THE INTERCITY BUS INDUSTRY

IN THE U.S. AND TEXAS

by

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I. INTRODUCTION

Significant interest has been generated in recent years concerning the operation of the intercity bus industry. The reasons for this interest include the declining financial condition of the industry and the involvement of government in the subsidy and regulatory reform of other transportation modes. Recent government involvement in the for-profit intercity bus industry led to interest in the Texas industry for assistance in assessing opportunities for improvements. This study represents one effort by the Texas State Department of Highways and Public Transportation to provide technical assistance to the Texas Intercity Bus Industry. The study was funded by the U.S. Department of Transportation, Federal Highway Administration.

Study Scope

The primary intent of the study was to develop information and data to provide a definition of the nature and extent of intercity bus transportation in Texas. From a sound base of information, various alternative actions could then be evaluated. A primary area of concern is regulation and the impacts of regulatory changes on service in Texas. Another area of interest is possible actions to increase intercity bus use.

The general organization of the report begins with the presentation of the available data and analysis concerning the national intercity bus industry, followed by the data and research on the industry in Texas. The report then concludes with an examiniation of possible future directions of the industry. Specific chapters include data on history and development of the industry, passenger characteristics, financial conditions, and regulatory

issues. The report is intended to provide a comprehensive look at the industry in the U.S. and Texas.

Data Limitations

It became clear during the course of the research that there are limitations on the accuracy of the data generally available. Because of the data limitations, it was concluded that an explanation of some of the known problems should preface the discussion of the data. Inconsistencies are known to exist in the data and other unknown problems may exist. The authors, therefore, disclaim responsibility for the accuracy of any data attributed to other sources.

The disclaimer is not a repudiation of the total value of the data; it is intended only as a strong warning of its limitations. The following will briefly describe some of the known data limitations.

Much of the data in this report are drawn from Interstate Commerce Commission reports that are filed on a quarterly and annual basis. There are strict guidelines describing the methodology to be used to complete the financial data in these reports, and this information is subject to audits by the ICC. However, no guidelines exist for the sections containing operating and nonfinancial statistics. Rather, the individual companies have developed statistical gathering and reporting methods which fulfill their own internal needs and governmental requirements, thus many of the statistics are at best useful to indicate trends rather than specific numbers.

The most salient example of a basic data limitation is the definition (or in reality, the common lack of definition) of a passenger. Typically, each bus company (and even each route segment for larger companies) will count a passenger "onboard" a bus. Thus, passengers making a long trip may

actually be counted several times when making what the passenger would consider as one trip. Thus, the number of passengers reported has no relationship with the number of persons who made trips. As will be shown later, this method of counting passengers leads to a miscalculation of average trip length. It is also possible that the trend in passengers over time may reflect other factors besides the actual number of trips made. As routes are consolidated or changed, the number of passengers reported may change because of the way passengers are counted.

A study by Ramsdel (1978) suggests that several items of bus passenger statistics may be inconsistent. Items indicated included type of service (i.e., local and suburban), bus miles operated, passenger miles and passengers. Despite the obvious limitations, the reported data does provide an indication of the nature of the industry.

II. HISTORY AND DEVELOPMENT OF THE NATIONAL INTERCITY BUS INDUSTRY

This section presents a brief overview of the historical development of the intercity bus industry in the United States. Included in this section is a discussion of the industry's growth, state and federal regulation of the industry, and the effect these regulatory policies have had on the development of the industry. Much of this section is based on the dissertation of Burton B. Crandall, "The Growth of the Intercity Bus Industry," 1954, his original sources being the only documents available. It should be noted that some discrepancies exist between the national data and some of the research findings for Texas. Any discrepancies will be briefly noted and discussed later in the report.

Early Development

No one date marks the beginning of the intercity bus industry. During the early 1900's, the use of buses for interurban transportation grew rapidly throughout scattered sections of the country. These bus operations prospered as new and better roads were developed and as the popularity of the automobile increased. By 1915, hundreds of small intercity bus companies existed throughout the nation.

The rapid growth experienced by the industry has been attributed largely to the flexibility and convenience of the service, the low capital investment required and the lack of regulation. Additionally, the lack of strong opposition from the railroads, their participation in ownership of various bus companies and their extensive motor bus subsidiaries were important factors in the development of nationwide bus systems. However, it was largely the organization of the industry through associations, the

realization that regulation was desirable and the publication of a trade journal that enabled bus operations to become an efficient transportation system.

Within the intercity bus industry, the need for effective organization was recognized early. Operators began to form state associations in an effort to enforce regulations and control irresponsible operators. By 1926 approximately 36 state associations had been formed. Although the formation of these associations was an important step for the industry, constant reorganization made little more than half of them effective, permanent organizations.

As a result of the ineffectiveness of state associations, efforts were focused on the formation of a national association. In 1925, the Motor Bus Division of the American Automobile Association (AAA) was formed. However, due to the federated form of organization based on state associations, it was plagued with a lack of cooperation. In 1929, the name was changed to National Association of Motor Bus Operators and new by-laws were adopted. This national organization became an independent organization in 1931, and since that time has acted in behalf of the industry before national legislative and administrative agencies.

In 1922, the publication of a trade journal, Bus Transportation, was begun. The purpose of the journal was to help develop bus transportation. This journal became the journal of the industry and has, from its inception to the present, helped to foster unity and cohesion within the industry.

Growth Trends

Figure 1 shows the development of the intercity bus industry in terms of the number of bus companies in operation each year since 1925. As shown, the

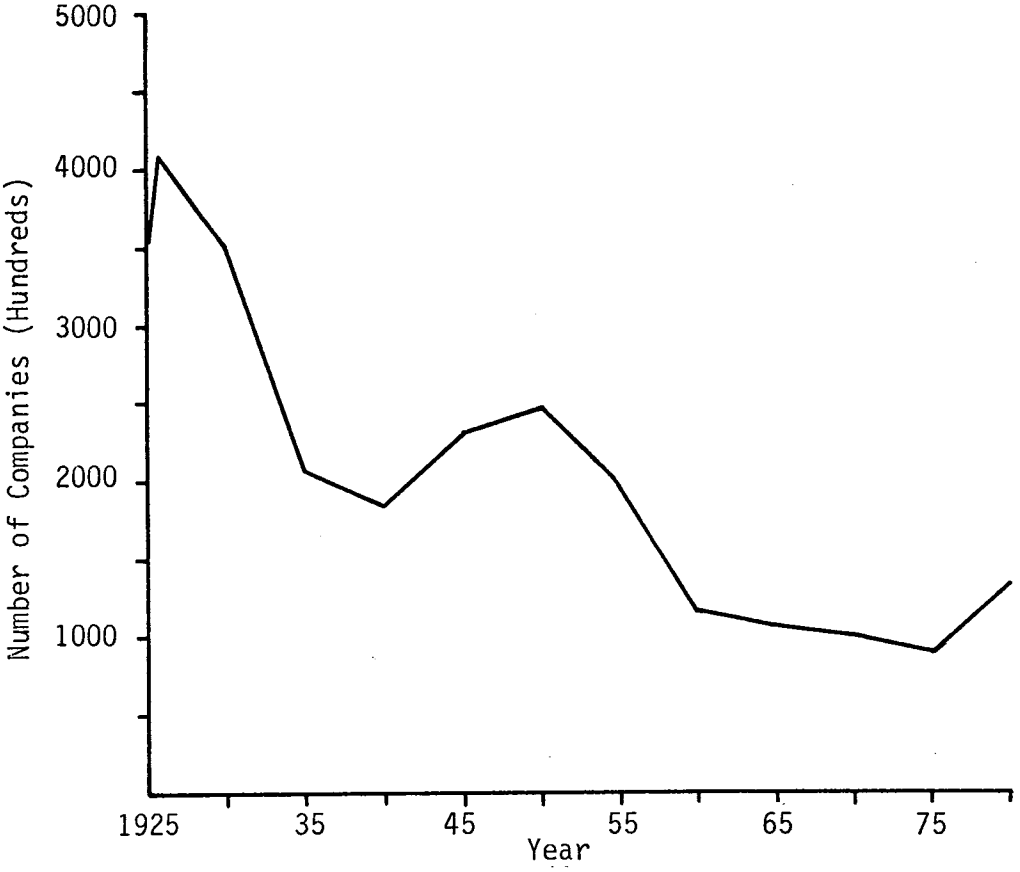


Figure 1: Number of Operating Intercity Bus Companies[1]

[1]Includes all Interstate and Intrastate Class I, II and III Carriers.

Sources: Burton B. Crandall; The Growth of the Intercity Bus Industry, Table A-2; Albert E. Meyer and John P. Hoschek.
Over the Road: A History of Intercity Bus Transportation in the U.S., p.146; American Bus Association Annual Report, 1980.

number of companies declined from a high of 4000 in 1926 to 1800 in 1937. A major reason for this period of decline was the Depression which forced many small owners-operators out of business. During World War II the number of companies increased as a result of the additional passengers generated during this time of gas rationing and increased military service. After 1950, the number of companies again declined. However, this decline is largely due to the increased availability and use of automobile and air transportation since 1950.

The number of passengers carried by bus fluctuated erratically between 1926 and 1939 as shown in Figure 2. Probably, this was largely due to economic uncertainties during the Depression. Between 1939 and 1944, during the height of World War II, the number of revenue passengers increased 330 percent, from 223 million passengers to 958 million passengers. The number of bus passengers has declined since the World War II peak, and by 1979 the number of revenue passengers carried had returned to the prewar level.

The total service provided by the industry in terms of route miles and bus miles has, despite dramatic fluctuations, materially increased since 1925, as indicated in Figures 3 and 4. The number of passenger seats available has more than doubled, from approximately 430,000 seats in 1925 to almost 922,500 seats in 1979, despite a 10 percent decrease in the number of buses in operation. This is due to the increase in the average seating capacity per bus from 23 in 1927 to between 43 and 49 seats today. (Crandall, 1954; American Bus Association, 1980)

The historical trend in the number of passenger-miles operated by intercity bus carriers is shown in Figure 5. As with bus-miles and number of passengers carried, the number of passenger-miles operated increased tremendously during the war years and declined during the fifteen years

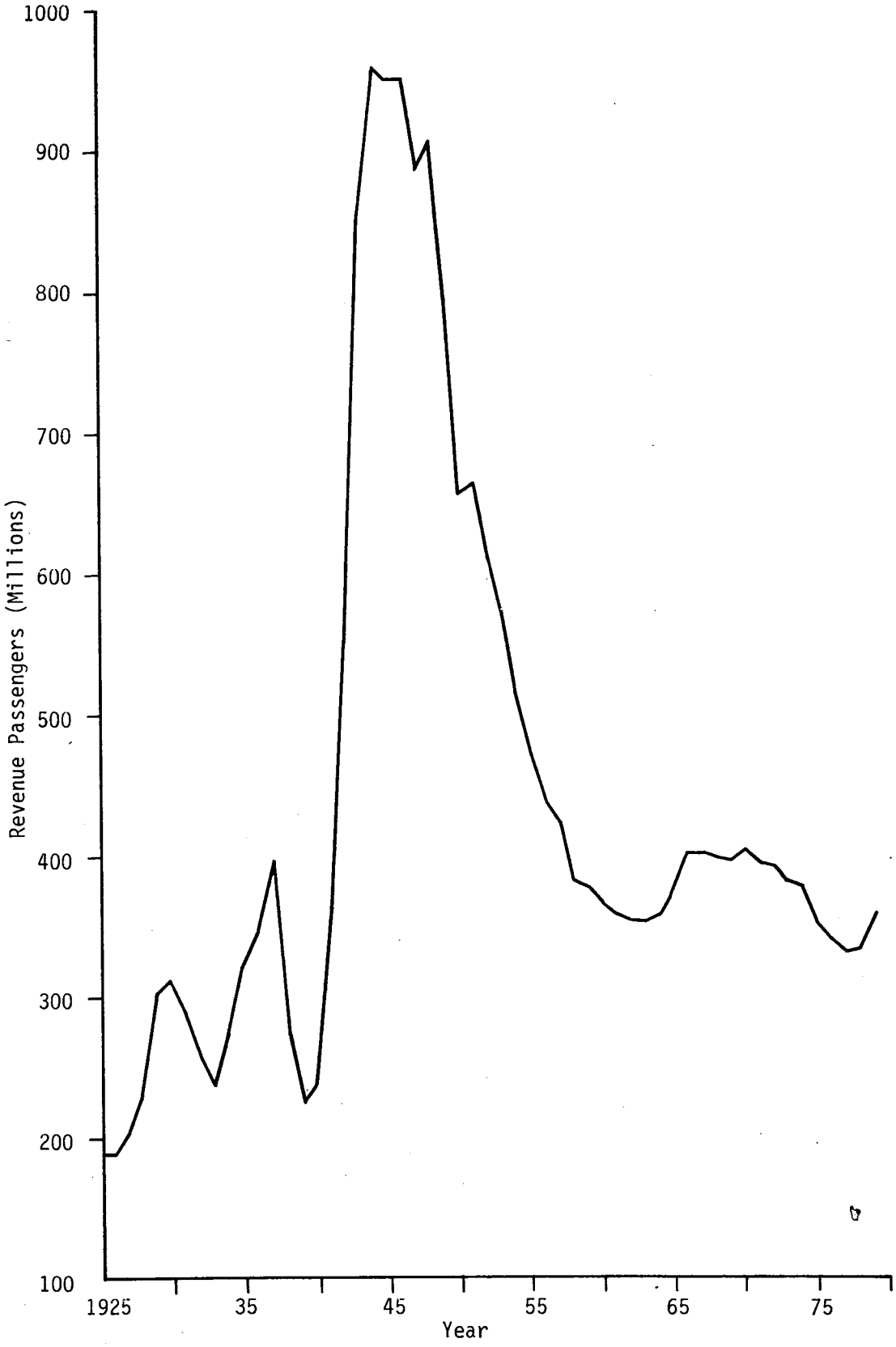


Figure 2: Revenue Passengers

Source: 1925-1973, Over the Road: A History of Intercity Bus Transportation in the United States, Albert E. Meier and John P. Hoschek.
1974-1979, American Bus Association Annual Report, 1980.

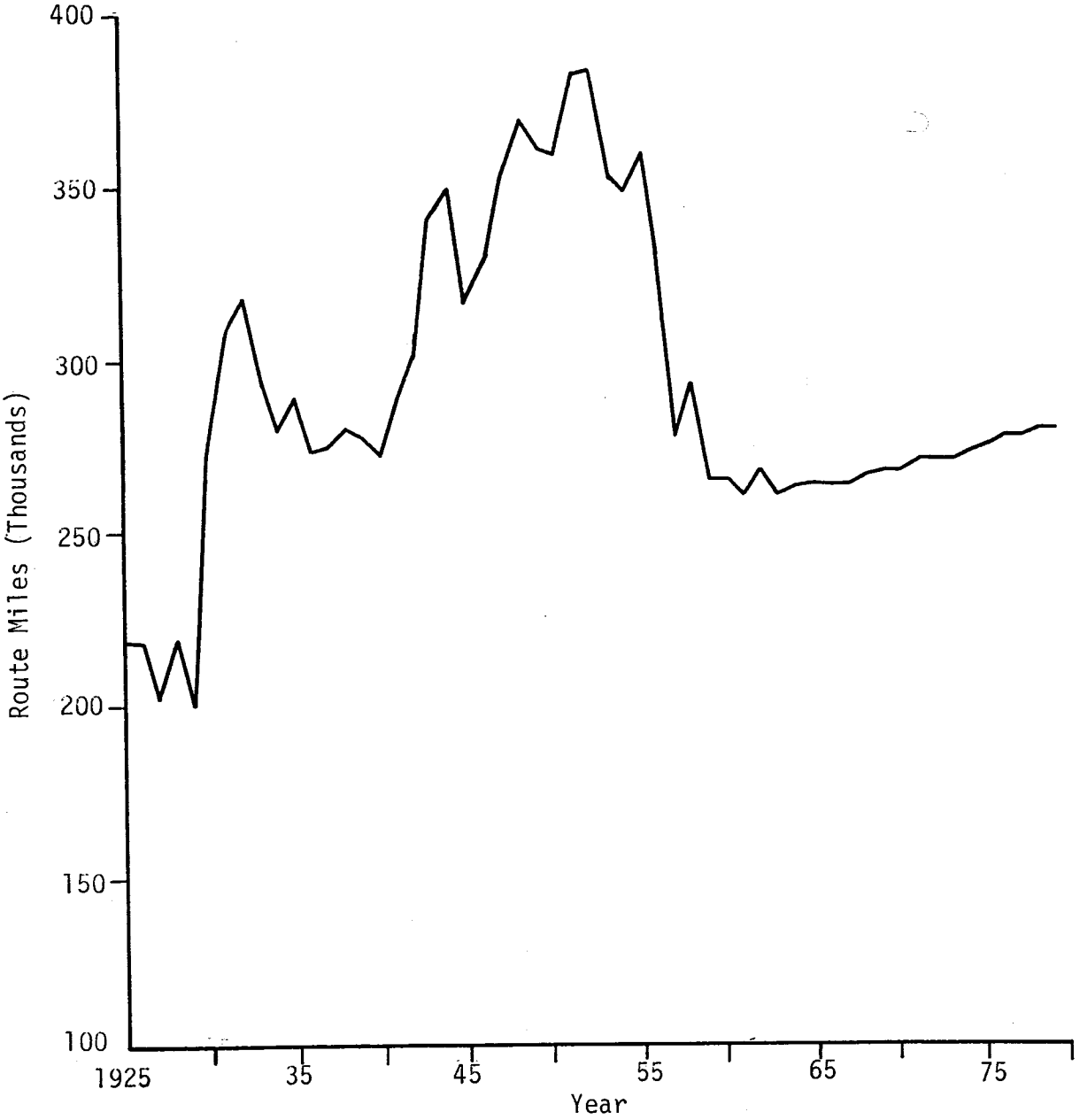


Figure 3. Intercity Bus Route Miles

Source: 1925-1973, Over the Road: A History of Intercity Bus Transportation in the United States, Albert E. Meier and John P. Hoscheck; 1974-1979, American Bus Association Annual Report, 1980.

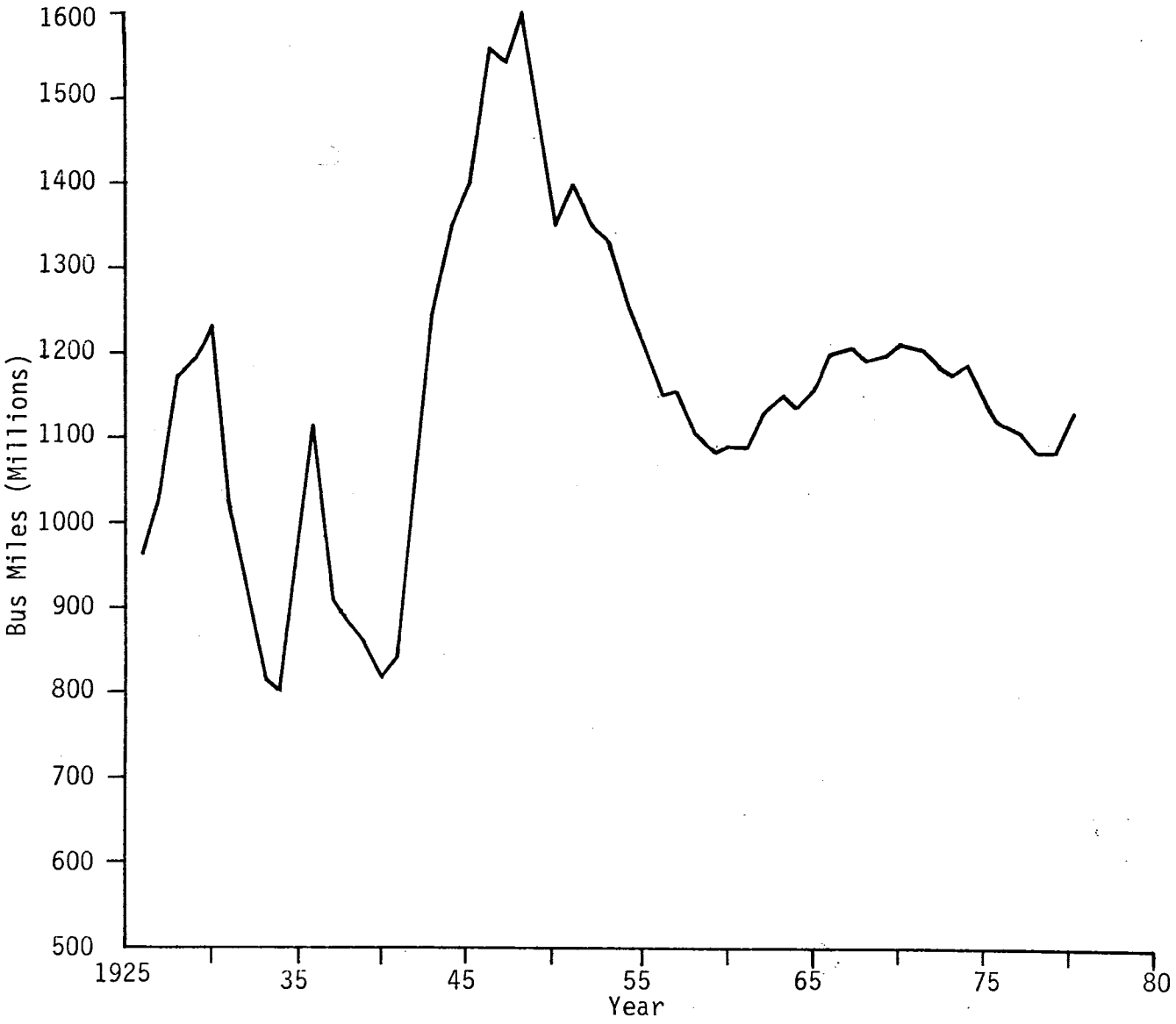


Figure 4: Intercity Bus Miles

Source: 1925-1973: Over the Road: A History of Intercity Bus Transportation in the United States, Albert E. Meier and John P. Hoscheck; 1974-1980, American Bus Association Annual Report, 1980

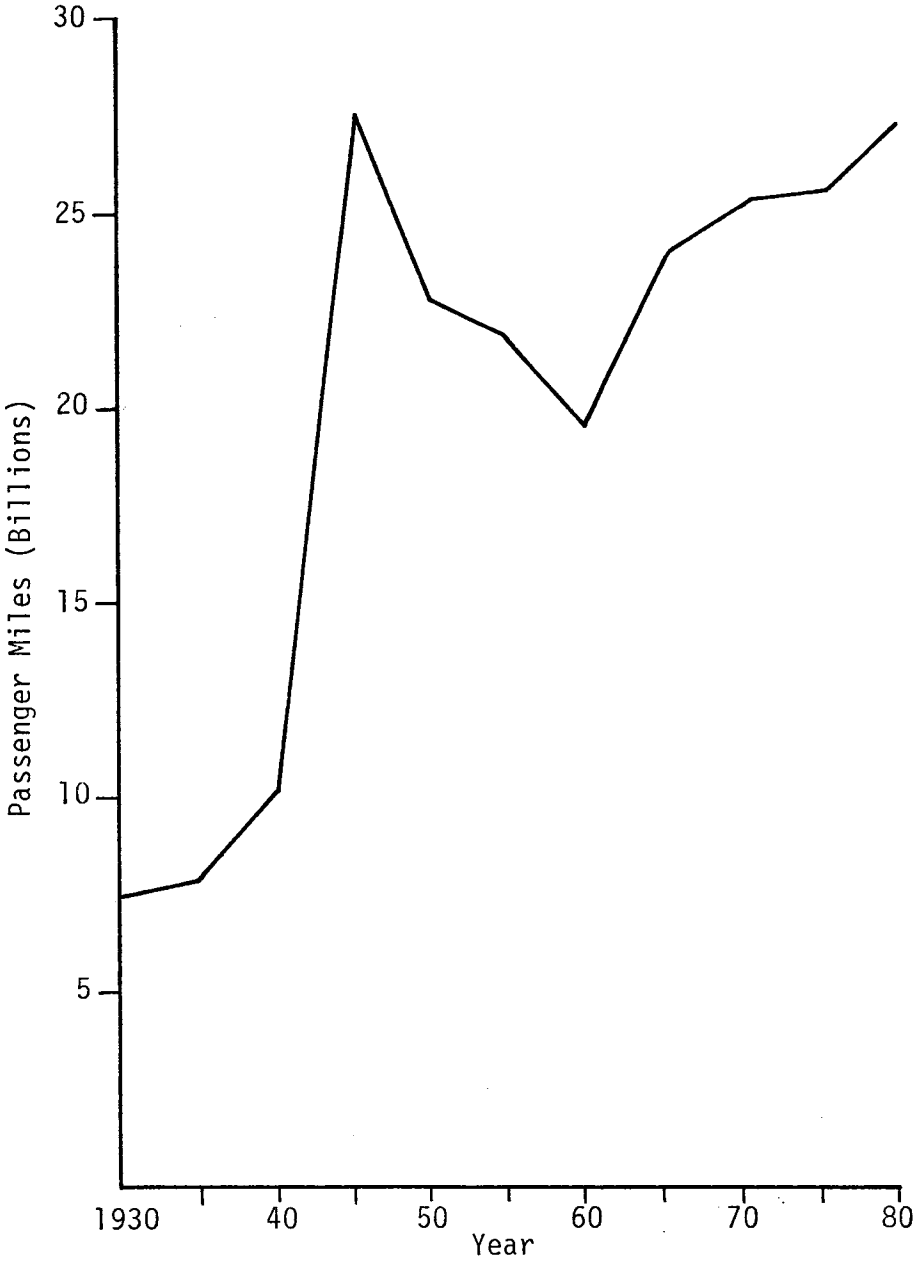


Figure 5: Intercity Bus Passenger Miles (1930-1980)

Source: 1930-1973, Over the Road: A History of Intercity Bus Transportation in the United States, Albert E. Meier and John P. Hoscheck; 1974-1979, American Bus Association Annual Report, 1980.

following the war. Since 1960, the number of passenger-miles has increased steadily, unlike the number of passengers carried. This is due to the increase in the average trip length per passenger from 57 miles in 1952 to 125 miles in 1979. (These national trip lengths differ substantially from the data collected in Texas.)

Although the industry has experienced fluctuations in market demands, it has grown to become the most widely used form of public intercity transportation. Not only is it the most geographically widespread, serving approximately 15,000 communities, but it also carries more passengers than any other public intercity mode of transportation. (Transportation Research Board, 1980)

Regulation of the Industry

State Regulation Prior to 1935

The first state to initiate passenger bus regulations was Pennsylvania in 1914. By 1930, all states, with the exception of Delaware, had instituted some form of regulation of the intercity bus industry. The type and amount of control used by the states varied. Some states extensively controlled certification, service and rates, while others were concerned solely with safety regulations. However, the chief method of control utilized by the states was the power to grant or deny operating certificates. In granting certificates of authority the state commissions were required to interpret the meaning of the phrase "public convenience and necessity" in each situation as established in the Code of Fair Competition of the National Association of Motor Bus Operators. For the most part, the commissions held that if the public in general, rather than a group or groups of individuals, was served, a certificate would be granted.

Under this type of regulation the industry gained considerable financial and managerial stability as the state commissions, in granting certificates, usually favored the existing carrier if adequate service was being rendered. This resulted in protection for existing carriers from excessive competition.

During the early years of regulation the industry was undergoing tremendous growth. Due to the great number of applicants for certificates, the state commissions had difficulty in determining the status of each. In order to ease the burden of these applications, many states issued "grandfather rights". This refers to the policy of issuing a certificate to any carrier that was in bona fide operation as of a certain date. However, under this policy the commissions reserved the right to review these certificates if any questions arose later.

In 1925, the state commissions began adopting the policy of regulated monopoly in dealing with the intercity bus industry. This policy assumed that the motor carrier was a public utility and, as such, was subject to public regulation. Under this policy the existing carrier was considered to be the established carrier and was given priority as long as adequate service was being provided. If the existing carrier was not adequately serving the public interest, the commissions would authorize competing service. This policy worked to the advantage of the railroads which were often the established carrier and thus were generally given priority when they chose to start motor bus operations.

The policy of regulated monopoly helped to provide the maximum utilization of equipment and also enabled the commissions to tailor service to meet public demands. The protection from competition allowed owners to concentrate on improving their services. In addition, the reduction in

competitive expenditures allowed more revenues to be used for expansion of the companies.

The bus industry's favorable attitude toward regulation was important in preventing more restrictive regulatory or competitive policies from being imposed. Lack of opposition to the industry from the public and the commissions, due to the compliance of the industry with the regulations, enabled the industry to expand rapidly.

Consolidation - The period from 1926 to 1930 was one of rapid consolidations in the intercity bus industry. The state commissions were generally in favor of mergers. The regulatory policies followed by the commissions were such that once sufficient certificates were issued to handle the demand, the only way to acquire additional operating territory was to buy-out or merge with existing carriers.

Most consolidations were comprised of integrations of operations between several small towns, or end-to-end combinations to secure a through route between urban centers. The greatest amount of growth, however, occurred within the long-haul interstate lines.

In 1926, a $10 million holding company was formed around the Greyhound Line operating from Grand Rapids, Michigan to Chicago to acquire some interstate routes in the Midwest. Greyhound developed into a nationwide system through the purchase of local and regional bus systems. It was largely the policy of regulated monopoly followed by the states that allowed this national bus company to come about. The regulation of competition gave existing carriers stability and, thus, value as established carriers.

Federal Regulation

Between 1925 and 1930 increasing pressure for federal regulation of the industry developed. This was largely due to a U.S. Supreme Court decision in Buck v. Kuykendall. In this decision, state jurisdiction over carriers operating interstate lines was revoked. As a result of this ruling, carriers could escape regulation as long as they crossed state lines along their routes.

In 1928, as the result of a study conducted by the Interstate Commerce Commission (ICC), it was concluded that regulation of interstate common carriers of passengers should be provided. In 1935, seven years after the study, the Motor Carrier Act was passed by Congress, bringing interstate motor carrier operations under the jurisdiction of the ICC. The act gave the ICC the power to regulate certification and mergers or transfers of certificates of interstate carriers and to regulate the setting of public fares and safety precautions.

Operating Authority - Since gaining regulatory control over the interstate bus industry, the ICC has not followed the policy of regulated monopoly which had been utilized by most of the states. Rather, two different policies have been followed by the ICC. One policy has been to increase the competition of existing carriers in order to promote adequate service. This was accomplished by certifying additional long-haul carriers, by granting extensive certificates to railroad motor bus subsidiaries, and, after 1942, by granting route extensions to and allowing acquisitions by members of the Trailways System in order to unite their routes and compete with Greyhound. One change that the ICC made that augmented this increase to competition was the substitution of the phase "in the public interest" for

"public convenience and necessity" in the certification and acquisition cases. This change was determined in 1936 in the case of Pan American Bus Lines Operation, 1 M.C.C.190. This case involved the granting of a certificate for a long-distance route between New York City and Miami, Florida. The service was to be superior to the existing service, requiring no change of buses and following a more scenic route.

The certificate was highly protested, and the case resulted in the following standards to be considered in the interpretation of public convenience and necessity. First, the proposed service must serve a useful purpose and be responsive to a public demand or need. Second, it should be determined if the proposed service can be provided by the existing carrier. Third, the proposed operation should not endanger or impair the service of existing carriers. Fourth, that competition is not forbidden by the Motor Carrier Act and may serve a useful purpose. These changes allowed the Commission to certify competing carriers on less evidence than was formerly required. (Crandall, 1954)

The second policy followed by the ICC has been to use some restraint in granting competing certificates in order to promote better service. In following this policy, the ICC would grant existing carriers exclusive operating rights within certain areas. Usually, this policy was utilized in allowing acquisitions that reduced or restrained competition. The authority to follow this policy was provided in Section 5 of the Motor Carrier Act. The main problem the Commission faced was in determining the extent to which competition should be restrained. Generally, it was held that when substantial public benefits would result, competition should be reduced.

Fares - Under the Motor Carrier Act bus fares must be nondiscrimnatory, just and reasonable, set at the lowest level consistent

with providing service and published in tariffs. Motor carriers must file their tariffs with the ICC 30 days in advance of the effective date to ensure adequate public notice. If, upon investigation, the Commission finds the fares to be unlawful, the Commission may prescribe the maximum, minimum or actual rate to be charged.

Generally, the ICC has used the operating ratio (the ratio of operating expenses to operating revenues) as the criterion for determining the need for increased revenue. In 1946 it was determined that an operating ratio of 85 before Federal income taxes would produce a reasonable return. This operating ratio of 85 is still used today, although other factors are also analyzed to determine the need for specific rate proposals.

Bus Schedules - The ICC has never required regular route carriers to file schedule changes. The carriers are free to adjust the volume and frequency of interstate service, and can even allow service to become dormant. However, the operating certificates granted by the Commission do require that the carrier maintain adequate and reasonably continuous service. Thus, if the Commission finds that the service rendered is not adequate the carrier may be forced to improve its service or forfeit its certificate.

Package Express, Charter and Special Services - Under the Interstate Commerce Act, passenger carriers are permitted to transport package express traffic within the same vehicle as passengers. Package express authority is not incidental to regular route operating certificates. Rather, the carrier must show that the service is required by public convenience and necessity. In addition, since 1937 it has been held by the ICC that package express authority must be subordinate to the transport of passengers. This means that the carriers' primary service is passenger transportation, and the

comfort, safety and convenience of the passengers must be their foremost concern.

Prior to 1967, any grant of certificate for regular route operating authority included the right for the carrier to engage in charter and/or special service operations as long as the charter service originated within the carriers' regular route operating terrority. The only limit to this Charter Authority was that the carrier must be engaged in regular route service before it can conduct charter service. In June 1967, however, the Interstate Commerce Act was amended to require that any carrier seeking charter authority must specify such a request in an application, and the carrier must also show that public convenience and necessity requires such service.

State Regulation Since 1935

Since the initiation of federal regulation in 1935, some states have continued to consistently follow the policy of regulated monopoly, thereby restricting competition when the existing carrier is rendering adequate service. However, the majority of states have followed the role of federal regulation and adhere to the policy of regulated competition. The reason for this shift in policy was due to the financial stability achieved by the industry. Protecting the industry from all competition was no longer necessary; therefore, the basic consideration used by the states when granting certificates was that the service be in the public interest, rather than required by public convenience and necessity. Although most states began following the policy of regulated competition, they continued to consistently protect the existing carrier by allowing the operator the opportunity to provide additional service before competing certificates were

issued, or by allowing him the opportunity to show just cause why the competing certificate should not be issued.

In summary, the intercity bus industry grew rapidly during the early years of its existence. The interaction between three factors, associations within the industry, the publication of a trade journal, and the recognized need for regulation, helped to foster a stable industry by 1925. It is apparent that regulation, both State and Federal, has had a strong influence on the structure of the industry and helped in the development of two dominant, national carriers, Greyhound and Trailways.

The intercity bus industry has a well-defined market in passenger transportation. The type and extent of services provided are important to the future of the industry and are discussed in detail in the following chapter.

III. NATIONAL INDUSTRY PROFILE

Intercity bus is an integral part of the public transportation system; it also serves passengers who do not have other means of intercity transportation. It provides inexpensive, widespread service to thousands of passengers. This section examines the bus market, passenger characterstics and the structure of the industry in order to facilitate understanding of the issues and policies discussed in later sections.

Bus Passenger Market

The intercity bus industry provides scheduled passenger and express freight service to almost 15,000 cities and towns and charter service to virtually everywhere within the United States. The industry serves 96% of the towns with a population between 2500 and 5000, and all towns with a population greater than 5000. By comparison, approximately 645 cities have scheduled air service and 500 cities are served by Amtrak. (Transportation Research Board, 1980) Thus, the intercity bus industry is vital to many people, particularly people in areas not served by other modes.

Not only is the bus industry geographically widespread, it also carries more passengers than any other mode of public intercity transportation. As shown in Figure 6, the bus industry has, since 1940, carried more intercity passengers than rail or airlines. However, in terms of passenger-miles, airlines have become dominant as shown in Figure 7. In 1940, airlines accounted for 3.3 billion passenger-miles, 1.2 percent of public intercity traffic. In 1979, airlines accounted for almost 85 percent of intercity public transportation passenger-miles. By comparison, bus passenger-miles peaked in 1949 accounting for 35.4 percent of the market, and today account

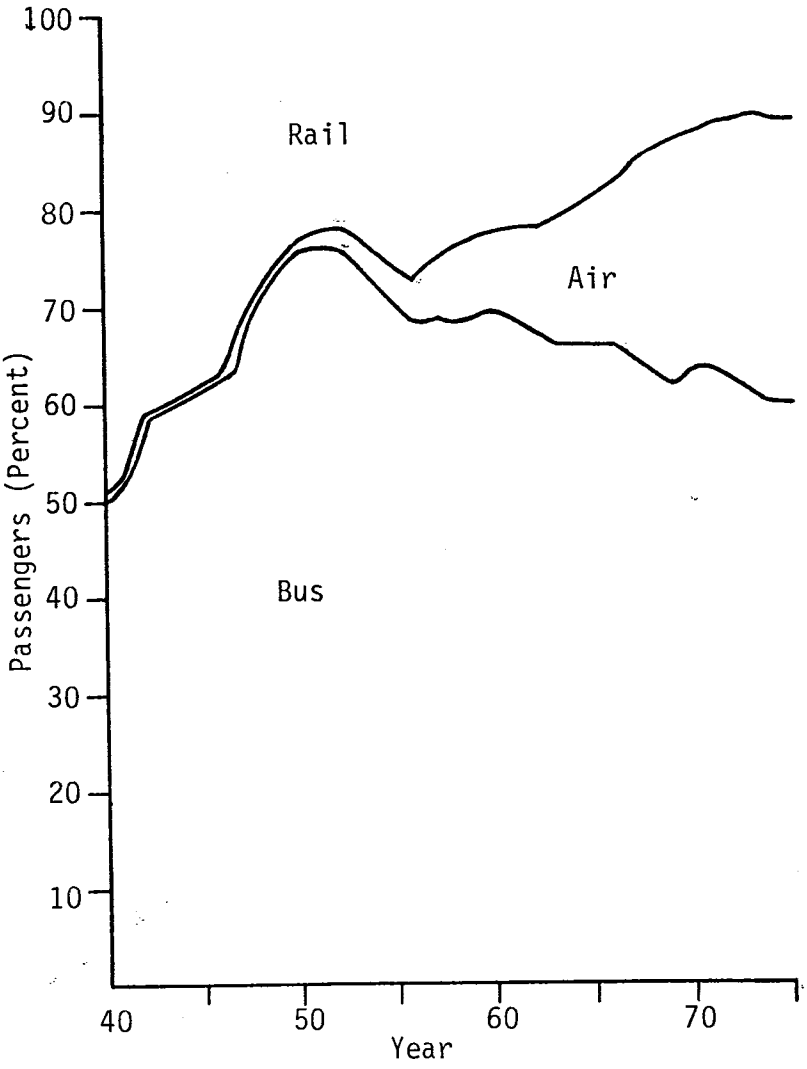


Figure 6: Percent Passengers Carried by Mode

Source: Derived from Transportation Facts and Trends, Transportation Association of America, July 1980.

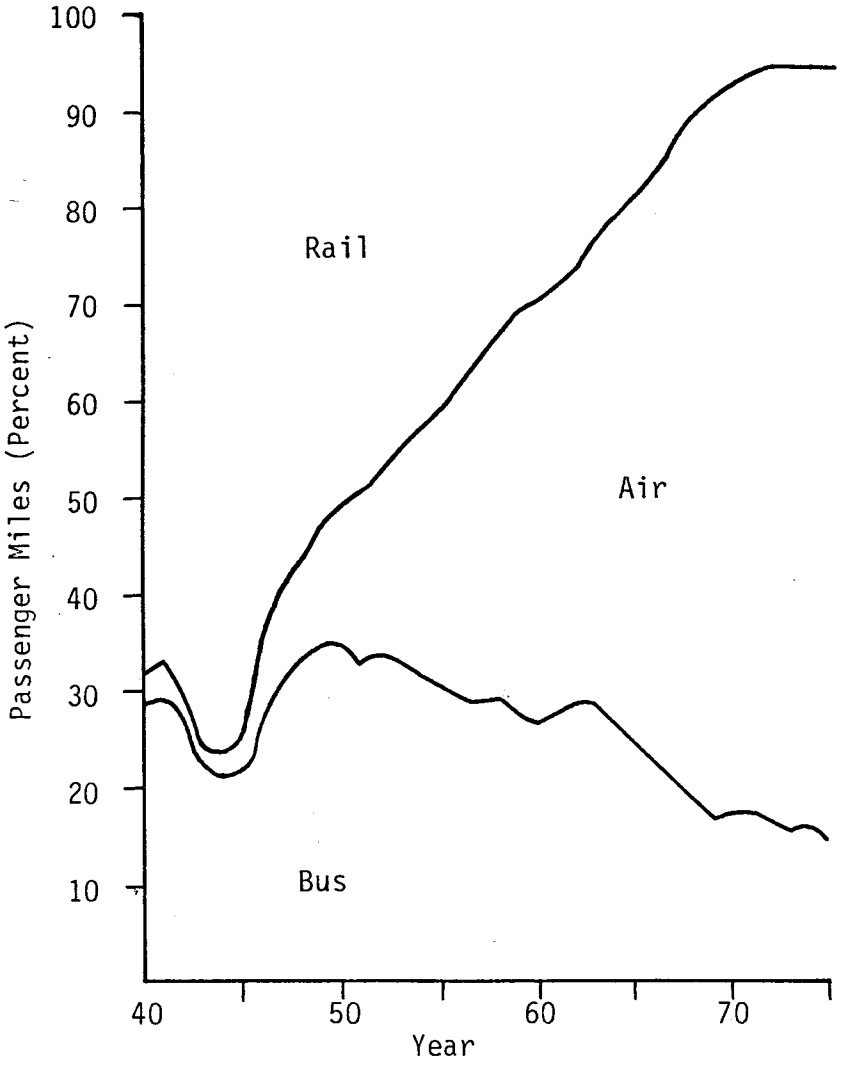


Figure 7: Passenger Miles by Mode

Source: Transportation Facts and Trends, Transportation Association of America, July 1980.

for approximately 10 percent of the intercity public transportation passenger-miles. The great difference in the number of passenger-miles provided by the various modes of public transportation is largely due to the differences in the average trip length. Average trip lengths in 1979 for rail, bus and air passengers were 37 miles, 125 miles and 714 miles, respectively. (Transportation Association of America, 1980). As will be noted later, the actual trip length for intercity bus trips may be longer than reported.

Despite competition between the public modes of intercity travel, the automobile is the strongest competitor of the bus industry. Since the end of World War II, automobile ownership has grown continuously. In fact, auto ownership has grown at a rate greater than the general population growth, as indicated in Table 1.

Table 1: Estimated Auto Ownership vs. Population Growth

Year	Auto Ownership	% Change from Previous Date	Population (Millions)	% Change from Previous Date
1947	30,849,353	-	144	-
1950	40,399,077	30.9	152	5.5
1960	61,682,304	50.6	181	19.0
1970	89,279,864	44.7	205	13.2
1978	116,574,999	30.5	219	6.8

Source: Transportation Association of America, Transportation Facts and Trends, July, 1980.

In addition to the growth of auto ownership, total highway mileage increased by approximately 22% between 1929 and 1975, and, more important, the quality of the highway system has improved. In 1929, only 41.4 percent of the primary state roads were paved, while by 1970 over 99 percent of these roads were paved. (Interstate Commerce Commission, 1978).

In terms of share of the intercity passenger market, the automobile has been the dominant carrier since the end of World War II, consistently accounting for 80 to 90 percent of all intercity traffic. For example, in 1979 total intercity traffic amounted to 1,553.7 billion passenger-miles. The automobile accounted for 1,287.9 billion passenger-miles or 82.9 percent of the total passenger-miles. (Transportation Association of America, 1980) This is approximately 48 times more passenger-miles than provided by bus and 6 times more than provided by airlines. Indeed, as shown by Table 2, the automobile is the major transportation mode for intercity travel even for long distances.

Table 2: Percentage Distribution of Person-Trips by Distance of Trip, 1972

Distance	Person-Trips	Percent by Auto	Percent by Public Transport
200 - 399 Miles	42%	97%	3%
400 - 599 Miles	20%	93%	7%
600 - 799 Miles	10%	88%	12%
800 - 999 Miles	5%	77%	23%
1,000 Miles or More	19%	63%	37%
Outside Continental U.S.	4%	49%	51%

Source: Transportation Association of America, Transportation Facts and Trends, July, 1980.

Estimated Cost of Intercity Passenger Service

Historically, the most important factor influencing the bus fare structure has been competition. As mentioned previously, the bus industry's greatest competition comes from the private automobile, which possesses the advantage of complete flexibility in time, direction and movement. In these respects, the bus is at a disadvantage. However, the advantage of the bus in

this competition with the automobile is in its lower cost to the passenger. The bus industry's present fare structure is the result of the competition from private autos, rail carriers, airlines, competition within the industry itself, and regulation.

Table 3 gives the average cost per passenger-mile by transportation mode. As shown, the differential between the cost of bus and the cost of air or rail travel has narrowed. The difference between bus and rail fares, in particular, has become small, largely due to government subsidies to rail carriers which actually make rail fares lower than bus fares for some trips. The differential between automobile costs and bus costs has not narrowed as much as for other modes. However, the cost differential between auto and bus is not as great as it appears in Table 3 because the data are for one person. Thus, it would be cheaper for a family of four to travel by auto than by any other mode of transportation including bus.

Household and Trip Purpose Characteristics

The National Travel Survey from the 1977 Census of Transportation was utilized to identify various characteristics of bus passengers and their trip purposes. Identification of these characteristics can help establish the particular needs of the bus industry and help provide a basis for public policy decisions regarding the treatment of the services handled by the industry. Although the National Travel Survey is the most complete source of public data on travel patterns, there are two potential limitations in relation to intercity bus trips. First, the census takes into account only those trips in which a person travels at least 100 miles away from home and returns. The average distance traveled by bus passengers is reported (American Bus Association 1980) to be 125 miles. As will be seen later, the

Table 3: Intercity Transportation Fares by Passenger-Mile

Average cents per Mile					
Year	Class I Bus Regular Route	Rail Intercity Coach[1]	Amtrak[2]	Domestic Air Coach & First Class (Total)	Auto[3]
1950	1.89	2.56	-	5.56	6.6
1960	2.71	3.01	-	6.09	9.8
1965	2.88	3.18	-	6.06	-
1970	3.60	3.91	-	6.00	-
1975	4.85	5.40	5.40	7.68	-
1976	5.14	5.74	5.56	8.16	17.9
1977	5.18	5.92	8.30	8.61	-
1978	5.62	5.96	9.04	8.49	-
1979	6.21	6.26	N/A	8.94	20.0

[1]Includes commutation
[2]Amtrak did not begin operating until 1971
[3]Auto costs were not derived for 1965, 1970, 1975, 1977 or 1978

Sources: Bus, Rail and Air data from Transportation Association of America, Transportation Facts and Trends, July 1980, p.7. Amtrak data 1975 and 1976 ICC Report, The Intercity Bus Industry, p.24; 1977 and 1978 Effectiveness of the Act-Amtrak, March 15, 1979. Auto data 1950-1976 ICC Report; 1979 American Automobile Association

average trip length in Texas was estimated to be nearly 500 miles. The second limiting factor of the Census is that its sample is taken for household, intercity travel, thus biasing the data against students and members of the Armed Forces, two groups that historically have relied heavily on bus transportation.

As shown in Table 4, the majority of bus travelers, 60 percent, earn less than $15,000 per year, with the largest percentage of those traveling by bus having a yearly income between $10,000 and $15,000. This is different from the results of the 1972 Census of Transportation which indicated that 60 percent of those traveling by bus earned less that $10,000 per year, with the largest percentage earning less than $5,000. Auto and truck transportation

with camping equipment drew the majority of its ridership from the $10,000 to $15,000 income group. Auto transportation without camping equipment and air and rail carriers draw the majority of their ridership from the highest income category. Analysis of total intercity travel reveals that most travelers, as would be expected, are in the higher income level.

Table 4: Income Classification of Intercity Travelers by Mode (Person-Trips, Percentages)

Income	Bus	Auto[1]	Auto[2]	Train	Air	Total
Under $5,000	19.3	6.4	4.5	9.9	4.8	6.5
$5,000 to $ 7,499	12.2	6.2	4.8	6.5	3.9	6.0
$7,500 to $ 9,999	8.3	6.1	7.1	5.4	4.9	6.1
$10,000 to $14,999	20.3	21.5	23.7	15.2	14.7	20.6
$15,000 to $19,999	15.2	19.7	19.5	13.5	13.7	18.8
$20,000 to $24,999	10.9	15.8	17.9	13.4	16.1	15.8
$25,000 and over	13.4	23.9	22.1	35.8	41.5	25.9

[1]Auto transportation without camper.
[2]Auto or truck transportation with camper.

Source: Derived from 1977 Census of Transportation.

Table 5 shows the age distribution of passengers by mode. As indicated, intercity bus transportation draws almost 50% of its ridership from the under 18 and over 65 age groups, while only 25.4 percent of intercity bus passengers are in the middle age groups, 25 to 54. By comparison, auto and truck transportation without camping equipment had 49.4 percent of their passengers in the 25 to 54 age group, intercity rail had 51.5 percent of its ridership in this age category, and air transportation had 64.5 percent of its passengers between 25 and 54. Fifty percent of total intercity travelers also fall within the middle-aged categories.

Table 5: Age Distribution of Passengers by Mode (Person-Trips)

Age of Traveler	Bus	Auto[1]	Auto[2]	Train	Air	Total
Under 18	33.5	22.5	30.0	15.1	8.5	21.4
18 to 24	13.5	11.9	10.2	13.3	8.0	11.5
25 to 34	9.9	19.7	16.6	25.7	25.6	20.0
35 to 44	7.4	15.1	15.5	13.8	21.1	15.7
45 to 54	8.1	14.6	13.5	12.0	17.8	14.6
55 to 64	10.0	10.1	9.5	10.8	11.8	10.3
65 and older	16.4	5.8	4.3	9.0	6.8	6.2

[1]Auto transportation without Camper.
[2]Auto or truck transportation with camper.

Source: Derived from 1977 Census of Transportation

The sex distribution of passengers by mode of transportation is given Table 6. The majority of intercity bus passengers, 60.9 percent, are female. Intercity bus is the only mode where the majority of the passengers are female. All other intercity modes of travel, as well as total intercity travel, experience a greater proportion of male passengers.

Table 6: Sex of Passengers by Mode.
(Person-Trips)

Sex	Bus	Auto[1]	Auto[2]	Train	Air	Total
Male	39.0	53.9	55.9	59.9	63.1	54.8
Female	60.9	46.0	44.0	40.0	36.8	45.1

[1]Auto or truck transportation with camper.
[2]Auto transportation without camper.

Source: Derived from the 1977 Census of Transportation.

The level of education completed by passengers for the various transportation modes, as presented in Table 7, indicates that most intercity bus travelers are high school graduates. This also holds true for passengers

of auto and truck transportation, both with and without camping equipment. Alternatively, the majority of intercity rail and air travelers are college graduates.

Table 7: Educational Attainment of Passengers by Mode (Person-Trips)

Education	Bus	Auto[1]	Auto[2]	Train	Air	Total
Elementary School or less	32.2	24.4	31.8	16.3	9.7	23.1
High School	43.9	39.1	43.4	25.1	27.1	37.9
College	23.8	36.4	24.7	58.4	63.0	38.9

[1]Auto transportation without camper
[2]Auto or truck transportation with camper.

Source: Derived from 1977 Census of Transportation.

Analysis of the race of intercity travelers by household head by mode is found in Table 8. The majority of passengers for all modes is composed of whites. However, in comparison with alternative modes, intercity bus has the largest proportion of nonwhite ridership, 18.9 percent. Intercity rail is the only other mode that reflects a similar racial distribution, with 15.2 percent of its ridership composed of nonwhites.

Table 8: Ridership by Race of Household Head (Percentages)

Race	Bus	Auto[1]	Auto[2]	Train	Air	Total
White	81.0	94.1	97.8	84.7	93.4	93.5
Non-White	18.9	5.8	2.1	15.2	6.5	6.4

[1]Auto transportation without camper.
[2]Auto or truck transportation with camper.

Source: Derived from 1977 Census of Transportation.

Information on the occupation of the household head by mode is given in Table 9. The bus industry draws a smaller portion of its total ridership from the category of professional occupations than do the other modes. Alternatively, the majority of air and rail passengers are from this occupational category. The bus industry also draws a substantially greater number of retired passengers than other modes, which reiterates the data showing many bus travelers to be age 65 and over. It is also notable that intercity bus carriers have the largest portion of passengers from the household service (6.8 percent) and unemployed (32.8 percent) categories. It is probable that a large number of the riders in the unemployed category are are students or housewives.

Table 9: Occupation of Household Head by Mode (Percentages)

Occupation	Bus	Auto[1]	Auto[2]	Train	Air	Total
Professional, Technical Manager	24.4	38.1	27.4	52.8	60.7	41.3
Farm Owners, Managers, Labor	2.0	2.5	2.6	0.9	0.8	2.2
Clerical Sales	11.0	13.6	9.6	13.6	13.9	13.4
Craftsmen, Operatives, Laborers	22.9	24.0	37.4	8.7	9.4	21.8
Household Service	6.8	4.7	4.1	4.1	2.6	4.4
Retired Persons	14.2	7.4	10.4	9.9	4.7	7.4
Unemployed Persons	32.8	16.8	18.5	19.7	12.4	16.9

[1]Auto transportation without camper.
[2]Auto or truck transportation with camper.

Source: Derived from 1977 Census of Transportation.

Information on trip purpose characteristics is given in Tables 10 and 11. As shown in Table 10, over 55 percent of the intercity bus trips are for either sightseeing and entertainment (31.9 percent) or for visiting relatives or friends (23.7 percent). Only a small portion of bus passengers use the

bus for business travel (8.3 percent) or for outdoor recreation purposes (10.8 percent). Most auto and rail travel were for visiting friends and relatives, while the majority of air travel was for business related travel.

Table 10: Purpose of Intercity Trip by Mode (Person-Trips)

Trip Purpose	Bus	Auto[1]	Auto[2]	Train	Air	Total
Visit friends or relatives	23.7	40.3	20.2	37.8	27.7	36.8
Business & Conventions	8.3	16.3	5.1	34.8	41.1	19.4
Outdoor Recreation	10.8	12.5	45.5	2.7	3.7	13.0
Sightseeing & Entertainment	31.9	11.8	18.7	12.9	15.2	12.9
Other	24.8	18.6	10.1	11.4	12.0	17.4

[1]Auto transportation without camper.
[2]Auto or truck transportation with camper.

Source: Derived from 1977 Census of Transportation.

Table 11 gives the breakdown of vacation and nonvacation trips by mode of travel. The majority of bus trips, 64 percent, were not vacation oriented. Total intercity travel indicated a similar split between vacation (37 percent) and nonvacation (62.2 trips). The majority of air, rail and auto passengers also indicated that they were traveling for nonvacation purposes. Auto transportation with camping equipment was the only mode to experience a majority of vacation oriented trips.

Table 11: Vacation or Other Trips by Mode (Person-Trips)

Trip Purpose	Bus	Auto[1]	Auto[2]	Train	Air	Total
Vacation	35.5	34.3	59.5	27.2	40.8	37.0
Not vacation	64.0	64.9	39.0	70.9	58.7	62.2
Don't know	0.3	0.7	1.3	1.4	0.4	0.7

[1]Auto transportation without camper.
[2]Auto or truck transportation with camper.

Source: Derived from 1977 Census of Transportation.

Table 12 gives the distribution of person-trips by distance and mode. The data show that almost 71 percent of the intercity bus trips are under 600 miles, with close to one-half of the intercity bus trips under 400 miles. Auto transportation, both with and without camping equipment, rail transportation and total intercity travel show similar distance patterns. Only air transportation has a larger percentage of long distance trips, with almost 60 percent of the trips over 1000 miles.

Table 12: Distribution of Person-Trips by Trip Distance by Mode

Round Trip Distance	Bus	Auto[1]	Auto[2]	Train	Air	Total
200 to 399 miles	47.9	59.1	45.9	38.4	4.5	50.4
400 to 599 miles	22.9	18.6	19.2	21.9	7.9	17.4
600 to 799 miles	7.9	7.2	9.0	6.8	8.3	7.5
800 to 999 miles	4.5	4.0	4.4	2.2	7.0	4.4
1000 to 1999 miles	8.2	6.3	9.3	12.7	22.1	8.8
2000 miles and over	4.3	2.8	8.9	14.6	37.8	7.9

[1]Auto transportation without camper.
[2]Auto or truck transportation with camper.

Source: Derived from the 1977 Census of Transportation.

Structure of the Industry

Class I Carriers

Presently, there are more than a thousand intercity bus companies in operation. However, the industry is highly concentrated. The forty-six Class I carriers dominate the industry as shown in Table 13. Although the interpretation of these statistics is difficult due to the periodic reclassification of what constitutes a Class I carrier, it appears that Class I carriers, for most measures, account for 60 to 70 percent of the industry total.

Table 13: Class I Carriers As a Percentage of Total Industry

	1960	1965	1970	1976[1]	1978	1979	1980[2]
Operating Revenue	83.3	86.7	80.1	76.9	72.9	72.1	71.6
Revenue Passengers	73.0	57.9	43.4	42.9	36.8	37.0	35.9
Revenue Passenger Miles	68.0	66.2	56.0	50.0	64.5	63.6	62.4
Bus Miles	77.2	81.6	72.0	74.9	67.2	67.2	65.9
Employees	76.7	78.6	69.5	73.3	66.3	66.1	*

[1]Prior to and including 1976, Class I Carriers are defined as carriers having operating revenues in excess of $1,000,000 annually. Since 1977, Class I carriers are carriers having operating revenues in excess of $3,000,000 annually.
[2]Preliminary.
*Figures not available.

Sources: Interstate Commerce Commission, The Intercity Bus Industry, May 1978; and American Bus Association Annual Report, 1980 and 1981

Within the industry only two carriers, Greyhound, Inc., and Trailways, Inc., are truly national in scope. These two Class I Carriers dominate the industry. Greyhound is the largest of these two companies. Greyhound owns or controls 4 of the 46 Class I carriers, and, in 1976 accounted for a little more than 54 percent of total Class I operating revenues and, as shown in Table 14, almost 44 percent of the total industry operating revenues. In terms of revenue passengers, Greyhound carried approximately 17 percent of the industry's total and 40 percent of all Class I carriers. Greyhound also dominated the industry in bus-miles and employees.

Trailways, the second largest carrier, is comprised of Trailways, Inc., 14 affiliated Class I carriers, and 4 Class II subsidiaries. As shown in Table 14, Trailways accounted for over 18 percent of the total industry operating revenues and 22 percent of Class I operating revenues. In combination, Greyhound and Trailways accounted for a little over 62 percent

Table 14: Greyhound and Trailways as a Percentage of Class I Carriers and Total Industry, 1976.

	Greyhound		Trailways	
	Class I	Total Industry	Class I	Total Industry
Operating Revenues	54.2	43.8	22.5	18.3
Revenue Passengers	40.2	17.2	14.9	6.4
Bus-Miles	51.7	37.9	25.1	18.4
Employees	50.3	36.9	*	*

* Not available.

Source: The Intercity Bus Industry: A Preliminary Report, Interstate Commerce Commission, May 1978.

of the total industry operating revenues. The total number of bus-miles operated by Trailways was approximately one-half that operated by Greyhound. Trailways carried approximately 15 percent of Class I revenue passengers and more than 6 percent of total industry revenue passengers.

Class II and Class III Carriers

Class II carriers with operating revenues between $500,000 and $3,000,000, and Class III carriers with operating revenues of less than $500,000 account for the majority of bus companies, 96 percent of the bus operations in the United States. Most of these companies are very small, many operating only one or two buses. (American Bus Association, 1980) These carriers account for only 11 percent of the regular-route intercity passenger-miles, 8 percent of the regular-route operating revenues, and 23 percent of the regular-route passengers. However, in charter and special service these carriers provide approximately 64 percent of the total passenger-miles, 65 percent of the passengers and 61 percent of the revenues. (American Bus Association, 1980)

Regular-Route Service

The primary service of intercity bus companies is that of furnishing scheduled passenger service over designated routes between cities. The type of regular-route service varies between companies. Some bus operations consist solely of long-haul, trunk-line service, while others include extensive short-distance, branch-line operations. Other carriers, called bridge carriers, fill a gap in the network of another bus line. (Interstate Commerce Commission, 1978)

The type and amount of regular-route service is not always directly related to community size. Many small communities are served by only one carrier while others of equal size are served by several companies. Usually, a rural community will have better service if it is on a through route between two urban areas, if it is located on an interstate highway, if it is located in the South where service is more dispersed, if it has little package express competition, or if it is served by only one carrier. (Transportation Research Board, 1980). These factors contribute to the profitabililty of the route and, thus, help determine the quality of the service rendered.

Since about 1960 there has been a shift in the share of revenue derived from the various bus services. As shown in Table 15, 76.6 percent of the total revenue for Class I carriers in 1960 was derived from regular-route intercity passenger operators. By 1980, only 67 percent of the revenues were from regular route service. This decline in revenues is largely due to the shrinkage in passenger demand for regular-route service. Between 1969 and 1980 the number of regular-route passengers has declined 23 percent, while regular-route intercity passenger-miles has experienced an 9 percent decrease.

Table 15: Percentage Distribution of Operating Revenues for Class I Carriers

Revenue Category	1945	1950	1955	1960	1965	1970	1975	1979	1980[1]
Regular Route	79.8	86.1	83.2	76.6	74.6	70.8	67.2	65.9	67.7
Local/Suburban	N/A	N/A	N/A	5.1	2.2	1.8	1.2	0.7	0.7
Charter/Special Service	3.3	3.4	6.2	7.8	10.6	11.1	15.4	15.2	14.7
Package Express	1.7*	2.1	4.2	7.0	10.0	14.2	13.8	15.9	14.6
Other	-	-	-	2.8	2.5	2.1	2.4	2.2	2.3

[1] Preliminary.
*Package express not classifed in 1945. "Other" income classification used; thus, the value is high since it includes other income sources.

Source: 1945-1955; Summary of Intercity Bus Operations in Tennessee, Tennessee Department of Transportation, 1974. 1960-1965; The Intercity Bus Industry, ICC, May 1978. 1970-1980; American Bus Association Annual Report, 1980 and 1981.

Charter and Special Services

Charter and special party service represents a rapidly expanding part of the industry. The data presented in Table 15 indicate the growing importance of charter operations to Class I carriers. From 1960 to 1980 the total revenues provided by charter has increased 466 percent, from $36 million to $203.8 million. The number of passengers carried and the number of bus-miles operated has also increased. As shown in Table 16, charter service accounted for 12.7 percent of the bus-miles operated in 1970 by Class I carriers and 15.6 percent in 1980. This represents an increase in bus-miles of over 19 percent. The number of passengers carried in Class I charter services increased 17 percent during the same time period.

While charter revenues for Class I carriers have increased significantly, these revenues are even more important to the smaller Class II and III carriers. It is estimated that these carriers earn 70 percent of their revenues from charter services. (Transportation Research Board, 1980) This means that Class II and III carriers together earned approximately $386.8 million in charter revenue in 1980, while Class I carriers earned only

$203.8 million from charter services. (American Bus Association, 1980) In addition, Class II and III carriers handled approximately 88 percent of the estimated 182 million charter passengers in 1979. (American Bus Association, 1980)

Package Express Service

Package express service is incidental to regular-route operating authority. Bus express shipments move over the vast network of regularly scheduled routes, thus providing a relatively fast, dependable, low-cost method for transporting shipments to small communities and rural areas. Package express service is limited in that it cannot interfere with the comfort and convenience of the passengers. There are also restrictions on the weight, size, contents and legal liability of the packages. The typical bus express shipment weighs less than 50 pounds, travels less than 400 miles, and is a commercial shipment. (Transportation Research Board, 1980)

Package express service is a growing source of revenue for the bus industry. As shown previously in Table 15, the share of revenues received by Class I carriers from package express has risen from 7.0 percent in 1960 to 14.6 percent in 1980. Receipts from package express services in 1980 totaled $203.8 million, an increase of 17.8 percent from 1978, and almost 127 percent from 1969. (American Bus Association, 1980)

Despite the increases experienced in package express service, the industry continues to serve only a small portion of the express freight market. There is strong competition with United Parcel Service, Federal Express, U. S. Postal Service, and other air and truck lines. However, bus package express is important to many small communities and for terminal to terminal service is often the cheapest way to achieve next day delivery. (Transportation Research Board, 1980)

Table 16: Passenger Traffic and Vehicle-Miles by Service for Class I Carriers (in millions)

	Service	1970		1975		1977		1978		1979		1980[1]	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Passengers Carried	Regular Route	134	77.0	117.6	77.3	98.9	79.0	97.3	78.2	103.1	77.5	105.0	78.3
	Local	21	12.1	13.7	9.0	11.8	9.4	8.2	6.6	8.7	6.5	8.9	6.6
	Charter	19	10.9	20.9	13.7	14.4	11.6	19.0	15.2	21.2	16.0	20.3	15.1
	Total	174	100	152.2	100	125.1	100	124.5	100	133.0	100	134.2	100
Vehicle-Miles	Regular Route	742.2	85.3	689.0	81.2	629.2	82.11	604.9	81.8	627.1	82.2	650.0	83.5
	Local	16.9	2.0	13.0	1.6	10.6	1.4	6.6	0.9	6.5	0.9	6.8	0.9
	Charter	110.8	12.7	144.9	17.2	125.9	16.5	127.8	17.3	129.2	16.9	121.6	15.6
	Total	869.9	100	846.9	100	765.7	100	739.3	100	762.8	100	778.4	100

[1]Preliminary.

Note: The decline in the number of passengers carried and the number of vehicle-miles operated between 1975 and 1977 is due partly to the reclassification of Class I carriers, and the resulting decline from 81 to 46 in the number of carriers classified as Class I.

Source: American Bus Association Annual Report, 1980 and 1981.

In summary, intercity buses serve more cities and towns, carry more passengers and have lower fares than any other mode of public transportation. The bus passenger market varies from the passenger markets of other modes, generally attracting passengers with household incomes under $15,000, who are either under 18 or over 65 years of age, who are not college graduates, and who are employed in nonprofessional occupations. Bus trips are usually for shorter distances than trips by other modes and are generally for sightseeing or entertainment purposes.

The bus industry is highly concentrated with only two national bus systems, Greyhound, Inc., and Trailways, Inc., which alone accounted for over 62 percent of total industry revenues in 1976.

Within the industry, charter service and package express have become increasingly important sources of revenue for the carriers, while regular route profits have been declining. The current financial condition of the industry is discussed in more detail in the following chapter.

IV. FINANCIAL CONDITION OF THE NATIONAL INDUSTRY

This section presents the recent financial performance of the intercity bus industry, primarily for Class I carriers. The time period analyzed is from 1968 to 1980, except where data were not available for certain years. Included in this section is a discussion on overall carrier profitability, passenger fares, operating revenues, operating expenses and Class II and III carrier profitability.

Profitability of the Industry

The intercity bus industry, as a whole, has suffered a decline in profitability since 1950 and particularly since 1970. As indicated by Table 17, net operating revenues fell between 1971 and 1976 from $94.0 million to $44.2 million, a decrease of 53 percent in five years. During the same time period net income fell by over 40 percent. Net operating revenues increased slightly in 1977 due to an 11 percent fare increase effective May 16, 1977, but fell to a decade low of $38 million in 1978. In addition to the decline of net operating revenues and net income, the industry has also experienced a significant reduction in its return on investment.

The reduced profitability of the industry is due to the fact that operating costs have increased faster than operating revenues, as indicated in Table 18. During the twelve-year period of 1968 through 1980, operating revenues for Class I carriers increased 100 percent while operating expenses increased 114 percent. This rapid increase in costs has caused a significant increase in the operating ratio (the ratio of total operating expenses to total operating revenues) of the industry. As shown, the operating ratio for

Table 17: Recent Operating Results Class I Carriers

Year	Number of Carriers	Net Operating Revenues (millions)	Net Income (millions)	Return on Equity (percent)
1971	71	$ 94.0	$ 64.5	16.1
1972	74	85.7	58.9	14.7
1973	75	76.6	54.6	13.7
1974	81	73.9	56.1	13.3
1975	85	61.1	56.4	12.5
1976	81	44.2	38.6	8.3
1977	46	45.0	61.8	9.3
1978	46	38.4	56.3	6.9
1979	46	58.2	73.1	9.2
1980[1]	46	81.1	108.7	NIA

[1]Preliminary.

Source: 1971-1976 The Intercity Bus Industry, Interstate Commerce Commission, 1978.
1977-1980 American Bus Association Annual Report, July 1980 and 1981. Return on Equity, 1977-1979; Interstate Commerce Commission, Statement 750, 1979.

Table 18: Carrier Profitability Class I Carriers

Year	Total Operating Revenues (millions)	Total Operating Expenses (millions)	Operating Ratio
1968	694.6	613.3	88.3
1969	677.0	593.9	87.7
1970	721.7	639.0	88.5
1971	758.4	664.4	87.6
1972	775.3	689.6	88.9
1973	814.6	738.0	90.6
1974	932.6	858.7	92.1
1975	954.7	893.2	93.5
1976	997.0	952.1	95.5
1977	982.7	937.7	95.4
1978	1,036.7	998.3	96.3
1979	1,205.2	1,147.0	95.2
1980[1]	1,393.9	1,312.8	94.2

[1]Preliminary.

Source: American Bus Association Annual Report, July 1978 and July 1980 and 1981.

Class I carriers has increased from 88.3 percent in 1968 to 94.2 percent in 1980. This represents a decrease of 50 percent in the operating profit margin. The operating ratio for the industry as a whole (Class I, II and III carriers) has also increased, as shown in Table 19, indicating a decline of approximately 30 percent in operating profit margin from 1968 to 1980.

Table 19: Carrier Profitability, Class I, II and III Carriers

Year	Total Operating Revenues (millions)	Total Operating Expenses (millions)	Operating Ratio
1968	797.6	708.7	88.9
1969	845.7	751.9	88.9
1970	901.4	812.2	90.1
1971	953.2	851.8	89.4
1972	974.4	882.1	90.5
1973	1,022.7	937.9	91.7
1974	1,115.9	1,070.6	92.9
1975	1,171.6	1,103.2	94.2
1976	1,231.9	1,179.9	95.8
1977	1,330.9	1,276.2	95.9
1978	1,420.3	1,336.3	96.2
1979	1,654.8	1,564.6	94.6
1980[1]	1,946.5	1,813.0	93.1

[1]Preliminary.

Source: American Bus Association Annual Report, July 1978 and July 1980 and 1981.

Although the profitability of the industry has declined as a whole, the total operating revenues have increased. The rate of increase in revenues varies by the type of operation. As mentioned in the previous chapter, revenues from charter and special service have grown faster than the other passenger revenues. As shown in Table 20, charter revenues have increased

Table 20: Revenue Sources for Class I Carriers (in millions)

Revenue Source	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980[1]	% Increase (Decrease) Since 1968
Regular-Route Intercity Service	488.9	483.2	510.9	540.1	540.3	562.4	647.9	641.9	646.2	649.9	671.7	795.4	943.4	92.9
Local Service	15.0	13.1	13.3	12.6	11.7	13.8	14.0	11.7	12.0	11.1	8.0	8.8	10.0	(33.3)
Special Service	89.5	75.4	79.9	85.5	95.2	104.2	127.2	146.6	162.8	143.8	159.0	181.8	204.0	127.9
Total Passenger Revenue	593.4	571.7	604.1	638.2	647.2	680.4	789.1	800.2	821.0	804.8	838.7	986.0	1157.4	95.0
Package Express Service	83.8	89.7	102.2	104.1	110.1	115.2	121.9	131.2	151.9	154.1	173.0	190.2	203.8	143.1
Other	17.4	15.6	15.4	16.1	18.0	19.0	21.6	23.3	24.1	23.8	25.0	29.0	32.7	87.9
Total Operating Revenue	694.6	677.0	721.7	758.4	775.3	814.6	932.6	954.7	997.0	982.7	1036.7	1205.2	1393.9	100.6

[1]Preliminary.

Source: American Bus Association Annual Reports, 1978, 1980 and 1981.

128 percent between 1968 and 1980 while regular route passenger revenues have increased only 93 percent, and revenues from local service have decreased 33 percent. Of all the revenue sources of the industry, package express has grown the most, 143 percent during the same 12 year period.

Passenger Fares

The increase in total revenues is largely due to increases in passenger fares. Since 1968 passenger traffic has declined 16 percent, yet, the increase in passenger fares has, with the expection of the year 1975, offset the impact of declining passengers on revenues. As shown in Table 21, passenger traffic has decreased eight of the 12 years from 1968 to 1980. However, despite this decline, revenues from regular route service have increased every year but one.

Table 21: Percent Change for Passenger Miles, Average Fare and Revenues for Regular Route Intercity Service, 1967-1979 Class I Carriers

Year	Passenger Miles % Increase (Decrease) from Prior Year	Passenger Fares Cents/Mile Increase (Decrease) from Prior Year	Revenues % Increase (Decrease) from Prior Year
1968	(4.45)	6.70	1.94
1969	(2.18)	6.60	4.20
1970	(5.54)	6.19	5.73
1971	(4.86)	6.38	5.71
1972	(3.74)	3.91	0.04
1973	2.37	1.75	4.09
1974	5.53	9.13	15.20
1975	(9.73)	9.72	(1.0)
1976	(5.13)	5.97	0.67
1977	4.75	0.38	4.99
1978	(4.92)	8.49	3.35
1979	7.18	10.49	18.41
1980[1]	1.25	17.23	18.60

[1]Preliminary.

Source: American Bus Association Annual Reports 1978, 1980 and 1981.

Although fares have steadily increased, 144 percent since 1967, in "real" terms, bus fares per passenger mile were 0.09 cents or 3 percent lower in 1980 than 1967 as shown in Table 22.

Table 22: Average Passenger Fares Class I Carriers
Intercity Regular Route Service

Year	Average Fare ¢/Passenger Mile	Constant 1967 Dollars	Consumer Price[2] Index (1967=100)
1967	¢ 2.98	¢ 2.98	100.0
1968	3.18	3.04	104.6
1969	3.39	3.00	112.7
1970	3.60	2.80	128.5
1971	3.83	2.78	137.7
1972	3.98	2.77	143.4
1973	4.05	2.79	144.8
1974	4.42	2.98	148.0
1975	4.85	3.06	158.6
1976	5.14	2.95	174.2
1977	5.18	2.84	182.4
1978	5.62	2.99	187.8
1979	6.21	3.10	200.3
1980[1]	7.28	2.89	251.6

[1] Preliminary.
[2] Public Transportation Consumer Price Index, Economic Report of the President, January 1980. 1981 Public Transportation Consumer Price Index, Survey of Current Business, U. S. Department of Commerce, May 1981.

Source: American Bus Association Annual Reports, 1978, 1980 and 1981.

Operating Expenses

Table 23 gives the total operating expenses for Class I carriers since 1968. From 1968 to 1980 costs have increased 114 percent, an increase 14 percent above the increase in operating revenues for the same time period.

Table 23: Operating Expenses for Class I Carriers (in millions)

Year	Total Operating Expenses	% Increase (Decrease) from Prior Year	% Increase (Decrease) from 1968
1968	613.3	-	-
1969	593.9	(3.16)	(3.16)
1970	639.0	7.59	4.19
1971	664.4	3.97	8.33
1972	689.6	3.79	12.44
1973	738.0	7.02	20.33
1974	858.7	16.35	40.01
1975	893.2	4.02	45.63
1976	952.1	6.59	55.24
1977	937.7	(1.51)	52.89
1978	998.3	6.46	62.77
1979	1,147.0	14.89	87.02
1980[1]	1,312.8	14.45	114.05

[1]Preliminary.

Source: American Bus Association Annual Reports, 1978, 1980 and 1981.

The breakdown of operating expenses is provided in Table 24. As shown, transportation expenses, which include drivers' wages, account for the largest portion, 43 percent in 1980, of the operating and maintenance expense of the carriers. Despite a 129 percent increase in transportation costs since 1968, the transportation expenses have remained relatively constant as a proportion of the total expenses. (From 1968 to 1980 transportation expenses ranged from 40 to 43 percent of the operating and maintenance expense). The second largest expense category is the station cost. These expenditures have risen 143 percent since 1968 and account for 20 percent of the total operating and maintenance costs.

Equipment and garage maintenance expenses account for the third largest percentage of operating and maintenance cost, 14.5 percent in 1980. This

Table 24: Operating Expenses by Category, Class I Carriers (in millions)

Category	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980[1]
Equipment Maintenance and Garage[2]	89.4	88.0	97.8	101.5	101.1	104.3	118.0	123.7	129.8	124.4	129.2	148.8	170.4
Transportation[3]	221.4	212.5	226.9	236.1	244.0	260.7	316.3	329.7	349.7	348.1	358.1	424.6	507.4
Station	97.6	100.2	110.0	115.2	119.2	127.6	145.7	149.6	163.6	164.2	175.6	204.6	237.6
Traffic, Solicitation and Advertising	20.4	19.7	21.0	21.7	22.4	24.3	28.3	32.5	36.8	36.3	38.8	42.2	45.3
Insurance and Safety	22.7	20.9	22.8	23.3	25.8	29.7	35.7	35.6	37.6	41.2	46.8	50.3	47.4
Administrative and General	61.1	60.1	66.0	70.3	79.7	83.2	93.6	103.2	112.5	114.1	127.4	144.5	160.4
Total Operating & Maintenance	512.6	501.4	544.5	568.1	592.2	629.8	737.6	774.3	830.0	826.3	875.9	1015.0	1168.8
Depreciation & amortization	40.5	34.0	33.3	32.6	29.6	32.5	38.3	38.6	37.0	30.4	38.9	43.9	48.6
Operating taxes & licenses	48.1	46.9	49.1	51.5	54.0	58.9	63.3	64.3	67.3	66.0	68.0	69.3	76.4
Operating rents	12.1	11.6	12.1	12.2	13.8	16.8	19.5	16.0	17.8	15.0	15.5	18.8	19.0
Total Expense	613.3	593.9	639.0	664.4	689.6	738.0	858.7	893.2	952.1	937.7	998.3	1147.0	1312.8

[1]Preliminary.
[2]Includes cost of fuel and oils.
[3]Includes drivers wages.

Source: American Bus Association Annual Report, 1987, 1980 and 1981.

category includes the cost of fuel and oil and surprisingly, accounted for a smaller percentage of total operating expenses in 1980 than in 1968. However, the cost of fuel as a percentage of garage and maintenance expenses has been increasing as indicated in Table 25. In 1971 fuel costs were 33 percent of maintenance expense. By 1974, fuel costs had risen to 46 percent of the garage and maintenance expense and to 72 percent in 1980. Fuel cost as a percentage of total operating and maintenance expenses has also risen since 1974, although not as much as might be expected. In 1974 fuel accounted for 7.4 percent of total operating expenses and 10.5 percent in 1980, an increase of just over three percent.

Table 25: Cost of Motor Fuel Class I Carriers

Fuel Cost	1974	1975	1976	1977	1978	1979	1980[1]	%Increase (Decrease) Since 1974
Millions of Dollars	54.3	57.2	60.8	62.6	61.9	84.5	123.5	127.4
Cents/Gallon	38.6	42.3	45.1	49.5	50.8	66.3	93.4	141.9
Cents/Bus Mile	6.1	6.7	7.2	8.2	8.4	11.1	15.9	160.6
Percentage of Garage & Maintenance costs	46.0	46.2	46.8	50.0	48.0	56.7	72.4	
Percentage of Total Operating & Maintenance Expenses	7.4	7.4	7.3	7.6	7.0	8.3	10.5	

[1]Preliminary.

Source: American Bus Association Annual Reports, 1978, 1980 and 1981.

The four expense categories that have shown the greatest increase since 1968 are station expenses, traffic and solicitation (marketing), transportation, and administrative expenses. Each of these has increased over 120 percent, with administrative costs increasing 162 percent. Traffic

and solicitation is the only category in which outlays are completely at the discretion of the carrier. These marketing expenses rose 122 percent from 20.4 million in 1968 to $45.3 million in 1980. The promotional efforts are directed to increase bus ridership, more specifically to increase the average number of passengers per trip which would significantly increase revenues.

Table 26 presents data for intercity bus employees and their compensation. Wages and salaries for all employees (including drivers) have increased 98 percent since 1968, while drivers' salaries alone have increased 94 percent. The major reason wages have not increased as rapidly as other outlays is that the number of employees has declined. Since 1968 the number of total employees has decreased 16 percent while the number of drivers has decreased 20 percent.

Profitability of Class I Carriers

In general, it is difficult to determine the profitability of specific routes or service to small communities. The most reliable information that is easily accessible is at the company level. This section examines the financial standing of various companies throughout the United States and considers the types of routes served in order to determine the profitability of urban versus rural routes.

The measure of profitability used for the intercity bus industry is the operating ratio. As previously defined, this is operating expenses divided by operating revenues multiplied by 100. An operating ratio of 100 means that revenues are sufficient to cover expenses, a break-even operation. An operating ratio below 100 indicates a profit while an operating ratio over 100 indicates a loss. Although this measure does not take into account

Table 26: Employees and Compensation

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980[1]	%Increase (Decrease) Since 1968
All Employees														
Average Number	37,487	33,628	34,383	34,731	34,147	33,829	35,621	35,140	33,740	29,700	29,362	29.978	31.190	(16.7)
Payroll (millions)	296.8	293.4	316.7	333.9	343.2	363.5	414.6	431.3	459.7	451.9	470.3	529.8	589.0	98.4
Average Annual Earnings	7,917	8,725	9,211	9,614	10,051	10,747	11,640	12,270	13,620	15,215	16,017	17,672	19,170	142.1
Drivers														
Average Number	18,480	16,003	16,111	16,225	16,062	15,598	17,050	17,090	16,310	14,400	14,181	14,215	14,760	(20.1)
Percentage of Total Employees	50.2	47.5	46.8	46.7	47.0	46.1	47.8	48.6	48.3	48.4	48.2	47.4	47.3	-
Payroll (millions)	166.9	163.0	173.9	183.0	188.8	199.8	230.9	238.6	252.7	250.1	256.5	288.2	324.3	94.3
Percentage of Total Payroll	56.2	55.5	54.9	54.8	55.0	54.9	55.6	55.3	54.9	55.3	54.5	54.3	55.0	-
Average Annual Earnings	9,032	10,186	10,794	11,280	11,756	12,812	13,540	13,960	15,490	17,368	18,088	20,274	21,970	143.2

[1]Preliminary.

Source: American Bus Association Annual Reports, 1978, 1980 and 1981.

return on capital investment, it does provide an accurate way to assess the profitability of different companies within the industry.

The profitability of carriers varies by region within the United States. As shown in Table 27, the Western region, which is generally comprised of rural routes, shows the greatest profit margin, while the Eastern region, generally urban routes, indicates a break-even operation.

Table 27: Operating Ratios of Class I Carriers by Districts for 1978

District	Operating Ratio
Eastern District	100.2
Southern District	94.0
Western District	91.1
Greyhound*	97.4
United States Total	96.3

* Greyhound is not divided into districts.

Source: Interstate Commerce Commission Bureau of Accounts, "Financial and Operating Statistics Class I Motor Carriers of Passengers," Statement 750, January 1-December 31, 1978.

As shown in Table 28, seven out of the ten most profitable carriers in 1978 are located in the Western District which includes Texas. These carriers have similar route structures, linking large cities but serving numerous small communities located between these cities.

Table 28: List of Ten Most Profitable Class I Carriers for 1978

Company	District	Operating Ratio
Texas, New Mexico and Oklahoma Coaches, Inc.*	Western	69.8
Union Bus Lines (Now Trailways Texas)*	Western	73.3
Southeastern States	Southern	75.5
California Parlour Car Tours	Western	76.1
Kerrville Bus Company*	Western	78.2
Midwest Bus Lines, Inc.**	Western	84.1
Carolina Coach Company	Western	85.0
New Mexico Transportation Company**	Western	85.8
Conneticut Limousine Service	Eastern	85.9
Trailways Bus System**	Western	87.4

*These companies operate virtually entirely in Texas.
**These companies have significant Texas operations.

Source: Interstate Commerce Commission Bureau of Accounts, "Financial and Operating Statistics Class I Motor Carriers of Passengers," Statement 750, January 1-December 31, 1978

As shown in Table 29, these carriers are also similar in that they provide no local service and, with the exception of two carriers, the percentage of revenues from regular route service is below the national average. The percentage of revenue earned by each of these carriers in charter and special service varies greatly, but several of them had charter revenues well above the national average.

The carriers with the highest operating ratios in 1978 are given in Table 30. All of these companies experienced operating ratios in excess of 100 percent indicating that each operated at a loss. Most of these carriers are located in the highly urbanized area of the eastern seaboard states.

Table 31 gives the sources of passenger operating revenue for these carriers. Generally, these carriers earn a higher portion of their operating revenues from regular route service than do the more profitable carriers.

Table 29: Operating Revenue Sources of the Most Profitable Carriers for 1978

Carrier	Passenger Operating Revenue (Percent)		
	Regular Route	Local	Charter
Texas, New Mexico, and Oklahoma Coaches, Inc.	37.8	0	14.0
Union Bus Lines	44.0	0	19.4
Southeastern Stages	49.5	0	19.3
California Parlour Car Tours	33.9	0	0.9
Kerrville Bus Company	51.8	0	30.1
Midwest Bus Lines, Inc.	62.6	0	5.8
Carolina Coach	70.6	0	12.6
New Mexico Transportation	57.5	0	12.1
Connecticut Limousine Service	95.9	0	4.0
Trailways Bus System	51.7	0	15.9
National Average	65.1	1.7	15.0

Note: Revenues do not add to 100 percent as package express and other revenue are not included.

Source: Interstate Commerce Commission Bureau of Accounts, "Financial and Operating Statistics Class I Motor Carriers of Passengers," Statement 750, January 1-December 31, 1978.

Table 30: List of Ten Carriers with Highest Operating Ratios in 1978

Carrier	District	Operating Ratio
Safeway Trails	Eastern	111.3
Edwards Motor Transit Co.	Eastern	109.3
Maplewood Equipment Co.	Eastern	108.3
Lincoln Transit Lines	Eastern	106.7
Domenico Bus Service	Eastern	104.4
Hudson Transit Lines	Eastern	103.3
American Bus Lines	Western	102.8
Trailways of New England	Eastern	102.4
Trailways of Southeastern Lines	Southern	101.7
Trailways Tennessee Lines	Southern	100.9

Source: Interstate Commerce Commission Bureau of Accounts, "Financial and Operating Statistics Class I Motor Carriers of Passengers", Statement 750, January 1-December 31, 1978.

The exact reason why these carriers are less profitable is unclear. It could be due to the strong intermodal competition in the eastern region of the United States such as Amtrak, or it might be due to the generally shorter route hauls experienced by carriers in the east.

Table 31: Operating Revenue Sources of the Ten Least Profitable Carriers for 1978

Carrier	Passenger Operating Revenue (Percent)		
	Regular Route	Local	Charter
Safeway Trails	73.0	0	13.8
Edwards Motor Transit Co.	71.7	0	15.4
Maplewood Equipment Co.	61.9	26.1	11.4
Lincoln Transit Lines	75.7	0	7.2
Domenico Bus Service	40.9	0	59.1
Hudson Transit Company	81.8	0	14.1
American Bus Lines	64.2	0	20.4
Trailways of New England	77.2	0	9.9
Trailways Southeastern Lines	52.6	0	22.3
Trailways Tennessee Lines	45.1	0	18.6
National Average	65.1	1.7	15.0

Note: Revenues may not add to 100 percent as package express and other revenues are not included.

Source: Interstate Commerce Commission Bureau of Accounts, "Financial and Operating Statistics Class I Motor Carriers of Passengers," Statement 750, January 1-December 31, 1978.

Profitability of Class II and III Carriers

The financial performance of Class II and III carriers has generally been below the level of that of the Class I carriers. However, during the past several years these smaller carriers appear to have been increasing their profitability. As shown in Table 32, Class II and III carriers experienced a decline in profitability between 1968 and 1977. In 1968 the profit margin for these carriers was 7.4 and in 1977 the profit margin was

only 2.8, less than one-half that of 1968. However, in 1978 and 1979, Class II and III carriers increased their profitability. During these two years the operating ratio returned to, and decreased from the 1968 level. Net operating income increased 440 percent from 9.7 million in 1977 to 52.4 million in 1980.

Table 32: Operating Statistics for Class II and Class III Carriers

Year	Number of Companies	Revenue Passengers (millions)	Operating Revenue (millions)	Operating Expenses (millions)	Net Operating Income (millions)	Operating Ratio
1968	877	168.3	103.0	95.4	7.6	92.6
1969	980	218.2	168.7	158.0	10.7	93.6
1970	929	227.0	179.7	173.2	6.5	96.3
1971	929	228.2	194.8	187.4	7.4	96.2
1972	926	229.0	199.1	192.5	6.6	96.6
1973	925	226.2	208.1	199.9	8.2	96.0
1974	869	217.3	219.3	211.3	8.0	96.3
1975	865	198.8	216.9	210.0	6.9	96.8
1976	869	194.1	234.9	227.8	7.1	96.9
1977	1004	202.9	348.2	338.5	9.7	97.2
1978	1054	213.5	383.6	368.6	15.6	95.9
1979	1104	226.0	449.6	417.6	32.0	92.8
1980[1]	1284	238.8	552.6	500.2	52.4	90.5

[1]Preliminary.

Source: American Bus Association Annual Reports, 1978, 1980 and 1981.

As with Class I carriers, these smaller carriers have been plagued with a faster increase in operating expenses than in operating revenues. Although the number of revenue passengers has increased and fares have increased, revenues have not kept pace with expenses.

In summary, the trend in financial performance of the intercity bus industry during the past decade indicates that it may be a declining industry. What to do, if anything, about the effect of diminishing revenues and rising costs is a major policy issue facing the industry. Any decision made in regard to public policy reforms may influence the industry's ability to serve the public in the future.

V. NATIONAL REGULATORY ISSUES

The regulation of the intercity bus industry controls entry, exit, fares, safety and insurance. It continues today in essentially the same form as it did forty years ago, although the Interstate Commerce Commission has eased the regulatory barriers to entry into the industry. It appears that economic regulation aided the industry during its development, but may now be hindering the ability of the industry to adjust to rapid changes in demand and costs. Faced with the growing problem of declining ridership and increasing costs, and the inability to adjust service and fares accordingly, the industry has begun seeking changes in the current regulation.

This section addresses some of the issues that should be examined in the consideration of regulatory reform. Some of the issues presented address the needs and concerns of the industry while others are more directly concerned with the needs of the public.

Industry Issues and Problems

Industry Structure

The intercity bus industry has two very different characters. One represents the long-distance travel between urban centers and the other represents the short-haul routes between small communities or between small communities and urban centers. Greyhound and Trailways, Inc. (i.e. Trailways owned companies) typify the long-haul business while small independent carriers (including Trailways affilliates) typify the short-haul business. A notable subgroup between the long-haul and short-haul carriers is the bridge carriers. The bridge carriers enjoy a portion of the long-haul business, but operate in many respects like the independent carriers. Each of these

characters of the industry has different market and cost structures, yet both have been experiencing declining demand and increasing costs. (Transportation Research Board, 1980).

The existence of these two segments of the industry pose problems when considering changes in regulatory policies. Would total or partial deregulation or a mixture of different levels of regulation serve these segments of the industry best? Any decisions regarding regulation must consider the various needs of these two components of the industry to ensure that policies do not give one component advantages over the other.

Cross-Subsidization

One of the major concerns of the industry is the unprofitability of certain routes. Under current regulations, carriers must continue to provide a "satisfactory" level of service on routes regardless of the demand. Some of these routes are unprofitable and are supported by cross-subsidies.

The three types of cross-subsidy that are believed to exist in the operation of intercity bus carriers are the support of unprofitable routes by 1) profitable routes, 2) package express, and 3) charter operations. Generally, these types of subsidies are categorized two ways, interservice cross-subsidy and intraservice cross-subsidy. Interservice cross-subsidy refers to distinctly different service offerings within the industry. For example, a carriers's charter service with an operating ratio of 0.7 (cost divided by revenue) could be said to be providing interservice subsidy to regular route passenger service with an operating ratio of 1.2. Intraservice cross-subsidy refers to a divergence of revenues within the same service offering or group of service offering. Intraservice cross-subsidy is illustrated by a bus system that has an operating ratio of less than 1.0 in

one geographic area or on a certain route and an operating ratio greater than 1.0 in a different area or on a different route. In this situation, it is assumed that the profitable area or route will be subsidizing the unprofitable ones. Intraservice cross-subsidy is also believed to occur where unprofitable regular route service is subsidized from profitable package express and other incidental services such as baggage, mail and newspapers. In this situation a certain route may be unprofitable carrying passengers alone, but become profitable when revenues from package express and other incidental services are taken into account.

> Intraservice cross-subsidy, whether between routes or through package express and other incidential services, is not a clear case of cross-subsidy. Evidence of this type of subsidization is difficult to find due to the inability to allocate the cost of operating the bus to passengers and to other sources. (Interstate Commerce Commission, 1978)

The major question raised by the existence of cross-subsidization is whether it is equitable to require private firms or other passengers to subsidize the need of a small group of people. This particularly becomes an issue in light of the public subsidies paid to airlines to continue essential air services to small communities and the public subsidization of Amtrak routes. (Management Analysis Center, Inc., 1981)

Intermodal Competition

The intercity bus industry encounters strong competition from the recently deregulated airline and the federally subsidized Amtrak rail services. At issue is the advantage given to these intercity bus competitors through a deregulated environment and/or federal subsidies.

Under the Airline Deregulation Act, airlines are required to continue certain essential air services to small communities, utilizing federal

subsidies where necessary. Subsidies for these services are based on the average costs, including return on investment, and revenues received by all eligible carriers. During 1979, the first full year under deregulation, air carriers received $84 million in federal support. Although airline deregulation occurred too recently to determine the effect on intercity bus operations, it is believed that a portion of the passengers utilizing the new low-cost air shuttle and commuter services were diverted from the bus. (Management Analyses Center, Inc., 1981)

The federally subsidized Amtrak began in 1971. In 1979, Amtrak received $779 million in public aid and still was not profitable on even one route. (Management Analysis Center, Inc., 1981). The effect of this public aid has been to enable Amtrak to offer service and fares competitive with bus operations. The strongest competition between the two modes occurs in the Northeast Corridor where bus passenger-miles decreased 26% and Amtrak passenger-miles increased 33% between 1971 and 1976. There is little doubt that a portion of the Amtrak passengers would otherwise have taken the bus. (Management Analysis Center, Inc., 1981)

In contrast to the public support provided to airlines and rail service, intercity bus carriers received no public aid. Under the 1978 ammendment to the Urban Mass Transportation Act of 1964, Congress authorized funds for the industry. These funds were to be grants to state and local governments to provide for purchase-of-service agreements to provide intercity bus service to rural areas, and to provide for facilities that would aid intermodal use of intercity buses. The funds were never appropriated. However, in recognition of the fuel efficiency of buses, Congress, in 1978, did reduce the federal excise tax on intercity bus carriers. (National Transportation Policy Study Commission, 1979)

Small Carrier Concerns

As suggested previously, many small bus firms are opposed to total deregulation fearing predatory behavior from the larger national companies. However, studies indicate that significant economies of scale (declining unit costs as firm size increases) do not exist in the bus industry. (Pinkston, 1975; Fravel, 1979). Although large carriers do not enjoy cost economies with their size they do have the advantage of large service networks attractive to long-distance riders. However, smaller carriers generally have lower operating costs due to lower wages. Thus, small firms may be able to offer lower fares than the large carriers. (Transportation Research Board, 1980).

Although it appears that many small carriers could hold their own against the larger firms in a deregulated environment, it may not be true for some. What about small firms which solely operate bridge routes, filling in service gaps of the larger carriers' networks? They may suffer when free entry allows the larger firms to operate those routes and provide more direct, convenient service to passengers. Furthermore, how long can small firms continue to rely on lower operating costs as the cost of labor and insurance continue to increase?

Issues in the Public Interest

Level of Service

The present government view, in light of current regulation of service, appears to be that of maintaining existing service despite changing demands and costs. (Management Analysis Center, Inc., 1981) One of the major concerns about bus deregulation is the level of service that will be

provided, especially to small communities and rural areas. In many of these areas intercity bus is the only form of public transportation available. The demand for bus service has declined with increased auto availability, making some of these routes unprofitable. It is feared that deregulation of the industry would allow bus firms to abandon these routes, leaving many people without transportation. (Committee on Commerce, Science, and Transportation, 1978)

A recent study indicates that the number of people in small communities that would be affected by loss of service would be very small. Seventy percent of the bus riders traveling over 100 miles reside in Standard Metropolitan Statistical Areas (SMSAs) and 66% of the trips over 100 miles are to SMSAs. For trips less than 100 miles in length, these percentages are even higher. It was estimated that the loss of 10% of all bus service originating outside metropolitan areas would affect only 0.15% of all person-trips over 100 miles in length. Furthermore, 52.1% of the households living outside of metropolitan areas own a car, and thus have access to an alternate mode of transportation. (Management Analysis Center, Inc., 1981)

The above data indicate that most individuals living in small communities and rural areas would not be affected by the loss of intercity bus service. However, there remains a "captive" market, the poor, the elderly and the young, who often do not have access to automobile transportation. Judging from the previous data, 47.9% of the households living outside of metropolitan areas do not own an automobile. Thus, there may be a need for continuing to provide bus transportation to small communities and rural areas. If such a need exists, but demand remains low, some method of continuing service might be implemented without requiring

private bus firms to cover the costs through user subsidies from state or local agencies. (Committee on Commerce, Science, and Transportation, 1978)

Fares

Another public concern about bus deregulation is the possibility of unjustified fare increases, particularly where no competition exists. This situation is most likely to occur if fare restrictions are loosened without easing entry restrictions. Under total deregulation, however, the threat of potential competition from new entrants into profitable routes should keep fares from rising to excessive levels.

Fares on those routes which have been supported by cross-subsidies would be expected to rise to a level that would cover the marginal cost of the service. The alternative to this increase is for the bus firms to eliminate the unprofitable routes. If the service is highly needed but the individuals are unable to afford the cost, then some form of federal, state or local subsidy may be required. (Committee on Commerce, Science, and Transportation, 1978)

The Issue of Regulation

Historically, any industry which has sufficient economies of scale to make it a natural monopoly or is "affected with the public interest" has been subjected to regulation. Each of these regulatory rationales, as they apply to the intercity bus industry, are discussed in this section.

Natural Monopoly

A natural monopoly occurs where unit costs decline with increases in output of goods or services resulting from economies of scale within a

company. The reason for this situation is that a large capital investment is required in order to serve customers on demand. Natural monopolies are regulated in order to ensure quality service to the consumer. This is accomplished by restricting entry, regulating prices and providing mechanisms to ensure a certain level of output by the industry. (Fravel, 1979)

Economies of scale and large investments, which are indicative of natural monopolies, have not been found to be present in the intercity bus industry. (Pinkston, 1975) Small bus firms are able to operate at the same, or sometimes lower, cost as the large bus companies. Additionally, entry into the industry is relatively easy to achieve in terms of costs because the initial investment is relatively low. (Committee on Commerce, Science, and Transportation, 1978)

It appears that the monopolistic position of bus companies has occurred because of regulation. Due to strict entry regulation, very few firms have been granted new operating rights since the passage of the Motor Carrier Act in 1935. Hence, rather than being regulated because the industry is a natural monopoly, the industry has become monopolistic because of regulation. (Committee on Commerce, Science, and Transportation, 1978)

In the Public Interest

Industries which provide goods or services that are essential to the public are considered to be "affected with the public interest." These industries are regulated in order to ensure that these goods or services are available to the public at a certain level of quality or quantity.

The intercity bus industry is considered to be "affected with the public interest" in that many people depend on its services. Because of this, it is

presumed that regulation is necessary to ensure that the industry provides the service according to its operating authority.

Although regulation of industries "affected with public interest" is justifiable in many cases, not all industries which are vital to the public are regulated. In many cases, the forces of competition are a sufficient restraint to guard against abuse. (Committee on Commerce, Science, and Transportation, 1978)

If not all industries essential to the public are regulated, then why is the intercity bus industry? One study suggests that the existence of cross-subsidy within the industry provides the rationale for regulation. Regulation in this case is used to ensure that certain public services are provided at lower rates, in larger quantities, and in more locations than would be provided in an unregulated, competitive market. Entry, exit, level of service and market expansion must be regulated in order to ensure that the source of the subsidy is maintained and that the subsidy is used to continue unprofitable service. It appears that this may be why the intercity bus industry is regulated. Internal cross-subsidization exists within the industry; regulation ensures these subsidies so that the industry will continue to provide service in more locations and in larger quantities than would be provided without the regulation. In this manner, regulation of the industry protects the public interest. (Fravel, 1979)

Regulatory Reform

Deregulation proposals have come from governmental and industrial sources, each with various recommendations on what types of regulatory reform

should be instituted. In this section the most recently proposed legislative reform prepared by the Interstate Commerce Commission (ICC) is presented, and the recent bus deregulation in Florida is examined.

The Motor Bus Act of 1981

Due to the overall performance of the industry over the last 10 years, the Interstate Commerce Commission, in an effort to foster competition and eliminate needless regulation, has prepared the Motor Bus Act of 1981. This proposed legislative reform takes into account the similarities between the trucking industry and the intercity bus industry. With modification and addition of certain unique characteristics, it is based on the Motor Carrier Act of 1980, the legislative reform for the trucking industry. In general, the Motor Bus Act of 1981 proposed reforms in the areas of entry, exit and rate regulation in the intercity bus industry, and will increase the opportunities for intercity bus carriers to operate with minimal governmental interference.

The ICC proposes that entry regulations be loosened so that carriers applying for certificate of operating authority need only to show fitness to provide the service, and that the service provided will serve a useful public purpose and be responsive to demand and need. If these two qualifications are met, the certificate will be granted unless persons objecting to the certificate can prove that the new service is inconsistent with the public interest. The Act requires a fitness only standard for granting operating authority to charter and special service applicants.

Proposed reform of fare regulation includes extending the zone of rate freedom and the rule of ratemaking pursuant to that established by the Motor

Carrier Act of 1980. The zone of rate freedom will allow bus companies to raise rates not more than 10 percent above the rate in effect one year prior to the effective date of the proposed rate nor to decrease the rate more than 10 percent below the rate in effect. Under the rule of ratemaking, the ICC will authorize revenue levels that will allow the bus carriers to achieve revenue levels that will provide a flow of net income, plus depreciation, adequate to support capital outlays and repayment of debt, permit raising of needed capital, and take into account reasonable future costs.

The proposed exit policy will allow interstate carriers to exit from unprofitable routes by filing such intention with the Commission. All affected authorities and communities will be given sufficient notice of the discontinuance of service so that time to seek appropriate subsidy for the service is provided. In addition, states will be prohibited from requiring a carrier to continue the intrastate portion of any interstate route which is abandoned.

The legislative reform also calls for the removal of gateway, circuitions route and closed-door restrictions, allows one-way charter operations and allows carriers to broaden their existing operating certificates in respect to charter and package express services.

The proposed Motor Carrier Act of 1981 also includes reforms in the areas of rate bureaus, temporary authorities, mergers, and state regulation of carriers. The proposed reforms for rate bureaus and mergers are much the same as provided in the Motor Carrier Act of 1980. The granting of temporary authority would only require showing an immediate need for the service and the fitness of the carrier to provide the service. Applications could be made orally. In no case would an emergency temporary authority be granted

for more than 60 days, including extensions. Under the Act, states must submit the standards and procedures used by the state in regulating intrastate rates, fares, classifications, rules and practices to the ICC for approval. Once approved, the state may exercise its jurisdiction over such matters for a five-year period, after which it shall resubmit such standards and procedures for recertification. Without ICC approval, the state may not exercise jurisdiction over intrastate rates, classifications, fares, rules or practices.

The ICC believes that, with this proposed regulatory reform, financial health of the industry will improve, and a cost-effective, competitive motor bus system will result. At the same time, the public will benefit from lower fares and charter rates and increased service brought by increased competition. (Interstate Commerce Commission, 1980)

Deregulation Experience

There is relatively little knowledge about the effects of deregulation of transportation systems. The airline and trucking industries have been too recently deregulated to know what the long-term results will be. The only experience with deregulation of the intercity bus industry has been in the State of Florida, the results of which are briefly discussed.

On June 30, 1980, regulation of the intercity bus industry in Florida ended as the result of Florida Sunset Legislation. Although it is still too soon to determine the total effect deregulation will have, early analysis indicates that service has generally improved. The two largest carriers, Greyhound and Trailways have expanded their services. Between November 1979 and November 1980, the scheduled weekly miles for these carriers increased 7.8 percent and scheduled weekly trips increased 2.7 percent. (Management

Analysis Center, Inc., 1981) In addition, charter services have expanded rapidly to satisfy the previously unmet demand, often at reduced rates. (Sheldon, 1980) There has been a loss of service to some of the small rural communities where carriers have abandoned unprofitable routes. However, with entry into the industry more easily achieved, many small carriers are beginning to serve these abandoned routes and are able to do so profitably. There have been complaints by residents about loss of service but is is believed that the ability to experiment with various prices and service options will continue to attract new entrants to supply these markets. (Sheldon, 1980)

In conclusion, data indicate that economic regulation of the intercity bus industry may no longer be necessary, and in fact may be hindering the ability of the industry to adequately serve the public. There are many issues that must be addressed in any regulatory reform to ensure that the needs of the industry and the public can be met. Various proposals for regulatory reform have been prepared by governmental agencies and the industry. The most recent proposal, The Motor Bus Act of 1981, calls for relaxed entry, fare flexibility and freedom of exit. Although there is little knowledge of the long-term effects deregulation of industry might have, the experience in Florida indicates that it may be beneficial both for the industry and the public.

VI. HISTORY AND DEVELOPMENT OF TEXAS INTERCITY BUS INDUSTRY

The history of the Texas Intercity Bus Industry is not well-documented. The first available information results from action of the 40th Legislature in 1927 requiring certificates of public convenience and necessity. Upon enactment, operators providing service prior to January 11, 1927 were granted temporary authority to continue without notice or hearing unless protested. Even with protests, operations were allowed to continue until a decision was rendered by the Railroad Commission.

According to the 1928 Texas Almanac there was little motor bus activity in Texas prior to 1924. The great majority (about 85 percent) of the vehicles in 1927 were closed passenger cars seating about 10 persons. There were a few parlour type cars (approximately 50) seating 12 to 15 and very few (about 25) streetcar type vehicles seating 28-30 passengers.

The Motor Bus Act resulted in the first meaningful data concerning the intercity bus industry in Texas, in addition to setting the future structure of the industry. The Motor Bus Act gave the Railroad Commission authority to issue certificates when existing facilities were inadequate. It authorized the regulation of fares, routes, schedules, service, and safety of operators. It also required the filing of annual reports.

Using the records of the Texas Railroad Commission, it appeared that a limited case study of Kerrville Bus Company would provide an indication of the evolution of the industry in Texas. The records of even one company such as the Kerrville Bus Company include several volumes of data. It would be a major undertaking to examine the record in depth. Furthermore, the lack of details concerning accounts of some commission actions would probably limit the value of a complete examination of the Railroad Commission files. The

following is a brief synopsis of the Kerrville Bus Company, one of the four Class I carriers in Texas.

Kerrville Bus Company

In 1927 three separate operators were providing service between San Antonio and Kerrville. Union Bus Lines operated 2 round trips per day. Mr. J. L. Powers operated 5 1/2 round trips under the Union Bus Company "flag." Apparently, flags on the automobiles were used to identify companies. Mr. Powers was also using the ticketing and terminal facilities of the Union Bus Company. Hal and Charlie Peterson operated 2 1/2 round trips per day.

The original operating authorities between San Antonio and Kerrville were the subject of the first hearings of the Railroad Commission concerning bus operations. The record was voluminous and involved hearings in both Austin and Kerrville. The decision was an important determinant of the initial structure of the bus industry in Texas.

Union Bus Lines objected to granting Mr. J. L. Powers authority because Mr. Powers was operating under the Union Bus Company flag. Union Bus Company argued unsuccessfully that the authority to operate between Kerrville and San Antonio should be granted to Union Bus Lines, not Mr. Powers. The Commission determined that because Mr. Powers owned and operated his own vehicles, he should be granted separate operating authority. As a result of the decision, each individual operating even a single vehicle was entitled authority under the grandfather clause of the Texas Motor Bus Act.

From 1927 to 1970, the Petersons (which formed Kerrville Bus Company in 1928) purchased or leased both duplicate authorities from competitors (including those of Union Bus Lines and Poners between San Antonio and

Kerrville) and new authorities to expand its system. In 1970, Kerrville requested that 39 separate operating authorities be consolidated into a single authority. The following will highlight some of the purchases and consolidations.

In 1930 Kerrville purchased four separate authorities to provide service from Lampasas to Houston through Austin, Brenham and Hempstead.

In 1934, Kerrville purchased authority from Austin to Kerrville and a 1/2 interest from San Angelo to Big Spring. The second 1/2 interest in San Angelo to Big Spring was purchased in 1939.

In 1935, Kerrville Bus Company purchased additional authority from Brenham to Hempstead plus authority from Austin to Smithville. Additional authority purchased in 1935 included Austin to Gonzales, Kerrville to Junction and Kerrville to San Antonio.

1939 was also a big purchase year with authorities obtained for Abilene to Brady, Coleman to Abilene, San Antonio to San Angelo, San Angelo to Big Spring, San Antonio to Fredericksburg and Austin to Brady.

The preceeding examples are by no means a complete record. They do, however, indicate the relatively short length of the original certificates and their large numbers. After 1939, the number of purchases was greatly reduced.

Perhaps the next major event for the Kerrville Bus Company occurred in 1950 when Southwestern Greyhound instituted through service with Kerrville Bus Company between Houston and El Paso. The Junction to Pecos authority was under lease from Southwestern Greyhound to Kerrville since 1937. In 1953 the leased authority was purchased from Southwestern Greyhound.

Also in 1953, Greyhound purchased a 40% interest in Kerrville Bus Company. In 1955, another joint service agreement was developed with Southwestern Greyhound and Texas, New Mexico, and Oklahoma between San Antonio and Denver.

Growth Trends

The only available time series data for the Texas Industry was that found in various editions of the Texas Almanac (1927 - 1952). These data were based on Railroad Commission Annual reports until 1952 when the Commission stopped summarizing the Annual Operating Reports for the carriers. Table 33 summarizes the Texas Almanac data for the period 1927 to 1952.

Table 33: Texas Intercity Bus Operating Statistics

Year	Opr.	Buses	Passengers (Millions)	Bus Miles (Millions)	Route Miles	Revenues (Millions $)	Expenses (Millions $)	Ratio
1927	283	990	4.4	42.9	20,348	5.8	4.7	0.81
1929	N.A.	N.A.	5.2	43.4		7.0	6.7	0.95
1930	167	860	4.1	51.6		6.0	6.8	1.13
1931	137	727	3.4	34.6		5.2	5.5	1.06
1934	108	562	4.1	29.0	19,791	5.3	4.7	0.87
1937	94	794	9.1	40.8	20,832	9.2	7.9	0.85
1939	103	797	9.3	45.5	21,169	9.1	7.9	0.87
1941	120	979	17.6	49.2		11.8	10.1	0.86
1943		2189	88.1	119.4		42.6		
1945	173	2555	80.0	129.2	29,000			
1947	159	2252	66.2	116.5		57.9	55.3	0.96
1949	176	2115	98.7	181.7		49.7	47.3	0.95
1951	170	1935	41.4	113.4		49.5	47.0	0.95
1952	122	1821	37.0	103.0		51.9	49.0	0.94

Source: Texas Almanacs.

There is limited national data with which to compare the above growth trends. However, one comparison in Figure 8 shows the Texas passenger data

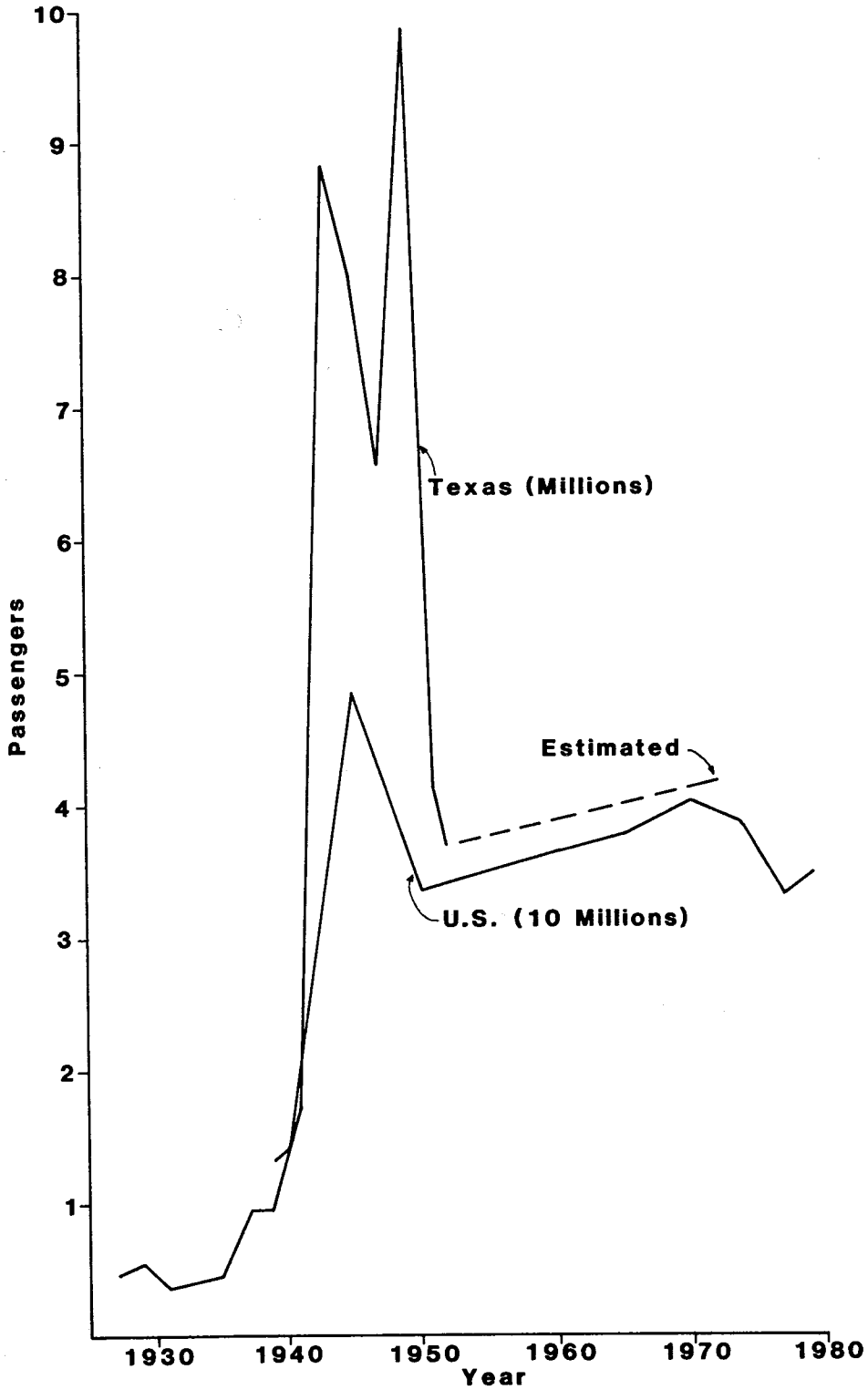


Figure 8: Texas and U.S. Bus Passengers

from 1927 to 1952 and U.S. passenger data from 1939 to 1979 (Transportation Association of America, 1980). The data follow a very similar trend with the Texas data being close to 10 percent of the U.S. ridership.

Current Status

The Texas Railroad Commission has annual reports for the last 5 years which provide reasonably detailed financial and operating statistics. In examining the data, there appears to be some inconsistencies, especially for carriers operating interstate routes. Nevertheless, the data do provide an indication of the current condition of the Texas Intercity Bus Industry.

First, it is desirable to enumerate the Texas Intercity Bus Industry. The current operating companies are shown in Table 34. Counting all Trailways, Inc. subsidiaries (there are 6 subsidiaries operating in Texas), there are 22 separate operating companies in Texas. However, Southwestern Transit and Arrow Trailways of Texas are effectively one company. Texas Motor Coaches was recently purchased by Transportation Enterprises, Inc., the company that owns Texas Bus Lines. Furthermore, Texas Motor Coaches actually operates in the Dallas/Fort Worth metropolitan area and is not a typical intercity bus operation. Similarly, a portion of Valley Transit's bus operation in the McAllen, Texas area is more typical of urban public transportation than intercity bus operations. Painter Bus Lines is owned by the officers of Kerrville Bus Company and operates buses leased from Kerrville Bus Company.

Further complicating the definition of companies is the fact that two Texas based Class I companies are partly owned by Trailways and Greyhound. The percentage ownership of Texas carriers by Greyhound and Trailways is shown in Table 34. Despite ownership by the big two national carriers,

Table 34: Texas Bus Operators (1980)

Company	Principally a Texas Carrier
Arrow Trailways of Texas	X
Central Texas Trailways	X
Greyhound Lines	
Kerrville	X
New Mexico Transportation	
Oklahoma Transportation	
Painter Bus Lines	X
Southwestern Transit	X
Sun Set Stages	X
Texas, New Mexico and Oklahoma	X
Trailways, Inc.	
American Buslines	
Midwest Buslines	
Trailways Bus System	
Trailways, Inc. (Dixie Division)	
Trailways Southern Lines	
Trailways Texas	X
Trailways Panhandle Lines	X
Transportation Enterprises, Inc.	
Texas Bus Lines	X
Texas Motor Coaches	X
Trans Texas Coaches	X
Valley Transit	X

Notes: Trailways, Inc. owns 38.96% of Texas, New Mexico, and Oklahoma.
Trailways, Inc. owns 50.0% of Trailways Panhandle Lines.
Greyhound Lines owns 59% of Texas, New Mexico, and Oklahoma.
Greyhound Lines owns 40% of Kerrville.
Greyhound Lines owns 100% of New Mexico Transportation.

Kerrville and Texas, New Mexico and Oklahoma Transportation (TNMO) operate independently.

Because several carriers operate in interstate commerce, it was desirable to estimate the amount of service each carrier operated in Texas. It was not possible to get the necessary data from the individual company annual reports to the Railroad Commission; therefore, an estimate was made using Russell's Bus Guide (1981).

The estimated number of intercity bus miles in Texas is 51 million per year. This is about 5 percent of the total bus miles in the U.S. A comparison between the estimate and data reported to the Railroad Commission for selected carriers appeared to be inconsistent. Small carriers generally reported a significantly larger number of bus miles than those computed from the Bus Guide (Russell's, 1981). That inconsistency is likely due to the large charter operations of the smaller carriers. Bus miles reported for most of the larger carriers to the Railroad Commission appeared to be more consistent with estimates made from Russell's Bus Guide. The potential error in the estimates must be considered as being large.

Of the estimated 51 million bus miles in Texas, Greyhound and Trailways account for approximately 72 percent. Trailways has approximately twice as many bus miles as Greyhound. Adding the other two Class I carriers to Greyhound and Trailways accounts for 85 percent of the total bus miles in Texas.

The route structure of the carriers is summarized in Figures 9 through 12. Figure 9 shows the routes of Trailways, Inc. including all divisions operating in Texas. It does not show independent companies affiliated with the Trailways Bus System. As can be seen from Figure 9, Trailways, Inc., has an extensive system in Texas. In addition to its transcontinental routes, Trailways, Inc. has an extensive system in east and south Texas.

Greyhound, the second largest company in Texas, has a route structure as shown in Figure 10. Greyhound's routes are largely transcontinental in nature. It is also important to note the relationship of two Class I "bridge" carriers in which Greyhound holds a financial interest. Kerrville Bus Company connects with Greyhound's east-west routes between San Antonio

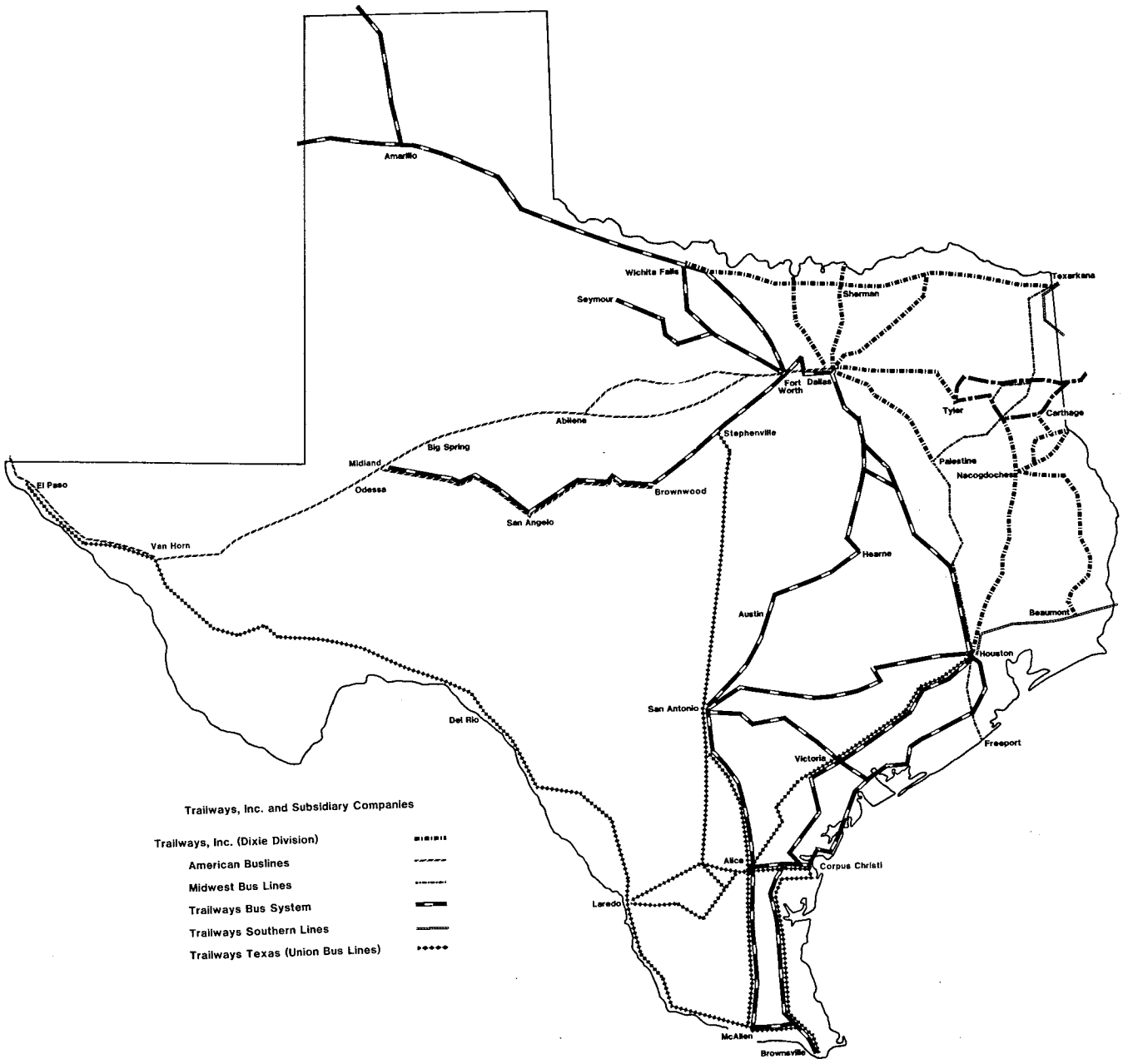


Figure 9: Routes of Trailways, Inc.

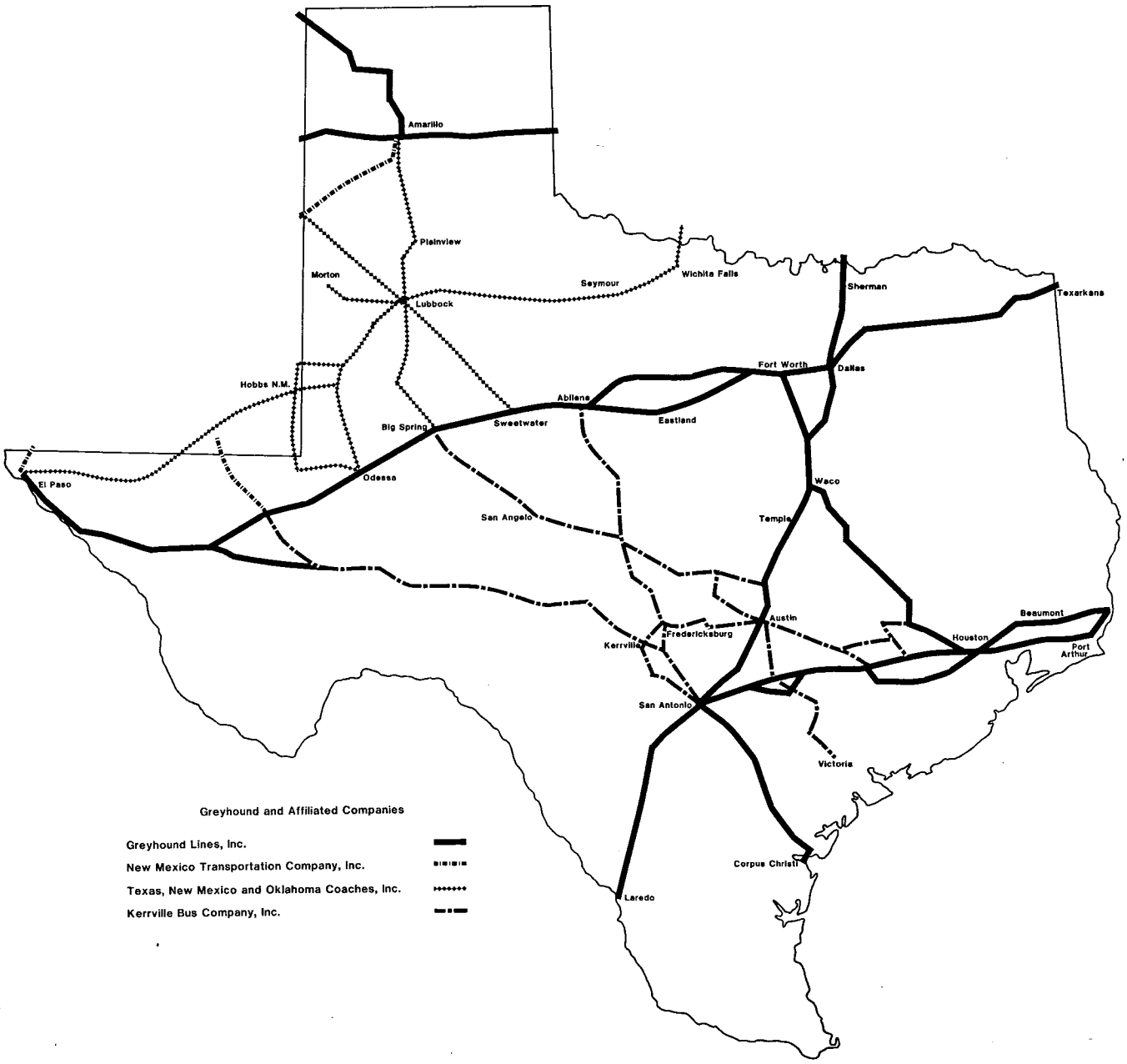


Figure 10: Routes of Greyhound

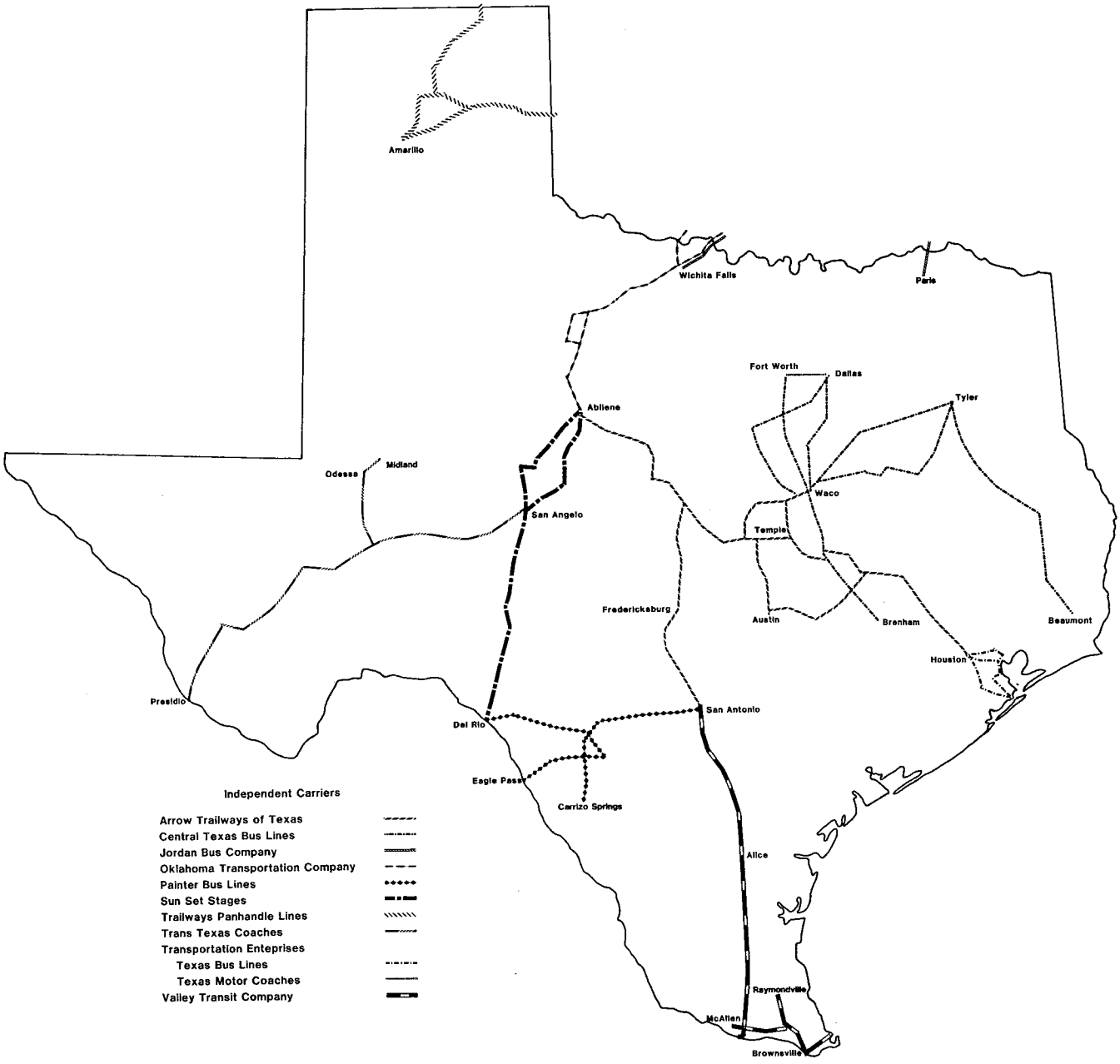


Figure 16: Routes of Independent Carriers

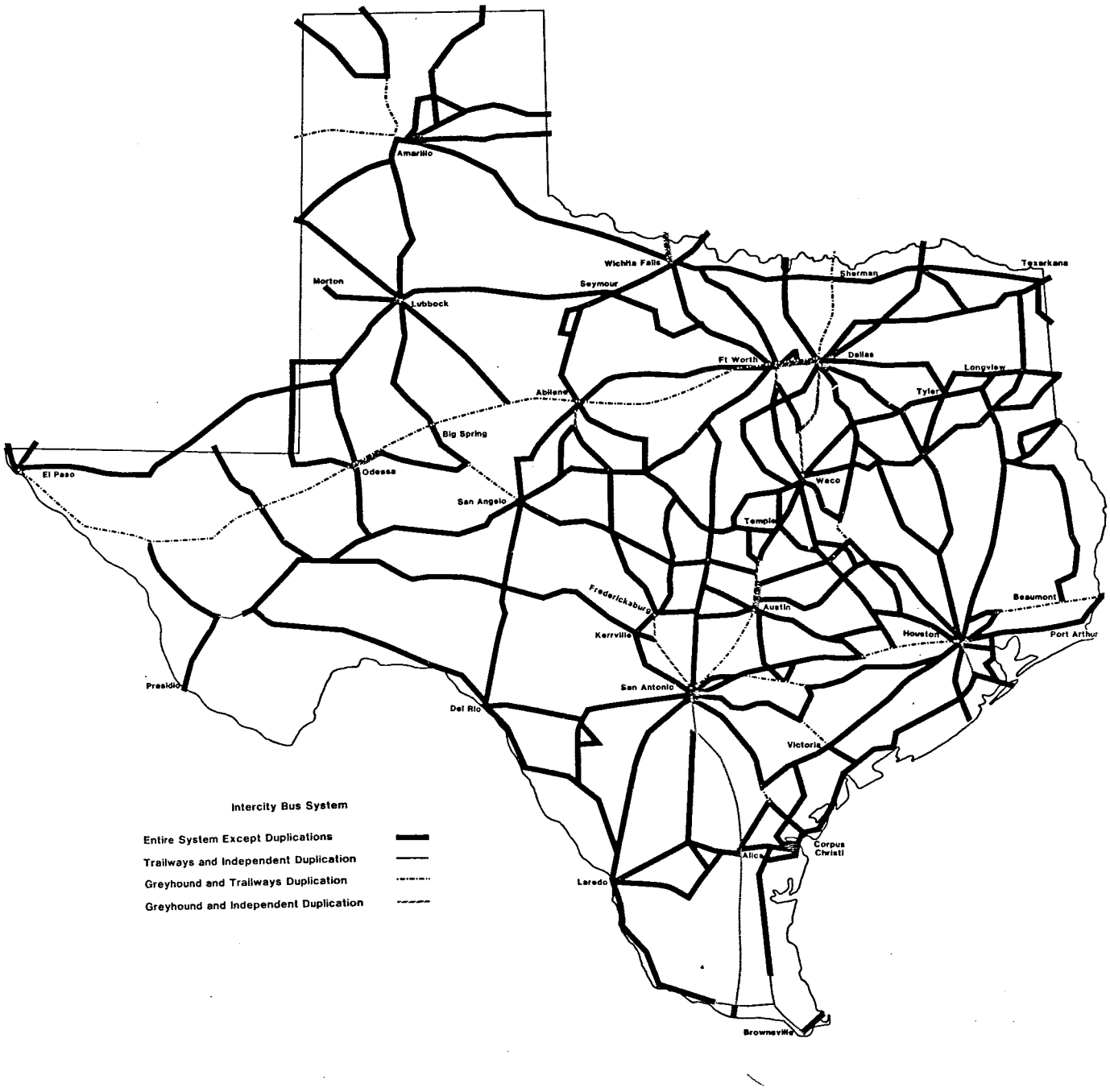


Figure 12: Entire Texas Intercity Bus Route Structure

and Ft. Stockton. Kerrville Bus Company also connects from San Antonio to Greyhound routes to Cheyenne. Texas, New Mexico and Oklahoma Transportation is the other Class I bridge carrier in Texas and is owned in part by both Greyhound and Trailways. TNMO connects through its Lubbock hub with several companies in which Greyhound has a financial interest.

Figure 11 shows the independent carriers in Texas except for Kerrville Bus Company and TNMO which were shown as a part of the Greyhound system because of their financial ties and large size. The other independents have a limited route structure and primarily handle local passengers.

The entire Texas Intercity Bus route structure is shown in Figure 12. The map indicates those routes on which more than one carrier provides service. The only significant competition is Dallas to El Paso (Trailways and Greyhound) and San Antonio/Brownsville (Trailways and Valley Transit). For the most part, only one carrier services a particular route except for short segments. In most cases, Greyhound and Trailways may operate between the same city pairs, but over different routes.

For example, Trailways operates between Dallas and Houston along I-45 while Greyhound operates through Waco along state highways. A short segment of duplicate service exists in the corridor between Hearne and the junction of Texas 6 and Texas 14. This duplicate segment is the result of Greyhound's Dallas/Houston route crossing Trailways San Antonio/Dallas route. It is typical of many duplicate segments shown in Figure 12. This type duplication does indicate significant competition.

Cities Served

The intercity bus industry currently serves nearly 1000 points in Texas based on schedules published in Russell's Bus Guide. An examination was made

to determine the number of points served during previous years. Although it was determined that the number of points served had declined somewhat since 1961 (the earliest readily available Bus Guide), an examination of the points eliminated indicated that the reduction was not generally the result of a service reduction.

In discussing the Trailways schedules with an employee in the schedule department, it was confirmed that the schedules in recent years had eliminated a number of points previously served. Two reasons were given for the elimination of some schedule points. First, the number of people travelling short distances between intermediate stops had declined over the years. Second, in order to simplify tariffs, fewer intermediate points were shown in the published schedules.

It appears unwarranted to draw any conclusions based on the number of points served as listed in the Bus Guide. The alternative of examining schedules in detail was not possible due to the large number of schedules involved, and also difficulty in obtaining back issues of the Bus Guide.

Operating Statistics

The following analysis includes bus companies that principally operate in Texas (see Table 34) except for Trailways Texas. Trailways Texas was excluded for consistency because the other Trailways divisions are not readily broken down by state. Greyhound is also not readily segregated into its Texas operations. The data, therefore, represent the approximately 28 percent of the total route-miles in Texas not operated by Greyhound or Trailways, Inc.

The operating statistics are summarized in Table 35. The data indicate a more favorable operating ratio for Texas carriers than for the industry as

a whole (see Table 19). As noted previously in Table 28, three of the ten most profitable Class I carriers (TNMO, Trailways Texas and Kerrville) are virtually entirely Texas operations. Three other top ten carriers have significant Texas operations.

Table 35: Operating Statistics for Texas Operators

Year	Revenue	Expense	Operating Ratio	Bus Miles	Passengers
1974	19,196,890	17,150,582	0.89	17,855,659	6,197,750
1975	20,257,707	17,747,362	0.88	17,782,262	5,914,458
1976	21,738,148	18,623,341	0.86	17,533,241	5,557,182
1977	24,397,681	20,821,602	0.85	16,963,735	5,091,689
1978	26,939,791	22,859,146	0.85	16,635,275	4,872,419
1979	32,945,633	28,233,116	0.86	17,562,466	5,179,830
1980*	39,792,050	33,988,783	0.85	18,615,021	5,574,464

*Includes estimated figures for Texas Bus Lines and Texas Motor Coaches.

Note: Excludes Trailways, Inc. and Greyhound.

Source: Railroad Commission of Texas
Annual Operating Report Form 5

VII. REGULATION IN TEXAS

Chapter 270, General Laws of the Fortieth Legislature in 1927 required certificates or permits from the Railroad Commission showing public convenience and necessity. Prior to January 11, 1927, operators were granted temporary authority to continue. The law stated that certificates of convenience and necessity shall be issued when existing facilities are inadequate. The Commission was also granted authority to set fares, routes, schedules, service standards, safety standards, and to require annual reports.

Texas was a latecomer in the field of intercity bus regulation. Pennsylvania was the first state to institute regulation. By 1925, 36 states had instituted regulation of intercity buses. Most of the early laws were amended or revised by the time the Texas Legislature enacted the requirement for certificates in Texas. The industry was largely controlled as a regulated monopoly. This policy assumed that the motor carrier was a public utility; therefore, it was subject to public regulation in much the same manner as rail carriers.

Texas followed the trend of regulated monopoly used by other states. However, several important Texas cases (Crandall, 1954) established the precedent of issuing certificates for parallel routes that was followed by most southern and southwestern states. This granting of competing authorities did not happen elsewhere because there were relatively few closely parallel highways in other sections of the country and existing carriers were usually allowed to operate alternate schedules over new parallel highways.

An examination of the current route structure in Texas (see Figure 12) confirms the influence of the regulated monopoly approach to regulation. As indicated earlier, the principal competition is on alternate routes. Only in recent years has some limited additional competition been permitted in the granting of some express service over existing routes of other carriers. That is, two carriers may operate between the same city pairs, with one carrier providing local service and the other providing express service.

Railroad Commission of Texas

Motor bus companies are regulated by the Railroad Commission of Texas (Commission). The Commission has promolgated regulations to implement the Commission's statutory duty of regulation in the public interest. This section summarizes the current regulations.

Motor bus companies are those concerns operating motor-propelled passenger vehicles and engaged in the business of transporting persons for compensation or hire over the public highways within the State of Texas, whether operating over fixed routes and schedules or otherwise, except that operations within any incorporated town or city (including suburbs) are excluded from regulation.

The Commission accepts the Interstate Commerce Commission (ICC) accounting and reporting procedures for Class I and II carriers as complying with State regulations. Other operators only have to submit relatively brief annual reports. Greyhound and Trailways file ICC reports to the Commission while the rest of the carriers file Commission forms.

Commission approval is required on a number of changes in operation including sale, transfer, or lease of a certificate, and changes in fares or schedules. The Commission also has regulations concerning the condition of

buses, driver qualifications, insurance, station facilities, interline and through bus agreements, tickets, charters and package express. Although the requirements are generally similar to ICC requirements, they do differ in some details and do represent additional requirements in some areas. The most notable difference is the more stringent requirements of the Commission concerning schedule changes and service discontinuance.

Implications in Texas of Federal Regulatory Reform

Regulatory reform appears to be supported by Greyhound but is of concern to other carriers. The smaller carriers, while not necessarily opposed to deregulation, appear concerned about the competitive advantage of other companies. There appears to be concern about both big and small carriers.

The concern about Greyhound's competitive advantage centers around the size of the Greyhound system and Greyhound's large number of terminals. Given the significant number of long haul passengers (see Chapter VIII), Greyhound does appear to hold an advantage to the more loosely structured Trailways System. Given the stable nature of the industry in terms of ridership growth, it appears unlikely that a new company could readily develop a nationwide system. It must also be remembered that both the Greyhound and the Trailways, Inc. System are partially the result of regulatory encouragement and protection. It appears logical that Greyhound is a supporter of total deregulation since it has an excellent nationwide system that is unrivalled even by Trailways. However, it must be noted that Greyhound will be subject to potential competitive pressure in high passenger volume markets between medium and large cities. The most serious implication of this competition may be a restructuring of the Greyhound System to

eliminate some marginal stops that contribute little to revenue and also degrade overall service speed.

Trailways appears to desire public envolvement in terminals in order to eliminate Greyhound's competitive advantage. With separate terminals, passengers are less likely to evaluate the alternative service offered by competing companies.

As indicated earlier, the current proposal for regulatory reform includes virtual preemption of state regulation except for totally intrastate operations. The critical question is what effect would such a change have on Texas.

The impacts of regulatory changes (especially more competition) are to a large extent the subject of speculation. It does seem that some likely impacts can be postulated based on knowledge of the Texas industry.

It is unlikely that less regulation will improve service to small places. The limited market in small places makes them largely unattractive as competitive targets. Similarly, it does not appear that a wholesale abandonment of service to small places will be seen immediately as the result of regulatory freedom. The most likely abandonments would be by small carriers who provide scheduled service in order to obtain and maintain charter authority. Another likely type of abandonment is small places along major routes that generate only small volumes of business and are served by perhaps only one schedule per day in each direction.

What seems most likely to change is service between major cities. Major city service is the most likely competitive target due to the larger passenger volumes. Intermediate stops may see some service reductions as carriers with noninterstate routes between major city pairs opt for more express or limited stop service.

A possible scenario can be developed looking at Bryan/College Station. Bryan/College Station has four Greyhound schedules between Dallas and Houston (plus two between Ft. Worth/Houston) in each direction, with one Dallas/Houston non-stop schedule each way in the early morning hours. Trailways serves the corridor via IH-45. In a less restrictive environment, it is possible that Greyhound will elect to provide some service directly between Houston and Dallas along IH-45, possibly with a few stops such as Huntsville and Corsicana. Depending upon the amount of traffic diverted from the present route through Bryan/College Station, it is conceivable that the number of schedules through Bryan/College Station could be reduced. Although service frequency might be reduced, it is unlikely that the route would be abandoned.

It must be emphasized that the above scenario, while possible, may not occur. The actions of the existing carriers will be determined in large measure by their competitors. Two types of competition appear to be possible. As will be shown later in the report, the substantial number of long haul passengers (i.e., 500 miles or more) effectively have the option to choose between the big two carriers. Greyhound and Trailways are, therefore, likely to adjust schedules and routes competitively to offer the most attractive service. The second type of competition is likely to come from the smaller carriers attempting to capture a portion of the more lucrative service between medium and large cities. If competition affects profits in the more lucrative service areas, adjustments are likely in the marginal areas in order to maintain reasonable profitability.

The desirability of more competition is, therefore, a matter of priorities. As will be shown later in the report, service is presently perceived to be good by users. The present system attempts to provide

extensive coverage through the use of internal subsidies, if necessary. With more competition, better service may result in the major corridors. Service to some points will only continue if external (to the bus company) subsidies are provided. External subsidies appear to be unlikely in Texas. In an economic sense, service will be more efficient. Whether the results of regulatory reform, if implemented, are an improvement, will likely be debated even after the changes take place.

VIII. TEXAS INTERCITY BUS USER SURVEY

The intercity bus industry in Texas and the Southwest appears to be somewhat healthier than the industry in other parts of the country. (Committee on Commerce, Science, and Transportation, 1978). In order to determine if bus passengers in Texas had any unique characteristics, an on-board survey was conducted throughout the State.

The survey instrument used was designed to gather socioeconomic and demographic data for users and to identify those features considered important to passengers in deciding to ride the bus. The survey was prepared in both English and Spanish because of the significant number of Spanish-speaking residents in Texas. Copies of both versions are found in Appendix A.

A stratified sampling frame was selected because of regional differences within the State. Previous studies (Michigan Department of State Highways and Transportation, 1977; National Travel Survey, 1977; Interstate Commerce Commission, 1978) indicated that low income persons are a significant part of intercity bus ridership. The border area of the State is economically poorer than the rest of the State. Based on county economic characteristics, one region includes those counties along the border identified as having a lower economic base. The remaining counties were roughly divided in half. The resulting three study regions are shown in Figure 13. The survey points within these regions are also given.

Within each region, survey points were further segmented by small (non-SMSAs), medium (SMSAs less than 1,000,000) and large (SMSAs greater than 1,000,000) cities. There are approximately 1000 potential survey points in

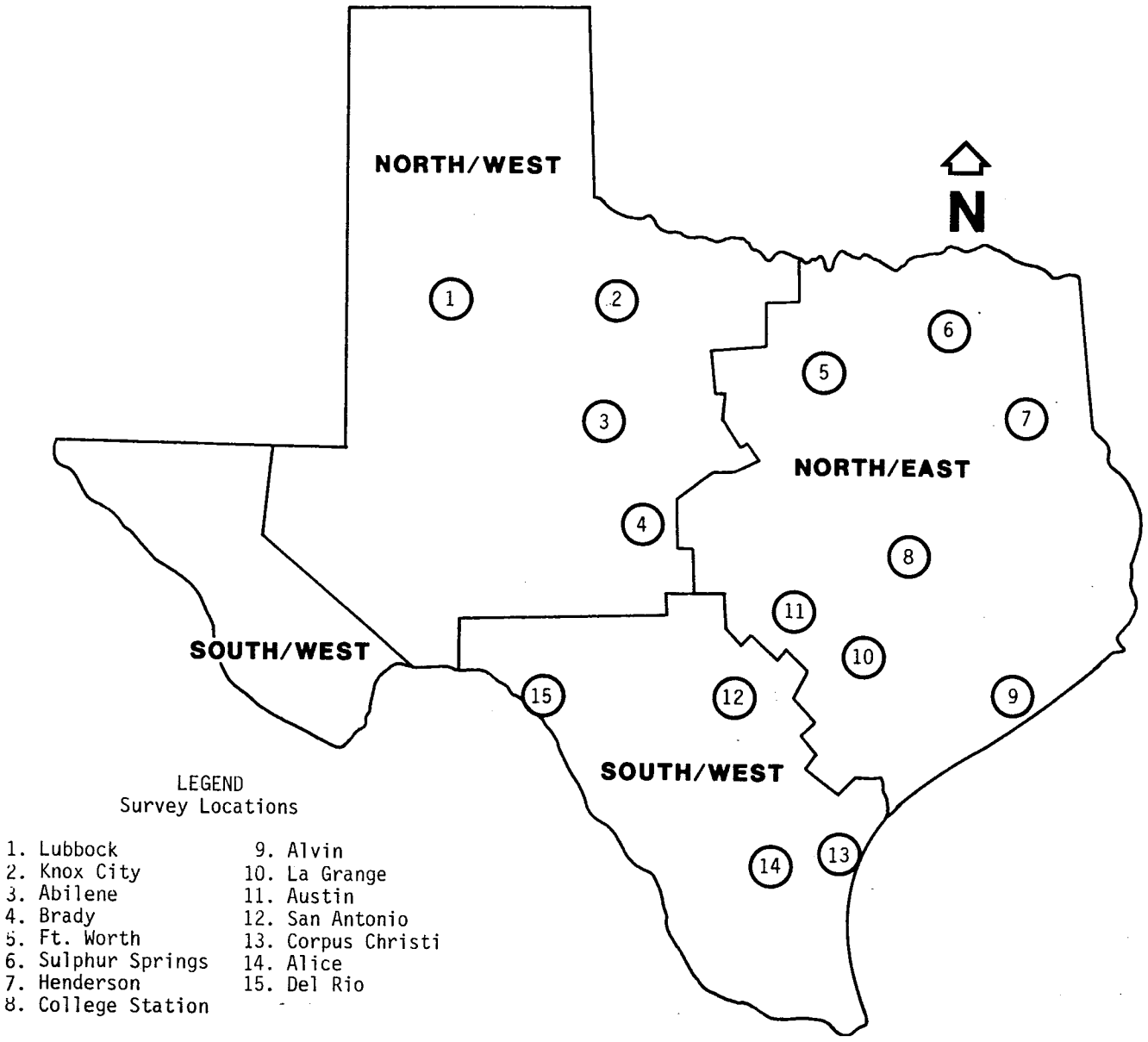


Figure 13: Study Regions and Survey Locations.

Texas with only 25 points being in the medium or large category. The number of survey points in each strata are shown in Table 36.

Table 36: Survey Points by Strata

Region	Size		
	Small	Medium	Large
North/East	4	2	1
North/West	2	2	0*
South/West	2	1	1

*No large cities in this region.

A nonproportional sampling scheme was selected in order to assure that each strata was adequately represented; while at the same time, avoiding the task of undertaking a large number of surveys in some locations to maintain proportionality. The strata responses were, therefore, appropriately weighted to reflect the nonproportional sampling scheme and the different numbers of departures in each strata.

The survey points in each strata were selected systematically from the strata. For small cities (towns), all departing buses were surveyed. For medium and large cities, approximately 10 to 12 departures were systematically selected from all departures for the day. Departures were selected to include all hours of the day and night. A total of 122 departures were surveyed.

With the cooperation of the bus companies operating in Texas, the buses to be surveyed were boarded just prior to departure. Questionaires (printed on heavy card stock) and pencils were distributed to each person 12 years of age and older who would accept a form. There were a total of 2226 passengers including 208 children under 12 years of age. From the total of 2018

passengers, age 12 or more, a total of 1068 useable surveys were received. This is a response rate of 53 percent.

The survey instrument obtained information on personal characteristics of the passengers, general attitudes towards bus service and information on the trips made by bus. This section presents a summary of the more pertinent data collected with the survey.

Intercity Bus User and Travel Characteristics

To obtain a profile of intercity bus users in Texas, questions were asked concerning age, sex, education, occupation, household income, and vehicle ownership. The responses to these questions are summarized below.

Age, Sex, and Education

The question "What is your age?" was asked. Figure 14 shows the cumulation frequency distribution for the responses given.

As shown, bus passengers in Texas are fairly young. Fifty percent of the riders surveyed are under 30 years of age, 30 percent are between the ages of 18 and 25. Only 10 percent of the participating riders were age 65 or over. Of the 1008 respondents, 54 percent were female and 46 percent were male.

Figure 15 gives the cumulative frequency distribution for years of education. Approximately 32 percent had completed less than 12 years of school. Thirty-six percent of the passengers surveyed had completed high school and 15 percent had obtained a college degree.

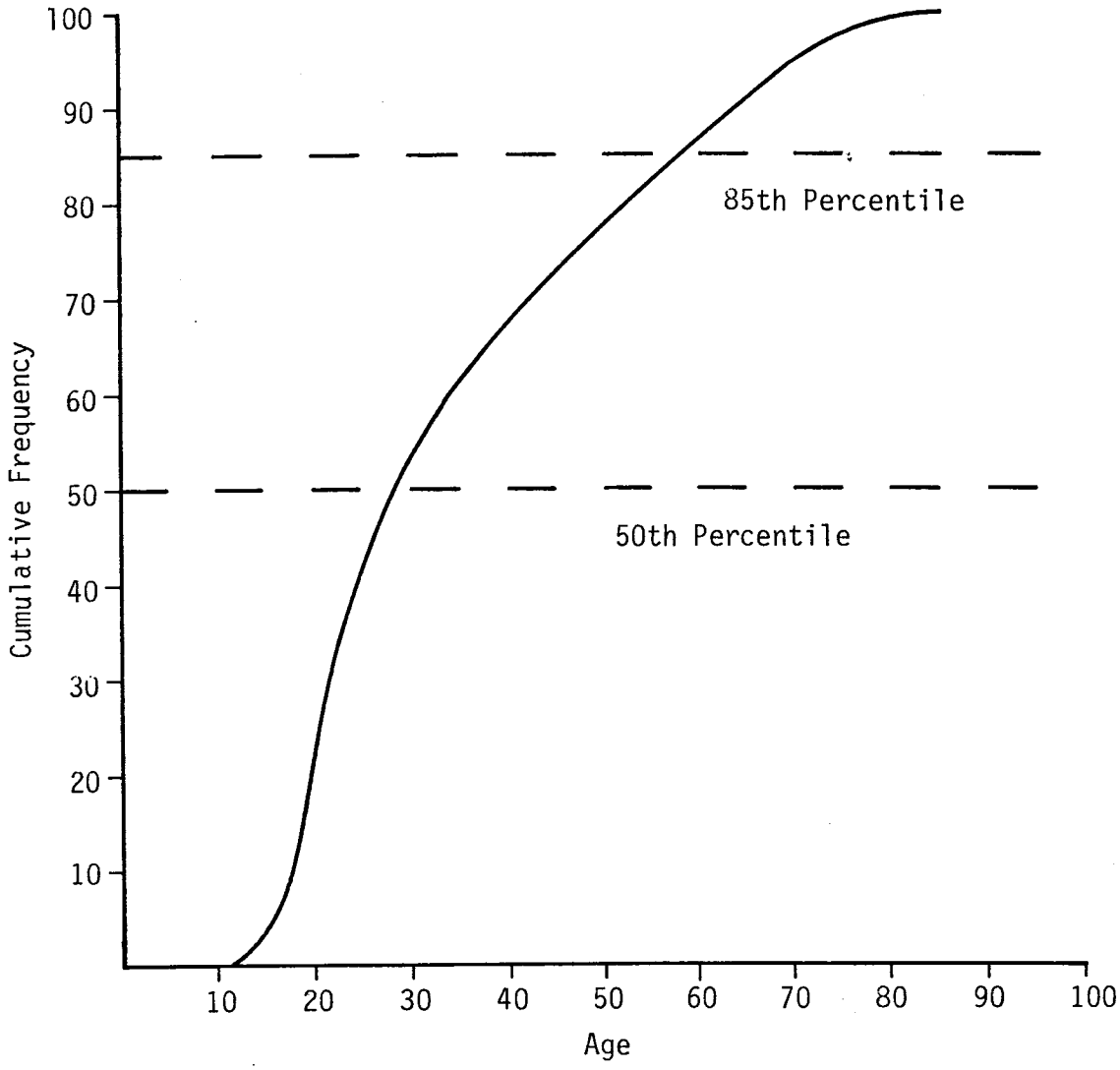


Figure 14: Cumulative Frequency Distribution, Age of Intercity Bus Passengers

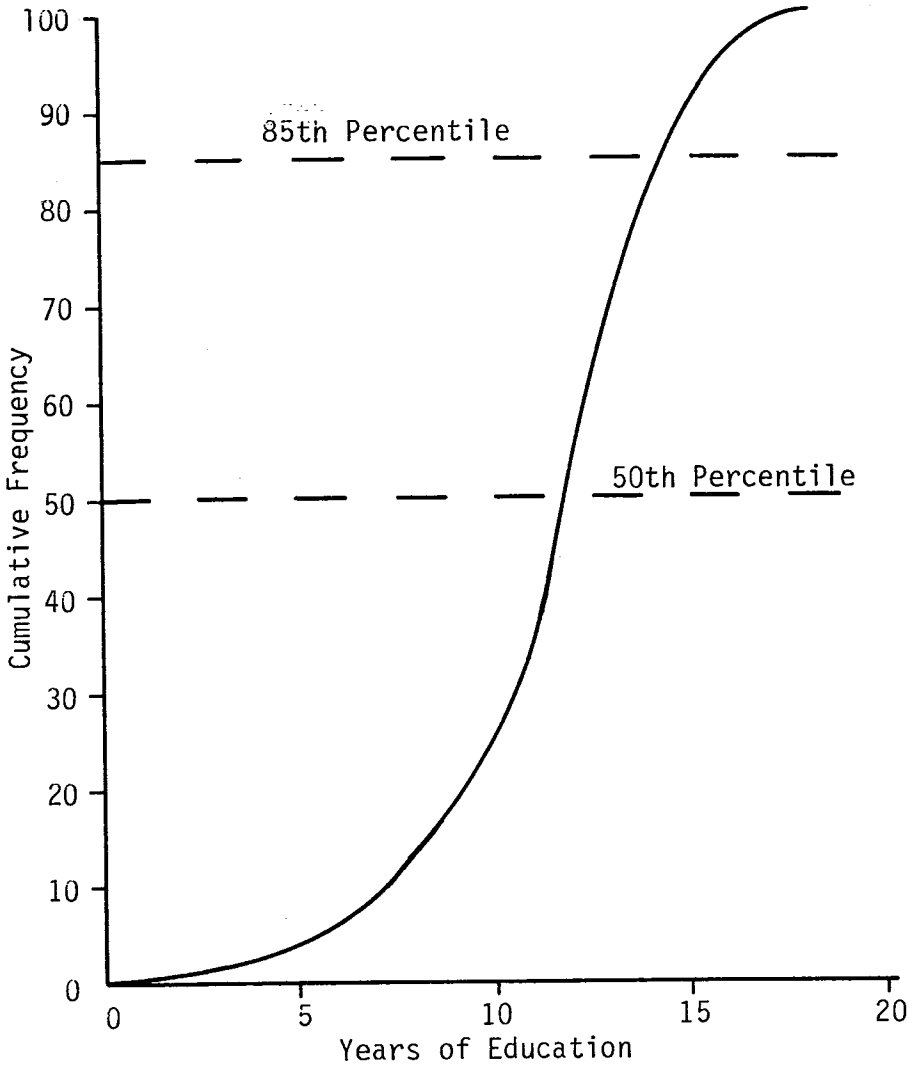


Figure 15: Cumulative Frequency Distribution, Years of Education for Intercity Bus Passengers

Occupation

Figure 16 illustrates the occupations of the passengers surveyed. Four occupations appear to be predominant. Housewives represent almost 18 percent of the riders. The other categories with the highest representation among the passengers are students, retired persons, and professional and technical employees. There are also a substantial number of unemployed and military personnel.

Income

The income of intercity bus users is shown in Figure 17. Approximately 44 percent of the passengers surveyed have an annual household income of less than $10,000. Only 10 percent are earning more than $30,000 per year.

Auto Ownership

Passengers were asked a series of questions concerning vehicle ownership, the availability of the vehicle for this trip and whether or not they were licensed drivers. The results of these questions are summarized in Table 37.

Fifty-eight percent of the passengers indicated that they owned a car, pickup or van and almost 48 percent indicated that the vehicle was available for the trip. Thus, it appears that about 27 percent of the passengers had another mode of travel available to them.

Further analysis indicated that of those riders age 65 and over approximately 76 percent owned a car and of these owners 70 percent indicated the car was available for the trip. For younger passengers, age 18 to 25, only 48 percent indicated they owned a car and only 38 percent of these owners responded that the car was available for the trip. Thus, it appears

Figure 16: Intercity Bus Passenger Occupation

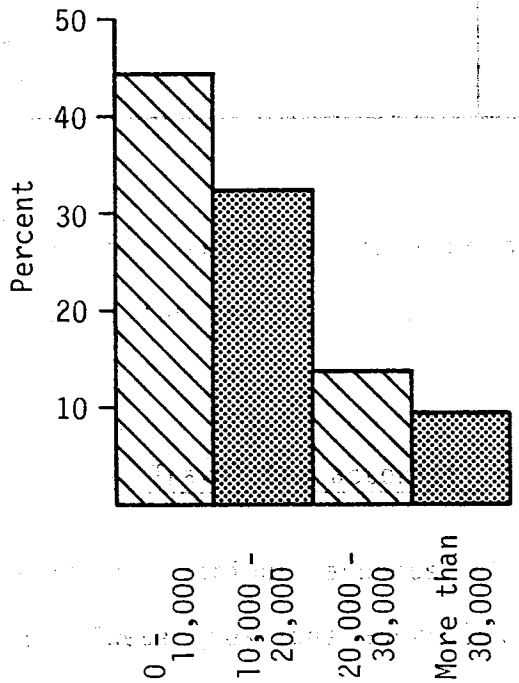


Figure 17: Intercity Bus Passenger Annual Household Income

Table 37: Vehicle Ownership, and Availability, and Licensed Drivers

Question	Response (Percent)
"Do you own a car, pickup, or van?"	
Yes	58.3
No	41.7
n=1011	
"If yes, was it available for this trip?"	
Yes	47.9
No	52.1
n=657	
"Do you have a driver's license?"	
Yes	75.1
No	24.9
n=1009	

that the younger passengers represent more of a "captive" market than the elderly which may account for the larger number of young persons riding the bus.

Travel Characteristics

To better understand various aspects of bus travel, a series of questions was asked. These questions addressed the mode of travel to and from the bus station, trip purpose, alternative choice of travel, the number of intercity bus trips made in the past year and the trip length. The results are summarized below.

Mode of Travel To and From the Bus Station

Bus passengers were asked how they arrived at the bus station and how they would reach their final destination from the bus station. The response to these questions are illustrated in Figure 18 and Figure 19, respectively.

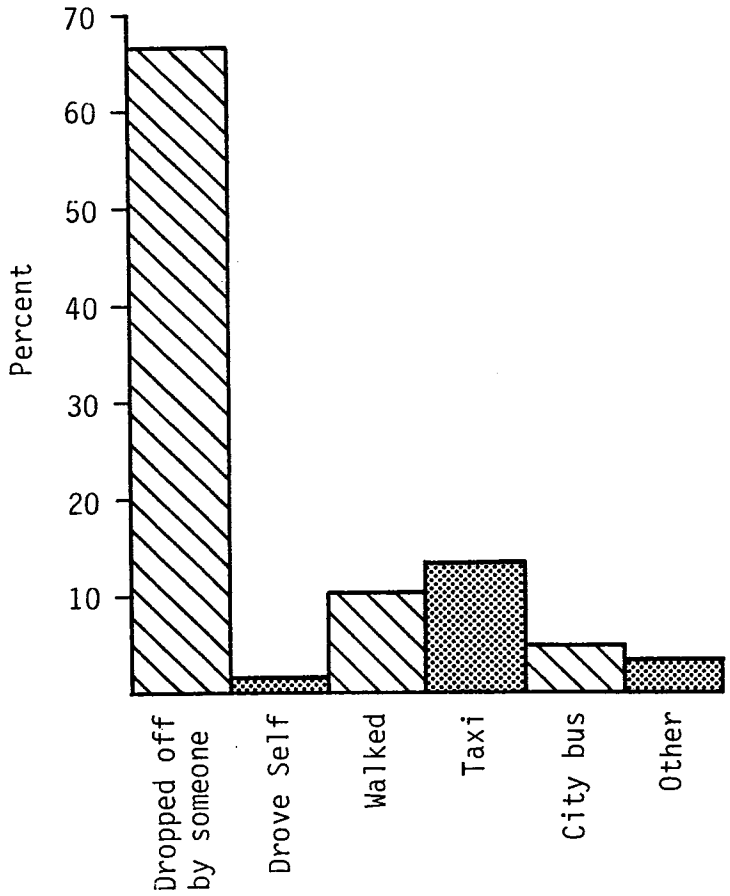


Figure 18: Mode of Arrival at Bus Station

The majority of riders, over 65 percent, were dropped-off at the station and picked-up at the station by another person. Very few passengers, under 3 percent, drove themselves to or from the station. It should be noted that the "category arrive by car" has been used by others and can be misleading if it is not understood that most bus passengers arrive by a car driven by someone else. Taking a taxi and walking were the next most cited modes of travel to and from the bus station.

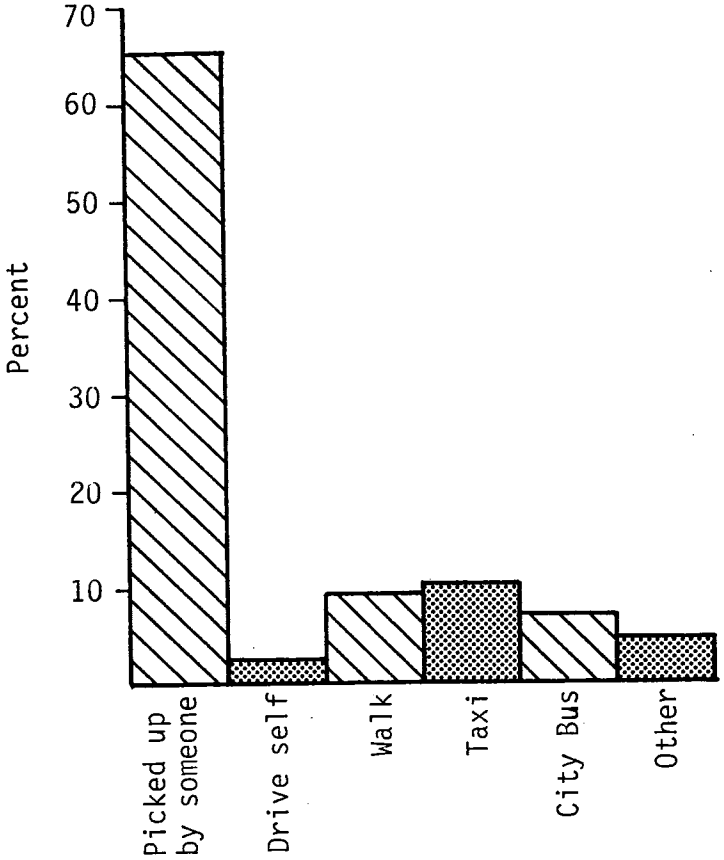


Figure 19: Mode of Travel From Bus Station

Trip Purpose

As indicated by Figure 20, the primary trip purpose of the bus passengers surveyed is to visit friends or relatives. Almost 38 percent of the trips fall into this category. Returning home was the second most cited trip purpose with 26 percent of the total. It should be noted that it is likely that the return home percentage should be higher, but that some reported the original trip purpose. Work and vacation, accounting for 11 and 7 percent, respectively, were the next most common reasons for travel.

Trip Length

Passengers were asked the origin and destination of their trip. From this information the length of each trip was calculated. Figure 21 shows the distribution of trip lengths for the passengers surveyed. Approximately 41 percent of the trips were less than 200 miles in length. However, 25 percent of the trips were over 600 miles in length and the average trip length was 498 miles.

The average trip length for intercity bus travel on a national level is reported to be 125 miles (Transportation Association of America, 1980). However, there is reason to believe that the average trip length is actually longer than this due to the overcounting of passengers (Ramsdell, 1978). Thus, the longer average trip found in Texas may not be as much of an anomoly as it appears.

Alternative Mode of Travel

Intercity bus passengers generally fall into two categories; those that have a choice of mode of travel and those that are "captive" with no alternative mode of travel available. Passengers were asked how they would

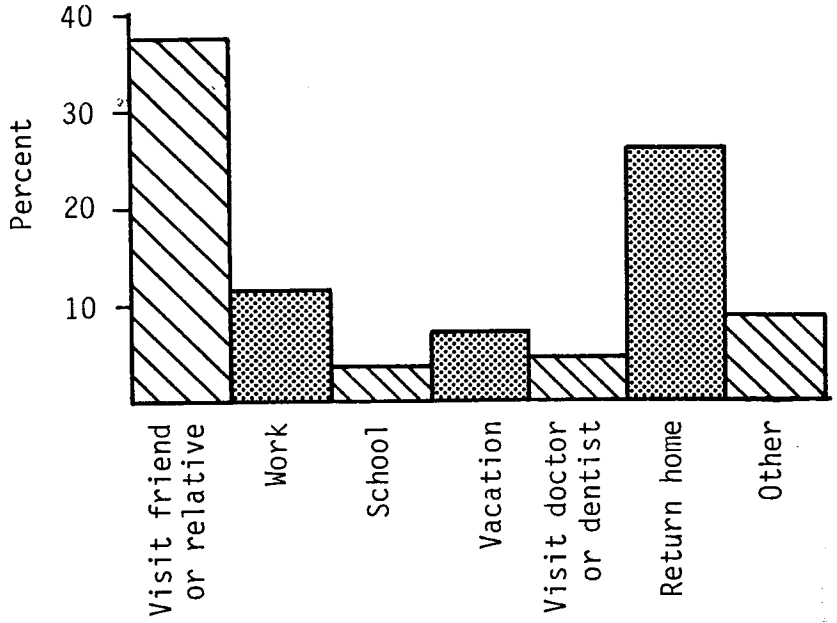


Figure 20: Trip Purpose

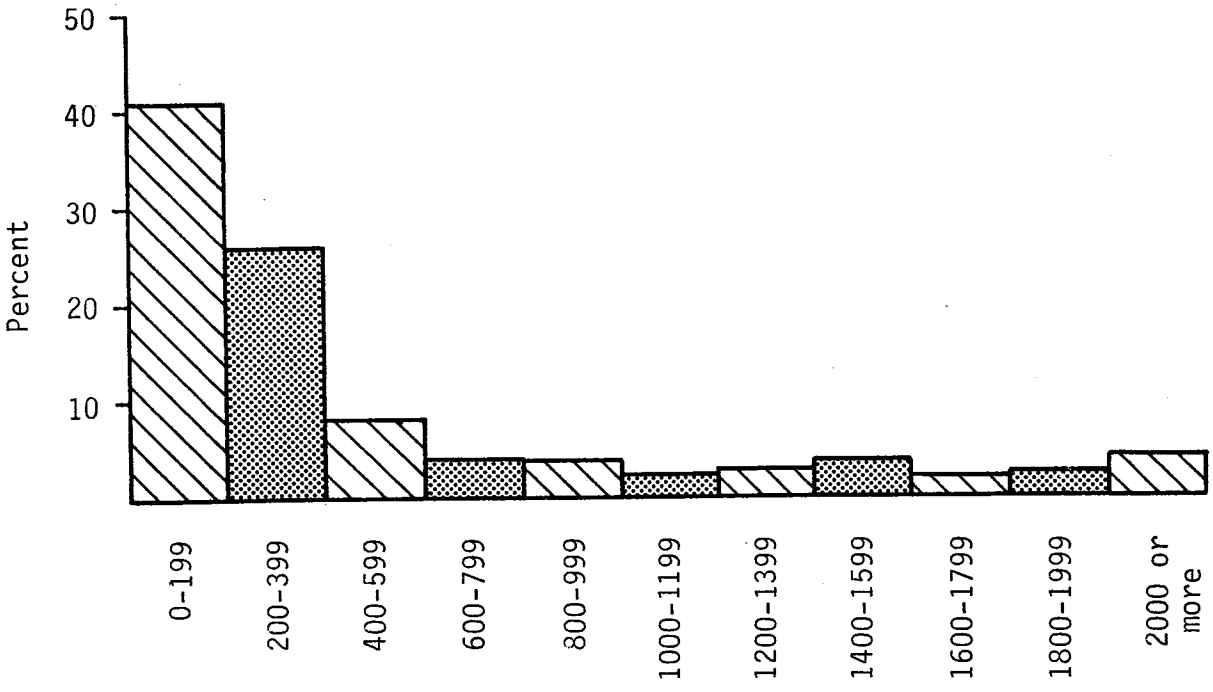


Figure 21: Intercity Bus Trip Length (in miles)

have made this trip if intercity bus service was not available. The responses are shown in Figure 22.

Forty-seven percent of the riders responded that they would have ridden with someone else or driven themselves. Indeed, as previously discussed, 58 percent of the passengers owned a car and 48 percent stated that the vehicle was available for this trip. Twenty-five percent stated that they would have made the trip by airplane. This may have been the choice of those passengers making long trips, as 25 percent of the riders surveyed were travelling over 600 miles. Seventeen percent of the riders stated they would not have made the trip if bus service was not available.

Further analysis of those stating that they would not make the trip if intercity bus service was not available indicated that 45 percent owned a car that was available for the trip. Thus, the loss of bus service would appear to leave only a small number of persons without an alternative mode of travel.

Number of Intercity Bus Trips in the Past Year

Figure 23 illustrates the number of bus trips made by the respondents within the past year. For this survey a round trip was counted as 2 trips. As indicated, 50 percent of the users had ridden 3 times or less and 85 percent had ridden fewer than 10 times.

As previously mentioned, almost 50 percent of the riders stated that the purpose of their trip was to visit friends or relatives for vacation or for a medical appointment. These types of trips are generally not made frequently. Thus, this may be the reason for the low number of trips made by bus in the past year.

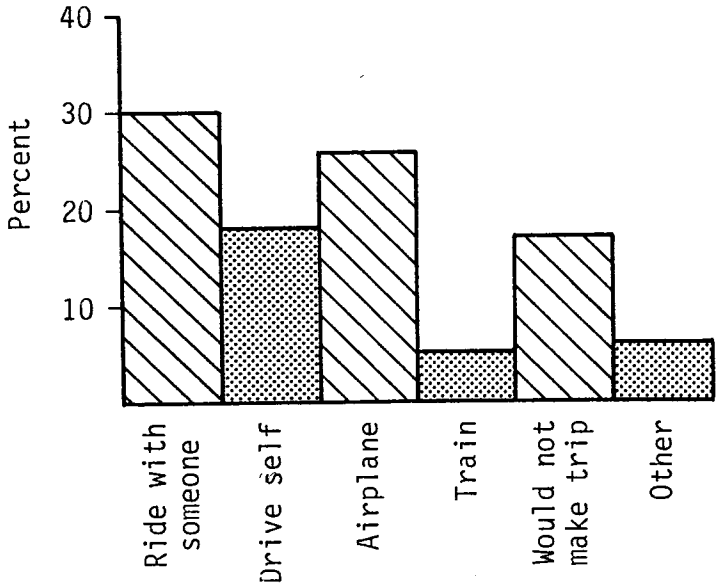


Figure 22: Alternative Travel Mode

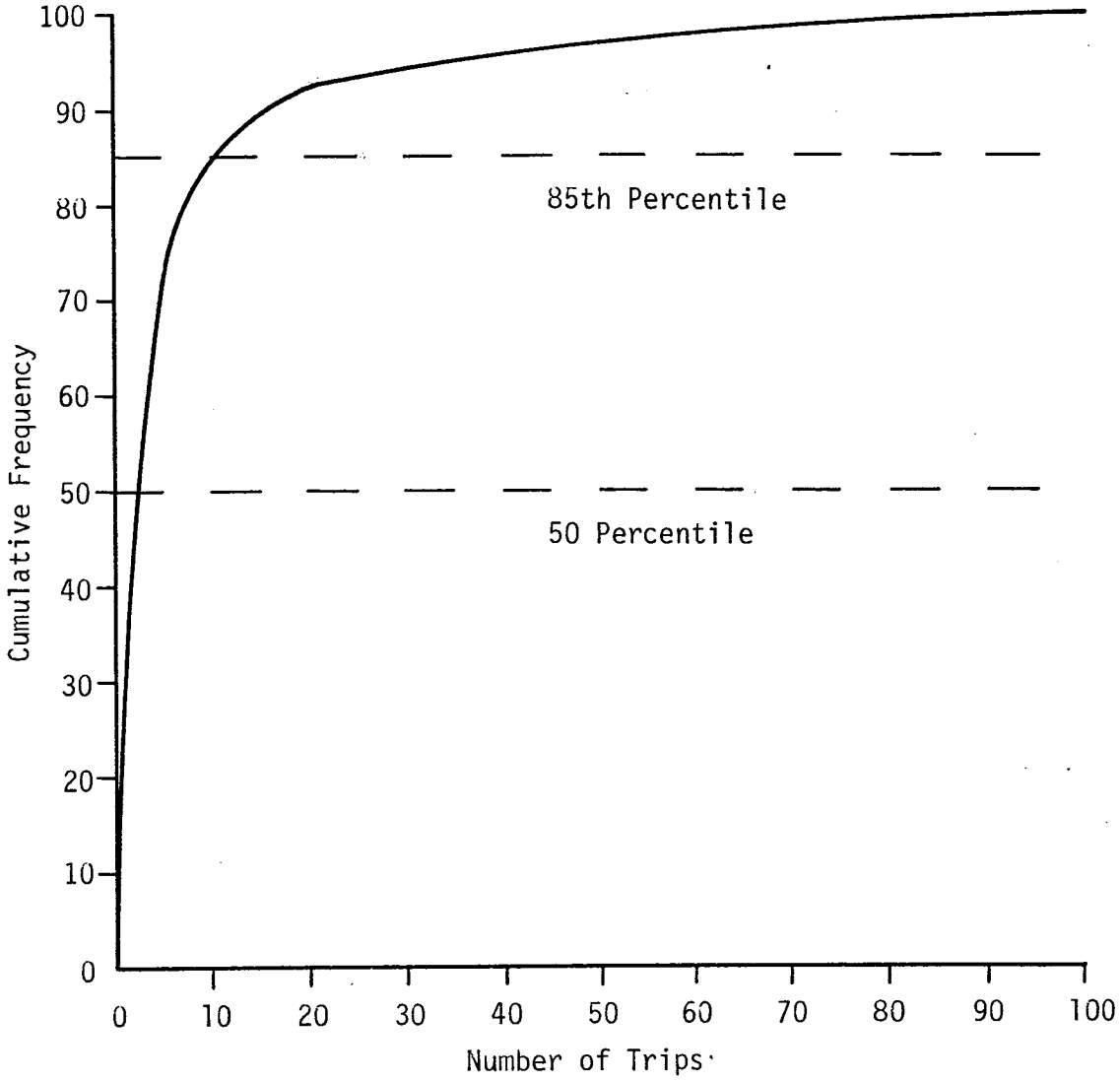


Figure 23: Cumulative Frequency Distribution, Number of Intercity Bus Trips made by Passengers in Past Year

General Attitudes

The survey asked certain questions designed to identify attitudes concerning intercity bus service and fares, and to identify those features that were important to users in their decision to use intercity bus service. The responses to these questions are summarized below.

Service and Fares

Questions were asked concerning satisfaction with the existing bus service and attitudes toward the cost of the service. The response to the question "How would you rate your satisfaction with intercity bus service overall?" is summarized in Table 38. As indicated, the overwhelming majority thought the existing service was satisfactory. In fact, only 5 percent of the respondents were not pleased with the current service.

Table 38: Satisfaction With Existing Service

Level of Satisfaction	Response
Very Satisfactory	41.8
Satisfactory	47.6
Not Satisfactory	5.4
No Opinion	5.2
n = 1024	

Figure 24 shows the results of the questions concerning how much more users would be willing to pay for existing service and for improved service. Most riders surveyed indicated they would be willing to pay a little more for both the existing service (51 percent), and for improved service (66 percent). Only a small number of persons would be willing to pay a lot more for either existing or improved service.

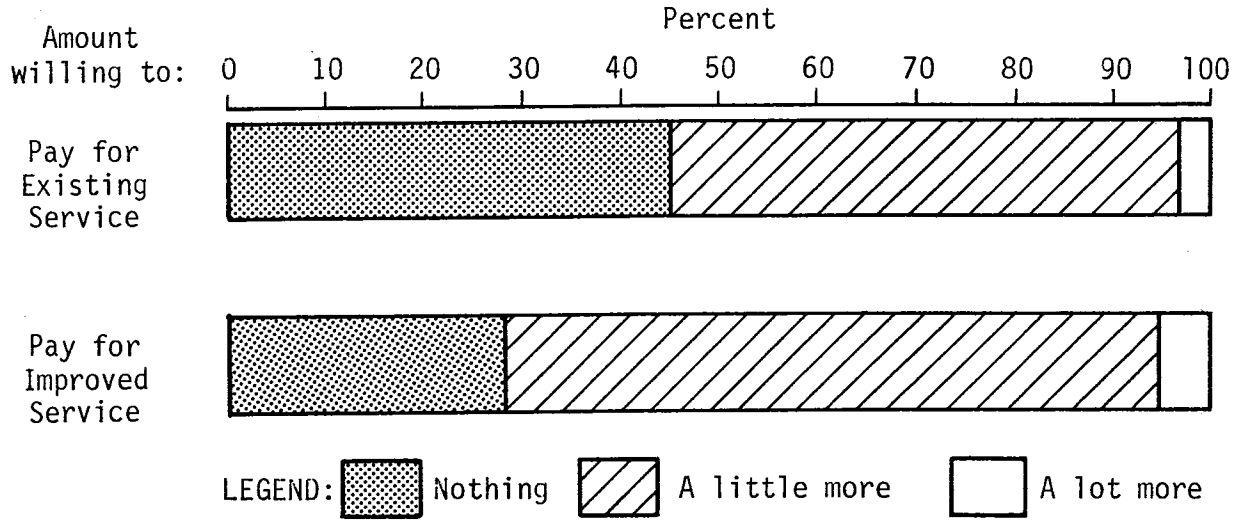


Figure 24: Passenger Attitudes Toward Increased Fares

Important and Unimportant Features of Intercity Bus Service

This study attempted to identify those features of existing intercity bus service that were most important to the users in their decision to use the service. In essence, an attempt was made to document those features of intercity bus travel that should be emphasized in the planning and operation of the service.

The survey included the following statement: "A number of different factors are important in deciding to use intercity bus service. Please circle the number that best explains how important the following features are to you in deciding to use the intercity bus." Following that, 15 intercity bus features were listed; the user rated each feature on a scale of 1 (not important) to 5 (very important). These results are summarized in Table 39.

The most important features are safety at the bus station and on the bus, leaving and arriving on time, and having leg room and comfortable seats on the bus. Least important factors were the availability of alternative air or train service and the provision of auto parking near the bus station. The ten other factors considered in the evalution were considered to be of intermediate importance. The difference in ratings within each of the three groups are not statistically significant.

Comparison of Texas and Michigan Surveys

In order to ascertain whether Texas intercity bus riders or trips have any unique characteristics, portions of the survey results were compared with the results of a 1977 on-board survey conducted in Michigan. The results of this comparison are discussed below.

The Texas on-board survey was compared to eight questions from the Michigan survey. Questions concerning age, sex, occupation, vehicle

Table 39: Relative Importance of Various Intercity Bus Features to Users

Feature	Overall Rating[1]	Significance Level 2
Safety at the bus station and on the bus	4.44	Most Significant
Leaving and arriving on time	4.38	
Leg room and comfortable seats	4.32	
The availability and cost of gasoline	4.13	Intermediate Significance
Having express bus service	4.09	
Frequency of intercity bus service	4.05	
Bus fare	3.98	
The speed of the bus trip	3.92	
The cost of owning a car	3.90	
The location of the bus station	3.87	
Riding in a new modern bus	3.80	
Local city bus transportation at destination	3.67	
Food service at bus station	3.64	
Availability of air or train service	3.41	Least Significant
Auto parking near bus station	3.31	

[1]Each feature was rated on a scale of 1 (not important) to 5 (very important).
[2]To assess statistically significant differences in the responses, a Duncan's multiple range test for variable rank was performed to identify significantly different means. The responses fell into the three general significance levels shown in the table.

ownership, mode of arrival at the bus station, mode of departure from the bus station, trip purpose, and the number of intercity bus trips made in the past year were compared. An overview of the responses given to these questions is presented in Table 40.

The survey results were compared using the Kolmogorov-Smirnov test (Hollander and Wolfe, 1973), which is a non-parametric test for differences between two cumulative distributions. The two-sample test analyzes the hypothesis that the two independent samples come from identical continuous distributions. The test is sensitive to population differences with respect

Table 40: Overview of Personal and Travel Characteristics for Bus Passengers for Texas and Michigan

Characteristic	Texas	Michigan
Age		
Under 18	7.7[1]	6.1
18-29	42.7	46.9
30-39	15.1	11.2
40-49	9.5	9.2
50-64	15.0	15.3
65 and over	10.0	11.3
Sex		
Male	45.7	42.7
Female	54.3	57.3
Occupation		
Unemployed	8.1	7.1
Housewife	17.5	13.3
Student	15.6	29.6
Retired	14.9	12.2
Craftsmen/Laborers/Operatives	13.3	10.2
Service/Sales	7.1	3.1
Clerical	4.3	4.1
Professional/Technical/Managerial	13.7	11.2
Military	5.5	N.A.
Other	N.A.	9.2
Mode of Arrival at Bus Station		
Dropped off by someone	65.6	53.5[2]
Drove self	2.8	
Walked	9.4	19.2
Taxi	10.2	10.1
City Bus	7.3	10.1
Other	4.7	7.1
Mode of departure from bus station		
Picked up by someone	66.7	52.5[3]
Drive self	1.7	
Walk	10.2	15.2
Taxi	13.5	15.2
City bus	4.6	9.1
Other	3.3	8.0
Purpose of Trip		
Visit friend/relative	37.7	48.5
Work	11.5	14.4
Vacation	7.3	6.2
Visit Doctor/Dentist	4.7	N.A.
Personal Business	N.A.	16.5
Shopping	N.A.	1.0
School	3.8	N.A.
Return Home	26.4	N.A.
Other	8.7	13.4
Own a Car, Pick-up or Van		
Yes	58.3	66.7
No	41.7	33.3
Number of times ridden an intercity bus in the past year		
0- 9	81.7	67.5
10-19	8.0	11.3
20-29	4.0	6.3
30-39	1.0	2.5
40-49	1.0	1.2
50-59	1.2	1.2
60-69	0.0	0.0
70-79	0.0	0.0
80-89	1.1	0.0
90-99	2.0	0.0
100 or more	0.0	10.0

Source: Michigan Intercity Bus Study, Michigan Department of State Highways and Transportation, 1977.

[1] Only persons aged 12 and over were surveyed.
[2] Indicates persons arriving by automobile including those dropped-off and those driving themselves.
[3] Indicates persons departing by automobile including those picked-up and those driving themselves.

to location, dispersion, or skewness. All comparisons were made to a level of significance of $\alpha = 0.05$. If the test failed, it was ruled that there was insufficient evidence to conclude that the two samples were from identical populations. However if the test did not fail, sufficient evidence existed to make such a conclusion.

The results of the Kolmogorov-Smirnov test, shown in Table 41, indicate that all but one of the comparisons are favorable. There is insufficient evidence ($\alpha = 0.05$) to conclude that the two samples are drawn from identical populations of occupation. Thus, it appears that intercity bus passengers in Texas and Michigan are similar in terms of age, sex, vehicle ownership, mode of arrival to and departure from the bus station and the number of intercity bus trips made during the past year.

Table 41: Results of Michigan Survey and Texas Survey Comparison

Comparison	Samples From Identical Populations	Samples From Different Populations
Age	X	
Sex	X	
Occupation		X
Vehicle Ownership	X	
Mode of Arrival	X	
Mode of Departure	X	
Trip Purpose	X	
Number of Trips	X	

IX. TEXAS INTERCITY BUS HOUSEHOLD SURVEY

A home mail-out survey was performed throughout the State. This household survey was designed to collect socioeconomic data as well as data on the use of, and attitudes toward, intercity bus service by residents in Texas. In particular, the mail-out attempted to identify what additional features would need to be incorporated into the intercity bus service to cause people who do not use intercity bus service to choose to use the service.

The survey instrument used for the household survey was designed to be as similar as practical to the user survey. This was done to allow comparisons between the responses to the two surveys. A copy of the survey form is included in Appendix B.

The household survey used the same regional stratification (See Figure 13) that was used in the user survey. It was also desired to assure adequate representation from rural areas. Since the list of households to be used could not readily be segmented within county, it was decided to classify counties based on the size of the largest SMSA in the county. High population density counties were those with SMSA's of 1,000,000 or more persons. Medium density counties were those with SMSA's of less than 1,000,000. Low density counties were those that did not have an SMSA.

The data base selected for obtaining household addresses was the Metromail computerized list of addresses based on all the telephone directories in Texas. The list has 3.6 million households and is readily segmented by a computer. Although the list did not have households without telephones, the bias was not considered important in this survey. Those

without telephones are more likely to be bus users than nonusers, and the household survey was intended to obtain data about nonusers.

The 254 counties were stratified by region and size as previously indicated. Forty counties were randomly selected to represent the eight strata as shown in Table 42. A total of 51 households were then systematically selected from all the households in each county.

Table 42: Number of Counties Surveyed by Strata

Region	Population Density		
	Low	Medium	High
North/East	5	10	3
North/West	5	7	0
South/West	5	4	1

A letter and two survey forms (See Appendix B) were sent to each of the 2040 households identified by the above stratification procedure. Only 1942 of the addresses were actually deliverable by the Post Office. In addition to the initial mailing, two follow-up mailings were also made. The response rate was 30 percent (about 15 percent after the first mailing and about 25 percent after the second mailing) of the total households. However, the request for 2 respondents per household resulted in a total return of 877 useable questionaires. The nonproportional sampling scheme and the varied response rates by strata necessitated that the responses be weighted. Appropriate weights were applied to the responses in order to obtain statistics representative of the State.

Personal Characteristics

Participants in the household survey were asked various questions concerning age, sex, education, occupation, household income and vehicle ownership. The responses to these questions are summarized in this section.

Age, Sex, and Education

Figure 25 shows the cumulative frequency distribution for the age of household respondents. Thirty percent were under 37 years of age and 23 percent were over age 65. The average age of household respondents was 48, slightly higher than the average age for the Texas population, 41 years of age.

Figure 26 shows the breakdown of household respondents by sex. As indicated, approximately 52 percent were male and 48 percent were female.

The question, "What is the highest grade of school completed?" was asked. The response to this question is summarized in Figure 27. As shown, 33 percent of the respondents had completed high school and some 30 percent had completed college.

Occupation

Respondents were asked to identify their current occupation. The responses to this question were grouped into 13 categories and the results are illustrated in Figure 28.

Three categories, retired persons, professional and technical employees and housewives, are predominant, accounting for 22 percent, 18 percent and 15 percent of the responses, respectively. There were only a small number of

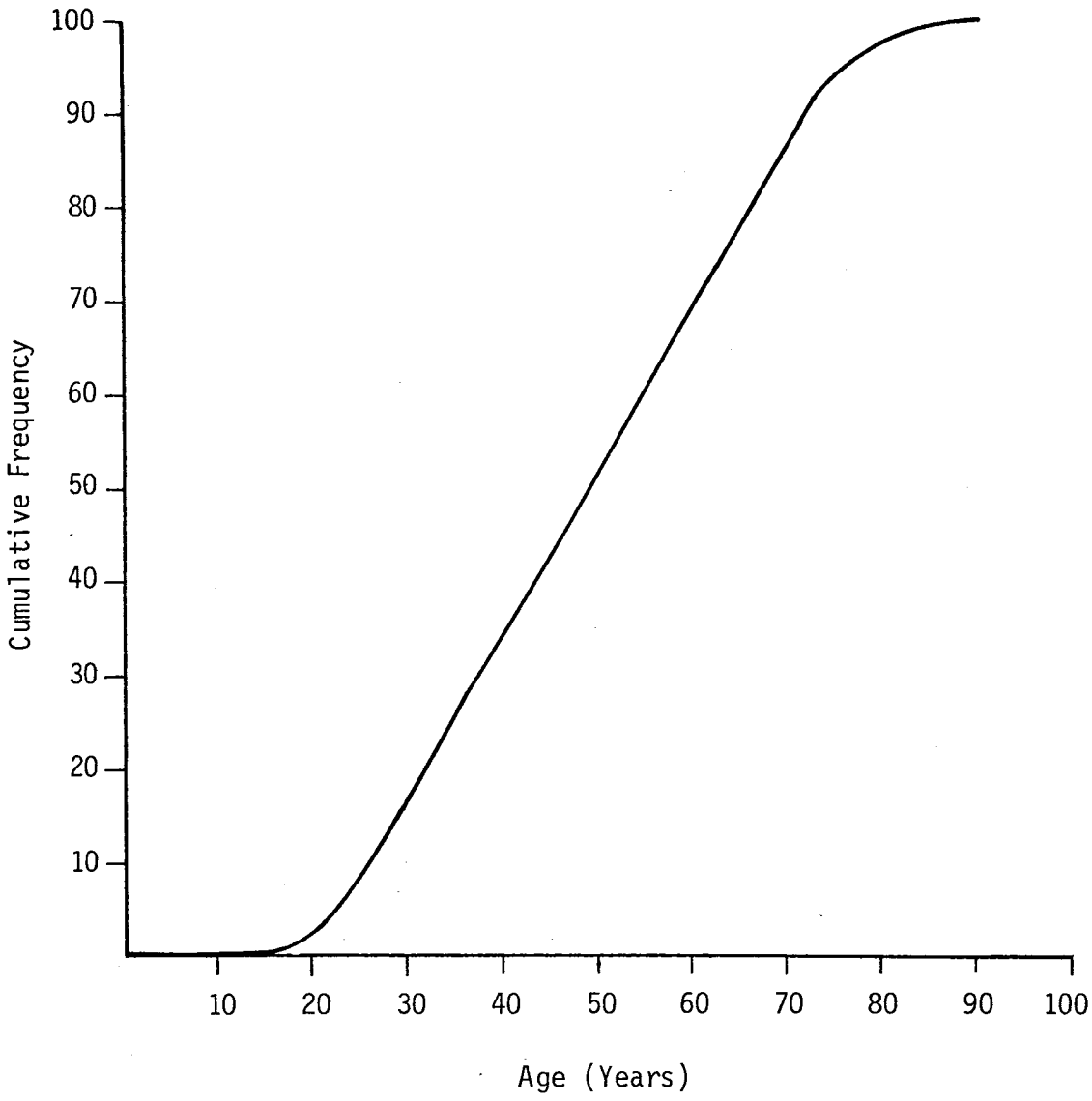


Figure 25: Cumulative Frequency Distribution, Age of Household Respondents

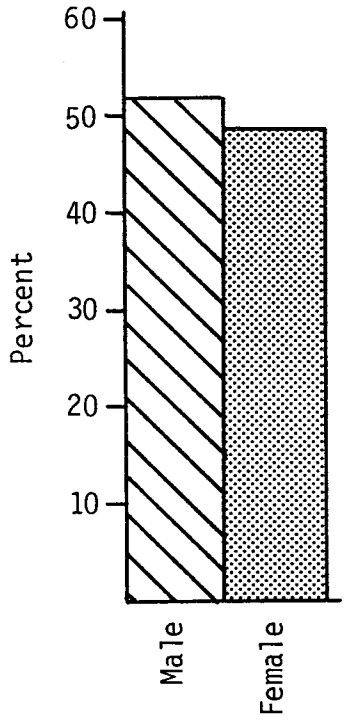


Figure 26: Breakdown of Household Respondents by Sex

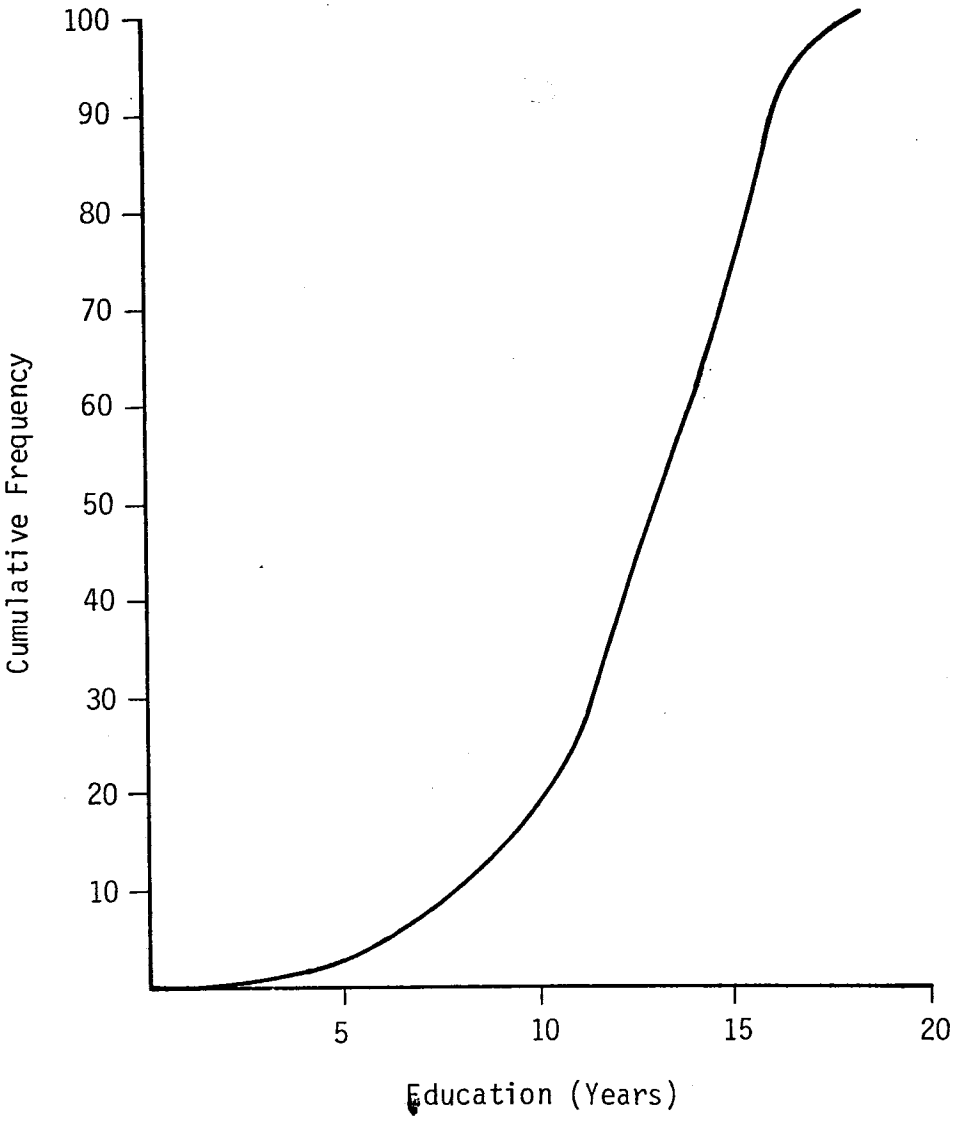


Figure 27: Cumulative Frequency Distribution, Years of Education for Household Respondents

Figure 28: Occupation of Household Respondents

unemployed persons and military personnel and no private household service workers responding.

Income

Figure 29 shows the annual household income for those participating in the household survey. As indicated, the respondents come from all income levels with no category being predominant.

Vehicle Ownership and Licensed Drivers

Participants were asked two questions: "Do you own a car, pickup or van?" and "Do you have a drivers license?". The responses to these two questions are summarized in Figure 30.

It appears that an overwhelming majority of the respondents have a mode of transportation readily available. Ninety-five percent of the respondents own a car and have a drivers license.

General Attitudes

Several attitudinal and general knowledge questions were asked in the household survey. These questions were designed to identify the willingness of individuals to choose to ride the intercity bus, as well as identify knowledge and use of the services provided.

Two statements regarding attitudes towards intercity bus service were posed in the household survey (Table 43). Respondents were asked whether they agreed or disagreed with these statements. The results indicate that most respondents are not entirely opposed to the idea of riding intercity buses. The fact that respondents did not express negative attitudes toward intercity bus use might be viewed as encouraging to the operators of such

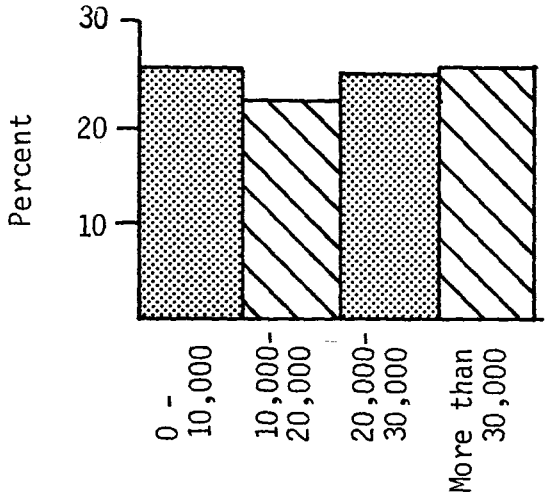


Figure 29: Annual Household Income for Household Respondents

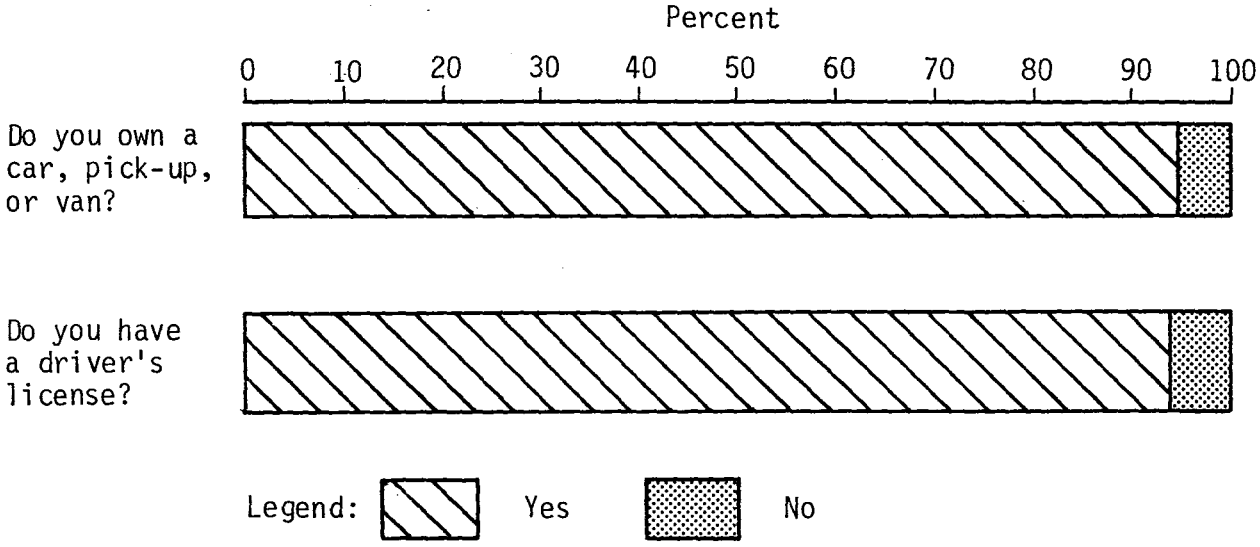


Figure 30: Percentage of Vehicle Ownership and Licensed Drivers for Household Respondents

service. Respondents were, however, opposed to the idea of using tax monies to subsidize such service.

Table 43: General Attitudes of Household Respondents Concerning Intercity Bus Service

Statement	Agree	Disagree	Not Sure
I will always dislike the idea of riding intercity buses no matter how good the service is.	19%	63%	18%
Federal or state tax money should be used to subsidize intercity bus operating costs.	15%	58%	27%

In order to ascertain whether respondents use intercity bus service or have knowledge of the services provided, several questions were asked.

As indicated by Table 44, most respondents are aware of the services offered by intercity bus; and in fact, they have used that service at sometime, although not to any great extent.

Table 44: Household Respondents' Knowledge and Use of Intercity Bus Service

Question	Responses		
	Yes	No	If "yes," the number of times
Have you ever used an intercity bus?	69%	31%	
If "yes," how many times have you used an intercity bus in the last year? (Average number of times).			1
Do you know that packages can be shipped by bus?	94%	6%	
Have you ever shipped a package by bus?	59%	41%	
If "yes," how many times in the last year?			3

The responses to another question, "If no intercity bus service were provided, how much would you be inconvenienced?", is summarized in Figure 31. Over 50 percent of the household respondents indicated that the loss of intercity bus service would not affect them at all. This seems to indicate that although most respondents have used the service, they do not rely on it as a means of transportation.

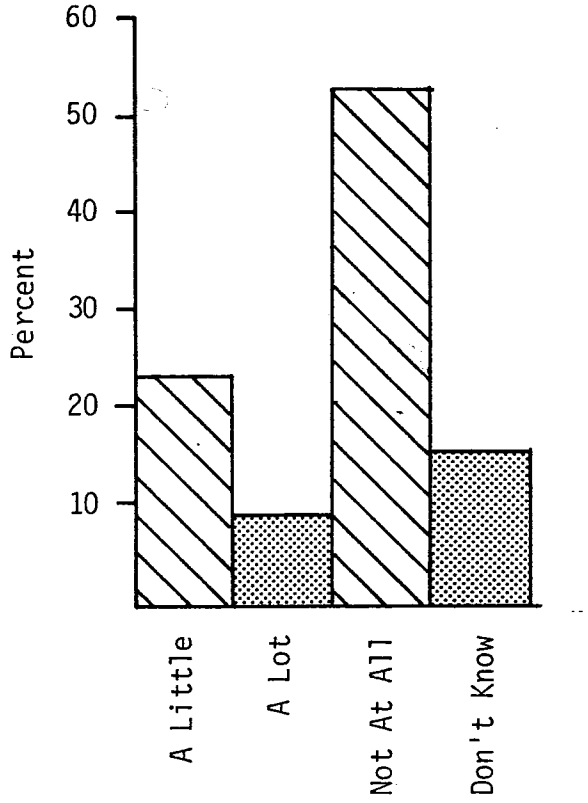
Further analysis indicated that 97 percent of the persons responding that they would not experience any inconvenience from the loss of bus service own cars. While only 76 percent of those persons indicating that they would be inconvenienced own cars.

The size of the city of residence did not appear to make any difference in whether or not the loss of bus service would create an inconvenience. Persons residing in small cities or rural areas did not indicate that they would be inconvenienced any more than those persons living in large cities. Thus, the availability of an automobile appears to be the deciding factor in whether or not the loss of bus service would be an inconvenience to people whose only alternative is intercity bus service.

Important and Unimportant Features of Intercity Bus Service

This survey attempted to identify what additional features could be added to the current intercity bus service that would cause those persons not currently using the service to choose to do so.

The following statement was included on the survey: "The following is a list of possible changes which could be made to existing intercity bus service. Please circle the number that best explains how likely you would be to use an intercity bus if the following changes were made." A list of 17 possible improvements was provided and respondents rated each feature on a



How much respondents would be inconvenienced if no intercity bus service were provided.

Figure 31: Attitude of Household Respondents Towards Bus Service

scale of 1 (not important) to 5 (very important). These results are summarized in Table 45.

In examining Table 45, it is helpful to compare the results shown in Table 39 (see p. 115). Two things are apparent when examining the household responses. The rating are relatively low. None of the ratings are significantly above 3.0 which could be considered a neutral or indifference point. In fact, most of the responses were rated below. 3.0.

It should also be noted in examining Table 45, that the two lowest rated items (purchasing tickets from travel agents and sitting next to strangers) did receive ratings that were significantly below the other responses. The order of the other 15 responses is not statistically significant.

Households Segmented Into Users and Non-Users

As previously discussed, household respondents were asked a question concerning their use of intercity bus service. The response indicated that 69 percent of the respondents have ridden an intercity bus although only 29 percent of these participants have ridden an intercity bus during the past year. This proportion of users was higher than expected. It was, therefore, desirable to determine what effect the two population segments had on the survey results. Based on these responses, household participants were classified into bus groups; users and non-users. Users are those persons who have ridden an intercity bus during the past year, and non-users are those persons who have either never ridden an intercity bus or have not done so within the past year.

An analysis of these two groups was performed in order to determine if there were any notable differences between them. The results of this analysis follow.

Table 45: Relative Importance of Various Changes to Household Respondents

Change	Rating[1]	Grouping[2]
If the cost of gasoline were to increase	3.20	A
If more express bus service were available	3.14	A B
If availability of gasoline were to decrease	3.09	A B C
If the cost of air or train transportation were to increase greatly	2.98	B C D
If local city bus transportation were available at destination	2.94	E C D
If the buses always arrived and departed on time	2.91	E F D
If bus stations were located in better places	2.87	E F D G
If there was more leg room, wider aisles and more comfortable seats	2.79	E F H G
If buses were newer and more modern	2.77	F H G
If auto parking were available near bus station	2.73	H G
If a bus trip was safer	2.64	I H
If the frequency of intercity bus service was increased	2.55	I J
If the speed of the bus trip was faster	2.50	I J
If bus fares were lower	2.42	J K
If you had a better understanding of how the service operated	2.32	K
If the purchase of bus tickets from travel agent was available	2.16	L
If the trip did not involve sitting next to strangers	1.91	M

[1] Each feature was rated on a scale of 1 (not important) to 5 (very important).

[2] To assess statistically significant differences in the responses, a Duncan's multiple range test for variable rank was performed to identify significantly different means. The responses fell into the three general significance levels shown in the table. The significance level used was $\alpha = 0.05$.

Personal Characteristics

A chi square test was performed to test the null hypothesis that the personal characteristics of respondents segmented by use of intercity bus service in the last year was the same for both segments. Rejection of the null hypothesis at a significance level of $\alpha = 0.05$ was the basis of rejecting the null hypothesis. The null hypothesis was rejected as shown in Table 46 for all characteristics except age and set.

In terms of sex there is a higher percentage of female users (54 percent) than non-users (48 percent). In fact, the breakdown of users by sex (54 percent female and 48 percent male) is identical to that found for the on-board survey.

The breakdown by occupation indicates there are more retired persons and students among the users than among the non-users. These two groups traditionally have been thought to be intercity bus patrons. The non-users, however, have more professional and technical employees.

In terms of income, notable differences occur between these two groups. Users have a much higher percentage of households earning less than $20,000 annually (64 percent) than non-users (38 percent). Household users' income closely resembles that found for participants in the on-board survey where 76 percent of the respondents had an annual household income of less than $20,000.

It was also found that the users were less likely to own an automobile or have a drivers license than non-users. However, a much higher percentage of household users owned cars (88 percent) than did on-board survey participants (58 percent).

Table 46: Overview of Selected Personal Characteristics for Users and Non-Users

Characteristic	Non-User	Household User	Significantly Different[1]
Age (Years)			No
50th Percentile	46	48	
85th Percentile	66	70	
Sex			No
Male	52%	46%	
Female	48%	54%	
Education (Years)			Yes
50th Percentile	14	12	
85th Percentile	16	16	
Occupation			Yes
Housewife	18%	16%	
Retired	18%	25%	
Professional/Technical	21%	15%	
Student	3%	8%	
Income			Yes
$0 - $10,000	14%	39%	
$10,000 - $20,000	24%	25%	
$20,000 - $30,000	28%	14%	
$30,000 and Over	34%	22%	
Own a Car, Pick-up or Van			Yes
Yes	98%	88%	
No	2%	12%	
Have Driver's License			Yes
Yes	98%	89%	
No	2%	11%	

[1]Chi-square test at a significance level of $\alpha = 0.05$.

General Attitudes

There were significant differences, based on a chi square test, between users and non-users in their response to the general attitude questions as shown in Table 47. A higher percentage of non-users indicated that they always disliked riding intercity buses. Both groups agreed that tax monies should not be used to subsidize intercity bus service, with more non-users than users against such subsidies.

Table 47: General Attitudes of Household Users and Non-Users Concerning Intercity Bus Service

Statement	Response	Non-Users	Users	Significantly Different[1]
I will always dislike the idea of riding intercity buses no matter how good the service is.	Agree Disagree Not Sure	20% 63% 17%	10% 82% 8%	Yes
Federal or State tax money should be used to subsidize intercity bus operating costs.	Agree Disagree Not Sure	12% 64% 24%	26% 46% 28%	Yes

[1]Chi-square test at a significance level of $\alpha = 0.05$.

The response of users and non-users to the question of whether respondents would be inconvenienced by the loss of intercity bus service is given in Table 48. As shown, significantly more persons in the user group than in the non-user group indicated they would be inconvenienced by the loss of service. Further analysis (See Table 49) showed that those persons in both groups, user and non-user, who indicated they would be inconvenienced a lot were less likely to own a car than those who indicated they would experience no inconvenience. Thus, the lack of a readily available alternate mode of transportation (i.e., an auto) appears to be a major difference in whether or not the loss of bus service would affect respondents.

Table 48: User and Non-User Attitude Towards Loss of Intercity Bus Service

	Response	User	Non-User	Significantly Different[1]
If no intercity bus service were provided, how much would you be inconvenienced.	A little	36%	22%	Yes
	A lot	25%	4%	
	Not at all	23%	60%	
	Do not know	16%	14%	

[1]Chi square test at a significance level of $\alpha = 0.05$.

Table 49: User and Non-User Attitude Towards Loss of Intercity Bus Service by Car Ownership

Group	Own a Car	Would not be Inconvenienced	Would be Inconvenienced a Lot
Users	Yes	92%	68%
	No	8%	32%
Non-Users	Yes	98%	86%
	No	2%	14%

Households Segmented by Income

The research design also included the plan to evaluate possible relationships between income and ridership. It was desired to evaluate the proposition that use of intercity bus service declines with income. That is to say, as an individual's income increases, use of intercity bus service decreases.

The approach taken in this study to examine income relationships is a cross sectional analysis of intercity bus ridership versus income. This type of analysis is potentially subject to bias. For example, low income riders could have a cultural preference for riding intercity buses. If that preference did exist, it would not be possible to draw any conclusions

concerning the effect of income on ridership. However, no bias problems have been identified that would suggest that a cross sectional analysis is inappropriate.

A chi square test was performed using the four income classes used in the survey and four ridership categories. The ridership categories were 0, 1, 2, and 3 or more times in the last year. Ridership levels were significantly different at a significance level of $\alpha = 0.05$.

In order to examine the relationship further, the mean number of times that intercity bus service was used in the last year was calculated for the four income classes. The resulting means were 1.86, 0.85, 0.30, 0.70 in order of increasing income.

The preceding analysis suggests that income is an important determinant of intercity bus ridership. A similar analysis of the statement "I will always dislike the idea of riding intercity buses no matter how good the service is," indicated that higher income individuals have a greater dislike for intercity bus service. This is also consistent with the thesis that income is an important determinant of who will ride intercity buses.

X. OTHER CONSIDERATIONS

The study scope included an evauation of the package express business and the secondary effects of service discontinuance. This section of the report will discuss these two issues.

Package Express

From the outset of the study there was little interest by operators in examining package express service. The consensus was that package express business was "doing alright." Visual observation of terminals throughout the State confirmed that package express was a significant part of the intercity bus business. In some small terminals, it was obvious that package express was more significant than passenger business.

Despite the lack of concern, survey forms (See Appendix C) were distributed at some terminals during the course of the onboard surveys. Two problems led to the eventual discontinuance of the survey. The survey could not be distributed in any random or systematic way. Distribution relied on the cooperation of the local station agent. More important, however, the response rate from the surveys was so poor that even if they had been properly distributed, there was insufficient data to draw meaningful conclusions. The survey was subsequently abandoned.

Other approaches to examining package express business were also fruitless. The financial data at the railroad commission was too incomplete for meaningful analysis. The only useful data came from the household survey.

The household survey included three questions concerning package express. The first question asked "Do you know that packages can be shipped

by bus?" Ninety-four percent of those responding indicated "yes." The second question asked "Have you ever shipped a package by bus?" Fifty-nine percent of the respondents had used bus package service. The last question asked those who had shipped packages ". . . how many times in the last year?" Figure 32 shows the cumulative frequency distribution. The median frequency was one time in the last year with 46 percent not having shipped a package.

The conclusion to be drawn from the household survey is that knowledge and use of bus package service is occasional, but that the infrequent use is not due to lack of knowledge. Any package express advertising would best be aimed at service attributes as the general awareness level is extremely high.

Secondary Effects of Service Discontinuance

A hypothetical bus system was constructed to examine the secondary effects of service discontinuance. The hypothetical system had an average cost of $1.50 per bus mile, and average revenue of $.10 per passenger mile and an average load factor 19.5 passengers. The system had 1000 miles of through service with 2 round trips (i.e., 4 schedules) per day. The system also had a 100 mile feeder line that made one round trip per day and carried an average of 10 passenger per trip.

At first glance the Feeder line looks unprofitable. The cost is $300 per day and the revenue is only $200 based on an average revenue of $.10 per passenger-mile. However, if the average passenger trip is 500 miles, the loss in revenue is $1000. That is to say that although the passengers are only contributing $200 to the feeder line (a loss of $100) they are also contributing $800 to the main route. The proper analysis is, therefore, to

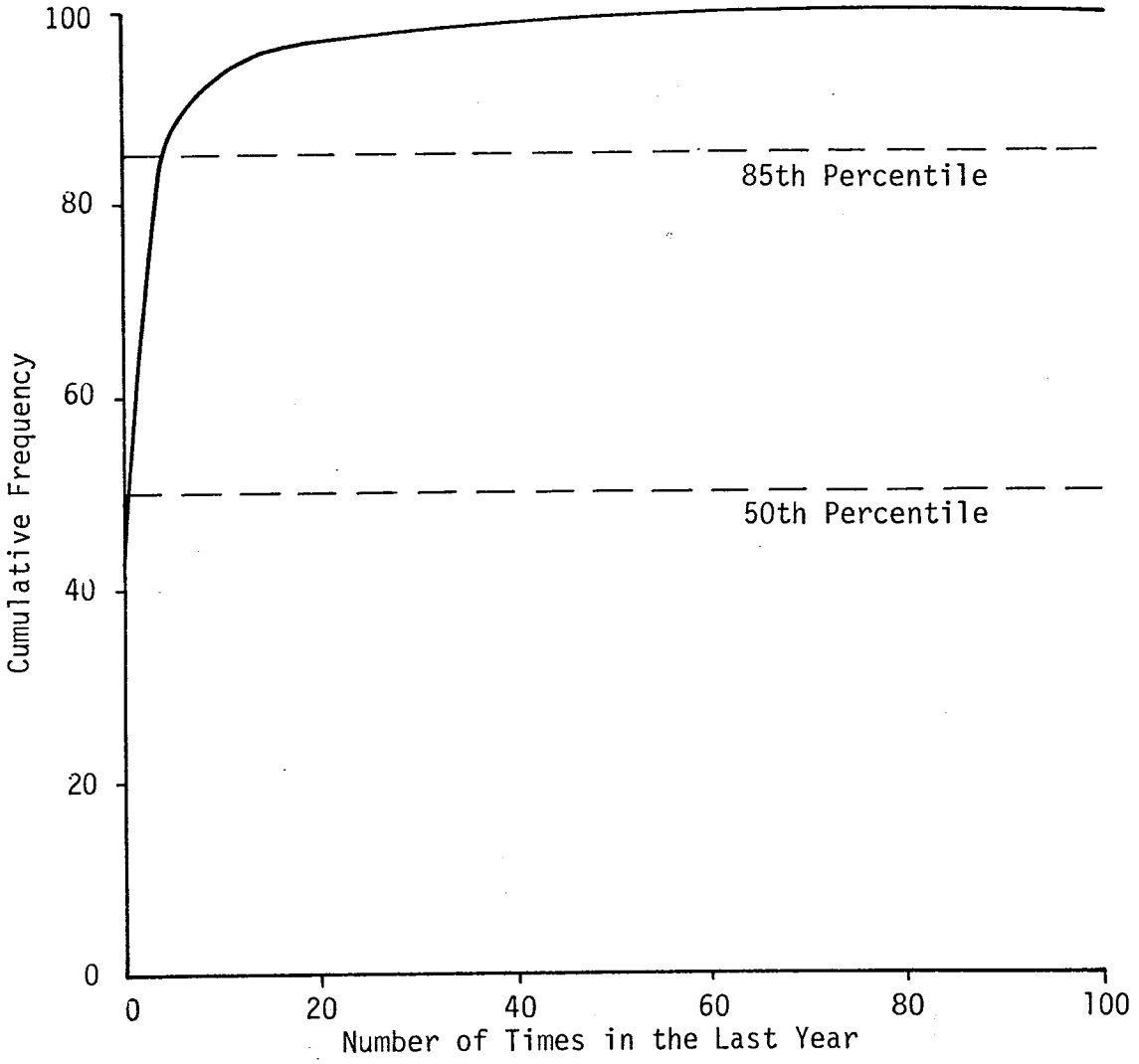


Figure 32: Cumulative Frequency Distribution, Number of Times Intercity Bus Service Was Used to Ship Packages in the Past Year

compare the marginal cost of the feeder line with the total revenue generated by the passengers.

The principal flaw in the above analysis is that it applies only to a single company. If, as is often the case, the feeder line is an independent operator, he would only obtain a prorata share of the revenue. He would not be able to survive unless he could reduce his cost.

Another potential problem with the preceding analysis is that the average trip length for feeder routes is shorter than 500 miles. The data collected suggests that feeder routes may have a 300 mile average trip length. Assuming a 300 mile trip length for the feeder routes reduces the total revenue to $600. This is still more than the $200 cost of the hypothetical feeder route.

The preceding analysis suggests some interesting possibilities. One possibility is that a large company could afford to pick up a marginal feeder route if the total revenue exceeded the marginal increase in cost. Another possibility is that the through route carrier could afford to subsidize the feeder line carrier to some extent. This could be done by giving him a larger than proportionate share of the revenue for selling the ticket. This practice is used in the airline industry with joint fares.

The preceding analysis, while simplistic, does illustrate the point that secondary effects of service discontinuance on marginal routes can be significant. It is, however, only necessary to include all the costs and all the revenues resulting from a service discontinuance to properly evaluate the situation.

XI. SUMMARY AND CONCLUSIONS

The intercity bus industry grew rapidly during its early existence. It is apparent that state and federal regulation has had a strong influence on the structure of the industry and helped foster two dominant national carriers, Greyhound and Trailways, which account for more than 60 percent of industry revenues.

Within the industry, charter and package express have become increasingly important sources of revenue, while regular route profits have been declining. Although the financial performance of the intercity bus industry indicates that it may be a declining industry, recent trends have been encouraging. Furthermore, the Texas industry has been doing significantly better than the national industry as a whole.

The history and development of the Texas intercity bus industry was reviewed using the limited data available. The growth trends appeared to be similar to the U. S. as a whole, although the Texas industry appears to be somewhat healthier. Despite its somewhat healthier state, the Texas industry appears to have matured in that ridership levels are stable.

Two surveys were conducted to advance the knowledge concerning intercity bus riders and attitudes of residents towards intercity bus service. The most notable finding concerning intercity bus riders is that the average trip length is nearly 500 miles. This is significantly longer than generally reported elsewhere. The difference appears to be due to the way ridership data are reported by individual companies.

The most important implications of the study findings relate to the issue of deregulation. It appears unlikely that deregulation will solve the

basic problems of what appears to be a mature industry. Deregulation is likely to improve the economic efficiency of intercity bus service by eliminating the current protection afforded existing operators. However, given the current concern with public expenditures, it is likely that a limited number of truly needy individuals will be without transportation under deregulation. Whether results of deregulation is or is not an improvement is not strictly a technical question.

Two recommendations are appropriate based on the results of this research. Major long haul carriers should provide favorable treatment to small carriers providing interline traffic. Given the relatively long trip length, it would be in the major carriers' best interest to preserve feeder routes, even to the extent of providing a bonus for originating passengers.

Assuming that intercity bus service usage is related to income, two marketing strategies could be considered. One strategy would promote the low cost of intercity bus service to the low income market that comprises the majority of current passengers. However, given the captive nature of that market, an alternative approach appears warranted.

The recommended approach is to target trying to shift attitudes of non-users. The marketing approach should emphasis service features likely to be important to non-users. For example, a marketing program might emphasize express service between two major cities of modest distance. Emphasis would be on speed and convenience as well as the cost.

REFERENCES

American Automobile Association. "Your Driving Costs." 1980 ed., Falls Church, Virginia, 1980.

American Bus Association. America's Most Fuel Efficient Passenger Transportation Service. Washington, D.C., 1980.

American Bus Association. America's Number 1 Passenger Transportation Service. Washington, D.C., 1978.

Bureau of the Census. 1977 Census of Transportation: National Travel Survey. U.S. Department of Commerce: Washington, D.C., March 1978.

Committee on Commerce, Science, and Transportation, United States Senate. Intercity Bus Service in Small Communities. U.S. Government Printing Office: Washington, D.C., 1978.

Crandall, Burton D. The Growth of the Intercity Bus Industry. Syracuse University, Syracuse, New York, 1954.

Davis, Frank W. et. al. Survey of Intercity Bus Operations in the State of Tennessee. The University of Tennessee, Knoxville, Tennessee, June 1974.

Fravel, Frederick. North Carolina Intercity Bus Study. Department of City and Regional Planning, University of North Carolina, Chapel Hill, North Carolina, September 1979.

Economic Report of the President, January 1980.

General Accounting Office of the United States. Amtrak's Economic Impace on the Intercity Bus Industry. The Comptroller General Report to Congress, Washington, D.C., January 12, 1979.

Hollander, M. and Wolfe, D. A., Nonparametric Statistical Methods. John Wiley and Sons: New York, New York, 1973.

Interstate Commerce Commission. "Financial and Operating Statistics for Class I Motor Carriers of Passengers." Statement No. 750. Bureau of Accounts: Washington, D.C., 1978.

Interstate Commerce Commission. "Financial and Operating Statistics for Class I Motor Carriers of Passengers." Statement No. 750. Bureau of Accounts: Washington, D.C., 1977.

Interstate Commerce Commission. The Intercity Bus Industry: A Preliminary Study. Bureau of Economics: Washington, D.C., May 1978.

Interstate Commerce Commission. "The Motor Bus Act of 1981: The Interstate Commerce Commission's Proposed Legislative Reform of Intercity Bus Regulation." Washington, D.C., December 15, 1980.

MacNeal, Edward. The Semantics of Air Passenger Transportation. Norfolk Port and Industrial Authority; Norfolk, Virginia, 1981.

Management Analysis Center, Inc. Deregulation of the Intercity Bus Industry. Washington, D. C., 1981.

Meier, Albert C., and Hoschek, John P. Over the Road: A History of Intercity Bus Transportation in the United States. Motor Bus Society, Inc.: Upper Montclair, New Jersey, 1975.

Moore, Dennis H. "The Passenger's Side: A Brief Commentary on Oregon's Intercity Public Transportation Program." Oregon Department of Transportation, Salem, Oregon, May 1979.

National Transportation Policy Study Commission. Intercity Bus Transportation. Special Report No. 7, Washington, D.C., November 1979.

Pinkston, Elizabeth Ann. The Intercity Bus Transportation Industry: An Industrial Organization Study. Yale University: New Haven, Connecticut, 1975.

Ramsdell, Edward L. "Assessment of Motor Carriers of Passengers Statistical Data Filed with the Interstate Commerce Comission;" Transportation Research Forum Proceedings, Oxford, Indiana, 1978.

Sheldon, George. "Intercity Bus Deregulation in Florida." Conference on Intercity Bus Transportation, Washington, D.C., September 22, 1980.

Transportation Association of America. Transportation Facts and Trends. 15th Edition, Washington, D.C., 1979.

Transportation Association of America. Transportation Facts and Trends. 16th Addition, Washington, D.C., 1980.

Transportation Research Board. The Intercity Bus Industry: Issues and Problems. National Academy of Sciences: Washington, D.C., September.

United States Department of Commerce, Bureau of Economic Analysis. "Survey of Current Business," Volume 61, No. 5, May 1981.

APPENDIX A

ON-BOARD SURVEY FORMS

Intercity Bus Users Survey

Undertaken by the Texas Transportation Institute, Texas A&M University in cooperation with the Texas State Department of Highways and Public Transportation and the U.S. Department of Transportation, Federal Highway Administration

1. Where do you live? City_____ County_____ State_____

2. What is the population of the city or metropolitan area you live in?

___500,000 or more
___50,000 to 500,000
___5,000 - 50,000
___less than 5,000 or rural area

3. In what city and state did today's trip begin?

City_____ State_____

4. How did you get to the bus station today?

___Dropped off by someone
___Drove self
___Walked
___Taxi
___City bus
___Other

5. What is the purpose of today's trip?

___Visit friend/relative
___Work
___School
___Vacation
___Visit Doctor/Dentist
___Return Home
___Other (specify)
_____
_____

6. In what city and state will today's trip end?

City_____ State_____

7. How will you get to your final destination from the bus station?

___Picked up by someone
___Drive self
___Walk
___Taxi
___City bus
___Other

8. How would you have made this trip if intercity bus service were not available?

___Ride with someone
___Drive self
___Airplane
___Train
___Would not make trip
___Other

9. How many times have you ridden an intercity bus in the last year? A round trip should be counted as 2 rides.

___Times

10. How would you rate your satisfaction with intercity bus service overall?

___Very Satisfactory
___Satisfactory
___Not Satisfactory
___No Opinion

11. How much more would you be willing to pay to continue the existing service?

___Nothing
___A little more
___A lot more

(OVER)

12. A number of different factors are important to people in deciding to use intercity bus service. Please circle the number that best explains how important the following features are to you in deciding to use the intercity bus. The higher the number, the more important you feel a factor is to you.

How important is . . .	Not Important				Very Important
Bus fare	1	2	3	4	5
The cost of owning a car	1	2	3	4	5
The speed of the bus trip	1	2	3	4	5
Leaving and arriving on time	1	2	3	4	5
The availability and cost of gasoline	1	2	3	4	5
Auto parking near bus station	1	2	3	4	5
Riding in a new modern bus	1	2	3	4	5
Leg room and comfortable seats	1	2	3	4	5
Availability of air or train service	1	2	3	4	5
The location of the bus station	1	2	3	4	5
Safety at the bus station and on the bus	1	2	3	4	5
Food service at bus station	1	2	3	4	5
Local city bus transportation at destination	1	2	3	4	5
Having express bus service	1	2	3	4	5
Frequency of intercity bus service	1	2	3	4	5

13. How much more would you be willing to pay for improved bus service?

____Nothing ____A little more ____A lot more

14. What is your age? _____ 15. Are you . . .? ____Male ____Female

16. Do you own a car, pickup or van? ____Yes ____No

If "yes", was it available for this trip? ____Yes ____No

17. Do you have a driver's license? ____Yes ____No

18. What is your current occupation in as specific terms as possible. (Also, please specify if retired, unemployed, student or housewife.)

_____

19. What is the highest grade of school completed? _____

20. What is your annual household income?

____0-$10,000 ____$10,000-$20,000 ____$20,000-$30,000 ____More than $30,000

COMMENTS_____

_____

THANK YOU FOR YOUR COOPERATION

Please return this form to the bus driver!

Encuesta para Pasajeros del Servicio de Autobús Interurbano

(Hecho por El Instituto de Transporte de Texas, La Universidad de Texas A&M en cooperación con El Departamento Estatal de Carreteras y Transportes Públicos de Texas)

1. ¿Donde vive Ud.? Ciudad _____ Condado _____ Estado _____

2. ¿Cuál es la población de la ciudad o el área metropolitana en que vive Ud.?

   ____ 500,000 o más ____ 5,000 - 50,000
   ____ 50,000 a 500,000 ____ menos de 5,000 o un area rural

3. ¿En cuál ciudad y estado comenzó su viaje hoy? Ciudad _____ Estado _____

4. ¿Cómo llegó Ud. a la estación de autobús?

   ____ Alguien me llevó ____ Llegué caminando ____ En autobús
   ____ Manejaré yo mismo ____ En taxi ____ Otra manera

5. ¿Qué es el propósito de su viaje hoy?

   ____ A visitar amigos o parientes ____ Para ir al médico o dentista
   ____ Para trabajar ____ Para regresar a casa
   ____ Para ir a la escuela ____ Otra razón (especificamente)
   ____ Para ir de vacaciones _____

6. ¿En qué ciudad y estado va a terminar su viaje hoy? Ciudad _____ Estado_____

7. ¿Como llegará Ud. a su destino final desde la estación del autobús?

   ____ Alguien me recogerá ____ Caminaré ____ En el autobús municipal
   ____ Manejaré yo mismo ____ En taxi ____ Otra manera

8. ¿Cómo habría viajado Ud. si no hubiera un servicio de autobús?

   ____ En coche con alguien ____ Por avion ____ Por tren
   ____ Manejaré yo mismo ____ No viajaría

9. ¿Cuántas veces ha viajado en autobús durante el año pasado? Un viaje de ida y vuelta cuenta como dos viajes.

   ____ Viajes

10. ¿Qué grado de satisfacción ha recibido Ud. del servicio de autobús interurbano?

    ____ Muy satisfecho ____ Satisfecho ____ Insatisfecho ____ Sin opinión

11. ¿Cuánto dinero pagaría Ud. para continuar el servicio existente?

    ____ Nada más ____ Un poco más ____ Mucho más

(CAMBIE LA PÁGINA, POR FAVOR)

12. ¿Hay un número de factores diferentes que son muy importantes para los que usan el servicio de autobús interurbano. Por favor, indique con un circulo el número que muestre la importancia del servicio. Cuanto más alto el número, más importante el factor.

Que importancia tiene	Sin Portancia				Muy Importante
El precio de pasaje	1	2	3	4	5
Los gastos de poseer un coche	1	2	3	4	5
El tiempo que toma el viaje	1	2	3	4	5
Salir y llegar a tiempo	1	2	3	4	5
Costo y disponibilidad de la gasolina	1	2	3	4	5
Estacionamiento cerca de la estación de autobús	1	2	3	4	5
Viajar en un autobús nuevo y moderno	1	2	3	4	5
Espacio para las piernas y asientos cómodos	1	2	3	4	5
La disponibilidad del servicio por avión o tren	1	2	3	4	5
Ubicación de la estación de autobús	1	2	3	4	5
La seguridad en la estación de autobús y en el autobús	1	2	3	4	5
El servicio de restaurante en la estación de autobús	1	2	3	4	5
La disponibilidad del autobús municipal al llegar a su destino	1	2	3	4	5
Servicio de autobús expreso	1	2	3	4	5
La frecuencia del servicio de autobús interurbano	1	2	3	4	5

13. ¿Cuanto dinero pagaría Ud. por mejorar el servicio de autobús?

____Nada más ____Un poco más ____Mucho más

14. ¿Cuantos años tiene Ud.? _____

15. ¿Sexo: ____Hombre ____Mujer

16. ¿Posee Ud. un vehículo de pasajeros o carga? ____Sí ____No
Si la respuesta es sí, tenía su vehículo disponsible para este viaje?
____Sí ____No

17. ¿Tiene Ud. una licencia para manejar? ____Sí ____No

18. ¿Cuál es su ocupación? (Indique si es estudiante, ama de casa, jubilado, o desocupado.)

_____

19. ¿Cuál es el último año de escuelo que ha completado Ud.?

_____

20. ¿Cuál es el ingreso anual de toda la familia? (en dólares)
____ 0-$10,000 ____$10,000 - $20,000 ____$20,000 - $30,000 ____Más de $30,000

Muchas gracias por su cooperación en este estudio.

Por favor devuelva este formulario al conductor del autobús.

APPENDIX B

HOUSEHOLD SURVEY FORM

COMMISSION
A. SAM WALDROP, CHAIRMAN
DEWITT C. GREER
RAY A. BARNHART

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
AUSTIN, TEXAS 78763

ENGINEER-DIRECTOR
M. G. GOODE

February 25, 1981

IN REPLY REFER TO
FILE NO.

INTERCITY BUS SURVEY

Dear Resident:

We need your help in a survey being undertaken by the Texas Transportation Institute, Texas A&M University System. The purpose of the survey is to obtain information about your household's use of intercity bus service.

Since it is not possible to send questionnaires to all households in Texas, we have selected a small number at random. Your completion of the requested information is needed to insure the success of this effort.

We have included two survey forms. If possible, please have two adults complete the survey forms.

We are grateful for your participation in the survey. Please complete the requested information as best you can and return the survey forms in the enclosed, postage-paid envelope, within one week.

Sincerely,

Phillip L. Wilson

Phillip L. Wilson
State Planning Engineer, Transportation

COMMISSION
A. SAM WALDROP, CHAIRMAN
DEWITT C. GREER
RAY A. BARNHART

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
AUSTIN, TEXAS 78763

ENGINEER-DIRECTOR
M. G. GOODE

IN REPLY REFER TO
FILE NO.

May 15, 1981

INTERCITY BUS SURVEY

Dear Resident:

We recently asked a small number of Texas residents to participate in a survey being conducted by the Texas Transportation Institute, Texas A&M University System. The purpose of the survey is to obtain information about your household's use of intercity bus service.

Since we have included only a small number of households in this survey, your participation is essential to the success of the project. If you have already completed the survey, we wish to thank you for your cooperation in this undertaking. If you did not respond, we would appreciate you completing the attached survey.

We have included two survey forms. If possible, please have two adults complete the survey forms.

We are grateful for your participation in the survey. Please complete the requested information as best you can and return the survey forms in the enclosed, postage-paid envelope, within one week.

Sincerely,

Phillip L. Wilson
State Planning Engineer, Transportation

Texas Intercity Bus Survey

Undertaken by the Texas Transportation Institute, Texas A&M University
in cooperation with the Texas State Department of Highways and Public Transportation
and the U.S. Department of Transportation, Federal Highway Administration

The Texas Transportation Institute at Texas A&M University is conducting a survey concerning intercity bus service in Texas. This questionnaire is designed to be easy to complete and take no more than five to ten minutes of your time. Your responses will be of great value to the study and will be held in strict confidence.

This survey concerns bus service between cities such as that provided by Greyhound and Trailways.

1. Have you ever used an intercity bus (that is a bus travelling between cities).
___Yes ___No If "yes", how many times have you used an intercity bus in the last year. (A round trip should be counted as 2 rides.) ___Times

2. The following is a list of possible changes which could be made to existing intercity bus service. Please circle the number that best explains how likely you would be to use an intercity bus if the following changes were made. The higher the number, the more likely you feel that you would ride an intercity bus.

How likely would you be to use an intercity bus	Not Likely				Very Likely
If bus fares were lower	1	2	3	4	5
If you had a better understanding of how the service operated	1	2	3	4	5
If the speed of the bus trip was faster	1	2	3	4	5
If the buses always arrived and departed on time	1	2	3	4	5
If availability of gasoline were to decrease	1	2	3	4	5
If auto parking were available near bus station	1	2	3	4	5
If buses were newer and more modern	1	2	3	4	5
If there was more leg room, wider aisles and more comfortable seats	1	2	3	4	5
If the cost of air or train transportation were to increase greatly	1	2	3	4	5
If a bus trip was safer	1	2	3	4	5
If the cost of gasoline were to increase	1	2	3	4	5
If local city bus transportation were available at destination	1	2	3	4	5
If the trip did not involve sitting next to strangers	1	2	3	4	5
If the frequency of intercity bus service was increased	1	2	3	4	5
If the purchase of bus tickets from travel agent was available	1	2	3	4	5
If bus stations were located in better places	1	2	3	4	5
If more express bus service were available	1	2	3	4	5

(OVER)

3. What are your feelings about the following statements?

I will always dislike the idea of riding intercity buses no matter how good the service is.

____Agree ____Disagree ____Not Sure

Federal or state tax money should be used to subsidize intercity bus operating costs.

____Agree ____Disagree ____Not Sure

4. Do you know that packages can be shipped by bus? ____Yes ____No

5. Have you ever shipped a package by bus? ____Yes ____No If "yes", how many times in the last year? ____Times

6. If no intercity bus service were provided, how much would you be inconvenienced?

____A little ____A lot ____Not at all ____Do not know

7. In what city and county do you live? City_____County_____

8. What is the population of the city or metropolitan area you live in?

____500,000 or more ____5,000 - 50,000 ____Don't know

____50,000 to 500,000 ____less than 5,000 or rural area

9. What is your age? ____

10. Are you . . .? ____Male ____Female

11. Do you own a car, pickup, or van? ____Yes ____No

12. Do you have a driver's license? ____Yes ____No

13. What is your current occupation in as specific terms as possible. (Also, please specify "if" retired, unemployed, student or housewife.)

_____

14. What is the highest grade of school completed? _____

15. What is your annual household income?

____0-$10,000 ____$10,000-$20,000 ____$20,000-$30,000 ____$30,000 or more

COMMENTS:_____

_____

THANK YOU FOR YOUR COOPERATION

Please return the surveys in the postage paid envelope.

APPENDIX C

PACKAGE SURVEY FORM

Texas Bus Package Survey

Location _____

What type of package are you shipping today?

____ Personal ____ Business

How often have you shipped a package by bus in the last month? ____ Times

What is the most important reason for shipping by bus?

____ Speed of delivery ____ Low Cost ____ Only Alternative

____ Other (Please specify) _____

How would you have shipped this package if bus service was not available?

____ U.S. Mail ____ Truck ____ Don't know

____ Other (Please specify) _____

Thank you for your cooperation!

Just drop this postage-paid card in the mail.