

short line railroads in ECONOMIC DEVELOPMENT

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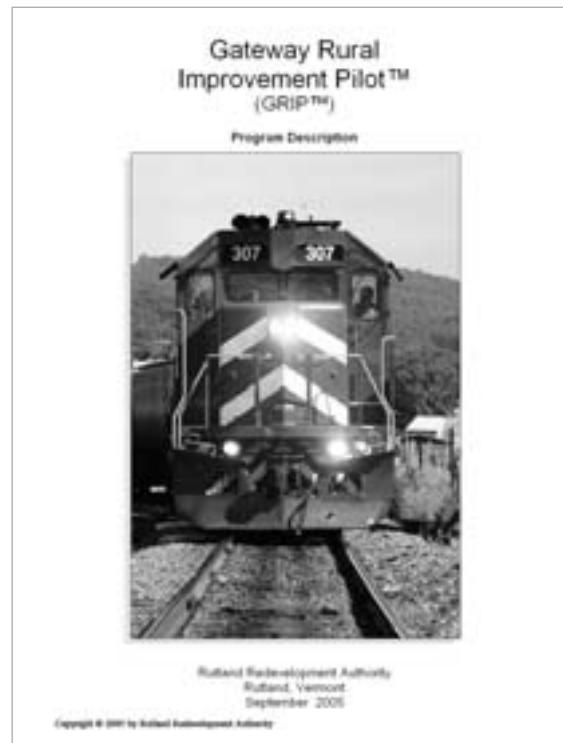
INTRODUCTION

For several decades before passage of the Staggers Rail Act of 1980, which largely deregulated them, America's railroads were in decline. The interstate highway system opened a vast network of point-to-point shipping capacity. Most industries shifted over to trucks, leaving rail to haul only the high volume, lower value commodities that moved between a small number of senders and receivers.

Now, however, it is widely recognized that the era of building interstate highways has ended. With congestion worsening, fuel prices rising and truck drivers in short supply, it is increasingly clear that rail will emerge as a viable alternative.

The increased use of rail will pose new challenges for economic developers. The evolving structure of the shipping network will have a major impact on site selection, infrastructure needs, and financing. Further, many communities, especially older downtowns, still have the remnants of the old rail system in the form of abandoned (or obsolete) switching yards and transloading facilities. As rail use grows, these communities will seek to relocate the heavy transportation function out of downtown commercial areas. This poses challenges in figuring out where to put them and what should be built to accommodate future rail growth.

A previous article on these pages ("Transportation Gateways for Rural Development," Winter 2004) discussed potential uses of rail in a rural transportation corridor, and speculated about new approaches that might emerge in the federal transportation authorization bill. With the authorization bill finally signed into law last summer, this article reports on that outcome and discusses the implications for local and regional economic development. But primarily, this article discusses the growing role of short line railroads and anticipates their effects on economic development.



A prototype freight management system is coupled with four rail improvement projects in western Vermont and authorized as the Gateway Rural Improvement Pilot Program in the 2005 SAFETEA-LU transportation authorization.

A PILOT PROJECT TAKES SHAPE

The ways in which changes in the rail industry will affect economic development are demonstrated by the Gateway Rural Improvement Pilot in Vermont. The combined rail/highway corridor in that state's Western Corridor was described in the Journal's Winter 2004 edition. At that time, project managers were seeking to establish four important rail projects as a single, combined project, with the stated goal of improving the rail system to the point where it is marketable for economic development.

GROWING PRESSURE TO SHIFT FREIGHT FROM HIGHWAYS TO RAIL

Short line railroads play an increasingly important role in moving the nation's freight. Yet this rapidly evolving industry presents major challenges – and opportunities – for economic developers. This article examines the regional and local rail network that connects local producers to the national rail system, and examines how a project in Vermont is putting it to use.

The “Freight Transportation Gateways Program” was defined in the administration’s proposal for the transportation authorization bill. It sought to address freight mobility with less regard to specific modes. Rather than focus narrowly on highway solutions or rail solutions, the program would give states latitude to plan for freight capacity without regard to mode. The bill called for states to designate freight coordinators within their agencies of transportation and stipulated funding for intermodal connectors, those short segments of roadway connecting intermodal facilities to National Highway System (NHS) routes.

As events played out this past summer, the Freight Transportation Gateways Program itself did not make it into the final bill. However, the Vermont project, now called the Gateway Rural Improvement Pilot, was authorized, with \$30 million in funding to get it started. With that project now moving forward, it is useful to look at its potential benefits for economic development.

In Rutland, Vermont, an old railyard wedged between a commercial park, a residential neighborhood, and the historic downtown will be relocated to a parcel about one half mile to the south. Responding to growing safety concerns stemming from the old yard’s downtown location and pressure to redevelop valuable downtown sites, the Rutland Redevelopment Authority (RRA) entered into an agreement with the Vermont Agency of Transportation to serve as project manager for the relocation project. (The state owns the main line and leases it to a private operator.) A 1999 study of possible relocation sites for both the Rutland and Burlington, Vermont, railyards examined more than a dozen options. Only one site in Rutland was deemed feasible. No site was identified for the Burlington yard, which currently sits on 40 acres of prime waterfront land on Lake Champlain.

Search criteria for the Rutland yard covered sites within five miles of the current yard and within one half mile of the main rail line. To go farther afield would severely increase operating costs or create insurmountable alignment problems. The site needs to be flat, straight, dry and uninterrupted by at-grade road crossings. In mountainous regions like Vermont, rail lines run along valley floors. However, mountain streams drain into those same valleys, so there are destined to be conflicts with wetlands and waterways. To make matters worse, most towns are located in the valleys too.

Rutland got lucky and found a feasible site for a new railyard. An 80-acre parcel just south of the

city abuts the intersection of US Routes 4 and 7, the two major NHS routes serving western Vermont. It parallels the main rail line and is very close to the existing yard. Preliminary engineering is under way, and a Draft Environmental Impact Statement (DEIS) should be released for public review as this article is appearing. With the transportation project on strong footing, project managers are extending their efforts to the economic development opportunities that will stem from the infrastructure improvements. With such a large public investment going into the railyard, it is incumbent on the project managers to deliver the economic benefits as rapidly as possible.

From the start, plans called for commercial/industrial development in the parcels adjacent to the switching yard. A marketing assessment was conducted in summer 2005 by Corporate Logistics of Newton, MA, a firm specializing in site selection for clients requiring rail connections. The report, done by Eyal Shapira and Mary Albertson, evaluated multiple sites along the rail alignment in Rutland City and Rutland Town to determine their potential for rail development.

Generally, sites need to be at least two acres, rectangular with the long side parallel to the rail line, at grade with the main line to allow a siding, and within a reasonable distance of connections with

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Class I railroads. In most rural areas, this means using a short line railroad to carry freight to regional connections with larger (Class I) carriers. While the goal of such projects is to encourage the use of rail instead of trucks, sites will still require good truck access. Many companies use rail for delivery of materials or shipping of final products. At least one segment of the trip will usually be made by truck.

OVERVIEW OF RAIL INDUSTRY

A company’s ability to use rail is just one part of its ultimate decision to actually do it. The growing inclination of businesses to consider rail results from changes in the economics of transportation nationally. Five discernable trends suggest a growing role to be played by freight rail in the near future.

The railroad industry divides railroad companies into three major size categories as shown below, based on a minimum mileage or revenue threshold. The revenue thresholds, which increase each year, are shown below as of 2004, the last year for which aggregate data is available. The term "short line" refers to both Class II and Class III railroads, which can be further differentiated into larger "regional" and smaller "local" companies.

Rail Industry Classifications (as of 2004)

	Revenue (millions)	Number of Companies	Miles Operated
Class I	<\$289.4	7	97,496
Short Lines			
Class II - Regional	\$23.1 - \$289.3	31	15,641
Class III - Local	>\$23.1	518	27,109

(Source: American Association of Railroads, "Railroad Facts 2005")

First, demands on existing surface transportation infrastructure have never been greater. While public attention is focused on the rapidly increasing number of motor vehicle miles being driven every year, equally profound effects are being felt on the railroad infrastructure. Demand for railroad track is manifest in the fact that Class I railroad freight train miles traveled throughout the United States have increased all but two years, from 375 million in 1991 to more than 534 million in 2004. That period, largely coinciding with the nation's longest recorded expansionary economy, has left many of the nation's railroads concerned about their ability to handle additional business.

For at least the last 15 years, major US railroads have sought to – and succeeded – in concentrating trains on fewer miles of infrastructure, believing that such a strategy will improve service and reduce costs, primarily of track maintenance. In many cases this was achieved by reducing double tracked lines to a single track. The number of route miles operated by Class I railroads dropped by nearly

20,000 route miles from 116,626 in 1991 to 97,662 in 2004. Thus, for the Class I railroads, certain routes have experienced huge increases in train movements as more volume is squeezed onto fewer track miles.

Second, large railroads are enjoying a period of relative prosperity. A number of factors including deregulation, mergers and other industry restructuring trends result in railroads that are better poised to meet future challenges than in past decades. However, the financial strength of the Class I railroads has not yet trickled down to short lines, many of which still operate as small, start-up companies with weak balance sheets. Yet the short lines increasingly are the rail freight industry's point of contact with local customers, so the condition of those regional and local lines will have a major effect on economic development.

Even though large railroads have become relatively prosperous, they remain unable to pay for all needed infrastructure expansion.

Inasmuch as railroads are extremely capital-intensive, there is widespread belief in the industry that public-private partnerships – investment of government money in private railroads – will be required to elevate railroad capacity to its ultimate potential in meeting demand levels expected in the future. Some parts of the public sector have been reluctant to do this; investing in railroads is viewed by some as investing public funds in private sector companies generating private company benefits. Interestingly, however, as the problems of congestion, safety



The switching yard in Rutland, VT, will be moved from a constrained downtown location to a more open site in an adjacent growth area.

and environmental impacts come to the forefront, more policy thinkers are coming to the conclusion that significant public benefits can be reaped through partnering with private railroads. As the Federal Highway Administration puts more emphasis on the use of public-private partnerships, opportunities should be sought to apply these tools to rail as well. Already such public-private investments are occurring around the country.

Third, there is little highway capacity left to carry the increasing load. A Federal Highway Administration report (The Freight Story, November 2002) estimates that the volume of freight moving in this country will double between 2000 and 2020. At the same time, the highway mileage available to carry it will increase by less than one percent. Estimates of the growth in passenger traffic are equally dramatic, as suburban growth, movement of employment centers away from urban cores, and the increase of the number of cars and driver per household compound the problem. The US Department of Transportation Freight Analysis Framework (FAF, a database of county-to-county freight flows) estimates that by

2020, about 46 percent of the urban NHS will reach or exceed capacity during peak hours, compared to 28 percent in 1998. The volume of freight has to go somewhere and for many industries rail is a logical alternative.

Fourth is the high cost of fuel. Combined with growing congestion and a chronic shortage of drivers, this higher cost – which few expect to come down significantly – changes permanently the relative costs of using trucks as opposed to rail. While the congestion encountered by more and more truck movements is an obvious problem, the impact of rail efficiency is even more far-reaching. An industry “rule of thumb” is that one rail car carries a load equivalent to four trucks. The very nature of rail adds even more efficiency; metal wheels moving along metal tracks generate less resistance than rubber tires moving on pavement. All told, a gallon of fuel will move a ton of freight much farther on rail than on a highway.

Fifth, increasingly stringent environmental regulations and resistance of property owners to highway construction in urban settings limit the amount of highway expansion possible and focus attention on alternatives to private motor vehicles. Dozens of cities, large and small, have examined the feasibility of one or more rail passenger technologies to ease roadway congestion, benefit the environment, and support revitalization of urban cores. Similarly, governments at all levels are increasingly studying the effect of truck movements on highway capacity and the advantages of diverting at least some of those loads to rail.

With respect to such matters, rail competes extremely well, with a reputation for having a “light environmental footprint” when compared with highways. For instance, for every ton of goods



Class I railroads move much of their freight in containers, seen here being loaded in a major intermodal facility. Local transloading facilities can help smaller companies containerize shipments that otherwise would not move on the Class I system.

moved one kilometer, freight rail emits one-third the nitrogen oxide and carbon monoxide and one-tenth the volatile organic compounds and diesel particulates emitted by heavy trucks. The very fact that rail development must follow the rail alignments reduces the potential for sprawl. Certainly in Vermont, rail has proved to be one area where environmentalists and economic developers have found significant common ground.

SERVING THE LOCAL CUSTOMER

The “division of labor” between Class I lines and short lines has changed profoundly. A number of factors, including deregulation, mergers, and other industry re-structuring trends, have resulted in large railroads doing the long-distance, heavy-volume hauling (wholesaling) while small railroads increasingly act as feeder lines (retailing) that provide direct service to the end customer. Formerly, a Class I railroad would offer multiple plans for picking up and delivering shipments to and from intermodal shippers. This might have included such services as picking the load up at a customer’s loading dock and taking it to an intermodal facility.

Class I railroads no longer provide such services. A significant portion of the network of local and regional distribution lines has been sold off to short line operators. As a consequence, the number of short line railroad companies has increased to 480 in 1985, to 516 in 1990 and 549 in 2004. Now, a local shipper’s access to and from the railroad network may well be through a locally-owned rail carrier. While Class I route-miles have decreased from

137,504 in 1990 to 97,496 in 2004, the number of short line route-miles has remained about the same over that period (42,712 in 1990 and 42,750 in 2004). There were 14 Class I railroads and 516 short line railroads in 1990; in 2004 there were seven Class I's and 549 regional and local railroads. Actual Class I track mileage has been reduced as operators eliminate duplicate lines and retire the least profitable lines and those requiring expensive repairs beyond the financial capacity of any operator to recover through expected traffic levels. (See graph.)

As Class I railroads sell off their light density lines, their dominant position in the industry allows them to make buyers often purchase unprofitable line segments as part of packages including marginally profitable lines. Buyers then often close down the unprofitable segments over time, if business does not develop. Thus, a far ranging network that evolved piecemeal is being trimmed as poor financial performance is experienced, resulting in a smaller number of miles operated as part of the total national rail network.

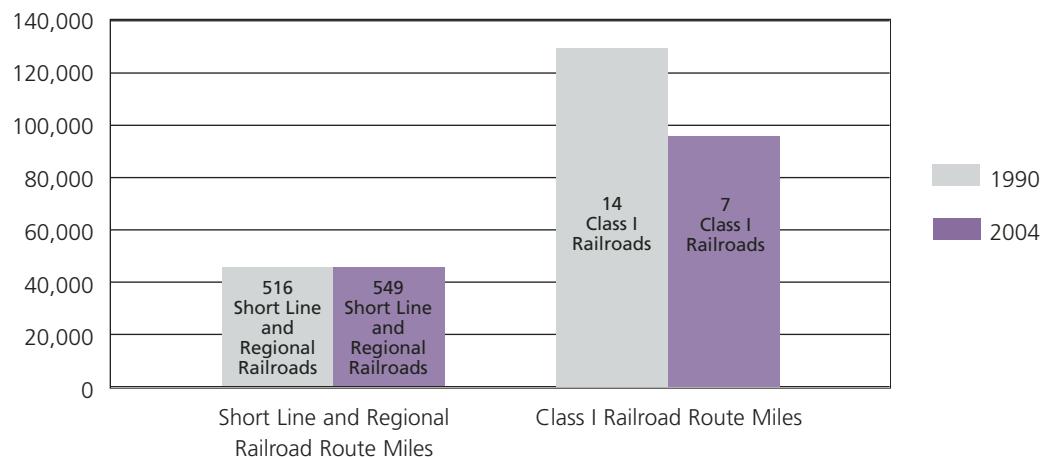
The network relationship between Class I's and short lines would seem to be a simple format – shipper to local short line to Class I to the world – but major problems exist within the channels. As mentioned above, Class I's view themselves as “wholesalers,” moving large volumes of freight long distances, preferably in unit trains, which require little or no switching and can be moved productively and profitably from origin to destination. However, many small to medium sized companies do not generate enough volume to fill a railcar, or enough railcars, to make it profitable for a large railroad. They will need to move their goods to a local transload facility or regional intermodal facility where consists (groups of rail cars bound for a common destination) can be combined to make up sufficient volumes that will be appropriate for Class I shipment.

This need to repack goods for rail shipment places new burdens on the freight system infrastructure. Intermodal and transloading facilities will play increasingly important roles. It is important to understand the difference between the two. Intermodal facilities transfer containers between ship and rail or between truck and rail. Their efficiency is predicated on the uniformity of the containers, enabling a standard system of cranes and lifts to handle all variety of goods. The Class I railroads are oriented toward serving these large, high volume facilities.

Transload (or transfer) facilities work at the local level to shift individual payloads back and forth between truck and rail. A logging company will truck harvested trees to a transload facility to load them onto rail cars. Tanker cars will offload heating oil for local delivery by truck. These facilities seldom handle containers. Their goal is to get a load on rail and move it to a regional intermodal switching facility for transfer to a Class I line.

More problems occur in making the connection to the Class I railroads, which tend to base their business plans on moving large numbers of containers from, as much as possible, a single source to a single destination. They prefer to run from a large port to a large regional intermodal facility, with no stops in between. Stopping takes time, requires switching and creates delays, all of which add costs and risk reduced customer satisfaction. Therefore, Class I's are reluctant to stop repeatedly at regional centers to pick up small consists of cars from short lines. Unfortunately, they also are reluctant to let short lines operate on Class I trunk lines in order to reach intermodal facilities, as this extra track usage adds to already serious congestion. Ultimately, a network must be developed that will allow short lines to feed into intermodal centers that produce the volume that is attractive to Class I operators.

Route Miles of Short Line/Regional vs. Class I Railroads





Transloading facilities may be as simple as the pumping unit seen next to this railcar. The pump transfers product to trucks for local delivery. The railcar holds the equivalent of four truck loads.

Despite these problems, the evolution of the rail system resulting in the emergence of a more robust short line industry results in improved productivity and financial performance, meaning that railroads are better poised to meet future challenges than in the last few decades. So, railroads more and more have the potential to respond to increasing demand with capital investments as well as operational improvements.

DECIDING WHEN TO USE RAIL

This brief review of factors attracting an industry to use rail (versus truck) is provided as background. The factors provide a basis for understanding the niche that short line railroads fill in an industry dominated by a small number of mega-carriers on the one hand and trucks on the other.

The extent to which any particular industry tends to use the rail mode is determined by numerous factors associated with its material inputs and outputs and with aspects of its competitive environment. Generally, railroads carry high bulk, low-value commodities moving in rail carload (or more) shipment volume. Because of this and the need for extra handling at the rail head, rail works best on longer hauls of at least 500 miles. If the total trip is shorter than that, it is unlikely that lower rail rates will offset higher handling costs. The following industries or product groups, some of which supply others on the list, involve significant volumes of this type of rail traffic for inbound and/or outbound movements:

- Agriculture,
- Automotive,
- Building supplies,
- Chemicals and plastics,
- Electric utilities,
- Fertilizer,
- Food,
- Forest products, and
- Mining (principally coal, iron ore, phosphate, limestone, and sand and gravel).

The transportation services provided to shippers by alternative modes may be compared chiefly in terms of certain attributes: volume/weight capacity, delivery speed (dock-to-dock elapsed time), reliability, and price. Reliability, called "predictability" by some, generally is used to mean "consistency" and includes consistency of delivery speed, equipment condition, and railcar drop-off and pick-up schedules.

Railroads of all sizes have potential competitive advantage over trucks in the movement of low value, high volume bulk commodities because of their ability to handle the weight and volume at a low price as long as delivery speed and service reliability are not critical (the usual case with low value, high volume bulk commodities because they are relatively inexpensive to maintain in inventory).

Conversely, trucks offer superior trip time and reliability in the movement of high value goods (whose inventory cost compels "just in time" type service) which can be increasingly competitively priced as shipment volume and weight decline. Railroads as a whole have been able to compete in the "just in time" segment of the market only where annual shipment volume (and rate) justifies dedicated equipment and special operating procedures; those conditions generally do not exist on short lines.

Both large and small railroads use essentially similar equipment and roadbed but labor cost determinants typically differ in a way which makes it feasible for the smaller carriers to make a profit from lines of road whose shippers provide fewer carloads per mile per year than large railroads can afford to service. A wide range of commodity types are carried by U.S. short line railroads as a group. However, even smaller shippers can require delivery speed performance in connection with some commodities that rail car load-based operations normally cannot provide at a cost competitive with truck rates.

Furthermore, because short lines normally must depend upon larger, connecting carriers to provide a substantial part of the rail haul, delivery speed (and reliability to a major extent) can be beyond the smaller carrier's control. Thus, although most small railroads profess to have an economic structure (and management attitude) which supports individualized "customer service" for originating or terminating shippers on their lines, there always will remain cases in which only trucks can provide particularly demanding delivery speed and/or reliability.

In sum, smaller railroads have their advantages, but they are not a panacea.

ECONOMIC DEVELOPMENT CHALLENGES

Rail considerations intersect with economic development most commonly in two areas: rail alignments and freight transfer. In the first instance,

many older downtowns were built around rail facilities, either in the form of railyards or industrial zones served by a network of spurs and sidings. As industry has evolved, these facilities have become largely obsolete. Rather than serve business, most tracks remaining in downtowns are an impediment to revitalization efforts.

Yet in many cases they are still active lines. This presents a particularly difficult logistics problem, because unlike re-routing streets, it is very difficult to move a rail alignment. Trains can not navigate sharp turns or hills. In most cases, new facilities must be located somewhere along, or very close to, the existing right-of-way. Railyards also take up space. A medium sized yard may require a mile's length uninterrupted by grade crossings, and three to six hundred feet in width. Combined with the need to connect to the highway system, access industrial and commercial zones, and avoid residential areas, the site selection process for a new rail facility can be difficult.

In Rutland, RRA was fortunate enough to find a suitable railyard site close to the intersection of two arterial highways, US Routes 4 and 7. Taking advantage of the convergence of the highway and rail systems, plans for the yard include several industrial development sites. As many as six individual parcels may be laid out to allow tenants access to both rail and highway. Having this capacity close to the switching yard will reduce handling costs. Further, since older industrial zones in the city tend to be located near rail lines, the project is consistent with zoning and land use objectives. The tight configuration of development parcels and transportation infrastructure satisfies the community's desire to limit sprawl.

While the site is well configured for a switching yard, it is not large enough to house a transloading facility as well. However, with plans for the yard advancing, a private investor has proposed a transload facility in Fair Haven, Vermont, on the Vermont-New York border. Initial commodities handled will include timber, fuel oil, and road salt. Warehousing and light manufacturing are also planned. This proximity of the railyard and transload facility, only 15 miles apart, demonstrates clearly the relationship between sites that serve the individual customer and sites that facilitate the movement of freight out from the local market to the national rail system. Freight could not move without transloading, and the system would not have sufficient capacity for growth without the yard. Even with the availability of this system, planners must set realistic expectations about the type of business that will use it.



As the short line rail system picks up a greater share of the nation's freight volume, older sidings may find new life.

Companies using rail fall into two categories: those that can ship directly from production facilities and those that require off-site transloading. When rail fell out of favor, plants were built at locations convenient to highways. Making the switch back to rail may not be simple; for some companies it will not even be possible. If a freight customer is located along a rail line, the task can be accomplished using spurs or sidings. Companies farther removed will need to truck their product to/from a transloading facility, transferring their shipments to/from rail cars. This adds another handling to the shipment, as well as drayage costs associated with delivery to a transload facility. Goods leaving a point of origin will be loaded twice – once for the local haul and again onto the national rail system – rather than once for a long haul truck. If a company does not realize a large enough marginal saving from lower rail rates, the added handling will negate any benefits.

RESPONDING TO PUBLIC EXPECTATIONS

Success in rail relocation and facility development projects depends on three factors. First, there must be an experienced facilitator envisioning the project, developing consensus, and directing negotiations. The usual expertise in economic development and community consensus building must be augmented by a working knowledge of railroad economics.

Next, the community must be fully committed, socially and politically, to pursuing the project. As few short line operators have the capital needed to bring their lines up to optimal condition, communities that want their rail facilities relocated or reconfigured must be prepared to participate financially and to seek state and federal resources. Unlike most highway development, rail projects require close collaboration among public and private enti-

ties, so there must be strong public support for working with the rail operator.

And finally, the community will must be strong enough to agree on a project definition and site. As described here, site selection is limited by the physical requirements of rail operations. Once a suitable site has been found, there is seldom much latitude in its configuration. Neighbors, environmentalists, and smart growth activists must support the project with enough enthusiasm to agree to compromises they would be unwilling to make in connection with highway projects. Rail facilities must be located along rail lines. If you want to enjoy the advantages of rail, you must work within the physical restrictions of the rail mode.

Rutland's strategy is based on working proactively with a short line railroad to identify and solve development problems before they reach the crisis stage. Teaming up with a railroad to market rail-oriented development sites can produce long term job and tax benefits for a community. It is also important that state and local elected officials develop funding mechanisms to aid in this process. The community may want to intervene to save a short line slated for elimination due to short term viability problems. A partnership with a rail operator may lead to preservation of a line for short or long term economic development. One result of this will be greater public ownership of local lines, so it is important that the public sector plan for this type of involvement, particularly given the significant, initial capital infusion that may well be required.

Recruiting companies that will use the rail system presents specific challenges. Economic developers must be careful to navigate several potential pitfalls in marketing rail services. First, it is important to keep a rein on public expectations. As suggested above, rail will never take all the trucks off the road. Only a minority of existing companies will switch to rail and then only for part of their shipments. New companies likely will use rail either inbound or outbound but are likely to use trucks at least for part of their load. At best, rail

will decrease the growth rate in truck usage, allowing more economic development with the same number of trucks. Many enthusiastic rail supporters do not realize this limitation, and if economic developers do not keep the distinction clear, the time will come when the pattern of growth will not match expectations and the effort may be viewed in some quarters as a failure. It is very difficult to prove the negative, to prove that traffic would have been even worse had rail not been used.

Some rail advocates suppose that all freight can be moved to rail, that all companies could give up their trucks. This is not true, and the point must be made to local administrators and governing bodies. Rail can be used by certain types of businesses and the effort to shift to rail should focus on those. Many mistakes have been made in passenger rail development by attributing to the target ridership behavioral responses that were unrealistic. Systems were built based on projected ridership that did not materialize. The same skepticism will apply to freight development projects unless rail proposals are measured against realistic commercial usage standards. Businesses will not use rail solely because it is socially desirable, they will do so only when it makes business sense.

Finally, economic developers will need to build strong working relationships with short line railroad operators. While many railroad companies do an excellent job of it, others continue to spar with the communities through which they run. This often happens when

communities present a series of demands relating to safety and track alignments to which the railroads have a limited ability to respond. It is not easy to move a rail alignment. And rail operations have limited flexibility in responding to community preferences (blocking grade crossings, 24 hour switching, etc.) without compromising the slim cost advantage that keeps them in business. The cowboy and the farmer can be friends, but it will take some effort.