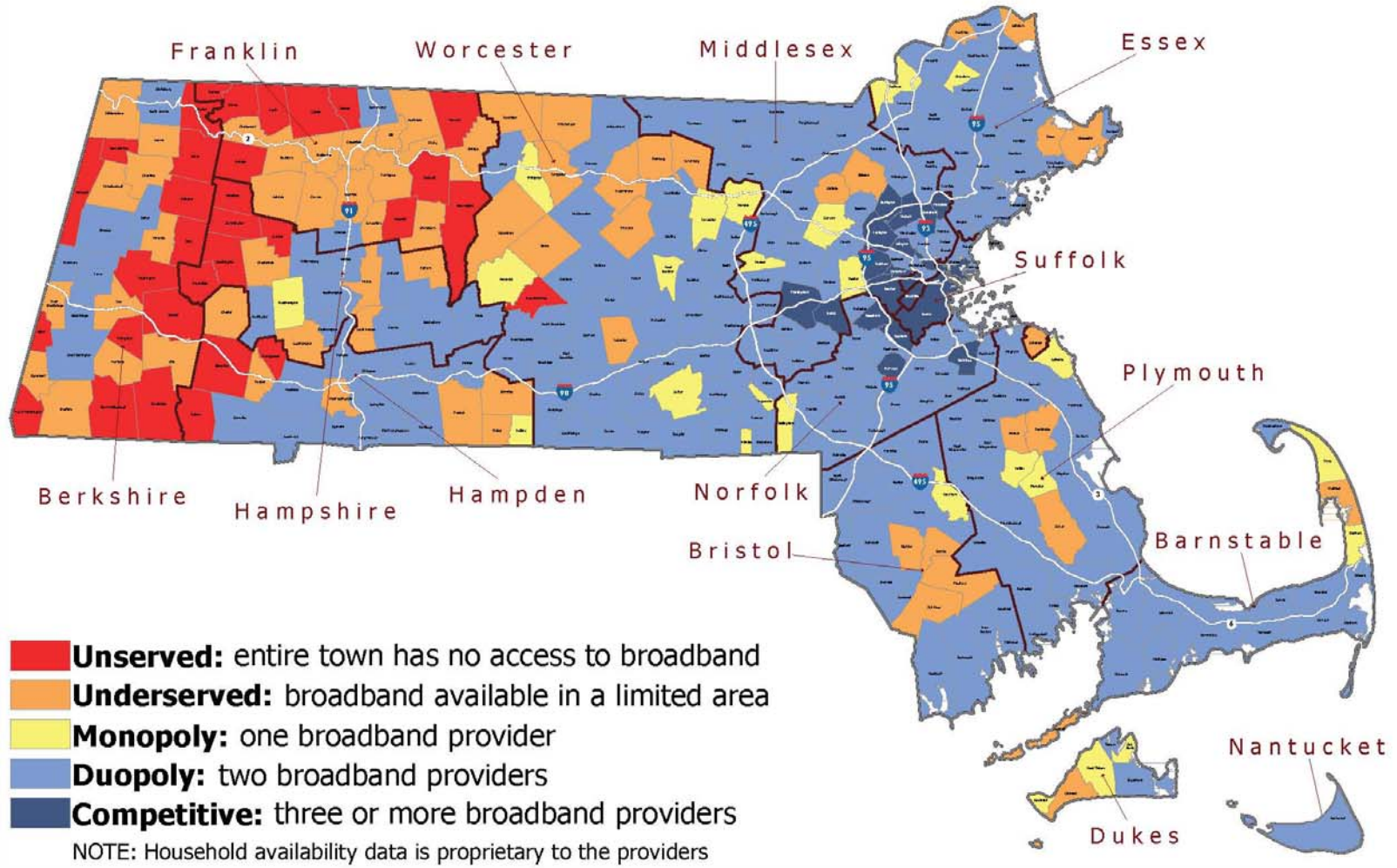
- Broadband is a *classification of the capacity* of an internet connection that provides multiple channels of data, voice and video over a single communications medium.
- Broadband products include: cable modem, DSL, WiFi, WiMax, and fiber optic.
- The Connects do *not* consider satellite or dial-up broadband products.

# Where is Broadband?

- Connects created the “Western Massachusetts Broadband Availability Database.”
  - Determined what *towns* had DSL or cable modem internet access.
  - No data at the household or business level.
- JAll map of broadband availability in the Commonwealth showed:
  - 32 towns completely unserved.
  - 64 towns reported unserved areas.

# Broadband Availability in Massachusetts Municipalities

June 2007



# Why isn't broadband available?

*Telecommunications is a de-regulated industry.*

- The Commonwealth has no regulatory authority to mandate high speed internet access.
- No current expectation for federal remedy to mandate high speed internet access.

*Companies responsible to their stockholders.*

- Driven by market forces.
- More expensive to deploy infrastructure in Western Mass unserved areas.
- Long time horizon to recoup capital costs.

# Connects' Unserved Communities Project

## Problem

- 31 towns in Western Massachusetts are unserved with no broadband availability.
  - Many more under-served.
- Private market has failed due to low population density and high costs of deployment.
- Widespread broadband availability is clearly in the public good and should be a focus of state government.

## Objectives

- Develop a sub-regional broadband network design for unserved Western Massachusetts towns.
- Identify potential efficiencies in both capital and operational deployment costs.
- Differentiate costs for:
  - Network Backhaul
  - Local Backbone
  - Local Distribution
- Model that results in maximum coverage.

## Process

- Unserved Communities:
  - Identify sub-regions.
  - Compare demographics.
  - Analyze sub-regions.
- Design network model:
  - Point to Point
  - Microwave Wireless
  - Fiber
  - WiFi, WiMAX
- Financial Model:
  - Quantify capital costs.
  - Quantify expense costs.
  - Project overall monthly user revenue.

# Efficient Network Design

## Fiber Only

Running fiber directly to each home

### Definition

### Cost per Home

~\$3,000

### Advantages

- Enduring asset
- Very high capacity

### Disadvantages

- Expensive
- Lengthy deployment process

## Hybrid Approach

Microwave and fiber for backhaul, wireless for access

~\$1,500

- Economical
- Enduring assets
- Fast deployment
- Easily adaptable to new technologies

- Small technology risk at network edge

## Wireless Only

End-to-end wireless network

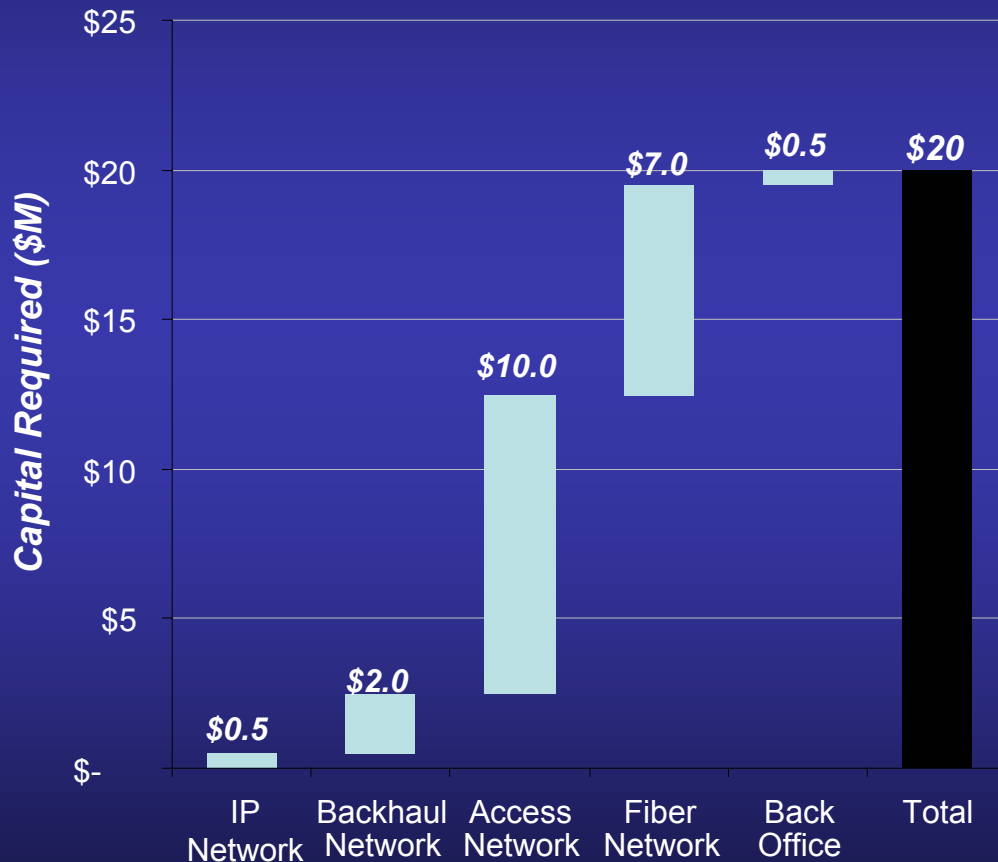
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- Cheaper alternative
- Quicker deployment

- Limited capacity
- Rapidly changing technology

# Broadband Network in Western Mass Requires of Up-Front Capital

## *Broadband Capital Required*



## *Results*

- ~100% availability of broadband in Western Massachusetts.
- A sustainable and upgradeable network.
- A redundant region-wide network.
- A platform for implementing or expanding e-government applications.
- Solution to a market failure for a critical economic development initiative.

# What is the best model for deploying broadband?

The Connects' Findings, as determined by expert consultants analysis:

- Regional scale solution
- Fiber-wireless hybrid network
- Up-front capital required
- Need for public/private partnership(s)
  - Public investment required

# Public Investment Request

- Spring-Summer 2007: Connects presented findings to legislative delegation, Lt. Governor, and members of Governor's Administration.
- August 2, 2007: Governor's Administration announced proposal for state broadband legislation, which includes funding for investment.
- October 18, 2007: Governor Patrick files legislation titled, "An Act Establishing and Funding the Massachusetts Broadband Institute"

# “An Act Establishing and Funding the Massachusetts Broadband Institute” Enacted on August 4, 2008

“High speed broadband is the gateway to the 21st century world,  
whether it’s economic, educational opportunity or civic access...”

Governor Deval Patrick  
Broadband Bill Signing Ceremony



## In Summary

The Connects successfully attracted the attention of state leaders for the need of public investment to be part of the solution.

The Connects also attracted the attention of the private provider community, as seen by recent Verizon investment to deploy new DSL services .

The Connects look forward to collaborating with state, local, and private partners to effectively and efficiently implement the objectives of the MBI for achieving broadband equity for all citizens of Western Massachusetts.

# Future Role of Connects

- Keep Western MA communities informed – 10/25 sessions about MBI.
- Work with communities to be ready for infrastructure – assist with zoning and special permit changes, assess topographical and density opportunities and challenges.
- Inform providers of Western MA conditions – broadband survey.
- Be flexible – be ready to assist MBI, communities and providers in any way possible to meet Governor's pledge of broadband to all residents in 3 years.

# For More Information about the Connects

## **Berkshire Connect Inc.:**

Sharon Ferry, 413-496-9606 or [sferry@bconnect.org](mailto:sferry@bconnect.org)

[www.bconnect.org](http://www.bconnect.org)

## **Pioneer Valley Connect:**

Jessica Atwood, 413-774-1194 x101 or [jatwood@frcog.org](mailto:jatwood@frcog.org)

[www.pioneervalleyconnect.org](http://www.pioneervalleyconnect.org)