TRANSPORTATION NEEDS
OF
SMALL BUSINESS
IN
NEW ENGLAND

By

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Introduction

The primary objective of this paper is to identify the transportation problems, especially of cost and availability, which will affect small business in New England over the next ten to twenty years and make appropriate policy recommendations.

Transportation in New England is not entirely intra-regional. The most significant aspects of transportation involve the carriage of people and goods into and out of New England. Some modes of transportation - rail and truck, for example - have a significant number of carriers located within the region. Other modes have very little of the volume that is attributable to New England-based carriers. In turn, this makes a precise determination of New England data, especially availability, extremely difficult.
Another important aspect of this paper deals with the impact of transportation costs on the small businesses of New England. The research for this paper, plus the experience of the authors, suggests that the average small businessperson in New England regards transportation costs as unimportant. This is due, in large measure, to the fact that the transportation costs for most small businesses are usually included in the purchase price. When they are separately identified, they are usually in the vicinity of one to two percent of sales. These aspects of transportation in New England's small business community make it extremely difficult to focus the small business community's attention on their effect, and in turn provide insights on its impact on demand and financial performances.

Also noteworthy with respect to transportation in New England is the fact that most New England-based transportation firms themselves are in fact small businesses. This is clearly shown in the table below.
TABLE I

TRANSPORTATION BUSINESSES IN NEW ENGLAND
WITH REVENUES GREATER THAN $1 MILLION

1973

<table>
<thead>
<tr>
<th>Area of Transportation</th>
<th>% of Businesses with Revenues Greater Than $1 Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railroads</td>
<td>4%</td>
</tr>
<tr>
<td>Intercity Passenger</td>
<td>2%</td>
</tr>
<tr>
<td>Charter Services</td>
<td>1%</td>
</tr>
<tr>
<td>Trucking</td>
<td>30%</td>
</tr>
<tr>
<td>Water</td>
<td>1%</td>
</tr>
<tr>
<td>Air Transport</td>
<td>1%</td>
</tr>
<tr>
<td>Freight Forwarding</td>
<td>1%</td>
</tr>
</tbody>
</table>


Background

Historical Setting of Transport

Transportation is an integral part of national production and distribution systems. Therefore, the development and maintenance of an adequate transportation network is necessary to provide a means of servicing domestic and international markets. Naturally, as our economy expands, its demands for transportation facilities and services increase. This typically leads to an increasing flow of capital from both the public and private sectors into transportation.

Federal, state, and local government transportation expenditures have grown steadily in the United States and have played a major role in financing the development of the country's extensive transportation system. It has been estimated that to
date aggregate government expenditures for transportation construction and maintenance have exceeded 500 billion. At the same time, our private sector investment in transportation facilities and equipment exceeds $325 billion.

The availability and prices of transportation services in an economy have a decided impact on price levels, because transportation costs comprise part of the total market price of any item. This cost component reflects both the movement of raw materials to a point of production and the flow of finished products to consumers. On the average, 20 cents of every consumer dollar is absorbed by transportation costs. However, as related to the wholesale prices of products, the transportation cost burden varies considerably among commodities. For some bulk commodities, such as sand and gravel, transportation outlays comprise more than half the wholesale price; on other items, such as business machines, the ratio is less than one percent. The price (rate) charged for moving a particular shipment from origin to destination is a function of several factors, including the value of the shipment, its

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***Ibid.
handling characteristics, shipment distance, shipment size, and the competitive environment faced by the carrier.

The availability and prices of transportation services in a given region have a dramatic impact on the region's ability to participate in interregional markets. For example, many businesses in New England, particularly those in northern New England, are at a serious regional competitive disadvantage. This is particularly true of manufacturers in the region who rely heavily upon raw materials which originate in other regions. In attempting to sell in national markets, these firms often must pay both the transportation costs associated with the inbound raw material movement and the outbound finished products flow. In this process, producers in the region often find themselves in competition with other producers located closer to both raw material sources and final markets. As a result, steadily escalating transportation rates doubly burden the New England producer by raising his delivered costs and restricting the markets which can be effectively served.

As discussed later in this paper, the transportation requirements of businessmen in this region have been influenced by a variety of such factors. At the same time, regional trends in such factors as business location and industrial activity have placed differing demands on the various forms of for-hire carriage which compete for the region's traffic.
Regulatory Posture of Transportation

The involvement of government in transportation also includes a rather extensive pattern of economic and safety regulations. These regulations have evolved over a period of years, at both the federal and state level, and have been primarily justified on the basis of protection of the public interest. An illustration of the scope of these regulations is provided by the fact that, in the economic sphere, the regulation of interstate carriers generally encompasses such factors as determination of the markets they serve, their ability to introduce new services, the prices they charge, carrier mergers, and the issuance of securities. Similarly, in the area of safety, such factors as vehicle weights, operating speeds, operator qualifications, and the number of consecutive hours operators are permitted to work, are controlled.

In the interstate arena, the Interstate Commerce Commission (ICC) has historically been vested with economic regulatory powers over the several surface modes of carriage (railroads, motor carriers, oil pipelines, water carriers, and surface freight forwarders). The Civil Aeronautics Board (CAB) plays a parallel role with respect to interstate and international aviation. Federal safety regulations are administered by the Department of Transportation.

During the past several years there has been a decided movement toward economic regulatory reform at the federal level. The regulatory powers of the CAB have been substantially lessened.
both administratively and legislatively. Similarly, the ICC had
taken administrative steps to lessen substantially the regulatory
controls over interstate trucking and rail carriage. At the same
time, the Administration had introduced legislation to reduce the
regulatory "burden" of both motor carriers and railroads. This
movement has already fostered significant changes in the national
transportation system, and a continuation of the movement poses
considerable uncertainty to shippers and carriers alike. The
impact, both existent and potential, of these regulatory changes
on the transportation services available to small businessmen in
New England is discussed later in this paper.

Characteristics of the Modes of Transportation

While this paper focuses specifically on the transportation
needs of small businessmen in New England, it is essential that
the reader understand the relative role played by each of the
major modes in our national transportation system. This is
necessary because of the interrelationships which exist both on a
regional basis and on a modal basis. Throughout the following
discussion it must be remembered that in selecting a particular
mode for a given shipment, the shipper is necessarily concerned
with a variety of factors, including not only relative rates, but
also service speed, reliability, and equipment availability.

Rail Carriage -- In freight movements, railroads offer both
carload (CL) and less-than-carload (LCL) services. Historically,
LCL service has tended to be rather slow compared with less-than-
truckload services (LTL) offered by motor carriers.
Consequently, there has been a long-term shift in such traffic to motor carriers, and small shipments have declined in importance for the railroads. The railroads also tend to suffer a speed disadvantage compared with motor carriage in carload service in short haul markets. However, rail service is faster than water carriage in most cases, and over long distances certain rail services, such as through container trans, can be speed-competitive with motor carriage.

Another factor which is important to the shipper is the consideration of loss and damage rates in the various modes of carriage. In that regard, the railroads have experienced increasing difficulty in recent years. In fact, since 1960, annual railroad freight claims have more than doubled. At least part of that increase was due to the industry's deferral of maintenance expenditures because of depressed earnings.

Due to a combination of competitive pressures and its own capabilities, rail carriage has primarily become involved in long-distance, large volume movements of low-valued, high-density commodities. Products of forests, mines, and agriculture, all exhibiting the low-value, high-density characteristics, are the major products transported by the railroads. The long-distance nature of railroad freight service is illustrated by the fact that the average length of railroad hauls in 1976 was 540

""Data supplied by the Freight Claims Division of the Association of American Railroads."
Reflecting the large-shipment concentration of railroad traffic, the average load moved by the railroads in 1978 was 62.1 tons.\(^7\)

To offset some of the service and price disadvantages the mode encounters in the marketplace, the railroads have developed a number of service innovations in recent years. Foremost among these (and most applicable to the New England region) is piggybacking. Piggybacking (TOFC for trailer-on-flatcar and COFC for container-on-flatcar) involves the line-haul movement of loaded highway trailers or containers on flatcars, with local pickup and delivery performed by truck. This service combines the best characteristics of both modes -- the line-haul efficiencies of rail carriage with the pickup and delivery speed and flexibility of motor carriage. Piggybacking service has become an increasingly important source of railroad revenues, and has effectively increased the number of off-railroad points which can be served by the railroads. In the longer run, many people see great potential for extension of such services as a substitute for light-density railroad branch line service.

Motor Carrier Service -- The trucking industry has a very complex industrial structure. It consists of both for-hire carriers and private trucking operations, and it operates on both

\(^7\)Transportation Facts and Trends, p. 14.
an intercity and local basis. For-hire interstate operations are subject to the economic regulations of the ICC. Carriers thus regulated by the ICC are classified as either regular route or irregular route carriers. Regular route carriers typically have been granted ICC authority to move a broad range of commodities known as general freight over regular routes. Irregular route carriers tend to have "special commodity" authority from the ICC for movement of specialized freight such as refrigerated products, household goods, etc. These regulated carriers are also classified as either common carriers who hold themselves out to serve the general public, or contract carriers who serve a limited number of accounts on a contractual basis. In addition, there is a large group of for-hire truckers which operates in interstate commerce under exemptions from the Interstate Commerce Act. While there are a variety of such exemptions, by far the most significant is the agricultural exemption which exempts motor vehicles carrying unprocessed agricultural goods, livestock, and fish from ICC regulation. There has also been rapid growth in private trucking in inter-city markets, as an increasing number of manufacturers, retailers, and wholesalers have found that such operations offer potential cost or service improvements over for-hire carriage.

Many truckers also provide intrastate or local service. As outlined earlier, they are subject to state and local regulations which govern the nature and scope of their service offerings.
Regulated motor carriers of general freight are heavily involved in the less-than-truckload (LTL) shipment business. The average weight of their shipments is 1600 pounds. The ICC has estimated that these carriers transport four times the small shipment tonnage, and generate twice the intercity small shipment revenues, of all other regulated carriers combined. Domination of this segment of intercity freight movements poses some problems for motor carriers. Handling costs on small shipments are quite high and must be reflected in the related freight rates. General commodity, special commodity, and exempt operators are also factors in truck-load (TL) transportation. Depending on the commodity to be moved and the market to be served, they may compete not only with other truckers but also with the railroads for such freight.

Due to the nature of their operations and the extensive coverage of the national highway system, motor carriers tend to have a decided speed advantage over other forms of intercity carriage, excluding air freight. This is particularly true in short-distance markets, but the development of the Interstate System has also enabled truckers to become speed competitive with railroads in many long-haul markets. Further, the great majority of industrial shippers have door-to-door trucking services.

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available to them. In contrast, many industrial sites are offline from rail facilities. Additionally, shippers often find a greater number of motor carriers than rail carriers in a given market, resulting in greater choice of carriers in trucking than in rail carriage.

Although motor carriers do have advantages over rail service in both flexibility and accessibility, they are at a distinct capacity disadvantage to railroads. Given existing regulation of truck weights and the nature of contemporary truck design, motor carriers can seldom carry more than 30,000-50,000 pound payloads. In contrast, the carrying capacity of modern railroad freight cars often exceeds 150,000 pounds. Truckers have sought to offset this advantage by offering multiple truckload rates to shippers.

Water Carriage and Oil Pipeline Services -- Under certain commodity and market circumstances, water carriage and/or oil pipeline services may be options to be considered by shippers and consignees. In assessing domestic water carriage, potential users find that the mode has limited availability due to the limitations of our navigable waterway system. In many areas, water carrier services simply are not available. In still other sections of the country, water carrier services is seasonal. Even under ideal circumstances the service is quite slow. However, offsetting these modal shortcomings are the tremendous capacity capability of many vessel types (particularly barges), and the relatively low rate structure of the mode. Four
Commodity categories now generate 80 percent of the mode's domestic tonnage. These are:

1. petroleum and petroleum products;
2. coal and coke;
3. sand and gravel; and
4. iron ore and steel.

While few shippers/consignees can utilize the services offered by oil pipelines, those who ship either crude or refined petroleum find that the pipeline system offers a continuous, relatively low-priced form of movement which is unaffected by weather conditions. Products move over a highly automated network which nationally consists of more than 220,000 miles of pipeline.

Aviation -- Aviation offers speed as the principal positive characteristic of its service. As a consequence, there is a dominant influence of passenger-oriented services as opposed to freight service. For example, in 1978, 88 percent of the revenues generated by U.S. CAB certificated carriers came from passenger service.

Almost since its inception, aviation has been regulated and controlled by two federal agencies (or their predecessors): the Civil Aeronautics Board (CAB) in the economic area, and the Federal Aviation Administration (FAA) in the technical area.

**"New: Traffic Jams on U.S. Rivers."**
1977 and 1978 Congress passed legislation that would deregulate the economic aspects, first of air cargo and then of airline passenger service. The passenger services have generally responded with dramatic revenue increases, approximately 18 percent in 1978. Air freight revenues, on the other hand, although having had a head start in deregulation, only increased 12 percent for all CAB certificated carriers in 1978. This is undoubtedly a manifestation of the greater elasticity of passenger traffic as opposed to air freight. Air freight revenue yields have been significantly higher than that of other modes of transportation in the United States. Perhaps the principal reason for this is the type of traffic that airlines attract. The limited size of aircraft is a factor. The largest is the Boeing 747, which has a maximum of 240,000 pounds of payload. Thus, small loads or shipments usually account for most of the traffic. In addition, the speed of air freight makes it attractive for high-value goods such as electronic equipment and medical supplies.

Today the overriding consideration of the airlines is the cost and availability of fuel. Airplanes are tremendous consumers of fuel. Even a conventional jet such as an early version of the DC-8 series will consume four to five gallons per mile. The cost of fuel to airlines has historically been less

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per gallon than at the local gas station. Today, the per gallon prices to airlines are rapidly approaching parity with the auto, especially if it is necessary to obtain spot purchases.

**Freight Forwarders and Specialized Small Shipments Carriers** -- Shippers/consignees also typically have available the services of one or more freight forwarders. The primary activity of freight forwarders involves the gathering of small shipments that are to move in consolidated form over intercity routes. Forwarders, who are precluded by law from providing the direct intercity line-haul movements, arrange with a direct carrier such as a trucker or railroad to move the consolidated shipments, which are then disaggregated in the destination city for final delivery to consignees.

In dealing with a forwarder, the shipper pays no more, and sometimes less, for the movement than if he dealt directly with the line-haul carrier. Additionally, he may receive better pickup and delivery services and a faster line-haul movement. Forwarders also relieve shippers of a number of tasks related to billing, transfer, and tracing of shipments.

Another group of carriers is also engaged in small shipments movement. Included in this group are the Post Office Department (parcel post), United Parcel Service (UPS), and bus express operations. Each of these alternatives is limited to specific package sizes, weights, etc. UPS is clearly the dominant company in this parcel market. Despite the fact that its geographical
coverage is more limited than parcel post, UPS now generates more tonnage than its Post Office competitor.

**Transportation's Role In The Physical Distribution/Logistics**

*TICS System In Small Business* Historically, business has looked upon transportation as a separate, unrelated and small cost of doing business. However, as business becomes more complex and competitive in our society, astute businesses have become aware that transportation is only a portion of the costs in the larger area of logistics.

Logistics involves analyzing a total system and its "trade-off" in order to determine the lowest total costs, or, more correctly, the system which produces the greatest profit.

Involved in the logistics system of any business are the determination of "trade-off" in:

- inventory level;
- warehousing;
- materials handling;
- order processing;
- packaging;
- transportation;
- customer service; and
- size of production runs.

In this analysis, it is conceivable that transportation costs may be higher than the lowest possible transportation in order to achieve a lower system cost. The performance of this analysis can be sophisticated, but is it is perhaps the last area wherein the
astute business can achieve cost savings, beyond those already identified, since the start of the industrial revolution in this country. This is the area that small businesses, especially those with transportation disadvantages, must exploit if they are to remain competitive.

Generally speaking, small businesses have not utilized logistics analysis because they have failed to recognize the impact of transportation in their costs. For example, in the course of conducting research for this paper, twenty small businesses in New England were contacted in an attempt to obtain their view of the impact of transportation costs on their business. All businesses contacted indicated their belief that transportation costs were not an important cost factor in their business.

When probed for their reasoning, the message was clearly that, for the most part, transportation costs were part of the purchase price of products or were passed on to the customer when the product was sold. In order to verify this, financial statements for the year 1975 for 64 New England businesses (revenues less than $2 million annually) which received Small Business Administration management assistance were reviewed. Of this number, only 25 or 31 percent identified any transportation costs. For those which separately identified them, the transportation costs were equal to 1.2 percent of their total costs. An analysis of 37 similar New England small business firms for 1975 indicates a transportation cost of 1.9 percent of
expenses. Considering that many transportation costs are hidden in purchase prices, it is reasonable to assume that transportation costs are truly in excess of 2 percent of total costs. More realistically, they are probably closer to 3 percent.

To the extent that energy costs drive transportation costs up faster than the ability to increase prices, then transportation costs will become important to New England's small business community. The control and analysis of logistics trade-offs will become all the more important.

Today's Transportation in New England

General

This discussion examines the contemporary transportation system of New England which is available to the small businessman. Each major mode is examined in terms of its services, financial condition, and problems. In reviewing this material, the reader must remember that the transportation needs of small businessmen in the region are not homogeneous. These needs involve both shipping and receiving; they may involve the movement of large or small shipments; and, they may originate or terminate in either small or large communities. Therefore, considerable attention must be devoted to specifying the whole spectrum of transportation possibilities available in the region.

Prior to examination of the individual modal situations, attention should be given to aggregate data. Table 2 illustrates the modal market share of New England's surface transportation
tonnage. While the table contains 1973 data, there have been no large scale traffic shifts since that time.

TABLE 2
MODAL MARKET SHARE OF SURFACE TRANSPORTATION,
NEW ENGLAND 1973

<table>
<thead>
<tr>
<th>Mode</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Carrier Truck</td>
<td>40%</td>
</tr>
<tr>
<td>Rail Carrier</td>
<td>33%</td>
</tr>
<tr>
<td>Private Truck</td>
<td>22%</td>
</tr>
<tr>
<td>Trailer-on-Flatcar</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>


Trucking's dominance within the region is illustrated by the fact that common carrier and private trucking accounts for approximately 62 percent of traffic movement.

Considerable research has been done on New England traffic flow data in recent years. It has been determined that the single largest component of total freight movements in the region is traffic local to New England (origin and destination both within New England). This is followed by trade with the Middle Atlantic, East North Central, and South Atlantic regions. Over

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60 percent of all traffic is either local or involves the Middle Atlantic area, and 90 percent of all flows originate or terminate east of the Mississippi. These flows have remained relatively constant in recent years.

Further analysis of regional traffic flows indicates that New England is a heavy net importer of goods. This creates a traffic tonnage imbalance for the region which leads to rates which are higher than they would be if carriers experienced a more balanced flow of traffic.

**Modal Characteristics**

**Motor Carriage**

Table 2 illustrates the tonnage dominance of motor carriers in the region. If this traffic were measured in terms of shipments, the trucking market share would be even higher. This market share is not only a function of the speed and flexibility of the mode, but also of the market coverage of trucking. Due to cost and traffic density considerations, rail service is not available in many communities. The degree of this modal coverage differential is indicated by the fact that, in Massachusetts, there are 836 populated communities of which 634, or 75.8 percent, are total dependent upon trucks for surface transportation.**

**Massachusetts Motor Truck Association, Inc., "A Statistical Profile of the Massachusetts Trucking Industry" (Boston: The Association, 1978 /mimeograph/), p.9.**
Numbers Of For Hire Carriers -- The region is served by thousands of motor carriers. Predominant among these are the Class I and Class II common and contract carriers subject to ICC regulation. Table 3 lists the number of such carriers presently domiciled in the New England states.

**TABLE 3**

**NUMBERS OF COMMON AND CONTRACT CARRIERS**

**CLASS I AND II, BASED IN NEW ENGLAND**

<table>
<thead>
<tr>
<th>State</th>
<th>Common</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>57</td>
<td>3</td>
</tr>
<tr>
<td>Maine</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>95</td>
<td>17</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Vermont</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>197</td>
<td>32</td>
</tr>
</tbody>
</table>


In certain instances, this number appears to be relatively small. However, the number excludes many carriers that serve the region. For example, it fails to include other Class I and II carriers who are domiciled elsewhere, but who serve points in New England. Further, the listing only includes those ICC-regulated carriers (Class I and II) which generate more than $500,000 in annual operating revenues.
On a national basis, that only comprises about 20 percent of the ICC-certified motor carriers, and there is little reason to doubt that a similar relationship exists in New England. The relatively small scale of many motor carriers in the region is indicated by the fact that approximately 60 percent of the more than 1,000 motor carriers which belong to the New England Motor Rate Bureau (and serve the region) generate less than $50,000 in annual operating revenues.

As a result, small shippers or consignees located in major New England cities will find that it is not uncommon to find at least a dozen ICC-certified truckers which might handle either TL or LTL shipments of general freight that is moving in interstate commerce. Naturally, depending on the origin-destination combination involved, the shipment may require several terminal and/or carrier transfers during the course of its movement. This is particularly true for very small shipments. Shippers of TL lots of traffic which require specialized equipment generally face a more limited selection of carriers.

Small businessmen located in smaller New England communities encounter a somewhat different situation. The number of carriers available to handle the freight is more limited and service is generally less frequent. However, recent surveys of shippers in small communities tend to indicate not only that shippers

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"Interview with Leonard Duggin, New England Motor Rate Bureau, Burlington, Massachusetts, May 16, 1979."
generally perceive the service to be more than adequate, but also that even very small communities tend to be served by several competitive carriers. 87

Small businessmen who are involved in agriculture in the region are also served by truckers who are exempt from the economic regulation of the ICC. Many of these are small scale owner-operators who often arrange for loads through local brokers. Such service tends to be rather price competitive, not only among exempt operators, but also with the regulated carriers who often seek an agricultural backhaul. On a national basis, there appears to be a contraction in the number of such owner-operators due to rising equipment, business, and fuel costs. 88

Small businessmen in the region who are involved in the interstate shipment or receipt of goods also typically find many carriers who are certified to handle such traffic. It has been estimated that in Massachusetts alone, 8,210 carriers possess intrastate operating authority. 89 Again, the smaller the community in which the businessman operates, and the more

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89 "A Statistical Profile of the Massachusetts Trucking Industry," p.11.
specialized the items to be moved, the more limited the motor carrier options.

It should also be noted at this point that many shippers have moved into private carriage because of potential cost and service improvements. Table 2 indicated that 22 percent of the region's surface traffic moves via this option. While this is certainly a possibility for the small businessman, it should be remembered that the cost of trucks has escalated greatly with new power units selling for $50,000 to $60,000 at present. Further, fuel prices are rising dramatically. As a result, this option would seem to make sense only to the small businessman who has a steady two-directional flow of traffic between two points which requires specialized equipment.

Regional For Hire Trucking Problems -- Carriers serving the New England region are faced with a number of problems which influence the rates paid for transportation services by the region's small businessmen. There has been an outmigration of heavy manufacturing from the region, and this has reduced the industrial base from which these carriers might attract their traffic. Also, as noted earlier, the region suffers a traffic imbalance because it is a net importer of goods. This tends to promote many empty or light-filled backhauls for truckers which leads to operating inefficiencies and poor equipment utilization. Truckers are also faced with a region in which the centers of production are scattered in a pattern that is not conducive to efficient transportation operations. All of the above factors
have combined to give New England motor carriers the smallest average load of any regional carrier group in the country. They also typically have the shortest average haul of any regional motor carrier group.

These problems have contributed to a situation in which for-hire motor carriers in the region consistently register higher operating ratios (operating costs/operating revenues) than the industry average. This is illustrated in Table 4.

**TABLE 4**

OPERATING RATIO DATA, 1974-1977
NEW ENGLAND REGION CLASS I AND II MOTOR CARRIERS
VERSUS NATIONAL MOTOR CARRIER AVERAGE

<table>
<thead>
<tr>
<th>Year</th>
<th>New England Carriers</th>
<th>National Carrier Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977</td>
<td>97.0%</td>
<td>94.5%</td>
</tr>
<tr>
<td>1976</td>
<td>98.3%</td>
<td>95.0%</td>
</tr>
<tr>
<td>1975</td>
<td>96.1%</td>
<td>95.0%</td>
</tr>
<tr>
<td>1975</td>
<td>97.6%</td>
<td>94.5%</td>
</tr>
</tbody>
</table>


It should be noted that in the trucking industry, the operating ratio is generally looked at as a primary indication of a carrier's financial condition. It is generally believed that maintenance of operating ratios in excess of 95 percent indicates considerable financial difficulties for the carriers involved.\textsuperscript{92}

Generally speaking, the earnings performance of motor carriers in the New England region has lagged behind those of motor carriers in other regions. Several major bankruptcies of New England regional carriers have occurred in recent years, and others seem likely.

Carriers in the region have relied heavily upon rate increases to offset some of their problems. This has led to the emergence of higher trucking rates in the region than are generally encountered elsewhere. The rate differential is illustrated in Table 5, which contains the average revenue per ton mile figures for regulated motor carriers in various regions during 1977.

\textsuperscript{92}Lieb, p. 66.
### TABLE 5
### AVERAGE REVENUE PER TON MILE, 1977
### MOTOR CARRIERS IN NEW ENGLAND AND OTHER REGIONS*

<table>
<thead>
<tr>
<th>Region</th>
<th>Average Revenue/Ton Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>New England</td>
<td>25.39¢</td>
</tr>
<tr>
<td>Middle Atlantic</td>
<td>21.43</td>
</tr>
<tr>
<td>Central</td>
<td>16.38</td>
</tr>
<tr>
<td>South</td>
<td>17.08</td>
</tr>
<tr>
<td>Northwest</td>
<td>12.23</td>
</tr>
<tr>
<td>Midwest</td>
<td>13.66</td>
</tr>
<tr>
<td>Southwest</td>
<td>14.75</td>
</tr>
<tr>
<td>Rocky Mountain</td>
<td>18.11</td>
</tr>
<tr>
<td>Pacific</td>
<td>19.22</td>
</tr>
</tbody>
</table>

* Carriers generating annual operating revenues between $1 million and $5 million in 1977.


It should be noted that the higher rate level in the region is also partially influenced by the high-value nature of many of the products moving in the region. Nevertheless, the rate structure tends to be particularly burdensome on small businessmen in New England who generally ship and receive in small quantities. Such shipments generally move on rather high
LTL "class" rates, and this increases the difficulty encountered by regional businessmen in competing in other local markets.

Regional Dynamics -- The motor carrier industry in the New England region will be substantially influenced in the years ahead by legislative and administrative actions, on both the federal and state levels, to substantially deregulate the industry. Further, the availability and price of fuel will significantly affect motor carrier operations. The likely impact of these changes are discussed later in this paper.

Specialized Small Shipment Carriers and Freight Forwarders -- As noted several times earlier in this paper, it cannot be assumed that small businessmen in the region necessarily ship and receive in small quantities. However, those who do primarily generate and receive small shipments often rely heavily upon UPS and Parcel Post. These services are readily available to the typical small businessman in New England. Shippers and consignees in the region who generate small volume traffic which exceeds the weight limits of UPS, Parcel Post, or bus express services may choose to deal directly with truckers or freight forwarders. The major cities of New England are served by a large number of forwarders. For example, more than 125 companies offer forwarding services to shippers and consignees in the greater Boston area. Naturally, the more isolated the New England community involved, the fewer the forwarders serving the area, and the less frequent the service.
Rail Carriage

While rail carriage has lost some market share in the New England region, it still accounts for nearly one-third of the region's surface tonnage. Among those products most dependent upon rail service in the region are paper, stone, clay, glass, concrete products, rubber, and miscellaneous plastic products. Similarly, the agricultural sector relies heavily upon rail deliveries of feed grains and fertilizers.

System Scope -- New England is served by a number of railroads. Data concerning the number of companies and miles of trackage in the region are examined on a state-by-state basis in the following discussion.

Maine -- Due to its geographic isolation, Maine relies heavily upon 2,487 miles of railroad to carry primarily forest products and agricultural goods to Canada and the southern and north central U.S. The following railroads operate within the state:
- Aroostook Valley Railroad – 43 miles of track;
- Bangor and Aroostook Railroad – 801 miles;
- Belfast and Moosehead Lake Railroad – 38 miles;
- Boston and Maine Railroad – 66 miles;
- Grand Turk Railroad – 100 miles;
- Canadian Pacific Railway – 302 miles;
- Maine Central Railroad – 1,032 miles; and
- Portland Terminal Company – 105 miles.*

New Hampshire — The state is heavily forested and the lumber, pulp, and paper industries account for a large portion of the state’s economic base. Other rail-oriented products include foodstuffs, textiles, and electrical machinery. Railroads serving the state include:
- Boston and Maine Railroad – 492 miles of track;
- Grand Turk Railroad – 103 miles;
- Maine Central Railroad – 116 miles;
- Claremont and Concord Railroad – 28 miles, combined with
- Wolfboro Railroad.**

Vermont — Vermont relies heavily upon railroads to carry agricultural goods, forest products, marble, machinery, and dairy items. Demonstrating its commitment to continued railroad

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*U.S. Interstate Commerce Commission, Rail Services Planning Office, The Public Response to the Secretary of Transportation’s Rail Services Report (Washington, D.C.: ICC, 1974), p. 3. It should be noted that the figures reported in this section do not reflect recent abandonments related to the on-going Northeast Railroad Reorganization.

**Ibid., p. 11
services, the state has purchased several abandoned railroad properties and leased them to private operators.

Massachusetts — With the broadest industrial base of the New England states, Massachusetts generates a considerable volume of rail-oriented freight. This traffic includes electrical machinery, lumber apparel, leather, and various fish and dairy products. Rail carriers serving the state include:

- Conrail — 900 miles of track;
- Boston and Maine Railroad — 586 miles;
- Providence and Worcester Railroad — 100 miles;
- Central Vermont Railway — 55 miles;
- plus several other Class II and switching railroads.*

Rhode Island — As the smallest New England state in geographic area, Rhode Island also has a limited number of rail carriers. It generates a reasonable volume of railroad traffic through its major point, Providence.

The major types of commodities using railroad in and out of Rhode Island are:

<table>
<thead>
<tr>
<th>Inbound</th>
<th>Outbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals and Allied Products</td>
<td>Pulp Paper, etc.</td>
</tr>
<tr>
<td>Food and Kindred Products</td>
<td>Food and Kindred Products</td>
</tr>
<tr>
<td>Lumber and Wood Products</td>
<td>Shippers Assoc. (Jewelry, etc.)</td>
</tr>
</tbody>
</table>

(Except Furniture)

*ibid., p. 75.
The Class I railroads are AMTRAK, for passenger service, and Conrail, for freight. In addition, there are five (5) short lines, of which the Providence and Worcester is dominant.

The total railroad trackage in Rhode Island amounts to 139 miles.96

Connecticut -- Much of Connecticut's railroad volume originates outside the state. It is a heavy importer of feed and grain. Nearly all the state's 664 miles of rail line are operated by Conrail. The Central Vermont (51 miles) is the only notable exception.97

Financial Status -- Railroads of the New England region also suffer from the traffic imbalance which was previously discussed in the trucking context. They have also witnessed the erosion of the region's industrial base with the attendant loss of heavy manufacturing. The new industry which has developed in the region tends to produce high-value, low-volume traffic which is better suited to motor than rail carriage.

Two of the region's major railroads, Conrail (and its predecessors) and the Boston and Main, have a long history of financial problems. These problems led to a steady deterioration of rail facilities and equipment in the region, and hence declining service quality. However, the situation is improving. The federal government, through several railroad assistance

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97 The Public Response ..., p. 55.
programs, has channeled substantial sums of capital into the region's railroads, and this promises to reverse the system's physical deterioration. In the longer run, this should improve the region's rail service quality and make the railroads more competitive for freight with truckers.

Railroad Service -- As noted earlier in this report, the railroads are primarily involved in the movement of large-volume, heavy-loading commodities in carload lots. As such, their services are not particularly likely to be consumed by the typical small businessman. However, some small manufacturers are likely to rely upon such carload services for either inbound or outbound transportation. It is more likely that the small businessman might be a consumer of TOFC/COFC services which are being increasingly emphasized by railroads in the region.

Exhibit 1 on the next page illustrates the major piggybacking plans which are available to shippers. If the small businessman generates a substantial volume of freight, he might use piggybacking directly; if not, he may use it indirectly through dealings with freight forwarders who often use piggybacking for the line-haul movement of their consolidated shipments.

One other rail-related development which might have relevance to small businessmen in the region is the emergence of a limited number of shipper and buyer cooperatives within the region. These organizations play a freight consolidation role for their members, and in some instances generate sufficient volumes to ship via rail. Such freight consolidation activity can sub-
Exhibit 1

substantially reduce the transportation charges of small businessmen by collectively allowing them to qualify for lower, volume rates.
TOFC PLANS AND RELATED STATISTICS

Plan I Railroad movement of trailers or containers owned by motor carriers, with shipment moving on one bill of lading, and billing being done by motor carriers.

Plan II Door-to-door service by railroads, using own trailers or containers and making pickup and deliveries. Rates similar to those of motor carriers.

Plan II-1/2 Traffic moving in railroad-owned trailers and containers with shippers - including freight forwarders or motor carriers - performing either pickup or delivery service, or both. This is the most popular of the various plans.

Plan III Ramp-to-ramp rates based on a flat charge, regardless of contents of trailers or containers provided by shippers. No pickup or delivery performed by railroads. Rates encourage mixing of different commodities in the load, and no commodity can make up more than 60 percent of the total weight.

Plan IV This plan requires the shipper or forwarder to provide either an owned or leased trailer or container-loaded flatcar. Railroads make flat charge for loaded or empty car movements and furnish only power and rails. Mixed loads are again encouraged by rate structure.

Plan V Traffic moves under joint rail-motor rates or other arrangements of coordinated rail-motor services. Either mode may solicit traffic for through movements.

System Dynamics -- The growing federal involvement in financing a revitalization of the railroads serving the region has already been discussed. It should be noted, however, that there is likely to be growing pressure exerted by railroads in the region to abandon many miles of light-density branch lines within the region. At the same time, there is a strong federal movement to reduce the degree of federal regulation of railroads. Such changes might well accelerate the pace of line abandonment while fostering price increases. The potential impact of these developments, as well as the railroad implications of the growing energy problems of the region, will be discussed later in this paper.

Waterborne Commerce

While New England has more than 125 ports, less than two dozen handle any significant volume of commodities.Ports located in Massachusetts, Connecticut, and Maine, together, account for 90 percent of total New England port commerce, almost on an equal basis.**

The major function of the New England ports is to receive oil and oil products. More than 93 percent of the tonnage of New England's waterborne commerce consists of petroleum-related commodities.** The Port of Boston is New England's largest port


*ibid.*
and the focal point of waterborne general cargo traffic in the region. The majority of general cargo traffic moving through the port moves via containers. During 1978, 86,104 full containers were shipped into and out of Boston. 100 Many of the containers originating in New England are shipped to New York by barge or intracoastal ships. This occurs because New York has access to more ports around the world and commands most of the containerized shipping on the North Atlantic coast.

The existence of such services in Boston (and the availability of support agencies such as ocean forwarders and customs house brokers) gives the small businessmen in the region access to both domestic and international waterborne commerce.

Similarly, general cargo services are available on a much smaller scale at a number of other New England ports, including Providence, Portland, New Haven and New Bedford.

The inland portion of most of the region's traffic which has a previous or subsequent movement by water is dominated by motor carriage. Massport officials have estimated that approximately 95 percent of such movements are by truck. 101 This is not surprising in view of the fact that most such traffic has a land move which originates or terminates within 125 miles of the port. In such short-haul markets, trucking has a decided speed advantage over rail competition.

100 Data supplied by the Massachusetts Port Authority.
101 Improving Intermodal Transportation in New England, II, p. 28.
Aviation

New England's aviation posture has been the subject of a number of Congressional and Civil Aeronautics Board hearings over the past three decades. Each one of these hearings has been the direct result of pressure applied by the New England community, especially the business community, to receive consistent, well-rounded airline service.

Today's New England air service from CAB-certificated air carriers serves the following points:
<table>
<thead>
<tr>
<th>State</th>
<th>No. of CAB Air Carriers</th>
<th>Points with CAB-Certification Air Service June 1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>8</td>
<td>Hartford*, New Haven*, New London*</td>
</tr>
<tr>
<td>Maine</td>
<td>1</td>
<td>Augusta</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Bangor*</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Lewiston</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Portland*</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Presque Isle*</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Waterville</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>22</td>
<td>Boston***</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Hyannis</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Martha's Vineyard</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Nantucket</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>New Bedford</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Worcester*</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>1</td>
<td>Lebanon</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Manchester*</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>5</td>
<td>Providence*</td>
</tr>
<tr>
<td>Vermont</td>
<td>3</td>
<td>Burlington*</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Montpelier</td>
</tr>
</tbody>
</table>

* Indicates point with air service beyond New England and New York City.

+ Includes foreign flag carriers.

This data indicates 20 points with service from the CAB-certificated carriers. However, it clearly points out the dominance of Boston, with 22 domestic and international carriers.

In addition to the CAB-certificated air carriers, New England has service from 19 commuter air carriers. Sixteen (16) of these commuter airlines are based in New England. Commuters are carriers exempt from CAB regulation, who, until recently, have been restricted to the operation of low seating capacity (30 seats or less) aircraft. These aircraft are usually short haul (less than 200 miles) aircraft. Due to these characteristics, these carriers have been operated to the connecting hubs of Boston and New York.

The only CAB-certificated air carrier based in New England is Air New England (ANE). ANE serves 15 points in New England. The only point it serves outside of New England is New York City.

Air freight revenue yields for CAB-certificated scheduled carriers in 1978 amounted to 29.75 cents per revenue ton mile. Local service carriers, whose route systems share similar characteristics to ANE, had a $1.16 yield in 1978. Again relating to ANE, the New England yield is well in excess of $2 per revenue ton mile. Thus, airline freight revenue yields are well in excess of similar yields of other modes as outlined

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above. Also, indications are that New England freight rates are higher than those in the rest of the country.

With respect to New England, the only publicly available measure is the performance of Air New England. Prior to the start of new routes in October 1978, ANE showed an increase in scheduled passenger revenues of slightly more than 10 percent.\(^{105}\) Passenger revenues were approximately 95 percent of non-subsidy revenues for ANE in 1978.\(^{106}\) Thus, it appears New England has slower passenger growth and a lower cargo proportion than the remainder of the country.

One of the dimensions of the limited level of interregional airline service is the undue dependence on the small commuter airlines in New England. A fallout of this dependence is the limited ability of these carriers to carry freight. They operate small aircraft whose freight carrying capacity is usually only a few thousand pounds. In addition, since commuter airlines are exempt from rate regulation, the rates to carry freight to the major hubs, which is at best an ancillary service, are usually extremely high. Thus, the airline hubs for New England, basically Boston and New York, and to a lesser degree, Burlington, Hartford and Providence, are the only points that have what might be termed competitive air freight rates.

\(^{105}\)Civil Aeronautics Board, Form 41 Reports of Air New England, 1978.

\(^{106}\)Ibid.
The financial posture of New England's air carriers has been a long story of subsidized service. Air New England now receives annual subsidies in excess of $4.2 million. In 1978, despite $3.8 million of subsidy on top of $16.8 million in transport revenue, Air New England showed a loss in excess of $1.9 million.\textsuperscript{107}

The predecessor of ANE, Northeast Airlines, was heavily subsidized and frequently incurred losses during most of its 35 years of individual existence. Only when it expanded its routes outside of New England did it show any signs of viability. Eventually, the pressures exerted by the need for significant amounts of added capital funds forced its merger with the much stronger Delta Airlines. Even that was no panacea for New England, because Delta immediately sought, and eventually received, permission to drop service at five New England points. This trend is continuing today, for Delta recently asked permission to cease its service at Presque Isle. Once out of Presque Isle, Delta will be serving only six of the 37 New England points once served by Northeast Airlines.

The commuter air carrier history in New England is replete with financial failures. Since the companies are privately owned, financial data is difficult to obtain, but it is generally observed that most the carriers are struggling financially. At several of the larger commuters, such as Bar Harbor, Pilgrim and

\textsuperscript{107}Ibid.
Command, some profitability exists, but the balance sheets often inhibit expansion into larger, more expensive aircraft.

The performance of the aviation industry in New England since passage of the Airline Deregulation Act in 1978 has merely been a continuation of past trends. Boston and Hartford have received a number of new services and carriers. Providence has lost carriers (American and National) and services. The remaining non-hub points in New England (with the exception of the above-noted request of Delta to stop service at Presque Isle) have been serviced by Air New England and the commuter air carriers.

**Costs Of Transportation To Small Business In New England**

As described in other sections of this paper, freight rates for New England's businesses, especially those with small shipments, are usually higher than those experienced elsewhere in the United States.

The lowest rates per revenue ton mile occur in pipelines and water carriage. These are areas of transportation that have very little service in New England. Rail rates are the next lowest but average three to four times pipeline or water rates. Also, rail requires large volumes, which is more often than not an impossibility for small businesses, with perhaps the exception of wholesale businesses. This leaves the small businesses in New England, for the most part, in the hands of the truckers and, to a very small degree, the air carriers. These are the modes that cater to LCL or small-load shipments.
Average rates for motor carriers in New England, as detailed in the motor carrier section, range 20 to 100 percent higher than elsewhere in the United States. Similarly, higher rates are found in air carriage. It should also be noted that in the statistics of freight carriage by mode of transportation for New England, air carriage is not listed. This is due to the negligible level of carriage by aviation, less than one percent.

One of the difficulties for New England's small businesses, present and future, is that its dependence on motor carriage and air is a potential source of difficulty. These are the modes in which fuel represents the largest proportion of costs.

Discussions with New England truckers indicate that fuel has historically accounted for 8 to 12 percent of their costs. Similarly, discussions with several of New England's air carriers indicate fuel comprises approximately 15 to 25 percent of total costs. Fuel costs experienced by New England's lone CAB-certificated air carrier, "Air New England, usually averages ten cents more per gallon than those of Local Service Carriers based outside of New England.

Forecasts by these same carriers indicate that fuel will approximate 20 percent of costs for truckers and 30 percent of costs for airlines. These forecasts are for the near-term or within the next few years. Interestingly, even railroads anticipate that fuel will soon approach 10 percent of costs.

The inescapable conclusion is that variable costs for the major modes used by New England shippers and consignees will
increase, perhaps even more rapidly than the rate of inflation and prices in general.

The remaining costs of the various modes of transportation are all sensitive to fuel, with the exception of capital costs. Capital costs and the ability to raise capital relate to the return on investment and operating ratios. This is also a problem area in virtually all modes of transportation in New England.

**Future Transportation**

The nature of New England's future transportation system will be strongly influenced by a variety of factors including the movement towards regulatory reform in transportation, increasing fuel costs and possible shortages, and government spending programs. The importance of such factors and their implication for small businessmen in the region are traced on a modal basis in the following discussion.

**Motor Carriage**

The movement toward regulatory reform in motor carriage is well underway at the federal level. Among the major ICC administrative actions to date have been:

1. a dramatic increase in its approval rate on entry applications;
2. an announced intention to substantially reduce regulation of special commodity carriers; and,
3. institution of a proceeding to examine the impact of giving motor carriers a no-suspend pricing zone in which they could raise or lower prices without ICC approval.

At the same time, the Administration has introduced legislation to give carriers much greater statutory freedom in such matters as market entry, pricing policies, and route selection.

Such changes are likely to impact on shippers in the New England region in a variety of ways. It might be expected that considerable new entry will be attracted into the geographic and commodity markets perceived to be more lucrative. This will present shippers and consignees within such markets with a broader range of price and service options. The most obvious downward pressure on the price structure is likely to surface in the competition for truckload quantity (TL) traffic. Since handling such traffic does not involve major financial outlays for terminal facilities, the capital requirements of potential entrants are limited, and competition will likely increase. Therefore, small businessmen who ship or receive truckload traffic may well benefit from such movement.

While the new competitive environment may also lead to rate reductions on high-value LTL shipments, it should be noted that many motor carriers have historically contended that the rate structure on many 100 to 750 pound shipments has been depressed. Therefore, upward pressure on these rates might be expected.
Some concern has been expressed about possible contraction of trucking services to small communities under regulatory reform. This is not likely to occur. Research has indicated that the carriers presently serving such communities find such service profitable and attractive. While some of the carriers presently serving these markets, who do not have regulatory authority to serve major cities, may be expected to shift to larger markets, the relative ease of new entry should preclude major service problems in small communities. While some rate increases in service to these small communities might be expected, potential new entry should protect the public interest.

The price and availability of diesel fuel will continue to cause problems for truckers and small businessmen in the New England region. The disproportionate transportation burden of shippers in the region has already been documented, and it is likely to worsen in the future with fuel-related rate increases. Similarly, limited fuel availability may lead to some contraction of service to marginal markets.

The future is likely to produce mixed results in terms of the financial performance of motor carriers serving the region. Regulatory reforms should benefit the stronger carriers through promotion of more balanced traffic flows and better equipment utilization. However, many carriers who are marginal have been

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108 The Impact on Small Communities of Motor Carriage Regulations Revision, p. 101.
"protected" by existing regulations and should be expected to succumb to growing market pressures.

Private carriage is unlikely to provide a viable transportation alternative for many small businessmen in the region. This is especially true outside the local arena. Despite several ICC actions to remove restriction on private fleets, few small businessmen can afford the capital and organizational commitment involved in such operations.

It should also be noted at this point that the regional highway infrastructure is a growing source of concern. Continued deterioration of highway and bridge facilities, and the inability of state and local governments to cope financially with this problem, will likely necessitate growing federal involvement.

**Rail Carriage**

As noted earlier, future rail service in the region will benefit from the continued and sizeable infusion of federal funds to the carriers involved. This funds flow has promoted improvements in both right-of-way and rolling stock and will foster related service improvements.

At the federal level, there is also a growing sentiment to lessen the regulatory burden faced by our nation's railroads. The Administration has introduced a railroad "deregulation" bill to Congress. Among the major changes envisioned by the legislation accelerated abandonment of light-density branch lines, and greater pricing freedom for the railroads. It is
likely that such changes will occur during the next several years, and they will affect small businesses of the region.

During the Northeast Railroad Reorganization process, the Department of Transportation identified "potentially excess trackage" in the region. The percent of total railroad trackage of each New England state so categorized by the DOT was: New Hampshire-49 percent; Vermont-33 percent; Massachusetts-29 percent; Connecticut-25 percent; Rhode Island-25 percent; and, Maine-5 percent. Even with substantial regulatory changes, there is little likelihood that the railroads involved would move to abandon all of this trackage; further, federal subsidies would likely be expanded to preserve such service. Nevertheless, regulatory changes would likely foster some railroad abandonments in the region, possibly on a sizeable scale. Small businesses in many of the region's small town may subsequently witness a reduction of their modal alternatives. While some traffic might shift to truck with limited difficulty, the related rate increases could cause serious competitive problems for some shippers/consignees.

Granted greater pricing freedom, the railroads might be expected to raise rates on some commodities which are not truck-competitive. In certain other instances, the carriers might be expected to lower rates to become more competitive with trucking. However, with the temporary experimental pricing flexibility

granted the railroads under the 4R'Act, the railroads showed little interest in rate reductions. Railroads in the region have demonstrated growing interest in expansion of piggybacking services. This trend may be expected to continue and may accelerate if federal policy promotes substitution of such service for light-density branchlines in the region.

Further, the ICC is actively considering extension of the agricultural commodity exemption to the railroads. If this occurs, it will likely stimulate a more aggressive railroad posture in competing with truckers for such traffic.

Finally, intercity rail passenger service in the region might be expected to receive increasing scrutiny as pressure mounts to reduce Amtrak's deficit. However, service in the Boston/New York corridor should continue to improve under the Northeast Corridor Improvement Project.

Water Carriage

By far, the most significant water carriage-related development in the New England region is the expansion of the Port of Boston and the growth of container traffic through the Port. This growth, plus the related expansion of rail-water and truck-water intermodal service offerings by carriers, will serve to make waterborne commerce available to an increasing number of small businesses in the region.
Air Carriage

The future of aviation in New England lies primarily in the deregulation process triggered by Congress with the Airline Deregulation Act of 1978.

Thus far, the cargo rates have increased and some cargo services have been eliminated at the major hubs in New England (although Boston now has some new all-cargo services). However, this is a pattern similar to the rest of the country. With the limited capacity of aircraft to carry freight, and the rapidly accelerating costs, especially fuel, of operating airlines, it is difficult to envision a greatly expanded role for air freight in New England, except at major hubs.

This, in turn, means that the small businesses outside of the hubs of Boston, Burlington, Hartford, Portland, and Providence will find it more expensive to use air freight in the future. Conversely, it means that the shippers and consignees at the hubs will probably have access to improved services, especially on combination aircraft as opposed to all-cargo aircraft. Also, consolidations by air freight forwarders at the hubs, especially Boston, will keep rates at reasonable levels for shippers and consignees at these hubs.

Another prospect is for much greater use of a combination of surface (from non-hub points) and air (from hub points). This will be more time consuming, but will keep transportation costs lower. Encouraging carriers to file surface/air rates will be helpful to New England businesses, especially small businesses.
The vital access of the business and tourist community to New England by air should improve at the hub points and, to some degree, to the non-hub points. The major impediment to improved service to the non-hub points is the historically slow growth in New England and the low density of traffic outside of hub points. The latter, in turn, inhibits the use of larger, more economical aircraft. Thus, lower air fares at non-hub points will be harder to realize.

Commuter type airlines will be the source of nearly all non-hub services in New England in the future. This will provide frequency, but high cost and less than commodious service. Pressure will be exerted for larger aircraft, but highly seasonal activity, low density traffic, and limited financial resources will restrict this desired improvement. Thus, New England businesses outside of the hub areas will face continued difficulty in having their air carriage needs met.

Specialized Small Shipment Carriers

Small businesses in the New England region, particularly those located around major cities, will likely witness an expansion of the services offered by specialized mail shipment carriers in the future. United Parcel Service (UPS) is attempting to have the 100 pound per consignee weight limit removed from its operating authority. In view of the movement toward less stringent federal regulation, it seems likely that this weight limitation will at least be raised, if not eliminated. This would be particularly important as an offset if
truckers (assuming pricing freedom), substantially raise their rates on 100 to 750 pound shipments. Elimination or modification of the UPS weight restriction would open many new markets for the company. Also, the bus industry has recently expanded its commitments to parcel service. In fact, it now represents the bus industry's most rapidly growing revenue source. Again, this holds promise for the small shipper. Similarly, Parcel Post has given indications of a strong commitment to service improvements.

Summary And Conclusions

In recent years there has been a tendency to treat New England as a homogeneous economic area. Despite this tendency, the transportation needs of New England are not homogeneous. The multiplicity of industrial changes have made the transportation needs divergent. This has been especially true in the small business arena, where, perforce, the complexion has changed but regulation has limited the flexibility for transportation to change. Thus, the pattern and structure of transportation in New England has changed very little over recent decades.

The future holds prospects for considerable change in New England's transportation system. These changes will be triggered by the national move towards deregulation in all modes of transportation. At the same time, the rapidly increasing fuel prices and fuel availability will also be dominating influences on transportation costs in New England. The impact of these factors will clearly change the transportation structure and pattern of service in New England. These changes will generally benefit.
small businesses in New England. However, it should be noted that this will occur only if management is sufficiently alert to make adjustments to take advantage of the changes.

Identifying transportation costs to small businesses in New England is extremely difficult. Most small businesses are unaware of these costs. Transportation costs are usually part of the purchase price of supplies and thus hidden. Transportation costs for large manufactured finished goods are invariably a cost to the purchaser. Since most small business in New England is in the retail sector, the finished goods sales involve very little transportation.

More specifically, some of the basic changes envisioned for transportation in New England are:

- Transportation rates in New England are currently higher, in all modes, than they are in the rest of the country. With deregulation, the rates should decrease, at least in the short term. This should permit an expansion of market.

- Deregulation by the New England states will probably only follow the initiatives of the Federal government. Maine has already had deregulation proposals, but they have yet to gain momentum.

- Transportation costs to small businesses in New England today are approximately one to two percent of sales. With rapidly rising energy costs, this would reach two
to four percent of sales and adversely impact profit unless pricing is adjusted.

• Rail deregulation will accelerate rail abandonment action in New England. However, shippers and consignees on main lines should benefit from lower costs. This will be especially true of volume shippers, which, of course, are usually not small shippers.

• Trucking deregulation should increase the activity of owner-operators out of New England. With a continuation of the agricultural exemption return to New England, the prices for truckload shippers and consignees should be reduced, at least in the short term. This should benefit shippers and consignees who ship in 30,000 to 40,000 pound quantities.

• United Parcel Service (UPS), now restricted to 100 pound shipments, should be able to move to the 300 pound shipments it now seeks in the event of truck regulation. This most certainly will benefit small business in New England.

• Aviation's contribution to the economy of the United States, and even more so to New England, has been in the transport of people as opposed to the transport of goods. The services that exist tend to funnel through Boston and New York. Airline deregulation has increased travel in and out of New England, but has not yet impacted air freight appreciably.
Like other modes of transport, the inter-city bus services in the Eastern part of the United States have not been highly profitable in recent years. Most of the unprofitable Eastern carriers are located in New England. The trend for these carriers is to expand into small package freight and charter services. This trend should continue and will help small business in New England.

Local airports, which have been a factor in retaining some of New England's businesses, will also have a significant funds requirement. With a finite amount available from the Federal Airport funds (ADAP) planning and selective use of funds will be required. Emphasis must be placed on flexibility of movement.

Consistent with recent trends toward movement to metropolitan hubs in New England, freight forwarded, basically on indirect carriers, will play an increasing role in New England's transportation. Thus, the small business with small shipments will find it more advantageous to utilize freight forwarders rather than the carrier itself.

Savings in transportation costs will be maximized in the future for small businesses with a location in the metropolitan areas of New England.

Lower costs for raw materials transported into New England will tend to improve the environment for
manufacturing finished goods in New England. Thus, the small business manufacturing in New England should increase in the future. Minimally, it should assist in slowing the movement of manufacturing away from New England.

- State highway departments in the future will have difficulty in obtaining sufficient funds to maintain the road network and bridges built in New England over the past fifty years. Thus, there will be less effort expended in new construction. A greater emphasis will be placed on using Federal funds for this purpose.

- Intermodal transportation systems have not generally caught hold in New England. This could change over the next few years with rail, and its large shipments, being the beneficiary.

- Waterborne commerce in New England has not been a significant factor in New England's transportation posture in recent years. Fuel movement has, of course, been the exception. Also, Massport has noted a strong trend of general commodity traffic through its container facilities in Boston.

- New England's historical transportation flow, north-south, has frequently inhibited more efficient direct service outside New England. Deregulation may gradually assist in breaking the traditional flow of goods.
Virtually all modes of transportation have had difficulty in sustaining carriers based in New England. For those surviving carriers, the financial performance has usually been below industry averages.

As can be seen from the above, New England's transportation picture will undoubtedly change over the next decade. The most significant changes will be wrought by energy and transportation deregulation. The former will hurt small business in New England. The latter should benefit small business in New England.

Policy Recommendations:

This analysis of New England's transportation posture, especially with regard to its impact on small businesses, leads to the following policy recommendations:

1. Regional as opposed to state-by-state emphasis in New England transportation planning is needed.

2. Generally, a minimum of governmental involvement in determining the market and structure of transportation is desirable. However, it appears that there are instances, especially in the need for financial support, where government involvement is required. Whenever necessary, this involvement should be tempered and balanced throughout the region.

3. The pace of deregulation in transportation should not be rushed. It should be measured and at a controlled rate. In this manner, a minimum of mistakes will be made, thus
avoiding disturbances of the delicate balance of transportation.

4. As transportation deregulation proceeds, each of the New England states should be in a position to obtain the feedback necessary to guide it into the next phase. For example, airline deregulation is now in process, yet there is little information available with which to assess its impact on New England. Lessons from this legislation should help with other modal deregulation.

5. State deregulation should only come after the Federal program has been designed. Without this order, there will be great difficulty in obtaining regional benefits in New England.

6. Intermodal transportation systems should be encouraged in New England. This is one of the answers to the abandonments that will surely come after deregulation of transportation.

7. Governmental financial involvement in the transportation segment of New England's business should be oriented towards assistance with facilities. This is especially desirable in the construction of intermodal facilities and facilities in the less dense areas of New England.

8. New England governments should lobby strongly for recycling highway trust funds toward highway and bridge maintenance. Additional construction would be costly and
would be accomplished at the expense of the present network of highways and bridges.

9. Extension of the "agricultural" exemption granted by the ICC to surface carriers should be actively supported by the New England community.

10. The small business community could benefit greatly if UPS' request to increase its small package limits from 100 to 300 pounds is granted. Thus, its support should be encouraged.

11. The transportation system has been historically a flow of north-south. This inhibits the efficient movement of goods and services east-west. This historical posture should be reviewed and evaluated as to its impact on small business in this area.
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