

Broadband and the Transportation Network

Presented to:

The Future of Tolling - IBTTA

Presented by:

Erin Flanigan, P.E., PMP

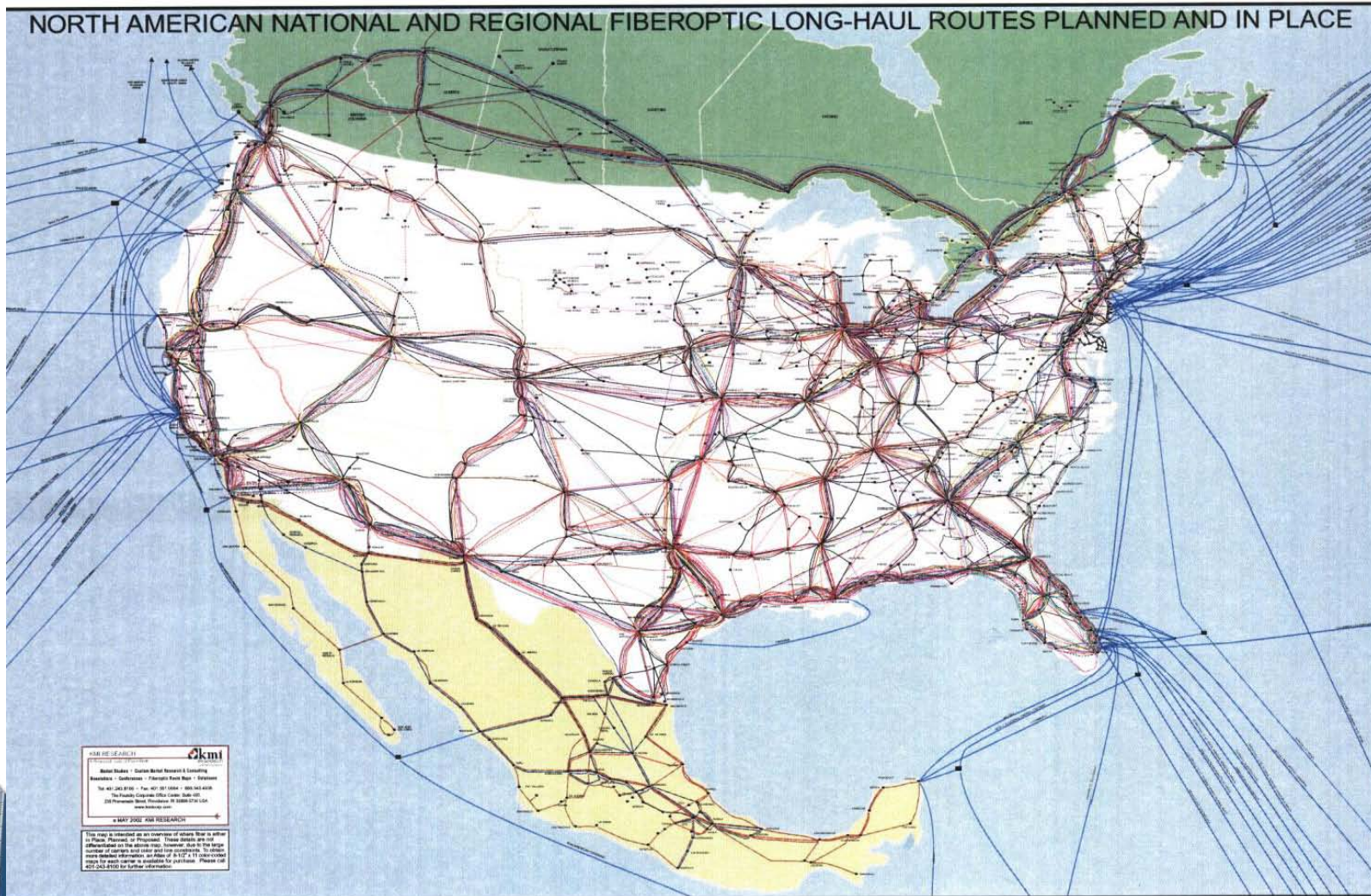
May 24, 2010

- Background
 - Broadband availability
 - National Broadband Plan
 - Broadband and Transportation
- SAFETEA-LU Language/Rural Communications Study
- Report to Congress – Recommendations
- Communications Connectivity & Information Sharing

Current Status

- Fiber backbones are mainly built out
- Private providers unable to get financing
- Interstate right-of-way still attractive
- Many areas (particularly rural) still without access to broadband

Existing Backbone Fiber



U.S. NATIONAL FIBER

U.S. REGIONAL FIBER

CANADIAN FIBER

MEXICAN FIBER

The New York Times

nytimes.com

October 3, 2007

Unlike U.S., Japanese Push Fiber Over Profit

By KEN BELSON

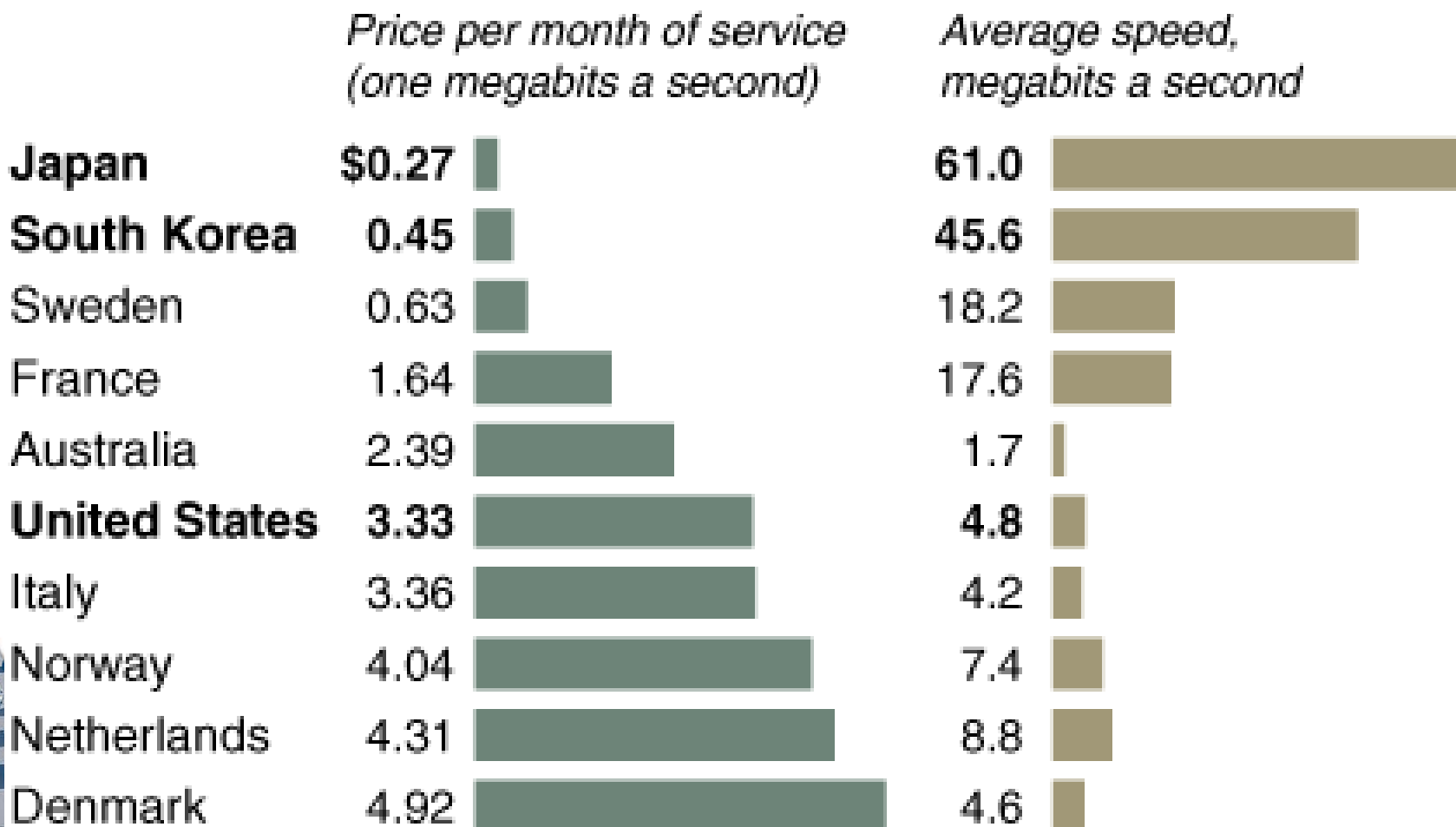
TOKYO — The United States may be the world's largest economy, but when it comes to Internet connections at home, many Americans still live in the slow lane. By contrast, Japan is a broadband paradise with the fastest and cheapest Internet connections in the world.

Nearly eight million Japanese have a fiber optic line at home that is as much as 30 times speedier than a typical DSL line.

But while that speed is a boon for Japanese users, industry analysts and some companies question whether the push to install fiber is worth the effort, given the high cost of installation, affordable alternatives and lack of services that take advantage of the fast connections

Faster, and Cheaper, Connections

Broadband service in South Korea and Japan is much faster and less expensive than it is in the United States and many other countries.



Source: *The Information Technology and Innovation Foundation*

President Obama's National Broadband Plan

- Broadband is the foundation for economic growth
- Approximately 100 million Americans do not have broadband (1/3)
- “Access to” versus “connection to”



CONNECTING
AMERICA:
THE NATIONAL
BROADBAND PLAN

Broadband Plan

Government Influence

- Establish competitive policies
- Ensure efficient allocation of government assets
- Create incentives for universal availability
- Reform laws, policies, standards, and incentives to maximize benefits of broadband

Maximize Impact of Federal Resources (Chapter 6.2)

- Recommendation of US DOT financing of highways contingent on joint deployment of conduits by qualified parties
- MassHighway Example
- Dig-once legislation
 - Joint trenching

Energy and the Environment

- Brings in ITS – ‘smart transportation’
- Recognizes that advance communication infrastructure plays a key role in making transportation systems safer, cleaner, and more efficient
- Automakers building in wireless communications for safety, navigation, entertainment, and productivity

Supports V2V

- DSRC for safety applications require advanced telecommunication
- IntelliDrive will require a national communication platform

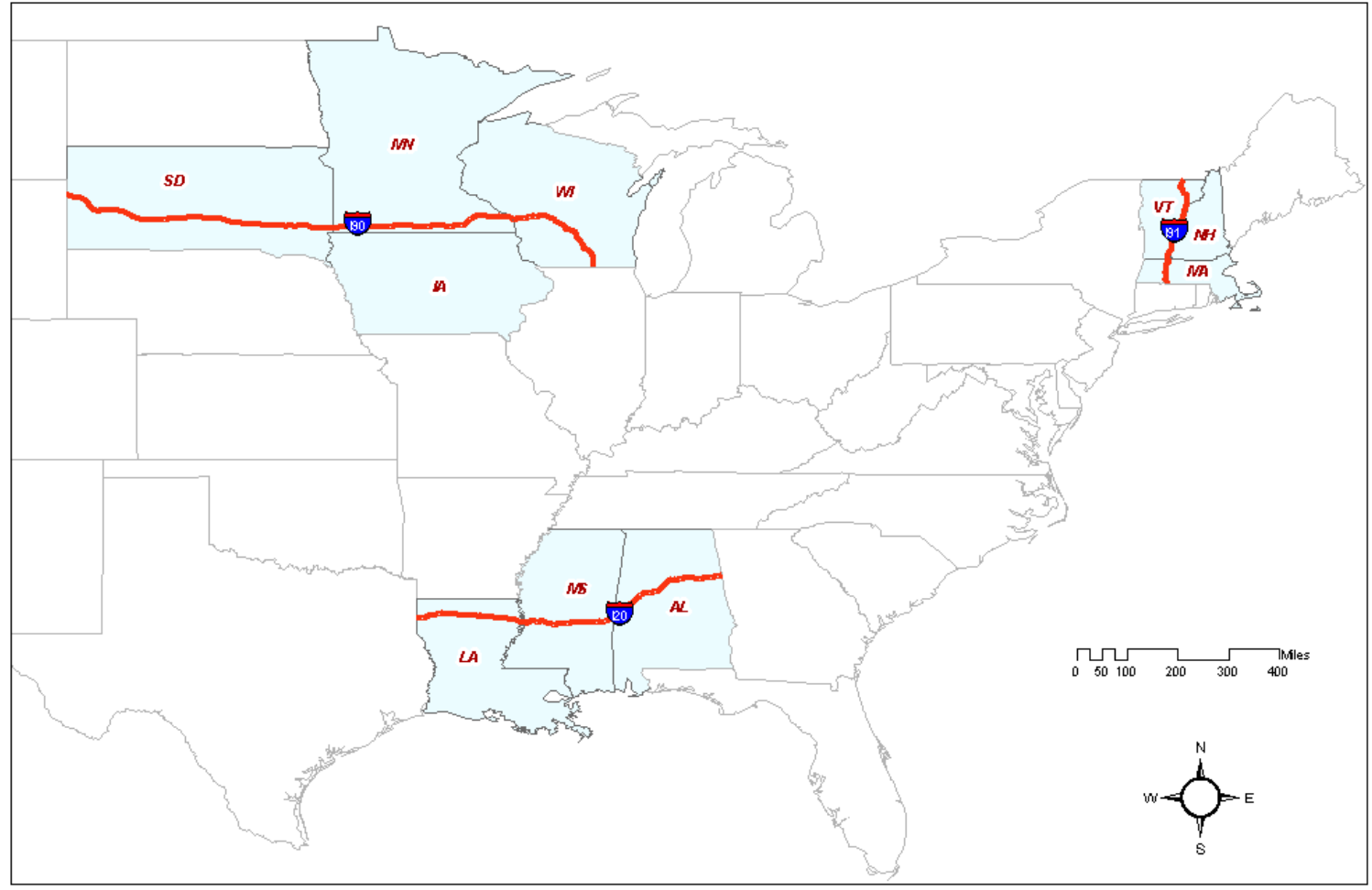
IntelliDriveSM

- Transforming Transportation Through Connectivity
- Concept of Operations
 - public sector transportation, managers, the automobile industry, traffic signal controller industry, **telecommunications industry**, commercial vehicle operators, transit operators, rail operators, and vehicle and aftermarket providers.

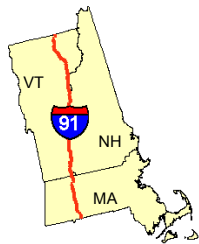
Section 5507; SAFETEA-LU

- What Congress has asked for:
 - The Secretary, in cooperation with the Secretary of Commerce, State departments of transportation, and other appropriate State, regional, and local officials, shall conduct a study on the feasibility of installing fiber optic cabling and wireless communication infrastructure along multi-state Interstate System route corridors for improved communications services to rural communities along such corridors.

Section 5507 - Rural Corridors



Corridors Under Study



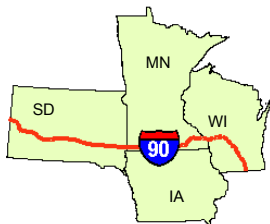
242 miles

New Hampshire, Vermont, Massachusetts



542 miles

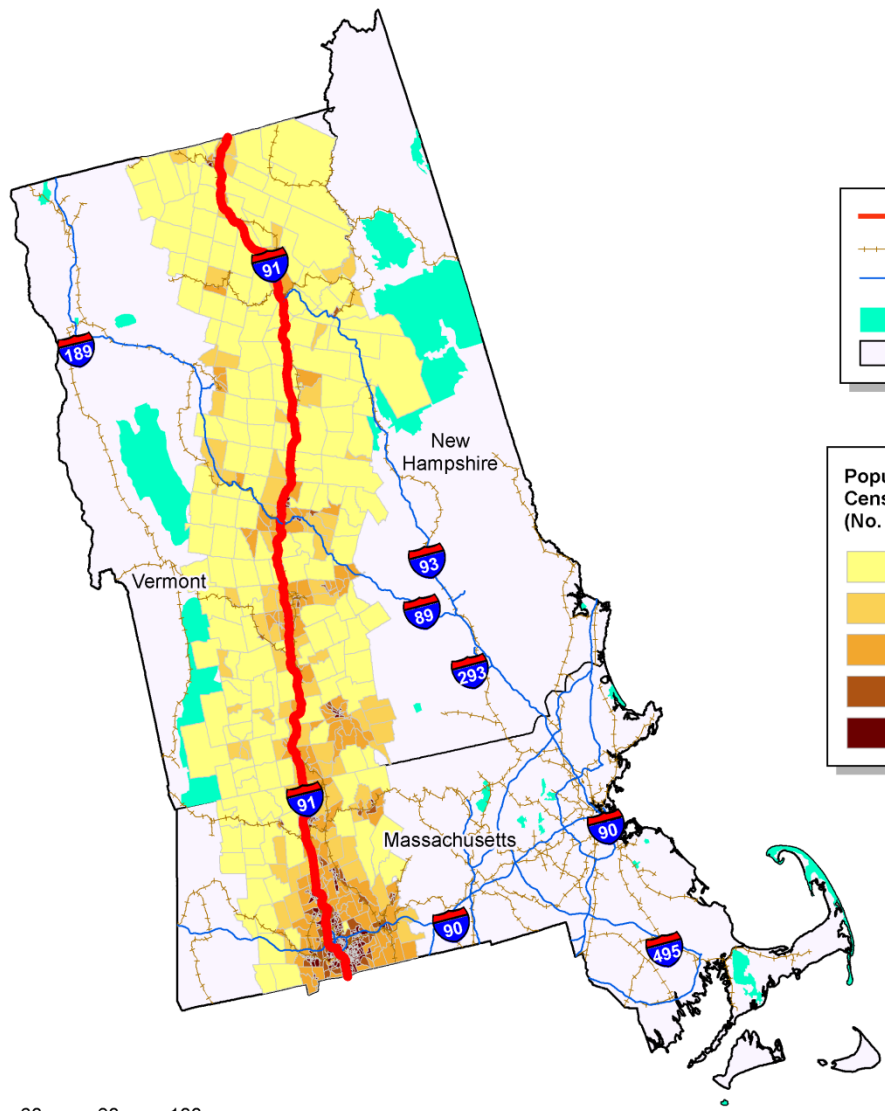
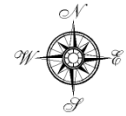
Louisiana, Mississippi, Alabama



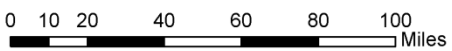
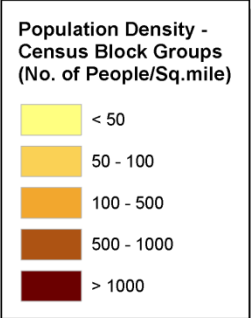
843 miles

South Dakota, Minnesota, Iowa, Wisconsin

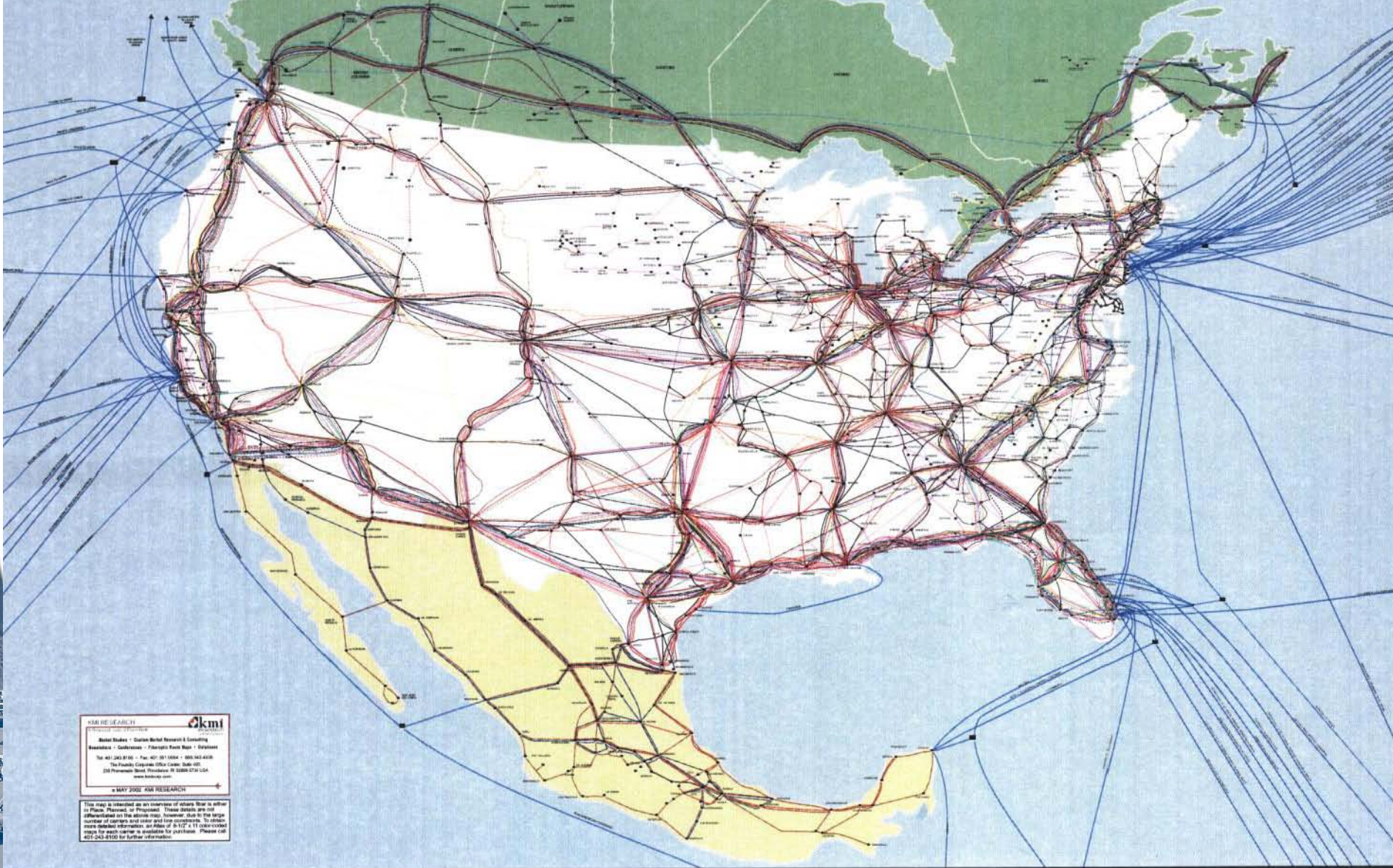
Preliminary Draft of Rural Interstate Communications Project Study Area Boundary Definition I-91 Corridor



- Study Corridors
- Railroads
- Other Interstates
- Federal Land
- States



NORTH AMERICAN NATIONAL AND REGIONAL FIBEROPTIC LONG-HAUL ROUTES PLANNED AND IN PLACE



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 Optical Knowledge Management Institute
 Boston - Dallas - Columbus - Denver - Houston - Los Angeles - Miami - New York - Phoenix - San Francisco - Seattle - Washington DC

okmi is a leading provider of fiber optic network design and construction services. We have a proven methodology for designing and constructing fiber optic networks that are cost-effective and meet the most demanding performance requirements.

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This map is intended as an overview of routes that are either in place, planned, or proposed. These details are not differentiated on the above map. However, due to the large number of carriers and routes and long distances, to obtain more detailed information, an Atlas of 12" x 11" color-coded maps for each carrier is available for purchase. Please call 401-243-8100 for further information.

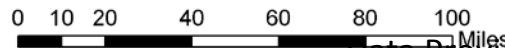
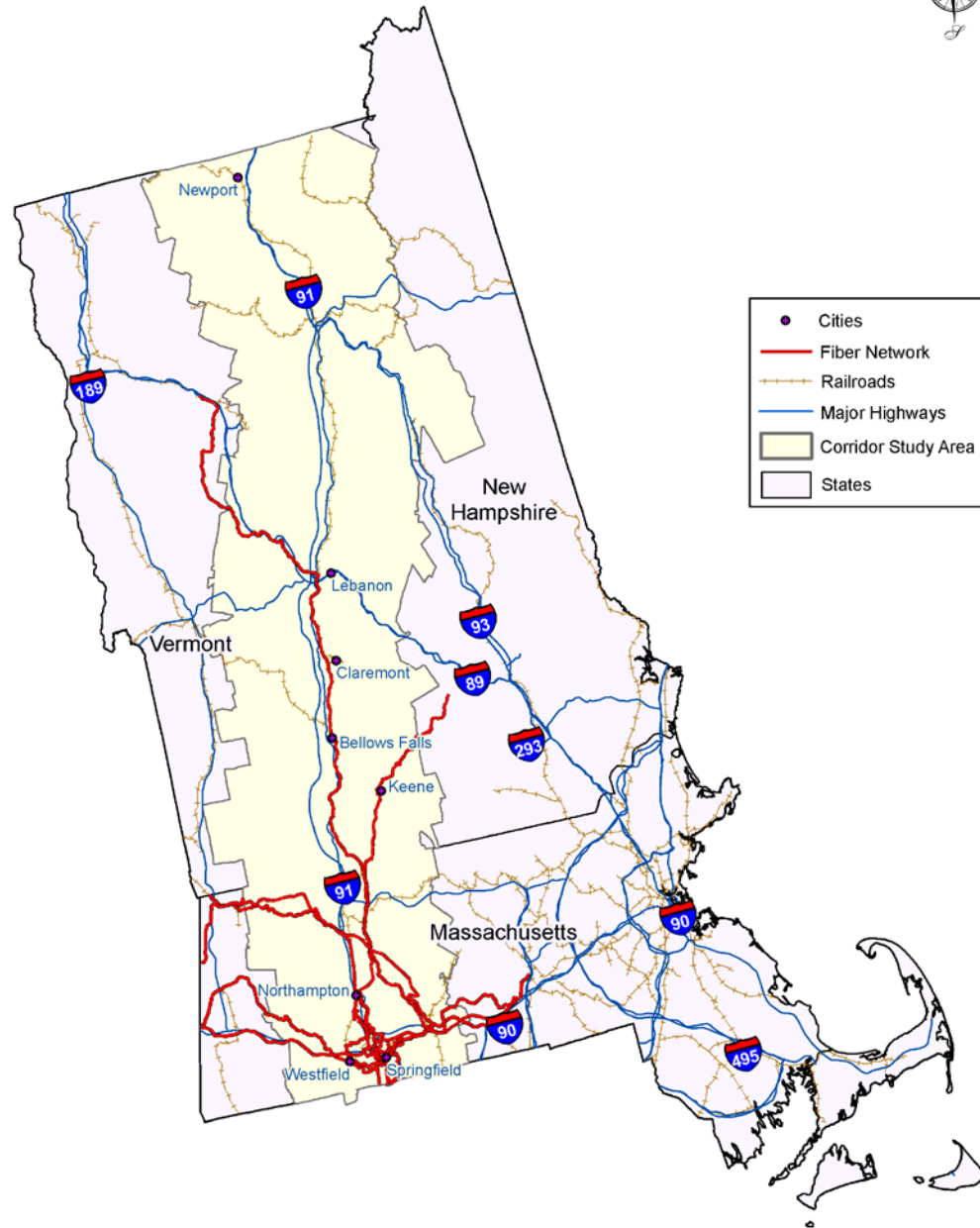
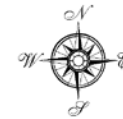
U.S. NATIONAL CARRIERS

U.S. REGIONAL CARRIERS

CANADIAN CARRIERS

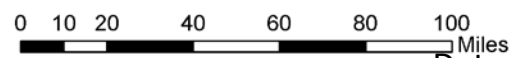
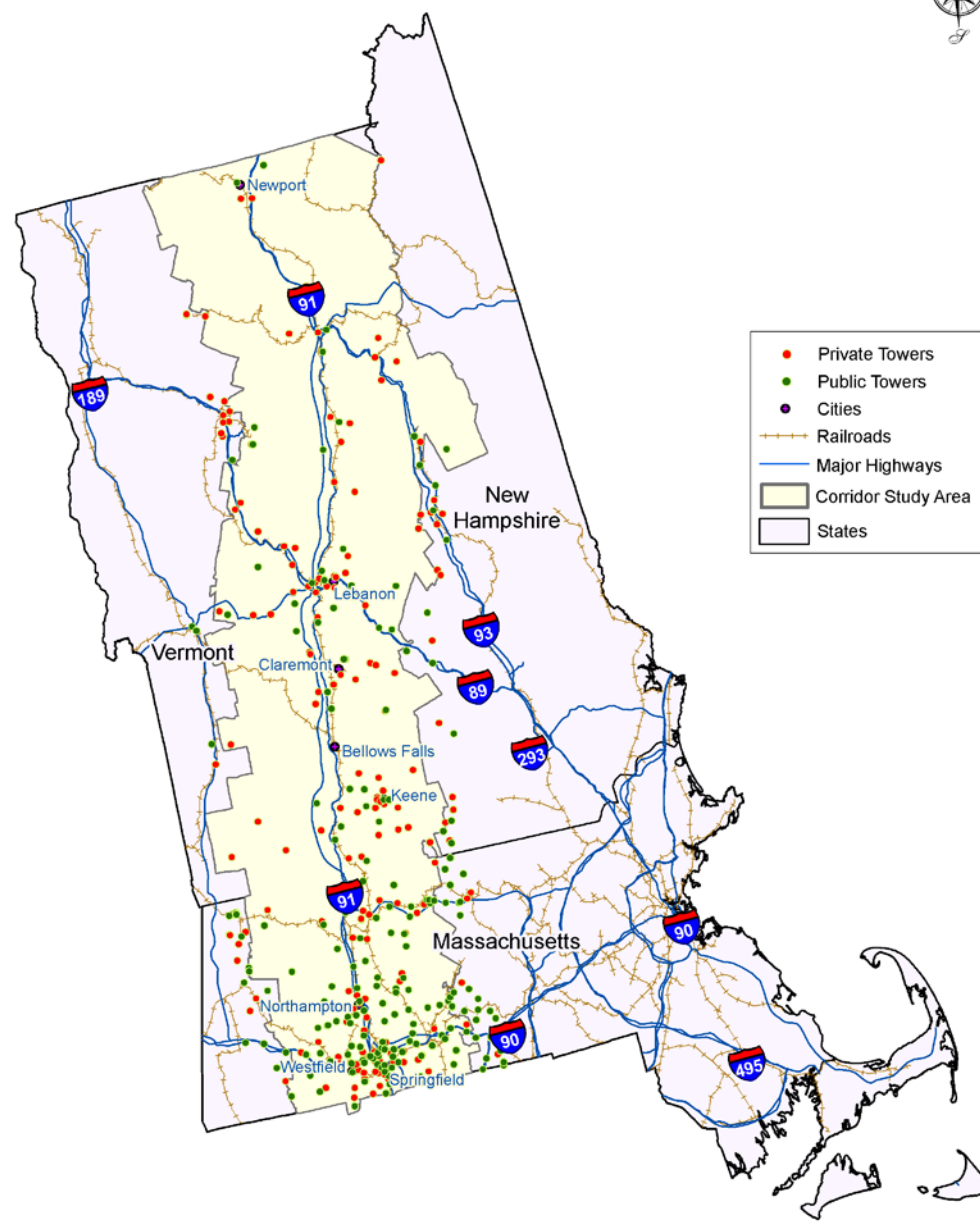
MEXICAN CARRIERS

Existing Fiber Network I-91 Corridor



Data Provided by CFN Services, Reston, VA

Tower Locations I-91 Corridor



Data Provided by CFN Services, Reston, VA

Study Findings

- States see value of corridor-length R/W access
- States can benefit from additional bandwidth
- Some confusion over legal use of shared resource
- Some states lack enabling legislation to pursue partnerships effectively
- National Telecommunications and Information Administration
 - Broadband over Power Lines and WiMAX offer last-mile opportunities
- Private Sector
 - Mobile telephony is the expanding market area
 - Connecting fiber to cell towers is a priority

Report to Congress

- Possible Outcomes:
 - Study viewed by many as a stimulus for Congress
 - Enabling legislation; legislated funding
 - Report to feature recommendations for action at federal, state, legislative and agency levels
 - Long distance longitudinal access could support Vehicle Infrastructure Integration (IntelliDrive)
 - Private sector could expand '3G' mobile services

Report to Congress - Findings

- Expanded high speed telecommunications deployment in each corridor could lead to significant benefits
- No single technology will provide the solution (hybrid)
- Federal government must continue to play an active role
- Most direct benefit will be to the transportation agencies
- Opportunities for resource-sharing agreement for new fiber capacity are limited
- States have a strong interest in HST on interstate ROW
- Private sector is a critically important partner

What does a fully connected roadway do for you?

- Toll Collection (\$\$\$\$)
- Communications to a central host
- Better work zone management
- Better weather and incident management
- Other applications:
 - V2V
 - V2I