

Tim Murray

Lieutenant Governor 06

Campaign HQ
316 Shrewsbury St.
Worcester, Mass. 01609

508-791-0400
www.timmurray.org

PUTTING MASSACHUSETTS BACK ON TRACK

Enhancing rail service to promote economic development, affordable housing and environmental protection.



Timothy P. Murray
Mayor of Worcester
Democratic Candidate for Lieutenant Governor

April 2006

ACTION PLAN

RAIL AND OUR FUTURE

Massachusetts is at an economic crossroads. We need to grow our economy in ways that help foster high-wage job creation, affordable housing, environmental protection and Smart Growth principles that enhance the quality of life in our communities. In this effort, our rail system can play a vital role.

Unfortunately, today both our commuter and freight rail systems are suffering from a lack of investment, a lack of coordination and a lack of leadership at the state level. As a result, the commuter and freight rail systems are underutilized and not working as hard as they could to drive economic growth and community development. We need to change that.

A recent series of articles commissioned by the New England Futures Project, written by respected journalists Neal Peirce and Curtis Johnson, should be required reading for us all. The series begins with this telling observation: "No region of the world can expect to compete and flourish in the demanding 21st century without state-of-the-art connections... 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."

Peirce and Johnson raise and delineate many key points, and their focus on the need for enhanced commuter and freight rail service for Massachusetts and New England is right on point. Transit-orient, Smart Growth initiatives are real. Reliable commuter rail service is a potent economic engine that can drive community investment and the development of new housing opportunities.

On the freight side, higher costs for fuel and growing international trade have resulted in a boom in rail freight business nationwide. (See Forbes article attached). But Massachusetts lags behind the

nation with freight rail service, and the access to markets it can open up. We need far better coordination at the state level to help maximize the economic utility and value of the rail network, both for freight and passenger traffic.

Massachusetts needs a stronger and more action-oriented approach on rail issues. To that end, I am calling for new leadership, to take charge of the vital, yet under-used asset that is our rail network. I believe the governor should establish a new Office of Rail Commissioner (analogous to the highway commissioner) reporting directly to the Secretary of Transportation, to serve as the leader on restoring, enhancing and coordinating our commuter and freight rail system. The rail commissioner's office would be a single point of contact and resolution for all matters regarding rail, both passenger and freight, and be charged with the mandate to extend, enhance and maximize the economic effectiveness of commuter and freight rail operations in Massachusetts.

COMMISSIONER-IN-CHARGE

The new rail commissioner should immediately take action on several initiatives that make good economic and policy sense for the Commonwealth. An initial action-agenda for the commissioner's office should include:

- Aggressively move the process to extend commuter rail service to the New Bedford/Fall River region.
- Enhance the commuter rail service on the Fitchburg line.
- Expand the commuter rail service to Worcester and gain control of the dispatching rights along the line, while simultaneously working with officials in Framingham, Ashland and other communities along the line to complete the capital improvements required to facilitate increased rail service.
- Install wireless internet service on commuter rail trains to enhance the riding experience for all who use the system. (See attached NYT article)

- Develop a plan to purchase new rolling stock and improve maintenance of existing commuter rail cars to enhance the reliability and quality of service on all lines.
- Work with the U.S Postal Service and officials at Massport to facilitate and expedite the long-planned relocation of the South Postal Annex next to South Station, to reclaim the land that was once part of the rail yard in order to expand the number of track lines coming into the station.
- Explore a state take over of the Grand Junction rail corridor in Cambridge and Boston, to facilitate better use of this critical connection between the north and south/west rail systems; and to explore additional commuter stations along the line.
- Work with federal officials to upgrade Amtrak service on the inland route, from Boston through Worcester, Springfield, then into Hartford and on to New York City.
- Engage in partnerships with the state's Regional Transit Authorities to provide additional bus service to feed commuter rail stations.
- Work closely with the Transportation Management Associations (TMAs) across the state to aid and support their important mission of facilitating access and use of the commuter rail system.
- Establish a partnership with officials in Connecticut who, under the leadership of Gov. Jodi Rell, have made a major commitment to expanding commuter rail service to speed development of the Hartford to Springfield commuter rail project.
- Join with officials in New York and across New England to prioritize and complete infrastructure enhancements, including the reconstruction of the Hudson River rail bridge in Poughkeepsie.
- Work with state and federal officials to develop an aggressive transportation funding plan to pay for these needed rail investments. The funding plan must include significant participation from the federal government, as well as a state Commuter Rail Bond Bill, and the leveraging of other potential dedicated revenue resources relevant to transportation infrastructure.

A fundamental task for the Office of Rail Commissioner, working in concert with the governor and the secretary of transportation, will be to engage in serious, time-specific negotiations with the top leadership at CSX, the national freight rail giant which now owns several key rail links in Massachusetts, including the South Coast corridor, the Framingham to Worcester line and the Grand Junction.

These rail right-of-ways are crucial links in the commuter and freight rail systems. Because CSX owns those links, they limit the amount of commuter rail traffic that can run on the lines. And in the case of the Grand Junction, which is the only route available to move rail cars from north of Boston, to the south and western lines, the CSX limitations disrupt and delay through traffic from other carriers on a daily basis. This limitation is not in the public interest—it would be like UPS or FedEx owning part of the Massachusetts Turnpike and restricting the number of cars and trucks that can use the road, keeping most of the lanes open for their trucks only.

The state, acting through a new rail commissioner empowered as the state's top rail executive, should explore purchasing these key links from CSX to facilitate efficient use of the system, with localized timely dispatching, to help grow service for all users of the system. In a similar way, the state must engage in serious discussions with Guilford Transportation, which controls key elements of the rail system running north of Boston, to improve service and infrastructure maintenance to maximize the lines utility for commuter and freight service.

#

THE COST OF INACTION

Now that the majority of the Big Dig project is behind us, the state must focus more attention and resources on our public transportation system. Improved bus service, and extensions of rapid transit service are important for the metropolitan area. On the statewide level, however, our freight and commuter rail systems are a major transportation asset we have with the potential to spur economic development, promote affordable housing and help improve air quality by reducing vehicle emissions. If we continue on our present course, however, then the rail system, both freight and commuter, will continue to deteriorate and our Commonwealth will suffer because of it.

MIGRATION

An increasing number of people are moving away from the metropolitan Boston area, driven largely by the skyrocketing cost of housing within the Route 128 belt. A significant percentage of those moving away, however, still work in the metropolitan area and are commuting longer distances to and from work. A recent study by MassINC indicated the number of workers in Massachusetts who spend at least 90 minutes commuting per day increased from 11% to 18% between 1980 and 2000. Only five states have seen commute times increase at a faster rate than Massachusetts. Between 1992 and 2002, the number of cars registered in Massachusetts increased by 48%.

The MassINC study and other ongoing traffic studies confirm what is clear to anyone who drives the highway system during rush hour. Traffic on the major highways and the feeder roads has grown dramatically in the past 20 years. Commuters now face significant daily traffic jams on much of the area's highway system.

Extended commutes lead to a host of problems for individuals. The number one issue is impact on a person's quality of life. In 2000, the average Massachusetts commuter spent almost an hour each day on the road. The increase in commuting time leaves less personal time for individuals, less time with family, and less time for community involvement. Increased commute times also infringe on

productiveness in the work place. It can cause delays in moving product, higher compensation costs for employees' commutes, lost work time and higher shipping costs. (Mass. Commuting)

Today, nearly 70,000 people rely on the existing commuter rail system daily. Assuming an average of a 50-mile daily roundtrip commute, that reduces the state's vehicles miles traveled by an estimated 3,500,000 miles every day. Imagine the burden of 70,000 more vehicles on the road daily. Furthermore, pent-up demand for commuter rail service is high. Surveys have shown that many more people would use the commuter rail system if the service was more frequent and reliable. In fact, the MBTA's own data indicate that maintenance issues, parking availability at stations, and reliability problems with the system are deterring ridership.

Given the choice of car versus train for the daily commute, the contrast is striking— a stress-filled, traffic clogged drive of nearly two hours, or a more predictable train ride, often less than an hour, during which one can read the newspaper, listen to music, work on a notebook computer or handle email over one's wireless device.

The state needs to act now, and more aggressively, to expand and enhance commuter rail service to ease the growing congestion on the roads and to help link the state's major employment centers to communities where housing and the cost of living are more reasonable.

THE HOUSING QUESTION

The shortage of affordable housing is a problem for the state of Massachusetts. Affordable housing is defined as "housing costing 30% or less of monthly gross income". (Issue: Housing)

Massachusetts has a zoning law, Chapter 40B, which calls for at least 10% of housing in a community to be affordable. Despite this law, many municipalities do not currently meet its requirements, and housing prices are continuing to rise.

According to a recent report from Northeastern University's Center for Urban and Research Policy, the cost of living in Greater Boston is now the highest cost of any metro area in the United States. "A family of four needs \$64,656 to pay for the costs of housing, transportation, day care, health care, and other basic necessities. This is more than \$3,000 higher than in Washington, D.C; \$6,000 higher than in New York City; and \$7,000 more than in San Francisco," according to the report.

High rents and housing prices have led to an outward migration of Boston area residents. Among those leaving in large numbers are young adults, 20- to 34-years old. In a report by the Greater Boston Chamber of Commerce and the Boston Foundation, it was found that among the college graduates of 2003, from ten institutions in the metropolitan area, 50% left Massachusetts. Out of those who left, 80% said they might have stayed if "the Boston area offered more job opportunities, rents and home prices that are more affordable, and a more diverse and vibrant atmosphere...". (Fearing Brain Drain). Even though wages in the area are well above the national average, most young people cannot afford mortgages and rents in the Boston area. This leads to an out-migration of valuable, experienced and educated workers.

Over the last 12 years, Massachusetts has lost more people than it has gained. It was the only state in the country to lose population over the past two years. In general, these migrants are "young, well-educated managers and professionals who work in the knowledge community." (Mass.migration) The studies examined two main types of migrants: the New England migrant and the Economic Competitor migrant. The New England migrant is one who leaves Massachusetts for another New England state, and they tend to be middle-class families. The Economic Competitor migrants are those who relocate to one of the seven economic competitor states: California, Colorado, Connecticut, Minnesota, New Jersey, New York, and North Carolina. These people tend to be high-tech, well-educated professionals.

It has been documented that 80% of the people who move to another New England state do not continue to work in Massachusetts. The loss of New England migrants has been especially troublesome for the Commonwealth. Geographically, it

would be fairly easy for these workers to live in a neighboring state and work in Massachusetts. Instead, they choose to live and work in the new state. Massachusetts loses not only its tax base, but its knowledgeable, skilled workers as well; thus hindering its economy and chances for economic development.

A clear example of this is outlined in a November 28, 2004 article in the Boston Globe, titled R.I. Capitalizes on Hub Prosperity. The article studied growth of Rhode Island communities such as Pawtucket that are becoming a haven to people escaping Boston's expensive housing market. Massachusetts's taxpayers are choosing to relocate to Rhode Island because of its proximity to Greater Boston and lower cost of living.

A better commuter rail system, making it easier for people to access the more affordable housing available in Central, Southern and Western Massachusetts, is a key part of the solution to this troubling trend of exodus.

ENVIRONMENT

In 2001, private and commercial vehicles in the state of Massachusetts used 3.139 billion gallons of motor-fuel for highway and non-highway transportation. The use of vehicles, especially those occupied by just one person, is a large contributor of air pollution. Vehicle emissions not only harm the environment by polluting the air, they also have a negative impact on public health.

There are several air pollutants that cause serious health problems. Particulate matter, composed of solid soot particles and liquid in the air, causes respiratory and cardiovascular problems. Carbon monoxide, released by vehicle exhaust, adversely affects the heart and central nervous system. Exposure can cause headaches and dizziness. Especially harmful are volatile organic compounds and nitrogen oxides, which combine to form ozone or smog. This toxin can make breathing difficult and lead to coughing and wheezing. It especially hurts people with asthma.

Studies reveal that there is a link between asthma and air quality. Asthma is a respiratory disease that “causes constricted airways and can be fatal in severe cases” and it has been found to be “exacerbated or triggered by air pollution”. (City Routes, City Rights, p.14) There is a correlation between the rise in vehicle usage and asthma rates. Between 1982 and 1994, the national asthma rate rose 61%, from 34.8 to 56.1 cases per 1,000 people. While air pollution does not cause asthma, it certainly worsens the condition for those who have it.

The U.S. Environmental Protection Agency and the New England Asthma Regional Council have found New England to have the highest asthma rates in the United States. Enhanced commuter and freight rail service would further limit the emissions of pollutants from vehicle traffic, help improve our air quality and hopefully impact the rising asthma rates

ECONOMIC IMPACT

Transit-oriented development is essential to the region. As a recent report titled *Keeping Massachusetts Competitive* noted, “the transportation system doesn’t just move people and goods – it moves the region’s economy.” Therefore, it is imperative for Massachusetts to develop and maintain an advanced intermodal transportation system, with robust levels of commuter and freight rail service, linking Boston, Worcester, Springfield and the major urban and suburban areas of the state.

Frequent and reliable commuter rail service is fundamental for the kinds of Smart Growth initiatives we need to promote in

Massachusetts. The City Square project in Worcester, recent investments in downtown Haverhill and Brockton, the major development proposed near the Rte 128 rail station, are just some of the examples of how commuter rail service can leverage quality economic development. Those examples can be replicated in many other locations of our state, if we have the commuter rail infrastructure to warrant the investments.

As we look to the important growth sectors for the state's economy in the coming decades, industries such as biotechnology, life sciences, medical devices, alternative energy and digital technologies all need an established and thriving pool of knowledgeable, skilled workers within a reasonable distance of their facilities. Ironically, it is precisely those workers that are leaving Massachusetts, because they are most able to relocate to where job opportunities and costs of living are more favorable.

A recent survey titled *Importance of Commuter Rail on Where to Work* revealed that the availability of the commuter rail is "very important" in people's decision of where to live in relation to where they work. It has been well documented that long commute times and transportation inconveniences decrease the quality of life and result in employees leaving the area. Too often, those most able to relocate seeking a better quality of life are precisely the kind of skilled workers that we need to retain in Massachusetts. Enhanced commuter rail access can help stem that tide.

Improvements in the freight rail system, which would increase the availability of cost-effective shipping to international markets, would also help foster the growth of Massachusetts companies which must increasingly compete in the global economy.

CONCLUSION

It has been said that, "the Commonwealth's economy, environment, and quality of life are inextricably linked with the quality of its transportation."(Smart Growth News) In order to improve the economy, expand the availability of affordable housing, and protect the environment, it is necessary for commuter and freight rail service to be extended and improved in Massachusetts. Doing so will take more than rhetoric—we need new leadership at the highest levels of state government to focus on the rail issues, and get the job done.

#

ATTACHMENTS



This Is How To Run A Railroad

Jonathan Fahey, 02.13.06

The boom in global trade has made the rail business hot again. Norfolk Southern is leading the way by adding technology, marketing and customer service to a sooty old business.

Norfolk Southern's 5-mile long switching yard in Elkhart, Ind. looks more 1906 than 2006. Heaps of rusting steel parts, disfigured barrels and stacks of railroad ties litter the dreary expanse. Tufts of brown grass struggle through coarse gravel. The trains are shipping flat-panel televisions and other things that did not even exist a decade ago. So where is the railroad's new technology?

Look above the drab boxcars sparsely covered with chipped paint and the 120 train tracks into a glass-walled control tower at the center of the yard. There sit five operations workers behind twinkling computer screens. It is here that Norfolk Southern has finally learned how to run a railroad. All railroad companies are booming these days, thanks to the rise in oil prices, which has made rail-shipped coal more attractive, and to the flattening of the world's economy, which has sent steel, grain and televisions coursing around the globe. U.S. railroads did 1.7 trillion ton-miles of traffic last year, up 2.4% from 2004. Norfolk Southern is shipping these goods more efficiently than competitors like CSX and Union Pacific because it decided to haul a 19th-century business into the 21st.

Norfolk's logistics--involving the use of algorithms that search for the shortest routes, fastest tracks and fewest handlings--essentially got the trains to run on time. Remarkably, that hoary concept had been ignored by the industry until Norfolk made it a priority. Just a few Norfolk advances: Carload volume is up 14% since 2000, but the number of cars needed to move that volume has dropped 11%. Average speed is up 7% to 22 miles per hour. Average time in the yard, called dwell time, is down 7% to 23 hours.

Indeed, Norfolk's system is so far ahead of other railroads' that it sells its software to rivals. The ultimate competition, after all, is trucks. All of this has made Norfolk's recent performance recall the Jay Gould era: Its revenues grew 17% during the most recent four quarters (through September 2005) to \$8.2 billion. Profits have grown 66%, from \$700 million to \$1.2 billion. Norfolk Southern's discipline gives it the best net margins of the U.S. railroads. Its 14% bests Burlington Northern's 12%, CSX's 11% and Union Pacific's 6%. The company's share price is up 85% since the beginning of 2004.

Norfolk's new chief executive officer embodies his company's transformation. Since its maiden run (a 6-mile route near Charleston, S.C.) on Christmas Day 1830, the company has been overseen by bankers, operation chiefs and even tax lawyers. On Nov. 1, 2005 Charles (Wick) Moorman took over. He was formerly head of information technology.

"We were once the Internet of our day, and now we are again as relevant as we have ever been," says Moorman, 53. Haven't we heard this before? Sure, but Moorman and many on Wall Street argue that this isn't just a cyclical upswing. As manufacturing has moved abroad, more finished goods need to crisscross the country from ports. Sourcing of parts and materials is also ever more global. These trends are unlikely to retreat.

Norfolk, like the rest of the railroad industry, spent a half-century in a siege mentality, slouching along by shrinking and slashing costs, tangled in rat's-nest mergers and wrestling with its featherbedding unions. In 1955 a million people worked for the big U.S. railroads; now just 160,000 do (29,000 at Norfolk). Yet while productivity boomed--ton-miles moved per employee have increased to 11 million from just 600,000 in 1955--the industry was unable to raise prices from 1980 to 2004. It suffered from overcapacity and bad service, and the newly deregulated trucking industry was siphoning customers. It was rare when a large railroad earned even its cost of capital.

In 2000 Norfolk's David Goode, then chief executive (now chairman), had had enough. "We were losing business, and we were losing pricing power, too," Goode says. "The only way to change the game was to concentrate very hard on improving our service--that's the basic product we have--so we could sell it better."

While competitors pulled in reins, Norfolk Southern continued to spend on engineers and conductors, despite Wall Street's frowns. Most importantly, Goode assembled a group of employees under Moorman to overhaul how the company ran its network. The goal: To get the trains to run on a tight schedule and thereby move more trains through the system faster and more reliably.

To the train industry this concept was revolutionary. "I came from the 'We're the railroad, we'll get to your load when we're ready' days," says Brig A. Burgess, a second-generation rail man who started with the company 30 years ago building bridges and is now in charge of Norfolk Southern's busiest region, which encompasses most of the upper Midwest. "This was a huge change."

Like most railroads, Norfolk Southern used to run on an ad hoc basis--a train would

leave the yard when it was ready. There were schedules, sure, but they were written in pencil. If a yardmaster was faced with a so-called light train, one with just 60 cars, he might let it sit in the yard for another day until another 60 cars bound for the same location came in. The yardmaster assumed he was saving the company money by not using a crew and fuel to run a light train.

But the long train brought costs of its own. Ten trains would arrive in the span of two hours, then there would be none for eight hours. Locomotives and crews got bunched up in yards when they were needed elsewhere, so the company had to pay for extra crews to move the locomotives around. The longer other railroads' cars were sitting on Norfolk Southern's tracks, the higher the fees charged to those companies. And, of course, the delay might rankle customers whose stuff was sitting on the tracks for an extra day.

Moorman wanted a technology answer, so he bought software from a small firm called MultiModal Applied Systems. Norfolk Southern was looking to determine how it could best deliver its cars—by avoiding unnecessary stops, finding the best meeting points for the cars and making the fewest trips to switching yards. Two months of waybills, or 2.5 million shipping orders, were inputted into the software.

The finding: waste and inefficiency. For instance, sections of different trains headed from Birmingham, Ala. to Allentown, Pa. would follow each other, getting joined at stops along the way, such as Linwood, N.C. and Lynchburg, Va. The system didn't know that the complete train to Allentown could have been put together in Birmingham.

"We could get the train going in the right direction, but we didn't know where it was ultimately going to end up," explains Bryan Harres, who runs the Atlanta operation center. "All we were seeing was where the car was wanting to go next. We didn't know if we had 5 cars or 50 cars going to that same final destination." Starting in 2002, the new software could accomplish that task.

The software also worked to reroute trains around trouble spots that could delay delivery. Planners assigned "impedance" values to points in the network. A big switching yard like Elkhart would have a low value, because it could handle a lot of traffic quickly, while a small yard would have a high value. Double-track rail would have a low value, and single-track sections a high value. The software would then add up the impedances just like an electrical engineer adding up impedances in an amplifier circuit.

Last year Norfolk Southern went through the entire exercise again, this time developing software internally that can now continually adjust to changing or

temporary conditions and suggest new trains, routes and times. In July, for example, while the Elkhart yard was rebuilding 26 miles of track, the system diverted 500 cars a day to other yards. Customers didn't notice. When Hurricane Katrina hit, the system rerouted trains scheduled to be switched in New Orleans, and later shuffled new trains into the schedule to haul thousands of mobile homes from Elkhart to Louisiana.

The system also allows the company to price its service better. Now sales representatives can see if a new customer's cars can easily hitch onto a direct train or whether they will need to take a more circuitous, and costly, route.

The company says the two operating overhauls cost \$5.8 million and resulted in annual savings of \$100 million.

Once the train is rolling through the system, it is governed by another array of computer programs. A car in a yard that is in danger of missing its train will show up yellow on the system in front of those folks in the Elkhart control tower, so they will know to move it quickly to its train. New tools are also being given to the dispatcher. Now dispatchers can view only the traffic in their region. Under the new system, software will analyze the entire Norfolk network every hour and, to keep traffic flowing efficiently, suggest changes in speed, routing and train meeting places.

Burgess has been able to tap into the company's systems to discover countless minor, easily fixable problems. He found that a furniture maker near Elkhart would let cars full of wood sit on tracks every year at the same time, clogging the rail sidings. It turns out the furniture maker would buy a whole year's supply of wood when the price was good but didn't have the space or the manpower to unload the big shipments. Norfolk Southern simply provided storage for the customer's cars off the network. "What we found is that customers need help fixing their own problems," says Burgess.

Timeliness has also allowed Norfolk Southern to get more business from its traditional rival, trucking companies. As measured by ton-miles, trucks controlled 32% of the nation's freight in 2002, the most recent year statistics are available, while trains delivered 28%. By value, though, trucks hauled 64% of the market, to trains' 4%.

But the trucking industry has been beset with a chronic shortage of drivers, rising fuel costs, clogged highways and new federal rules that reduce the number of hours truckers can drive. So, slowly, trains are starting to take business from trucks. Even trucking companies themselves, like Schneider National and JB Hunt,

are turning more to rail. They drop containers onto flatbed rail cars, then pick them back up on the far side.

This truck-to-train traffic is up 18% since 2002. On a train one crew of two men can haul hundreds of 40-foot containers. A train can carry a ton of goods 202 miles on a gallon of fuel, while a truck can take it only 59 miles. Also, railroads don't pay as much fuel tax as trucking companies. Fair enough, since the taxes pay for asphalt.

Paul Bergant, who runs JB Hunt's intermodal business, said his company began using Norfolk Southern in 1998 and now puts 250,000 loads a year on its tracks. "That's faith," he says. "As they have improved their reliability and service, it has allowed us to move more and more with them."

James Ginochio, Toyota's U.S. rail logistics manager, says any haul shorter than 500 miles will almost certainly go by truck, and anything longer than 1,000 miles by rail. Distances in between are up for grabs. "On a short-distance move, the more they can tighten their consistency and performance, the more business they can get," he says.

Norfolk's growth presents Moorman with his next problem. Technology notwithstanding, at some point Norfolk Southern, and the country's other railroads, will have to build.

Moorman's answer: Go east. He wants Norfolk Southern to be the primary rail carrier for imported goods from East Coast ports. The West Coast ports are clogged, so Moorman thinks more container ships carrying Asian goods bound for the Midwest and East will dock east of the Mississippi. The port of Norfolk is undergoing

an \$880 million expansion that it hopes will attract the ships. Norfolk Southern is spending up to \$100 million to upgrade its main route from Norfolk to Columbus, Ohio, where it is building a yard at the old Rickenbacker Air Force Base to offload the double-stacked containers. (The federal highway bill includes an additional \$90 million for this project.) "We are going to have the shortest high-capacity route from

Fewer Firemen, More Tons ...

The number of railroad workers has been declining for a century even though more and more goods are being shipped by rail.



¹Class 1 railroads. Source: Association of American Railroads.

Better Performance

Most railroad stocks have seen big gains since an explosion in traffic that started at the end of 2003. Norfolk Southern had prepared itself for the boom.

Norfolk Southern had prepared itself for the boom.



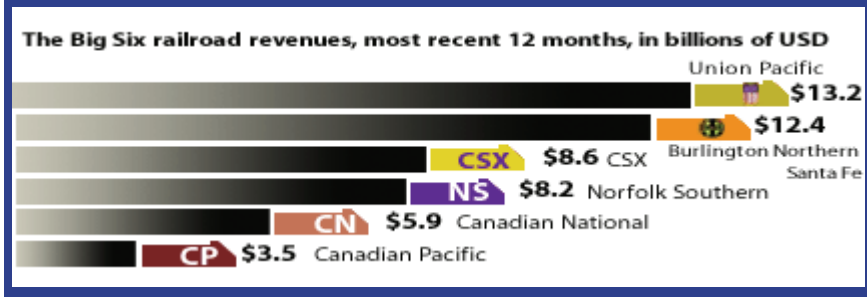
Source: FT Interactive Data via FactSet Research Systems.

the port of Norfolk into the Midwest, and we think that that will pay big dividends for us," he says.

Norfolk Southern's slick systems and tight schedules don't make it immune to a slowing economy, a dip in coal demand or pullbacks in Asian trade. But provided it manages all the newfound traffic smoothly, investors may see gains from a railroad company the likes of which haven't been seen in decades. "There were a couple of times during my 40-year career where people wouldn't have given very good odds on the private rail system even surviving," Chairman Goode says. "But now the business is established in a growth pattern, and it's got legs."

Railway Rulers

The West Coast haulers, Union Pacific and Burlington Northern, are the biggest. Next, the two East Coast players, then the Canadians.



#

The New York Times

July 8, 2004

Destination Wi-Fi, by Rail, Bus or Boat

By GLENN FLEISHMAN

THE Klickitat, a 1927 steel ferry boat plying waters between a 19th-century port and an island harbor, may seem a quaint way to travel - and an unlikely place to get work done. But it may be headed for a new frontier in Internet access for commuters.

The ship is the test bed for a plan to offer high-speed wireless Internet access on most Washington State ferry runs, serving tens of thousands of regular commuters.

Through a federal grant, the ferry system will roll out an expanded test of the Internet service this summer and fall on seven ships serving the three busiest runs, covering 50 percent of the system's ridership, or about 12 million passenger trips a year. When the first of those routes joins the trial, the effort will become the largest commuter Internet experiment ever.

As such experiments gather momentum, ready access to e-mail and the Web may become increasingly common on the way to and from the office.

In the United States, nearly six million people commute daily by public transportation, according to the Department of Transportation. Few operators offer wireless Internet access in their stations and terminals - much less on board - even though it is now routinely found in many airports, hotels and coffee shops. But trials and planning are under way in several countries to determine the technical feasibility of offering mobile Internet access, and whether commuters will ultimately pay for the privilege.

Providing Internet access on vessels and vehicles is not as simple as adding it to a fixed venue, like a restaurant or even a convention center. Boats, buses and trains have metal skins or hulls that block wireless signals. They move, often at average speeds of 20 to 100 miles per hour, requiring a system that can rapidly and seamlessly hand off a signal. And they could have large numbers of simultaneous users, many of whom are already working on laptops during the voyage.

Jim Long, director of information technology for the Washington State ferry system, said that boats on the Bainbridge Island-to-Seattle run carry 2,600 passengers during each rush-hour trip. Based on his observation of commuter work habits, he said, "you could have upwards of 300 to 400 at any one time trying to access the Internet - those are concurrent users."

Airlines, too, are looking at making Wi-Fi connections available to passengers, and face some of the same challenges. Two competing services, Connexion by Boeing and Tenzing, provide Internet access (at \$10 to \$30 per flight) by connecting to satellites relaying service from the ground. But the commuter projects offer the potential to become part of a daily routine, and perhaps an incentive for some people to abandon commuting by car.

The companies working on commuter service have taken various approaches: relying on a combination of cellular towers and satellite data links, erecting dedicated antennas in a line of sight or at points along the route, or limiting service just to terminals or stations on either end of a run.

The Washington State ferry test is one of several in the United States and abroad. Internet access on rail was inaugurated early last year on a route between Sweden and Denmark, and regular service is beginning on certain train lines in Britain, including the Great North Eastern Railway linking London with much of England and Scotland (free for first-class passengers, about \$9 an hour for others). There are also plans to test an Internet service for municipal bus riders in Paris.

A Canadian company, PointShot Wireless, is providing Internet service for trials on two rail lines in Northern California and another in Canada. So far, the PointShot tests, like the Washington State ferry project, are free - beyond the user's investment of \$50 or so to equip a laptop with a Wi-Fi radio.

PointShot typically uses a combination of cellular towers along the routes and satellite transmissions to maintain coverage, not always easily. "As you move along a route, there's a different level of coverage just depending on terrain and tunnels and mountains and trees," said Wendy Kennedy, vice president for marketing at PointShot.

Each train's main receiver automatically switches to the best signal in terms of speed, cost to the operator and current use on board. But to the passenger, "all they see is that they have constant connectivity along the route," Ms. Kennedy said. Speeds vary constantly but are typically a few times faster than a dial-up modem, and are far higher in receiving data than in transmitting it - whether summoning a Web page or sending an e-mail message.

The signal can be relayed from the main receiver (ordinarily atop a passenger car) to relay points, or bridges, atop other cars in which service is provided. Each bridge corresponds to an access point within the car, which distributes the signal to users.

Service can be interrupted by tunnels, or in areas that lack both cellular coverage and a line of sight to a satellite. Ms. Kennedy said that the company can install servers that store Web pages and hold e-mail for transmission when the Internet connection returns, making the user unaware of the service gap.

The challenges are even greater when the route in question is water, as with the Washington State ferries, which operate half the country's ferry journeys.

The Klickitat, connecting Port Townsend on the Olympic Peninsula with Keystone, a small harbor on Whidbey Island, is hardly teeming with commuters. Indeed, not a single passenger could be seen using the service during a reporter's crossing. But the vessel offered a test bed on which many antennas, frequencies and ideas could be tried out.

The ferry system worked with Mobilisa, a 22-member research firm based across the street from the ferry dock in Port Townsend, 40 miles northwest of Seattle, to obtain a \$1 million grant from the Federal Transit Administration with the help of Senator Patty Murray, Democrat of Washington. The grant has financed the Klickitat trial and the coming deployment on other ferries, where the service will remain free during testing.

Mobilisa has developed wireless techniques for maintaining a constant connection aboard the Klickitat as it moves in and out of range of land-based antennas.

Because Keystone is a rural area of the island, there is no Internet service on that side of the route, and it is not in a direct line of sight with Port Townsend, eight miles away. To overcome this problem, Mobilisa has two antennas near the ferry dock in Port Townsend - one in direct contact with the ferry, another to relay a signal through an intermediate antenna to an antenna on Keystone's dock. Although the ferries have regular routes, the antennas on both ship and shore have to be placed to allow for deviations due to tides, ship rotation, weather and boat traffic.

The Wi-Fi signal is broadcast from a receiver on board to public areas at all times, including during the 30-minute crossing. Transmitters on the docks serve the car and passenger waiting areas.

On the reporter's crossing, instant messaging, e-mail, and Web browsing worked uninterrupted at speeds comparable to those of broadband home Internet connections while the ferry was in transit and while docked. Even an Internet voice

call worked briefly, surprising Dr. Nelson Ludlow, Mobilisa's founder, who said the system was not designed to handle voice traffic optimally.

Whatever the technical hurdles, one thing is clear: many commuters would have plenty of time to use it. On the Washington ferries, walk-on commuters on the busiest routes spend at least 30 minutes on board twice a day, in addition to time waiting to board. Drivers may spend two to three hours a day near or on the ferries if they travel during rush hours. Therein lies the calculation that when it comes to Wi-Fi, if you build it, they will come.

One route in PointShot's trials is the Altamont Commuter Express in California, an 84-mile line between San Jose, the hub of the Silicon Valley, and Stockton, in the Central Valley. The line reports about 1,500 daily passengers, roughly 35 percent of them carrying laptops, and Ms. Kennedy said that most spend two and a half to five hours a day on the train. Wi-Fi service is now available in one car on each of the three daily runs and is typically used by 15 to 20 passengers on each trip, she said.

One question in all the trials is what will it will cost to put such connections in place more widely, and how that will translate into pricing for the Internet user. Many of the trials and initial deployments are being underwritten by grants or sponsors, requiring little or no financial risk or even outlay by the transit operators. Although the next steps are not fully clear, the agencies generally plan to leave decisions on what to charge to companies that will bid on contracts to operate the services.

Meanwhile, the Wi-Fi offering on the Altamont route has found a ready customer in Terry Dickman, who commutes over three hours a day from Manteca, south of Stockton, to his job at Intel in Santa Clara.

Because he knows he will have a constant but relatively slow connection, he prepares beforehand. In an online interview conducted during his afternoon commute (his name and e-mail address were provided by PointShot) Mr. Dickman wrote that he avoided sites laden with graphics that are slow to load, concentrating on work involving relatively small text files and e-mail.

Mr. Dickman said that his life had "changed for the better" with the Internet at his commuting disposal. "I am more productive at work and have a better work/life balance," he wrote. That is significant, since he is away from his wife and four children for 12 hours each weekday between his commute and his job.

"My boss is very flexible and considers time spent on the train no different than time sitting at my desk on my PC," he wrote. "In fact, I was working a problem at work online when your e-mail popped up."

OTHER WORKS CONSULTED

- Ansel, Goodman, Nakosteen. "Mass.commuting." MassINC and University of Massachusetts Donahue Institute. October 2004.
<<http://www.massinc.org>.>
- Ansel, Goodman, Nakosteen. "Mass.migration." MassINC and University of Massachusetts Donahue Institute. December 2003.
- Associated Press. "MBTA to Clean Up Act After EPA Fine." Worcester Telegram & Gazette. 11 March 2004.
- Associated Press. "Your Commute Could Give You a Heart Attack!" ThirdAge Health Newsletter. October 2004.
<<http://www.thirdage.com/news/articles/ALT02/04/10/22/ALT02041022-03.html#B1>.>
- "Berkeley Investments, Inc. Announces Acquisition of Worcester Common Outlets: Redevelopment Plans will Revitalize Downtown Area." Press Release. 22 June 2004.
<<http://www.worcestermass.org/news/Press04/berkeley.html>.>
- "Better Late than Never." In Our Opinion. Worcester Telegram & Gazette. 17 August 2004.
- Burrington, Stephen H. "Road Kills: How Solo Driving Runs Down the Economy." Conservation Law Foundation. May 1994.
<<http://www.clf.org>.>
- Central Transportation Planning Staff. "Operate More Frequent Service Between Framingham and Worcester." The Program for Mass Transportation PMT Report. May 2003. (Revised January 2004).
<<http://www.ctps.org/bostonmpo/pmt/PMT-1.pdf>>
- City of Worcester Development Office. "Union Station/Washington Square Project."
<<http://www.worcestermass.org/development/unionstation.html>.>
- Congestion Mitigation and Air Quality Improvement Program (CMAQ).
<<http://www.transact.org/>>
- CoStar Group, Inc. "Boston Office Market." The CoStar Office Report, Mid-Year 2004. 2004.
- Epstein, Paul R. & Rogers, Christine. "Inside the Greenhouse: The Impacts of CO₂ and Climate Change on Public Health in the Inner City."
<<http://www.ResultsForAmerica.org/>.> Accessed 3 May 2004.
- Federal Transit Authority. Commuter Choice Toolkit Section. Federal Transit Authority. <<http://www.fta.dot.gov>.>
- Frain, Mart. "MBTA Eyes Area for Rail Expansion." Worcester Telegram & Gazette. 1 April 1989.

- "Importance of Commuter Rail on Where to Work." (Graph) 2002 Lakeville Commuter Rail Survey. April 2002.
<<http://www.srpedd.org/mbtals702.html>.>
- Issue: Housing.
<<http://www.02133.org/issue.cfm?ID=105&CategoryID=10>>
(Accessed via www.mass.gov, "Issues")
- Kush, Bronislaus. "MBTA Expands Service for Area." Worcester Telegram & Gazette. 11 December 1996.
- Lewis, Diane E. "Fearing Brain Drain." The Boston Globe. 22 October 2003.
<<http://www.boston.com>.>
- Marin, Jeremy. "Romney's Transportation Plan Lacks Vision." Worcester Business Journal. 23 February 2004.
- Massachusetts Community Health Information Profile (MassCHIP).
<<http://www.mass.gov/dph/>.> Accessed 20 February 2004.
- Massachusetts Taxpayers Foundation. "The Road to Reform: Restructuring the Commonwealth's Transportation Agencies." May 2004.
<<http://www.masstaxpayers.org>.>
- Mass Insight Corporation. "Keeping Massachusetts Competitive." March 2003
- "MBTA's Worcester-Proper Count Continues to Rise." Worcester Business Journal. 12 December 2003.
<<http://www.wbjournal.com/dailyreport/archives/archives/12-12-03.htm>.>
- Monahan, John J. "Worcester County Fails Smog Standard." Worcester Telegram & Gazette. 16 April 2004.
- Mullin, John. Benchmarks Regions: Central Region. Massachusetts Benchmarks. <<http://www.massbenchmarks.org/regions/central.html>.>
- New England Asthma Regional Council. "Asthma in New England Part I: Adults." May 2003. <<http://www.asthmaregionalcouncil.org>.> Accessed 5 March 2004.
- "Revenue Sharing and the Future of Our Massachusetts Economy", MMA and Center for Urban and Policy Research
- Rogers Ph.D., Christine. "Experts: Childhood Asthma 'Epidemic' Among Inner-City Youths Seen in Absence of Steps to Curb Global Warming, Fossil Fuels Use." (Quoted on Page 1).
<<http://www.ResultsForAmerica.org>.> Accessed 3 May 2004.
- Sutner, Shaun. "Study Seeks Ways to Add Trains." Worcester Telegram & Gazette. 4 February 2004.
- Smart Growth America. "Measuring Sprawl and Its Impact." 2002
<http://www.smartgrowthamerica.com>.
- Transit Oriented Development – A Communities First Initiative. Massachusetts Office of Commonwealth Development.
<http://www.mass.gov/ocd/docs/TOD_program_overview.pdf>

- "Worcester Massachusetts Population and Demographics (US Census 2000)." AreaConnect.
<<http://worcester.areaconnect.com/statistics.htm>.>
- Worcester Municipal Research Bureau. "Connecting the Heart of the Commonwealth with the Hub of the Universe: Making the Case for Expanding Commuter Rail Service Between Worcester and Boston." 27 January 2000.
<<http://www.wrrb.org>.>

—end—