

Road, Rail, Air, Water: Separate Worlds or One System?

By Neal Peirce and Curtis Johnson

No region of the world can expect to compete and flourish in the demanding 21st century without state-of-the-art connections -- road and rail, air and water, plus fast and efficient electronic information highways.

On the transportation front, New England seems frozen in time and space, unaware of how seriously isolated and inefficient it's becoming with its overburdened interstates, poorly maintained bridges and local roads, shrunken and imperiled rail service, and lack of a modern deepwater cargo port.

The pain's felt region-wide. Saddled with decaying road systems, Massachusetts motorists are spending \$2.3 billion a year on extra vehicle repairs and operating costs. Without efficient coastline rail, Maine sees its Route 1 turn into a traffic horror each summer. Urban interstates across the region -- I-93 from Massachusetts into New Hampshire, for example -- suffer mega-jams. The region has some quality -- but many insufficient or nonexistent -- bus lines.

The world-renowned traffic congestion in and around Boston proper has been relieved some by the fabulously expensive (\$14.6 billion) "Big Dig." But now there's a new congestion poster child: Interstate 95 along the Connecticut coast -- described by its commuters as "a rush-hour standstill," "a parking lot" from Stamford to Bridgeport in particular. Proposed cures range from double-decking (dismissed for its astronomic cost) to adding lanes (infeasible because the corridor is so densely crowded).

"If I-95 is a chokepoint, in one sense you're choking all six New England states," notes Steve Sasala, CEO of the Waterbury Chamber of Commerce. Connecticut and all of New England are in peril of becoming a continental "cul-de-sac," transportation expert Michael Gallis warned in 2000, adding that although the region sits literally next door to the global economy dynamo of New York, "it's the area it's least well connected to."

And the region's most serious shortfall, says former Maine Transportation Commissioner John Melrose, is lack of rail alternatives to support compact, non-sprawling development, and undergird the region's existing cities.

Connecticut resident Robert Yaro, president of the New York Regional Plan Association, bemoans a twin peril -- a huge backlog of needed repairs in Amtrak's rail lines, and decrepit condition of the Metro-North train commuter service that connects New Haven and New York's Grand Central Station. "New England," notes Yaro, "is presently experiencing all the disadvantages of the most congested, expensive population corridor in the western hemisphere with few of the advantages that should flow with easy access to New York as well as Boston."

After 9/11, when many corporations were decentralizing operations out of New York City, Northern New Jersey, with superb commuter rail connections, received an influx of investment.



Margaret Chase Smith ferry photo, courtesy MaineDOT

No region of the world can expect to compete and flourish in the demanding 21st century without state-of-the-art connections.

Not so Fairfield County and cities up the Connecticut coast. Why? Clogged I-95 and Metro-North's railcars, typically cold in winter, hot in summer, some 40 years old, routinely cannibalized for parts. Plus the ultra-high cost of Fairfield County housing, and lack of quality train service to open up economically lagging

areas like the nearby Naugatuck Valley, ideal for new transit-oriented development.

Sidebar Articles

Watery Solutions (Page 3)

Bradley: Barrier or Breakthrough? (Page 3)

Radical Departure: A New - New England Model? (Page 4)

Second Lead Article

Broadband Internet: New England's Future Up in the Air (Page 5)

After decades of neglect, Connecticut Gov. Jodi Rell pushed through bond funding for updating 300 Metro-North rail cars. But mostly, New England has been asleep at the switch, failing to make critical transportation investments it needs to remain competitive.

Indeed, even as some 14 nations around the world invest robustly

in new or expanded high-speed rail, taking advantage of dramatic technology breakthroughs in safety, handling, and speeds of up to 210 miles per hour, Northeast U.S. leaders sit on their hands, paralyzed by prospective pricetags. Experts estimate up to \$12 billion, for example, to bring the Boston-Washington

Northeast Corridor -- tracks, bridges, signals, tower systems, rolling stock -- to a state of good repair.

The rest of the world is not so shy. Returning from a recent Far East trip, Lyle Wray, executive director of Connecticut's Capital Region Council of Governments, noted:

"In 10 years Bangkok has built an elevated heavy rail system, a subway, a new airport, a 150-mile per hour rail link to the airport, and approved constructing 120 miles of bus rapid transit on dedicated roadways. And we don't even have a high-speed rail line into New York! If we did, Hartford executives could fulfill their wish of fast connection to New York and we'd become an economically viable back office alternative. Draw a 100-mile circle around almost any major world city -- Rome, Paris, Tokyo -- and there's an extensive commuter rail network linking vibrant communities. We have antiquated commuter rail networks around Boston and New York. We've starved the infrastructure."

There are some New Englanders who discount rail and believe the region's heavy 21st century focus on roads, born of the era of cheap petroleum, should carry on. But a "roads only"

scenario runs headlong into harsh reality: immense overdemand. New England's road traffic has increased two to three times faster than population since 1990.

And watch out! -- crowding over from the right lane come the big freight-carrying rigs, claiming more and more road space. Truck traffic is projected to increase 60 to 100 percent by 2020, making driving increasingly fearful and dangerous for motorists. "The interstate system melts down without some kind of intervention," notes Tim Brennan, veteran executive director of the Pioneer Valley Planning Commission and regional expert.

Critics like Brennan say that even if highway monies were limitless, roads present a crisis New England, with its tightly packed communities, can't build its way out of. And likely shouldn't even try. Why? Gas supplies may drop suddenly. Massive price spikes are likely. Air quality, advances on global warming, require less vehicle miles traveled. And new roads easily feed sprawl that consumes New England's precious countryside and isolates lower-income groups in bypassed cities.

Clearly, it's time for ingenious solutions. Take freight. We were amazed to discover a 2002 study showing railroads handle only 5 percent of freight shipment in Maine, 2 percent in Connecticut, and a minuscule 1 percent or less in Massachusetts, New Hampshire, Rhode Island and Vermont. One reason: Thirty years ago a rail bridge across the Hudson at Poughkeepsie burned down. It's never been replaced. So a rail shipment from New York to Stamford has to go north to Albany, then east and back south, at substantial extra expense. Result: all the freight goes to trucks instead.

Yet New England, a century ago, had a robust rail network, covering a huge percentage of its territory. Many of the rail lines -- or at least their rights-of-way -- still exist. But New England's state transportation departments have made no push to coalesce, project needed passenger services, consult with the sometimes obdurate freight railroads, rebuild the missing Hudson River bridge, and employ carrots and sticks to get longer-distance freight onto trains.

New England is home to the National Corridors Initiative, headed by James RePass, encouraging regions across the continent to develop robust regional passenger and freight rail service. The Initiative pushed successfully in the '90s for release of \$2.7 billion in blocked federal funding for the high-speed New York-Boston rail line, cutting travel time from 5½ hours to 3½ and tripling ridership in the corridor.

RePass favors a formalized New England regional infrastructure authority -- ideally with a Canadian counterpart -- that could start making priority investments. RePass and former Massachusetts Gov. Michael Dukakis, a former vice chair of Amtrak's board, are proponents of a North/South Rail Link in Boston, a one-mile tunnel to connect the North and South Stations that were left without connecting tracks by competing 19th century rail companies. With the tunnel link, they contend, high-speed New

York-Boston-Portland service becomes a possibility and more importantly there'd be "radial availability -- tens of thousands of commuters from north and south of Boston able to travel directly to destinations around the region, providing massive net economic benefit.

The six states, Brennan believes, aren't quite ready for a formal infrastructure authority. He'd first create a "New England NATO" -- a six-state alliance of governors, transportation directors, business, foundation and environmental leaders and others to look at the top strategic issues and create a compelling vision. What transportation steps are priority items if New England's to be a 21st century competitor? How can highways, rail, air, ports, passenger and freight service be interlinked? How does the region best negotiate with its East Coast neighbors, Amtrak and Congress to bring Northeast Corridor rail service up to world standards? How can transportation



PhotoCredit: Leo King /James RePass on train platform
New England is home to the National Corridors Initiative, headed by James RePass (shown above), which encourages regions across the continent to develop robust regional passenger and freight rail service.

moves dovetail with disaster evacuation planning (thinking terrorism or hurricanes) and more far-sighted tourist promotion? Or create corridors, as Hartford architect Tyler Smith suggests, that serve not just roads, but rapid rail, telecommunications lines, open space and greenways?

David Soule of the New England Initiative at UMass Lowell, endorsing the "NATO" idea, suggests a major focus on finance of big infrastructure items. Nineteenth century New England and America, he notes, used private dollars to build such infrastructure as border-to-border rail. A raft of creative revenue-based and market-based financing tools are now being introduced around the world -- tax increment financing, tolls supporting lease-back deals financed by private investment groups. Can some of the finance wizards in New England investment houses get focused on these possibilities? Is there a role for popular referenda to approve local or regional levies as a part of financing packages? Could the business-led New England Council work with the congressional delegation to create federal incentives for transportation breakthroughs?

And there are today new ways to avoid pork-barrel waste: cutting-edge cost-benefit analysis

tools that make it possible to evaluate costs and benefits from road to rail, buses to air service to ferries, red-flagging projects which don't incorporate state-of-the-art technology or smart intermodal connections.

Politicos and public bodies, in short, could actually be positioned to make informed decisions on projects and financing, based on publicized, transparent data.

No one doubts highways will remain the region's transportation mainstay, but rail service -- less polluting, less energy dependent, more land-conserving -- clearly has to play a major role. And there's a huge backlog, beyond the coastal Northeast Corridor. Expanded service on the inland route -- westward to Worcester and Springfield, then south through Hartford and New Haven to New York -- could, for example, be a big shot in the arm for Connecticut River Valley cities.

Serious investment in eastern Massachusetts commuter rail service would serve New Bedford, Fall River and other South Shore towns that not only need economic stimulus but can offer far more affordable housing than Boston or its close-in suburbs. Trains to Cape Cod, say advocates, are critical to avoid some of New England's most ferocious traffic jams. Mainers would like to see the successful Boston-Portland Downeaster service speeded up and extended to Brunswick and Rockland (with possible ferry service to Bar Harbor). Vermonters are anxious to extend Amtrak service, now serving Rutland, north to Burlington and south to Bennington. Nashua wants rail connection to Lowell, a first step toward full Boston-to-Montreal service that would pass through Lowell, Nashua, Concord, Montpelier and Burlington.

Other ideas crop up periodically but never get careful study. A prime example: thinking New England-wide about rail service connecting not just Logan and T.F. Green but all of New England's leading airports -- Bradley, Manchester, Portland, Burlington, and their host cities. The rail would provide travelers with multiple off-road options and connections simply not available today.

Each idea calls out for hard analysis. But it may never happen unless the six New England governors step up to the plate, agree their states' transportation futures are intimately intertwined, and create a shared, professionally staffed organization to start the job.

In a model of cross-border collaboration, Midwestern governors recently reached dramatic agreement to invest \$20 billion to clean up Great Lakes toxic pollution and other threats, and to work with Canadian premiers to control export of water from the region. Even mayors exalted: "For the first time," said Chicago's Richard Daley, "We're all on the same page with a common vision. We have a guide for future investment. We have priorities."

If the Great Lakes states can pull together so dramatically, why not New England?

Watery Solutions

By Neal Peirce and Curtis Johnson

Before roads, before railroads, New England traveled by sea and up its rivers. And waterborne trade has been a regional strength ever since Yankee clipper ships raced around the world and opened the first China trade.

Can water transport solve some of the region's modern-day transportation challenges?

The answer should be yes. Take the issue of paralyzing congestion exacerbated by thousands of trucks along I-95 in southwestern Connecticut. Connecticut has been working for years on the idea of feeder barge service from Newark to New Haven or Bridgeport, allowing freight to bypass the most crowded Connecticut-New York freeway stretch. After prolonged political wrangling, Bridgeport was finally selected, but advocates are asking impatiently when the Connecticut Department of Transportation will finally get the service launched.

Also still to be resolved: What's New England's ocean freight plan for the century? Indeed, what



PhotoCredit: Harbor Express

The Harbor Express ferry provides commuters with an alternative transportation option from Quincy and Hull to Logan Airport and downtown Boston.

of passenger service by water? Historically, water-borne personal transportation played a big role from New York all the way up to Maine. A dozen or so ferry services do still operate -- Boston-Gloucester and Boston-Provincetown, Providence-Newport, New London and

Bridgeport across Long Island Sound, for example. The MBTA offers Boston Harbor service including connection to Logan Airport. Ferries run across Lake Champlain, connecting Vermont and New York State. New high-speed catamaran service connects Bar Harbor with Yarmouth in Nova Scotia in just three hours.

But the potential is far greater -- serious high speed ferry service from Fairfield County to Manhattan, for example. Former Maine Transportation Secretary John Melrose says he's enthusiastic about water transport because "it fosters development in core communities, has a low cost (which is zero) for maintenance of way, and has an extensive track record elsewhere in the world."

For all the wonders of modern technology, the basic old-fashioned idea of personal travel by sea and river connection seems like a natural fit for New England's character, tourism, and economic future.

Bradley: Barrier or Breakthrough?

By Neal Peirce and Curtis Johnson

Can all of New England thrive in the new global economy, or does prosperity have to be limited to the region's eastern, coastal corridor?

One finds a slowed economic pulse along the Connecticut River Valley and all of western New England. Even economic leaders in the region acknowledge it. And they regularly sum it up in one word: "Bradley."

Is that fair? Even if the only thing "international" about the Bradley International Airport is Canadian-provided propeller service to Montreal, isn't it true that the airport has close to 7 million passengers a year, has added 21 non-stop flights since 2004, now offers low-cost Southwest flights, is expanding its facilities, and claims almost \$4 billion in regional economic impact?

The answer's "yes." But the airport, say its many critics, has been run in a narrow, bureaucratic way, symbolized by the historic mindset of its owner/manager, the Connecticut Department of Transportation. ConnDOT is said to have made so many long-term concessions to owners of the airport's parking garages (and now depends so heavily the revenue) that competitive new ideas get quashed. In the '90s, when proposals surfaced for a light rail line from Hartford, passing Bloomfield, serving students at the University of Hartford and reaching the Griffin Station with potential



Can Bradley International Airport turn into a major symbol of Connecticut River Valley growth?

extension to Bradley, the DOT opposed it vigorously.

Currently ConnDOT has mollified its critics a tad by approving low-cost preliminary design work on rail service from New Haven to Springfield. With a Bradley extension, such service could be a major catalyst. Across the world, quality rail connections are today defining the catchment area and growth potential of airports. Why else, for example, does the Metropolitan Washington Airports Authority appear so anxious to take over and speed up rail service from Washington and its suburbs to Dulles Airport? It's pure

economics: building a larger passenger base. Or as the airports director noted: "For an airport to be successful in the long run, it needs to have multi modal access;" it's no longer reasonable to expect "the only access is by private automobile."

What of positioning Bradley for other new market opportunities -- developing major freight facilities or nearby land for industrial parks, warehousing and specialized services, and seeking to stimulate the facility's broader territory in the way that airports like Dallas-Fort Worth have invigorated entire regional economies? It's been slow going, though some incremental progress, reports Doug Fisher of Northeast Utilities. The airport board finally agreed, for example, to post "Welcome to New England" rather than "Welcome to Hartford" signs in a new terminal.

Other consequences of a lethargic Bradley: firms like United Technologies lack convenient, non-stop international services and corporations quickly reject the idea of moving facilities to the region. The airport's former marketing director -- the person in charge of getting international connections for Bradley -- couldn't even board an airplane for marketing purposes, because of a state travel freeze on its workers.

So how does Bradley turn into a major international airline, a symbol of Connecticut

River Valley growth? The idea we heard most frequently: Create a bistate, Connecticut-Massachusetts airport and development authority, signaling a new day, more aggressive management, freeing the region's prime growth asset from its parking lot mentality. With a region-wide, expansion mindset, say the impatient local observers, Bradley would be set for the 21st century growth neither ocean- and land-locked Logan, nor the New York City-area airports, can easily handle. Most of Bradley's facilities (and long runway) are more than adequate for continued domestic passenger growth; the location offers better landing weather than Boston or New York; all that's really lacking would be a new international terminal and customs facilities.

Who could make this happen? Best answer: The governors of Connecticut and

Massachusetts, acting together. Cynics react instantly -- This could never happen -- Connecticut wouldn't share a property it now "owns" exclusively, and Massachusetts would be paralyzed by Massport/Logan jealousy.

But imagine the opposite: two chief executives, each providing some political cover for the other, recognizing their states' economic interdependence, championing collaboration, fostering a vision of a more vibrant Connecticut River Valley and a second major international airport from which both states could benefit immensely. Economic recruitment, new rail links, especially a vision of a new New England that rises above normal parochial, zip-code politics -- the package would represent a dramatic signal, to citizens and business markets alike.

At a minimum, the Bradley issue should engender some vigorous debate. An alternative (or even extension) of bistate authority might be leasing the airport to an aggressive private operator, using part of the proceeds to finance new rail and road connections. (The model: Chicago's \$1.83 billion deal to lease its 1950s-era toll-road Skyway to a Spanish-Australian consortium.) A bistate Bradley deal, including financing for modern, connecting Connecticut River Valley train service, might even lead to smart service splits -- longer distance flights from Bradley, shorter ones from its new rival, the more regional Tweed Airport at New Haven.

New England has long seemed immune to the collaboration virus driving economic and growth deals across the world. But once it broke loose, it might really take off.

Radical Departure: A New - New England Model?

By Neal Peirce and Curtis Johnson

America's state highway departments have historically been overbearing Goliaths. They're usually run by technocrats, talk in hard-to-decipher jargon, and almost always prefer asphalt-first solutions.

Carol Murray, New Hampshire's reform minded Transportation Commissioner, notes the way they've often communicated with towns:

"Your Main Street is a state-numbered route, and we have to get traffic through more quickly. So you'll have to eliminate your on-street parking and narrow your sidewalks. We're going to make the road wide and straight, with 10-foot shoulders. And you're going to like it."

The ice, though, may be starting to thaw. Under Gov. Mitt Romney and Commonwealth Development Chief Doug Foy, for example, Massachusetts has developed a "fix it first" and "context sensitive design" approach to highways. The state highway department's written a new design guidebook pledging to listen to communities and make roadways compatible with such community surroundings as classic New England downtowns, stone walls and historic districts. Vermont has had similar standards in effect since 1997.

The most remarkable change may be in New Hampshire, previously a roads-roads-roads constituency. Recalling her growing up years in the charming up-country town of Littleton, Murray recites how she could walk to school or to Main Street. She worries New Hampshire has been losing its quality of life through thoughtless transportation decisions. "Each community," she asserts, "should be able to shape its own future." The town of Meredith on Lake Winnepesaukee was a case in point. Faced by congestion of two major roads converging and immense summertime traffic, the highway engineers were adamant for wider roadways and fast 24-hour

"throughput." Townspeople saw their quaint town and its peaceful lake views imperiled. To break the impasse, Murray promised a fresh start. She reached out to independent consultants including Fred Kent of the Project for Public Spaces, to talk with townspeople about alternatives. For the town's major intersection with its traffic lights, the idea of a space-saving



Photo Courtesy of NH Dept. of Transportation

Carol Murray, New Hampshire's reform minded Transportation Commissioner, engages local citizens in transportation decisions.

roundabout emerged. The new concept: it's impossible to design for fast Fourth of July-volume traffic, so at least offer motorists a pleasant view, not just more asphalt. Similar discussions produced "softer" highway plans for Keene and Littleton. But they were rejected by citizens of Berlin, a hard-hit old lumber town that values its main highway strip boxes as a sign of economic strength; the townspeople nixed a remake into a tree-lined boulevard.

No matter what outcomes, Murray and her allies want to move from pro-forms highway briefings

to earnest discussions, highlighting alternatives and engaging local citizens.

And now they're trying even more. Murray took writing of the state transportation plan for the next 25 years -- combined road, rail, bus, freight, aviation and more -- out of the hands of transportation officials who'd normally handle it.

Instead, she entrusted the task to a Citizens Advisory Committee, co-chaired by Lew Feldstein, president of the New Hampshire Charitable Foundation, and Executive Councilor Raymond Burton. The committee was a kaleidoscope of New Hampshire opinion, from the truckers to the Society for the Protection of New Hampshire Forests, municipal officials to business leaders, legislators to children's and housing advocates.

Last month (January), the group produced its draft report -- an eye-opening document claimed to be "the first and only effort nationwide to 'put the customer in the driver's seat' of transportation planning." The central message: barring some fiscal miracle, New Hampshire will fall hundreds of millions of dollars short yearly in the money it prospectively needs -- from gas taxes or federal funds -- to maintain its existing roads, and rehab its already-aging interstates, and add all the new highways its current sprawling form of development demands. "Just building more roads isn't the answer," the committee concluded.

So what to do? The group's objective: join transportation with land use planning in an effort to reduce travel distances, tamp down new highway demand, and start considering needs of the state's non-drivers -- increasing numbers of elderly, children, the handicapped, bikers and pedestrians.

A raft of ways to get there, focused on more compact development, are suggested. Among them: stop segregating land uses (residences

here, shopping there, offices somewhere else); instead promote mixed use including zoning overlays to promote traditional town centers. Site schools in towns, so more children can walk or bike there (combating, simultaneously, rising rates of obesity.) Develop corridor plans, multiple towns participating, with an enhanced role for regional planning commissions that also engage citizens. Gear in programs for energy efficiency and economic development. And

demystify transportation language and information so ordinary citizens can grasp it.

The report's less innovative on finances. Though it does suggest developers pay more of access road costs. And to get rail rolling in a state that's resisted financing it, the committee endorses tax-increment financing, a device Nashua is now considering to pay for proposed train service to Lowell and Boston.

Is it certain such new, unconventional approaches will work? They do go against the grain of decades of practice. But the idea of citizen-oriented transportation planning is a fresh and reassuring breeze -- and all the more fitting in the region of America that invented the town meeting.

Broadband Internet: New England's Future Up in the Air

By Neal Peirce and Curtis Johnson

With the dawn of the 21st century, high-speed broadband Internet service is becoming just as vital -- for learning and productivity, for efficient business and responsive government -- as telephones proved themselves in the 20th.

But it can't happen without affordable, instant connection -- wired or wireless. And New England's doing only a middling job of preparation.

There are some bright spots. The New England region actually edged out the Far West and Mid-Atlantic, and ran well ahead of most U.S. regions, in a 2004 nationwide study of how many homes already have broadband. Still, at 28 percent, the region has a long ways to go to universal coverage.

In 2005, a pioneering Rhode Island Wireless Innovation Network was launched by the non-profit Business Innovation Factory -- a group of public and private sector partners bent on exploring better ways to deliver value in health care, public safety and education. The goal: to position Rhode Island as a nation-leading test bed for innovations. Rhode Island-WINS will, in fact, be America's first statewide, "border-to-border" high-speed wireless network. IBM has been contracted to be project manager.

Rhode Island-WINS isn't targeting the retail consumer market for broadband; instead it's targeting an "enterprise market" -- allowing corporations' workers in the field, government inspectors, or public safety personnel, to communicate with their "headquarters" while on the go. But once the network's up and running, with the signal from WiFi (wireless fidelity) and WiMax (longer-range transmitters) blanketing Rhode Island's 2,000 square miles, it should be an easy step to contract with retail providers to add connectivity for homes and small businesses.

New Englanders need a lot more such experiments, soon. It's true the region's business sector has been aggressive in new technologies. But on the public side -- governors, state legislatures, towns and cities pushing the new frontiers of broadband access -- it's lagging, reports John Palfrey, director of the Berkman Center for Internet and Society at the Harvard Law School.

Why? One reason is lack of gumption among mayors and other leaders. It's now been two

years since Philadelphia led the nation by moving to make all its 134 square miles the world's largest wireless hotspot, with WiFi available to all its citizens and businesses who have the ubiquitous and inexpensive WiFi receiver chip in their computers. There's now active debate about a similar effort across all of New York City's five boroughs, potentially the world's biggest deployment of municipal WiFi -- reaching, as new technology permits, not just computers but new model PDAs, smartphones and cell phones.

Verizon and cable firms, the "duopoly" that's fearful of free or low-cost Internet access undercutting their fees. The telco and cable operators' concerns are understandable -- their broadband fees are in the \$40-60-a-month range, compared to \$20 or less monthly for most municipally-chartered broadband access. Looking down the road, it's likely that Internet, television signal and phone service will all, in time, be available by a single broadband connection.

There can be little doubt: New England needs a spirited debate about universal, border-to-border broadband access -- not whether, but how.

Why is it so vital -- beyond keeping up with other cities and world regions?

First, there's knowledge and access. Internet access -- especially broadband -- transforms the speed and efficiency of accessing the fount of the world's news and knowledge, both for work and entertainment. From banking to buying, messaging to accessing government services to art and film and music, it's a massive step forward and now a critical tool for people and businesses that want to become and stay competitive. By contrast, old-style telephone-line access is clunky, for some functions totally obsolete.

Second, broadband is a potential lifeline for rural communities. It may, in the words of president Donald Wharton of New Hampshire's Plymouth State University, "really save northern New England from a poor future." By dissolving space, it permits New England's growing band of small enterprises to flourish -- the "hidden tech" economy of writers, web-designers, e-commerce retailers, marketing specialists and others identified by western Massachusetts writer Amy Zuckerman. Broadband enables high-end cheese producers in Vermont to sell their product to European customers at \$17 a pound. With it, a translator who lives in the Berkshires can do real-time translation for distant clients. A Maine candle maker can market across the world. Or an enterprise like Al's Snowmobile, begun in an old barn and now expanded to 30 workers in a new building in isolated Derby Line, Vt., sell snowmobile parts to customers hundreds and thousands of miles distant.

Broadband also permits, notes Wharton, regional state-of-the-art medicine -- like a North



Saul Kaplan, Founder and Chief Catalyst of the Business Innovation Factory, which launched Rhode Island-WINS

But even as such cities as San Francisco, Chicago, Los Angeles, Nashville and Corpus Christi move ahead on imaginative broadband for the masses, New England coverage so far is spotty (wireless in Nantucket and Malden, for example, and a Burlington fiber optic project offering broadband for as little as \$10 a month.) Not a single New England city makes the list of top cities in utilizing information technology to deliver service to citizens, rated by the nationwide Center for Digital Government. Plus, if New England is to maintain its technological superiority and justify its high-cost economy, even an "OK" performance by U.S. standards won't do because the competition is global and the U.S. has sunk to 16th among world nations in broadband access per capita.

A second reason for New England's slow progress, say others: the strong regional influence of telecommunications firms like

Country physician transmitting an x-ray instantly to the Dartmouth-Hitchcock Clinic. And it makes region-wide higher education work -- for example Plymouth State's real-time classroom connections, permitting introduction of high-quality distance learning into previously isolated branches in Littleton, Berlin and Laconia.

Big city uses of broadband are just as compelling. In Philadelphia Mayor John Street saw WiFi-delivered broadband as a way to overcome low incomes and opportunities in troubled neighborhoods by helping parents be more involved in their children's schooling, and by making economical service available to struggling smaller businesses. Precisely the same reasoning could apply in New England's troubled inner cities.

A third broad justification for broadband, says Harvard's Palfrey: to attract and retain today's "digital natives" -- young people who grew up in a wired environment and now "fully expect to get all the material they're seeking, serious or amusing, through these pipes."

But there's a fourth and often overlooked plus to high-speed Internet, notes Craig Settles, author of a new book that tells the Philadelphia story: "Fighting the Good Fight for Municipal Wireless." It's the immense value that broadband can deliver to government -- state or local. The significant up-front costs to building a city-wide network -- in Philadelphia's case some \$10 million to \$20 million -- can quite quickly be amortized by increased efficiency of the city workforce.

Philadelphia has over 2,000 employees working the streets -- parking meter readers, building inspectors, social workers, fire and police officers. Using WiFi devices, paperwork time drops quickly, productivity rises sharply. Houston, Settles reports, is instituting a WiFi connected parking system and expects its smart meters to cover the entire citywide system build out in eight months.

The business model for government operations is compelling, says Settles: If government saves enough money on its day-to-day operations, it can justify deploying a WiFi network, at minimal extra cost, for its citizens. Philadelphia has planned enough transmitters to allow people outdoors to surf the Net almost anywhere in the city free; indoors they'll pay \$10 per month for low-income households, up to \$20 for others. As a big surprise last fall, the city was able to secure a solid corporate partner, Earthlink, to build and operate its net. It even persuaded Earthlink to finance the initial construction in return for anticipated revenues.

For cash-starved New England town and city governments, could one imagine a more desirable model? And, one wonders, shouldn't the state governments be doing all they can to spread the idea? In the words of Jim Putnam,

CEO of Markem Industries in Keene, N.H.: "Universal broadband would be a brilliant thing for New England to embrace. Our region's national and global reputation could take a leap forward, with positive on-the-ground impacts for business and citizens alike."



Photo Courtesy of Wireless Philadelphia

Philadelphia Mayor John Street at June 2004 ceremony launching the city's first wireless neighborhood, Love Park at JFK Plaza.

But how to get there, when users have contrasting needs? Take the example of major businesses, governments, hospitals and universities, which demand high-level, very rapid, highly reliable fiber or equivalent connections for their operations. Western Massachusetts leaders, confounded by Verizon's high fees for fast rural service, came up with their own solution called "Berkshire Connect." Attorney Don Dubendorf of Williamstown made it succeed by agglomeration -- persuading Williams College, Crane Paper, virtually every major user to agree to join together as a buying group. With that marketplace power, the firm Global Crossing was attracted and built an entire new fiber network for western Massachusetts, effectively end-running Verizon and saving users immediate, substantial cash. Similar networks are now being discussed in several other New England subregions.

Most of society, though, doesn't need and can't afford the gilt-edged, absolutely foolproof service big institutions demand. The technical puzzle is "the last mile" challenge -- getting the broadband signals, now running along fiber and other high-speed lines, built out to individual homes and small businesses at affordable cost. A variety of technologies can be employed -- DSL, electrical line Internet transmission, or satellite service. But WiFi and WiMax are more economical, offer more universal outreach.

And now there's a new telecommunications technology called "mesh networking" -- a system that doesn't, like WiFi or WiMax, require central broadcast spots or relay hubs. Why? Each unit, be it in a home or office, train or motor vehicle, is both a receiver and a transmitter. The mesh

formula and basic software to operate it, were developed by the U.S. military so that its communications networks could survive and adapt even if some units were lost in combat. Skeptics question mesh's speed. But because so many units are operating, says Robin Chase, CEO of Meadow Networks, there's a reliability even superior to direct fiber communications -- "especially important for disaster preparedness." Each end user's device can be quite inexpensive, she adds, "so there's no large infrastructure investment and no 'central' authority requiring monthly user fees."

But how do communities make sense of competing technologies and approaches? Or decide up front what their real needs are, and whether they want broadband service run by local government or contracted out to an independent operator (like Philadelphia's choice of Earthlink)?

The ideal first step: a mayor or other top elected officials declaring broadband is a priority and mobilizing public support. Short of that, independent citizen advocacy committees for broadband sometimes form, define the needs, start gathering public support.

Smart communities will put together a business development plan based on hopes and aspirations of all interests -- businesses, government departments, hospitals, universities, neighborhoods and more. The masterstroke of Wireless Philadelphia, Settles reports, was 20 focus groups of key sectors, and then two town meetings to involve still more citizens and gather feedback.

Are New England communities well suited to make universal broadband a reality? The answer should be yes. Here's a region with a high number of colleges, scattered broadly, each obliged to invest fairly heavily in Internet connections -- for its internal operations, to gain status, and of course to attract today's "digital natives" to enroll in the first place. Couldn't these institutions, often the biggest local employers, reach out, building on their own broadband connections, to their communities and regions? It should be a natural connection, says telecommunications expert Thomas Bonnett -- a way for colleges and communities "to extend the investment, coverage, capacity, for mutual gain."

Many towns, though, aren't in any academic orbit. And many are so small they'll have no realistic chance to reap broadband's benefits without negotiating joint agreements for broadband operations with neighboring towns. Businesses, colleges, citizens agitating for connections, should all nudge them in that direction. The cyber-age promises dramatic gains -- but only with new collaborations, a truly networked New England.

About the Writers and the Project

Journalists Neal Peirce and Curtis Johnson have reported for newspapers on the unique strategic issues facing two dozen metropolitan regions nationwide. Peirce is a syndicated columnist (Washington Post Writers Group) who has also written two books on New England. Johnson is a public policy analyst and a former community college president and Minnesota government official. They co-authored the book *Citistates*.

These articles are the kickoff of a New England Futures Project aimed at identifying key 21st century challenges facing the six-state region. Citizen reaction and participation, leading to a shared regional agenda, are key to the project. Your input is welcome at www.newenglandfutures.org.

The sponsoring Partnership for New England includes the Vermont-based Institute for Sustainable Communities (which will coordinate follow-up public debates across the region), the New England Council, the New England Initiative at UMass Lowell, Mt. Auburn Associates, the New England Association of Regional Councils, and the Orton Family Foundation. Financial backing comes from community foundations in all six states, the Bank of America Foundation and others (full list at the web site).

