



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

# National Transportation Statistics

Annual Report

August 1989

- ★ Air Carrier
- ★ General Aviation
- ★ Modal Profiles
- ★ Passenger Miles



- ★ Truck ★ Highway
- ★ Bus
- ★ Cargo Operation
- ★ Vehicle Miles



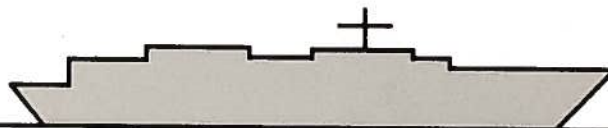
- ★ Railroads
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- ★ Oil Pipeline
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Transportation Systems Center



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

# **National Transportation Statistics**

Annual Report

August 1989

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**Secretary of Transportation**

*Samuel K. Skinner*

**Research and Special  
Programs Administrator**

*Travis P. Dungan*

Technical Report Documentation Page

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16. Abstract  This report is a summary of selected national transportation statistics from a wide variety of government and private sources. Featured in the report are cost, inventory, and performance data describing the passenger and cargo operations of the following modes: air carrier, general aviation, automobile, bus, truck, local transit, rail, water, oil pipeline, and natural gas pipeline. The report illustrates basic descriptors of U.S. transportation, such as operating revenues and expenses, number of vehicles and employees, vehicle miles and passenger miles, etc. Transportation trends in performance, safety, and motor vehicle sales, production, and costs are included from 1977-1987/1988. Supplementary sections also include Transportation and the Economy and Energy in Transportation which is divided into Energy Consumption, Energy Intensiveness, Energy Transport, and Energy Supply and Demand. In this edition, the selected data cover the period 1955 through 1987/1988.		13. Type of Report and Period Covered Annual Report, 1955-1987/88	
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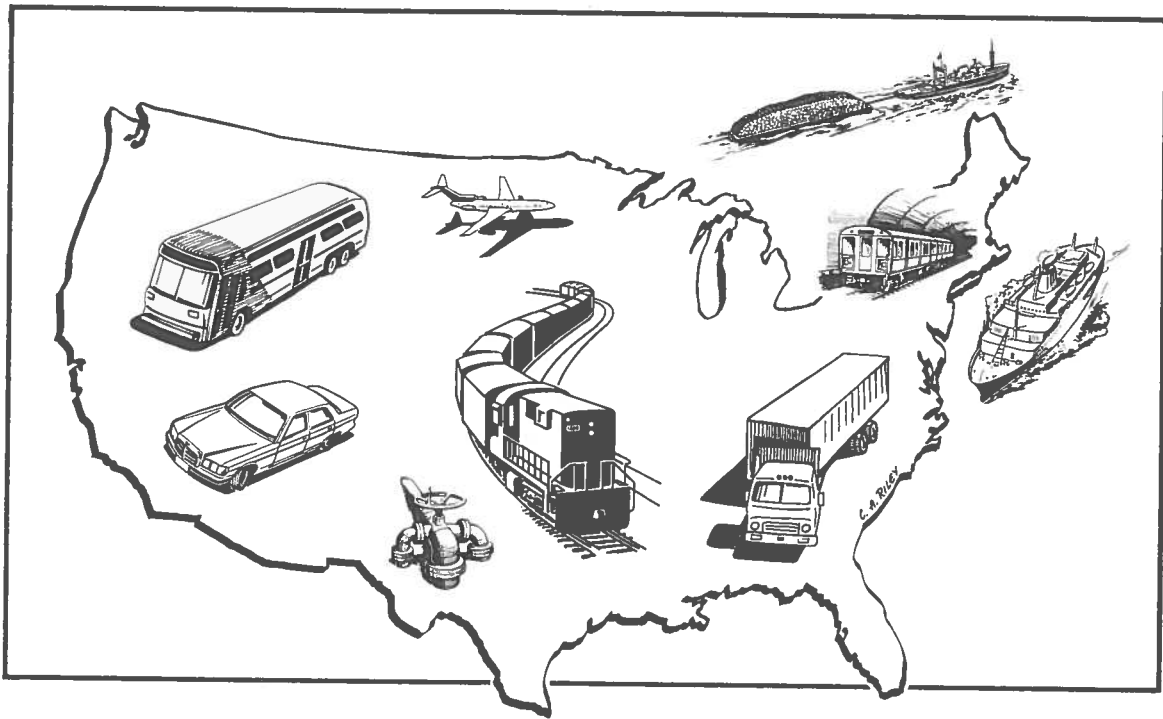
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# INTRODUCTION



In order to clarify definitions, Appendix B contains a Glossary that has been assembled and organized according to each transportation mode. In addition, to assist the reader in locating specific data, an Index is included in Appendix C.

The *National Transportation Statistics* Annual Report is prepared by the TSC's Center for Transportation Information (CTI) under the sponsorship of the Research and Special Programs Administration's, Office of Budget and Programs.

The Center for Transportation Information will appreciate the NTS reader completing the survey located at the back of this publication. Your responses will assist the CTI in improving future editions of the NTS report.

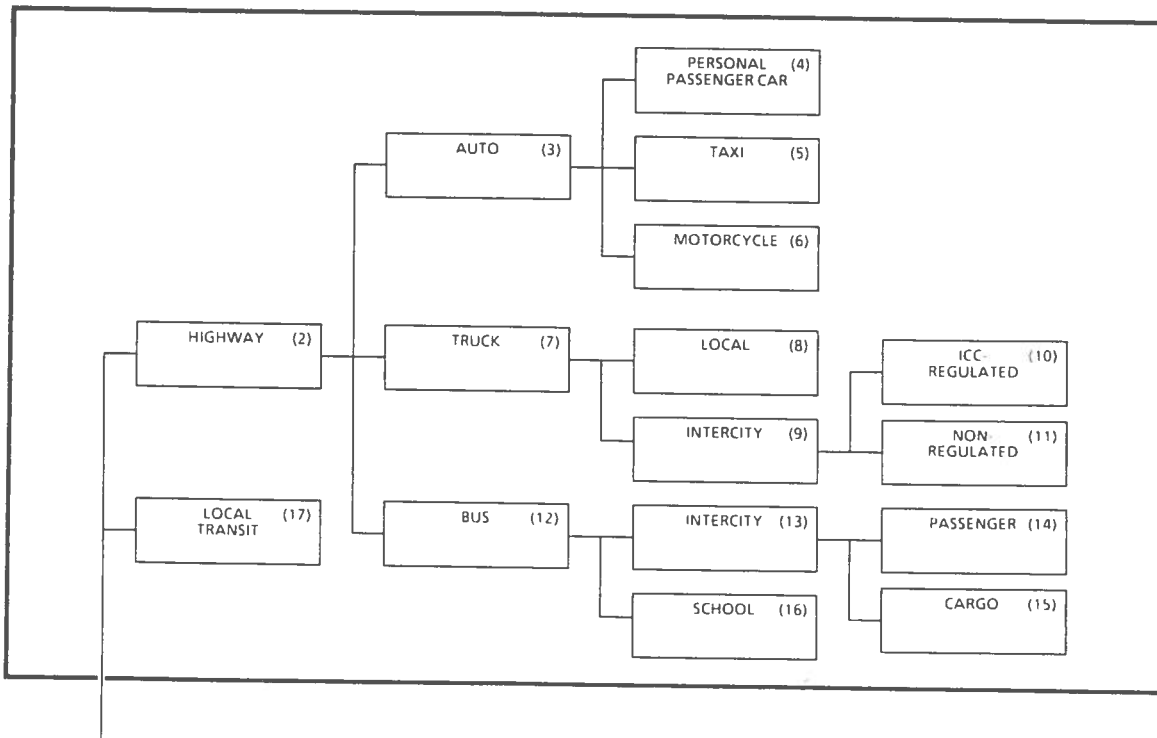


# TREE DISPLAYS 1987

The interrelationships of the various modes are presented here via tree displays. These displays illustrate the relationship between and within each transportation mode for the following areas:

- Expenditures and Revenues
- Vehicle-Miles
- Passenger-Miles
- Revenue Ton-Miles of Freight
- Number of Vehicles
- Number of Fatalities
- Energy Consumed in Transportation

Because of the variety of data sources, the totals may not always equal the sums of the subordinate data. Sources for each statistic may be found by locating its parenthetical reference number in Appendix A - Source Information.



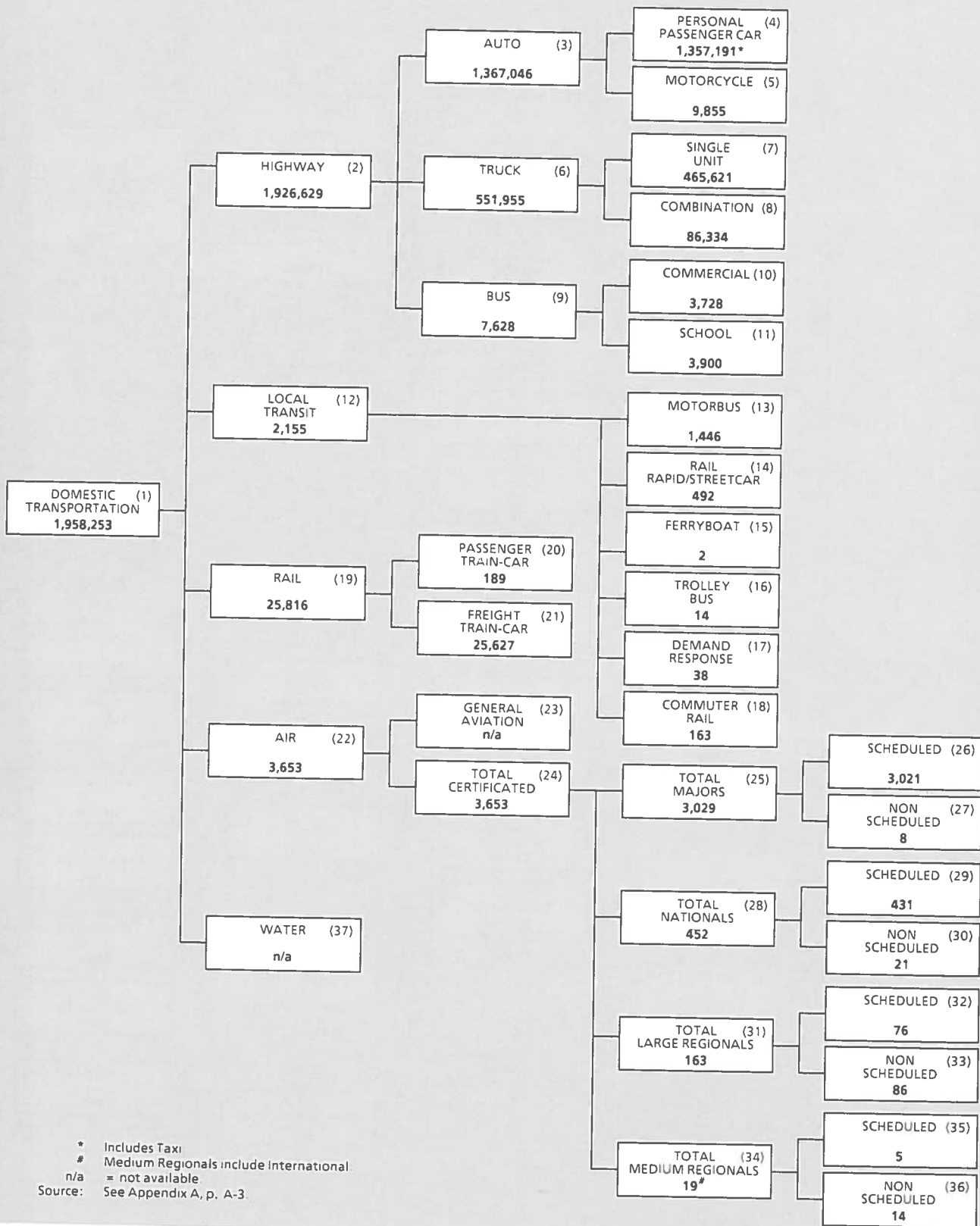
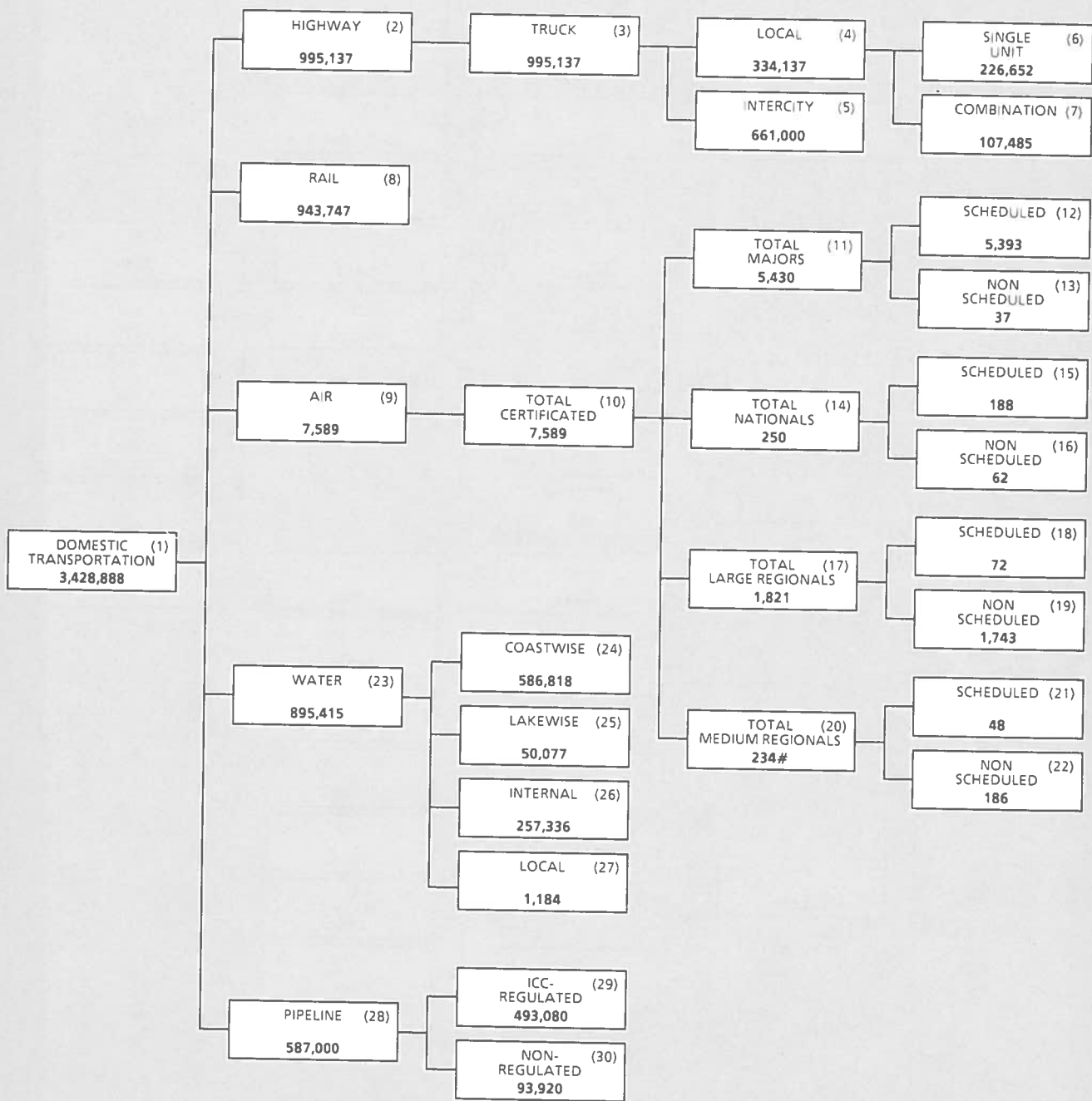
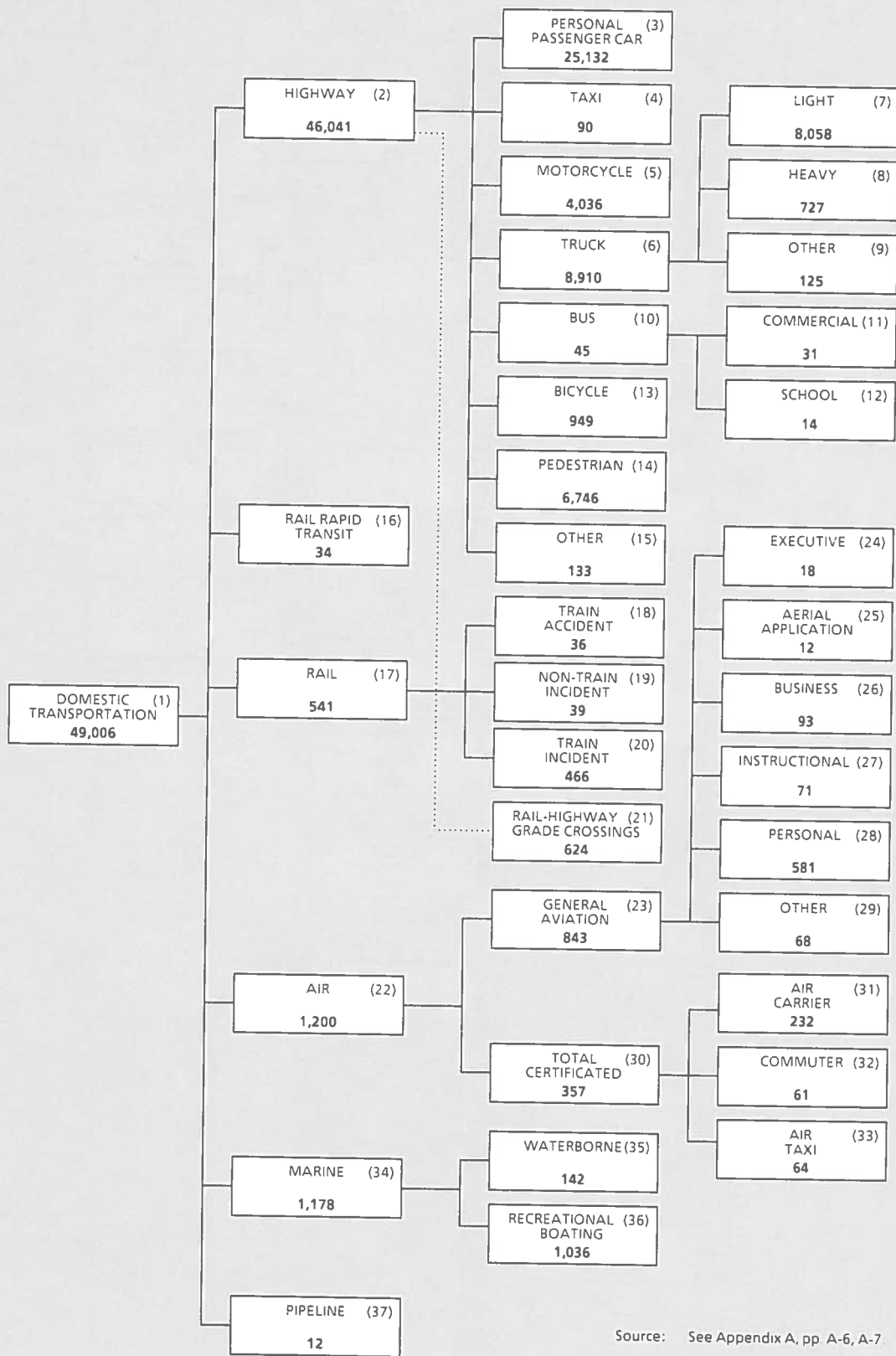


Figure 2. Vehicle - Miles (millions) - 1987



# Medium Regionals include International  
 Source: See Appendix A, p. A-5

Figure 4. Revenue Ton-Miles of Freight (millions) - 1987



Source: See Appendix A, pp A-6, A-7

Figure 6. Number of Fatalities - 1987

# MODAL PROFILES 1977, 1986, and 1987

The Modal Profiles present financial, inventory, and performance data comparisons for 1977, 1986, and 1987. In some cases, not all of the types of data in these profiles are available for every mode, nor are they always applicable. The following list indicates the type of data usually included in each group:

- |      |                                 |                                   |  |
|------|---------------------------------|-----------------------------------|--|
| I.   | Financial                       |                                   |  |
|      | A. Expenditures (private modes) | D. Federal expenditures           |  |
|      | B. Revenues (for-hire modes)    | E. State and local expenditures   |  |
|      | C. Operating expenses           |                                   |  |
| II.  | Inventory                       |                                   |  |
|      | A. Number of companies          | C. Number of employees            |  |
|      | B. Number of vehicles           | D. Mileage                        |  |
| III. | Performance                     |                                   |  |
|      | A. Vehicle-miles                | E. Tons of freight hauled         |  |
|      | B. Passenger-miles              | F. Average passenger trip length  |  |
|      | C. Number of passengers carried | G. Average length of freight haul |  |
|      | D. Ton-miles                    | H. Fatality and accident rates    |  |

Specific source references are obtained as follows: the letter directly to the right of the data element applies to all subsequent data elements in that column until the next letter appears. In some cases, data are shown which may not appear directly in the sources listed. These were obtained by addition/subtraction of referenced data or of other data in its column, and are marked with an asterisk.

## For example: **General Aviation Profile**

### 1977

1,515 <sup>a</sup>	reference letter 'a'
3,730	also applies to the two
5,245	subsequent data elements.
8,782 <sup>c</sup>	reference letter 'c' refers to
	a different data source.

The specific source number and page or table reference may then be found at the end of each modal profile. All sources are listed in Appendix A--Source Information.

The 1986-1987 percent change column refers to the percent difference between 1986 data and 1987 data. The 1977-1987 average annual percent change is equal to  $C \times 100$ , where C is obtained from the following relationship:  $D^{87} = D^{77} (1 + C)^{10}$ . (Note  $D^{77}$  and  $D^{87}$  refer to 1977 and 1987 data, respectively; C is the change, and the relationship is derived from the compound interest formula.)

## AIR CARRIER PROFILE (cont'd)

	<u>1977<sup>1</sup></u>	<u>1986<sup>1</sup></u>	<u>1987<sup>1</sup></u>	<u>1977-1987 Average Annual % Change</u>	<u>1986-1987 % Change</u>
<b>International</b>					
Certificated, all services*	363,088 <sup>i</sup>	451,338 <sup>n</sup>	529,786 <sup>n</sup>	3.9	17.4
Majors, all services*	332,180	396,712 <sup>o</sup>	460,822 <sup>o</sup>	3.3	16.2
Nationals, all services*	30,908	21,605 <sup>p</sup>	24,176 <sup>p</sup>	-2.4	11.9
Large Regionals, all services*	n/a	25,277 <sup>q</sup>	35,296 <sup>q</sup>	-	39.6
Medium Regionals, all services Domestic and International*	n/a	16,056 <sup>r</sup>	18,739 <sup>r</sup>	-	16.7
<b>Total Certificated*</b>	<b>2,525,028</b>	<b>3,888,886</b>	<b>4,201,066</b>	<b>5.2</b>	<b>8.0</b>
<b>Aircraft Revenue-Hours</b>					
<b>Domestic</b>					
Certificated, all services*	5,294,132 <sup>g</sup>	8,369,594 <sup>j</sup>	8,823,269 <sup>j</sup>	5.2	5.4
Majors, all services*	4,124,744	6,247,596 <sup>k</sup>	7,186,984 <sup>k</sup>	-5.7	15.0
Nationals, all services*	947,770	1,602,538 <sup>l</sup>	1,165,974 <sup>l</sup>	2.1	-27.2
Large Regionals, all services*	n/a	498,678 <sup>m</sup>	448,352 <sup>m</sup>	-	-10.1
<b>International</b>					
Certificated, all services*	745,575 <sup>i</sup>	923,641 <sup>n</sup>	1,082,189 <sup>n</sup>	3.8	17.2
Majors, all services*	682,482	800,071 <sup>o</sup>	931,376 <sup>o</sup>	3.2	16.4
Nationals, all services*	63,093	42,138 <sup>p</sup>	47,308 <sup>p</sup>	-2.8	12.3
Large Regionals, all services*	n/a	55,872 <sup>q</sup>	78,716 <sup>q</sup>	-	40.9
Medium Regionals, all services Domestic and International*	n/a	46,342 <sup>r</sup>	46,748 <sup>r</sup>	-	0.9
<b>Total Certificated*</b>	<b>6,039,707</b>	<b>9,339,577</b>	<b>9,952,206</b>	<b>5.1</b>	<b>6.6</b>
<b>Revenue Passenger-Miles (thousands)</b>					
<b>Domestic</b>					
Certificated, all services	163,218,718 <sup>g</sup>	307,885,104 <sup>j</sup>	329,214,527 <sup>j</sup>	7.3	6.9
Majors, all services	147,077,758	252,724,186 <sup>k</sup>	290,408,062 <sup>k</sup>	7.0	14.9
Nationals, all services	14,304,143	50,025,991 <sup>l</sup>	34,186,792 <sup>l</sup>	9.1	-31.7
Large Regionals, all services	n/a	4,861,163 <sup>m</sup>	4,520,609 <sup>m</sup>	-	-7.0
<b>International</b>					
Certificated, all services	42,862,808 <sup>i</sup>	71,037,527 <sup>n</sup>	88,615,528 <sup>n</sup>	7.5	24.7
Majors, all services	42,052,312	63,374,418 <sup>o</sup>	80,216,403 <sup>o</sup>	6.7	26.6
Nationals, all services	810,496	4,766,803 <sup>p</sup>	4,547,034 <sup>p</sup>	18.8	-4.6
Large Regionals, all services	n/a	2,601,010 <sup>q</sup>	3,457,657 <sup>q</sup>	-	32.9
Medium Regionals, all services Domestic and International*	n/a	569,060 <sup>r</sup>	493,498 <sup>r</sup>	-	-13.3
<b>Total Certificated*</b>	<b>206,081,526</b>	<b>379,491,691</b>	<b>418,323,553</b>	<b>7.3</b>	<b>10.2</b>
<b>Revenue Passenger Enplanements (thousands)</b>					
<b>Domestic</b>					
Certificated, all services*	225,920 <sup>g</sup>	398,422 <sup>j</sup>	420,832 <sup>j</sup>	6.4	5.6
Majors, all services*	174,880	301,432 <sup>k</sup>	349,796 <sup>k</sup>	7.2	16.0
Nationals, all services*	42,648	85,876 <sup>l</sup>	62,182 <sup>l</sup>	3.8	-27.6
Large Regionals, all services*	n/a	10,859 <sup>m</sup>	8,730 <sup>m</sup>	-	-19.6
<b>International</b>					
Certificated, all services*	19,852 <sup>i</sup>	27,892 <sup>n</sup>	34,684 <sup>n</sup>	5.7	24.4
Majors, all services*	19,692	24,588 <sup>o</sup>	30,736 <sup>o</sup>	4.6	25.0
Nationals, all services*	160	1,780 <sup>p</sup>	2,172 <sup>p</sup>	29.8	22.0
Large Regionals, all services*	n/a	1,167 <sup>q</sup>	1,465 <sup>q</sup>	-	25.5
Medium Regionals, all services Domestic and International*	n/a	612 <sup>r</sup>	435 <sup>r</sup>	-	-28.9
<b>Total Certificated*</b>	<b>245,772</b>	<b>426,926</b>	<b>455,951</b>	<b>6.4</b>	<b>6.8</b>

## AIR CARRIER PROFILE (cont'd)

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987 Average Annual % Change</u>	<u>1986-1987 % Change</u>
<b>Air Carrier Accidents</b>					
Operating under 14 CFR 121 (airlines)					
All scheduled services	19 <sup>t</sup>	21 <sup>t</sup>	33 <sup>t</sup>	5.7	57.1
Nonscheduled services	5	3	5	0.0	40.0
Operating under 14 CFR 135					
All scheduled services (commuters)	44	15	34	-2.6	126.7
Nonscheduled services (on-demand air taxis)	158	116	99	-4.6	-14.7
<b>Total*</b>	<b>226</b>	<b>155</b>	<b>171</b>	<b>-2.8</b>	<b>10.3</b>
<b>Fatal Air Carrier Accidents</b>					
Operating under 14 CFR 121 (airlines)					
All scheduled services	35	2	4	-19.5	100.0
Nonscheduled services	2	1	1	-6.7	0.0
Operating under 14 CFR 135					
All scheduled services (commuters)	9	2	12	2.9	500.0
Nonscheduled services (on-demand air taxis)	31	31	29	-0.7	-6.5
<b>Total*</b>	<b>45</b>	<b>36</b>	<b>46</b>	<b>0.2</b>	<b>27.8</b>
<b>Air Carrier Fatalities</b>					
Operating under 14 CFR 121 (airlines)					
All scheduled services	78	5	231	11.5	4,520.0
Nonscheduled services	577	3	1	-47.1	-33.3
Operating under 14 CFR 135					
All scheduled services (commuters)	32	4	61	6.7	1,425.0
Nonscheduled services (on-demand air taxis)	118	65	64	-5.9	-1.5
<b>Total*</b>	<b>805</b>	<b>77</b>	<b>357</b>	<b>-7.9</b>	<b>363.6</b>

n/a = not available.

\* Data derived by addition/subtraction and may not appear directly in the data source.

# Total Revenue Ton-Miles includes Passenger, Freight, Express and Mail.

1 Domestic encompasses operations within and between the 50 states of the United States, the District of Columbia, Puerto Rico and the Virgin Islands. It also encompasses Canadian and Mexican transborder operations. All other operations are considered International.

2 Includes scheduled and nonscheduled (charter) operators. By Sec. 2 of the Airline Deregulation Act of 1978 "charter air carrier" and "charter air transportation" replaced supplemental air carriers and supplemental air transportation which were formerly Sec. 101(36) and (37) of the Act. The 24 pre-deregulation supplemental carriers all now have scheduled service authority.

Source: The following data references are listed in Appendix A, pp. A-9, A-10.

<u>Source</u>	<u>Reference Number/Location</u>
a	10) p. 3/4
b	10) p. 1/8
d	40) p. 48/49/50/51
e	40) p. 3/4
f	40) p. 34/35
g	9) p. 4/6/7
h	41) personal communication
i	9) p. 14/15/16
j	39) p. 2
k	39) p. 5
l	39) p. 57/59
m	39) p. 86/94
n	39) p. 3
o	39) p. 6
p	39) p. 58/60
q	39) p. 87/95
r	39) p. 144/157
s	43) Tables Ia/IIa and Id/IIId
t	18) Tables 2/3/4/5

## GENERAL AVIATION PROFILE (cont'd)

- \* Includes rental.
- n/a = not available.
- # In 1977, classified as "Industrial".

Source: The following data references are listed in Appendix A, pp. A-9, A-10.

<u>Source</u>	<u>Reference Number/Location</u>
a	20) p. 5
b	11) p. 6
c	33) Table 2-9
d	33) Table 2-4
e	42) Table 13
f	42) Charts 35/36
i	18) personal communication



## HIGHWAY PROFILE (cont'd)

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987</u> <u>Average</u> <u>Annual</u> <u>% Change</u>	<u>1986-1987</u> <u>% Change</u>
Rural/Urban Mileage by Functional System					
Rural Mileage					
Interstate	n/a	32,784 <sup>e</sup>	33,111 <sup>e</sup>	-	1.0
Other principal arterial	n/a	81,236	80,719	-	-0.6
Minor arterial	n/a	147,727	147,254	-	-0.3
Major collector	n/a	432,124	435,413	-	0.8
Minor collector	n/a	295,589	294,799	-	-0.3
Local	n/a	2,188,664	2,172,542	-	-0.7
Total Rural Mileage	3,180,032 <sup>e</sup>	3,178,124	3,163,838	-0.1	-0.5
Urban Mileage					
Interstate	n/a	11,060	11,217	-	1.4
Other freeways and expressways	n/a	7,293	7,390	-	1.3
Other principal arterial	n/a	50,331	50,483	-	0.3
Minor arterial	n/a	74,450	74,984	-	0.7
Collector	n/a	74,953	76,860	-	2.5
Local	n/a	483,327	489,254	-	1.2
Total Urban Mileage	687,368	701,414	710,188	0.3	1.3
Total Rural and Urban Mileage	3,867,400	3,879,538	3,874,026	0.02	-0.1
U.S. Roads and Streets					
Surfaced Mileage					
State control	759,000 <sup>l</sup>	613,000 <sup>l</sup>	616,000 <sup>l</sup>	-2.1	0.5
County and local control	2,404,000	2,891,000	2,887,000	1.9	-0.1
Total	3,163,000	3,504,000	3,503,000	1.0	0.0
Percent Surfaced	81.8	90.3	90.4	1.0	0.1
Non-Surfaced Mileage					
State control	30,000	1,000	2,000	-23.7	100.0
County and local control	674,000	374,000	369,000	-5.9	7.3
Total	704,000	375,000	371,000	-6.2	-1.1
Total Mileage					
State control	789,000	614,000	677,000	-1.5	10.3
County and local control	3,078,000	3,266,000	3,257,000	0.6	-0.3
Total	3,867,000	3,880,000	3,874,000	0.0	-0.2
Interstate Highway and Defense Highway System Mileage					
Open to traffic	n/a	41,759	41,759	-	0.0
Not open to traffic <sup>4</sup>	n/a	1,037	1,037	-	0.0
Total designated system <sup>5</sup>	n/a	42,796	42,796	-	0.0
Number of Employees					
Highways - State & Local Govt.	587,000 <sup>i</sup>	555,000 <sup>f</sup>	563,000 <sup>f</sup>	-0.4	1.4
Highway and street construction	281,400 <sup>k</sup>	265,400 <sup>k</sup>	275,100 <sup>k</sup>	-0.2	3.7
Intercity highway transportation	37,400	33,200	30,900	-1.9	-6.9

### III PERFORMANCE

#### Vehicle Miles of Travel by Highway Class (millions)

Rural					
Interstate	125,892 <sup>a</sup>	159,477 <sup>a</sup>	171,866 <sup>a</sup>	3.2	7.8
Other principal arterial	273,939 <sup>#</sup>	149,405	155,446	-5.5	4.0
Minor arterial	n/a	140,743	146,528	-	4.1
Major collector	123,057	164,988	174,176	3.5	5.6
Minor collector	41,430	43,130	44,488	0.7	3.1
Local	90,278	92,332	89,243	-0.1	-3.3
Total	654,596	750,075	781,747	1.8	4.2

## AUTOMOBILE PROFILE

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987</u> <u>Average</u> <u>Annual</u> <u>% Change</u>	<u>1986-1987</u> <u>% Change</u>
<b>I. FINANCIAL</b>					
Personal Auto Expenditures (\$ millions)					
New and used cars*	56,648 <sup>b</sup>	136,272 <sup>b</sup>	130,036 <sup>b</sup>	8.7	-4.6
Tires, tubes, accessories and parts	12,877	26,567	28,204	8.2	6.2
Gasoline and oil	46,934	73,299	77,036	5.1	5.1
Tolls	908	1,682	1,820	7.2	8.2
Insurance premiums less claims paid	7,820	12,575	15,501	7.1	23.3
Repair, greasing, washing, parking, storage, rental	25,729	51,784	56,364	8.2	8.8
Auto registration fees	2,468 <sup>c</sup>	4,980 <sup>c</sup>	5,267 <sup>c</sup>	7.9	5.8
Driver's license fees	321	603	608	6.6	0.8
Total*	153,705	307,762	314,836	7.4	2.3
Taxi Expenditures (\$ millions)	2,397 <sup>b</sup>	3,294 <sup>b</sup>	3,530 <sup>b</sup>	4.0	7.2
Business Auto Expenditures (\$ millions)	19,149 <sup>d</sup>	45,065 <sup>d</sup>	44,357 <sup>d</sup>	8.8	-1.6
Government Auto Expenditures (\$ millions)	653	1,282	1,426	8.1	11.2
Total Business/Government Auto Expenditures*	19,802	46,347	45,783	8.7	-1.2
<b>II. INVENTORY</b>					
Number of Vehicle Registrations					
Passenger cars and taxis	112,287,522 <sup>e</sup>	135,431,112 <sup>k</sup>	137,323,632 <sup>k</sup>	2.0	1.4
Motorcycles	4,933,256	5,262,322	4,885,772	-0.1	-7.2
Motor vehicle licensed drivers (thousands)	138,121 <sup>f</sup>	159,487 <sup>f</sup>	161,818 <sup>f</sup>	1.6	1.5
Number of Employees					
Taxicabs	70,400 <sup>l</sup>	35,600 <sup>l</sup>	34,200 <sup>l</sup>	-7.0	-3.9
Automotive dealers and service stations	1,800,800	423,600	452,300	-12.9	6.8
New and used car dealers	849,000 <sup>m</sup>	950,100 <sup>m</sup>	979,700 <sup>m</sup>	1.4	3.1
Automotive wholesalers	399,300 <sup>n</sup>	430,600 <sup>n</sup>	435,200 <sup>n</sup>	0.9	1.1
Automotive services and garages	497,700	762,800	795,600	4.8	4.3
<b>III. PERFORMANCE</b>					
Vehicle Miles (millions) <sup>1</sup>					
Rural Highway					
Interstate rural**	90,146 <sup>h</sup>	100,337 <sup>k</sup>	109,744 <sup>k</sup>	2.0	9.4
Other arterial rural	184,963	191,507	197,601	0.7	3.2
Other rural**	181,811	191,554	194,543	0.7	1.6
Total rural	456,920	483,398	501,888	0.9	3.8
Urban Highway <sup>2</sup>					
Interstate urban	116,023	173,479	183,939	4.7	6.0
Other urban	542,649	653,734	681,219	2.3	4.2
Total urban	658,672	827,213	865,158	2.8	4.6
Total Rural and Urban Highway	1,115,592	1,310,611	1,367,046	2.1	4.3
Vehicle Miles (millions)					
Passenger cars and taxis	1,109,243 <sup>e</sup>	1,301,214	1,357,191	2.0	4.3
Motorcycles	6,349	9,397	9,855	4.5	4.9
Total	1,115,592	1,310,611	1,367,046	2.1	4.3
Passenger-Miles (millions)					
Total travel, passenger cars and taxis <sup>3</sup>	2,551,259	2,992,792	3,121,539	2.0	4.3
Total travel, motorcycles <sup>4</sup>	6,984	10,337	10,841	4.5	4.9
Average Miles Traveled per Vehicle					
Passenger cars and taxis	9,879	9,608	9,883	0.0	2.9
Motorcycles	1,287	1,786	2,017	4.6	12.9
Fuel Consumed (million gallons)					
Passenger cars and taxis	80,397	71,216	70,787	-1.3	-0.6
Motorcycles	127	188	197	4.5	4.8
Total	80,524	71,403	70,984	-1.3	-0.6

## AUTOMOBILE PROFILE (cont'd)

Source: The following data references are listed in Appendix A, pp. A-9, A-10.

<u>Source</u>	<u>Reference Number/Location</u>	<u>Source</u>	<u>Reference Number/Location</u>
a	17) p. 60	h	36) Table VM-201
b	27) Table 2.4	i	17) p. 56
c	35) Table MV-2	j	38) personal communication
d	26) personal communication	k	35) Table VM-1
e	36) Table VM-201A	l	32) SIC 55/551,2
f	35) Table DL-1	m	32) SIC 75
		n	32) SIC 412/501

## BUS PROFILE (cont'd)

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987</u> <u>Average</u> <u>Annual</u> <u>% Change</u>	<u>1986-1987</u> <u>% Change</u>
All buses					
Rural					
Interstate rural	459 <sup>f</sup>	557 <sup>e</sup>	584 <sup>e</sup>	2.4	4.9
Other arterial rural	2,028	1,180	1,237	-4.8	4.8
Other rural	731	1,694	1,777	9.3	4.9
All rural	3,218	3,431	3,598	1.1	4.9
Urban <sup>1</sup>					
Interstate urban	518	635	665	2.5	4.7
Other urban	2,151	3,199	3,365	4.6	5.2
All urban	2,669	3,834	4,030	4.2	5.1
Total Rural and Urban	5,887	7,265	7,628	2.6	5.0
Revenue Passenger-Miles (millions)					
Intercity bus, total	26,000 <sup>g</sup>	23,700 <sup>g</sup>	23,000 <sup>g</sup>	-1.2	-3.0
Intercity bus, Class I	17,100 <sup>b</sup>	12,063 <sup>e</sup>	11,701 <sup>e</sup>	-3.7	-3.0
Number of Revenue Passengers (thousands)					
Intercity bus, total	329,000 <sup>g</sup>	336,000 <sup>g</sup>	333,000 <sup>g</sup>	0.1	-0.9
Intercity bus, Class I	125,000 <sup>b</sup>	84,826 <sup>e</sup>	96,093 <sup>e</sup>	-2.6	13.3
Average Passenger Trip Length (miles)					
Intercity bus, total	79.0 <sup>g</sup>	70.5 <sup>g</sup>	69.1 <sup>g</sup>	-1.3	-2.0
Intercity bus, Class I	136.8 <sup>b</sup>	144.3 <sup>e</sup>	141.4 <sup>e</sup>	0.3	-2.0
Average Miles Traveled per Vehicle					
Commercial	30,011 <sup>f</sup>	32,354	28,031	-0.7	-13.4
School and nonrevenue bus	7,491	7,723	7,939	0.6	2.8
All buses	11,973	11,286	12,670	0.6	12.3
Average Passenger Load Factor (%)					
Intercity bus, Class I	47.2 <sup>e</sup>	41.5	41.9	-1.2	1.0
Average Revenue per Passenger-Mile (cents)	5.2	10.5	10.0	6.8	-4.8
Number of Fatalities					
School bus-related	194 <sup>h</sup>	128 <sup>h</sup>	142 <sup>h</sup>	-3.1	10.9
School bus occupants	21	2	10	-7.2	400.0
Other vehicle occupants	100	73	90	-1.1	23.3
Non-occupants	73	53	42	-5.4	-20.8
Occupant Fatalities					
All buses	42	39	51	2.0	30.8
School buses	14	2	14	0.0	600.0
Cross country	5	4	19	14.3	375.0
Transit buses	14	4	3	-14.3	-25.0
Other and unknown	9	29	15	5.2	-48.3
Fatalities in Vehicular Accidents <sup>2</sup>					
All buses	353	334	405	1.4	21.3
Occupant Fatality Rate					
Per 100 million vehicle-miles					
All buses	0.7	0.8	0.9	2.5	12.5
Per 10,000 registered vehicles					
All buses	0.9	0.7	0.8	-1.2	14.3
Vehicle Involvement Rate					
Per 100 million vehicle-miles					
All buses	5.5	5.2	6.6	1.8	26.9
Per 10,000 registered vehicles					
All buses	6.5	4.4	5.8	-1.1	31.8

## TRUCK PROFILE

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987 Average Annual % Change</u>	<u>1986-1987 % Change</u>
<b>I. FINANCIAL</b>					
Revenues (\$ millions)					
Local	60,739 <sup>a</sup>	84,800 <sup>b</sup>	88,200 <sup>b</sup>	3.8	4.0
Intercity					
ICC-authorized	31,000	58,100	61,000	7.0	5.0
Non-ICC-authorized	36,356	71,000	75,300	7.6	6.1
Operating Revenues of Class I Intercity Motor Carriers of Property (\$ millions)					
Freight, intercity, common carriers	19,623	30,254 <sup>n</sup>	33,298 <sup>n</sup>	5.4	10.1
Freight, intercity, contract carriers	638	2,389	2,657	15.3	11.2
Freight, local cartage	816	491	548	-3.9	11.6
Trans. for other Classes I and II carriers	155	37	31	-14.9	-16.2
Others	1,288	3,427	n/a	-	-
Total	22,520	35,559	36,077	4.8	1.5
Operating Expenses of Class I Intercity Motor Carriers of Property (\$ millions)	21,337 <sup>c</sup>	34,512 <sup>d</sup>	35,395 <sup>d</sup>	5.2	2.6
<b>II. INVENTORY</b>					
Number of Truck Registrations					
Private and commercial	28,311,953 <sup>f</sup>	38,606,207 <sup>f</sup>	39,529,604 <sup>f</sup>	3.4	2.4
Federal	199,791	231,990	233,413	1.6	0.6
State, county, municipal	1,050,741	1,328,302	1,355,745	2.6	2.1
Total	29,562,485	40,166,499	41,118,762	3.4	2.4
Number of Recreational Vehicles					
Motorized homes	280,200 <sup>g</sup>	249,600 <sup>g</sup>	255,700 <sup>g</sup>	-0.9	2.4
Travel trailers	167,900	86,000	92,800	-5.8	7.9
Folding camping trailers	53,900	36,500	41,600	-2.6	14.0
Truck campers	31,900	7,400	10,100	-10.9	36.5
Total	533,900	379,500	400,200	-2.8	5.5
Number of Employees					
Trucking and trucking terminals	1,131,900 <sup>g</sup>	1,296,500 <sup>g</sup>	1,355,700 <sup>g</sup>	1.8	4.6
Truck drivers and deliverymen	1,313,000 <sup>h</sup>	1,428,000	1,502,000	1.4	5.2
Number of Companies, Class I Intercity Motor Carriers of Property	835 <sup>c</sup>	677 <sup>d</sup>	874 <sup>d</sup>	0.5	29.1
Number of Employees, Class I Intercity Motor Carriers of Property	473,073	506,813	526,787	1.1	3.9
<b>III. PERFORMANCE</b>					
Vehicle Miles (millions)					
Rural*					
Interstate rural	39,178 <sup>k</sup>	58,688 <sup>j</sup>	61,626 <sup>j</sup>	4.6	5.0
Other arterial rural	73,276	97,793	103,504	3.5	5.8
Other rural	78,836	105,019	111,707	3.6	6.4
All rural	191,290	261,500	276,837	3.8	5.9
Urban <sup>l</sup>					
Interstate urban	30,701	58,105	60,946	7.1	4.9
Other urban	123,621	199,583	214,172	5.7	7.3
All urban	154,322	257,688	275,118	6.0	6.8
Total Rural and Urban	345,612	519,188	551,955	4.8	6.3

## TRUCK PROFILE (cont'd)

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987 Average Annual % Change</u>	<u>1986-1987 % Change</u>
<b>Occupant Fatality Rate</b>					
Per 100 million vehicle-miles	2.2 <sup>m</sup>	1.7 <sup>m</sup>	1.8 <sup>m</sup>	-2.0	5.9
Single-unit trucks	1.7	0.9	0.8	-7.3	-11.1
Combination trucks	2.1	1.6	1.6	-2.7	0.0
All trucks					
Per 10,000 registered vehicles					
Single-unit trucks	2.5	1.9	2.2	-1.3	15.8
Combination trucks	2.3	5.1	2.1	-0.9	-58.8
All trucks	7.5	2.1	4.8	-4.4	128.6
<b>Vehicle Involvement Rate</b>					
Per 100 million vehicle-miles					
Single-unit trucks	4.1	3.3	3.4	-1.9	3.0
Combination trucks	6.9	4.9	4.6	-4.0	-6.1
All trucks	4.5	3.5	3.6	-2.2	2.9
Per 10,000 registered vehicles					
Single-unit trucks	4.2	3.7	3.9	-0.7	5.4
Combination trucks	30.9	29.0	27.9	-1.0	-3.8
All trucks	5.3	4.6	4.8	-1.0	4.4

n/a = not available.

\* In 1977, interstate rural was categorized as main rural; other rural was categorized as local rural.

\*\* Includes 2-axle, 4-tire trucks only.

<sup>1</sup> Urban consists of travel on all roads and streets in urban places of 5,000 or greater population.

<sup>2</sup> Includes all fatalities in the accident in which the vehicle types listed were involved.

Source: The following data references are listed in Appendix A, pp. A-9, A-10.

<u>Source</u>	<u>References Number/Location</u>
a	20) p. 4
b	11) p. 5/7
c	14) Appendix E, Table 8, 94 <sup>th</sup> edition
d	14) Appendix E, Table 6, 102 <sup>nd</sup> edition
f	35) Table MV-9
g	32) SIC 421, 3
h	36) Table VM-201A
i	21) personal communication
j	35) Table VM-1
k	36) Table VM-201
l	34) p. 1, 2, 3, 4
m	38) personal communication
n	13) personal communication
p	34) p. 52
q	34) personal communication
s	28) Table 1016
t	20) p. 22/23
u	11) p. 28

## LOCAL TRANSIT PROFILE (cont'd)

	<u>1979<sup>1</sup></u>	<u>1986</u>	<u>1987</u>	<u>1979-1987 Average Annual % Change</u>	<u>1986-1987 % Change</u>
<b>Total All Modes</b>					
Vehicle operations	2,785,500 <sup>g</sup>	4,980,940 <sup>i</sup>	5,337,081 <sup>i</sup>	8.5	7.2
Vehicle maintenance	1,054,100	2,384,743	2,540,304	11.6	6.5
Other*	1,622,100	4,381,817	4,335,615	13.1	-1.1
<b>Total expenses</b>	<b>5,461,700</b>	<b>11,747,500</b>	<b>12,213,000</b>	<b>10.6</b>	<b>4.0</b>
<b>II. INVENTORY</b>					
<b>Number of Systems</b>					
Single motor bus properties	219 <sup>a</sup>	153 <sup>c</sup>	158 <sup>c</sup>	-4.0	3.3
All properties	321 <sup>d</sup>	432 <sup>f</sup>	460 <sup>f</sup>	4.6	6.5
Motor Bus	304 <sup>j</sup>	375 <sup>e</sup>	388 <sup>e</sup>	3.1	3.5
Rail Rapid	9	12	12	3.7	0.0
Streetcar	7	10	12	7.0	20.0
Trolley Bus	6	5	5	-2.3	0.0
Demand Response	98	248	266	13.3	7.3
Ferryboat	2	9	10	22.3	11.1
Commuter Rail	n/a	15	14	-	-6.7
Other*	9	16	15	6.6	-6.3
<b>Number of Vehicles</b>					
All properties*	61,014	73,812 <sup>l</sup>	74,191 <sup>l</sup>	2.5	0.5
Motor Bus*	48,781	55,547	54,521	1.4	-1.9
Rail Rapid	9,509	9,643	10,350	1.1	7.3
Streetcar	884	809	898	0.2	11.0
Trolley Bus	721	593	410	-6.8	-30.9
Demand Response	1,053	2,715	3,243	15.1	19.5
Ferryboat	10	25	28	13.7	12.0
Commuter Rail*	n/a	4,439	4,700	-	5.9
Other	56	41	41	-3.8	0.0
<b>Number of Employees</b>					
All properties*	163,872 <sup>m</sup>	209,947 <sup>h</sup>	211,144 <sup>h</sup>	3.2	0.6
Motor Bus	115,543	129,548	128,832	1.4	-0.6
Rail Rapid	42,315	51,028	51,333	2.4	0.6
Streetcar	2,182	3,417	3,584	6.4	4.9
Trolley Bus	1,408	2,143	2,090	5.1	-2.5
Demand Response	2,176	2,181	2,508	1.8	15.0
Ferryboat	228	2,004	2,094	31.9	4.5
Commuter Rail	n/a	19,626	20,703	-	5.5
<b>III. PERFORMANCE</b>					
<b>Revenue Vehicle-Miles (thousands)</b>					
Motor Bus	1,323,741 <sup>b</sup>	1,432,301 <sup>e</sup>	1,446,154 <sup>e</sup>	1.1	1.0
Rail Rapid/Streetcar*	73,835	479,275	491,936	26.8	2.6
Trolley bus	12,109	14,219	14,401	2.2	1.3
Demand Response	n/a	32,123	37,575	-	17.0
Ferryboat	145	1,167	1,647	35.5	41.1
Commuter Rail	n/a	161,462	162,929	-	0.9
Other*	n/a	8,591	8,562	-	-0.3
<b>Total all modes</b>	<b>1,409,830</b>	<b>2,129,138</b>	<b>2,164,264</b>	<b>5.5</b>	<b>1.7</b>

## WATER TRANSPORT PROFILE

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987 Average Annual % Change</u>	<u>1986-1987 % Change</u>
<b>I. FINANCIAL</b>					
Operating Revenues (\$ millions)					
Domestic Freight*	3,788 <sup>a</sup>	7,448 <sup>b</sup>	7,622 <sup>b</sup>	7.2	2.3
Coastal waterways	1,426	3,486	3,581	9.4	2.7
Inland waterways	1,253	2,470	2,508	7.2	1.5
Great Lakes	429	417	490	1.3	17.5
Locks, channels	680	1,075	1,043	4.4	-3.0
International Freight	6,686	11,545	11,491	5.6	-0.5
Total Passengers*	288	521	700	9.3	34.4
Domestic passengers, intercity	19	28	29	4.3	3.6
International passengers <sup>1</sup>	269	493	671	9.6	36.1
Revenues of U.S. Commercial Fishing Fleet					
U.S. Commercial Landings (\$ millions)	1,554 <sup>c</sup>	2,763 <sup>c</sup>	3,115 <sup>c</sup>	7.2	19.2
<b>II. INVENTORY</b>					
Number of Companies, Class A & B Carriers Inland and Coastal Waterways					
	68 <sup>d</sup>	306 <sup>a</sup>	315 <sup>a</sup>	16.6	2.9
Number of Companies, Maritime Carriers					
	4	6	6	4.1	0.0
Number of Employees					
Ships, boat building, and repairing	223,800 <sup>f</sup>	185,400 <sup>f</sup>	187,400 <sup>f</sup>	-1.8	1.1
Water transportation	196,000	176,000	176,200	-1.1	0.1
Number of Employees <sup>2</sup>					
Passenger/combo	860 <sup>i</sup>	710 <sup>i</sup>	710 <sup>i</sup>	-1.9	0.0
Cargo	11,870	5,194	5,093	-8.1	-1.9
Tankers	8,017	4,797	4,808	-5.0	0.2
Total	20,747	10,701	10,611	-6.5	-0.8
Mileage of Commercially Navigable Waterways					
	25,543 <sup>h</sup>	25,777 <sup>h</sup>	25,777 <sup>h</sup>	0.1	0.0
Number of Vessels					
Total non-self-propelled					
Dry cargo barges and scows	28,770 <sup>j</sup>	32,614 <sup>j</sup>	32,035 <sup>o</sup>	1.1	-1.8
Tankers	24,937	28,308	27,741	1.1	-2.0
Railroad car floats	3,770	4,260	4,247	1.2	-0.3
Total self-propelled	63	46	47	-2.9	2.2
Total self-propelled					
Dry cargo/passenger	6,563	7,694	7,830	1.8	1.8
Ferries, railroad car	1,838	2,181	2,258	2.1	3.5
Tankers	36	117	114	12.2	-2.6
Towboats/tugs	307	243	228	-2.9	-6.2
Sailing vessels	4,379	5,096	5,171	1.7	1.5
Total	3	57	59	34.7	3.5
U.S. Merchant Marine (over 1,000 gross tons)					
Total U.S. Flag					
Passenger/cargo	840 <sup>i</sup>	720 <sup>i</sup>	709 <sup>i</sup>	-1.7	-1.5
Freighters	62	36	23	-9.4	-36.1
Bulk carriers	484	236	230	-7.2	-2.5
Tankers	18	21	21	1.6	0.0
Intermodal	276	219	227	-1.9	3.7
Tug/barge	n/a	175	176	-	0.6
LNG	n/a	20	19	-	-5.0
Privately Owned	n/a	13	13	-	0.0
Government Owned	571	456	444	-2.5	-2.6
Total	269	264	265	-0.2	0.4
Number of Recreational Boats (thousands)					
	13,200 <sup>k</sup>	16,500 <sup>k</sup>	16,900 <sup>k</sup>	2.5	2.4



## WATER TRANSPORT PROFILE (cont'd)

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987 Average Annual % Change</u>	<u>1986-1987 % Change</u>
Freight barge	0 <sup>1</sup>	5 <sup>1</sup>	0 <sup>1</sup>	0.0	-100.0
Tank barge	5	16	0	-	-100.0
Miscellaneous	113	25	30	-12.4	20.0
Total	216	162	142	-4.1	-12.4
Number of Injuries in Waterborne Transport <sup>4</sup>					
Freight	9	10	10	1.1	0.0
Tankship	8	33	34	15.6	3.0
Passenger vessel	5	37	170	42.3	359.5
Tug/Towboat	22	50	69	12.1	38.0
Offshore supply	n/a	1	0	-	-100.0
Fishing vessel	23	19	29	2.4	52.6
State numbered	n/a	16	14	-	-12.5
MODU <sup>5</sup>	n/a	1	0	-	-100.0
Platform	n/a	3	0	-	-100.0
Freight barge	0	16	0	0.0	-100.0
Tank barge	8	27	3	-9.3	-88.9
Miscellaneous	47	27	41	-1.4	51.9
Total	136	240	370	10.5	54.2
Number of Fatalities in Recreational Boating					
Inboard	124 <sup>m</sup>	66 <sup>m</sup>	58 <sup>m</sup>	-7.3	-12.1
Outboard	619	579	526	-1.6	-9.2
Inboard/Outboard	37	49	49	2.9	0.0
Jet	12	12	8	-4.0	-33.3
Sail	46	13	23	-6.7	76.9
Manual (oars, paddle)	269	232	216	-2.2	-6.9
Other	14	2	2	-17.7	0.0
Propulsion Unknown	191	113	154	-2.1	36.3
Total	1,312	1,066	1,036	-2.3	-2.8

n/a = not available.

\* Figures obtained by addition/subtraction and may not appear directly in data source.

<sup>1</sup> Revenues paid by American travelers to U.S. and foreign flag carriers.

<sup>2</sup> Number of shipboard jobs on oceangoing commercial ships, 1,000 gross tons and over.

<sup>3</sup> Casualties to commercial vessels under USCG jurisdiction.

<sup>4</sup> Fatalities/injuries are on a calendar year basis due to vessel casualties.

<sup>5</sup> Mobile Offshore Drilling Units.

Source: The following data references are listed in Appendix A, pp. A-9, A-10.

<u>Source</u>	<u>Reference Number/Location</u>
a	23) Part 5, Sect. 3, Table 1
b	11) p. 5/6
c	28) Table 1160
d	14) Table 12, Appendix E, 92 <sup>nd</sup> edition
e	14) Table 1, Appendix E, 102 <sup>nd</sup> /101 <sup>st</sup> edition
f	32) SIC 373 or SIC 44
h	11) p. 23
i	37) personal communication
j	22) annual issues, Table 1
k	24) p. 12
l	25) personal communication
m	24) p. 20/22/23
n	23) Part 5, Sect. 1, Table 1A/1B
o	23) personal communication
p	11) p. 17
q	11) personal communication

**RAIL PROFILE**  
**A. CLASS I RAILROADS (cont'd)**

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987</u> <u>Average</u> <u>Annual</u> <u>% Change</u>	<u>1986-1987</u> <u>% Change</u>
Average Passenger Trip Length, Class I Railroads (miles)					
Commutation	23.2 <sup>e</sup>	23.8 <sup>e</sup>	23.8 <sup>e</sup>	0.3	0.0
Revenue Ton-Miles, Class I Railroads (millions)					
Freight	826,292 <sup>f</sup>	867,722 <sup>f</sup>	943,747 <sup>f</sup>	1.3	8.8
Average Haul per Ton, Class I Railroads (miles)					
Freight	549	665	688	2.3	3.5
Average Revenue per Passenger Mile (cents)	5.1	12.1	12.3	9.2	1.7
Number of Fatalities, Railroads and Grade Crossings					
Passengers on trains	4 <sup>g</sup>	4 <sup>h</sup>	16 <sup>h</sup>	14.9	300.0
Employees on duty	113	57	55	-7.0	-3.5
Employees not on duty	2	2	1	-6.7	-50.0
Trespassers	459	519	584	2.4	12.5
Non-Trespassers	997	505	506	-6.6	0.2
Contractor employees	n/a	4	3	-	-25.0
Total Railroad and Grade Crossing	1,575	1,091	1,165	-3.0	6.8
Grade Crossing only*	1,001	616	624	-4.6	1.3
Railroad only	574	475	541	-0.6	13.9

n/a = not available.

\* Figures obtained by addition/subtraction and may not appear directly in data source.

1 Data for 1987 and 1986 are not comparable with prior years because of the Railroad industry's conversion to a Standard Depreciation Accounting System, which, on paper only, has the effect of decreasing annual costs.

2 Operating expenses include equipment, joint facility rents, leased roads and equipment, and all taxes except Federal income.

3 Includes freight cars owned by all railroads and by private car companies.

4 Excluding Amtrak.

Source: The following data references are listed in Appendix A, pp. A-9, A-10.

<u>Source</u>	<u>References</u> <u>Number/Location</u>
a	5) pp. 10, 33, 34, 42, 44, 46, 50, 56
b	5) Preface
c	5) personal communication
d	7) p.1/11
e	11) p. 9/10
f	5) p. 29, 31
g	42) Table 5
h	42) Table 7

## OIL PIPELINE PROFILE

	<u>1977</u>	<u>1986</u>	<u>1987</u>	<u>1977-1987 Average Annual % Change</u>	<u>1986-1987 % Change</u>
<b>I. FINANCIAL</b>					
Operating Revenues (\$ millions)					
FERC-regulated	2,792 <sup>a</sup>	7,287 <sup>j</sup>	7,057 <sup>j</sup>	9.7	-3.2
Non-regulated	417	810	784	6.5	-3.2
Total	3,209	8,097	7,841	9.4	-3.2
Operating Expenses (\$ millions)					
FERC-regulated	n/a	5,236 <sup>#</sup>	4,582 <sup>#</sup>	-	-12.5
<b>II. INVENTORY</b>					
Number of FERC-regulated Companies	n/a	137 <sup>b</sup>	141 <sup>b</sup>	-	2.9
Number of Employees,					
FERC-regulated Companies	18,300 <sup>c</sup>	18,200 <sup>c</sup>	18,200 <sup>c</sup>	-0.1	0.0
Miles of Pipeline (statute miles) <sup>1</sup>					
Crude lines					
Trunk	78,483 <sup>f</sup>	63,253 <sup>f</sup>	64,107 <sup>f</sup>	-2.0	1.4
Gathering	66,580	45,065	45,981	-3.6	2.0
Product lines	74,995 <sup>d</sup>	95,765 <sup>d</sup>	91,359 <sup>d</sup>	2.0	-4.6
All lines	220,058	204,083	201,447	-0.9	-1.3
<b>III. PERFORMANCE</b>					
Intercity Ton-Miles (millions)					
Crude petroleum	326,600 <sup>e</sup>	335,200 <sup>e</sup>	341,800 <sup>e</sup>	0.5	2.0
Petroleum products	219,400	242,700	245,300	1.1	1.1
Total	546,000	577,900	587,100	0.7	1.6
Tons Transported (millions)					
Crude petroleum	460 <sup>f</sup>	434 <sup>f</sup>	433 <sup>f</sup>	-0.6	-0.2
Petroleum products					
(delivered from lines)	526	511	521	-0.1	2.0
Total	986	945	954	-0.3	1.0
Average Length of Haul					
(statute miles)					
Crude petroleum	710.0 <sup>i</sup>	772.0 <sup>i</sup>	795.0 <sup>i</sup>	1.1	2.2
Petroleum products	417.0	475.0	462.0	1.2	-0.9
Total	554.0	611.0	612.0	1.1	0.6
Total Liquid Pipeline Fatalities	3 <sup>g</sup>	4 <sup>g</sup>	3 <sup>g</sup>	0.0	-25.0

n/a = not available.

FERC = Federal Energy Regulatory Commission.

<sup>#</sup> Figures represent balance after deducting income from Operating Revenues, as reported in *Oil & Gas Journal*, November 1988.

<sup>1</sup> Regulated plus unregulated mileage of crude oil trunk and gathering lines, plus refined oil trunk lines.

Source: The following data references are listed in Appendix A, pp. A-9, A-10.

<u>Source</u>	<u>Reference Number/Location</u>
a	20) p. 4
b	12) personal communication
c	32) SIC 46
d	11) p. 23
e	8) Tables 1, 2, 3
f	11) personal communication
g	42) personal communication
i	11) p. 28
j	11) p. 5

## NATURAL GAS PIPELINE PROFILE (cont'd)

\* Figures obtained by addition/subtraction and may not appear directly in data source.

\*\* Includes fiberglass.

<sup>1</sup> Includes 5,200 miles of underground storage pipe in 1977 and 6,000 miles in 1986 and 1987, some of which was formerly included in Field and Gathering pipe.

<sup>2</sup> Includes supplemental gas supplies of 101,382 million cubic feet in 1987 and 113,189 million cubic feet in 1986.

Source: The following data references are listed in Appendix A, pp. A-9, A-10.

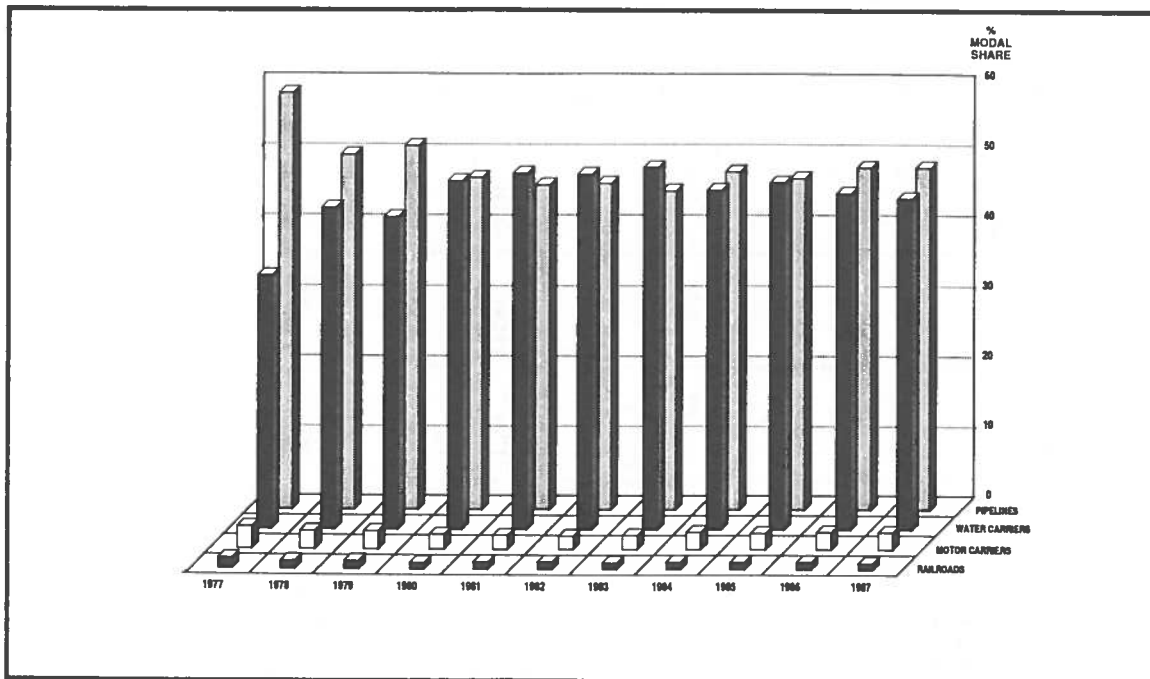
<u>Source</u>	<u>Reference Number/Location</u>
a	2) Table 128
b	2) Table 12-3
c	2) Table 127
d	2) Table 12-2
e	2) Table 42
f	2) Table 17-2
g	2) Table 5-1
h	30) preface
i	29) Vol. II, Table 13
j	29) Vol. II, Table 14
k	30) p.1
l	42) personal communication
m	2) Table 147

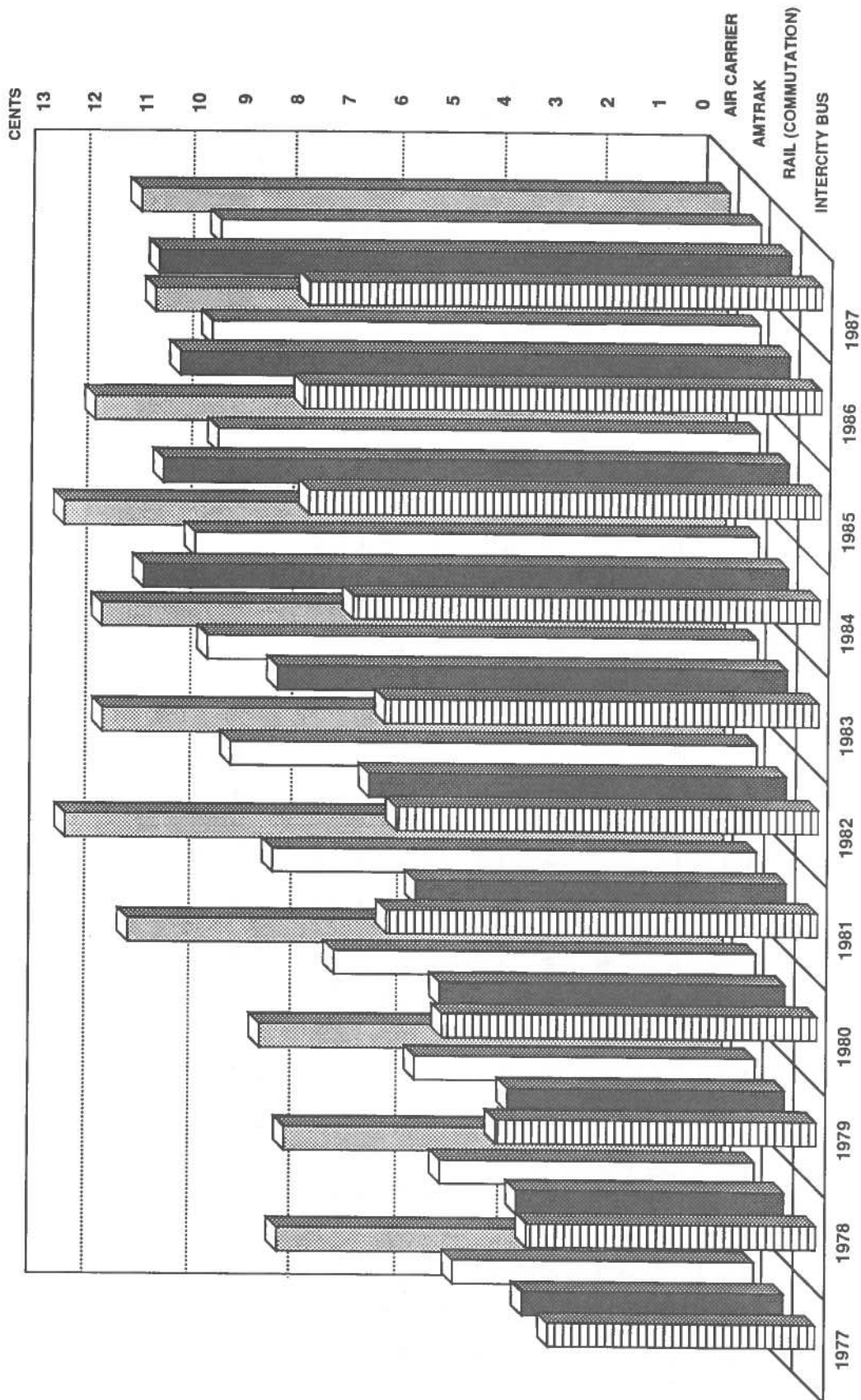
# TRANSPORTATION TRENDS

Transportation Trends includes transportation statistics from 1977 through 1987/88, using tables and graphs to indicate shifts in performance, inventory, safety, production and cost data.

## Section I: Performance

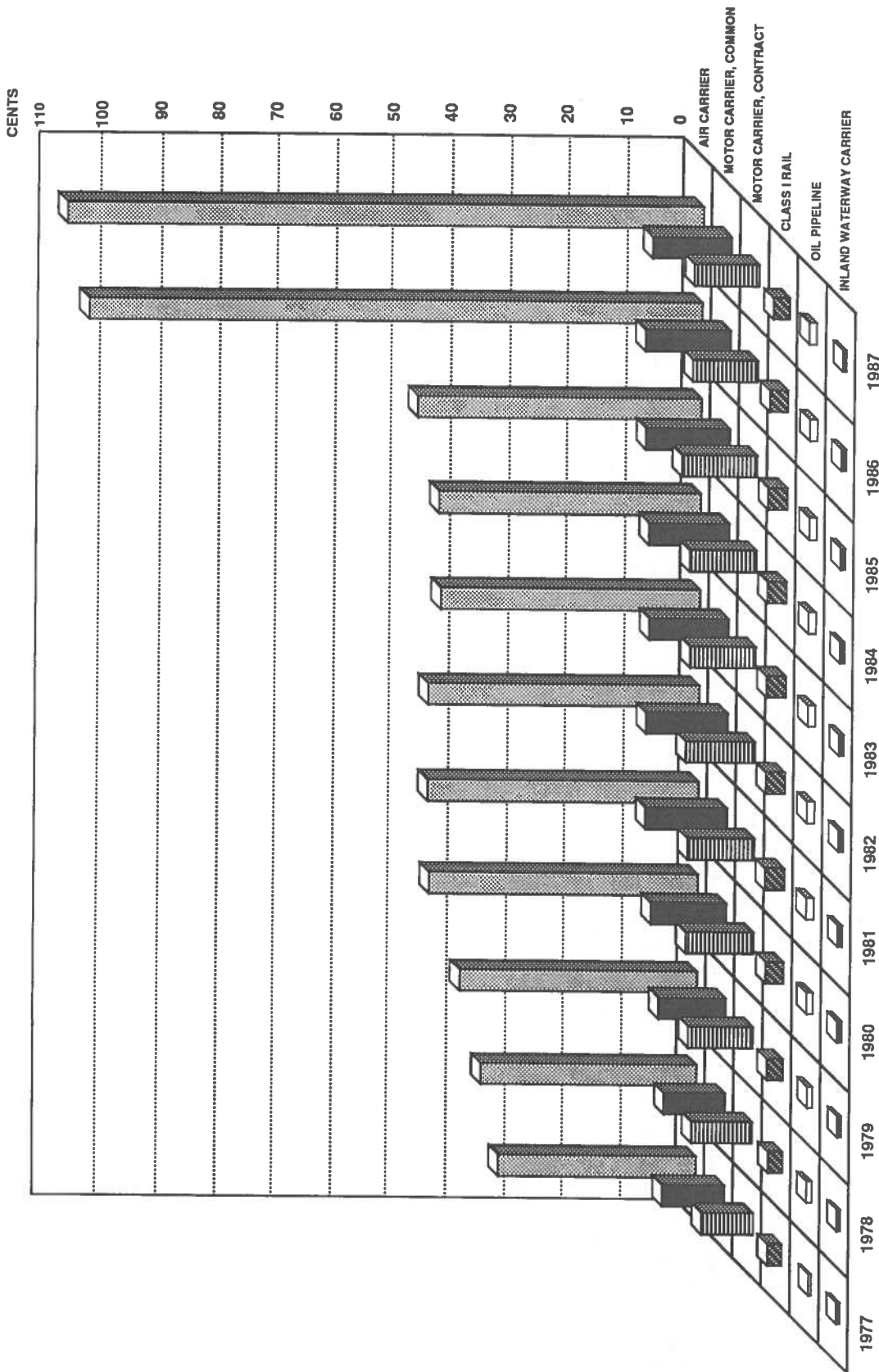
This section includes basic transportation descriptors such as operating revenues and expenses, vehicle statistics, and passenger and freight data.





Source: See Table 1.

Figure 8. Average Passenger Revenue Per Passenger-Mile, 1977-1987



Source: See Table 2.

Figure 9. Average Freight Revenue Per Ton-Mile, 1977-1987

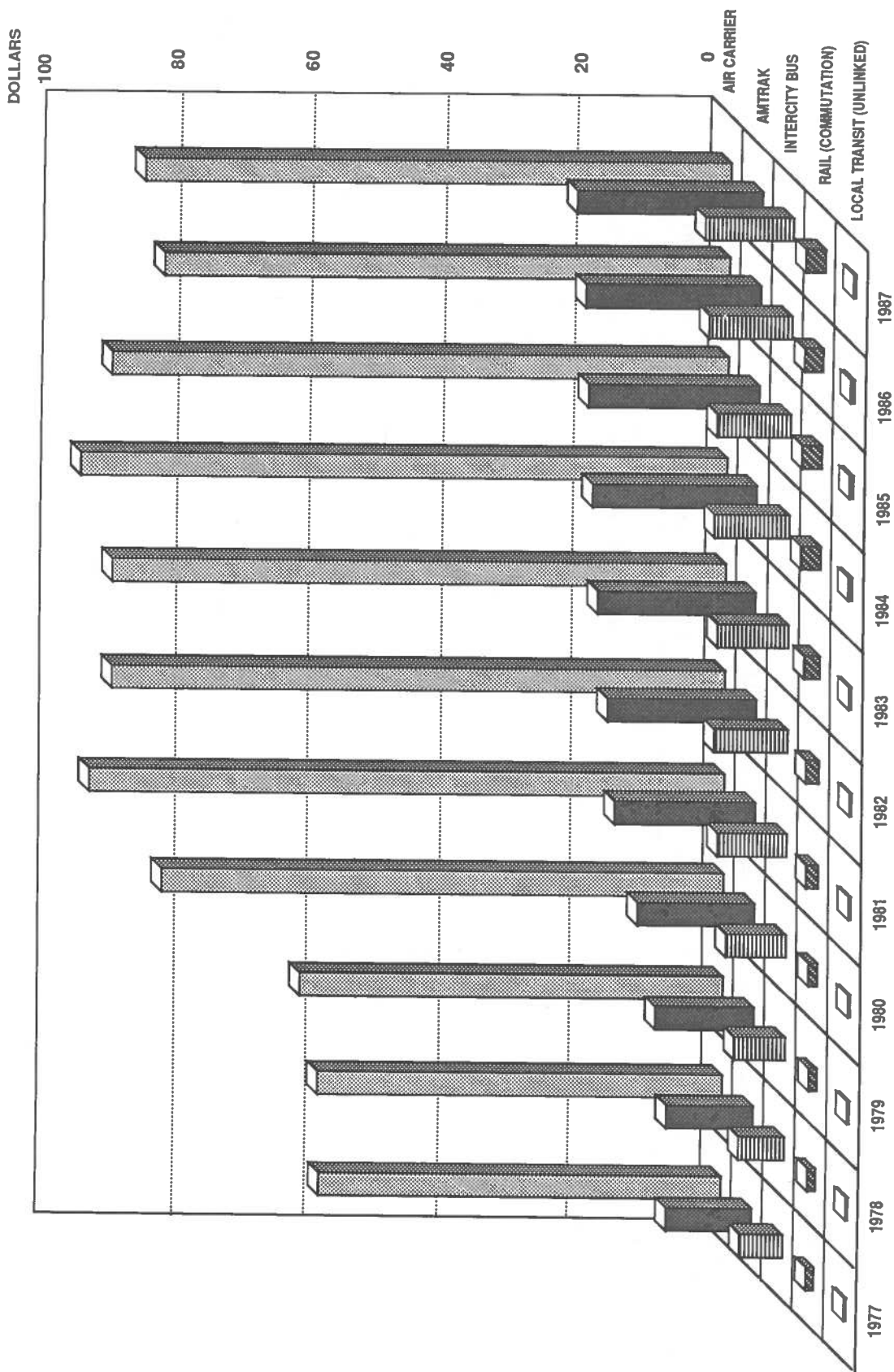
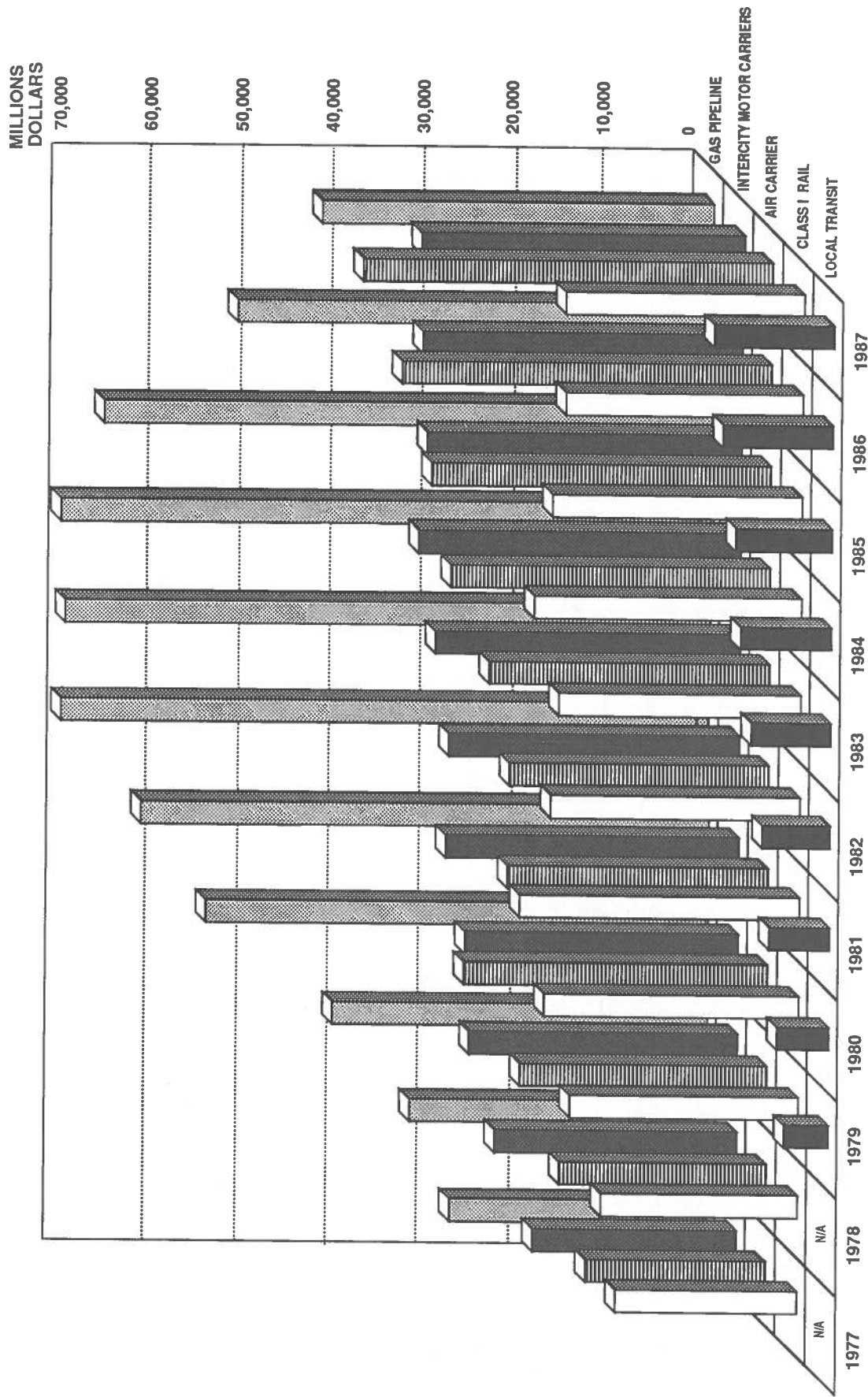


Figure 10. Average Passenger Fare, 1977-1987

Source: See Table 3.





N/A - Not Available  
 Source: See Table 4.

Figure 11. Total Operating Revenues, 1977-1987

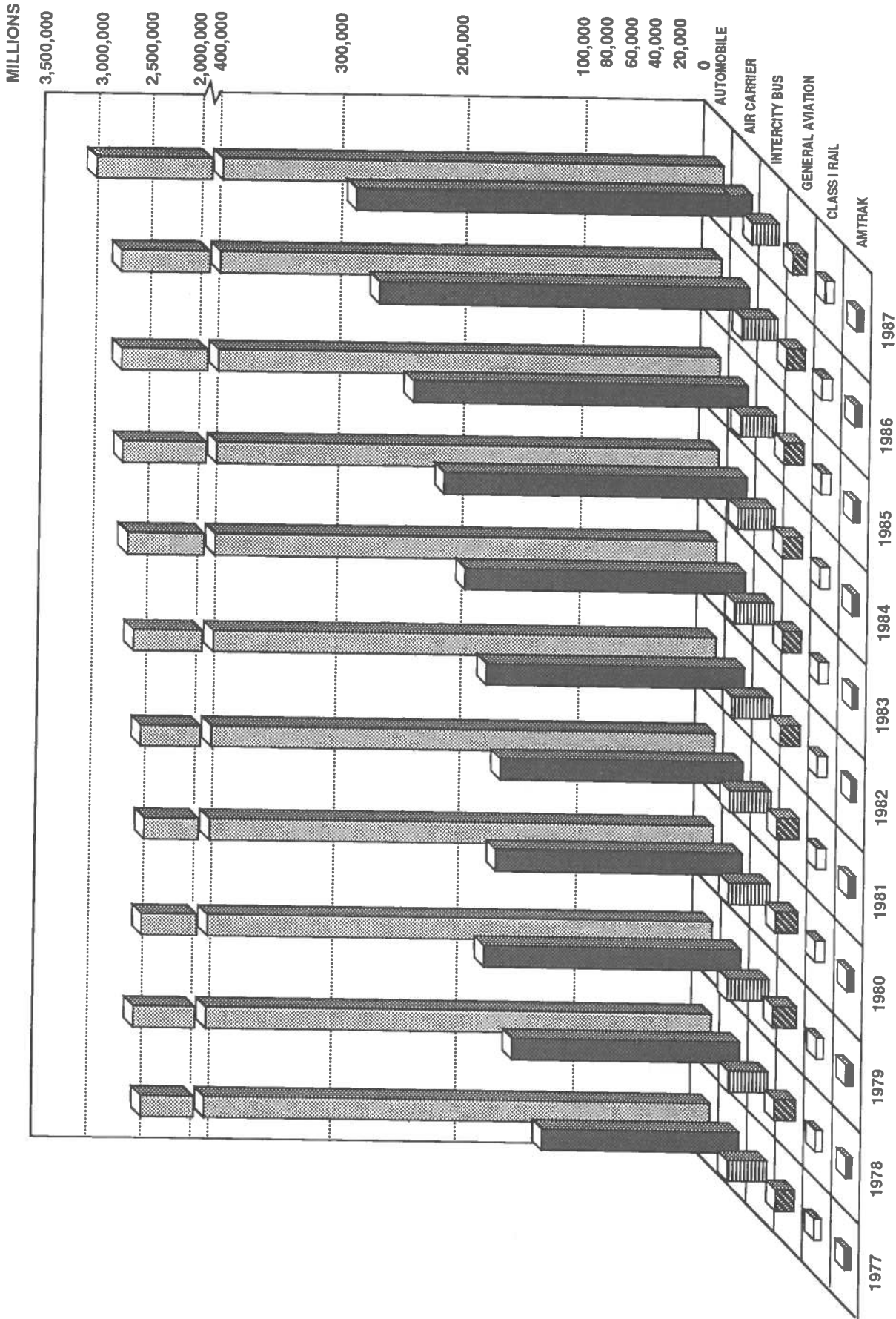


Figure 13. Passenger-Miles, 1977-1987

Source: See Table 6.

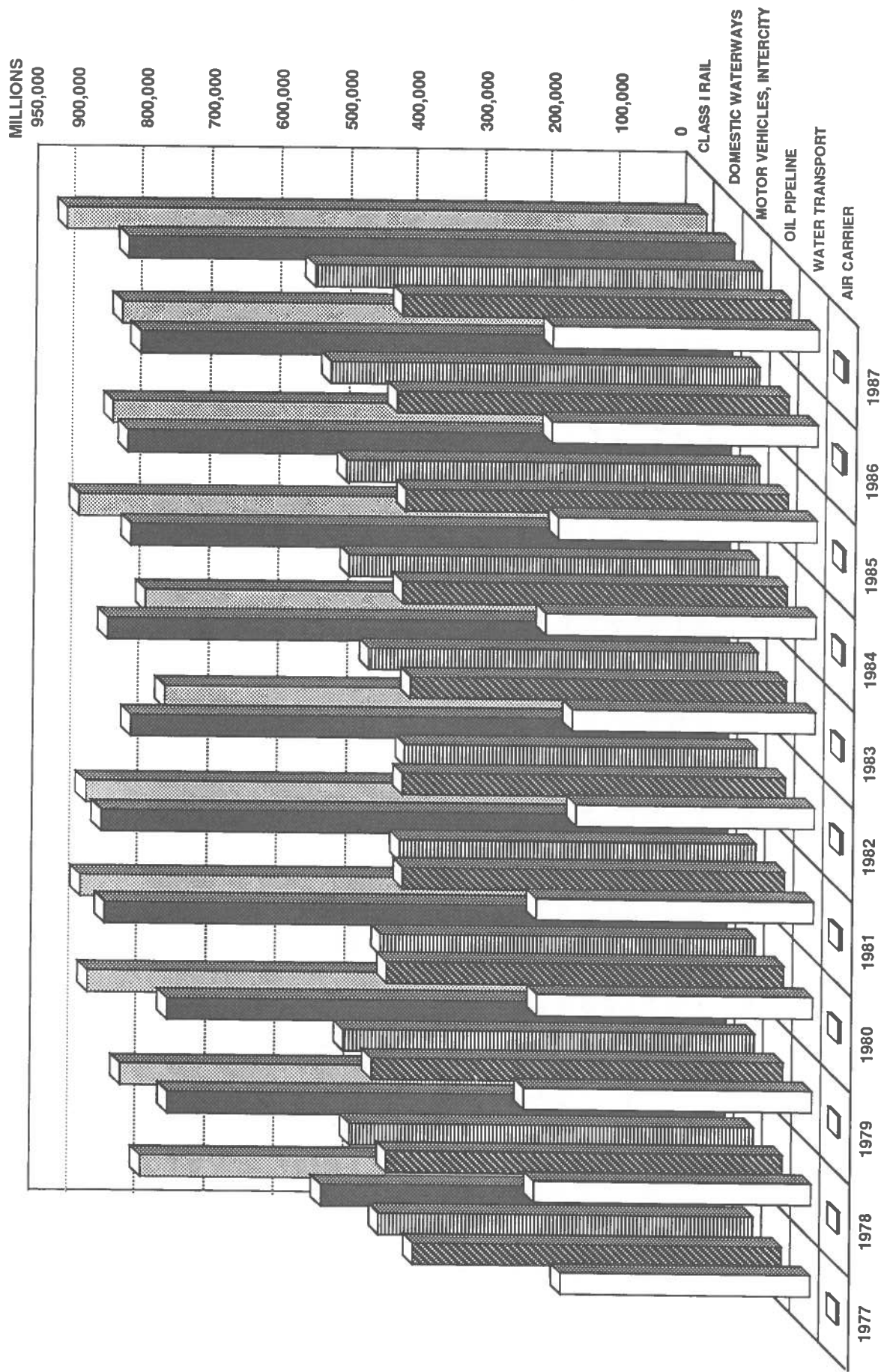
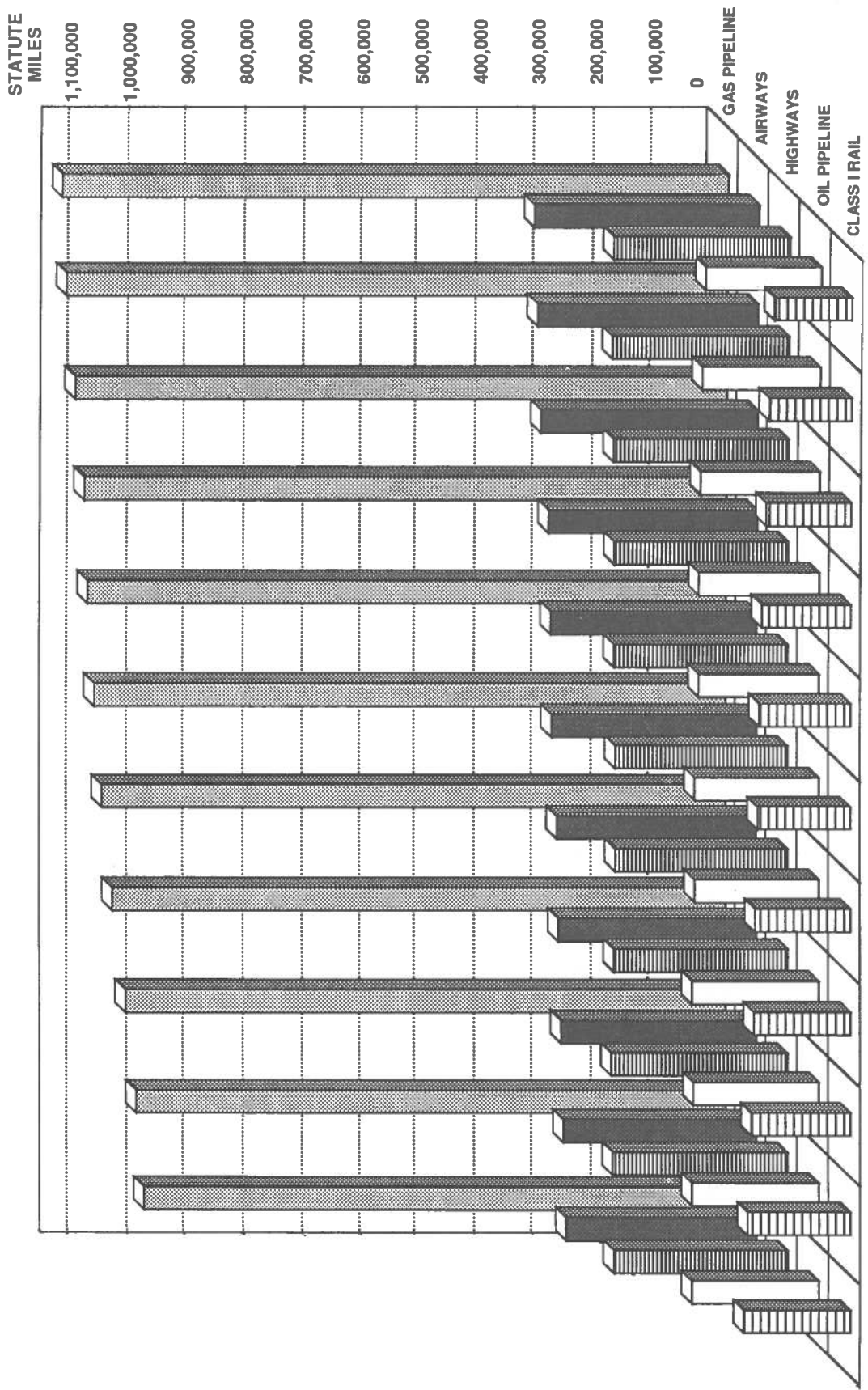


Figure 14. Revenue Ton-Miles of Freight, 1977-1987

Source: See Table 7.



Source: See Table 8.

Figure 15. Basic Intercity Mileage Within the Continental United States, 1977-1987

Table 10. Number of Vehicles, 1977-1987

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Air carrier, certificated, all services	2,543	2,521	2,598†	2,718	2,763	2,664	2,659	2,757	3,100	3,627	3,698
General Aviation	184,294	198,778	210,339	211,045	213,227	209,779	213,293	220,943	210,654	220,044	217,183
Motorcycle	4,933,256	4,867,864	5,422,132	5,693,940	5,831,132	5,753,858	5,585,112	5,479,922	5,444,404	5,262,322	4,885,772
Passenger car & taxi (thousands)	112,288	116,573	118,429	121,601	123,098	123,702	126,444	128,158	131,864	135,431	137,324
Intercity bus	20,100	20,400	21,300	21,400	21,500	22,000	20,300	20,100	20,200	20,300	20,097
Local transit, total††	67,584 <sup>r</sup>	68,443 <sup>r</sup>	70,046 <sup>r</sup>	75,388 <sup>r</sup>	76,433 <sup>r</sup>	78,205 <sup>r</sup>	78,106 <sup>r</sup>	95,603 <sup>r</sup>	88,691 <sup>r</sup>	91,218 <sup>r</sup>	91,115 <sup>p</sup>
Motor Bus††	51,968	52,866	54,490	59,411	60,393	62,114	62,093	63,497 <sup>r</sup>	57,285 <sup>r</sup>	58,000 <sup>r</sup>	57,687 <sup>p</sup>
Heavy Rail	9,587	9,515	9,470	9,641	9,749	9,815	9,891	9,083 <sup>r</sup>	9,326 <sup>r</sup>	10,386 <sup>r</sup>	10,168 <sup>p</sup>
Light Rail	992	944	959	1,013	1,075	1,016	1,013	733 <sup>r</sup>	699 <sup>r</sup>	697 <sup>r</sup>	766 <sup>p</sup>
Trolley Bus	645	593	725	823	751	763	686	664 <sup>r</sup>	676 <sup>r</sup>	680 <sup>r</sup>	671 <sup>p</sup>
Commuter Rail	4,392	4,525	4,402	4,500	4,465	4,497	4,423	4,075 <sup>r</sup>	4,035 <sup>r</sup>	4,440 <sup>r</sup>	4,656 <sup>p</sup>
Demand Response	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16,471 <sup>r</sup>	15,545 <sup>r</sup>	15,933 <sup>r</sup>	16,059 <sup>p</sup>
Other	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1,080 <sup>r</sup>	1,066 <sup>r</sup>	1,082 <sup>r</sup>	1,108 <sup>p</sup>
Class I Rail, total	1,317,971	1,254,743	1,246,954	1,198,310	1,140,651	1,067,498	1,033,343	973,024	890,302	819,935	768,670
Freight cars	1,287,315	1,225,374	1,217,079	1,168,114	1,111,115	1,039,016	1,007,165	948,171	867,070	798,631	748,523
Locomotives	27,298	26,960	27,660	27,977	27,421	26,675	25,448	24,117	22,548	20,790	19,647
Passenger train-cars	3,358	2,409	2,215	2,219	2,115	1,807	730	736	684	514	500
Amtrak, total	2,523	2,524	2,463	2,547	2,215	2,325	2,268	2,231	2,200	2,162	2,231
Passenger train-cars	2,154	2,084	2,026	2,128	1,830	1,929	1,880	1,844	1,818	1,793	1,850
Locomotives	369	440	437	419	385	396	388	387	382	369	381
Truck, total	29,314,285	31,335,864	32,913,804	33,666,587	34,644,110	35,382,375	36,722,615	37,507,463	39,196,161	40,069,479	41,118,762
Combination*	1,239,613	1,341,707	1,386,374	1,416,869	1,261,202	1,265,321	1,304,041	1,340,144	1,403,266	1,398,937	1,418,514
Single unit*	28,074,672	29,994,157	31,527,430	32,249,718	33,382,908	34,117,054	35,418,574	36,167,319	37,792,895	38,670,542	39,700,248
Water transport, total	33,989	33,307	34,849	37,149	n/a	39,614	n/a	39,581	39,230	38,384	37,868
Total inland water vessels	33,149	32,428	33,984	36,285	*	38,782	*	38,837	38,493	37,664	37,159
Non-self-propelled vessels											
Dry cargo barges & scows	24,937	24,037	25,420	27,426	*	29,479	*	29,730	29,287	28,308	27,741
Tankers	3,770	3,946	4,000	4,166	*	4,413	*	4,114	4,252	4,260	4,247
Total	28,770	28,048	29,492	31,592	*	33,892	*	33,844	33,539	32,568	31,988
Self-propelled vessels											
towboats & tugs	4,379	4,380	4,492	4,693	*	4,890	*	4,993	4,954	5,096	5,171
Oceangoing steam & motor ships (1,000 gross tons & over)	840	879	865	864	853	832	788	744	737	720	709

n/a = not available. r = revised. p = preliminary.

† Figure as of June, 1979. All other figures as of December of their respective year.

†† Prior to 1984, excludes most rural and smaller systems funded via Sections 18 and 16(b)(2), Urban Mass Transportation Act of 1964, as amended. Also prior to 1984, includes total vehicles owned and leased. Series not continuous between 1983 and 1984.

\* Change in collection methods, see Appendix A, p. A-17.

Source: See Appendix A, pp. A-16, A-17.

**Table 12. U.S. Automobiles in Fleets by Type of Use, 1977-1987**  
(thousands)

Use	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Business Fleets <sup>a</sup>	3,093	3,148	3,195	3,279	3,306	3,324	3,383	3,422	3,484	3,530	3,564
Individually leased	1,385	1,610	1,690	1,708	1,713	1,645	1,653	1,657	1,800	1,975	2,098
Government <sup>b</sup>	735	747	752	752	757	603	606	638 <sup>c</sup>	643	647	n/a
Utilities	518	523	529	532	537	530	533	540	540	545	550
Police	292	294	291	288	284	223	221	228	233	238	240
Taxi	202	205	207	205	198	141	139	140	140	143	144
Daily rental	385	448	462	500	462	457	466	755 <sup>d</sup>	760	790	800
Total (Cars in fleets of 10 or more)	6,609	6,975	7,126	7,264	7,257	6,923	7,001	7,380	7,600	7,868	n/a
Cars in fleets of 4 or more	10,414	10,423	10,428	10,433	10,436	10,076	10,400	10,475	10,508	10,508	10,578

n/a = not available.

<sup>a</sup> Includes driver schools.

<sup>b</sup> Data from *Automotive Fleet Fact Book* do not include Federal government vehicles. Federal fleet data are taken from *Federal Motor Vehicle Fleet Report*, General Services Administration, Table 1 (all agencies -- sedans and station wagons), and added to local and state government fleet figures.

<sup>c</sup> Includes an estimated 110,200 Federal government vehicles.

<sup>d</sup> Major adjustment by *Automotive Fleet Fact Book* with new data for 1984.

Source: Oak Ridge National Laboratory, *Transportation Energy Data Book*, 1989, Table 2.35.

**Table 14. Air Travel Departures Between the United States and Foreign Countries, 1977-1988  
(thousands)**

**Departures**

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
<b>Flag of Carrier and Country</b>												
Total Passengers	13,804	15,796	18,082	19,256	19,911	19,322	19,724	21,608	22,487	23,175	26,664	29,421
Flag of Carrier:												
United States	6,889	7,830	9,124	9,369	9,581	9,485	9,888	10,531	10,696	10,711	12,853	14,981
Foreign	6,915	7,965	8,958	9,886	10,330	9,837	9,837	11,076	11,791	12,464	13,811	14,440
Country of debarkation <sup>1</sup>												
Australia	134	159	222	245	258	258	201	223	232	281	349	345
Bahama Islands	719	865	924	1,006	927	1,009	1,075	1,063	1,151	1,206	1,265	1,318
Barbados	97	105	124	126	116	113	168	212	204	213	233	259
Belgium	105	100	173	231	238	283	226	216	249	285	180	186
Bermuda	414	401	443	467	417	413	394	395	389	396	367	302
Brazil	181	217	252	291	301	303	303	304	322	397	396	438
China/Taiwan	61	77	85	90	105	123	128	167	187	219	240	233
Colombia	204	230	272	299	315	300	302	290	294	270	279	296
Denmark	210	214	238	254	243	235	219	235	254	261	295	306
Dominican Republic	390	402	417	443	466	464	490	479	528	626	710	818
France	539	569	646	635	646	647	656	748	894	870	1,095	1,309
Germany, West	824	897	1,003	1,178	1,149	1,164	1,220	1,419	1,539	1,569	1,911	2,152
Grand Cayman	64	73	91	112	117	116	135	160	161	175	199	200
Greece	185	198	220	190	190	197	222	234	210	91	129	140
Haiti	94	114	130	124	126	131	144	156	169	163	181	225
Hong Kong	51	76	127	152	166	144	184	263	238	267	270	298
Ireland	195	200	236	212	219	234	196	212	233	268	281	302
Israel	156	161	195	186	194	211	228	278	255	236	277	262
Italy	448	486	517	495	460	500	561	647	660	475	637	667
Jamaica	297	370	432	382	435	526	601	616	607	778	858	812
Japan	1,204	1,272	1,514	1,602	1,697	1,779	1,854	2,127	2,255	2,420	2,937	3,580
Korea, South	66	80	134	186	188	212	212	244	333	423	459	444
Mexico	1,570	2,062	2,536	2,886	3,157	2,516	2,670	2,808	2,671	2,878	3,456	3,481
Netherlands	314	338	422	409	443	477	458	513	562	557	607	647
Netherlands Antilles	230	256	302	282	322	297	321	346	395	416	432	511
Panama Republic	119	128	148	142	141	136	164	194	209	201	168	141
Philippines	111	138	132	160	178	175	133	166	165	177	162	200
Spain	259	295	292	273	288	321	350	378	397	302	382	445
Switzerland	323	311	305	306	315	330	327	409	434	416	527	595
United Kingdom	1,984	2,477	2,608	2,840	2,989	2,607	2,687	3,103	3,322	3,083	3,696	4,171
Venezuela	281	356	424	518	571	571	321	257	245	257	320	391
Other	1,975	2,169	2,518	2,534	2,534	2,536	2,564	2,746	2,723	1,828	3,366	4,292

Covers passengers on international commercial flights arriving at U.S. airports. Excludes traffic between U.S. and Canada, border crossers, crewmen, and military personnel. Travelers between U.S. ports in the 50 States, Puerto Rico, Guam, or the Virgin Islands, and any other outlying area are included. Data compiled from flight reports of U.S. Immigration and Naturalization Service.

<sup>1</sup> Country where passenger boarded/deboarded a direct flight to/from the U.S.

Note: Sum of components may not equal total due to independent rounding.

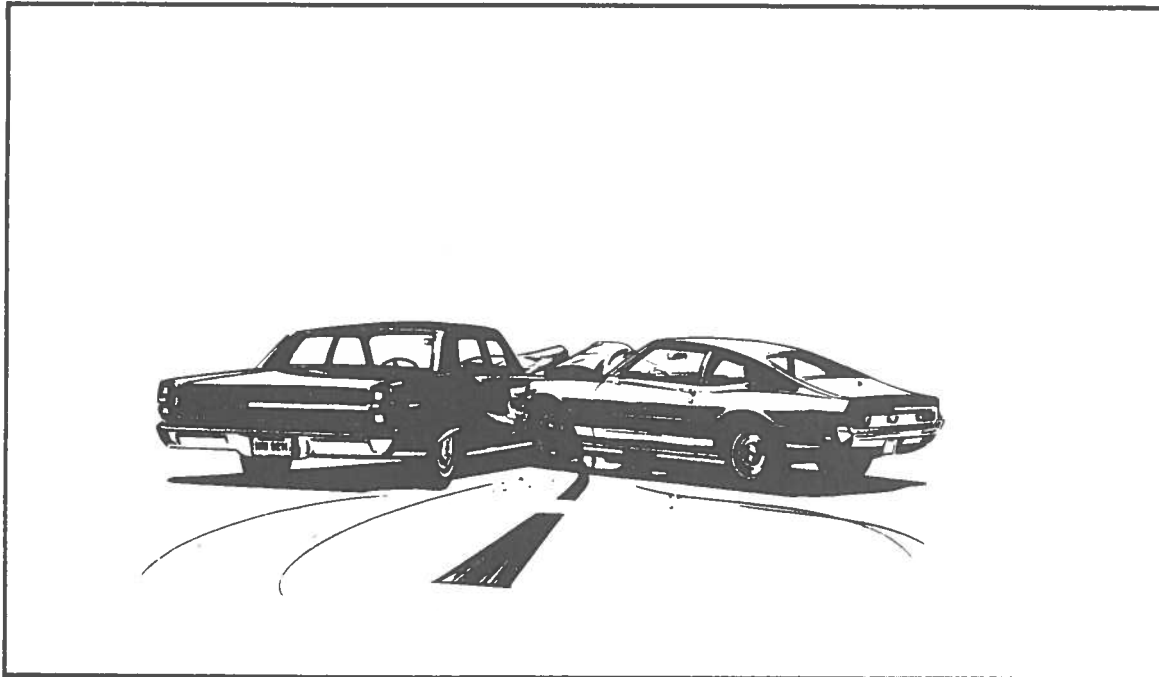
Source: U.S. DOT/Transportation Systems Center, Center for Transportation Information, Cambridge, MA, *U.S. International Air Travel Statistics*, annual issues, Table Id/IId.



# TRANSPORTATION TRENDS

## Section II: Safety

This section presents the number of fatalities, accidents, and injuries for the various transportation modes from 1977-1987/1988.





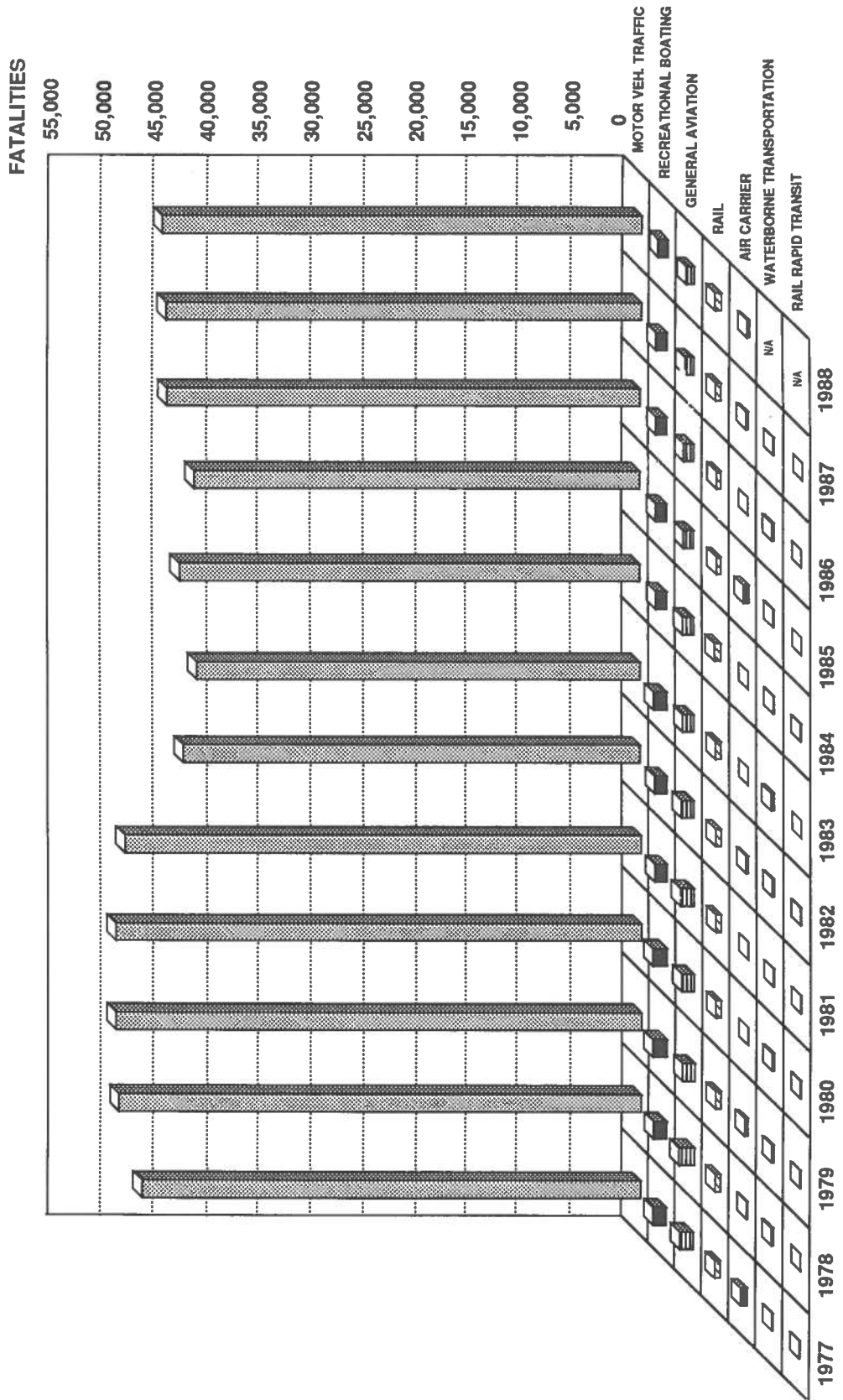
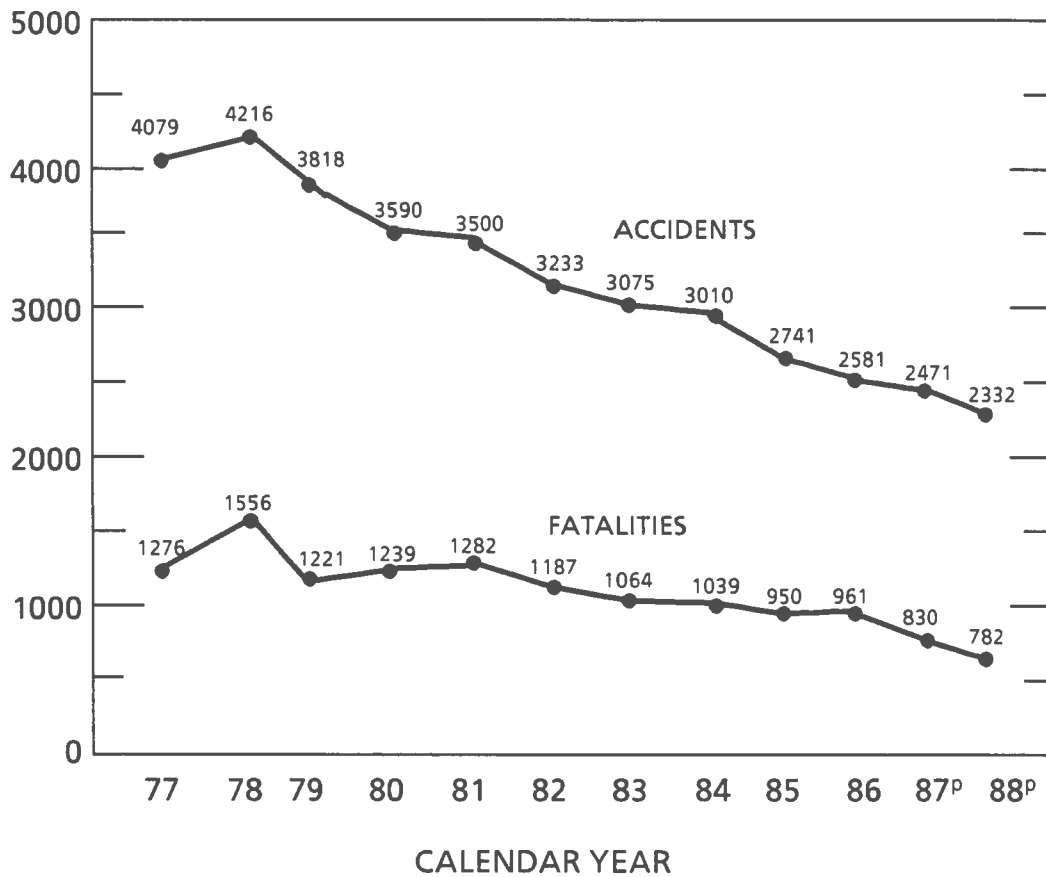


Figure 16. Number of Fatalities by Mode, 1977-1988

N/A= Not Available  
 Source: See Table 16.



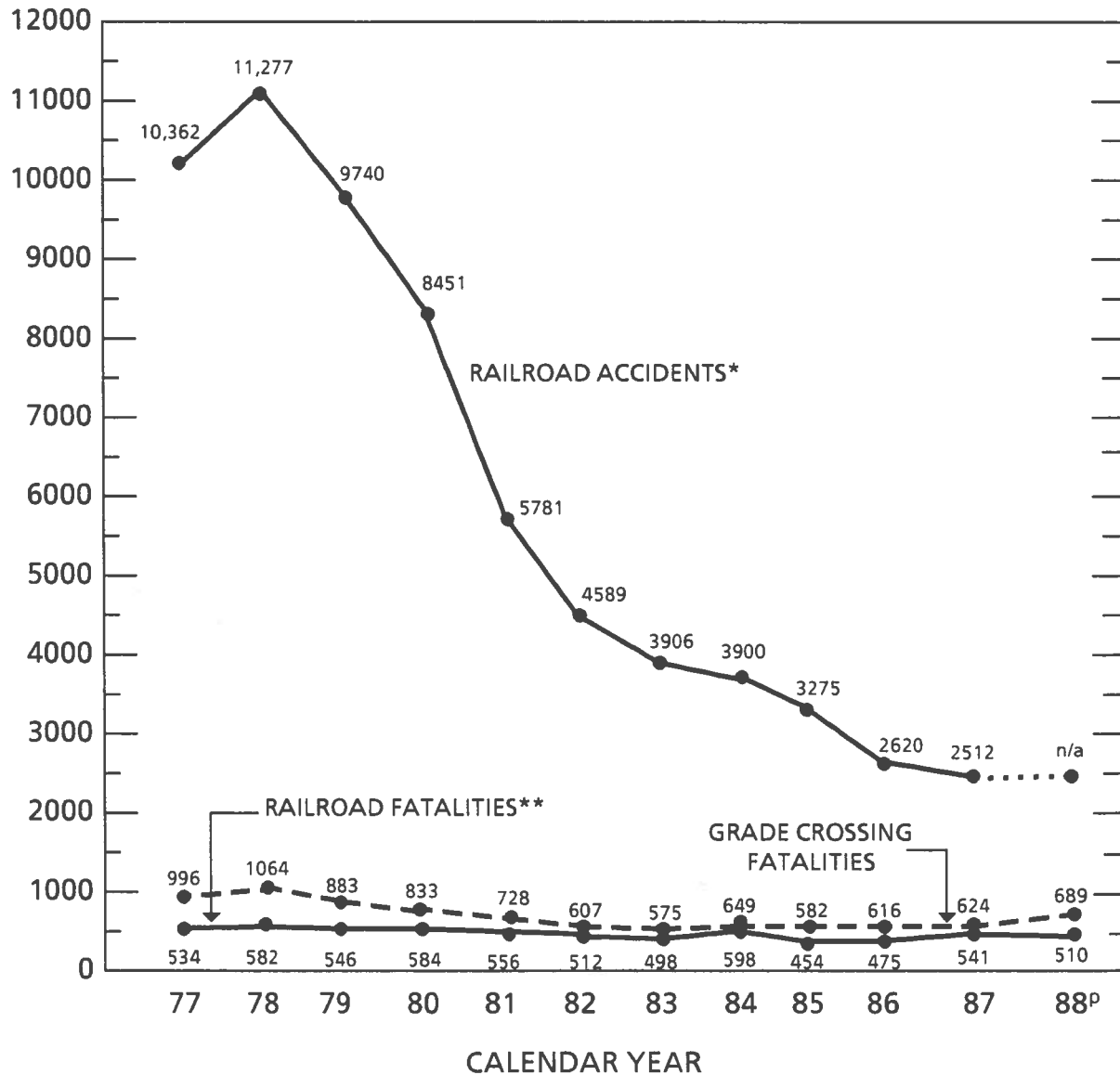
**Figure 18. General Aviation\* Fatalities and Accidents, 1977-1988**

p = preliminary.

\* All operations other than those operated under 14 CFR 121 or 14 CFR 135.

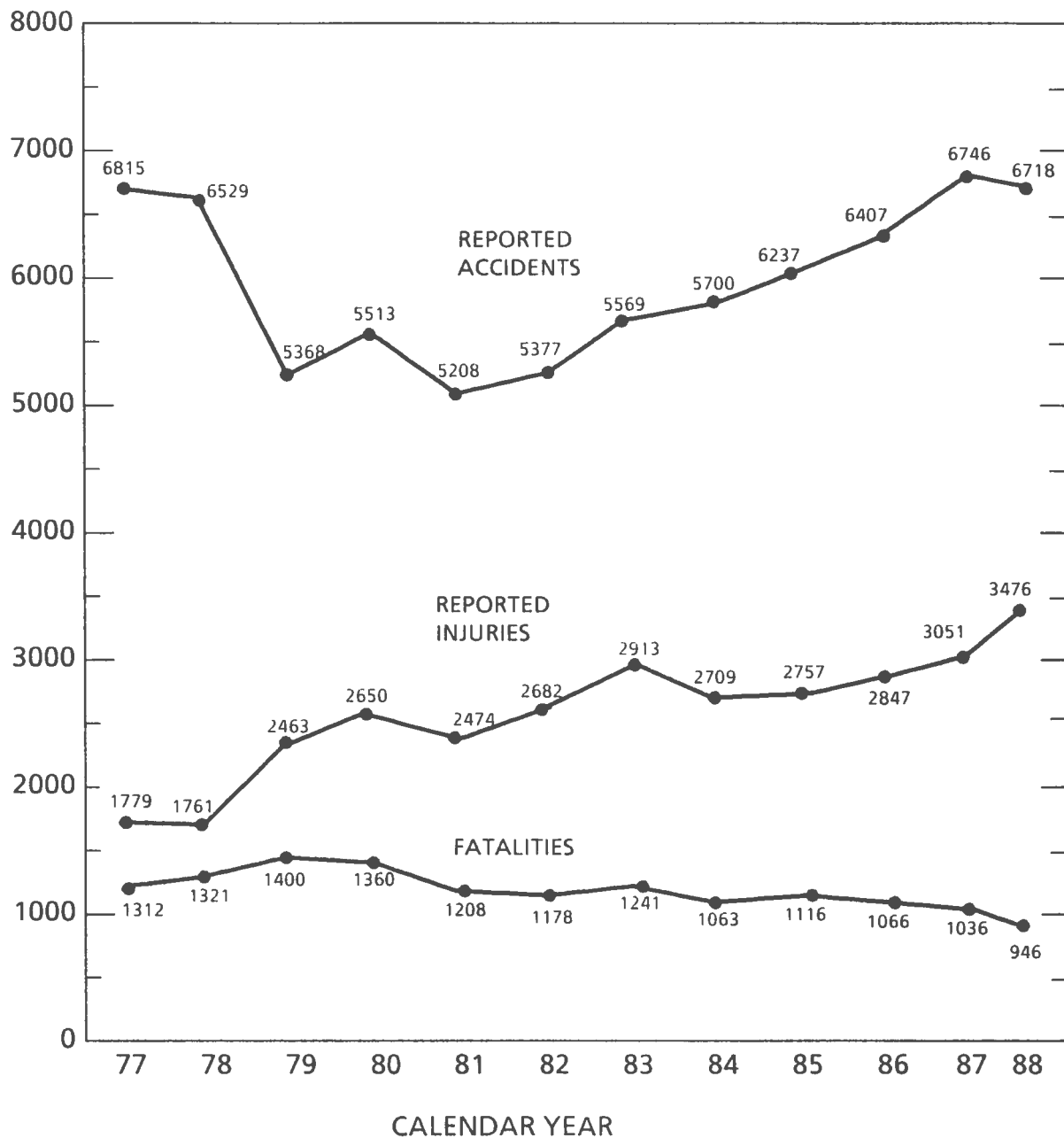
Source: 1977: NTSB, *NTSB News Digest*, January 1988.

1978-1988: *Ibid.*, January 1989.



**Figure 20. Railroad Fatalities and Accidents, and Grade Crossing Fatalities, 1977-1988**

p = preliminary.  
 n/a = not available.  
 \* Train accidents only--also includes those grade crossing accidents that have been classified as train accidents.  
 \*\* Fatalities resulting from train accidents, train incidents and nontrain incidents.  
 Note: Reporting threshold for train accidents was raised to \$2,300 in 1977, to \$2,900 in 1979, to \$3,700 in 1981, to \$4,500 in 1983, to \$4,900 in 1985, and to \$5,200 in 1987.  
 Source: 1977-1987: U.S. DOT/TSC, *Transportation Safety Information Report*, 1987 Annual Summary.  
 1988: Ibid., personal communications.



**Figure 22. Recreational Boating Fatalities, Accidents, and Injuries, 1977-1988**

Note: Only a small fraction of property damages and non-fatal accidents are reported to the Coast Guard.  
 Source: 1977-1983: U.S. DOT/TSC, *Transportation Safety Information Report, 1987 Annual Summary*.  
 1984-1988: U.S. DOT/USCG, *Boating Statistics 1988*.

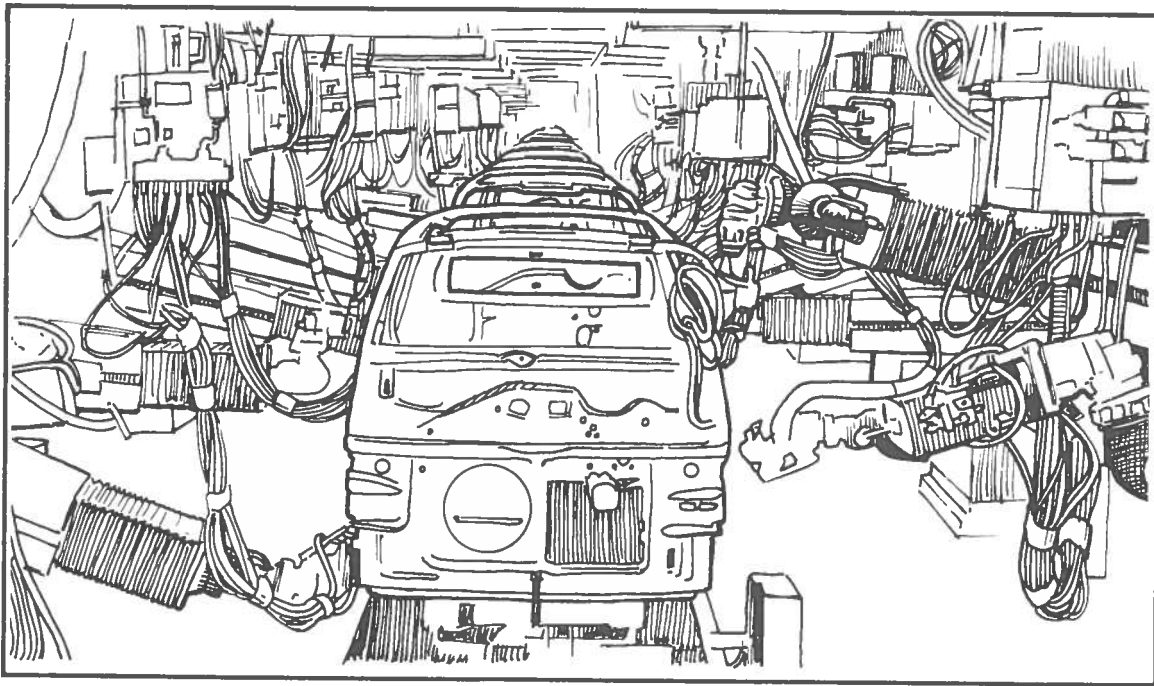
**Table 17. Restraint Usage and Injury Severity for Passenger Car Occupants, 1981 - 1987**

<b>Injury Severity and Year</b>	<b>Restrained</b>	<b>Unrestrained</b>	<b>Unknown Restraint</b>	<b>Total</b>
<b>Fatal Injury</b>				
1981	568	21,086	4,891	26,545
1982	584	18,104	4,410	23,098
1983	748	17,895	4,332	22,975
1984	1,057	18,001	4,550	23,608
1985	2,115	16,773	4,304	23,192
1986	3,557	17,585	3,802	24,944
1987	4,500	17,246	3,368	25,114
<b>Incapacitating Injury</b>				
1981	330	10,995	2,164	13,489
1982	341	9,625	2,150	12,116
1983	529	9,002	2,181	11,712
1984	777	9,072	2,084	11,933
1985	1,543	8,649	1,929	12,121
1986	2,564	8,838	1,726	13,128
1987	3,220	8,533	1,667	13,420
<b>Non-Incapacitating Injury</b>				
1981	310	6,901	2,236	9,447
1982	310	5,843	1,790	7,943
1983	464	5,844	1,750	8,058
1984	666	5,709	1,833	8,208
1985	1,314	4,695	1,721	7,730
1986	2,006	4,540	1,432	7,978
1987	2,563	4,396	1,104	8,063
<b>Possible Injury</b>				
1981	198	2,962	785	3,945
1982	163	2,268	680	3,111
1983	207	1,984	673	2,864
1984	351	1,998	764	3,113
1985	695	1,721	691	3,107
1986	1,310	1,577	667	3,554
1987	1,804	1,520	524	3,848

# TRANSPORTATION TRENDS

## Section III: Motor Vehicle Sales, Production and Costs

This section includes data for 1977-1988 depicting the number of motor vehicles produced and sold in the U.S. and worldwide. Also shown are the passenger car operating costs over the same 11-year period.



**Table 20. U.S. Retail Sales of New Cars by Sector  
1977 - 1988**

Year	Units by Consuming Sector (000)				% of Total Sales	
	Consumer	Business	Government	Total	Consumer	Business
1977	7,657	3,220	169	11,046	69.3	29.2
1978	7,548	3,456	161	11,164	67.6	31.0
1979	7,132	3,285	142	10,559	67.5	31.1
1980	6,062	2,791	126	8,979	67.5	31.1
1981	5,623	2,787	116	8,535	66.0	32.7
1982	5,285	2,593	102	7,980	66.2	32.5
1983	6,054	3,006	119	9,179	66.0	32.7
1984	6,590	3,669	135	10,394	63.4	35.3
1985	7,083	3,822	134	11,039	64.2	34.6
1986	7,658	3,666	127	11,450	66.9	32.0
1987	6,748	3,395	135	10,278	65.7	33.0
1988	6,821	3,684	137	10,642	64.1	34.6

Source: Motor Vehicle Manufacturers Association of the U.S., Inc., *Facts and Figures*, 1989, p. 16.

**Table 22. Passenger Car Operating Costs, 1977-1988**

Year	Variable Costs In Cents Per Mile				Costs Per 10,000 Miles			Total Cost Per Mile
	Gas & Oil	Maintenance	Tires	Total	Variable Cost	Fixed Cost	Total Cost	
1978	3.89	1.10	.66	5.65	565	1,392	1,957	19.57
1979	4.11	1.10	.65	5.86	586	1,811	2,397	23.97
1980	5.86	1.12	.64	7.62	762	2,033	2,795	27.95
1981	6.27	1.18	.72	8.17	817	2,375	3,192	31.92
1982	6.74	1.00	.63	8.37	837	2,398	3,235	32.35
1983	6.64	1.04	.68	8.36	836	2,506	3,342	33.42
1984	6.19	1.04	.63	7.86	786	2,346	3,132	31.32
1985	6.16	1.23	.65	8.04	804	1,916 <sup>1</sup>	2,720	27.20
1986	4.48	1.37	.67	6.52	652	2,307 <sup>1</sup>	2,959	29.59
1987	4.80	1.60	.80	7.20	720	2,544 <sup>1</sup>	3,264	32.60
1988	5.20	1.60	.80	7.60	760	2,581 <sup>1</sup>	3,341	33.40

<sup>1</sup> Not comparable to previous data. Ownership costs based on a six year or 60,000 mile retention cycle.

Note: Vehicles specified are intermediate size.

Source: Motor Vehicle Manufacturers Association of the U.S., Inc., *Facts & Figures*, 1989, p. 44.

**Table 23. Annual Fixed Cost of Operating a Passenger Car, 1977-1988**

Year	Insurance			License and Registration	Depreciation	Finance Charge	Total	Average Fixed Cost Per Day
	Fire & Theft <sup>1</sup>	Collision <sup>2</sup>	Property Damage <sup>3</sup> and Liability					
1977	\$80	\$188	\$250	\$ 74	\$ 847	-	\$1,439	\$3.94
1978	57	138	229	74	894	-	1,392	3.81
1979	74	168	241	90	942	\$296	1,811	4.96
1980	70	172	248	82	1,038	423	2,033	5.57
1981	76	180	254	88	1,287	490	2,375	6.51
1982	53	153	243	54	1,356	539	2,398	6.57
1983	80	201	222	102	1,343	558	2,506	6.87
1984	80	200	225	106	1,207	528	2,346	6.43
1985	92	198	213	115	1,253	570	2,441	6.69
1986	86	191	232	130	1,320	637	2,596	7.11
1987	87	196	252	140	1,506	601	2,782	7.62
1988	86	203	284	139	1,784	565	3,061	8.39

<sup>1</sup> \$50 deductible 1977, \$100 deductible 1978 through 1988.

<sup>2</sup> \$100 deductible 1977, \$250 deductible 1978 through 1988.

<sup>3</sup> Coverage: 1977 to 1988-\$100,000/\$300,000.

Note: Vehicles specified are intermediate size.

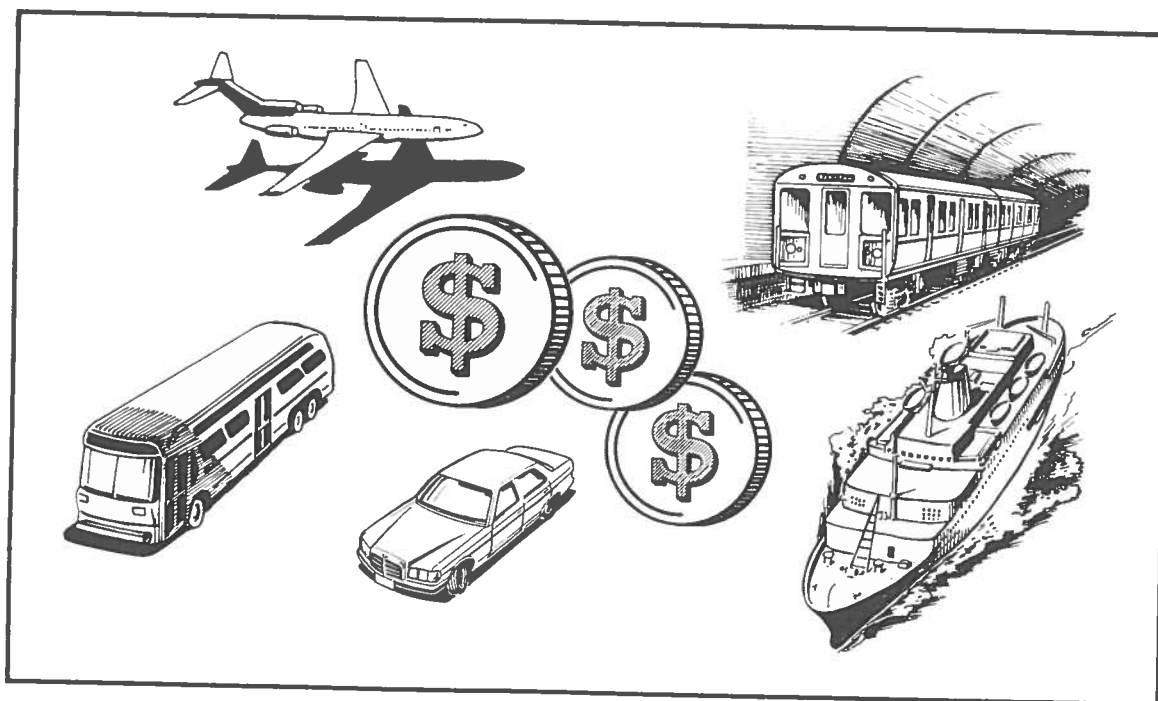
Source: Motor Vehicle Manufacturers Association of the U.S., Inc., *Facts & Figures*, 1989, p. 44.

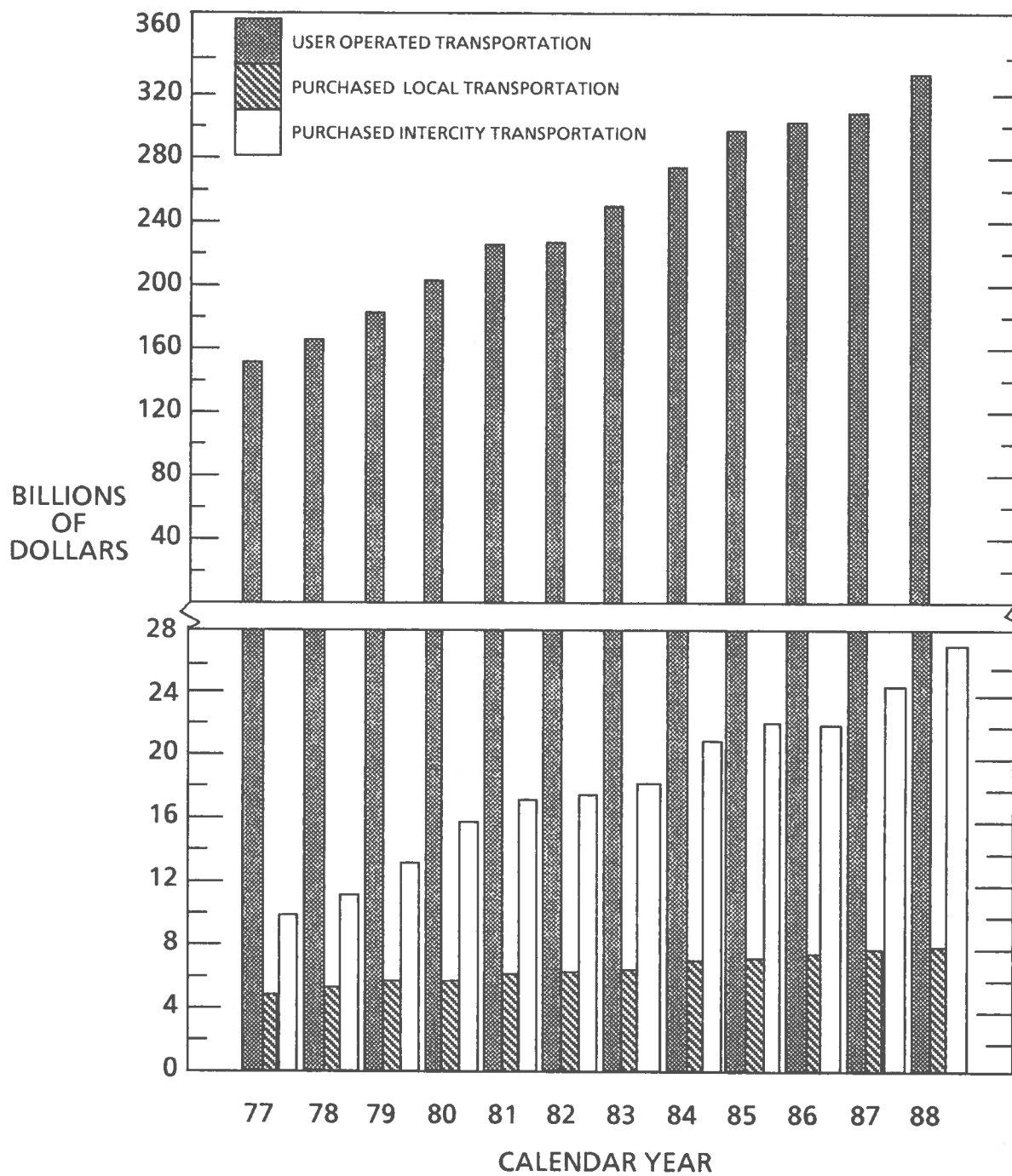


# SUPPLEMENTARY DATA

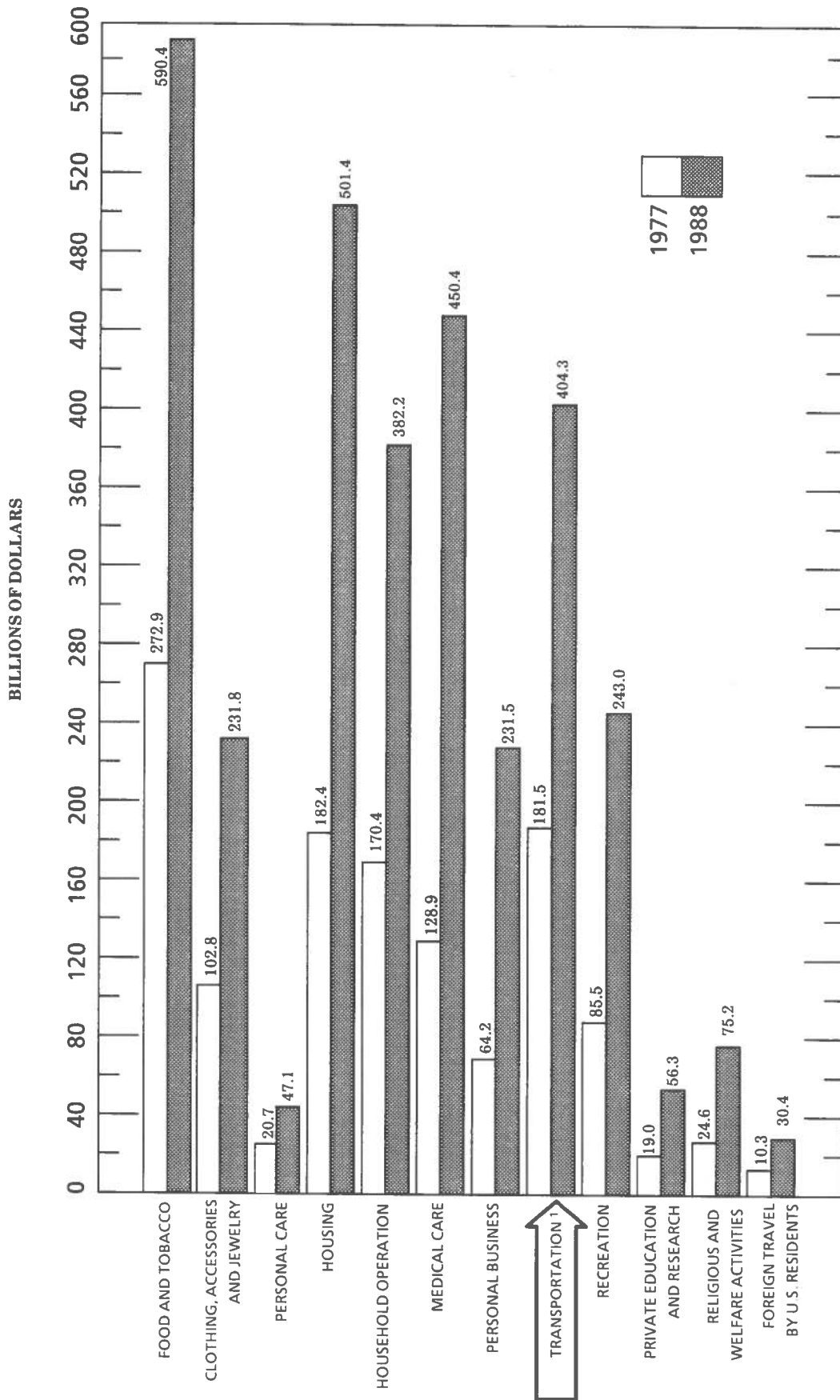
## Section I: Transportation and the Economy

Transportation and the Economy is the first of the two supplementary sections. Tabular and graphic statistics are used to show transportation's interrelationship with the economy from 1977-1987/1988.



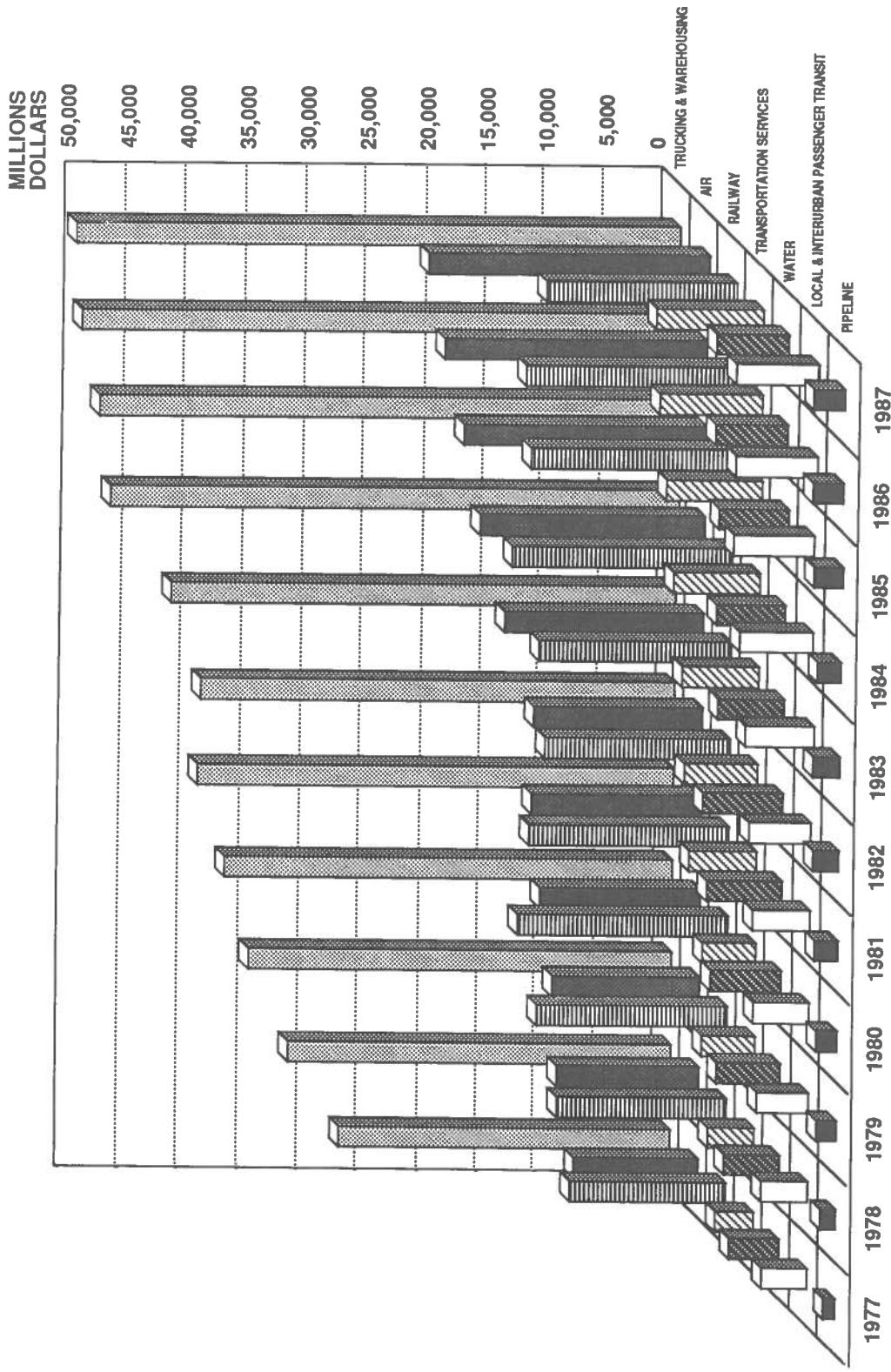


**Figure 25. Personal Consumption Expenditures by Transportation Sector, 1977-1988**



**Figure 26. Personal Consumption Expenditures by Type, 1977 and 1988**

<sup>1</sup> Excluding Foreign Travel



Source: See Table 26.

Figure 27. National Income by Transportation Sector, 1977-1987

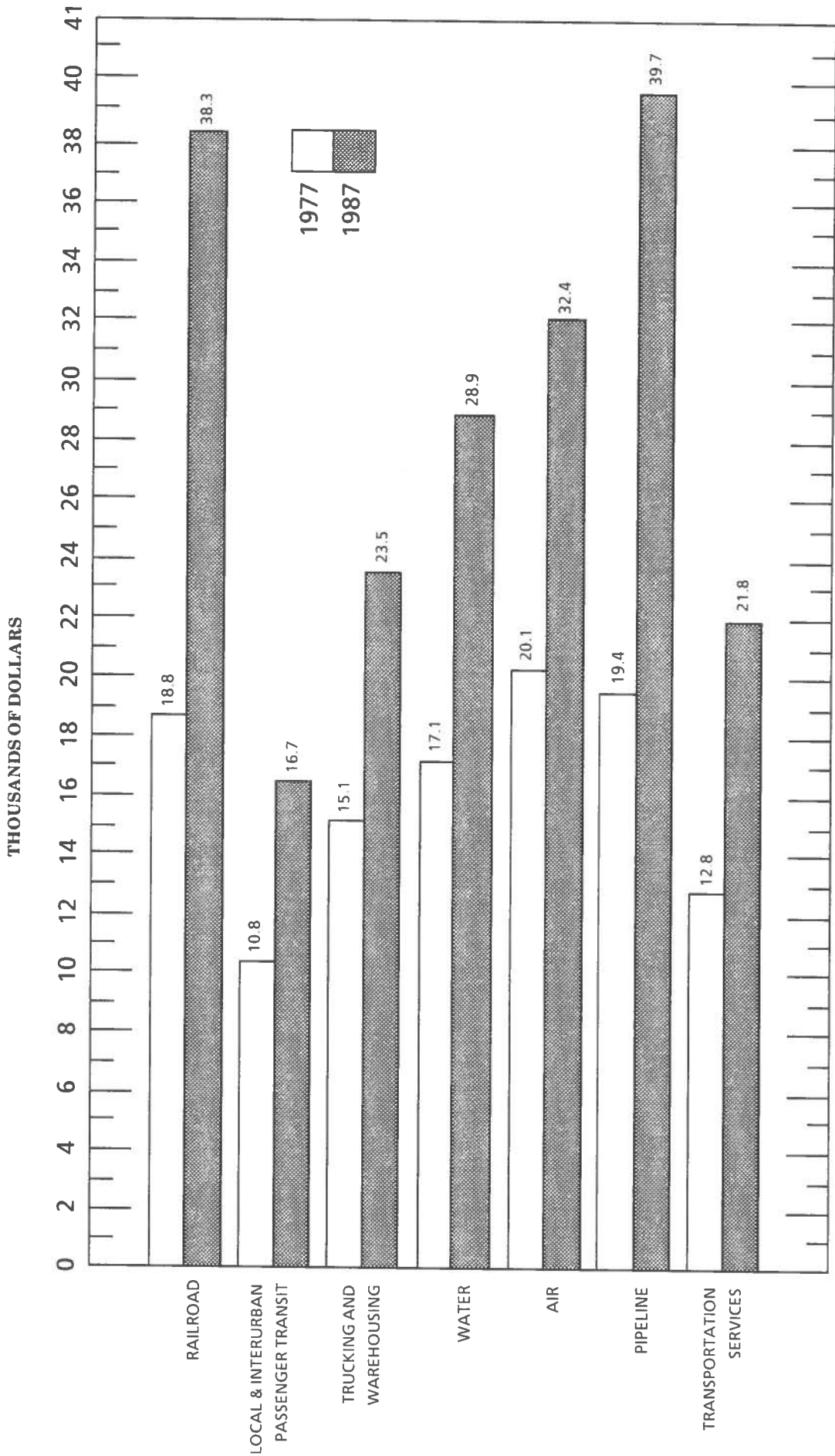


Figure 28. Wages and Salaries per Full-Time Employee by Transportation Sector, 1977 and 1987

**Table 30. National Transportation and Economic Trends, 1977-1987**  
(billions)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Total passenger-miles Index *	2,762 153	2,873 158	2,829 156	2,814 155	2,855 157	2,946 162	3,036 167	3,116 172	3,225 178	3,348 184	3,498 193
Total revenue ton-miles Index *	2,899 128	3,284 145	3,387 149	3,395 150	3,345 147	3,126 138	3,243 143	3,388 149	3,331 147	3,345 147	3,505 155
Population (millions) Index *	220 111	223 112	225 113	228 115	230 116	233 117	235 118	237 119	239 120	242 122	244 122
Industrial production Index **	100	107	111	109	111	103	109	122	124	125	130
Gross national product (current dollars) Index *	1,991 249	2,250 281	2,508 314	2,732 342	3,053 383	3,166 397	3,406 426	3,772 472	4,015 <sup>r</sup> 501	4,240 <sup>r</sup> 530	4,527 567
(constant 1982 dollars)	2,959	3,115	3,192	3,187	3,249	3,166	3,279	3,501	3,619 <sup>r</sup>	3,722 <sup>r</sup>	3,847

<sup>r</sup> = revised.

\* Index = 100 in 1967.

\*\* Index = 100 in 1977.

Source: See Appendix A, p. A-21.

**Table 32. Expenditures and Overseas Travel by U.S. Residents and Foreign Visitors, 1977-1987**

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986 <sup>r</sup>	1987 <sup>p</sup>
U.S. residents- Overseas travelers (thousands)	7,390	7,790	7,835	8,163	8,040	8,510	9,628	11,252 <sup>r</sup>	12,309	11,706	13,248
Average expenditures Overseas (dollars)	543	604	672	726	802	827	798	830	825	n/a	n/a
Total travel and passenger fare transactions (million dollars)	10,199	11,371	12,597	14,004	15,966	17,166	19,152 <sup>r</sup>	22,069 <sup>r</sup>	23,925 <sup>r</sup>	24,724	29,281
Travel payments in foreign countries (million dollars)	7,451	8,475	9,413	10,397	11,479	12,394	13,149 <sup>r</sup>	15,020 <sup>r</sup>	16,040 <sup>r</sup>	17,250	20,496
Passenger fare payments to foreign countries (million dollars)	2,748	2,896	3,184	3,607	4,487	4,772	6,003 <sup>r</sup>	7,049 <sup>r</sup>	7,885 <sup>r</sup>	7,474	8,785
Foreign visitors to U.S. (thousands)	4,509	5,764	7,230	7,706	8,069	8,761	7,873	7,527	7,538	8,860	10,434
Average expenditures of visitors (dollars)	595	604	605	662	713	761	799	844	877	n/a	n/a
Total travel and passenger fare transactions (million dollars)	7,175	8,421	10,118	10,650	13,488	15,085	14,044 <sup>r</sup>	14,009 <sup>r</sup>	14,301 <sup>r</sup>	16,086	19,415
Travel receipts in U.S. (million dollars)	6,150	7,183	8,441	10,588	12,913	12,393	10,947 <sup>r</sup>	10,873 <sup>r</sup>	11,197 <sup>r</sup>	12,462	14,778
Passenger fare receipts in U.S. (million dollars)	1,025	1,238	1,677	2,062	2,575	2,692	3,097 <sup>r</sup>	3,136 <sup>r</sup>	3,104 <sup>r</sup>	3,624	4,637

p = preliminary.

r = revised.

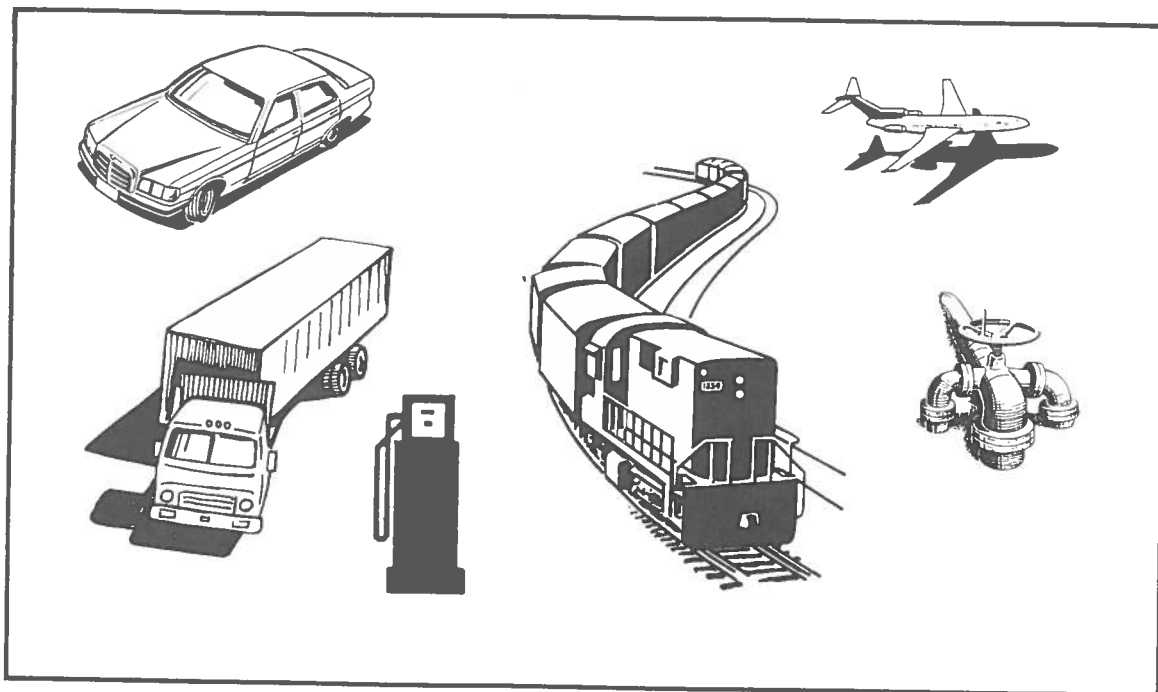
n/a = not available.

Source: See Appendix A. p. A-21.

# SUPPLEMENTARY DATA

## Section II: Energy in Transportation

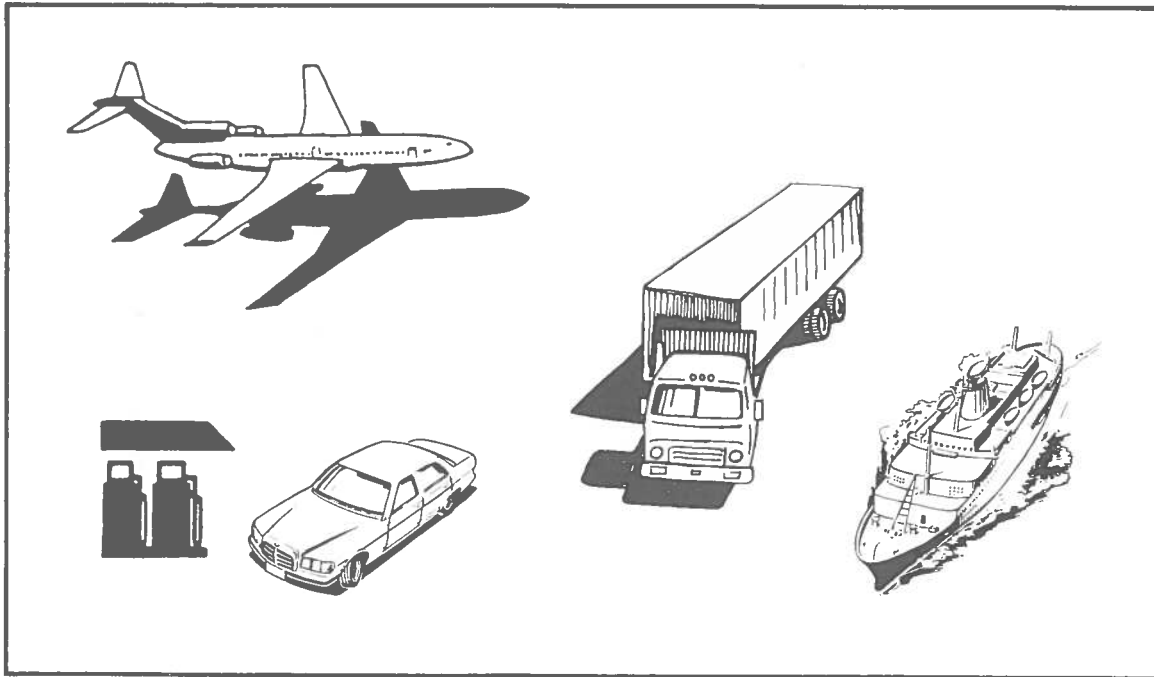
Energy in Transportation is the second part of the supplementary data section. This section details the relationship between energy and transportation, particularly in the areas of Energy Consumption, Energy Intensiveness, Energy Transport, and Energy Supply and Demand for the years 1977-1987/1988. Some data extend back to 1955.





# Part 1. Energy Consumption

This section details the amount of fuel consumed by each mode of transportation and end-use sector. Also presented are fuel price data for 1977-1987/1988. In some instances data extend back to 1955.



**Table 35. U.S. Energy Consumption by the Transportation Sector  
(at 5-Year Intervals 1955-1970 and Annually 1971-1988)**

Year	Petroleum		Natural Gas <sup>1</sup>		Total Fossil Fuels <sup>2</sup>		Sales of Electricity <sup>3</sup>		Total Transportation Consumption		Total Gross Energy Consumption
	Million Barrels	Trillion <sup>4</sup> Btu	Trillion Cubic Feet	Trillion <sup>4</sup> Btu	Trillion Btu	Trillion Btu	Million Kilowatt-Hours	Trillion <sup>4</sup> Btu	Trillion <sup>5</sup> Btu	% of Total Gross Energy Consumption	Quadrillion Btu
1955	1,627.9	8,804	0.25	259	9,502	4,563	15.6	9,518	24.5	38.82	
1960	1,881.2	10,136	0.35	362	10,578	4,770	16.3	10,594	24.2	43.80	
1965	2,204.6	11,876	0.50	516	12,394	4,652	15.9	12,410	23.6	52.68	
1970	2,839.7	15,854	0.72	742	16,050	4,633	15.8	16,066	24.2	66.43	
1971	2,952.9	15,913	0.74	763	16,670	4,537	15.5	16,686	24.6	67.89	
1972	3,136.6	16,900	0.77	791	17,663	4,440	15.1	17,678	24.8	71.26	
1973	3,303.3	17,821	0.73	745	18,574	4,186	14.3	18,588	25.0	74.28	
1974	3,226.6	17,404	0.67	686	18,093	4,258	14.5	18,108	25.0	72.54	
1975	3,266.8	17,615	0.58	592	18,208	4,273	14.6	18,223	25.9	70.55	
1976	3,429.4	18,502	0.55	560	19,065	4,338	14.8	19,080	25.7	74.36	
1977	3,562.4	19,237	0.53	540	19,765	4,212	14.4	19,779	26.0	76.29	
1978	3,708.4	20,040	0.53	538	20,550	4,336	14.8	20,565	26.4	78.09	
1979	3,653.7	19,832	0.60	611	20,431	4,256	14.5	20,446	25.9	78.90	
1980	3,495.3	19,014	0.63	645	19,659	4,275	14.6	19,674	25.9	75.96	
1981	3,463.3	18,813	0.64	657	19,460	4,206	14.4	19,474	26.3	73.99	
1982	3,398.2	18,425	0.60	616	19,024	4,288	14.6	19,039	26.9	70.85 <sup>r</sup>	
1983	3,431.0	18,582	0.49	505	19,107	4,300	14.7	19,121	27.1	70.52 <sup>r</sup>	
1984	3,553.9	19,280	0.53	546	19,838	4,483	15.3	19,853	26.8	74.10 <sup>r</sup>	
1985	3,606.6	19,559	0.50	516	20,066	4,704	16.1	20,082	27.2	73.95 <sup>r</sup>	
1986	3,730.3	20,229	0.49	504	20,733	4,714	16.1	20,749	28.7	74.24 <sup>r</sup>	
1987 <sup>r</sup>	3,836.2	20,807	0.52	536	21,150	4,878	16.6	21,167	27.6	76.77	
1988 <sup>p</sup>	3,919.9	21,258	0.54	557	21,803	5,061	17.3	21,820	27.3	79.94	

<sup>r</sup> = revised.

<sup>p</sup> = preliminary.

<sup>1</sup> Sum of coal, petroleum and natural gas. <sup>2</sup> Sum of coal, petroleum and natural gas. <sup>3</sup> Includes only energy used by Railroads and Railways. <sup>4</sup> Btu's derived by multiplying by conversion factors in Table A3 for Petroleum in Transportation Use, Table A4 for Natural Gas consumption by Non-Utility, and Table A7 for Electricity consumption; U.S. DOE, *Annual Energy Review 1988*. <sup>5</sup> Sum of total fossil fuels and sales of electricity.

Source:

Petroleum: Table 59; Natural Gas: Table 72; Total Gross Energy Consumption: Table 4.  
 Edison Electric Institute, *Statistical Year Book*.  
 U.S. DOE, *Annual Energy Review 1988*.  
 Sales of Electricity: 1955-1978: *Ibid.*, Section IV, Table 19s.  
 1979-1980: *Ibid.*, Source and *Disposition of Electricity*, 1980.  
 1981-1982: *Ibid.*, *Statistical Year Book*, 1982.  
 1983: *Ibid.*, *Quarterly Statistical Report*, 1984.  
 1984-1988: *Ibid.*, personal communication.

Table 36. U.S. Government Energy Use, Fiscal Years 1977-1988  
(trillion Btu)

Activity	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988 <sup>p</sup>
<b>AGENCY</b>												
Defense	1,398.4	1,365.7	1,384.6	1,394.8	1,455.4	1,484.3	1,475.1	1,524.1	1,509.6	1,488.1	1,497.8	1,504.1
Energy	87.9	87.1	86.9	84.0	85.3	89.1	91.3	95.5	96.7	92.0	93.2	97.2
Postal Service	62.9	58.6	56.0	52.3	50.9	49.4	48.4	50.5	50.9	51.5	53.4	55.8
Veterans Administration	37.9	39.4	38.5	38.2	37.4	38.0	38.7	40.0	40.6	41.8	42.0	44.4
General Services Admin.	41.1	41.3	40.5	38.9	39.1	38.9	37.8	38.0	35.4	34.1	32.4	30.4
Transportation	28.8	28.9	27.6	27.6	28.0	28.5	28.7	29.2	29.5	28.1	28.3	26.1
NASA	24.0	22.4	22.4	21.4	21.2	21.8	22.4	23.0	23.3	24.6	25.1	25.4
Agriculture	10.8	11.2	11.6	11.2	10.9	10.4	10.4	10.7	10.2	10.6	11.4	11.9
Interior	13.5	12.3	13.6	11.7	10.7	10.7	10.8	11.8	10.6	10.0	9.7	11.1
Health and Human Services	9.9	9.6	9.7	9.5	10.6	10.2	10.3	10.8	11.3	10.7	11.2	10.4
Justice	7.5	7.4	8.1	7.4	7.1	7.7	7.6	8.9	8.1	8.7	8.7	12.8
Other <sup>1</sup>	15.9	17.1	16.8	16.6	17.1	18.5	17.1	17.7	16.5	16.8	17.1	19.3
Total	1,738.6	1,701.0	1,716.3	1,713.5	1,773.7	1,807.5	1,798.6	1,860.2	1,842.7	1,817.0	1,830.3	1,848.9
<b>ENERGY SOURCE</b>												
Petroleum	60.9	59.6	58.6	56.1	52.9	52.9	51.4	51.0	50.5	45.3	43.5	42.3
Motor Gasoline	8.8	6.2	4.7	4.9	4.6	3.6	2.6	1.9	1.9	1.4	0.9	6.0
Aviation Gasoline	619.2	601.1	618.6	638.7	653.3	672.7	673.3	693.7	705.6	710.2	702.3	686.5
Jet Fuel	348.5	332.3	327.1	307.8	351.3	349.5	329.4	342.9	305.4	298.0	297.7	298.2
Distillate & Residual Fuel	4.1	3.0	3.7	4.0	3.7	3.8	4.0	4.1	4.0	3.9	3.8	3.3
Liquefied Petroleum Gases	1,041.5	1,002.3	1,012.7	1,011.5	1,065.8	1,082.5	1,060.7	1,093.6	1,067.4	1,058.8	1,048.2	1,036.3
Subtotal	479.7	479.2	479.9	482.2	491.5	501.6	515.2	530.1	548.2	539.8	563.3	584.9
Electricity	141.2	144.7	148.9	147.3	142.2	146.2	147.8	157.4	146.7	138.7	138.0	144.5
Natural Gas	68.4	66.0	65.1	63.6	65.1	68.6	62.4	65.3	64.0	63.8	60.5	58.3
Coal	7.7	8.7	9.7	9.1	9.1	8.6	12.4	13.8	16.4	15.9	19.7	24.8
Purchased Steam	1,738.6	1,701.0	1,716.3	1,713.5	1,773.7	1,807.5	1,798.6	1,860.2	1,842.7	1,817.0	1,830.3	1,848.9

<sup>p</sup> = preliminary. Energy usage data for Department of Labor, Department of Justice, Department of Defense, and Department of Treasury are estimated.  
<sup>1</sup> Includes Department of Commerce, Panama Canal Commission, Tennessee Valley Authority, Department of Labor, National Science Foundation, Department of Treasury, Federal Communications Commission, and Environmental Protection Agency. Environmental Protection Agency and the Department of Treasury data for 1982 are estimated. Department of Treasury data for 1983 are estimated.  
 Note: Sum of components may not equal total due to independent rounding.  
 These data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the Department of Defense. U.S. Government energy use for electricity generation and uranium enrichment is excluded. However, other energy used by U.S. agencies that produce electricity or enrich uranium is included.  
 Source: U.S. DOE/EIA, *Annual Energy Review 1988*, Table 9.

**Table 38. Fuel Consumption by Mode of Transportation, 1977-1987**

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
<b>Class I railroads</b>											
Locomotives											
Diesel oil, gals x 10 <sup>6</sup>	3,985	3,980	4,081	3,956	3,774	3,178	3,137	3,388	3,144	3,039	3,102
Electricity, kWh x 10 <sup>6</sup>	417	331	309	190	81	34	0	0	0	0	0
Coal, tons	1,569	1,275	1,421	830	824	838	782	890	886	n/a	n/a
Motor cars											
Diesel oil, gals x 10 <sup>6</sup>	3	2	3	2	1	1	1	1	1	1	1
Electricity, kWh x 10 <sup>6</sup>	986	991	1,062	968	380	905	52	37	0	0	0
<b>Air</b>											
Certified carriers* <sup>r</sup>											
Jet fuel, gals x 10 <sup>6</sup>	8,417 <sup>†</sup>	8,726 <sup>†</sup>	9,376 <sup>†</sup>	9,218 <sup>†</sup>	8,555 <sup>†</sup>	8,439	8,673	9,624	10,121	11,110	11,918
General aviation											
Aviation gasoline, gals x 10 <sup>6</sup>	456	518	570	520	489	448	428	462	421	409	402
Jet fuel, gals x 10 <sup>6</sup>	536	763	736	766	759	887	613	739	691	732	673
<b>Highway</b>											
Gasoline, gals x 10 <sup>6</sup>											
Pass. cars & taxis	80,225	83,312	79,793	73,375	71,418	72,608	72,916	70,940	69,268	71,404 <sup>r</sup>	70,984
Motorcycles	451	463	440	360	300	240	240	240	182	188	197
Diesel & gasoline, gals x 10 <sup>6</sup>											
Commercial buses <sup>1</sup>	583	615	618	696	711	721	735 <sup>r</sup>	683 <sup>r</sup>	688 <sup>r</sup>	681 <sup>r</sup>	683
School buses	401	407	405	380	387	399	402	421	425	462	487
Single-unit trucks <sup>2</sup>	26,255	27,780	28,544	29,241	30,903	28,195	27,650	31,898	35,756	37,195 <sup>r</sup>	39,333
Combination trucks	11,709	12,491	12,315	10,909	10,734	11,221	14,012	14,455	15,280	15,716 <sup>r</sup>	16,527
<b>Water transport</b>											
Residual fuel oil, gals x 10 <sup>6</sup>	5,417	6,615	8,003	8,952	7,922	6,409	5,724	4,581	4,590	5,889	6,105
Distillate fuel oil, gals x 10 <sup>6</sup>	1,408	1,579	1,631	1,478	1,723	1,423	1,642	1,764	1,699	1,949	1,865
Gasoline, gals x 10 <sup>6</sup>	774	812	780	1,052	1,093	1,062	1,069	1,325	1,053	1,130	1,179
<b>Transit</b>											
Electricity, kWh x 10 <sup>6</sup>											
Rail rapid	n/a	n/a	1,984	2,469	2,611	2,617	2,711	3,092	2,928	3,066	3,219
Streetcar	n/a	n/a	22	124	131	153	162	147	154	168	190
Trolley bus	n/a	n/a	11	55	48	45	59	75	78	70	70
Other**	n/a	n/a	0	0	3	3	470	876	981	1,104	1,074
Total	2,303	2,223	2,017	2,648	2,793	2,818	3,402	4,190	4,141	4,408	4,553
Gallons of motor fuel, gals x 10 <sup>6</sup>											
Gasoline	9	9	9	11	14	12	9	11	9	7	5
Diesel oil	403	422	423	431	446	456	450	586	596	509	533
Propane	1	0	3	3	2	2	2	2	0	1	0
<b>Pipelines</b>											
Natural gas, cu. ft. x 10 <sup>6</sup>	532,669	530,451	600,964	634,622	642,325	596,411	490,042	528,754	503,766	485,041	519,170
<b>Total<sup>3</sup></b>											
Non-highway use of gasoline x 10 <sup>6</sup>	3,725	3,577	3,645	3,655	3,515	3,260	3,216	3,885	4,005	4,068	4,108

n/a = not available.

r = revised.

\* Domestic consumption only.

\*\* Commuter rail for 1983-1987.

<sup>†</sup> Includes Aviation Gasoline.

<sup>1</sup> Includes intercity and local buses.

<sup>2</sup> Includes non-freight truck movements.

<sup>3</sup> Private, commercial, and public non-highway use of gasoline.

Source: See Appendix A, p. A-22.

**Table 40. Total Motor Vehicle Fuel Consumption and Travel<sup>1</sup>, 1977-1987**

Year	Number Registered (thousands)	Total Vehicle Miles Traveled (millions)	Average Miles Traveled per Vehicle	Average Miles Traveled per Gallon	Total Fuel Consumed (million gallons)	Average Gallons Consumed per Vehicle
1977	147,025	1,467,027	9,978	12.26	119,625	814
1978	153,282	1,544,704	10,077	12.35	125,067	816
1979	157,291	1,529,133	9,722	12.52	122,115	776
1980	161,490	1,527,295	9,458	13.29	114,960	712
1981	164,118	1,552,803	9,462	13.57	114,453	697
1982	165,397	1,595,010	9,644	14.07	113,384	686
1983	169,334	1,652,788	9,761	14.24	116,081	686
1984	171,729	1,720,269	10,017	14.49	118,736	691
1985	177,098	1,774,179	10,018	14.62	121,322	685
1986	181,357 <sup>r</sup>	1,834,872 <sup>r</sup>	10,117 <sup>r</sup>	14.66 <sup>r</sup>	125,183	690
1987	183,930	1,924,327	10,462	15.06	127,748	695

<sup>r</sup> = revised.

<sup>1</sup> Includes personal passenger vehicles, buses, and motor trucks.

Source: 1977-1985: U.S. DOT/FHWA, *Highway Statistics, Summary to 1985*, Table VM-201A.

1986-1987: *Ibid.*, *Highway Statistics*, 1987, Table VM-1.

**Table 42. Fuel Consumption and Travel by Buses, 1977-1987**

Year	Total <sup>1</sup> Vehicle Miles Traveled (millions)		Average Miles Traveled per Vehicle			Average Miles Traveled per Gallon			Total Fuel Consumed (million gallons)			Average Gallons Consumed per Vehicle		
	Number Registered	All Buses	Commercial	School	All Buses	Commercial	School	All Buses	Commercial	School	All Buses	Commercial	School	All Buses
1977	490,761	5,823	30,011	7,491	11,865	5.04	7.35	5.98	583	401	974	5,955	1,019	1,984
1978	505,354	5,885	30,377	7,500	11,645	5.02	7.35	5.95	615	407	989	6,051	1,020	1,957
1979	526,765	5,947	29,691	7,179	11,290	5.06	7.36	5.97	618	405	996	5,872	976	1,891
1980	528,789	6,059	32,765	7,592	11,458	5.03	7.64	5.95	696	380	1,018	6,516	994	1,926
1981	543,894	6,241	32,996	6,780	11,475	4.98	7.65	5.92	711	387	1,054	6,626	886	1,938
1982	559,200	5,823	31,524	6,870	10,413	4.96	7.68	5.93	721	399	982	6,356	894	1,756
1983	582,884	5,199	32,795	6,532	8,919	4.95	7.70	5.92	737	402	878	6,625	848	1,507
1984	583,671	4,640	30,666	7,156	7,950	4.46	8.08	5.85	747	421	793	6,881	886	1,359
1985	593,485	4,876	31,833	7,122	8,216	4.51	7.56	5.84	773	456	835	7,065	942	1,407
1986 <sup>r</sup>	593,728	5,073	32,354	7,652	8,544	4.50	8.01	5.84	756	462	867	6,861	955	1,463
1987	602,055	5,326	28,031	7,939	8,846	4.55	8.01	5.89	683	487	904	6,161	992	1,502

<sup>r</sup> = revised.

<sup>1</sup> Includes commercial, school and non-revenue buses.

Source: 1977-1985: U.S. DOT/FHWA, *Highway Statistics, Summary to 1985*, Table VM-201A.

1986-1987: *Ibid.*, *Highway Statistics, 1987*, Table VM-1.

1984-1987: Commercial/School Bus: TPA, personal communication.

**Table 44. Motor Fuel and Total Energy Consumption  
by the U.S. Transit Industry  
(at 5-Year Intervals 1955-1965 and Annually 1966-1987)**

Year	Kilowatt Hours Consumed (millions)	Gallons of Motor Fuel Used (millions)		
	Total	Gasoline	Diesel Oil	Propane
1955	3,530	246.0	172.6	30.3
1960	2,908	153.6	208.1	38.3
1965	2,584	91.5	248.4	32.7
1966	2,467	76.0	256.0	33.6
1967	2,531	57.8	270.3	33.0
1968	2,586	45.7	274.2	32.2
1969	2,618	40.0	273.8	31.6
1970	2,561	37.2	270.6	31.0
1971	2,556	29.4	256.8	26.5
1972	2,428	19.6	253.3	24.4
1973	2,331	12.3	282.6	15.2
1974	2,630	7.5	316.4	3.1
1975	2,646	5.0	365.1	2.6
1976	2,576	5.2	389.2	1.0
1977	2,303	9.0	402.8	1.2
1978	2,223	9.0	422.0	0.4
1979	2,017	9.0	423.0	3.0
1980	2,648	11.0	431.0	3.0
1981	2,793	14.0	446.0	2.0
1982	2,818	12.0	456.0	2.0
1983	3,402	9.0	450.0	2.0
1984	4,190	11.0	586.0	2.0
1985	4,141	9.5	596.0	0.8
1986	4,408	7.0	509.0	0.8
1987	4,553	5.5	533.0	0.4

Source: 1955-1978: American Public Transit Association, *Transit Fact Book*, 1981, Table 17.  
1979-1987: UMTA, *National Mass Transportation Statistics, 1981 - 1987 Section 15 Annual Reports*, Tables 002.11.1 and 2.10.

**Table 46. Price Trend of Gasoline vs. Other Consumer Goods and Services  
(at 5-Year Intervals 1955-1970 and Annually 1971-1988)**

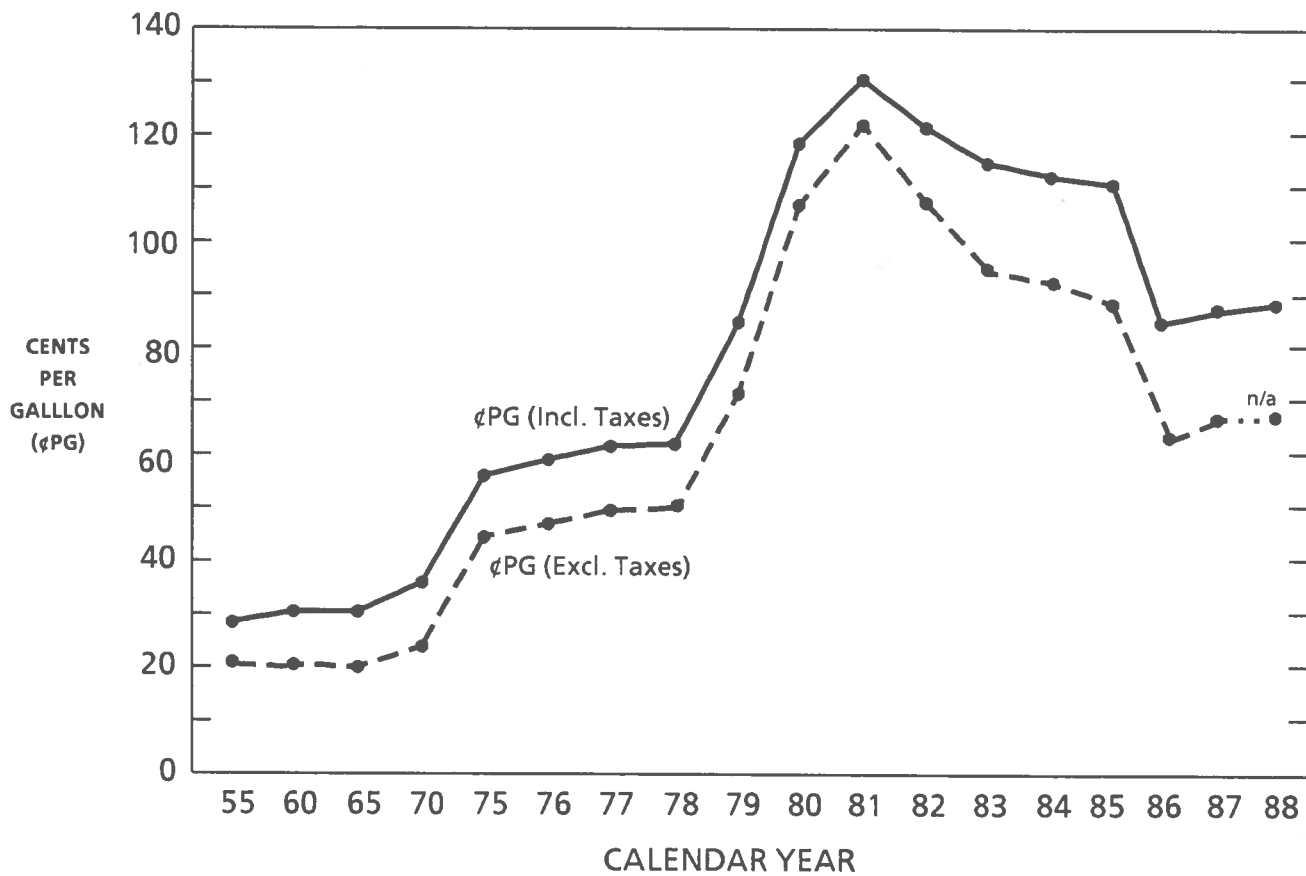
Year	Retail Price of Regular Grade Gasoline (Cents Per Gallon)			Price Indexes of Motor Fuel and Other Consumer Items (Index: 1982-84 = 100) <sup>r</sup>						
	Service Station Price Excl. Taxes	State and Federal Taxes	Service Station Price Incl. Taxes	All Items	Food	Shelter	Apparel and Upkeep	Motor Fuel	Medical Care	
1955	21.42	7.65	29.07	26.8	27.8	22.7	42.9	22.1	18.2	
1960	20.99	10.14	31.13	29.6	30.0	25.2	45.7	24.4	22.3	
1965	20.70	10.45	31.15	31.5	32.2	27.0	47.8	25.1	25.2	
1970	24.55	11.14	36.69	38.8	39.2	35.5	59.2	27.9	34.0	
1971	25.20	11.23	36.43	40.5	40.4	37.0	61.1	28.1	36.1	
1972	24.46	11.67	36.13	41.8	42.1	38.7	62.3	28.4	37.3	
1973	26.88	11.94	38.83	44.4	48.2	40.5	64.6	31.2	38.8	
1974	41.20	12.00	53.20	49.3	55.1	44.4	69.4	42.2	42.4	
1975	44.93	11.77	56.70	53.8	59.8	48.8	72.5	45.1	47.5	
1976	47.44	12.03	59.47	56.9	61.6	51.5	75.2	47.0	52.0	
1977	49.83	12.37	62.20	60.6	65.5	54.9	78.6	49.7	57.0	
1978	49.98	12.62	62.60	65.2	72.0	60.5	81.4	51.8	61.8	
1979	72.24	13.46	85.70	72.6	79.9	68.9	84.9	70.1	67.5	
1980	107.35	14.37	119.10	82.4	86.8	81.0	90.9	97.4	74.9	
1981	122.33 <sup>e</sup>	12.97 <sup>e</sup>	131.10	90.9	93.6	90.5	95.3	108.5	82.9	
1982	108.11 <sup>e</sup>	14.09 <sup>e</sup>	122.20	96.5	97.4	96.9	97.8	102.8	92.5	
1983	95.36	20.34 <sup>e</sup>	115.70	99.6	99.4	99.1	100.2	99.4	100.6	
1984	92.06	20.84	112.90	103.9	103.2	104.0	102.1	97.9	106.8	
1985	89.64	21.86	111.50	107.6	105.6	109.8	105.0	98.7	113.5	
1986	63.63	22.07	85.70	109.6	109.0	115.8	105.9	77.1	122.0	
1987	66.33 <sup>r</sup>	23.37 <sup>r</sup>	89.70 <sup>r</sup>	113.6	113.5	121.3	110.6	80.2	130.1	
1988	n/a	n/a	89.95	118.3	118.2	127.1	115.4	80.9	138.6	

<sup>r</sup> = revised.  
n/a = not available.

<sup>e</sup> = estimated by Transportation Policy Associates.  
Source: Price of Regular Grade Gasoline:

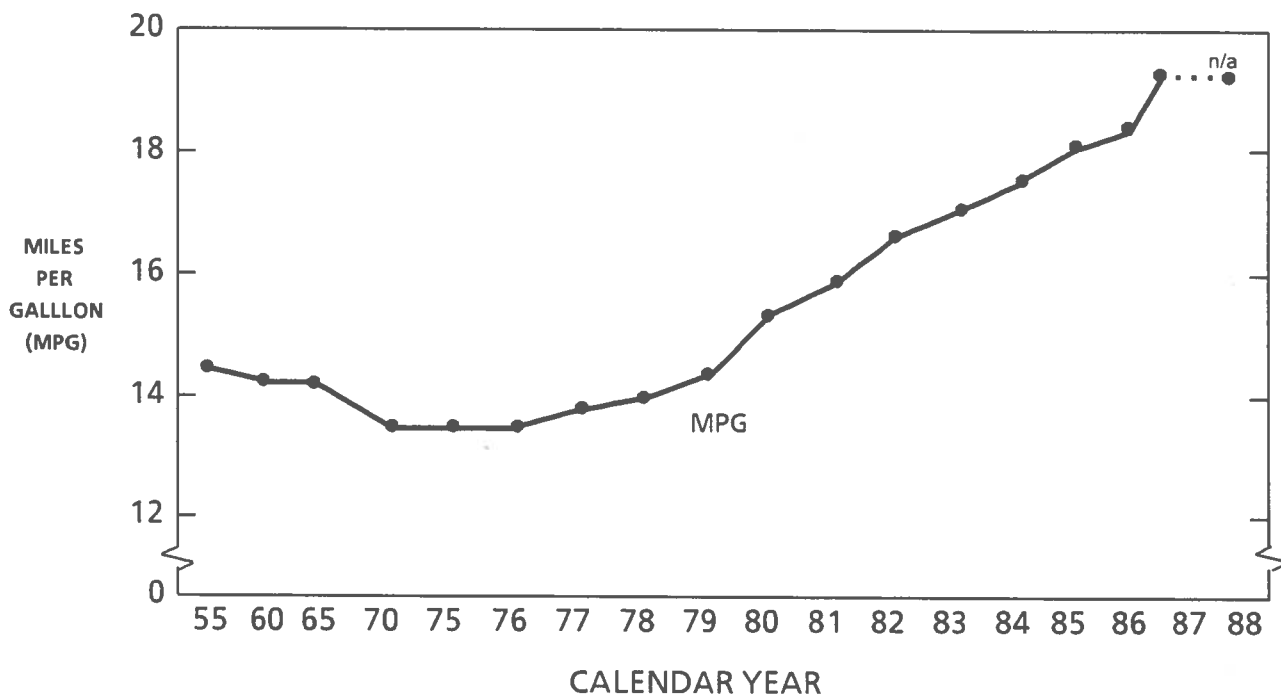
1955-1980: American Petroleum Institute, *Basic Petroleum Data Book*, Section VI, Table 4/4a.  
1981-1982: U.S. DOL: Bureau of Labor Statistics, personal communication (December 31 figures).  
1983-1987: American Petroleum Institute, *Basic Petroleum Data Book*, Section VI, Table 5a.  
1988-1985: 101st Congress, 1st Session, Economic Report of the President, January 1989, Table B-58/59.  
1986-1988: U.S. DOL: Bureau of Labor Statistics, *Monthly Labor Review*, January/April 1989, Table 30.





**Figure 31. Price Trend of Regular Grade Gasoline Prices, 1955-1988**

n/a = not available.



**Figure 32. Average Fuel Efficiency of U.S. Passenger Cars, 1955-1988**

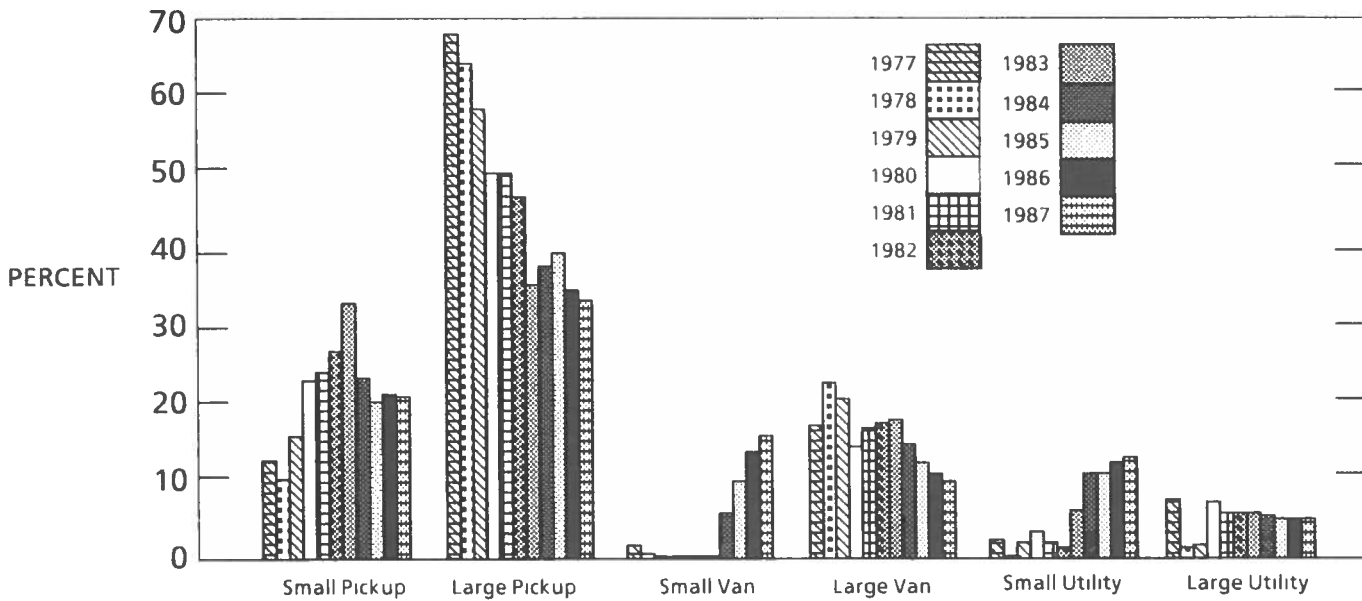
n/a = not available.

Table 49. Model Year Sales, Market Shares, and Sales-Weighted Fuel Economies of Domestic and Import Trucks, Model Years 1977-1987<sup>a</sup>

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
<b>SMALL PICKUP</b>											
Total sales, units	275,217	308,790	451,548	516,412	472,611	579,263	894,432	857,804	863,584	981,857	971,882
Market share, %	11.1	10.5	16.1	23.3	24.4	27.2	33.3	23.7	20.4	21.7	21.2
Fuel economy, mpg	26.7	26.9	23.6	25.5	28.1	28.1	27.2	27.0	26.8	25.4	26.2
<b>LARGE PICKUP</b>											
Total sales, units	1,718,306	1,886,782	1,635,745	1,115,248	967,242	1,000,772	958,408	1,375,948	1,690,931	1,593,512	1,542,591
Market share, %	69.3	64.2	58.4	50.3	50.0	46.9	35.7	38.1	39.9	35.1	33.7
Fuel economy, mpg	16.6	16.6	15.8	17.0	18.5	18.6	18.4	18.3	19.0	19.3	19.0
<b>SMALL VAN</b>											
Total sales, units	24,547	24,755	18,153	13,649	11,007	11,964	13,716	222,798	437,660	640,936	733,504
Market share, %	1.0	0.8	0.6	0.6	0.6	0.6	0.5	6.2	10.3	14.1	16.0
Fuel economy, mpg	22.7	19.5	17.9	19.6	18.8	22.5	21.0	25.0	23.9	23.8	23.4
<b>LARGE VAN</b>											
Total sales, units	415,733	670,453	580,883	328,065	327,730	379,110	484,349	545,595	536,242	510,558	473,268
Market share, %	16.8	22.8	20.7	14.8	16.9	17.8	18.0	15.1	12.7	11.3	10.3
Fuel economy, mpg	17.0	16.4	14.9	16.3	17.4	17.0	17.2	16.3	16.4	17.3	16.6
<b>SMALL UTILITY</b>											
Total sales, units	31,226	11,588	61,796	79,776	42,813	31,226	174,982	399,611	477,706	568,517	610,280
Market share, %	1.5	0.4	2.2	3.6	2.2	1.5	6.5	11.1	11.3	12.5	13.3
Fuel economy, mpg	20.0	15.7	17.0	16.7	19.5	20.0	22.6	22.8	22.1	21.3	22.8
<b>LARGE UTILITY</b>											
Total sales, units	130,505	40,091	53,038	163,387	114,013	130,505	161,412	211,178	229,242	239,508	248,511
Market share, %	6.1	1.5	1.9	7.4	5.9	6.1	6.0	5.9	5.4	5.3	5.4
Fuel economy, mpg	17.0	15.5	15.2	14.6	16.2	17.0	16.9	15.7	16.6	16.1	16.9
<b>FLEET</b>											
Total sales, units	2,132,840	2,946,459	2,801,163	2,216,537	1,935,416	2,132,840	2,687,299	3,612,934	4,235,365	4,534,888	4,580,036
Market share, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fuel economy, mpg	20.0	17.3	16.5	18.1	19.8	20.0	20.5	20.1	20.4	20.7	20.9

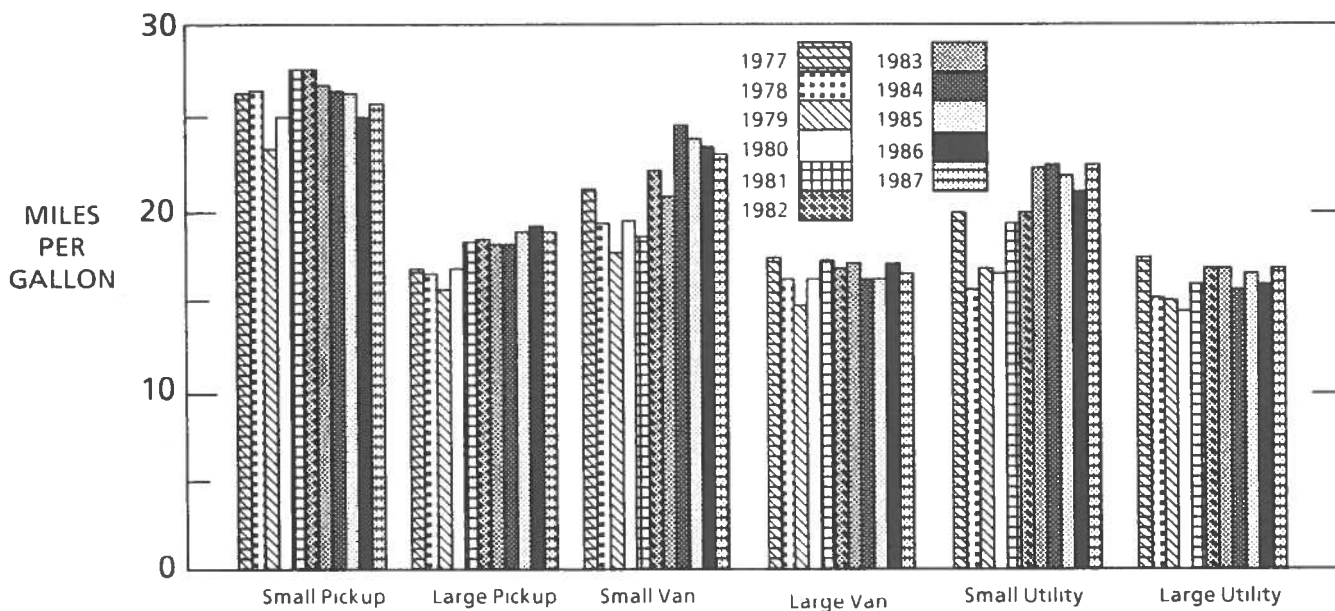
<sup>a</sup> These figures represent only those sales that could be matched to corresponding EPA fuel economy values.

Source: Oak Ridge National Laboratory, *Light-Duty Vehicle MPG and Market Shares Report: First Six Months of Model Year 1988*, Table 13.



**Figure 35. Market Shares of Domestic and Import Trucks by EPA Size Classification, 1977-1987**

Source: Oak Ridge National Laboratory, *Light-Duty Vehicle MPG and Market Shares Report: First Six Months of Model Year 1988*, Table 13.

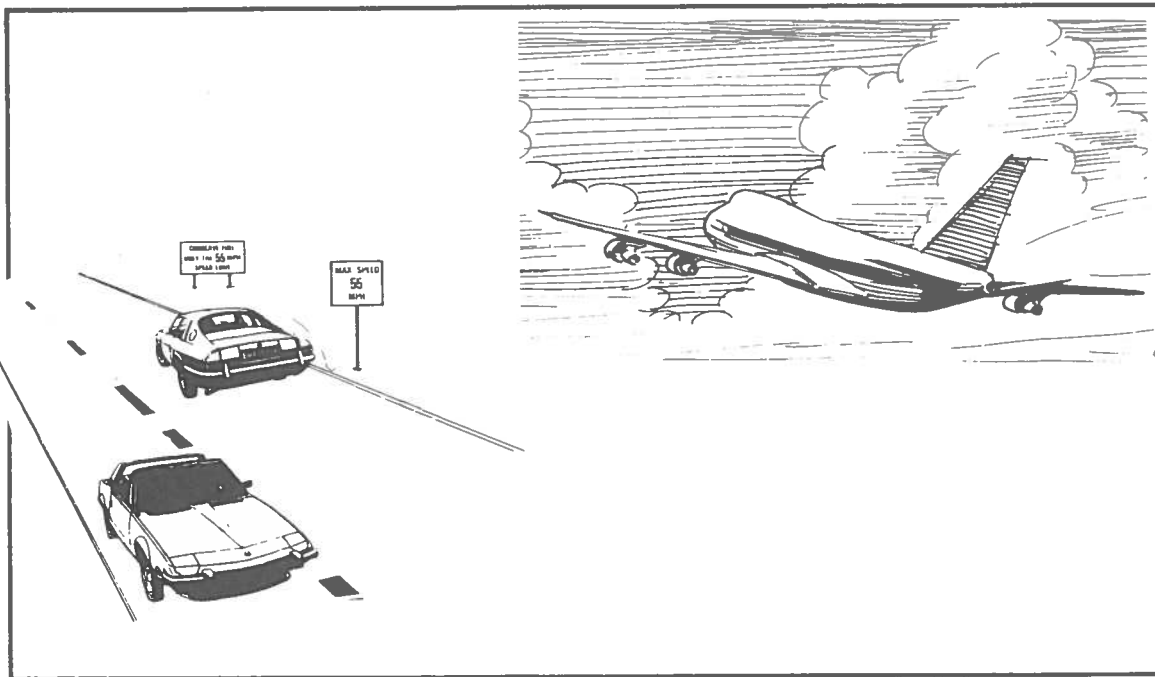


**Figure 36. Fuel Economies of Domestic and Import Trucks by EPA Size Classification, 1977-1987**

Source: Oak Ridge National Laboratory, *Light Duty Vehicle MPG and Market Shares Report: First Six Months of Model Year 1988*, Table 13.

## Part 2. Energy Intensiveness

This section presents the energy intensiveness of each transportation mode utilizing the number of miles traveled and the amount of fuel consumed for the years 1977-1987.



**Table 51. Energy Intensiveness of General Aviation, 1977-1987**

Fuel Consumption (million gallons)				
Year	Intercity Passenger-Miles (10 <sup>6</sup> )	AVGAS	Jet Fuel	Btu/Passenger Mile
1977	12,800	456	536	9,935
1978	14,100	518	763	11,723
1979	15,500	570	736	10,830
1980	14,700	520	766	11,286
1981	14,600	489	759	11,044
1982	13,100	448	887	13,252
1983	12,700	428	613	10,566
1984	13,000	462	739	11,946
1985	13,000	421	691	11,068
1986	12,400	409	732	11,934
1987	12,100	402	673	11,501

Note: The heat equivalent factors used in Btu conversion are:

AVGAS = 120,190 Btu/gal.

Jet Fuel (kerosene) = 135,000 Btu/gal.

Source: Passenger-Miles Flown:

1977-1987: Eno Foundation for Transportation, *Transportation In America*, 1989, p. 8.

Fuel Consumed:

1977-1979: U.S. DOT/FAA, personal communication.

1980-1987: *Ibid.*, Office of Management Systems, *General Aviation Activity and Avionics Survey*, 1980-1988 editions, Tables 2-21 and similar table in earlier editions.

**Table 53. Energy Intensiveness of Trucks, 1977-1987**

Year	<u>Vehicle Miles (millions)</u>			<u>Fuel Consumed (thousand gal.)</u>			<u>Btu/Vehicle-Mile</u>		
	Single-Unit Trucks	Combinations	All Trucks	Single-Unit Trucks	Combinations	All Trucks	Single-Unit Trucks	Combinations	All Trucks
1977	289,930	55,682	345,612	27,454	10,673	38,127	11,836	26,586	15,301
1978	322,158	62,992	385,153	30,162	12,112	42,274	11,703	26,669	15,224
1979	333,917	66,992	400,909	30,778	12,864	43,642	11,522	26,634	15,099
1980	330,748	68,678	399,426	29,151	12,703	41,854	11,017	25,655	14,534
1981	335,911	69,134	405,045	29,271	12,960	42,231	10,892	26,001	14,461
1982	346,353	66,668	413,021	29,505	12,636	42,141	10,648	26,289	14,152
1983	371,052	69,754	440,806	31,674	13,447	45,121	10,670	26,738	14,197
1984	404,559	77,367	481,926	34,269	14,781	49,050	10,596	26,499	14,117
1985	420,052	79,600	499,652	35,757	15,280	51,037	10,641	26,625	14,168
1986 <sup>r</sup>	437,355	81,833	519,188	37,195	15,716	52,911	10,631	26,637	14,135
1987	465,621	86,334	551,955	39,333	16,527	55,860	10,559	26,552	14,037

<sup>r</sup> = revised.

Note: The heat equivalent factors used for Btu conversions are:

Automotive gasoline = 125,000 Btu/gal (single-unit trucks)

Distillate fuel = 138,700 Btu/gal (combinations)

Source: 1977-1985: U.S. DOT/FHWA, Highway Statistics, Summary to 1985, Table VM-201A.

1986-1987: *Ibid.*, Highway Statistics, 1987, VM-1.

**Table 55. Energy Intensiveness of Class I Intercity Buses, 1977-1987**

Year	Revenue Passenger-Miles (10 <sup>6</sup> )	Fuel Consumed (million gallons)	Btu/ Passenger-Mile
1977	17,100	126.4	1,025
1978	16,230	121.9	1,042
1979	17,330	127.4	1,020
1980	17,080	132.2	1,074
1981	15,730	123.0	1,085
1982	16,070	123.1	1,062
1983	14,100	103.4	1,017
1984	13,420	109.6	1,133
1985	12,540	106.3	1,176
1986	12,063	105.1	1,208
1987	11,701	107.2	1,271

Note: The heat equivalent factor used in Btu conversion is 138,700 Btu/gal.  
Source: Revenue Passenger-Miles:  
1977 - 1980: ABA, *Bus Facts*, 1982, p.5.  
1981 - 1982: ABA, personal communication.  
1983 - 1987: TPA, personal communication.  
Fuel Consumed:  
1977 - 1982: ABA, personal communication.  
1983 - 1987: TPA, personal communication.

**Table 56. Energy Intensiveness of Class I Railroad Freight, 1977-1987**

Year	Revenue Freight Ton-Miles (millions)	Fuel Consumed* (million gallons)	Btu/ Revenue Freight Ton-Mile
1977	826,292	3,537	594
1978	858,105	3,508	567
1979	913,669	3,637	559
1980	918,621	3,567	538
1981	910,169	3,429	523
1982	797,759	2,872	499
1983	828,275	2,872	481
1984	921,542	3,104	467
1985	876,984	2,878	455
1986	867,722	2,787	445
1987	943,747	2,864	421

\* Diesel fuel only. Does not include electrically powered locomotives.  
Note: The heat equivalent factor used for Btu conversion is 138,700 Btu/gal.  
Source: 1977-1987: *Railroad Ten-Year Trends*, 1988, pp. 90/95.

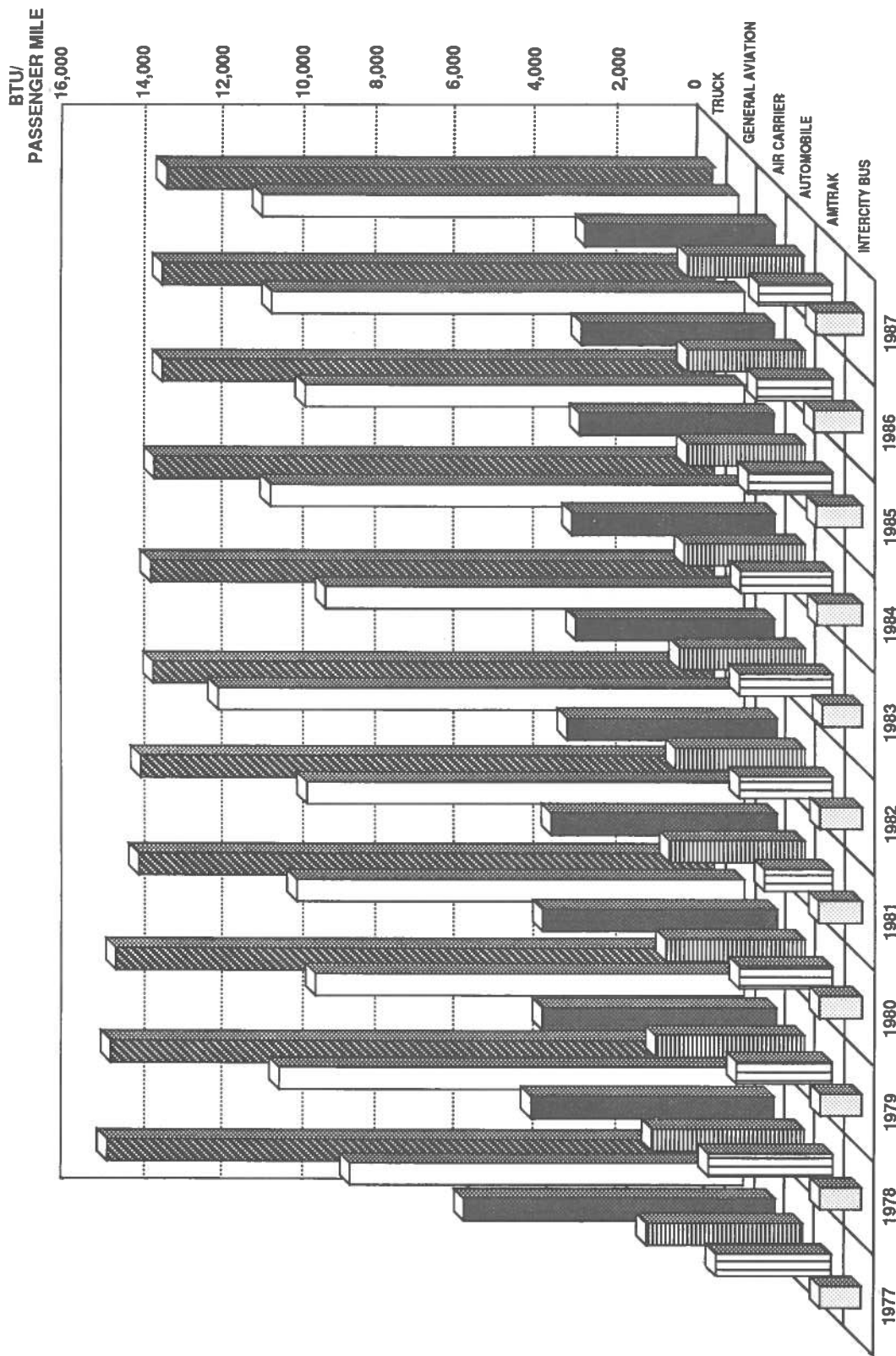
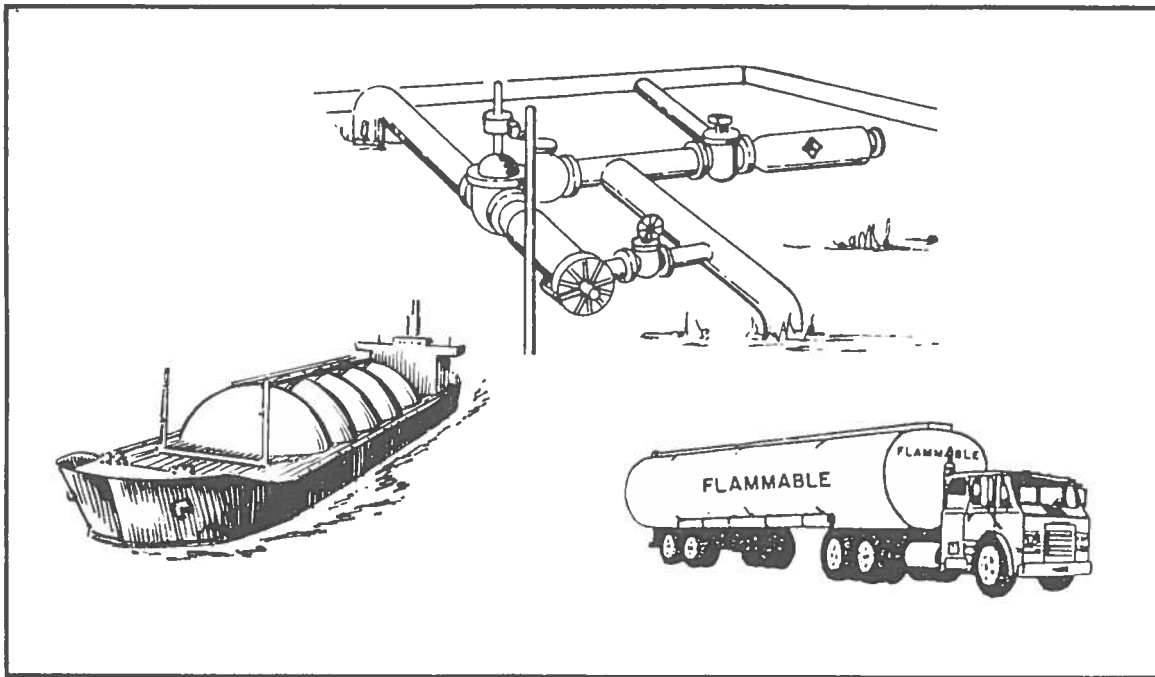


Figure 37. Energy Intensiveness by Passenger Mode, 1977-1987



## Part 3. Energy Transport

Included in this section are data showing the types of energy transported in the U.S., the miles traveled, and the means used for transportation. Data cover the period 1977-1987/1988, and in some instances extend back to 1955.



**Table 59. Refined Petroleum Products Transported in the U.S.  
by Mode of Transportation, 1977-1988  
(billion ton-miles)**

Year	Pipelines <sup>1</sup>		Water Carriers		Truckse		Railroads		Total Ton-Miles
	Ton-Miles	Percent of Total	Ton-Miles	Percent of Total	Ton-Miles	Percent of Total	Ton-Miles	Percent of Total	
1977	219.4	41.3	270.2	50.9	27.6	5.2	13.7	2.6	530.9
1978	226.3	42.2	269.3	50.2	28.6	5.3	12.5	2.3	536.7
1979	236.1	44.2	257.4	48.2	27.8	5.2	12.9	2.4	534.2
1980	225.6	45.8	230.4	46.8	24.3	5.0	12.0	2.4	492.3
1981	230.6	48.3	212.3	44.4	22.7	4.8	12.1	2.5	477.7
1982	230.6	51.5	184.2	41.1	20.7	4.6	12.5	2.8	448.0
1983	223.7	53.6	159.3	38.2	23.1	5.5	11.3	2.7	417.4
1984	235.1	54.4	158.1	36.6	27.0	6.3	11.6	2.7	431.8
1985	229.9	56.2	141.2	34.5	26.9	6.6	11.3	2.7	409.3
1986	242.7	55.6	154.5	35.4	28.0	6.4	11.3	2.6	436.5
1987	245.3	57.2	143.2	33.4	28.8	6.7	11.2	2.6	428.5
1988 <sup>p</sup>	251.1	56.2	151.0	33.8	32.4	7.2	12.5	2.8	447.0

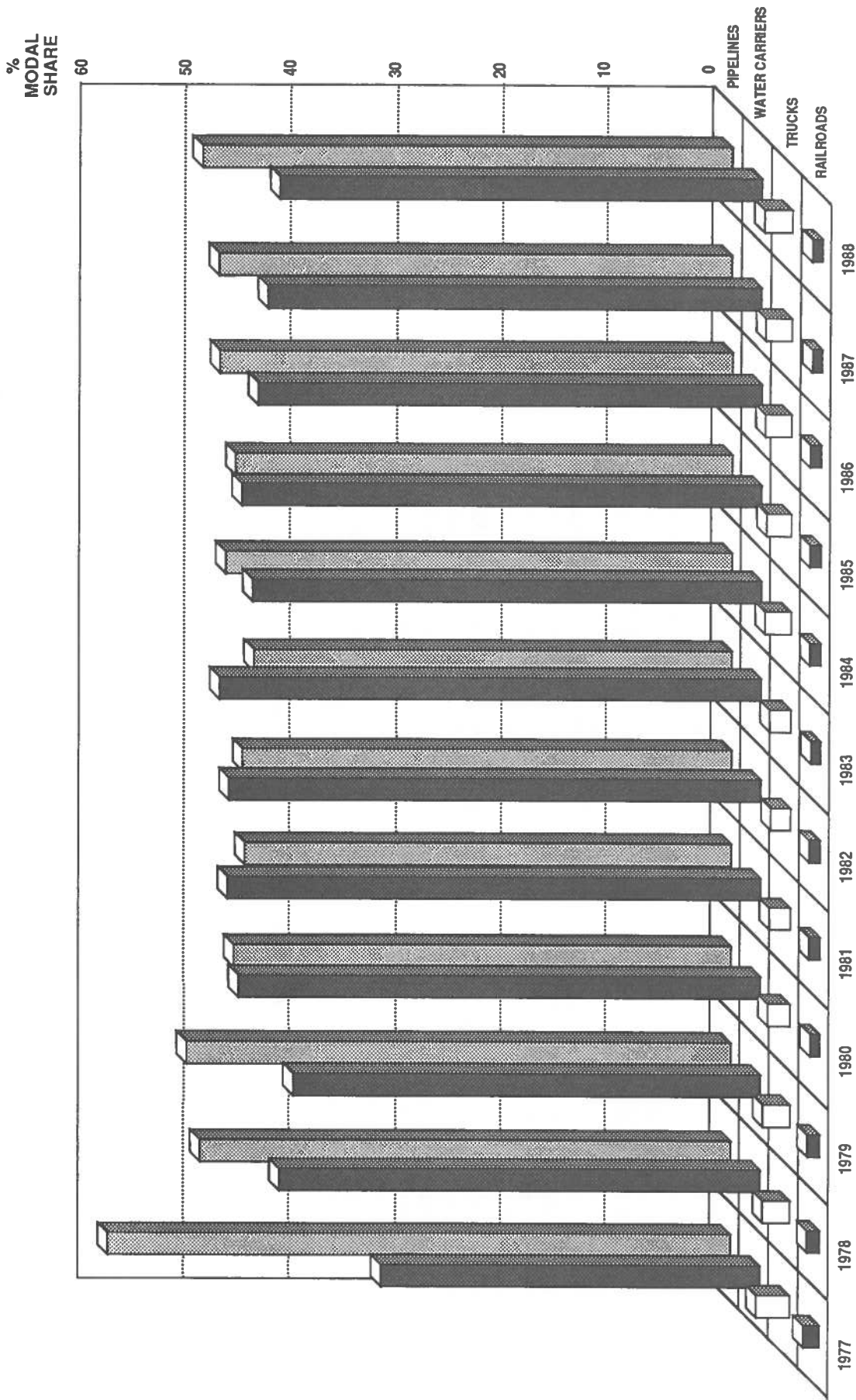
<sup>p</sup> = preliminary.

<sup>e</sup> = estimate.

<sup>1</sup> The amounts carried by pipeline are based on ton-miles of crude and petroleum products for Federally regulated pipelines (84 percent) plus an estimated breakdown of crude and petroleum products for the ton-miles for pipelines not Federally regulated (16 percent).

Source: 1977-1987: Association of Oil Pipelines, *Shifts in Petroleum Transportation*, 1989, Table 3.

1988: Eno Foundation for Transportation, *Transportation In America*, 1989, p. 18.



Source: See Table 60.

Figure 38. Crude Petroleum and Petroleum Products Transported in the U.S. by Modal Share, 1977-1988

**Table 62. U.S. Gas Utility Industry Miles of Pipeline and Main, by Type<sup>1</sup>  
(At 5-Year Intervals 1955-1970 and Annually 1971-1987)  
(thousands)**

Year	Total	Field and Gathering	Transmission Pipeline <sup>2</sup>	Distribution Main
1955	496.7	45.7	145.9	305.1
1960	630.9	55.8	183.7	391.4
1965	767.5	61.7	211.3	494.5
1970	913.3	66.3	252.2	594.8
1971	931.4	66.2	254.8	610.4
1972	948.1	66.9	258.1	623.1
1973	962.9	65.9	263.1	633.8
1974	974.1	66.4	262.2	645.6
1975	979.3	68.5	262.6	648.2
1976	987.7	70.3	258.2	659.1
1977	998.9	71.5	260.5	666.9
1978	1,013.0	74.9	260.6	677.5
1979	1,029.8	77.8	263.5	688.5
1980	1,051.8	83.5	266.5	701.8
1981	1,069.8	86.2	269.5	714.1
1982	1,083.4	90.5	271.7	721.2
1983	1,095.1	91.9	273.5	729.7
1984	1,102.4	93.7	271.9	736.8
1985	1,118.9 <sup>r</sup>	94.3 <sup>r</sup>	271.2	753.4
1986	1,134.1	93.8	271.0	769.3
1987	1,151.2	95.5	271.9	783.8

r = revised.

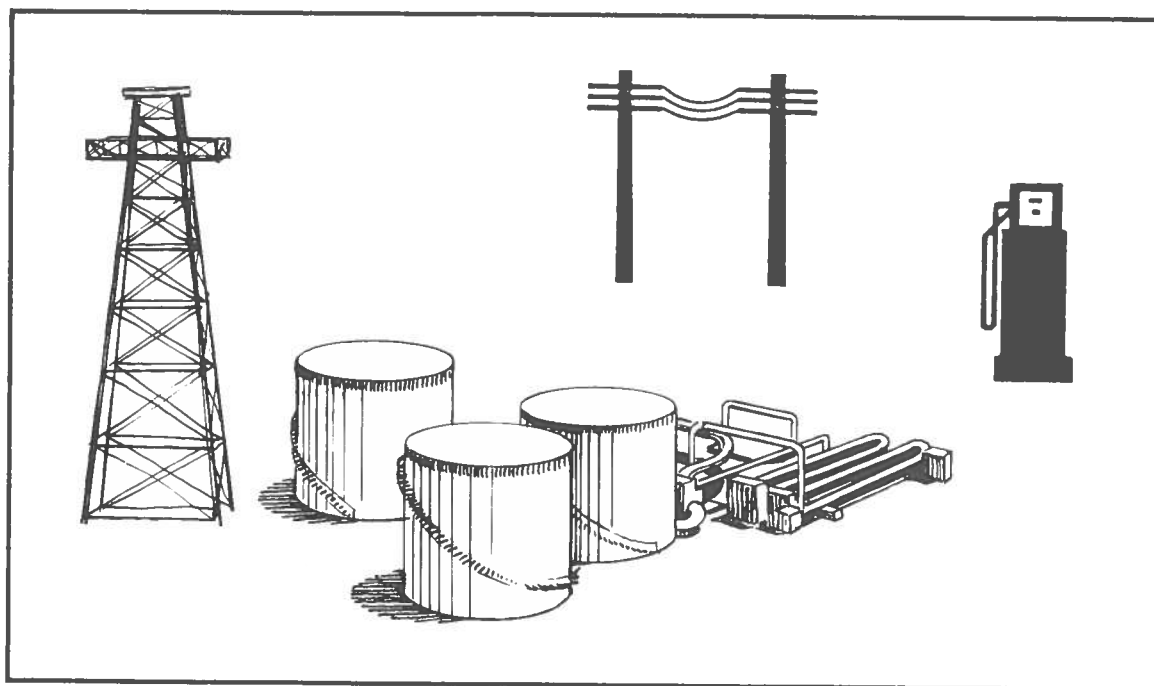
<sup>1</sup> Includes data for Alaska subsequent to 1960; excludes service pipe. Data not adjusted to common diameter equivalent. Mileage shown as of end of each year.

<sup>2</sup> Includes 3,300 miles of Underground Storage pipe in 1972; 3,400 in 1973; 4,900 in 1974; 5,000 in 1975; 5,300 in 1976; 5,200 in 1977; 6,000 in 1978; 5,700 in 1979; 6,200 in 1980; 7,800 in 1981; 5,500 in 1982; 5,900 in 1983 and 1984, and 6,000 in 1985, 1986 and 1987, some of which was formerly included in Field and Gathering pipe.

Source: 1955: American Gas Association, *Gas Facts*, 1980, Table 44.  
1960-1987: *Ibid.*, 1988, Table 5-1.

## Part 4. Energy Supply and Demand

Included in this section are data illustrating the types of energy supplied and used by the end-use sectors from 1955-1988.



**Table 65. Domestic Demand for Refined Petroleum Products  
Supplied to End-Use Sectors  
(at 5-Year Intervals 1955-1970 and Annually 1971-1988)  
(trillion Btu's per day)<sup>1</sup>**

Year	Residential and Commercial	Industrial	Transportation	Transportation as % of Total	Electric Utilities	Total
1955	7.85	14.02	24.12	51.0	1.31	47.30
1960	9.53	15.72	27.69	50.9	1.50	54.44
1965	10.57	18.61	32.54	51.1	2.01	63.67
1970	11.78	21.35	41.96	51.9	5.81	80.89
1971	11.75	21.50	43.60	52.1	6.81	83.72
1972	12.08	23.31	46.18	51.3	8.48	90.04
1973	12.01	24.24	48.82	51.1	9.62	95.46
1974	10.97	23.81	47.68	52.0	9.23	91.64
1975	10.45	22.33	48.26	53.8	8.69	89.70
1976	11.41	24.64	50.56	52.6	9.50	96.10
1977	11.53	26.78	52.70	51.8	10.69	101.70
1978	11.42	27.04	54.90	52.8	10.94	104.03
1979	9.46	28.93	54.33	53.4	9.01	101.69
1980	8.31	26.02	51.95	55.6	7.19	93.47
1981	7.19	22.69	51.55	58.9	6.01	87.49
1982	6.69	21.36	50.48	60.9	4.32	82.85
1983	6.97	20.35	50.91	61.8	4.25	82.33
1984	7.05	21.59	52.68	62.1	3.50	84.86
1985	7.02	21.15	53.53	63.2	3.00	84.74
1986	7.07	21.77	55.31	62.7	4.00	88.21
1987	7.19	22.43	57.01	63.3	3.44	90.07
1988	7.39	23.06	58.08	62.6	4.25	92.79

<sup>1</sup> Data derived by multiplying figures in previous table by conversion factors in each end-user sector column in Table A3 in U.S. DOE's *Annual Energy Review 1988*.

**Table 67. Domestic Demand for Gasoline  
(at 5-Year Intervals 1955-1970 and Annually 1971-1987)  
(thousand gallons)**

Year	Total Demand	Highway	Non-Highway					Total
			Agriculture	Aviation	Marine	Other <sup>1</sup>		
1955	52,566,255	47,731,734	2,156,434	999,440	25,885	1,652,762	4,834,521	
1960	63,221,243	57,879,908	2,291,666	1,323,769	60,633	1,656,267	5,332,335	
1965	75,312,613	71,104,430	1,963,432	501,339	96,336	1,647,076	4,208,183	
1970	96,331,909	92,329,056	1,931,966	393,012	598,159	1,079,713	4,002,850	
1971	101,471,956	97,558,586	1,864,708	359,549	645,428	1,043,865	3,913,370	
1972	108,886,206	105,062,178	1,698,185	355,178	686,763	1,083,902	3,824,028	
1973	114,368,632	110,472,881	1,749,776	395,018	716,990	1,033,967	3,895,751	
1974	109,923,280	106,300,765	1,605,809	394,806	696,906	924,994	3,622,515	
1975	112,626,656	108,984,347	1,564,882	409,713	729,718	937,996	3,642,309	
1976	119,478,018	115,700,146	1,472,272	529,238	763,803	1,012,559	3,777,872	
1977	123,350,479	119,625,280	1,360,220	552,615	774,066	1,038,298	3,725,199	
1978	115,816,431	112,239,066	1,228,772	457,372	811,850	1,079,371	3,577,365	
1979	111,771,026	108,125,994	1,152,097	502,977	780,171	1,209,787	3,645,032	
1980	104,837,657	101,183,014	1,059,044	412,883	1,052,185	1,130,531	3,654,643	
1981	103,111,410	99,596,671	962,149	376,708	1,092,982	1,082,900	3,514,739	
1982	101,738,767	98,478,881	912,062	372,637	1,061,931	913,256	3,259,886	
1983	103,180,290	99,964,516	735,919	407,110	1,069,072	1,003,673	3,215,774	
1984	105,300,798	101,415,509	1,152,912	382,976	1,325,012	1,024,389	3,885,289	
1985	107,612,794	103,607,851	1,080,677	381,515	1,052,998	1,489,753	4,004,943	
1986	110,823,992	106,756,056	964,226	378,064	1,130,305	1,595,341	4,067,936	
1987	112,810,688	108,702,264	921,692	360,195	1,178,753	1,647,764	4,108,404	

<sup>1</sup> Other includes state, county, and municipal use, industrial, commercial, construction, miscellaneous and unclassified users.

Source: 1955-1975: U.S. DOT/FHWA, *Highway Statistics*, annual issues, Tables MF-24 and MF-26.

1976: *Ibid.*, 1976, Table MF-21; Table MF-24, unpublished.

1977-1987: *Ibid.*, annual issues, Tables MF-21A and MF-24.

# **APPENDIX A**

## **Source Information**

Appendix A is a detailed list of the data sources used in this publication. The parenthetical numbers in Figures 1 through 7 indicate the data source. The data sources are also shown for Tables 1 through 8, 10, 11, 16, 29, 30, 32, and 38, as well as the Modal Profiles. Readers who may require additional data or information should check the data source(s).



## Figure 2. Vehicle-Miles, 1987

1. Domestic Transportation: Sum of Highway, Local Transit, Rail, and Air; Water data not available.
2. Highway: Sum of Auto, Truck, and Bus.
3. Auto: Sum of Personal Passenger Car and Motorcycle.
4. Personal Passenger Car: U.S. DOT/Federal Highway Administration (FHWA), *Highway Statistics*, 1987, Table VM-1, includes total rural and urban. This figure includes Taxi.
5. Motorcycle: *Ibid.*
6. Truck: *Ibid.*
7. Single-Unit: *Ibid.*
8. Combination: *Ibid.*
9. Bus: Sum of Commercial Bus and School Bus.
10. Commercial Bus: estimated by Transportation Policy Associates (TPA).
11. School Bus: National Safety Council, *Accident Facts*, 1988, p. 69.
12. Local Transit: U.S. DOT/UMTA, *National Urban Mass Transportation Statistics, 1987 Section 15 Annual Report*, Table 2.13, sum of Boxes 13-18.
13. Motorbus: *Ibid.*
14. Trolley Bus: *Ibid.*
15. Rail Rapid/Streetcar: *Ibid.*
16. Demand Response: *Ibid.*
17. Ferryboat: *Ibid.*
18. Commuter Rail: *Ibid.*
19. Rail: Sum of Passenger Train-Car and Freight Train-Car.
20. Passenger Car (commutation), Rail: American Public Transit Association (APTA), *Transit Fact Book*, 1988, Table 16.
21. Freight Car, Rail: AAR, *Railroad Facts*, 1988, p. 34.
22. Air: Includes total certificated, General Aviation not available.
23. General Aviation: Not available.
24. Total Certificated: U.S. DOT/RSPA, *Air Carrier Traffic Statistics*, December 1987/1988, p. 2, sum of scheduled aircraft revenue miles, line 27, and nonscheduled aircraft revenue miles, line 50.
25. Total Majors: *Ibid.*, p. 5, sum of scheduled, line 27, and nonscheduled, line 50, services.
26. Scheduled: *Ibid.*, p. 5, line 27.
27. Nonscheduled: *Ibid.*, p. 5, line 50.
28. Total Nationals: *Ibid.*, p. 57, sum of scheduled, line 27, and nonscheduled, line 50, services.
29. Scheduled: *Ibid.*, line 27.
30. Nonscheduled: *Ibid.*, line 50.
31. Total Large Regionals: *Ibid.*, p. 86, sum of scheduled, line 27, and nonscheduled, line 50, services.
32. Scheduled: *Ibid.*, line 27.
33. Nonscheduled: *Ibid.*, line 50.
34. Total Medium Regionals: *Ibid.*, p. 144, includes domestic and international operations, sum of scheduled, line 27, and nonscheduled, line 50, services.
35. Scheduled: *Ibid.*, line 27.
36. Nonscheduled: *Ibid.*, line 50.
37. Water: Not available.

#### Figure 4. Revenue Ton-Miles of Freight, 1987

1. Domestic Transportation: Sum of Highway, Rail, Air, Water and Pipeline.
2. Highway: Figure represents total intercity ton-miles of motor vehicle transport.
3. Truck: Sum of local and intercity ton-miles.
4. Local Truck: Sum of Single-Unit and Combination Trucks.
5. Intercity: Eno Foundation for Transportation, *Transportation In America*, 1989, p. 7, total intercity ton-miles.
6. Single-Unit: TPA, personal communication, estimate.
7. Combination: *Ibid.*
8. Rail: AAR, *Railroad Facts*, 1988, p. 29.
9. Air: Same as Total Certificated.
10. Total Certificated: U.S. DOT/RSPA, *Air Carrier Traffic Statistics*, December 1987/1988, p. 2, Freight, Express, U.S. and Foreign Mail Revenue ton-miles, all services, line 3.
11. Total Majors: *Ibid.*, p. 5, line 3.
12. Scheduled: *Ibid.*, sum of Freight, Air Express, U.S. Mail and Foreign Mail, lines 18-21.
13. Nonscheduled: *Ibid.*, sum of Civilian Freight, line 44, and Military Freight, line 45.
14. Total Nationals: *Ibid.*, p. 57, line 3.
15. Scheduled: *Ibid.*, sum of Freight, Air Express, U.S. Mail and Foreign Mail, lines 18-21.
16. Nonscheduled: *Ibid.*, sum of Civilian Freight, line 44, and Military Freight, line 45.
17. Total Large Regionals: *Ibid.*, p. 86, line 3.
18. Scheduled: *Ibid.*, sum of Freight, Air Express, U.S. Mail and Foreign Mail, lines 18-21.
19. Nonscheduled: *Ibid.*, sum of Civilian Freight, line 44, and Military Freight, line 45.
20. Total Medium Regionals: *Ibid.*, p. 144, line 3, includes international operations.
21. Scheduled: *Ibid.*, sum of Freight, Air Express, U.S. Mail and Foreign Mail, lines 18-21.
22. Nonscheduled: *Ibid.*, sum of Civilian Freight, line 44, and Military Freight, line 45.
23. Water: U.S. Department of the Army, Corps of Engineers, *Waterborne Commerce of the United States*, 1987, Part 5, Section 3, Table 1, total domestic ton-miles.
24. Coastwise: *Ibid.*
25. Lakewise: *Ibid.*
26. Internal: *Ibid.*
27. Local: *Ibid.*
28. Pipeline: Eno Foundation for Transportation, *Transportation In America*, 1989, p. 7, intercity ton-miles.
29. ICC-Regulated: Estimated to be 84% of total pipeline.
30. Non-Regulated: Estimated to be 16% of total pipeline.

#### Figure 5. Number of Vehicles, 1987

1. Domestic Transportation: Sum of Highway, Local Transit, Rail, Air, and Water.
2. Highway: Sum of Auto, Truck, and Bus.
3. Auto: Sum of Personal Passenger Car, Recreational Vehicles, and Motorcycle.
4. Personal Passenger Car: U.S. DOT/FHWA, *Highway Statistics*, 1987, Table VM-1. This figure includes private and commercial automobiles (including taxicabs) for the 50 states and the District of Columbia (number of motorized vehicles registered).
5. Recreational Vehicles: U.S. DOC, Bureau of the Census, *Statistical Abstract of the United States*, 1989, Table 1016.
6. Motorcycle: U.S. DOT/FHWA, *Highway Statistics*, 1987, Table VM-1. This figure includes private and commercial motorcycles (number of motorized vehicles registered).

### Figure 6. Number of Fatalities, 1987 (cont'd)

5. Motorcycle: U.S. DOT/NHTSA, NRD-30, personal communication.
6. Truck: *Ibid.*
7. Light: *Ibid.*
8. Heavy: *Ibid.*
9. Other: *Ibid.*
10. Bus: Sum of commercial and school bus occupant fatalities.
11. Commercial Bus: U.S. DOT/NHTSA, *Fatal Accident Reporting System*, 1987, Table 6-23.
12. School Bus: *Ibid.*
13. Bicycle: U.S. DOT/TSC, *Transportation Safety Information Report*, 1987 annual summary, Table 5.
14. Pedestrian: *Ibid.*, motor vehicle involvement only.
15. Other: *Ibid.*, includes Non-Occupant fatalities, does not include bus fatalities.
16. Rail Rapid Transit: *Ibid.*, Table 1.
17. Rail: *Ibid.*, Table 1, includes railroad passengers, employees, trespassers, and others killed in railroad operations. It does not include those killed in rail/highway grade crossing accidents.
18. Train Accident: *Ibid.*, Chart 14.
19. Non-Train Incident: *Ibid.*, Chart 16.
20. Train Incident: *Ibid.*, Chart 15.
21. Rail-Highway Grade Crossing: *Ibid.*, Table 8.
22. Air: Sum of General Aviation and Total Certificated.
23. General Aviation: U.S. DOT/TSC, *Transportation Safety Information Report*, 1987 annual summary, Table 13.
24. Executive: *Ibid.*
25. Aerial Application: *Ibid.*
26. Business: *Ibid.*
27. Instructional: *Ibid.*
28. Personal: *Ibid.*
29. Other: *Ibid.*
30. Total Certificated: National Transportation Safety Board (NTSB), *NTSB News Digest*, 1989. Air Carriers operating under 14 CFR 121 and 14 CFR 135 (commuter air carriers and on-demand air taxis). Includes domestic and international operations.
31. Air Carrier: *Ibid.*, Airlines operating under 14 CFR 121, scheduled and nonscheduled services.
32. Commuter: *Ibid.*, Air Carriers operating under 14 CFR 135.
33. Air Taxis: *Ibid.*, On-Demand Air Carriers operating under 14 CFR 135.
34. Marine: Sum of Waterborne and Recreational Boating.
35. Waterborne: U.S. Coast Guard, G-MMI-3, personal communication.
36. Recreational Boating: U.S. Coast Guard, *Boating Statistics 1988*, p. 7. This figure represents total fatalities in recreational boating.
37. Pipeline: U.S. DOT/RSPA, Office of Pipeline Safety, DPS-20, personal communication. This figure includes gas distribution and transmission lines (including gathering lines), and liquid transmission lines.

### Figure 7. Energy Consumed in Transportation, 1987

1. Domestic Transportation: Sum of Highway, Rail, Air, Water, and Local Transit.
2. Highway: Sum of Personal Passenger Car, Truck, and Bus.
3. Auto: Sum of Personal Passenger Car and Motorcycle.
4. Personal Passenger Car (includes Taxi): U.S. DOT/FHWA, *Highway Statistics*, 1987, Table VM-1.

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5. Association of American Railroads, *Railroad Facts*, 1988, 1978.
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7. *Ibid.*, *Statistics of Railroads of Class I in the U.S.*, 1983, 1980.
8. Association of Oil Pipelines, *Shifts in Petroleum Transportation*, 1988.
9. CAB, *Air Carrier Traffic Statistics*, December 1978.
10. *Ibid.*, *Air Carrier Financial Statistics*, December 1978.
11. Eno Foundation for Transportation, *Transportation In America*, 1989.
12. Federal Energy Regulatory Commission (FERC).
13. Interstate Commerce Commission, Bureau of Accounts and Statistics.
14. *Ibid.*, *102nd, 101st, 94th Annual Report of the ICC*, 1988, 1987, 1980.
15. *Ibid.*, *Transport Statistics in the United States*, Part 2, 1987.
16. Motor Vehicle Manufacturers Association of the U.S., Inc., *Facts and Figures*, 1989, 1988.
17. National Safety Council, *Accident Facts*, 1988, 1987, 1977.
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19. Penn Well Publishing Company, *Oil and Gas Journal*, 1988, 1987, 1977.
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23. *Ibid.*, *Waterborne Commerce of the United States*, Part 5, 1987, 1986, 1977.
24. U.S. Coast Guard, *Boating Statistics 1988, 1987, 1977*.
25. *Ibid.*, Marine Safety Evaluation Branch, G-MM1-3.
26. U.S. Department of Commerce, Bureau of Economic Analysis.
27. *Ibid.*, *Survey of Current Business*, July 1988, 1982.
28. *Ibid.*, Bureau of the Census, *Statistical Abstract of the United States*, 1989.
29. U.S. Department of Energy, *Natural Gas Annual*, Vol. II, 1987.
30. *Ibid.*, *Statistics of Interstate Natural Gas Pipeline Companies*, 1987, 1986, 1978.
31. U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings, United States, 1909-78*, Bulletin 1312-11, 1979.
32. *Ibid.*, *Supplement to Employment and Earnings, Revised Establishment Data*, August 1988, July 1984.
33. *Ibid.*, Office of Management Systems, *General Aviation Activity and Avionics Survey*, 1988, 1987, 1977.

## TABLE REFERENCES

**Table 1. Average Passenger Revenue Per Passenger Mile, 1977-1987**

- Certificated Air Carrier, Domestic Operations, Scheduled Service:
- 1977-1984: Civil Aeronautics Board (CAB), *Air Carrier Financial Statistics*, 1978-1984, annual issues, p. 2, lines 1, 2, and 3; *Air Carrier Traffic Statistics*, 1978-1984, annual issues, p. 4/5, lines 7, 8, and 9. To compute Total, First Class, and Coach plus economy figures, divide line 1 by line 7, line 2 by line 8, and line 3 by line 9. To compute the index for Total, divide Total figure by 1967 index of 5.64. Use the same method for First Class and Coach plus economy, however, change the 1967 index to 7.24 for First Class and 5.13 for Coach plus economy.
- 1985-1987: U.S. Department of Transportation (DOT) Research and Special Programs Administration (RSPA), *Air Carrier Financial Statistics Quarterly*, annual issues, 1985/1986, 1986/1987, 1987/1988, p. 1, lines 1, 2 and 3; *Air Carrier Traffic Statistics*, annual issues, 1985/1986, 1986/1987, 1987/1988, p. 2, lines 7, 8 and 9.
- Class I Rail:
- 1977-1979: Association of American Railroads (AAR), *Statistics of Railroads of Class I in the U.S.*, 1980, p. 8/18. Class I average passenger revenue per passenger mile data was calculated by dividing passenger revenue by passenger miles and subtracting Amtrak and Auto-Train passenger revenue and revenue passenger mile data. As of 1978, Auto-Train is no longer Class I.
- 1980: *Ibid.*, Operating and Traffic Statistics, 1981.
- 1981-1987: Transportation Policy Associates (TPA), personal communication.
- Amtrak:
- 1977-1979: AAR, *Statistics of Railroads of Class I in the U.S.*, 1983, p. 17, passenger revenue (Acct. 102) divided by passenger mile data, abstracted from Transportation Policy Associates, *Transportation in America*, 1983, p. 14.
- 1980-1987: *Ibid.*, *Railroad Facts*, annual issues, p. 61.
- Class I Bus, Intercity:
- 1977-1979: American Bus Association (ABA), *Bus Facts*, 1981, p. 12.
- 1980-1981: *Ibid.*, 1982, p. 7.
- 1982-1983: *Ibid.*, personal communication.
- 1984-1987: Interstate Commerce Commission (ICC), Bureau of Accounts, personal communication.
- Consumer Price Index:
- 1977-1980: U.S. Department of Commerce (DOC), Bureau of Economic Analysis, *Survey of Current Business*, July issues, p. S-6.
- 1981-1983: *Ibid.*, July issues, p. S-5.
- 1984-1987: U.S. Department of Labor (DOL), Bureau of Labor Statistics, *Monthly Labor Review*, annual issues.

**Table 2. Average Freight Revenue Per Ton-Mile, 1977-1987**

- Certificated Air Carrier, Domestic Operations, Scheduled Service:
- 1977-1984: CAB, *Air Carrier Financial Statistics*, 1978-1984, annual issue, p. 2, line 4; *Air Carrier Traffic Statistics*, 1978-1984, annual issues, p. 4/5, line 18. Freight revenue (Financial Statistics) divided by revenue ton-miles of freight (Traffic Statistics). To compute index, divide total figure by 1967 index of 19.90.
- 1985-1987: U.S. DOT/RSPA, *Air Carrier Financial Statistics Quarterly*, 1985/1986, 1986/1987, 1987/1988, annual issues, p. 1, line 4; *Air Carrier Traffic Statistics*, 1985/1986, 1986/1987, 1987/1988, annual issues, p. 2, line 18. Freight revenue (Financial Statistics) divided by revenue ton-miles of freight (Traffic Statistics).
- Class I Rail:
- 1977-1987: AAR, *Railroad Facts*, 1988, p.30.

#### Table 4. Total Operating Revenues, 1977-1987 (cont'd)

Oil Pipeline, ICC-Regulated only:

1977-1987: Eno Foundation for Transportation, *Transportation In America*, 1989, p. 5, and previous issues published by TPA.

Gas Pipeline:

1977-1987: Transmission Companies: American Gas Association (AGA), *Gas Facts*, 1988, p. 146.

1977-1987: Distribution Companies: *Ibid.*, p. 145.

Class I Intercity Motor Carriers of Property:

1977-1987: ICC, *102nd Annual Report of the ICC*, 1988, Appendix E, Table 6, and similar table in earlier editions.

Class I Rail:

1977-1987: AAR, *Railroad Facts*, 1988, p. 10.

Amtrak:

1977-1987: AAR, *Railroad Facts*, annual issues, p. 61.

Water Transport:

ICC-Regulated Carriers, Inland and Coastal Waterways:

1977-1987: Eno Foundation for Transportation, *Transportation In America*, 1989, p. 11, and previous issues published by TPA.

Maritime Carriers:

1977-1979: ICC, *94th Annual Report of the ICC*, 1980, Table 11 and similar table in earlier editions.

1980-1987: U.S. DOT/Maritime Administration, personal communication.

Class A Freight Forwarders:

1977-1987: Eno Foundation for Transportation, *Transportation In America*, 1989, p. 5, and previous issues published by TPA.

#### Table 5. Vehicle-Miles, 1977-1987

Air Carriers:

Certificated Domestic Operations, All services:

1977-1979: CAB, *Air Carrier Traffic Statistics*, 1978-1980, annual issues, p. 4/5, line (27) plus line (50).

1980-1984: *Ibid.*, 1981-1984/85, annual issues, p. 2, line (27) plus line (50).

1985-1987: U.S. DOT/RSPA, *Ibid.*, 1985/1986, 1986/1987, 1987/1988, p. 2, line (27) plus line (50).

Total Majors, domestic operations:

1977-1979: CAB, *Ibid.*, 1978-1980, annual issues, p. 6, line (27) plus line (50).

1980-1984: *Ibid.*, 1981-1984/85, annual issues, p. 5, line (27) plus line (50).

1985-1987: U.S. DOT/RSPA, *Ibid.*, 1985/1986, 1986/1987, 1987/1988, p. 5, line (27) plus line (50).

Total Nationals, domestic operations:

1977-1979: CAB, *Ibid.*, 1978-1980, annual issues, p. 7, line (27) plus line (50).

1980-1984: *Ibid.*, 1981-1984/85, annual issues, p. 47, line (27) plus line (50).

1985-1987: U.S. DOT/RSPA, *Ibid.*, 1985/1986, p. 54, 1986/1987, p. 59; 1987/1988, p. 57 line (27) plus line (50).

Total Large Regionals, domestic operations:

1977-1979: Not available.

1980-1984: CAB, *Ibid.*, 1981-1984/85, annual issues, p. 83, line (27) plus line (50).

1985-1987: U.S. DOT/RSPA, *Ibid.*, 1985/1986, p. 90, 1986/1987, p. 94; 1987/1988, p. 86, line (27) plus line (50).

Total Medium Regionals, domestic and international operations:

1977-1979: Not available.

1980-1984: CAB, *Ibid.*, 1981-1984/85, annual issues, p. 113, line (27) plus line (50).

1985-1987: U.S. DOT/RSPA, *Ibid.*, 1985/1986, p. 155, 1986/1987, p. 157, 1987/1988, p. 144, line (27) plus line (50).

**Table 6. Passenger-Miles, 1977-1987 (cont'd)**

General Aviation:	
1977-1987:	Eno Foundation for Transportation, <i>Transportation In America</i> , 1989, p. 9.
Highway:	
Passenger Car and Taxi:	
1977-1984:	U.S. DOT/FHWA, <i>Highway Statistics, Summary to 1985</i> , Table VM-201A. Vehicle-miles multiplied by a constant average occupancy of 2.3.
1985-1987:	<i>Ibid.</i> , <i>Highway Statistics</i> , annual issues, Table VM-1.
Intercity Bus:	
1977-1987:	Eno Foundation for Transportation, <i>Transportation In America</i> , 1989, p. 9.
Class I Rail:	
1977-1979:	AAR, <i>Statistics of Railroads of Class I in the U.S.</i> , 1980, p. 8 and p. 18. Amtrak and Auto-Train data (p. 18) subtracted from Class I data (p. 8).
1980-1987:	Eno Foundation for Transportation, <i>Transportation In America</i> , 1989, p. 9.
Amtrak:	
1977-1987:	AAR, <i>Railroad Facts</i> , annual issues, p. 61.

**Table 7. Revenue Ton-Miles of Freight, 1977-1987**

Certificated Air Carrier:	
1977-1979:	CAB, <i>Air Carrier Traffic Statistics</i> , 1977-1980, annual issues, p. 4/5, line 3.
1980-1984:	<i>Ibid.</i> , 1981-1984/85, annual issues, p. 2, line 3.
1985-1987:	U.S. DOT/RSPA, <i>Ibid.</i> , 1985/1986, 1986/1987, 1987/1988, annual issues, p. 2, line 3.
Oil Pipeline:	
1977-1987:	Eno Foundation for Transportation, <i>Transportation In America</i> , 1989, p. 7.
Class I Rail:	
1977-1987:	AAR, <i>Railroad Facts</i> , 1988, p. 29.
Motor Vehicles:	
1977-1987:	Eno Foundation for Transportation, <i>Transportation In America</i> , 1989, p. 7.
Water Transport:	
Inland Waterways, including Great Lakes:	
1977-1987:	U.S. Army, Corps of Engineers, <i>Waterborne Commerce of the U.S.</i> , annual issues, Part 5, Section 1, Table 6 and similar table in earlier editions.
Total Domestic Waterways:	
1977-1987:	<i>Ibid.</i> , Part 5, annual issues, Section 3, Table 1, and similar table in earlier editions.

**Table 8. Basic Intercity Mileage Within the Continental United States, 1977-1987**

Airways:	
1977-1987:	U.S. DOT/FAA, <i>FAA Statistical Handbook of Aviation</i> , 1987, Table 2.1. Mileage equals sum of VHF low altitude direct and VHF jet route mileages multiplied by 1.151 to convert from nautical miles.
Oil Pipelines:	
Total:	
1977-1987:	Eno Foundation for Transportation, <i>Transportation in America</i> , 1989, p. 23.
Crude Lines and Products Lines:	
1977-1987:	Penn Well Publishing Co., <i>Oil and Gas Journal</i> , November 1988.
Gas Pipelines:	
1977-1987:	American Gas Association (AGA), <i>Gas Facts</i> , 1988, Table 5-3 and similar table in earlier editions.

**Table 10. Number of Vehicles, 1977-1987 (cont'd)**

Non-self propelled vessels and self-propelled vessels:	
1977-1979:	U.S. Army, Corps of Engineers, <i>Summary of U.S. Flag Passenger &amp; Cargo Vessels</i> , data as of Oct. 1.
1980:	<i>Ibid.</i> , data as of Dec. 31, 1980.
1981-1982:	<i>Ibid.</i> , Beginning in 1981 data are collected every 2 years and are shown in 1982 column.
1983-1984:	<i>Ibid.</i> , data shown in 1984 column.
1985-1987:	<i>Ibid.</i> , data as of Oct. 1.
Oceangoing Steam and Motor Ships:	
1977-1987:	U.S. DOT/Maritime Administration (MARAD), <i>Merchant Fleets of the World</i> , annual issues, p. 6 and similar table in earlier editions.

**Table 11. Number of New Vehicles Purchased by Mode, 1977-1987**

Air Carrier:	
1977-1987:	Aerospace Industries Association, <i>1988 Aerospace Year-End Review and Forecast</i> , Table V.
General Aviation:	
1977-1987:	U.S. DOT/FAA, <i>FAA Statistical Handbook of Aviation</i> , 1987, 1986, Table 10-1, aircraft production.
Passenger Car and Taxi:	
1977-1987:	U.S. DOC, Bureau of Economic Analysis, <i>Survey of Current Business</i> , July issues, p. S-36 and similar table in earlier editions.
Motorcycle:	
1977-1987:	Motorcycle Industry Council, Inc., <i>1988 Motorcycle Statistical Annual</i> , p. 12.
Moped:	
1977-1987:	<i>Ibid.</i> , p. 14.
Bicycle:	
1977-1987:	Bicycle Mfg. Assoc. of America, <i>The 1988 Bicycle Market in Review</i> .
Truck:	
1977-1987:	U.S. DOC, Bureau of Economic Analysis, <i>Survey of Current Business</i> , July issues, p. S-36 and similar table in earlier editions. Total of light, medium and heavy duty.
Class I Bus, Intercity:	
1977-1987:	Motor Vehicle Manufacturers Association, <i>Facts &amp; Figures</i> , 1989, p. 12 and similar table in earlier editions.
Local Transit:	
1977-1987:	APTA, <i>Transit Fact Book</i> , 1988, Table 25.
Class I Rail:	
Freight Cars:	
1977-1987:	AAR, <i>Railroad Facts</i> , 1988, p. 51.
Locomotives:	
1977-1987:	<i>Ibid.</i>
Passenger Train-Cars:	
1977-1987:	<i>Ibid.</i>
Amtrak:	
1977-1982:	<i>Ibid.</i> , p. 17.
1983-1987:	Amtrak, Intergovernmental Affairs, personal communication.
Water: Merchant Vessels and Gross Tonnage:	
1977-1987:	U.S. DOC, <i>Merchant Fleets of the World</i> , annual issues, Table 6 and similar table in earlier editions.



**Table 29. Employment in Transportation and Related Industries, 1977-1987**

Transport Sector:	
Air:	
1977-1982:	U.S. Department of Labor (DOL), Bureau of Labor Statistics, <i>Supplement to Employment and Earnings, Revised Establishment Data</i> , July 1984, SIC 45.
1983-1987:	<i>Ibid.</i> , August 1988.
Bus:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 413.
1983-1987:	<i>Ibid.</i> , August 1988.
Local Transport:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 411.
1983-1987:	<i>Ibid.</i> , August 1988.
Railroad:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 40.
1983-1987:	<i>Ibid.</i> , August 1988.
Oil Pipeline:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 46. FERC-regulated companies employ approximately 85% of the total.
1983-1987:	<i>Ibid.</i> , August 1988.
Gas Pipeline:	
1977-1987:	AGA, <i>Gas Facts</i> , 1988, Table 17-2 and similar table in earlier editions.
Taxi:	
1977-1982:	U.S. DOL, Bureau of Labor Statistics, <i>Supplement to Employment and Earnings, Revised Establishment Data</i> , July 1984, SIC 412.
1983-1987:	<i>Ibid.</i> , August 1988.
Trucking and Terminals:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 421, 3.
1983-1987:	<i>Ibid.</i> , August 1988.
Public Warehousing:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 422.
1983-1987:	<i>Ibid.</i> , August 1988.
Water:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 44.
1983-1987:	<i>Ibid.</i> , August 1988.
Transportation Services:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 47.
1983-1987:	<i>Ibid.</i> , August 1988.
Equipment Manufacturing:	
Aircraft and Parts:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 372.
1983-1987:	<i>Ibid.</i> , August 1988.
Motor Vehicles and Equipment:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 301 and 371, sum of motor vehicles and equipment and tires.
1983-1987:	<i>Ibid.</i> , August 1988.
Railroad Equipment:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 374.
1983-1987:	<i>Ibid.</i> , August 1988.
Ships and Boat Building and Repair:	
1977-1982:	<i>Ibid.</i> , July 1984, SIC 373.
1983-1987:	<i>Ibid.</i> , August 1988.

**Table 30. National Transportation and Economic Trends, 1977-1987**

Passenger-Miles:	
1977-1987:	Summation of all modes from Table 6. (This edition of NTS).
Ton Miles:	
1977-1987:	Summation of all modes from Table 7. (This edition of NTS).
Population:	
1977-1987:	U.S. DOC, Bureau of the Census, <i>Statistical Abstract of the U.S.</i> , 1989, Table 2.
Industrial Production:	
1977-1987:	<i>Ibid.</i> , Bureau of Economic Analysis, <i>Survey of Current Business</i> , July 1988, p. S-1 and similar page in earlier editions.
Gross National Product:	
1977-1987:	<i>Ibid.</i> , Bureau of the Census, <i>Statistical Abstract of the U.S.</i> , 1989, Table 685 and similar table in earlier editions.

**Table 32. Expenditures and Overseas Travel by U.S. Residents and Foreign Visitors, 1977-1987**

U.S. Residents - Overseas Travelers:	
1977-1981:	U.S. DOC, Bureau of Economic Analysis, <i>Survey of Current Business</i> , May 1983, Table 7 and similar table in earlier editions.
1982-1987:	<i>Ibid.</i> , May 1988, Table 3 and similar table in earlier editions.
Average Expenditures:	
1977-1985:	<i>Ibid.</i> , May 1986, Table 4 and similar table in earlier editions.
1986-1987:	Data no longer collected.
Total Travel and Passenger Fare Transactions:	
1977-1987:	<i>Ibid.</i> , May 1988, Table 1 and similar table in earlier editions.
Travel Payments in Foreign Countries:	
1977-1987:	<i>Ibid.</i>
Passenger Fare Payments to Foreign Countries:	
1977-1987:	<i>Ibid.</i>
Foreign Visitors to U.S.:	
1977-1987:	<i>Ibid.</i> , May 1988, Table 5 and similar table in earlier editions.
Average Expenditures of Visitors:	
1977-1985:	<i>Ibid.</i> , May 1986, Table 8, and similar table in earlier editions.
1986-1987:	Data no longer collected.
Total Travel and Passenger Fare Transactions:	
1977-1987:	Sum of Travel Receipts in U.S. and Passenger Fare Receipts in U.S.
Travel Receipts in U.S.:	
1977-1987:	U.S. DOC, Bureau of Economic Analysis, <i>Survey of Current Business</i> , May 1988, Table 1 and similar table in earlier editions.
Passenger Fare Receipts in U.S.:	
1977-1987:	<i>Ibid.</i>

# **APPENDIX B**

## **Glossary**

**JET FUEL:** Includes both naphtha-type and kerosene-type fuel meeting standards for use in aircraft turbine engines. Although most jet fuel is used in aircraft, some is used for other purposes such as for generating electricity in gas turbines.

**KEROSENE-BASE JET FUEL:** A quality kerosene product with an average gravity of 40.7 degrees API and 10 to 90% distillation temperatures of 217 to 261 degrees C. Used primarily as fuel for commercial turbojet and turboprop aircraft engines. It is a relatively low freezing point distillate of the kerosene type.

**LARGE REGIONALS:** Carrier groups with annual operating revenues of \$10,000,000-\$100,000,000. Included in this group are Air America, Arrow, Aspen, Britt, Emerald, Evergreen, Five Star, Florida Express, Gulf Air Transport, Horizon Air, International Air Service, Interstate, Key, Markair, Mid Pacific, Midwest Express, Northern Air, Orion, Presidential, Reeve, Rich, Rosenbalm, SkyWorld, Southern Air, Sun Country, Sunworld, and Tower, and West Air. Airlines in this category are subject to periodic changes.

**MAJORS:** Carrier groups with annual operating revenues of \$1,000,000,000+. Included in this group are American, Continental, Delta, Eastern, Federal Express, Flying Tiger, Northwest, Pan American, Piedmont, Trans World, United, USAir, and Western. Airlines in this category are subject to periodic changes.

**MEDIUM REGIONALS:** Carrier groups with annual operating revenues of \$0-\$10,000,000 (or that operate only aircraft with 60 seats or less or 18,000 pounds maximum payload). Included in this group are Aerial, Aeron, Air Transport International, Amerijet, Buffalo, Challenge Air Cargo, Challenge Air International, Conner, Express One, Florida West, Galaxy, Great American, Independent Air, Jet Fleet, MGM Grand, Millon, Pacific Interstate, Sun Coast, Trans Air Link, and Trans International. Airlines in this category are subject to periodic changes.

**NAPHTHA-BASE JET FUEL:** A fuel in the heavy naphtha boiling range with an average gravity of 52.8 degrees API and 10 to 90% distillation temperatures of 117 to 233 degrees C. Used for turbojet and turboprop aircraft engines, primarily by the military. Excludes ramjet and petroleum.

**NATIONALS:** Carrier groups with annual operating revenues of \$100,000,000-\$1,000,000,000. Included in this group are Air California, Air Wisconsin, Alaska, Aloha, America West, American Trans Air, Braniff, Inc., Hawaiian, Jet America, Midway, Pacific Southwest, Southwest, TranStar, United Parcel Service, World and Zantop. Airlines in this category are subject to periodic changes.

**NONREVENUE FLIGHTS:** Flights and flight stages involving training, test, technical, positioning for scheduled flights, ferry, company business, publicity and forced returns for which no remuneration is received.

**NONSCHEDULED FREIGHT:** Property carried in charter operations.

**NONSCHEDULED SERVICE:** Revenue flights, such as charter flights, not operated in regular scheduled service and all nonrevenue flights incident to such flights.

**OPERATING EXPENSES:** Expenses incurred in the performance of air transportation. Includes direct aircraft operating expenses, ground, and indirect operating expenses.

**OPERATING REVENUES:** Includes revenues from the performance of air transportation and transport related activities. See "Transport Related Revenues".

**OTHER TRANSPORT REVENUES:** Miscellaneous revenues associated with air transportation performed by the air carrier, such as airline employees, officers and directors, or other persons, except ministers of religion who travel under reduced rated transportation; reservation cancellation fees; and other items not specified in other transport revenue accounts.

**PASSENGER-MILE:** One passenger transported one mile (5,280 feet). Passenger-miles are computed by summation of the products of the aircraft miles flown on each interairport flight stage multiplied by the number of passengers carried on that flight stage.

**PASSENGER REVENUES:** Revenues from the transportation of passengers by air.

**REVENUE:** Pertaining to activities for which remuneration is received by the carrier.

**REVENUE PASSENGER:** Person receiving air transportation for an air carrier for which remuneration is received by the carrier. Air carrier employees or others, except ministers of religion, elderly individuals and handicapped individuals, receiving air transportation against whom reduced rate charges (less than the applicable tariff) are levied are considered nonrevenue passengers. Infants for whom a token fare is charged are not counted as passengers.

**REVENUE PASSENGER ENPLANEMENTS:** The total number of passengers boarding aircraft.

**COMMUTER AIR CARRIER:** An air-taxi that performs at least five scheduled round trips per week between two or more points or carries mail.

**DEMAND AIR-TAXI:** Use of an aircraft operating under Federal Aviation Regulations, Part 135, passenger and cargo operations, including charter and excluding commuter air carrier.

**EXECUTIVE/CORPORATE:** Any use of an aircraft by a corporation, company, or other organization for the purposes of transporting its employees and/or property not for compensation or hire, and employing professional pilots for the operation of the aircraft.

**GENERAL AVIATION:** That portion of civil aviation which encompasses all facets of aviation except air carriers holding a Certificate of Public Convenience and Necessity issued by the DOT.

**INSTRUCTIONAL:** Any use of an aircraft for the purpose of formal instruction with the flying instructor aboard, or with the maneuvers on the particular flight(s) specified by the flight instructor; excludes proficiency flying.

**PERSONAL:** Any use of an aircraft for personal purposes not associated with a business or profession, and not for hire. This includes maintenance of pilot proficiency.

**RENTAL:** Aircraft owned for the purpose of renting; commercial flying club, leased, and rental aircraft activity.

**OTHER WORK:** Any aircraft used for construction work (not included under Part 135), helicopter, hoist, towing gliders, or parachuting.

**OTHER:** Any other use of an aircraft not included in above, i.e, experimentation, R&D, testing, demonstration, government.

### HIGHWAY TERMINOLOGY

**ARTERIAL:** A major highway, primarily for through traffic, usually on a continuous route.

**FEDERAL EXPENDITURES:** Intergovernmental payments to the State, District of Columbia, and local governments plus direct expenditures for capital outlay, maintenance, administration, and research.

**HIGHWAY TRUST FUND:** This is a grant-in-aid type fund administered by the FHWA. That is, most funds for highway improvements are apportioned to States in accordance with formulas that give weight to population, area and mileage.

**INTERSTATE:** Limited access divided facility of at least four lanes designated by the Federal Highway Administration as part of the Interstate System.

**LOCAL STREETS AND ROADS:** Streets whose primary purpose is feeding higher order systems, providing direct access with little or no through traffic.

**MINOR ARTERIALS:** Streets and highways linking cities and larger towns in rural areas in distributing trips to small geographic areas in urban areas (not penetrating identifiable neighborhoods).

**OTHER PRINCIPAL ARTERIAL:** Major streets or highways, many with multi-lane or freeway design, serving high volume traffic corridor movements that connect major generators of travel.

**ROADWAY:** That part of a trafficway used for motor vehicle travel.

**RURAL MILEAGE:** Roads outside city, municipal district, or urban boundaries.

**STATE AND LOCAL EXPENDITURES:** Disbursements for capital outlay, maintenance and traffic surfaces, administration and research, highway law enforcement and safety, and interest on debt.

**URBAN MILEAGE:** Roads inside city, municipal district, or urban boundaries: includes extensions of the state primary system, and state secondary roads within delimited incorporated and unincorporated places, and mileage under local control; i.e., local city streets, roads, and public ways not under State control within such places.

**COMMERCIAL BUS:** Any bus used to carry passengers at rates specified in tariffs; charges may be computed per passenger (as in regular route service) or per vehicle (as in charter service).

**INTERCITY BUS--CLASS I:** An interstate motor carrier of passengers with an average annual gross revenue of at least \$1,000,000 is defined by the ICC as a Class I carrier.

**INTERCITY BUS--TOTAL:** This figure includes Class I, II, and III interstate carriers, all of which report to the Interstate Commerce Commission, and intrastate carriers.

**REVENUE PASSENGERS:** Passengers on a commercial bus by or for whom a fare is paid.

**REVENUE PASSENGER-MILES:** One revenue passenger carried one mile (5,280 feet) generates one passenger-mile. The revenue passenger miles reported thus represent the total distance traveled by all bus passengers.

**SCHOOL BUS:** A specific type of vehicle which independent of ownership or design, is used to transport children to and from school, or to and from school activities.

**SCHOOL BUS - RELATED ACCIDENT:** Any accident in which a vehicle, regardless of body design, used as a school bus is directly or indirectly involved, such as an accident involving school children alighting from a vehicle.

**TAXES ASSIGNABLE TO OPERATIONS:** Includes the amount of federal, state, county, municipal, and other taxing district taxes which relate to motor carrier operations and property use therein (except income taxes on ordinary income).

**VEHICLE-MILE:** One vehicle traveling one mile (5,280 feet) generates one vehicle-mile. Thus, total vehicle-miles is the total mileage traveled by all vehicles.

### TRUCK TERMINOLOGY

**AVERAGE LENGTH OF HAUL (MILES):** The total number of ton-miles divided by the total number of tons carried.

**COMBINATION TRUCKS:** Consist of a power unit (a truck tractor) and one or two trailing units (a semi-trailer). The most frequently used combination is popularly referred to as a "tractor-semitrailer" or a "tractor trailer."

**GROSS VEHICLE WEIGHT (GVW):** The maximum rated capacity of a vehicle which includes the weight of the vehicle, all added equipment, driver and passengers, and load.

**HEAVY TRUCK:** 1. Single-unit truck with GVW greater than 26,000 lbs; 2. Tractor-trailer combination; 3. Truck with cargo trailers; 4. Truck-tractor pulling no trailer.

**ICC-REGULATED CARRIER:** A motor common carrier operating in interstate commerce under a grant of authority from the Interstate Commerce Commission and subject to its economic regulation.

**LIGHT TRUCK:** Trucks under 10,000 lbs. GVW (e.g., pickups, vans, and station wagons).

**MEDIUM TRUCK:** Any single-unit truck with GVW between 10,000 and 26,000 lbs.

**NON-ICC-REGULATED CARRIER:** A motor carrier not subject to the economic regulation of the ICC. The category includes intrastate carriers, private carriers hauling only the goods of their owners, and carriers of commodities, the transportation of which is exempt from ICC economic regulation.

**OCCUPANT:** Any person who is in or upon a motor vehicle in transport and includes the driver, passengers and persons riding on the exterior of a motor vehicle (e.g., a skateboard rider set in motion by holding onto a vehicle).

**OPERATING EXPENSES:** This includes expenditures for equipment maintenance, supervision, wages, fuel, equipment rental, terminal operations, insurance, safety, and administrative and general functions.

**OPERATING REVENUES OF CLASS I INTERCITY MOTOR CARRIERS:** This term is defined by the ICC to include the five categories of revenue listed in the text.

**REVENUE:** The total amounts received by carriers for transportation and other services.

**REVENUE VEHICLE-MILES:** One vehicle (bus, trolleybus, streetcar, etc.) traveling one mile (5,280 feet) while revenue passengers are on board generates one revenue vehicle-mile. The revenue vehicle-miles reported thus represent the total mileage traveled by vehicles in scheduled or unscheduled revenue-producing services.

**SCHOOL BUSES:** Type I and Type II school vehicles as defined in Highway Safety Program Standard No. 17, used exclusively to transport students, personnel, and equipment.

**STREETCARS:** Relatively lightweight passenger rail cars operating singly or in short trains or fixed rails in right-of-way that is not always separated from other traffic for much of the way. Streetcars do not necessarily have the right-of-way at grade crossings with other traffic.

**TROLLEYBUSES:** Rubber-tired, electrically powered passenger vehicles operated on city streets drawing power from overhead lines with trolleys.

**UNLINKED PASSENGER TRIPS:** The number of passengers who board public transportation vehicles. Passengers are counted each time they board a vehicle, even though more than one vehicle may be used for a single journey from origin to destination.

**VAN POOL SERVICE:** Publicly sponsored commuter service operating under pre-arranged schedules for pre-formed groups of riders with 8 to 18 seats. Drivers are also commuters and receive little or no compensation besides a free ride.

**VEHICLE MAINTENANCE EXPENSES:** The inspection, maintenance and repair of vehicles, such as mechanics wages and fringe benefits, maintenance supplies, repair parts, outside maintenance and repair work.

**VEHICLE-MILES:** The total distance traveled by revenue vehicles, including both revenue miles and deadhead miles. For rail, vehicle refers to passenger car.

**VEHICLE OPERATIONS EXPENSES:** The costs associated with operating vehicles, such as operators' wages and fringe benefits, fuel, tires, and vehicle licensing.

### WATER TRANSPORT TERMINOLOGY

**BULK CARRIER:** Carries dry cargo in bulk, stowed in cargo holds within vessel hull.

**BUNKER C/NUMBER 6 FUEL OIL:** A high viscosity oil used mostly by ships, industry, and large-scale heating installations. This heavy fuel requires preheating in the storage tank to permit pumping and additional preheating to permit atomizing at the burners.

**CLASS A CARRIERS BY INLAND AND COASTAL WATERWAYS:** A Class A carrier by water is one with an average annual operation revenue that exceeds \$500,000.

**CLASS B CARRIERS BY INLAND AND COASTAL WATERWAYS:** A Class B carrier by water is one with an average annual operating revenue greater than \$100,000 but less than \$500,000.

**COASTWISE TRAFFIC:** Domestic traffic is coastwise when it moves over the ocean, or the Gulf of Mexico; i.e., between New Orleans and Baltimore, New York and Puerto Rico, San Francisco and Hawaii, Puerto Rico and Hawaii. Traffic between Great Lakes ports and seacoast ports, when having a carriage over the ocean, is also deemed to be coastwise. The Chesapeake Bay and Puget Sound are considered internal bodies of water rather than arms of the ocean; traffic confined to these areas is deemed to be "internal" rather than coastwise.

**DEADWEIGHT TONNAGE:** The carrying capacity of a vessel in long tons (2,240 pounds). It is the difference between the light ship weight and the displacement loaded.

**DOMESTIC FREIGHT:** All waterborne commercial movements between points in the United States, Puerto Rico and the Virgin Islands, excluding traffic with the Panama Canal Zone. Cargo moved for the military in commercial vessels is reported as ordinary commercial cargo; military cargo moved in military vessels is omitted.

**DOMESTIC PASSENGER:** Any person traveling on a public conveyance by water between points in the United States, Puerto Rico, and the Virgin Islands.

**TANKSHIP:** Carries liquid cargo in bulk, stowed in cargo tanks within vessel hull. Cargo is pumped aboard by a shore terminal and unloaded using the vessel's installed pumping system. It is one of the largest and newest vessels used in domestic commerce, with sizes ranging from 16,000 to 190,000 deadweight tons. Commonly referred to as "tanker." Approximately 180 are presently in domestic service.

**TON-MILE:** Moving one ton one mile (5,280 feet) generates one ton-mile.

**TONS OF FREIGHT HAULED:** The figures for tons of freight hauled on domestic waterways include exports and imports.

**TUG:** A strongly built, self-propelled boat used for towing and pushing.

### **RAILROAD TERMINOLOGY**

**AMTRAK (AMERICAN RAILROAD TRACKS):** Operated by the National Railroad Passenger Corporation of Washington, D.C. This rail system was created by President Nixon in 1970 and was given the responsibility for the operation of intercity, as distinct from suburban, passenger trains between points designated by the Secretary of Transportation.

**AVERAGE HAUL:** The average distance in miles that one ton is carried. It is computed by dividing the number of ton-miles generated by the number of tons carried to generate that number of ton-miles.

**AVERAGE PASSENGER TRIP LENGTH:** Calculated by dividing the number of revenue passenger-miles by the number of revenue passengers carried.

**CAR-MILE:** Movement of a car one mile (5,280 feet) is one car-mile.

**CLASS I RAILROAD:** A railroad with an annual operating revenue of greater than \$5,000,000. Effective January 1, 1976, the minimum annual operating revenue requirement was raised to \$10,000,000; on January 1, 1978, the requirement was raised to \$50,000,000.

**FREIGHT REVENUE:** Revenue from the transportation of freight and from the exercise of transit, stop-off, diversion, and reconsignment privileges, as provided for in tariffs.

**LINE MILEAGE:** The aggregate length of roadway of all line-haul railroads. It does not include the mileage of yard tracks or sidings, nor does it reflect the fact that a mile of railroad may include two or more parallel tracks. Jointly-used track is counted only once.

**LOCOMOTIVE:** Self-propelled units of equipment designed solely for moving other equipment.

**LOCOMOTIVE MILEAGE:** Movement of a locomotive unit one mile (5,280 feet) is one locomotive-mile.

**OPERATING EXPENSES:** Expenses of furnishing transportation service, including maintenance and depreciation.

**OTHER REVENUE:** This is a general heading that includes revenues from miscellaneous operations (i.e., dining and bar car services), income from lease of road and equipment, miscellaneous rent income, income from non-operating property, profit from separately operated properties, dividend income, interest income, income from sinking and other reserve funds, release or premium on funded debt, contributions from other companies, and other miscellaneous income.

**PASSENGER REVENUE:** Revenue from the sale of tickets.

**PASSENGER TRAIN-CARS:** Cars typically found in passenger trains include coaches, sleeping cars (formerly called Pullman cars), parlor cars, dining cars, lounge cars, baggage cars, crew-dormitory cars, and observation cars.

**RAIL MOTOR CARS:** Self-propelled passenger rail cars which are driven by electric motors energized from an electrified roadway or by a generator driven by a diesel or gas turbine engine.

**REVENUE PASSENGERS CARRIED:** Number of one-way trips made by persons holding tickets.

**REVENUE PASSENGER-MILE:** One revenue passenger traveling one mile (5,280 feet) generates one revenue passenger-mile. The revenue passenger-miles reported thus represent the total distance traveled by all railroad passengers.

**REVENUE TON-MILES:** The product of weight of the contents of a freight car in tons and the distance transported in miles; i.e., n tons moving m miles generate n x m revenue ton-miles.



**PETROLEUM CONSUMPTION, TRANSPORTATION SECTOR:** Domestic demand for petroleum products for on-highway use, aircraft and vessel bunkering, and railroad use.

**PIPELINE:** All parts of those physical facilities through which gas is moved in transportation, including pipe, valves and other appurtenances attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders and fabricated assemblies.

**REFINED PRODUCT TRUNK LINES:** One of three types of pipeline network that is used to transport refined petroleum products (i.e., gasoline, kerosene, residual oil, etc.) from the refineries to local distribution centers near large market areas.

**RESIDUAL FUEL OIL:** The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are boiled off in refinery operations. Included are products known as ASTM grade Nos. 5 and 6 oil, heavy diesel oil, Navy Special Fuel Oil, Bunker C oil, and acid sludge and pitch used as refinery fuels. Residual fuel oil is used for the production of electric power, for heating, and for various industrial purposes.

### GAS PIPELINE TERMINOLOGY

**GAS TRANSMISSION COMPANY:** A company which obtains most of its gas operating revenues from the operation of a gas transmission pipeline and/or from main line sales to industrial customers.

**DISTRIBUTION MAINS:** Generally, mains, services, and equipment that carry or control the supply of gas from the point of local supply to and including the sales meters.

**FIELD AND GATHERING PIPELINES:** A network of pipelines (mains) transporting natural gas from individual wells to a compressor station, processing point, or main trunk pipeline.

**LIQUID PETROLEUM GAS (LPG):** Consists of propane and butane and is usually derived from natural gas. In locations where there is no natural gas and the gasoline consumption is low, naphtha is converted to LPG by catalytic reforming.

**MAINS:** The network of distribution piping to which customers service lines are attached.

**NATURAL GAS:** A naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in porous geologic formations beneath the earth's surface, often in association with petroleum. The principal constituent is methane.

**LIQUEFIED NATURAL GAS (LNG):** Natural gas that has been liquefied the number by reducing its temperature to -260° F at atmospheric pressure.

**REPRESSURING:** Forcing gas, under pressure, into the oil reservoir in an attempt to increase the recovery of crude oil; also done with water.

**TRANSMISSION PIPELINE:** Pipelines (mains) installed for the purpose of transmitting gas from a source of supply to one or more distribution centers, or to one or more large-volume customers, or a pipeline installed to interconnect sources of supply. Transmission lines differ from gas mains in that they operate at higher pressures, are longer, and the distance between connections is greater.

### ENERGY TERMINOLOGY

**ASPHALT:** A dark-brown-to-black cement-like material containing bitumens as the predominant constituents, obtained by petroleum processing. The definition includes crude asphalt as well as the following finished products; cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts.

**AVIATION GASOLINE, FINISHED:** All special grades of gasoline for use in aviation reciprocating engines, as given in ASTM Specification D910. Excludes blending components that will be used in blending or compounding into finished aviation gasoline.

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