



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

# National Transportation Statistics

Annual Report

July 1990

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



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



- ★ Railroads
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- ★ Operating Expenses / Revenue
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- ★ Safety Statistics



- ★ Oil Pipeline
- ★ Natural Gas Pipeline
- ★ Energy Cost and Consumption
- ★ Pipeline Mileage





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of Transportation

**Research and  
Special Programs  
Administration**

# **NATIONAL TRANSPORTATION STATISTICS**

## **Annual Report, 1990**

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**Secretary of Transportation**

*Samuel K. Skinner*

**Research and Special  
Programs Administrator**

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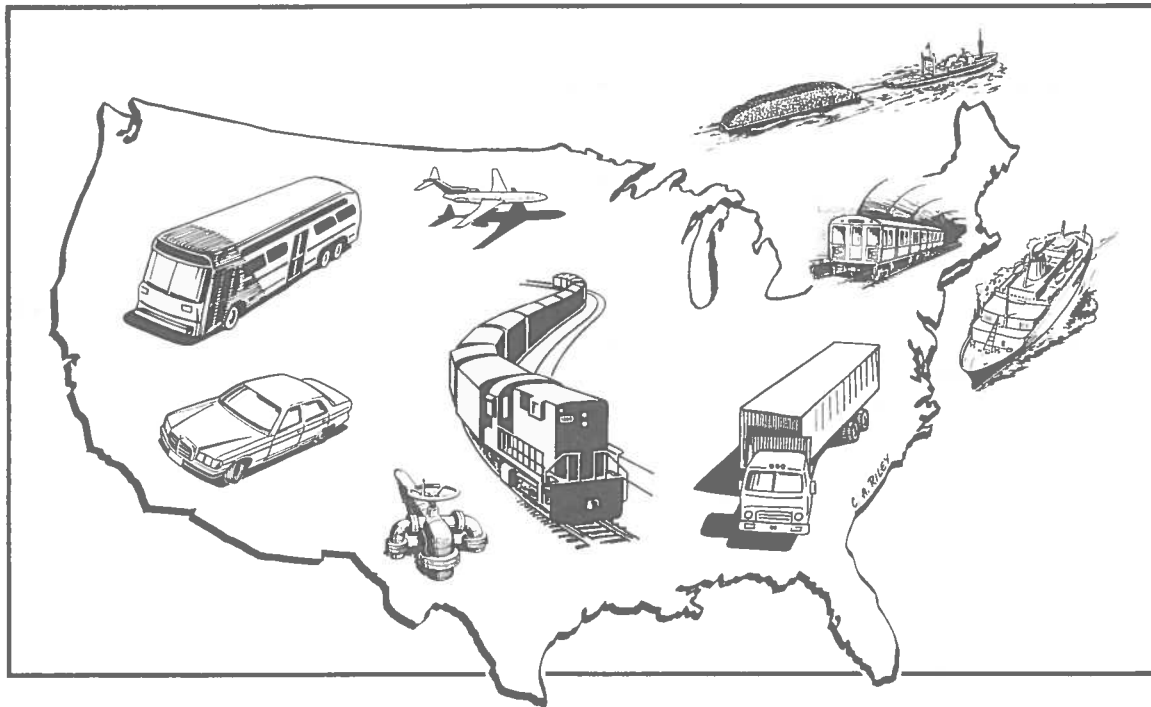
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# INTRODUCTION

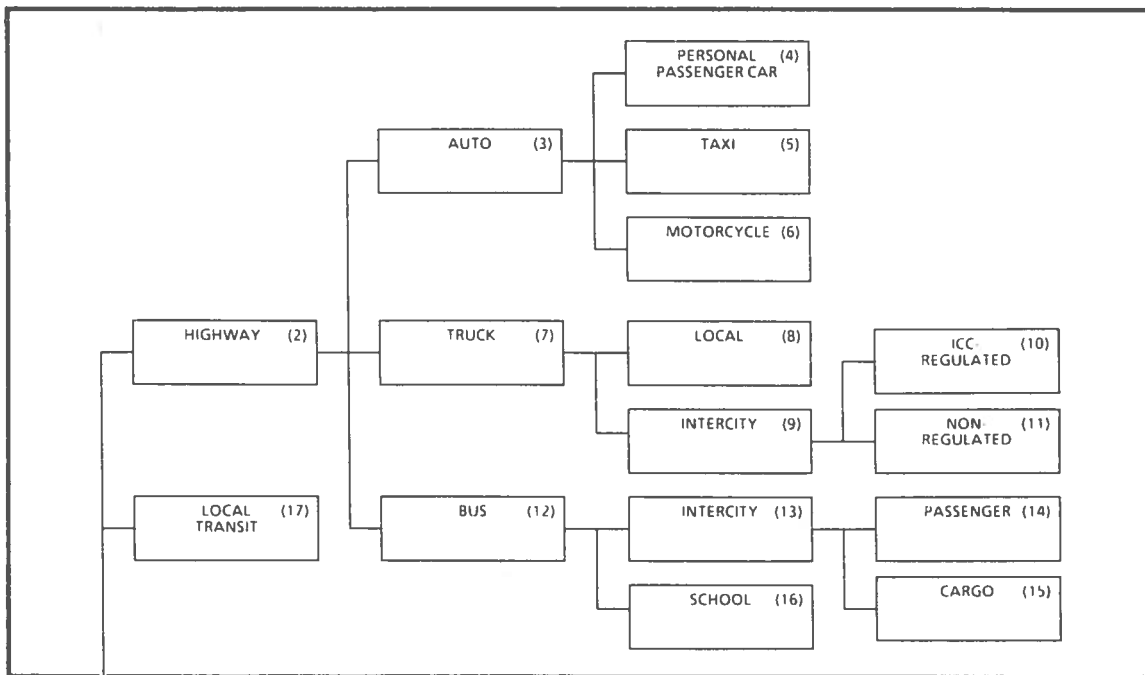


# TREE DISPLAYS 1988

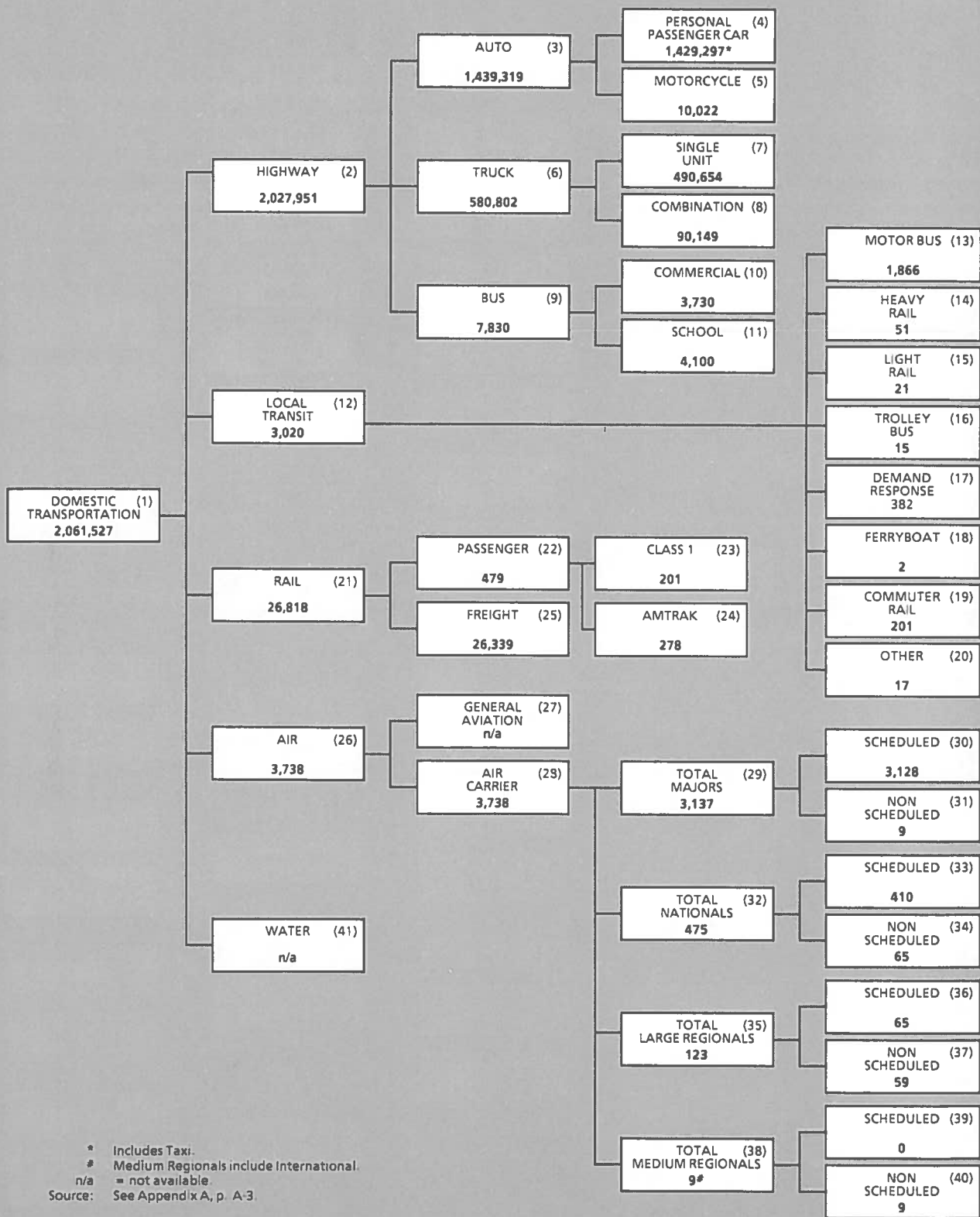
The interrelationships of the various modes are presented here via tree displays. These displays illustrate the relationship between and within each transportation mode for the following areas:

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

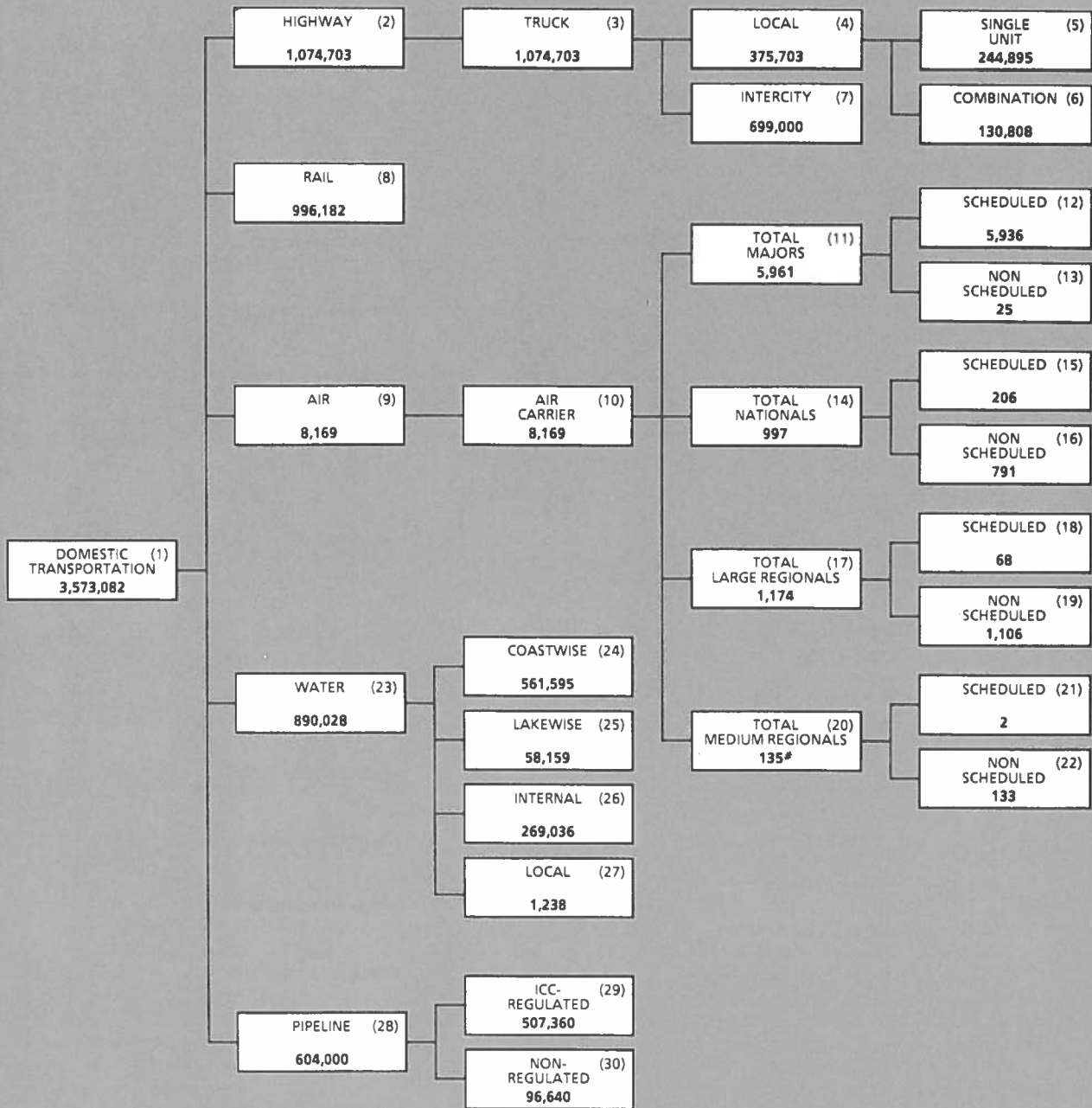
Because of the variety of data sources, the totals may not always equal the sum of the subordinate data. Sources for each statistic may be found by locating its parenthetical reference number in Appendix A - Source Information.







**Figure 2. Vehicle - Miles (millions) - 1988**



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

Figure 4. Revenue Ton-Miles of Freight (millions) - 1988

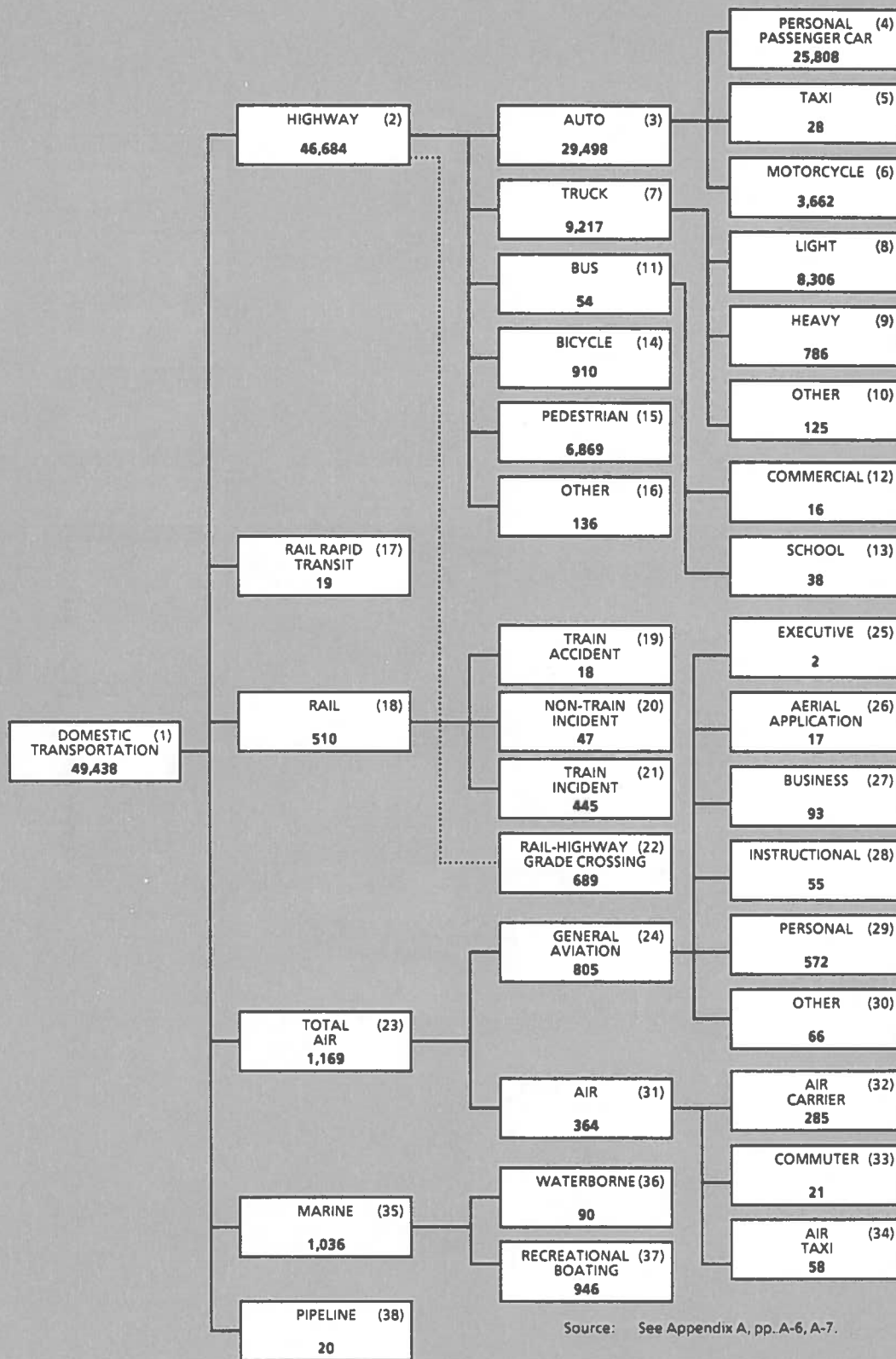


Figure 6. Number of Fatalities - 1988

# MODAL PROFILES

## 1978, 1987, and 1988

The Modal Profiles present financial, inventory, and performance data comparisons for 1978, 1987, and 1988. 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)
  - B. Revenues (for-hire modes)
  - C. Operating expenses
  - D. Federal expenditures
  - E. State and local expenditures
- II. Inventory
  - A. Number of companies
  - B. Number of vehicles
  - C. Number of employees
  - D. Mileage
- III. Performance
  - A. Vehicle-miles
  - B. Passenger-miles
  - C. Number of passengers carried
  - D. Ton-miles
  - E. Tons of freight hauled
  - F. Average passenger trip length
  - G. Average length of freight haul
  - 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 that 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

<u>1978</u>	
1,726 <sup>a</sup>	reference letter 'a'
3,917	also applies to the two
5,643	subsequent data elements.
12,666 <sup>c</sup>	reference letter 'c' refers to
42,809	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 1987-1988 percent change column refers to the percent difference between 1987 data and 1988 data. The 1978-1988 average annual percent change is equal to  $C \times 100$ , where C is obtained from the following relationship:  $D^{88} = D^{78} (1 + C)^{10}$ . (Note  $D^{78}$  and  $D^{88}$  refer to 1978 and 1988 data, respectively; C is the change, and the relationship is derived from the compound interest formula.)

## AIR CARRIER PROFILE (cont'd)

	<u>1978<sup>1</sup></u>	<u>1987<sup>1</sup></u>	<u>1988<sup>1</sup></u>	<u>1978-1988 Average Annual % Change</u>	<u>1987-1988 % Change</u>
<b>International</b>					
Certificated, all services*	359,260 <sup>i</sup>	529,786 <sup>n</sup>	615,270 <sup>n</sup>	5.5	16.1
Majors, all services*	328,183	460,822 <sup>o</sup>	537,877 <sup>o</sup>	5.1	16.7
Nationals, all services*	31,077	24,176 <sup>p</sup>	39,795 <sup>p</sup>	2.5	64.6
Large Regionals, all services*	n/a	35,296 <sup>q</sup>	31,095 <sup>q</sup>	-	-11.9
Medium Regionals, all services					
Domestic and International*	n/a	18,739 <sup>r</sup>	9,403 <sup>r</sup>	-	-49.8
Total Certificated*	2,608,362	4,201,066	4,362,915	5.3	3.9
<b>Aircraft Revenue-Hours</b>					
<b>Domestic</b>					
Certificated, all services*	5,499,292 <sup>s</sup>	8,823,269 <sup>j</sup>	9,893,280 <sup>i</sup>	6.1	12.1
Majors, all services*	4,224,004	7,186,984 <sup>k</sup>	7,469,273 <sup>k</sup>	5.9	3.9
Nationals, all services*	1,027,893	1,165,974 <sup>l</sup>	1,347,746 <sup>l</sup>	3.1	15.6
Large Regionals, all services*	n/a	448,352 <sup>m</sup>	396,621 <sup>m</sup>	-	-11.5
<b>International</b>					
Certificated, all services*	735,334 <sup>i</sup>	1,082,189 <sup>n</sup>	1,260,927 <sup>n</sup>	5.5	16.5
Majors, all services*	672,273	931,376 <sup>o</sup>	1,091,370 <sup>o</sup>	5.0	17.2
Nationals, all services*	63,061	47,308 <sup>p</sup>	85,666 <sup>p</sup>	3.1	81.1
Large Regionals, all services*	n/a	78,716 <sup>q</sup>	65,851 <sup>q</sup>	-	-16.3
Medium Regionals, all services					
Domestic and International*	n/a	46,748 <sup>r</sup>	25,496 <sup>r</sup>	-	-45.5
Total Certificated*	6,234,626	9,952,206	11,179,703	6.0	12.3
<b>Revenue Passenger-Miles (thousands)</b>					
<b>Domestic</b>					
Certificated, all services	187,812,381 <sup>s</sup>	329,214,527 <sup>j</sup>	334,290,574 <sup>i</sup>	5.9	1.5
Majors, all services	168,221,607	290,408,062 <sup>k</sup>	297,672,414 <sup>k</sup>	5.9	2.5
Nationals, all services	17,502,505	34,186,792 <sup>l</sup>	32,269,606 <sup>l</sup>	6.3	-5.6
Large Regionals, all services	n/a	4,520,609 <sup>m</sup>	4,304,156 <sup>m</sup>	-	-4.8
<b>International</b>					
Certificated, all services	49,184,948 <sup>i</sup>	88,615,528 <sup>n</sup>	103,357,966 <sup>n</sup>	7.7	16.6
Majors, all services	48,093,706	80,216,403 <sup>o</sup>	94,604,019 <sup>o</sup>	7.0	17.9
Nationals, all services	1,091,242	4,547,034 <sup>p</sup>	6,181,620 <sup>p</sup>	18.9	35.9
Large Regionals, all services	n/a	3,457,657 <sup>q</sup>	2,356,670 <sup>q</sup>	-	-31.8
Medium Regionals, all services					
Domestic and International*	n/a	493,498 <sup>r</sup>	260,055 <sup>r</sup>	-	-47.3
Total Certificated*	236,997,329	418,323,553	437,908,595	6.3	4.7
<b>Revenue Passenger Enplanements (thousands)</b>					
<b>Domestic</b>					
Certificated, all services*	257,017 <sup>s</sup>	420,832 <sup>j</sup>	423,864 <sup>i</sup>	5.1	4.7
Majors, all services*	198,075	349,796 <sup>k</sup>	356,822 <sup>k</sup>	6.1	2.0
Nationals, all services*	49,510	62,182 <sup>l</sup>	59,654 <sup>l</sup>	1.9	-4.1
Large Regionals, all services*	n/a	8,730 <sup>m</sup>	7,318 <sup>m</sup>	-	-16.2
<b>International</b>					
Certificated, all services*	22,280 <sup>i</sup>	34,684 <sup>n</sup>	39,356 <sup>n</sup>	5.9	13.5
Majors, all services*	22,070	30,736 <sup>o</sup>	35,566 <sup>o</sup>	4.9	15.7
Nationals, all services*	210	2,172 <sup>p</sup>	2,338 <sup>p</sup>	27.3	7.6
Large Regionals, all services*	n/a	1,465 <sup>q</sup>	1,316 <sup>q</sup>	-	-10.2
Medium Regionals, all services					
Domestic and International*	n/a	435 <sup>r</sup>	206 <sup>r</sup>	-	-52.6
Total Certificated*	279,297	455,951	463,426	5.2	1.6

## AIR CARRIER PROFILE (cont'd)

	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988 Average Annual % Change</u>	<u>1987-1988 % Change</u>
<b>Air Carrier Accidents</b>					
Operating under 14 CFR 121 (airlines)					
Scheduled services	20 <sup>t</sup>	32 <sup>t</sup>	31 <sup>t</sup>	4.5	-3.1
Nonscheduled services	2	4	1	-6.7	-75.0
Operating under 14 CFR 135					
Scheduled services (commuters)	61	32	19	-11.0	-40.1
Nonscheduled services (on-demand air taxis)	198	98	98	-6.8	0.0
<b>Total*</b>	<b>281</b>	<b>171</b>	<b>147</b>	<b>-6.3</b>	<b>-14.0</b>
<b>Fatal Air Carrier Accidents</b>					
Operating under 14 CFR 121 (airlines)					
Scheduled services	5	4	3	-5.0	-25.0
Nonscheduled services	0	1	0	0.0	-100.0
Operating under 14 CFR 135					
Scheduled services (commuters)	14	10	2	-17.7	-80.0
Nonscheduled services (on-demand air taxis)	54	30	27	-6.7	-10.0
<b>Total*</b>	<b>73</b>	<b>46</b>	<b>33</b>	<b>-7.6</b>	<b>-28.3</b>
<b>Air Carrier Fatalities</b>					
Operating under 14 CFR 121 (airlines)					
Scheduled services	160	231	285	5.9	23.4
Nonscheduled services	0	1	0	0.0	-100.0
Operating under 14 CFR 135					
Scheduled services (commuters)	48	59	21	-7.9	-64.4
Nonscheduled services (on-demand air taxis)	155	65	58	-9.4	-10.8
<b>Total*</b>	<b>363</b>	<b>357</b>	<b>364</b>	<b>0.0</b>	<b>2.0</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.

<sup>1</sup> 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.

<sup>2</sup> 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 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. 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. 57/58
m	39) p. 86/93
n	39) p. 3
o	39) p. 6
p	39) p. 58/59
q	39) p. 87/94
r	39) p. 144/155
s	43) Tables Ia/IIa and Id/II d
t	18) Tables 2/3/4/5

## GENERAL AVIATION PROFILE (cont'd)

- n/a = not available.
- # In 1978, classified as "Industrial".
- \* Includes rental.

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) Tables 2-9/3.1
d	33) Tables 2-4/3.2
e	42) Table 14
f	42) Charts 35/36
g	42) Chart 27

## HIGHWAY PROFILE (cont'd)

	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988 Average Annual % Change</u>	<u>1987-1988 % Change</u>
<b>Rural/Urban Mileage by Functional System</b>					
<b>Rural Mileage</b>					
Interstate	n/a	33,111 <sup>e</sup>	33,303 <sup>e</sup>	-	0.6
Other Principal Arterial	n/a	80,719	80,778	-	0.1
Minor Arterial	n/a	147,254	147,456	-	0.1
Major Collector	n/a	435,413	436,267	-	0.2
Minor Collector	n/a	294,799	294,072	-	-0.3
Local	n/a	2,172,542	2,139,793	-	-1.5
<b>Total Rural Mileage</b>	<b>3,190,797<sup>e</sup></b>	<b>3,163,838</b>	<b>3,131,669</b>	<b>-0.2</b>	<b>-1.0</b>
<b>Urban Mileage</b>					
Interstate	n/a	11,217	11,236	-	0.2
Other Freeways and Expressways	n/a	7,390	7,555	-	2.2
Other Principal Arterial	n/a	50,483	50,955	-	1.0
Minor Arterial	n/a	74,984	74,928	-	-0.1
Collector	n/a	76,860	77,570	-	0.9
Local	n/a	489,254	517,140	-	5.7
<b>Total Urban Mileage</b>	<b>694,655</b>	<b>710,188</b>	<b>739,474</b>	<b>0.7</b>	<b>4.1</b>
<b>Total Rural and Urban Mileage</b>	<b>3,885,452</b>	<b>3,874,026</b>	<b>3,871,143</b>	<b>-0.1</b>	<b>-0.1</b>
<b>U.S. Roads and Streets</b>					
<b>Surfaced Mileage</b>					
State Control	761,000 <sup>l</sup>	616,000 <sup>l</sup>	618,000 <sup>l</sup>	-2.1	0.3
County and Local Control	2,442,000	2,887,000	2,873,000	1.6	-0.5
<b>Total</b>	<b>3,203,000</b>	<b>3,503,000</b>	<b>3,491,000</b>	<b>0.9</b>	<b>-0.3</b>
Percent Surfaced	82.4	90.4	90.2	0.9	-0.2
<b>Non-Surfaced Mileage</b>					
State Control	30,000	2,000	1,000	-28.8	-50.0
County and Local Control	652,000	369,000	380,000	-5.3	3.0
<b>Total</b>	<b>682,000</b>	<b>371,000</b>	<b>381,000</b>	<b>-5.7</b>	<b>2.7</b>
<b>Total Mileage</b>					
State Control	791,000	677,000	619,000	-2.4	-8.6
County and Local Control	3,094,000	3,257,000	3,252,000	0.5	-0.2
<b>Total</b>	<b>3,885,000</b>	<b>3,874,000</b>	<b>3,871,000</b>	<b>-0.1</b>	<b>-0.1</b>
<b>Interstate Highway and Defense Highway System Mileage</b>					
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
<b>Total Designated System<sup>5</sup></b>	<b>n/a</b>	<b>42,796</b>	<b>42,796</b>	<b>-</b>	<b>0.0</b>
<b>Number of Employees</b>					
Highways - State & Local Govt.	583,000 <sup>f</sup>	563,000 <sup>f</sup>	571,000 <sup>f</sup>	-0.2	1.4
Highway and Street Construction	263,100 <sup>k</sup>	275,100 <sup>k</sup>	254,000 <sup>k</sup>	-0.4	-7.7
Intercity Highway Transportation	36,100	30,900	29,000	-2.2	-6.2

## II PERFORMANCE

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

<b>Rural</b>					
Interstate	136,535 <sup>a</sup>	171,866 <sup>a</sup>	181,284 <sup>a</sup>	3.1	5.5
Other Principal Arterial	278,215 <sup>#</sup>	155,446	160,253	-5.8	3.1
Minor Arterial	n/a	146,528	151,783	-	3.6
Major Collector	133,971	174,176	183,507	3.2	5.4
Minor Collector	46,682	44,488	46,985	0.1	5.6
Local	94,553	89,243	93,745	-0.1	5.0
<b>Total Rural</b>	<b>689,953</b>	<b>781,747</b>	<b>817,557</b>	<b>1.7</b>	<b>4.6</b>



## AUTOMOBILE PROFILE

	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988</u> <u>Average</u> <u>Annual</u> <u>% Change</u>	<u>1987-1988</u> <u>% Change</u>
<b>FINANCIAL</b>					
Personal Auto Expenditures (\$ millions)					
New and Used Cars*	62,225 <sup>b</sup>	131,652 <sup>b</sup>	144,204 <sup>b</sup>	8.8	9.5
Tires, Tubes, Accessories and Parts	13,706	28,693	31,294	8.6	9.1
Gasoline and Oil	51,301	75,162	76,786	4.1	2.2
Tolls	955	1,878	1,986	7.6	5.8
Insurance Premiums less Claims Paid	7,820	15,379	16,809	8.0	9.3
Repair, Greasing, Washing, Parking, Storage, Rental	28,016	56,501	62,476	8.4	12.6
Auto Registration Fees	2,630 <sup>c</sup>	5,267 <sup>c</sup>	5,565 <sup>c</sup>	7.8	5.7
Driver's License Fees	340	608	611	6.0	0.5
<b>Total*</b>	<b>166,993</b>	<b>315,140</b>	<b>339,731</b>	<b>7.4</b>	<b>8.2</b>
Taxi Expenditures (\$ millions)	2,617 <sup>b</sup>	3,530 <sup>b</sup>	3,802 <sup>b</sup>	3.8	7.7
Business Auto Expenditures (\$ millions)	21,969 <sup>d</sup>	44,357 <sup>d</sup>	51,349 <sup>d</sup>	8.9	15.8
Government Auto Expenditures (\$ millions)	778	1,426	1,544	7.1	8.3
<b>Total Business/Government Auto Expenditures*</b>	<b>22,747</b>	<b>45,783</b>	<b>52,906</b>	<b>8.8</b>	<b>15.6</b>
<b>INVENTORY</b>					
Number of Vehicle Registrations					
Passenger Cars and Taxis	116,573,394 <sup>a</sup>	137,208,090 <sup>k</sup>	141,251,695 <sup>k</sup>	28.3	3.0
Motorcycles	4,867,864	4,917,131	4,584,284	-0.6	-6.8
Motor Vehicle Licensed Drivers (thousands)	140,844 <sup>f</sup>	161,818 <sup>f</sup>	162,853 <sup>f</sup>	1.5	0.6
Number of Employees					
Taxicabs	63,900 <sup>l</sup>	35,000 <sup>l</sup>	35,800 <sup>l</sup>	-5.6	2.3
Automotive Dealers and Service Stations	1,860,600 <sup>m</sup>	2,003,700 <sup>m</sup>	2,089,700 <sup>m</sup>	1.2	4.3
New and Used Car Dealers	888,600	982,900	1,027,400	1.5	4.5
Automotive Wholesalers	421,500 <sup>n</sup>	429,600 <sup>n</sup>	431,400 <sup>n</sup>	0.2	0.4
Automotive Services and Garages	549,200 <sup>o</sup>	795,400 <sup>o</sup>	836,700 <sup>o</sup>	4.3	5.2
<b>I. PERFORMANCE</b>					
Vehicle-Miles (millions) <sup>1</sup>					
Rural Highway					
Interstate Rural	94,080 <sup>h</sup>	108,867 <sup>k</sup>	116,079 <sup>k</sup>	2.1	6.6
Other Arterial Rural	188,801	197,610	204,932	0.8	3.7
Other Rural	184,353	194,582	206,068	1.1	5.9
All Rural	467,234	501,059	527,079	1.2	5.2
Urban Highway <sup>2</sup>					
Interstate Urban	123,956	183,562	195,942	4.7	6.7
Other Urban	562,476	680,215	716,297	2.5	5.3
All Urban	686,432	863,777	912,240	2.9	5.6
<b>Total Rural and Urban Highway</b>	<b>1,153,666</b>	<b>1,364,836</b>	<b>1,439,319</b>	<b>2.2</b>	<b>5.5</b>
Vehicle-Miles (millions)					
Passenger Cars and Taxis	1,146,508 <sup>a</sup>	1,355,330	1,429,297	2.2	5.5
Motorcycles	7,158	9,506	10,022	3.4	5.4
<b>Total</b>	<b>1,153,666</b>	<b>1,364,836</b>	<b>1,439,319</b>	<b>2.2</b>	<b>5.5</b>
Passenger-Miles (millions)					
Total Travel, Passenger Cars and Taxis <sup>3</sup>	2,178,365	2,304,061	2,429,804	1.1	5.5
Total Travel, Motorcycles <sup>4</sup>	7,874	10,457	11,024	3.4	5.5
Average Miles Traveled per Vehicle					
Passenger Cars and Taxis	9,835	9,878	10,119	0.3	2.4
Motorcycles	1,470	1,933	2,186	4.1	13.1
Fuel Consumed (million gallons)					
Passenger Cars and Taxis	81,661	70,573	71,654	-1.3	1.5
Motorcycles	144	190	200	3.3	5.3

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

## BUS PROFILE (cont'd)

	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988 Average Annual % Change</u>	<u>1987-1988 % Change</u>
All Buses					
Rural Highway					
Interstate Rural	473 <sup>f</sup>	579 <sup>e</sup>	599 <sup>e</sup>	2.4	3.5
Other Arterial Rural	2,016	1,237	1,269	-4.5	2.6
Other Rural	738	1,777	1,823	9.5	2.6
All Rural	3,227	3,593	3,691	1.4	2.7
Urban Highway <sup>1</sup>					
Interstate Urban	535	664	683	2.5	2.9
Other Urban	2,314	3,362	3,456	4.1	2.8
All Urban	2,849	4,026	4,139	3.8	2.8
Total Rural and Urban Highway	6,076	7,619	7,830	2.6	2.8
Revenue Passenger-Miles (millions)					
Intercity Bus, total	25,600 <sup>g</sup>	23,000 <sup>g</sup>	23,100 <sup>g</sup>	-1.0	0.4
Intercity Bus, Class I	16,230 <sup>e</sup>	11,701 <sup>e</sup>	11,935 <sup>e</sup>	-3.0	2.0
Number of Revenue Passengers (thousands)					
Intercity Bus, total	336,000 <sup>g</sup>	333,000 <sup>g</sup>	334,000 <sup>g</sup>	-0.1	0.3
Intercity Bus, Class I	124,800 <sup>e</sup>	96,093 <sup>e</sup>	98,880 <sup>e</sup>	-2.3	2.9
Average Passenger Trip Length (miles)					
Intercity Bus, total	76.2 <sup>g</sup>	69.1 <sup>g</sup>	69.2 <sup>g</sup>	-1.0	0.1
Intercity Bus, Class I	130.0 <sup>e</sup>	121.8 <sup>e</sup>	120.7 <sup>e</sup>	-0.7	-0.9
Average Miles Traveled per Vehicle					
Commercial	30,377 <sup>f</sup>	36,818	36,680	1.9	-0.4
School and Nonrevenue Bus	7,500	10,833	11,081	4.0	2.3
All Buses	12,143	15,586	15,622	2.6	0.2
Average Passenger Load Factor (%)					
Intercity Bus, Class I	46.7 <sup>e</sup>	41.9	39.1	-1.8	-6.7
Average Revenue per Passenger-Mile (cents)	5.6	10.1	10.7	6.7	3.0
Number of Fatalities					
School Bus-related	247 <sup>h</sup>	142 <sup>h</sup>	130 <sup>h</sup>	-6.2	-8.5
School Bus Occupants	23	10	8	-10.0	-20.0
Other Vehicle Occupants	135	90	80	-5.1	-11.1
Non-Occupants	89	42	42	-7.2	0.0
Occupant Fatalities					
All Buses	41	51	54	2.8	5.9
School Buses	19	14	38	7.2	171.4
Cross Country Buses	6	19	8	2.9	-57.9
Transit Buses	8	3	2	-12.9	-33.3
Other and Unknown	8	15	6	-2.8	-60.0
Fatalities in Vehicular Accidents <sup>2</sup>					
All Buses	412	405	341	-1.9	-15.8
Occupant Fatality Rate					
Per 100 Million Vehicle-Miles					
All Buses	0.7	0.9	1.0	3.6	11.1
Per 10,000 Registered Vehicles					
All Buses	0.8	0.8	0.9	1.2	12.5
Vehicle Involvement Rate					
Per 100 Million Vehicle-Miles					
All Buses	6.3	6.6	5.3	-1.7	-19.7
Per 10,000 Registered Vehicles					
All Buses	7.4	5.8	4.7	-4.4	-19.0

## TRUCK PROFILE

	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988 Average Annual % Change</u>	<u>1987-1988 % Change</u>
<b>FINANCIAL</b>					
Revenues (\$ millions)					
Local	67,630 <sup>a</sup>	88,200 <sup>b</sup>	95,000 <sup>b</sup>	3.5	7.7
Intercity					
ICC-authorized	36,500	61,000	66,500	6.2	9.0
Non-ICC-authorized	43,069	73,800	79,000	6.3	7.1
Operating Revenues of Class I Intercity Motor Carriers of Property (\$ millions)					
Freight, Intercity, Common Carriers	24,009	30,472 <sup>a</sup>	32,490 <sup>a</sup>	3.1	6.6
Freight, Intercity, Contract Carriers	884	3,048	3,914	16.0	28.4
Freight, Local Cartage	293	274	227	-2.5	-17.2
Trans. for other Classes I and II Carriers	254	166	195	-2.6	17.5
Others	1,415	3,170	2,998	7.8	-5.4
Total	26,855	37,130	39,824	4.0	7.3
Operating Expenses of Class I Intercity Motor Carriers of Property (\$ millions)	25,491	35,979 <sup>d</sup>	38,117 <sup>d</sup>	4.1	5.9
<b>INVENTORY</b>					
Number of Truck Registrations					
Private and Commercial	30,411,106 <sup>f</sup>	39,529,604 <sup>f</sup>	40,896,021 <sup>f</sup>	3.0	3.5
Federal	119,791	233,413	244,062	7.4	4.6
State, County, Municipal	1,091,707	1,355,745	1,389,285	2.4	2.5
Total	31,702,604	41,118,762	42,529,368	3.0	3.4
Number of Recreational Vehicles					
Motorized Homes	293,600 <sup>a</sup>	255,700 <sup>a</sup>	277,100 <sup>a</sup>	-0.6	8.4
Travel Trailers	59,800	92,800	96,900	5.0	4.4
Folding Camping Trailers	48,200	41,600	42,300	-1.3	1.7
Truck Campers	24,700	10,100	11,000	-7.8	8.9
Total	526,300	400,200	427,300	-2.1	6.8
Number of Employees					
Trucking and Trucking Terminals	1,212,000 <sup>g</sup>	1,360,700 <sup>g</sup>	1,454,900 <sup>g</sup>	1.8	6.9
Truck Drivers and Deliverymen	1,307,000 <sup>t</sup>	1,482,000 <sup>u</sup>	1,502,000 <sup>u</sup>	1.4	1.4
Number of Companies, Class I Intercity Motor Carriers of Property	884 <sup>c</sup>	874 <sup>d</sup>	889 <sup>d</sup>	0.1	1.7
Number of Employees, Class I Intercity Motor Carriers of Property	557,118	526,787	560,332	0.1	6.4
<b>I. PERFORMANCE</b>					
Vehicle-Miles (millions)					
Rural Highway					
Interstate Rural	43,602 <sup>k</sup>	61,134 <sup>j</sup>	64,696 <sup>j</sup>	4.0	5.8
Other Arterial Rural	81,203	103,510	106,212	2.7	2.6
Other Rural	87,566	111,729	116,469	2.9	4.2
All Rural	212,371	276,373	287,377	3.1	4.0
Urban Highway <sup>1</sup>					
Interstate Urban	34,364	60,821	62,254	6.1	2.4
Other Urban	138,418	213,856	231,171	5.3	8.1
All Urban	172,782	274,677	293,425	5.4	6.8
Total Rural and Urban Highway	385,153	551,050	580,802	4.2	5.4
Average Miles Traveled per Vehicle					
Single-Unit Trucks*	10,968 <sup>b</sup>	11,591 <sup>j</sup>	11,846 <sup>i</sup>	0.8	2.2
Combination Trucks	46,949	60,634	61,066	2.7	0.7
All Trucks	12,291	13,393	13,656	1.1	2.0
Ton-Miles (millions)					
Intercity	599,000 <sup>b</sup>	661,000 <sup>b</sup>	704,000 <sup>b</sup>	1.6	6.5

## TRUCK PROFILE (cont'd)

- \* 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, 103 <sup>rd</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
q	34) personal communication
s	28) Table 1016
t	20) p. 22/23
u	11) p. 28

LOCAL TRANSIT PROFILE (cont'd)

	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988 Average Annual % Change</u>	<u>1987-1988 % Change</u>
<b>I. PERFORMANCE</b>					
Revenue Vehicle-Miles (millions)					
Motor Bus	1,631 <sup>j</sup>	1,927 <sup>i</sup>	1,866 <sup>i</sup>	1.4	-3.2
Heavy Rail	364	490	518	3.6	5.7
Light Rail	20	18	21	0.5	16.7
Trolley bus	13	15	15	1.4	0.0
Demand Response	n/a	305	382	-	25.3
Ferryboat	2	2 <sup>h</sup>	2 <sup>h</sup>	0.0	0.0
Commuter Rail	174	189 <sup>i</sup>	201 <sup>i</sup>	1.5	6.4
Other**	14	16	17	2.0	6.3
Total	2,216	2,962	3,020	3.1	2.0
Unlinked Passenger Trips (millions)					
Motor Bus	5,721	5,624 <sup>k</sup>	5,767 <sup>k</sup>	0.1	2.5
Heavy Rail	1,706	2,402	2,308	3.1	-3.9
Light Rail	104	133	154	4.0	15.8
Trolley Bus	70	141	136	6.9	-3.6
Demand Response	n/a	78	96	-	23.1
Ferryboat	62	45 <sup>g</sup>	49 <sup>g</sup>	-2.3	8.9
Commuter Rail	267	311 <sup>k</sup>	325 <sup>k</sup>	2.0	4.5
Other**	5	32	32	20.4	0.0
Total	7,935	8,766	8,867	1.1	1.2
Passenger-Miles (millions)					
Motor Bus	20,708	20,977 <sup>l</sup>	21,379 <sup>l</sup>	0.3	1.9
Heavy Rail	10,330	11,198	11,301	0.9	0.9
Light Rail	392	405	471	1.9	16.3
Trolley Bus	234	223	211	-1.0	-5.4
Demand Response	n/a	491	603	-	22.8
Ferryboat	333	196 <sup>g</sup>	274 <sup>g</sup>	-1.9	39.8
Commuter Rail	6,213	6,819 <sup>k</sup>	6,941 <sup>k</sup>	1.1	1.8
Other**	57	207	182	12.3	-12.1
Total	38,267	40,516	41,362	0.8	2.1

n/a = not available.

\* 1978 figure included in General Administration.

\*\* Figure obtained by addition/subtraction.

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

<u>Source</u>	<u>References Number/Location</u>
a	3) p. 26
b	3) p. 30
c	3) pp. 66-76
d	3) p. 10
e	3) p. 65
f	3) p. 34
g	3) p. 12
h	3) p. 11
i	3) p. 55
j	3) p. 15
k	3) p. 41
l	3) p. 54

## WATER TRANSPORT PROFILE (cont'd)

	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988 Average Annual % Change</u>	<u>1987-1988 % Change</u>
<b>III. PERFORMANCE</b>					
Ton-Miles (thousands)					
Domestic Waterfreight					
Coastwise	540,373,236 <sup>a</sup>	586,818,000 <sup>o</sup>	561,594,865 <sup>o</sup>	0.4	-4.3
Internal	209,266,160	257,336,000	269,035,703	2.5	4.6
Lakewise	76,284,040	50,077,000	58,159,458	-2.7	16.1
Local	1,339,826	1,184,000	1,238,372	-0.8	4.6
Total	827,263,262	895,415,000	890,028,398	0.7	-0.6
Tons of Freight Hauled (thousands)					
Domestic Water					
Coastwise	305,343 <sup>a</sup>	323,518 <sup>a</sup>	325,177 <sup>a</sup>	0.6	0.5
Internal	534,509	569,827	588,119	10.0	3.2
Lakewise	142,663	96,484	109,664	-2.6	13.7
Local	89,507	81,951	83,689	-0.7	2.1
Total	1,072,022	1,071,780	1,111,772	0.4	3.7
Exports					
Great Lakes Ports*	43,554	32,049	36,638	-1.7	14.3
Coastal Ports	259,317	351,226	389,686	4.2	11.0
Total	302,871	383,275	426,324	3.5	11.2
Imports					
Great Lakes Ports*	27,046	13,876	15,854	-5.2	14.3
Coastal Ports	616,141	493,828	534,043	-1.4	8.1
Total	643,187	507,704	549,897	-1.6	8.3
Tons of Freight, Intraterritorial (thousands)					
	3,271 <sup>a</sup>	4,698 <sup>a</sup>	5,123 <sup>a</sup>	4.6	9.1
Average Haul, Domestic System (miles-per-ton)					
Coastwise	1,770	1,814	1,727	-0.3	-4.8
Internal	392	452	458	1.6	1.3
Lakewise	535	519	530	-0.1	2.1
Local	15	14	15	0.0	7.1
Total	772	835	804	0.4	-3.7
Cargo Capacity (short tons)					
Total Non-Self-Propelled Vessels					
Dry Cargo Barges and Scows	36,710,659 <sup>j</sup>	49,104,261 <sup>j</sup>	48,600,138 <sup>j</sup>	2.9	-1.0
Tankers	29,838,851	37,748,923	37,732,474	2.4	-0.1
Total Self-Propelled Vessels	9,467,565	11,355,338	10,867,664	1.4	-4.3
Dry Cargo/Passenger	20,253,358	19,747,468	21,461,430	0.6	8.7
Tankers	8,143,188	6,632,256	6,603,526	-2.1	-0.4
Sailing Vessels	12,110,155	13,112,283	14,854,641	2.1	13.3
	115	2,929	3,263	39.7	11.4
Fuel Consumption (thousand barrels)					
Diesel Fuel and Distillate	37,591 <sup>p</sup>	52,935 <sup>p</sup>	55,009 <sup>p</sup>	3.9	3.9
Residual Fuel Oil	157,495	125,221	124,976	-2.3	-0.2
Gasoline	19,333	28,066	28,997	4.1	3.3
Total	214,419	206,222	208,982	-0.3	1.3
Total Number of Vessels Involved in Marine Accidents <sup>3</sup>					
	7,495 <sup>l</sup>	5,538 <sup>l</sup>	6,367 <sup>l</sup>	-1.6	15.0
Number of Fatalities in Waterborne Transport <sup>4</sup>					
Freight	3	0	4	2.9	-
Tankship	1	0	1	0.0	-
Passenger Vessel	9	12	1	-19.7	-91.7
Tug/Towboat	8	3	8	0.0	166.7
Offshore Supply	2	1	1	-6.7	0.0
Fishing Vessel	90	66	52	-5.3	-21.2
State Numbered	19	14	11	-5.3	-21.4
MODU <sup>5</sup>	14	18	0	-	-100.0
Platform	1	0	1	0.0	-

**RAIL PROFILE**  
**A. CLASS I RAILROADS**

	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988</u> <u>Average</u> <u>Annual</u> <u>% Change</u>	<u>1987-1988</u> <u>% Change</u>
<b>I. FINANCIAL<sup>1</sup></b>					
Operating Revenues, Class I Line-Haul Railroads (\$ millions)					
Passenger	356 <sup>a</sup>	94 <sup>a</sup>	85 <sup>a</sup>	-13.3	-9.6
Freight	20,236	25,797	27,092	3.0	5.0
Other	1,130	731	757	-3.9	3.6
Total	21,721	26,622	27,934	2.6	4.9
Operating Expenses, Class I Line-Haul Railroads <sup>2</sup> (\$ millions)					
	21,043	23,878	24,811	0.9	3.9
<b>II. INVENTORY</b>					
Number of Vehicles, Class I Railroads					
Freight Cars	1,225,374	748,523	724,840	-5.1	-3.2
Passenger Train-Cars <sup>3*</sup>	2,409	500	487	-14.8	-2.6
Locomotives <sup>3*</sup>	26,960	19,647	19,364	-3.3	-1.4
Number of Companies, Class I Railroads					
	41 <sup>b</sup>	16 <sup>b</sup>	14 <sup>b</sup>	-10.2	-12.5
Number of Employees, Class I Railroads					
	471,519 <sup>a</sup>	248,526 <sup>a</sup>	235,880 <sup>a</sup>	-6.7	-5.1
Line Mileage, Class I Line-Haul Railroads					
	177,710	132,220	127,555	-3.3	-3.5
<b>III. PERFORMANCE</b>					
Car Mileage, Class I Railroads (thousands)					
Freight	29,076,000	25,627,000	26,339,000	-1.0	2.8
Train Mileage, Class I Railroads (thousands)					
Freight	432,895 <sup>a</sup>	360,692 <sup>a</sup>	379,271 <sup>a</sup>	-1.3	5.2
Locomotive Mileage, Class I Railroads (thousands)					
Freight	1,269,960	1,109,775 <sup>c</sup>	1,163,727 <sup>c</sup>	-0.9	4.9
Train and Yard Switching <sup>*</sup>	241,245	133,303	143,215	-5.1	7.4
Total <sup>*</sup>	1,511,205	1,243,078	1,306,942	-1.4	5.1
Revenue Passengers Carried, Class I Railroads (thousands)					
Commutation	199,800 <sup>e</sup>	311,000 <sup>e</sup>	318,800 <sup>e</sup>	4.8	2.5
Revenue Passenger-Miles, Class I Railroads (thousands)					
Commutation	6,213,000 <sup>d</sup>	6,819,000 <sup>d</sup>	6,941,000 <sup>d</sup>	1.1	1.8
Average Passenger Trip Length, Class I Railroads (miles)					
Commutation	23.4 <sup>i</sup>	21.9 <sup>i</sup>	21.9 <sup>i</sup>	-0.7	0.0
Revenue Ton-Miles, Class I Railroads (millions)					
Freight	857,921 <sup>f</sup>	943,747 <sup>f</sup>	996,182 <sup>f</sup>	1.5	5.6
Average Haul per Ton, Class I Railroads (miles)					
Freight	617	688	697	1.2	1.3
Average Revenue per Passenger-Mile (cents)					
	5.2	12.3	12.5	9.2	1.6



**RAIL PROFILE  
B. AMTRAK**

	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988 Average Annual % Change</u>	<u>1987-1988 % Change</u>
<b>I. FINANCIAL</b>					
Operating Revenues (\$ thousands)					
Passenger	252,338 <sup>a</sup>	566,882 <sup>a</sup>	651,305 <sup>a</sup>	10.0	14.9
Other*	68,849	316,172	330,939	17.0	4.7
Total	321,187	883,054	982,244	11.8	11.2
Operating Expenses (\$ thousands)	863,486	1,518,867	1,579,736	6.2	4.0
<b>II. INVENTORY</b>					
Number of Vehicles					
Passenger Train-Cars	2,084	1,850	1,845	-1.2	-0.3
Locomotives	441	381	391	-1.2	2.6
Number of Employees	19,735	22,012	23,173	1.6	5.3
Average Line Mileage	26,186 <sup>b</sup>	23,499	23,499	-1.1	0.0
<b>III. PERFORMANCE</b>					
Passenger Train-Car Mileage (thousands)	255,214 <sup>a</sup>	261,054	277,774	0.9	6.4
Passenger Train Mileage (thousands)	32,451	29,515	30,221	-0.7	2.4
Passenger Locomotive Mileage (thousands)	43,262 <sup>b</sup>	43,300 <sup>c</sup>	45,400 <sup>c</sup>	0.5	4.9
Revenue Passengers Carried (thousands)	19,173 <sup>a</sup>	20,699 <sup>a</sup>	21,489 <sup>a</sup>	1.2	3.8
Revenue Passenger-Miles (thousands)	4,153,711	5,360,780	5,685,653	3.2	6.1
Average Revenue per Passenger (dollars)	13.2	27.4	30.3	8.7	10.6
Average Revenue per Passenger-Mile (cents)	6.1	10.6	11.5	6.6	8.5
Average Trip per Passenger (miles)	216.6	259.0	264.6	2.0	2.3

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

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

<u>Source</u>	<u>Reference Number/Location</u>
a	5) pp. 61/62
b	7) pp. 16, 17
c	4) personal communication

## NATURAL GAS PIPELINE PROFILE

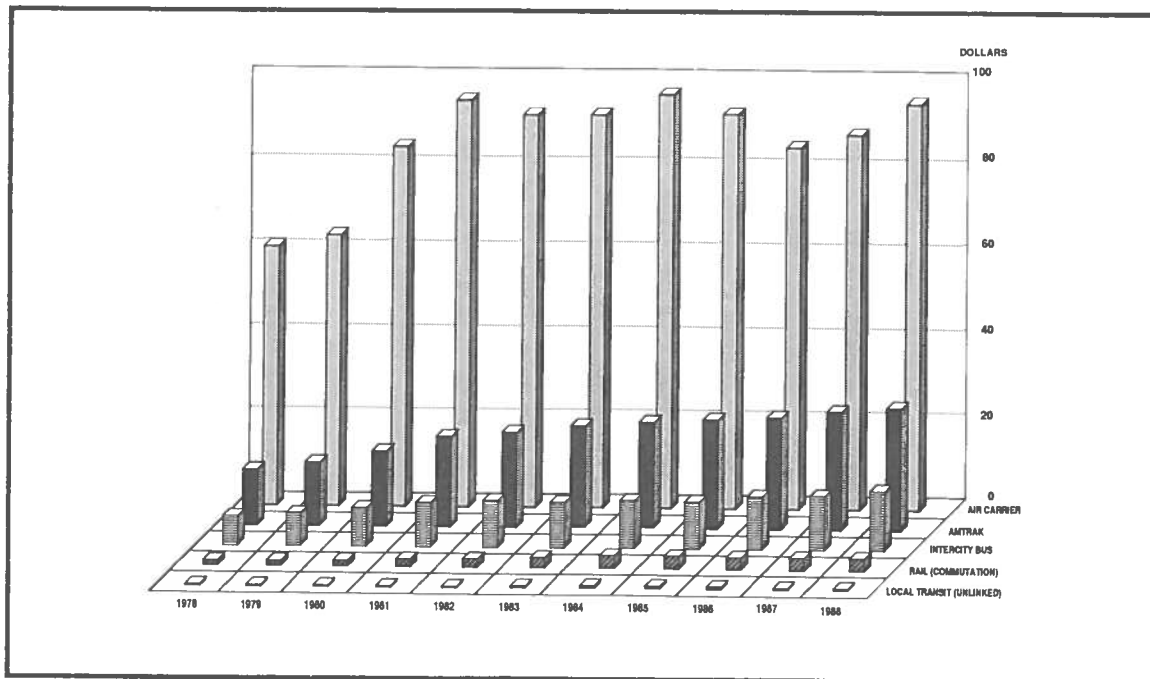
	<u>1978</u>	<u>1987</u>	<u>1988</u>	<u>1978-1988 Average Annual % Change</u>	<u>1987-1988 % Change</u>
<b>I. FINANCIAL</b>					
Transmission Pipeline Companies					
Total Operating Revenues (\$ millions)	22,989 <sup>a</sup>	27,275 <sup>b</sup>	26,482 <sup>b</sup>	1.4	-2.9
Operating Expenses (\$ millions)					
Operating Expenses	18,357	21,972	22,226	1.9	1.2
Maintenance Expenses	284	546	603	7.8	10.4
Total Operating and Maintenance Expenses	18,641	22,518	22,829	2.1	1.4
Taxes					
Federal Taxes*	1,229	889	91	-22.9	-89.8
State and Local Taxes*	253	491	501	7.1	2.0
Total Taxes	1,482	1,380	592	-8.8	-57.1
Total Operating Expenses	21,280	25,359	24,958	1.6	-1.6
Distribution Pipeline Companies					
Total Operating Revenues(\$ millions)	9,936 <sup>c</sup>	16,513 <sup>d</sup>	16,666 <sup>d</sup>	5.3	0.9
Operating Expenses (\$ millions)					
Operating Expenses	7,766	12,687	12,761	5.1	0.6
Maintenance Expenses	213	430	440	7.5	2.3
Total Operating and Maintenance Expenses	7,979	13,117	13,111	5.1	-0.1
Taxes					
Federal Taxes*	361	562	492	3.1	-12.5
State and Local Taxes*	640	991	980	4.4	-1.1
Total Taxes	1,001	1,553	1,472	3.9	-5.2
Total Operating Expenses	9,279	15,299	15,270	5.1	-0.2
<b>II. INVENTORY</b>					
Transmission Pipeline Companies					
Number of Employees	42,300 <sup>m</sup>	44,300 <sup>f</sup>	42,800 <sup>f</sup>	0.1	-3.4
Miles of Transmission Pipeline <sup>1</sup>					
Steel Pipe	255,800 <sup>e</sup>	268,700 <sup>g</sup>	271,900 <sup>g</sup>	0.6	1.2
Plastic Pipe**	2,700	3,100	3,100	1.4	0.0
Other	2,100	100	100	-26.3	0.0
Total	260,600	271,900	275,100	0.5	1.2
Distribution Pipeline Companies					
Number of Employees	50,700 <sup>m</sup>	59,500 <sup>f</sup>	59,600 <sup>f</sup>	1.6	0.2
Miles of Distribution Pipeline					
Steel Pipe	555,300 <sup>e</sup>	576,200 <sup>g</sup>	579,800 <sup>g</sup>	0.4	0.6
Plastic Pipe**	59,300	151,500	166,000	10.8	9.6
Other	62,900	56,100	54,600	-1.4	-2.7
Total	677,500	783,800	800,400	1.7	2.1
Number of Interstate Natural Gas Pipeline Companies	86 <sup>h</sup>	134 <sup>h</sup>	132 <sup>h</sup>	4.4	-1.5
<b>III. PERFORMANCE</b>					
Total Marketed Production (million cubic feet)	19,974,033 <sup>i</sup>	17,348,537 <sup>i</sup>	17,808,313 <sup>i</sup>	-1.1	2.7
Total Delivered to Consumers (million cubic feet)	17,449,116 <sup>j</sup>	15,542,256 <sup>j</sup>	16,318,984 <sup>j</sup>	-0.7	5.0
Total Consumed (million cubic feet)	19,627,478	17,210,809	18,027,572	-0.9	4.8
Total Gas Used as a Pipeline Fuel (million cubic feet)	530,451	519,170	613,912	1.5	18.3
Total Gas Pipeline Fatalities	31 <sup>l</sup>	9 <sup>l</sup>	18 <sup>l</sup>	-5.3	100.0

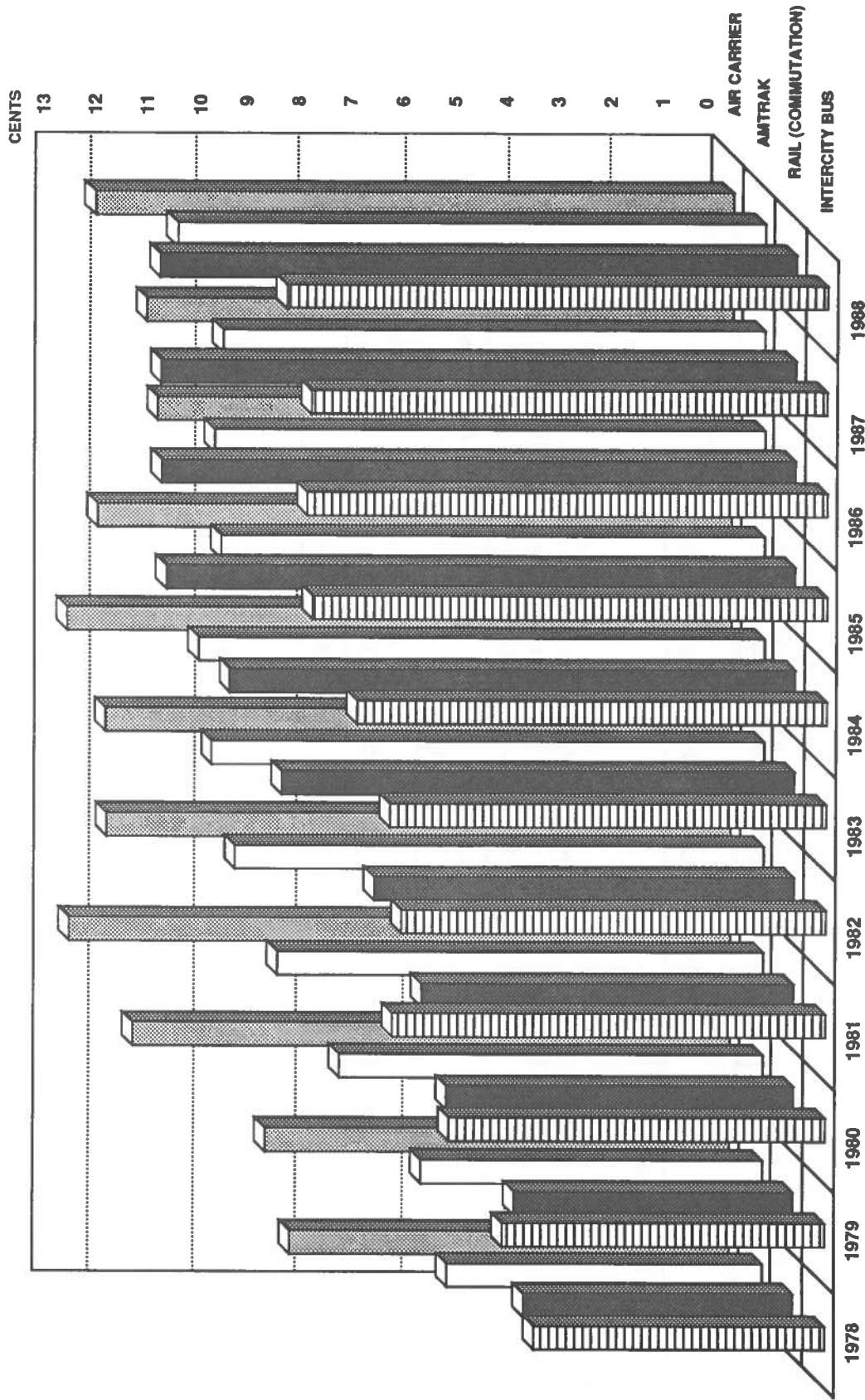
# TRANSPORTATION TRENDS

Transportation Trends includes transportation statistics from 1978 through 1988/89, 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.





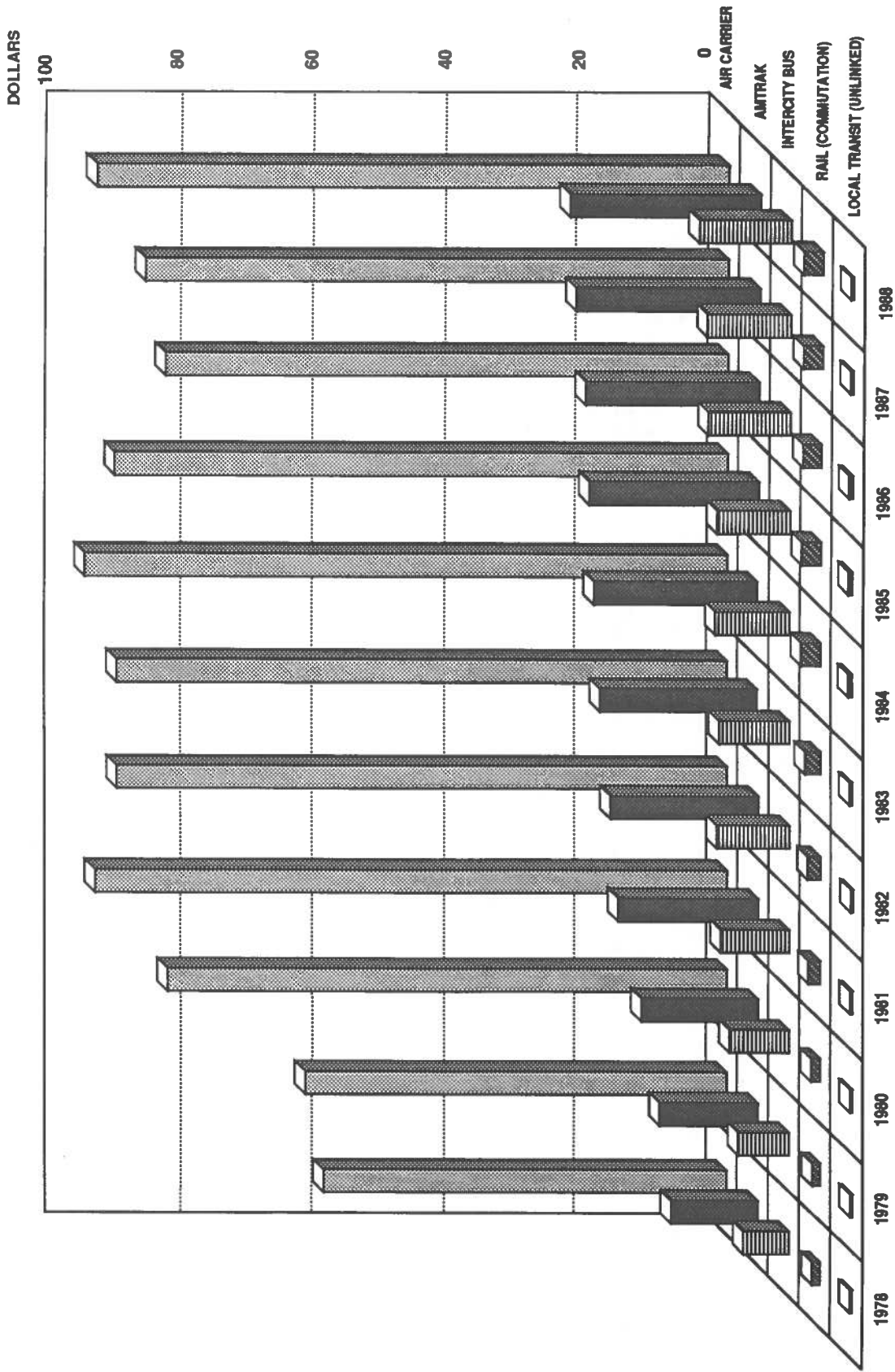
Source: See Table 1.

Figure 8. Average Passenger Revenue Per Passenger-Mile, 1978-1988



Figure 9. Average Freight Revenue Per Ton-Mile, 1978-1988

n/a = not available.  
Source: See Table 2.



Source: See Table 3.

Figure 10. Average Passenger Fare, 1978-1988

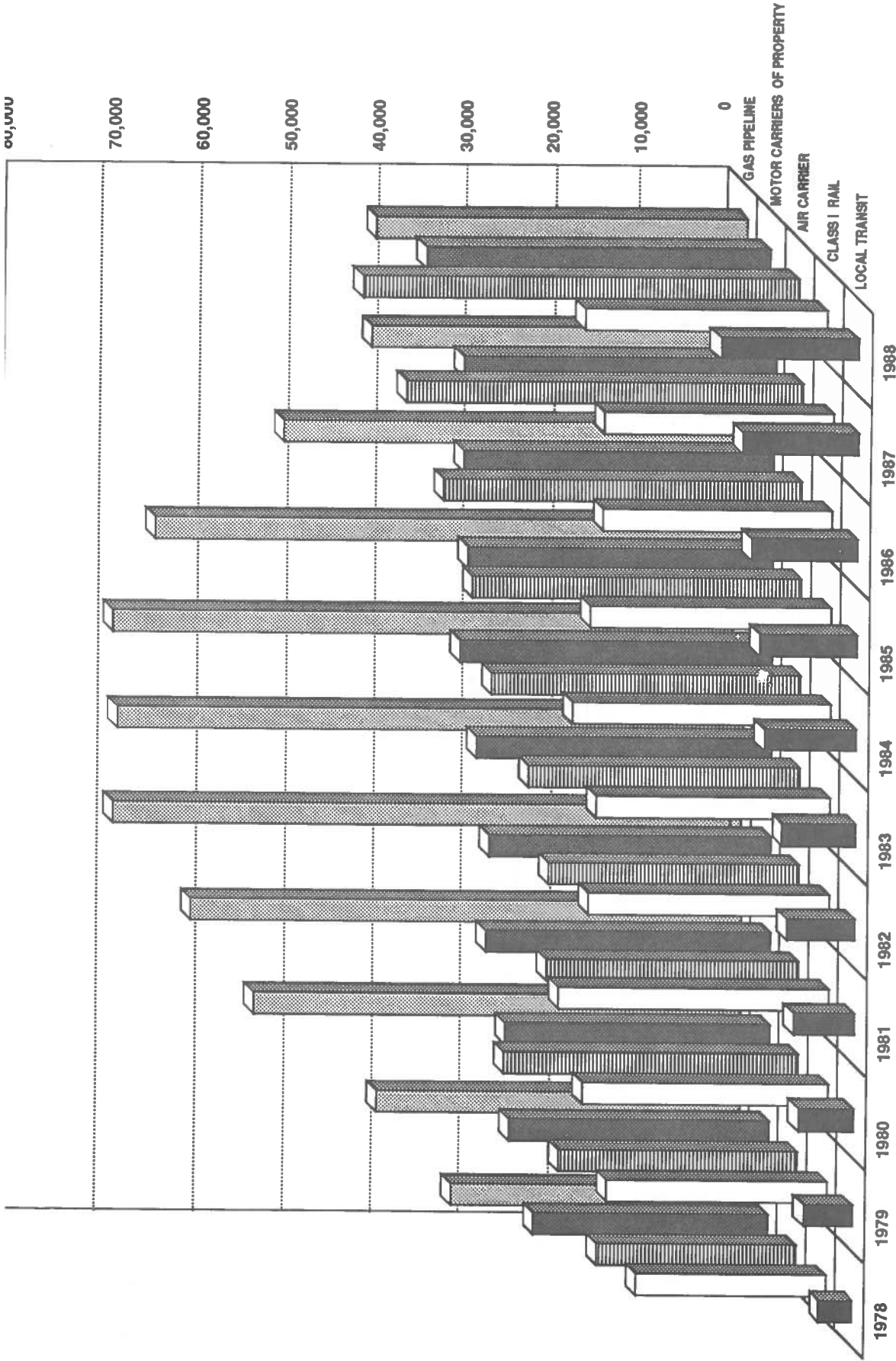


Figure 11. Total Operating Revenues, 1978-1988

Source: See Table 4.



Figure 12. Vehicle-Miles, 1978-1988

Source: See Table 5.



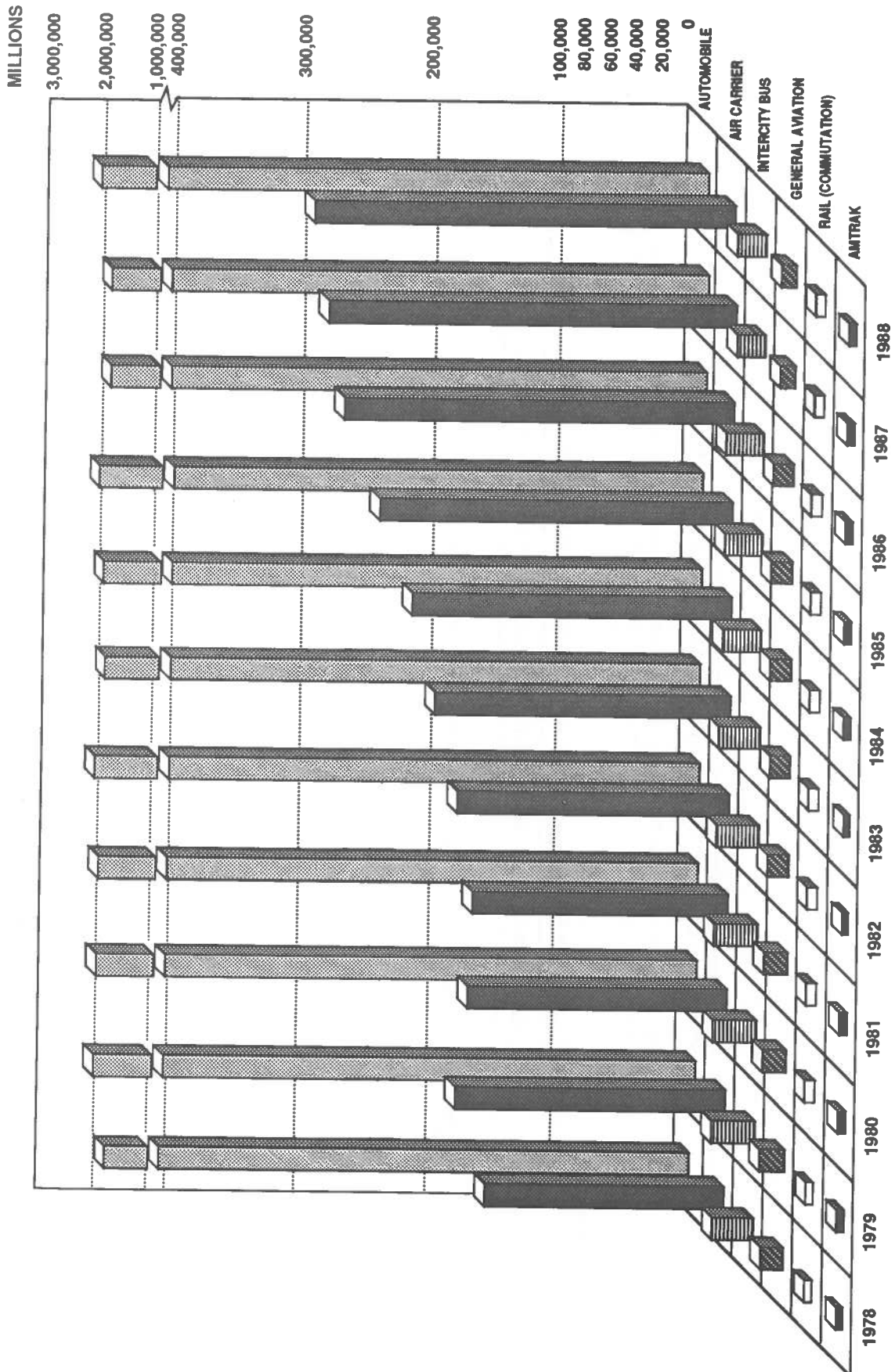


Figure 13. Passenger-Miles, 1978-1988

Source: See Table 6.



Figure 14. Revenue Ton-Miles of Freight, 1978-1988

Source: See Table 7.



Source: See Table 8.

Figure 15. Basic Intercity Mileage Within the Continental United States, 1978-1988

Table 10. Number of Vehicles, 1978-1988

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Air Carrier, certificated, all services	2,521	2,598†	2,718	2,763	2,664	2,659	2,757	3,100	3,627	3,698	4,188
General Aviation	198,778	210,339	211,045	213,227	209,779	213,293	220,943	210,654	220,044	217,183	210,266
Motorcycle	4,867,864	5,422,132	5,693,940	5,831,132	5,753,858	5,585,112	5,479,822	5,444,404	5,262,322	4,917,131 <sup>r</sup>	4,584,284
Passenger Car & Taxi (thousands)	116,573	118,429	121,601	123,098	123,702	126,444	128,158	131,864	135,431	137,208 <sup>r</sup>	141,252
Intercity Bus	20,400	21,300	21,400	21,500	22,000	20,300	20,100	20,200	20,300	20,097	19,887
Local Transit, total <sup>††</sup>											
Motor Bus <sup>††</sup>	68,443	70,046	75,388	76,433	78,205	78,106	95,603	88,691	95,965 <sup>r</sup>	96,148 <sup>r</sup>	96,490 <sup>p</sup>
Heavy Rail	52,866	54,490	59,411	60,393	62,114	62,093	63,497	57,285	61,586 <sup>r</sup>	61,000 <sup>r</sup>	60,388 <sup>p</sup>
Light Rail	9,515	9,470	9,641	9,749	9,815	9,891	9,083	9,326	10,386	10,168	10,539 <sup>p</sup>
Trolley Bus	944	959	1,013	1,075	1,016	1,013	733	699	697	766	831 <sup>p</sup>
Commuter Rail	593	725	823	751	763	686	664	676	680	671	710 <sup>p</sup>
Demand Response	4,525	4,402	4,500	4,465	4,497	4,423	4,075	4,035	4,440	4,686 <sup>r</sup>	4,649 <sup>p</sup>
Other	n/a	n/a	n/a	n/a	n/a	n/a	16,471	15,545	17,063 <sup>r</sup>	17,717 <sup>r</sup>	18,190 <sup>p</sup>
Class I Rail, total	n/a	n/a	n/a	n/a	n/a	n/a	1,080	1,008 <sup>r</sup>	1,114 <sup>r</sup>	1,140 <sup>r</sup>	1,183 <sup>p</sup>
Freight Cars	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	744,691
Locomotives	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	724,840
Passenger Train-Cars	26,960	27,660	27,977	27,421	26,675	25,448	24,117	22,548	20,790	19,647	19,364
	2,409	2,215	2,219	2,115	1,807	730	736	684	514	500	487
Amtrak, total	2,524	2,463	2,547	2,215	2,325	2,268	2,231	2,200	2,162	2,231	2,236
Passenger Train-Cars	2,084	2,026	2,128	1,830	1,929	1,880	1,844	1,818	1,793	1,850	1,845
Locomotives	440	437	419	385	396	388	387	382	369	381	391
Truck, total	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	41,144,454 <sup>r</sup>	42,529,368
Single-Unit	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	39,725,054 <sup>r</sup>	41,053,127
Combination	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	1,419,400 <sup>r</sup>	1,476,241
Water Transport, total	33,307	34,849	37,149	n/a	39,614	n/a	39,581	39,230	38,384	37,868	36,952
Total Inland Water Vessels	32,428	33,984	36,285	*	38,782	*	38,837	38,493	37,664	37,159	36,277
Non-Self-Propelled Vessels											
Dry Cargo Barges & Scows	24,037	25,420	27,426	*	29,479	*	29,730	29,287	28,308	27,741	27,046
Tankers	3,946	4,000	4,166	*	4,413	*	4,114	4,252	4,260	4,247	4,043
Total	28,048	29,492	31,592	*	33,892	*	33,844	33,539	32,568	31,988	31,089
Self-Propelled Vessels											
Towboats & Tugs	4,380	4,492	4,693	*	4,890	*	4,993	4,954	5,096	5,171	5,188
Oceangoing Steam & Motor Ships (1,000 gross tons & over)	879	865	864	853	832	788	744	737	720	709	675

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, 1978-1988  
(thousands)

Use	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Business Fleets <sup>a</sup>	3,148	3,195	3,279	3,306	3,324	3,383	3,422	3,484	3,530	3,564	3,689
Individually Leased	1,610	1,690	1,708	1,713	1,645	1,653	1,657	1,800	1,975	2,098	2,160
Government <sup>b</sup>	747	752	752	757	603	606	638 <sup>c</sup>	643	647	650	656
Utilities	523	529	532	537	530	533	540	540	545	550	553
Police	294	291	288	284	223	221	228	233	238	240	242
Taxi	205	207	205	198	141	139	140	140	143	144	144
Daily Rental	448	462	500	462	457	466	755 <sup>d</sup>	760	790	800	870
Total (Cars in fleets of 10 or more)	6,975	7,126	7,264	7,257	6,923	7,001	7,380	7,600	7,868	8,046	8,314
Cars in fleets of 4 or more	10,423	10,428	10,433	10,436	10,076	10,400	10,475	10,508	10,508	10,578	10,597

<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: 1978-1987: Oak Ridge National Laboratory, *Transportation Energy Data Book*, 1989, Table 2.35.

1988: *Ibid.*, Transportation Energy Group, personal communication.

**Table 14. Air Travel Arrivals Between the United States and Foreign Countries, 1978-1989**  
(thousands)

**Arrivals**

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
<b>Flag of Carrier and Country</b>												
Total Passengers	16,955	19,268	20,262	20,881	20,216	20,840	23,212	24,156	25,608	28,644	31,387	33,217
Flag of Carrier:												
United States	8,551	9,864	10,031	10,265	10,163	10,698	11,623	11,798	12,254	14,313	16,492	17,174
Foreign	8,404	9,404	10,231	10,615	10,054	10,142	11,588	12,357	13,354	14,331	14,896	16,044
<b>Country of embarkation<sup>1</sup></b>												
Australia	147	208	227	229	254	242	277	277	313	378	431	433
Bahama Islands	993	1,078	1,123	1,053	1,153	1,344	1,373	1,503	2,488	1,828	1,737	1,596
Barbados	117	139	135	123	115	167	211	216	218	237	2552	220
Belgium	113	187	242	249	299	250	242	281	316	227	224	305
Bermuda	426	469	497	451	441	439	441	434	500	516	476	451
Brazil	219	253	300	311	308	308	321	352	433	418	458	501
China/Taiwan	92	96	113	138	148	154	187	206	254	249	215	229
Colombia	232	281	315	334	314	309	285	279	281	264	282	284
Denmark	248	260	267	251	243	230	239	241	247	302	328	356
Dominican Republic	429	465	468	495	501	532	575	606	705	817	906	934
France	656	707	689	686	695	705	795	955	908	1,181	1,366	1,570
Germany, West	963	1,053	1,175	1,182	1,174	1,223	1,404	1,582	1,582	1,962	2,145	2,135
Grand Cayman	81	96	121	129	132	144	170	173	199	222	229	226
Greece	220	231	208	206	198	234	265	187	86	125	146	128
Haiti	120	142	133	148	146	159	175	192	179	190	232	234
Hong Kong	112	187	228	230	197	217	295	270	304	319	334	347
Ireland	244	263	220	229	250	222	256	274	300	291	353	436
Israel	139	190	189	190	189	233	255	294	187	230	226	206
Italy	530	572	537	493	529	572	649	662	506	665	710	749
Jamaica	427	492	429	479	587	682	712	707	851	938	914	899
Japan	1,308	1,579	1,624	1,705	1,819	1,896	2,267	2,435	2,612	3,098	3,748	4,117
Korea, South	118	169	234	228	245	249	290	390	509	521	503	666
Mexico	2,118	2,611	2,886	3,091	2,456	2,691	2,901	2,719	2,843	3,534	3,621	3,816
Netherlands	371	460	427	450	482	467	558	583	589	621	663	763
Netherlands Antilles	307	353	327	359	332	370	426	407	465	524	610	593
Panama Republic	127	154	150	151	146	146	169	180	176	165	152	111
Philippines	175	163	194	244	212	158	165	145	144	182	242	239
Spain	335	333	312	310	337	376	418	419	304	389	466	503
Switzerland	339	321	312	321	332	314	427	452	416	532	597	648
United Kingdom	2,596	2,689	2,973	3,092	2,694	2,812	3,222	3,460	3,215	3,884	4,289	4,638
Venezuela	355	431	533	577	581	312	255	248	359	329	401	415

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/RSPA/Transportation Systems Center, Cambridge, MA, *U.S. International Air Travel Statistics*, annual issues, Tables Ia/IIa.

**Table 16. Top 50 Airports\*, Large Scheduled Certificated Air Carriers, 1988**

<b>Rank</b>	<b>Airport</b>	<b>Total Enplaned Passengers</b>
1	Chicago (O'Hare), IL	26,596,800
2	Atlanta, GA	21,824,125
3	Dallas/Ft. Worth (Regional), TX	21,014,158
4	Los Angeles, CA	18,643,319
5	Denver, CO	14,441,817
6	San Francisco, CA	13,347,979
7	New York (La Guardia), NY	11,321,800
8	Newark, NJ	10,837,963
9	New York (John F. Kennedy), NY	10,660,421
10	Boston, MA	10,141,298
11	St. Louis, MO	9,554,454
12	Miami, FL	9,461,760
13	Phoenix, AZ	9,455,324
14	Detroit, MI	9,213,713
15	Honolulu, Oahu, HI	8,396,313
16	Pittsburgh, PA	8,378,639
17	Minneapolis/St. Paul, MN	8,170,952
18	Orlando, FL	7,473,086
19	Washington (National), DC	7,259,448
20	Houston, (Intercontinental), TX	6,871,886
21	Las Vegas, NV	6,864,803
22	Seattle-Tacoma, WA	6,825,513
23	Philadelphia, PA	6,633,677
24	Charlotte, NC	6,619,780
25	San Diego, CA	5,180,587
26	Salt Lake City, UT	4,729,937
27	Memphis, TN	4,532,572
28	Tampa, FL	4,495,349
29	Kansas City, MO	4,469,974
30	Baltimore, MD	4,369,596
31	Washington (Dulles Int'l), DC	4,327,179
32	Ft. Lauderdale, FL	3,899,039
33	Houston (William P. Hobby), TX	3,840,383
34	Cleveland, OH	3,547,258
35	Cincinnati, OH	3,542,865
36	Raleigh/Durham, NC	3,517,525
37	San Juan, PR	3,263,722
38	Nashville, TN	3,244,014
39	New Orleans, LA	3,199,970
40	Chicago(Midway), IL	3,174,057
41	Portland, OR	2,823,311
42	San Jose, CA	2,774,444
43	Dallas(Love Field), TX	2,474,828
44	Indianapolis, IN	2,405,638
45	San Antonio, TX	2,392,332
46	West Palm Beach, FL	2,360,993
47	Ontario, CA	2,353,959
48	Hartford, CT	2,321,986
49	Orange County, CA	2,156,434
50	Dayton, OH	2,140,470

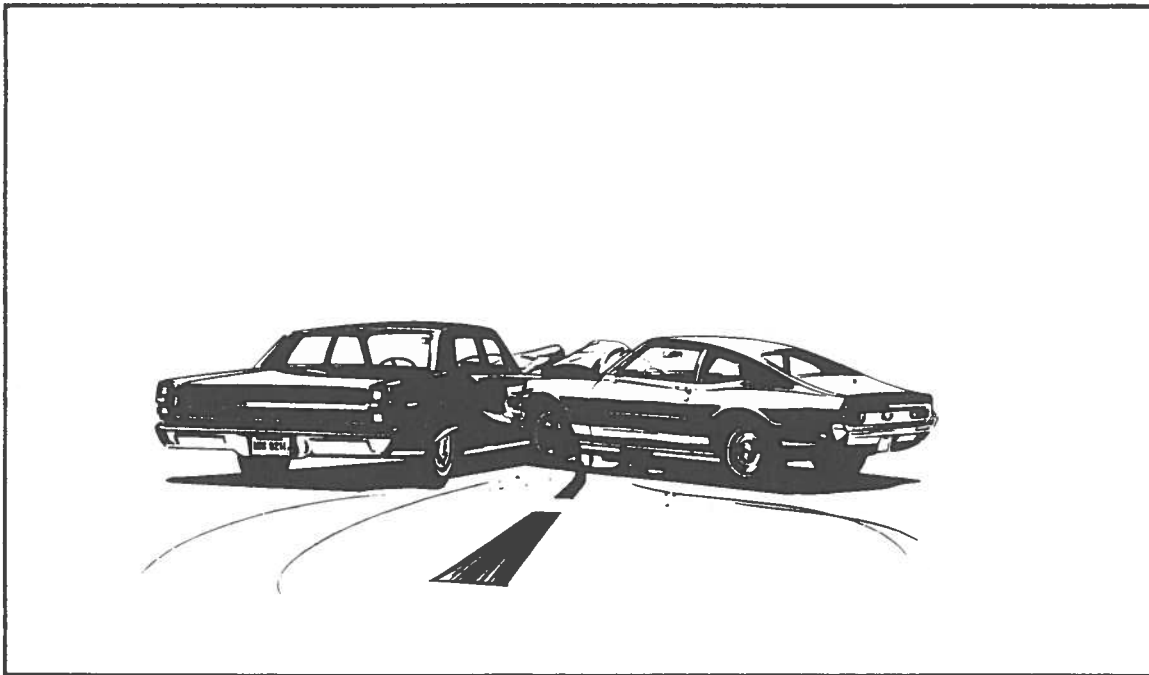
\* Rank order by total enplaned passengers.

Source: U.S. DOT/FAA, *FAA Statistical Handbook of Aviation*, 1988.

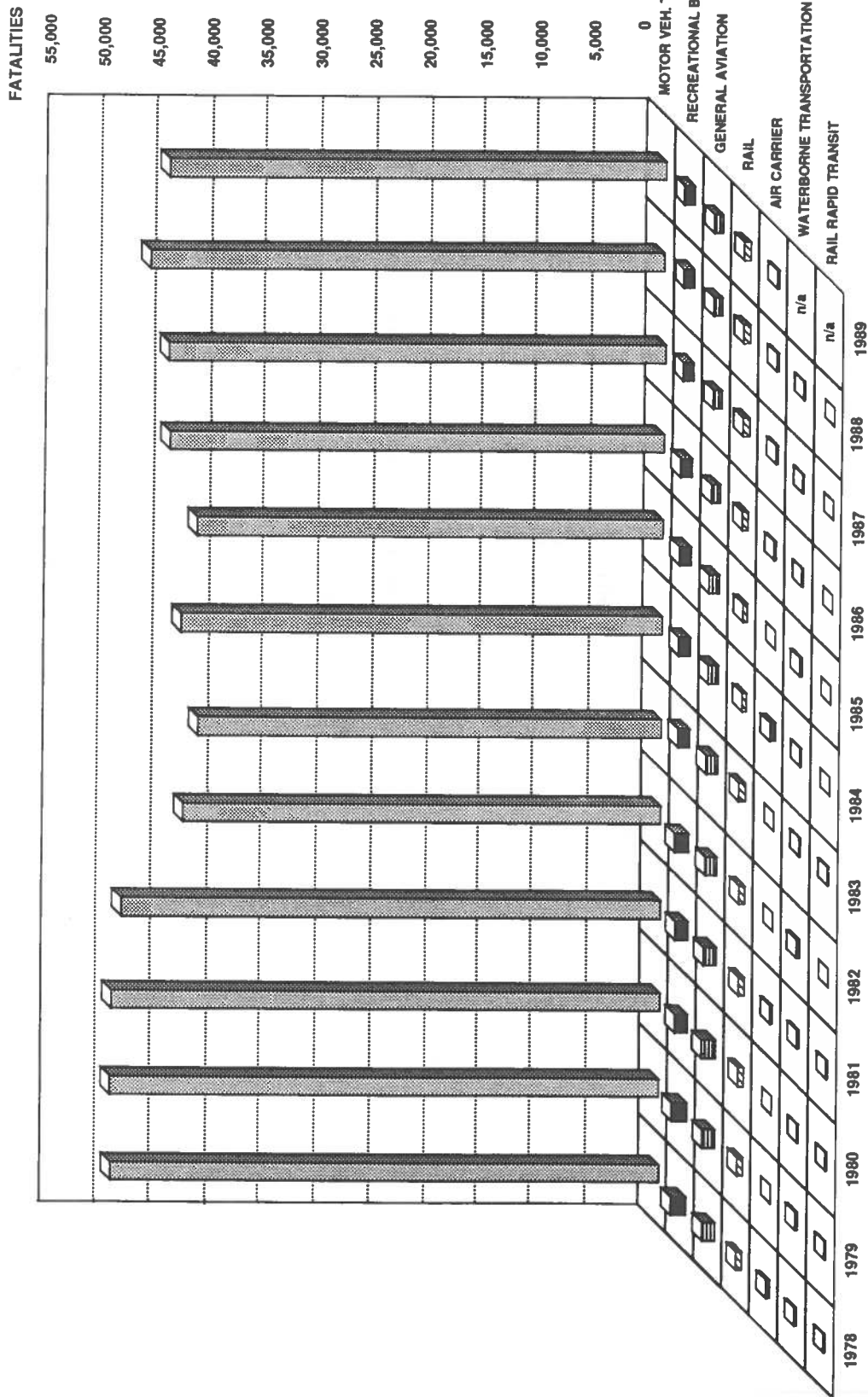
# TRANSPORTATION TRENDS

## Section II: Safety

This section presents the number of fatalities, accidents, and injuries for the various transportation modes from 1978-1988/1989.







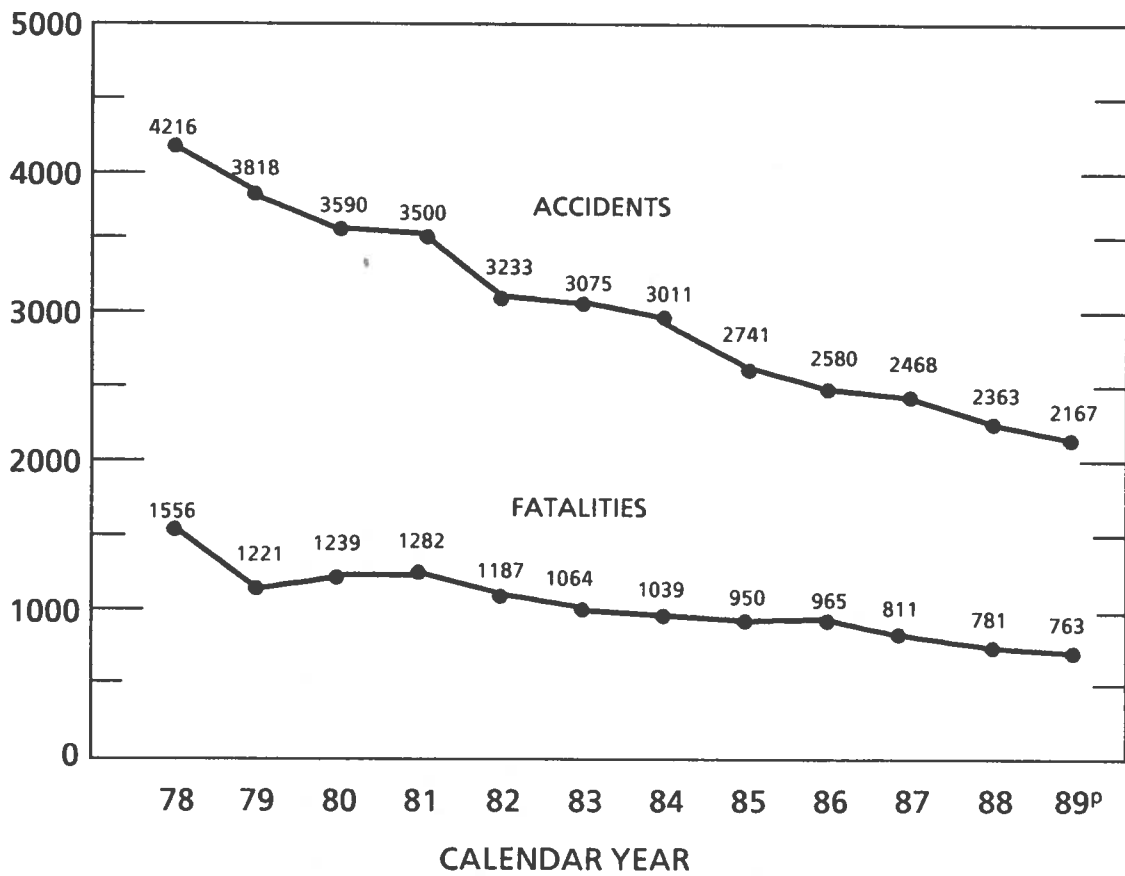
n/a = not available.  
Source: See Table 17.

Figure 16. Number of Fatalities by Mode, 1978-1989

Table 19. Airline Passenger Screening Results, 1979-1989

Screening Category	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Persons Screened (millions)	593	585	599	630	709	776	993	1,055	1,096	1,055	1,113
Weapons Detected											
Firearms	2,161	2,022	2,255	2,676	2,784	2,957	2,987	3,241	3,252	2,773	2,879
(1) Handguns	1,962	1,878	2,124	2,559	2,634	2,766	2,823	2,981	3,012	2,591	2,397
(2) Long Guns	55	36	44	57	67	98	90	146	99	76	92
(3) Other	144	108	87	60	83	91	74	114	141	108	390
Explosive/Incendiary Devices	3	8	11	1	4	6	12	11	14	11	26
Persons Arrested											
For Carriage of Firearms/Explosives	1,060	1,031	1,187	1,314	1,282	1,285	1,310	1,415	1,581	1,493	1,436
For Giving False Information	47	32	49	27	34	27	42	89	81	222	83

Source: 1979-1988: U.S. DOT/FAA, AXR Statistical Information Summary, June 1989.  
 1989: *Ibid.*, personal communication.

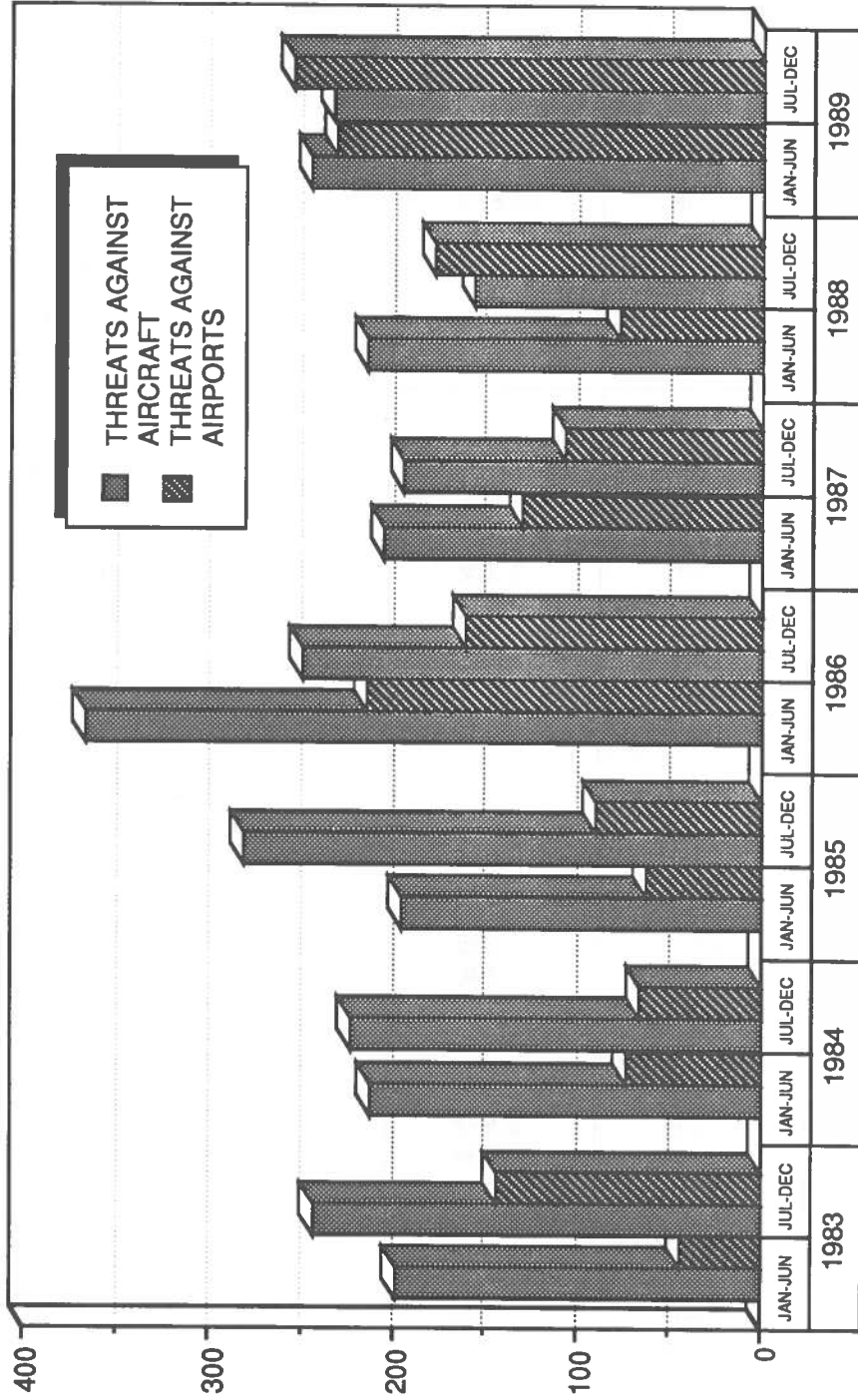


**Figure 18. General Aviation\* Fatalities and Accidents, 1978-1989**

<sup>p</sup> = preliminary.

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

Source: 1978-1989: NTSB, *NTSB Aviation Accident Statistics*, January 1990, and earlier editions.



**Figure 20. Bomb Threats Against U.S. Aircraft and U.S. Airports, 1983-1989**

Note: An analysis of the period from July 1, 1985 through April 30, 1986 reveals that this statistical "spike" may be attributed, in part, to extensive publicity given aviation explosive incidents.

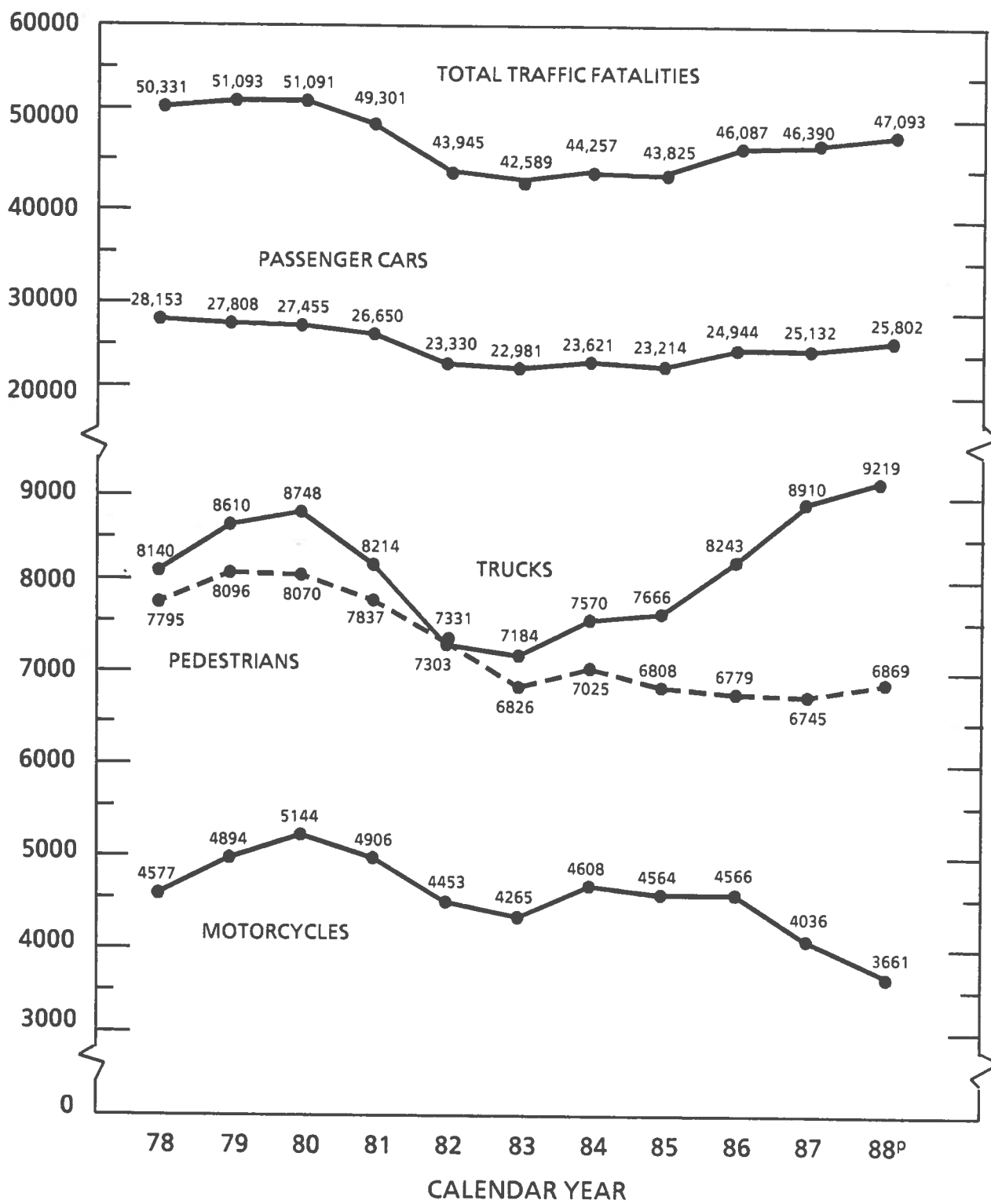
Source: 1983-1988: U.S. DOT/FAA, *AXR Statistical Information Summary*, June 1989.

1989: *Ibid*, personal communication.

**Table 20. Restraint Usage and Injury Severity of Passenger Car Occupants  
1981-1988 (cont'd)**

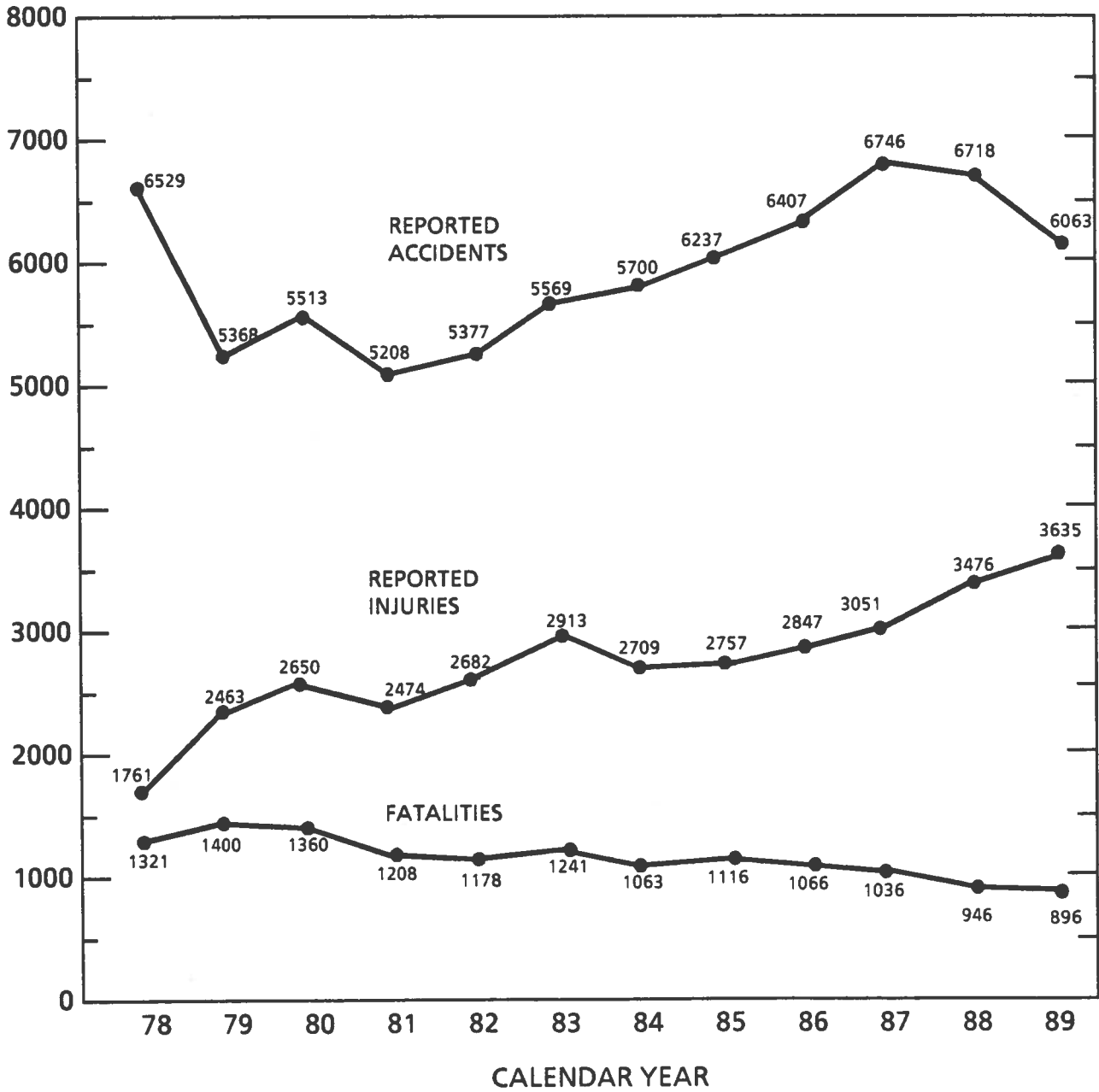
<b>Injury Severity and Year</b>	<b>Restrained</b>	<b>Unrestrained</b>	<b>Unknown Restraint</b>	<b>Total</b>
<b>No Injury</b>				
1981	485	8,523	3,456	12,464
1982	533	7,857	3,373	11,763
1983	765	7,347	3,412	11,524
1984	1,079	7,274	3,733	12,086
1985	2,574	5,647	3,929	12,150
1986	4,175	4,655	3,686	12,516
1987	5,567	3,812	3,118	12,497
1988	6,235	3,604	2,416	12,255
<b>Unknown</b>				
1981	12	276	107	395
1982	10	287	315	612
1983	7	93	241	341
1984	9	125	251	385
1985	83	350	314	747
1986	155	336	333	824
1987	174	300	314	788
1988	205	313	305	823
<b>Total</b>				
1981	1,903	50,743	13,639	66,285
1982	1,941	43,984	12,718	58,643
1983	2,720	42,165	12,589	57,474
1984	3,939	42,179	13,215	59,333
1985	8,324	37,835	12,888	59,047
1986	13,767	37,531	11,646	62,944
1987	17,847	35,868	10,047	63,762
1988	20,409	35,650	8,294	64,353

Source: U.S. DOT/NHTSA, *Fatal Accident Reporting System*, Table 2-17, annual issues.



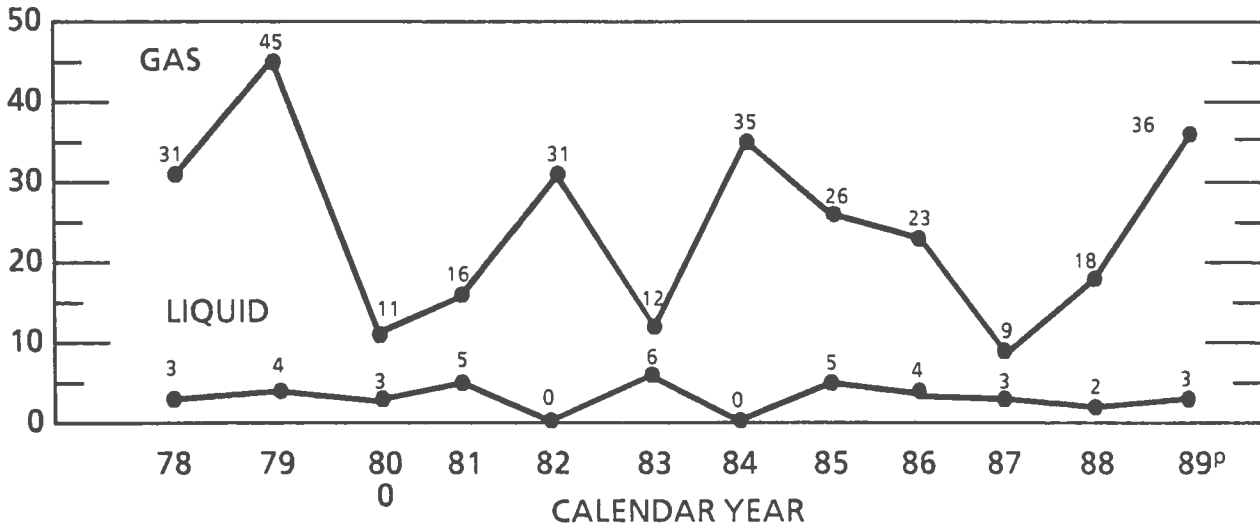
**Figure 21. Traffic Fatalities by Major Categories, 1978-1988**

<sup>p</sup> = preliminary.  
 Source: U.S. DOT/RSPA/TSC, *Transportation Safety Information Report, 1988 Annual Summary.*



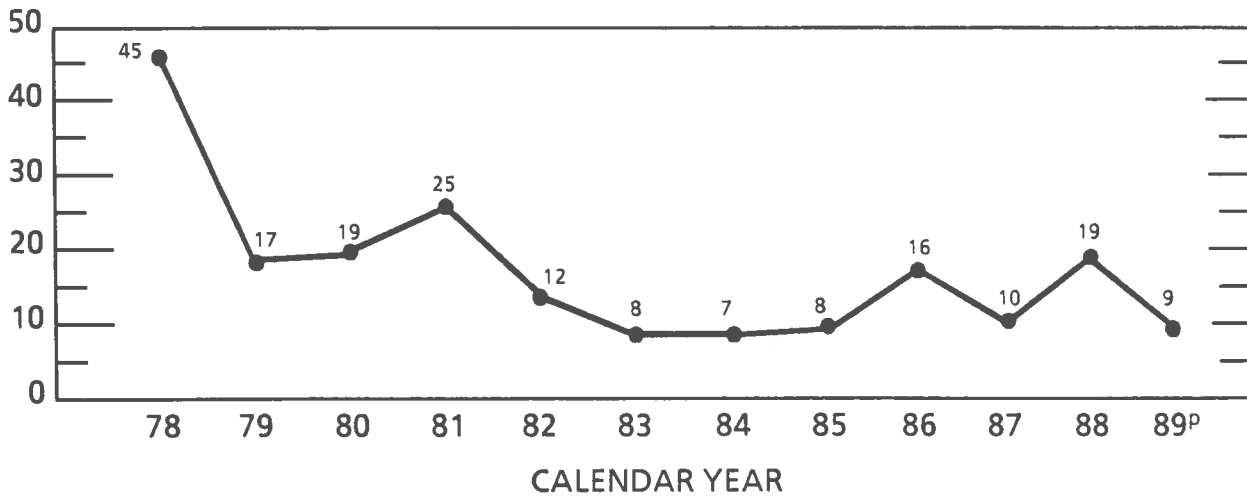
**Figure 23. Recreational Boating Fatalities, Accidents, and Injuries, 1978-1989**

Note: Only a small fraction of property damages and non-fatal accidents are reported to the Coast Guard.  
 Source: 1978-1988: U.S. DOT/RSPA/TSC, *Transportation Safety Information Report*, 1988 Annual Summary.  
 1989: U.S. DOT/USCG, *Boating Statistics 1989*.



**Figure 25. Liquid and Gas Pipeline Fatalities, 1978-1989**

p = preliminary.  
 Source: 1978-1987: U.S. DOT/RSPA/TSC *Transportation Safety Information Report*, 1988 Annual Summary.  
 1988-1989: U.S. DOT/RSPA, Office of Pipeline Safety, DPS-20, personal communication.



**Figure 26. Hazardous Materials Fatalities, 1978-1989**

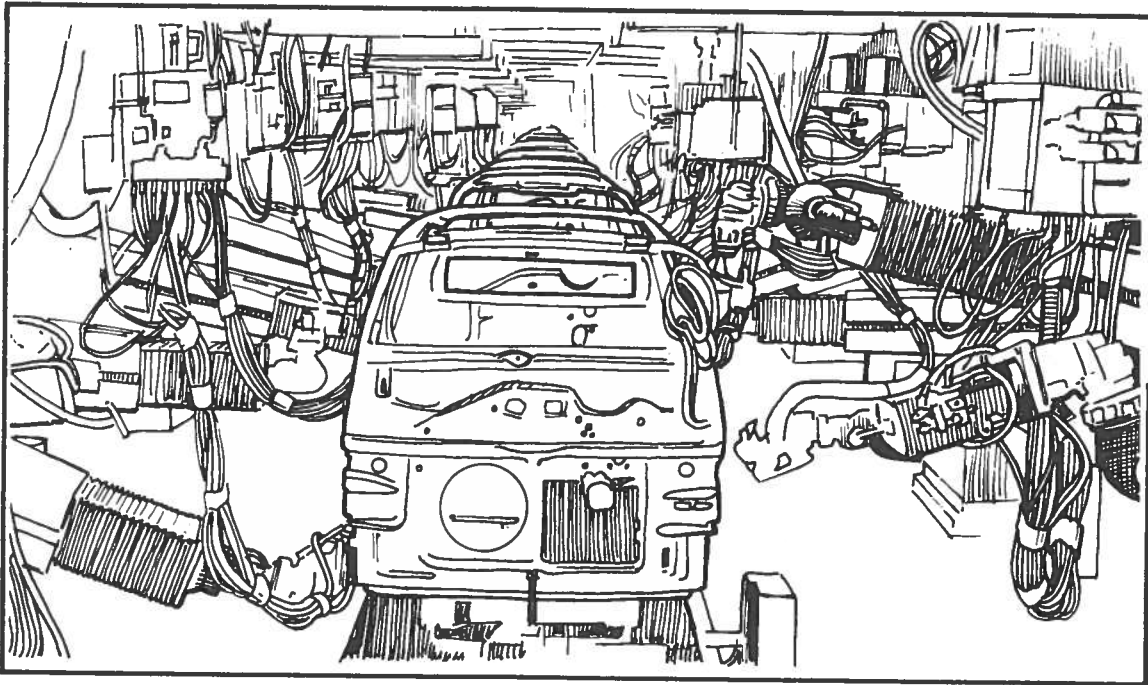
p = preliminary.  
 Source: 1978-1987: U.S. DOT/RSPA/TSC, *Transportation Safety Information Report*, 1988 Annual Summary.  
 1988-1989: U.S. DOT/RSPA, Office of Hazardous Materials Transportation, DHM-63, personal communication.



# TRANSPORTATION TRENDS

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

This section includes data for 1978-1989 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 period.



**Table 24. U.S. Retail Sales of New Cars by Sector  
1978-1989**

Year	Units by Consuming Sector (000)				% of Total Sales	
	Consumer	Business	Government	Total	Consumer	Business
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
1989	6,354	3,431	135	9,920	64.1	34.6

Source: Motor Vehicle Manufacturers Association of the U.S., Inc., *Facts and Figures*, 1990, p. 16.

**Table 26. Passenger Car Operating Costs, 1978-1989**

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	
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
1989	5.20	1.90	.80	7.90	790	3,030 <sup>1</sup>	3,820	38.20

<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*, 1990, p. 44.

**Table 27. Annual Fixed Cost of Operating a Passenger Car, 1978-1989**

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					
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
1989	109	245	309	151	2,094	626	3,534	9.68

<sup>1</sup> \$100 deductible.

<sup>2</sup> \$250 deductible.

<sup>3</sup> Coverage: \$100,000/\$300,000.

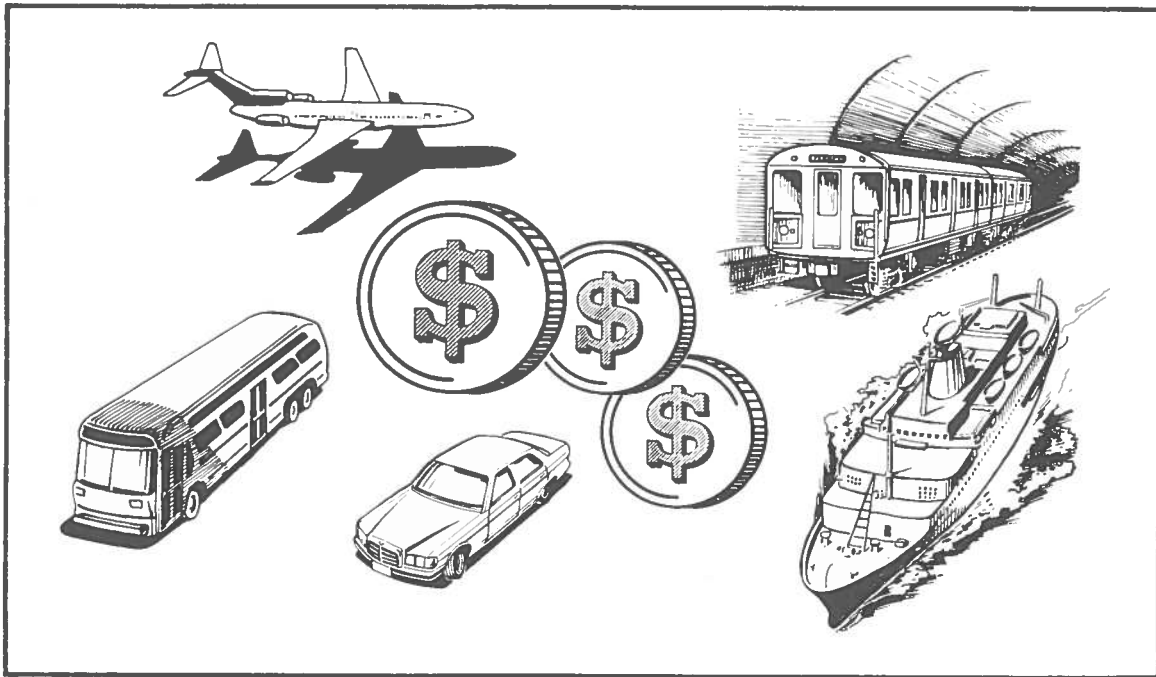
Note: Vehicles specified are intermediate size.

Source: Motor Vehicle Manufacturers Association of the U.S., Inc., *Facts & Figures*, 1990, 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 1978-1988/1989.



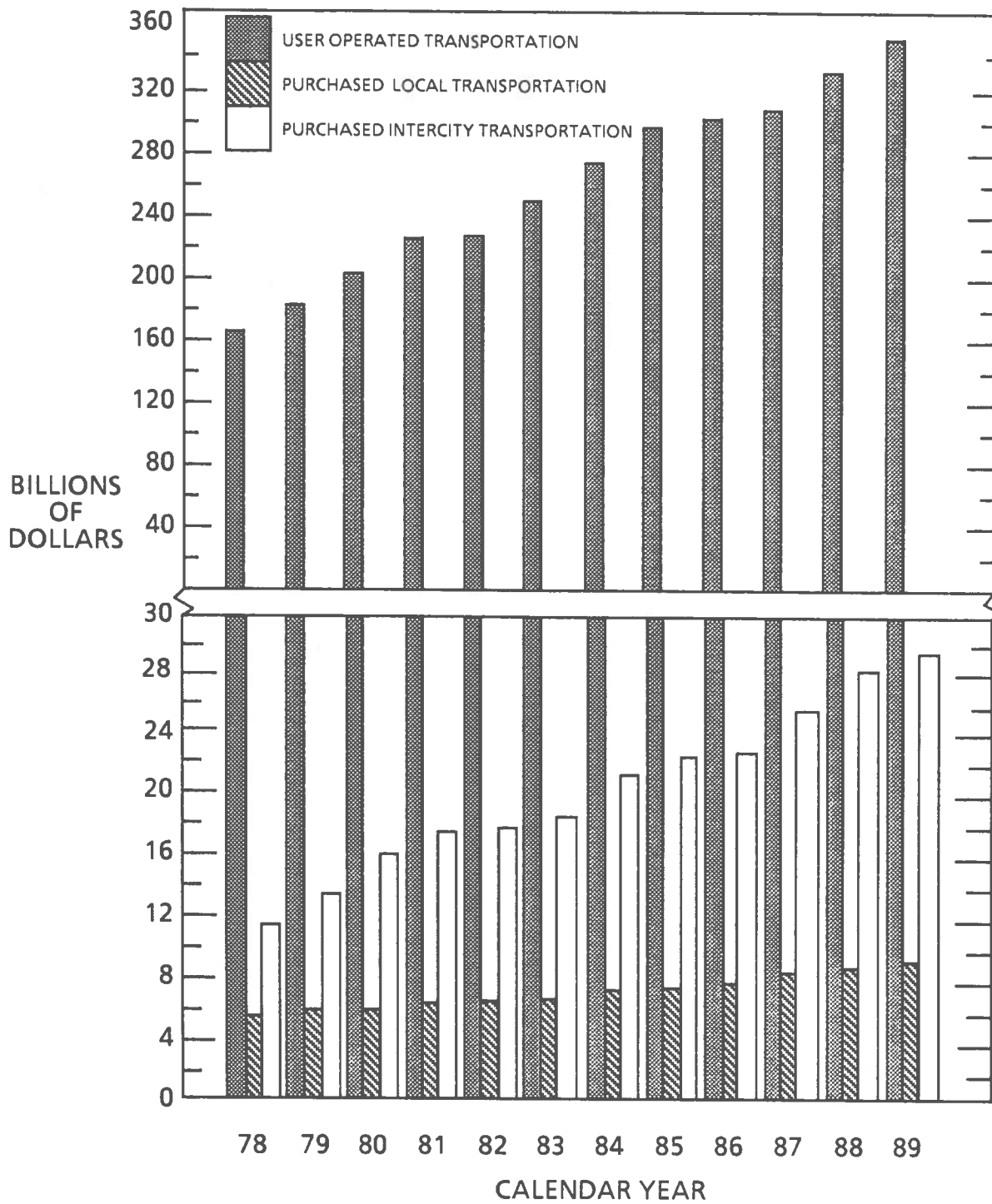


Figure 27. Personal Consumption Expenditures by Transportation Sector, 1978-1989

BILLIONS OF DOLLARS

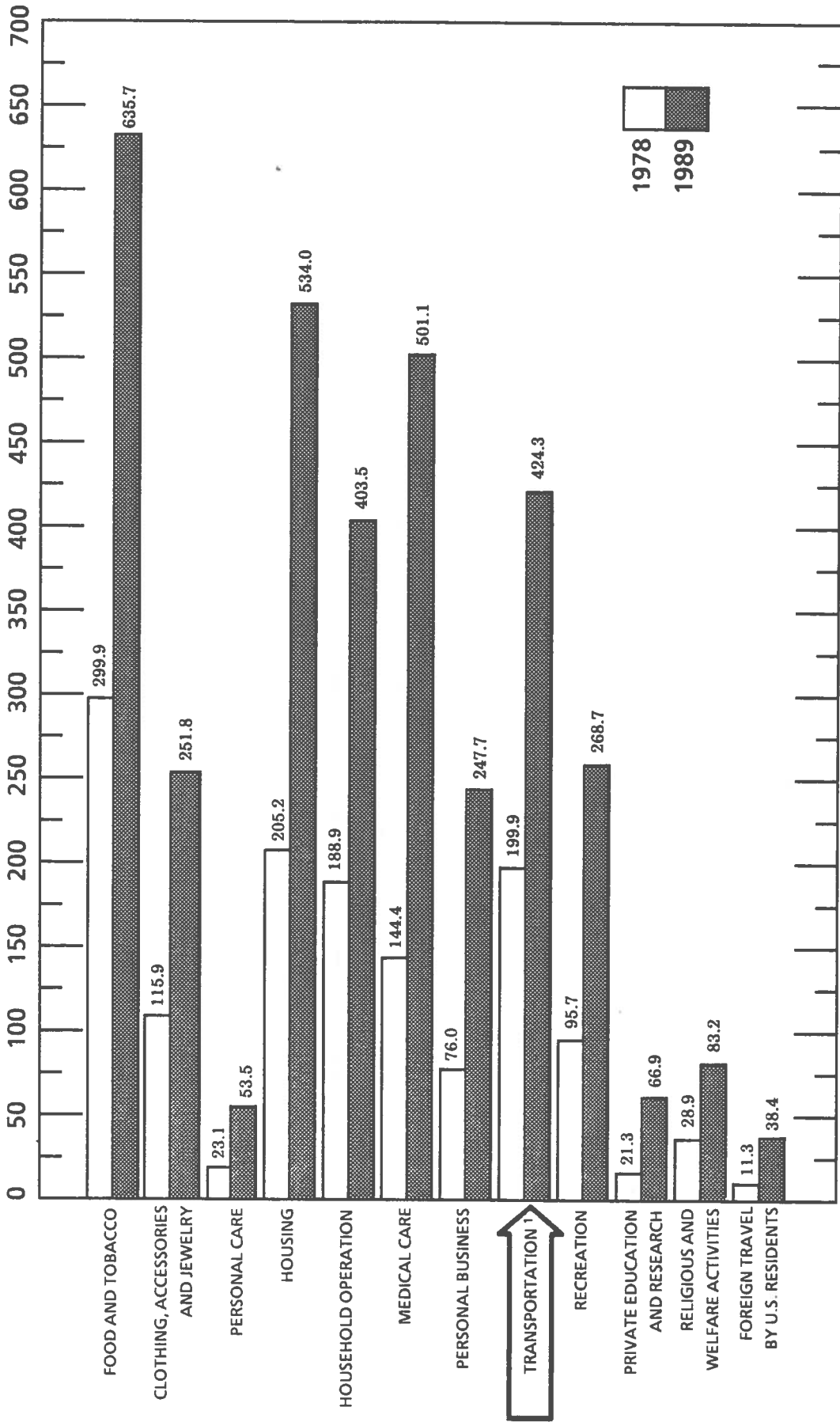


Figure 28. Personal Consumption Expenditures by Type, 1978 and 1989

<sup>1</sup> Excluding Foreign Travel

DOLLARS

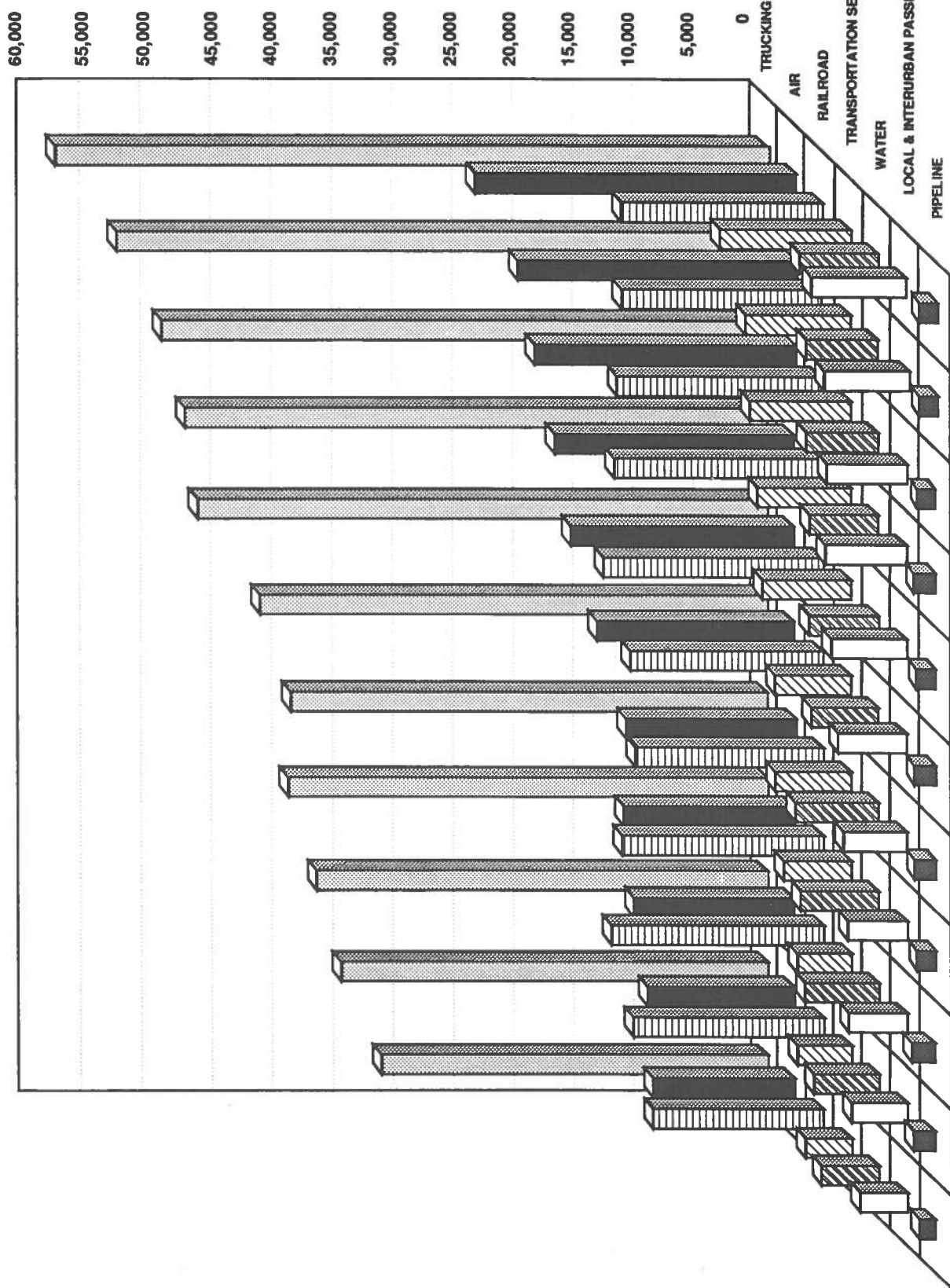


Figure 29. National Income by Transportation Sector, 1978-1988

Source: See Table 30.

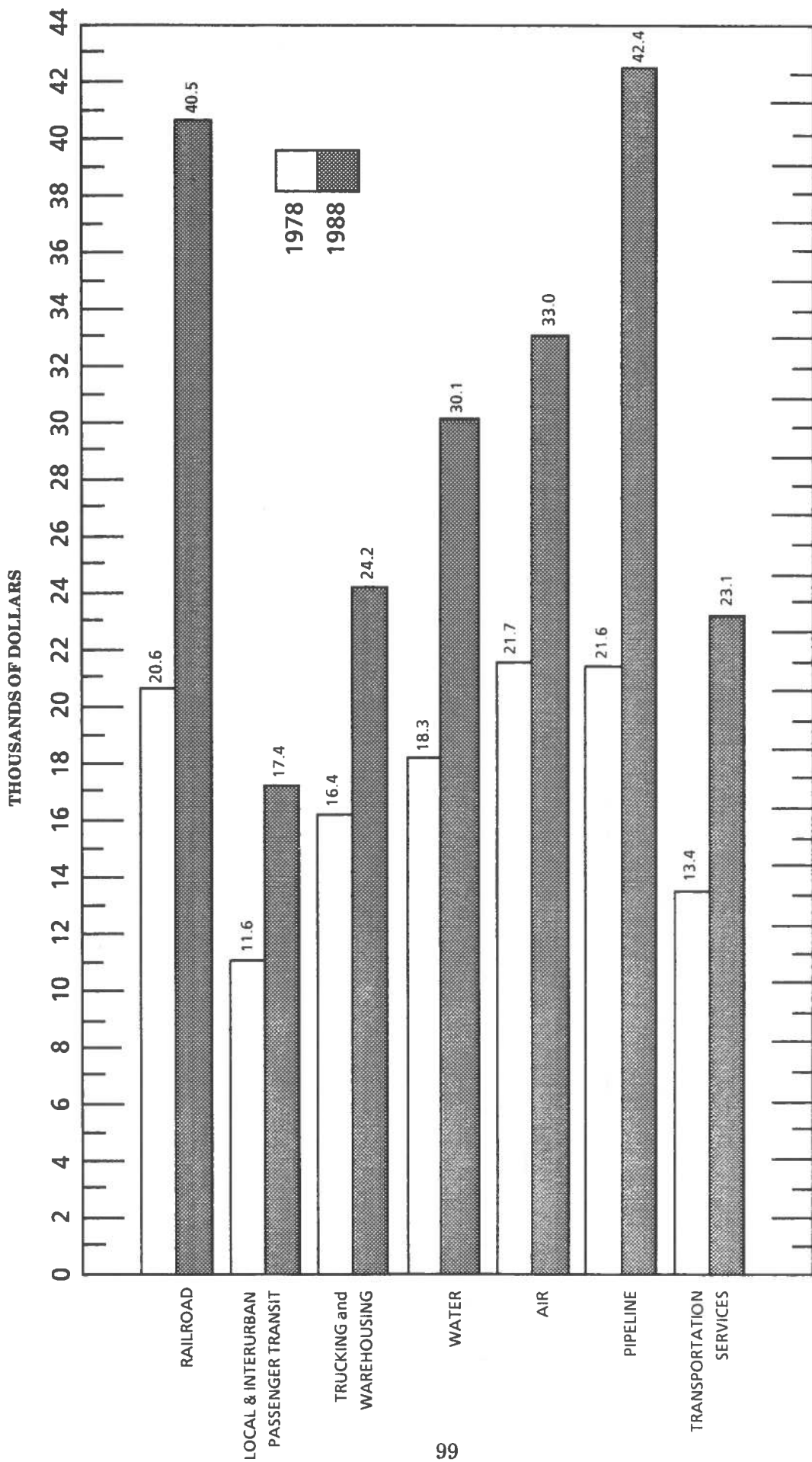


Figure 30. Wages and Salaries per Full-Time Employee by Transportation Sector, 1978 and 1988



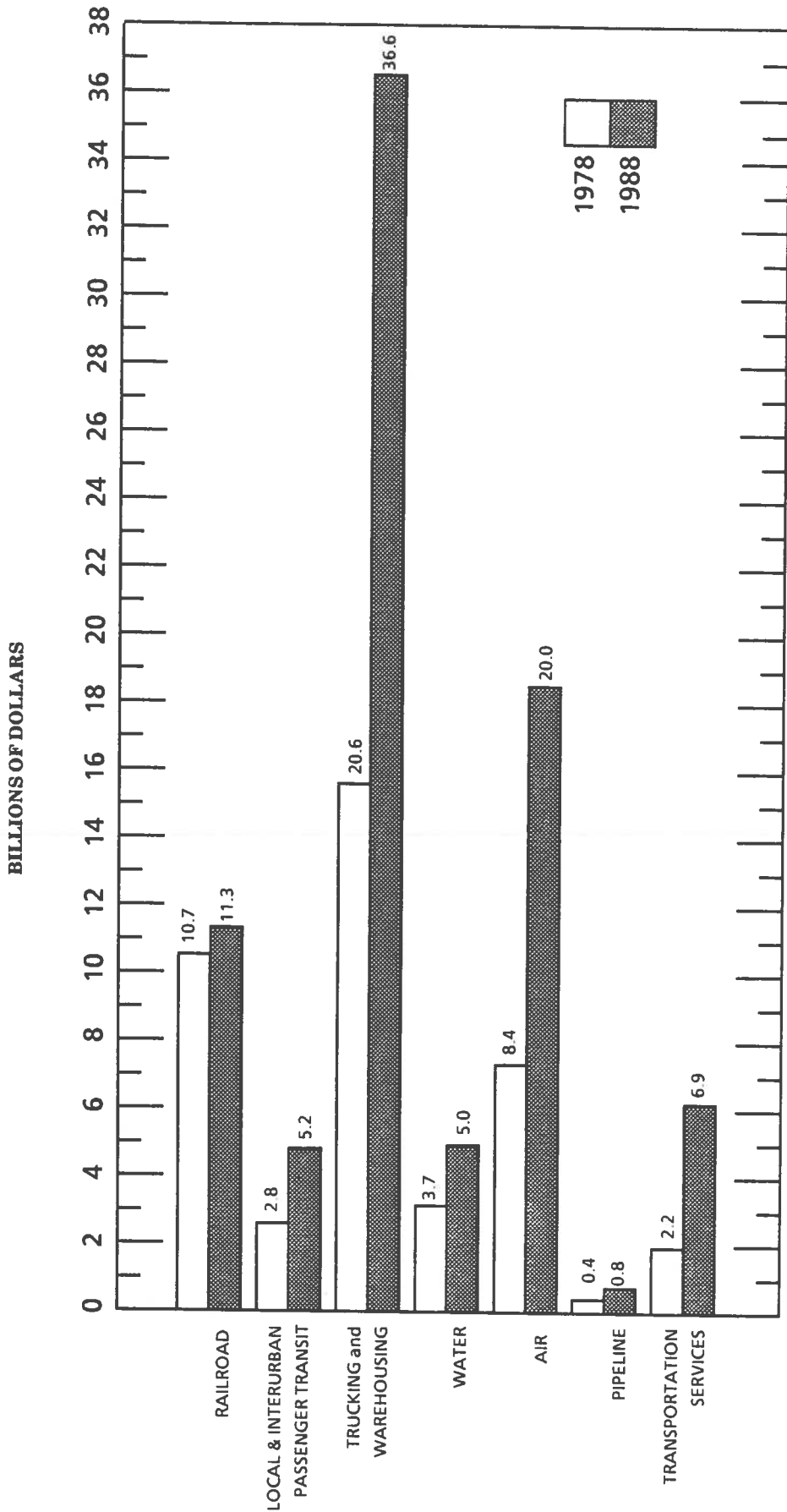


Figure 31. Wages and Salaries by Transportation Sector, 1978 and 1988

**Table 34. National Transportation and Economic Trends, 1978-1988**  
(billions)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Passenger-Miles Index *	2,881 159	2,869 158	2,745 151	2,783 153	2,865 158	2,851 157	2,964 163	3,023 169	3,196 176	3,347 189	3,515 193
Revenue Ton-Miles Index *	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	3,636 160
Population (millions) Index *	223 112	225 113	228 115	230 116	233 117	235 118	237 119	239 120	242 122	244 122	246 124
Industrial Production Index **	107	111	109	111	103	109	122	124	125	130	137
Gross National Product (current dollars) Index *	2,250 281	2,508 314	2,732 342	3,053 383	3,166 397	3,406 426	3,772 472	4,015 501	4,232 530	4,524 567	4,881 611
(constant 1982 dollars)	3,115	3,192	3,187	3,249	3,166	3,279	3,501	3,619	3,718	3,854	4,024

\* Index = 100 in 1967.

\*\* Index = 100 in 1977.

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

**Table 36. Expenditures and Overseas Travel by U.S. Residents and Foreign Visitors, 1978-1988**

	1978	1979	1980	1981	1982	1983	1984 <sup>r</sup>	1985 <sup>r</sup>	1986 <sup>r</sup>	1987 <sup>r</sup>	1988 <sup>p</sup>
U.S. Residents- Overseas Travelers (thousands)	7,790	7,835	8,163	8,040	8,510	9,628	11,252	12,309	11,706	13,248	14,529
Total Travel and Passenger Fare Transactions (million dollars)	11,371	12,597	14,004	15,966	17,166	19,152	28,619	31,188	32,774	36,638	39,984
Travel Payments in Foreign Countries (million dollars)	8,475	9,413	10,397	11,479	12,394	13,149	22,709	24,517	26,000	29,215	32,112
Passenger Fare Payments to Foreign Countries (million dollars)	2,896	3,184	3,607	4,487	4,772	6,003	5,910	6,671	6,774	7,423	7,872
Foreign Visitors to U.S. (thousands)	5,764	7,230	7,706	8,069	8,761	7,873	7,527	7,538	8,860	10,434	12,494
Total Travel and Passenger Fare Transactions (million dollars) <sup>r</sup>	8,786	10,597	13,179	16,024	10,567	14,557	21,768	22,325	26,000	30,387	38,062
Travel Receipts in U.S. (million dollars)	7,183	8,441	10,588	12,913	12,393	10,947	17,753	17,937	20,454	23,505	29,202
Passenger Fare Receipts in U.S. (million dollars) <sup>r</sup>	1,603	2,156	2,591	3,111	3,174	3,610	4,015	4,388	5,546	6,882	8,860

<sup>r</sup> = revised.

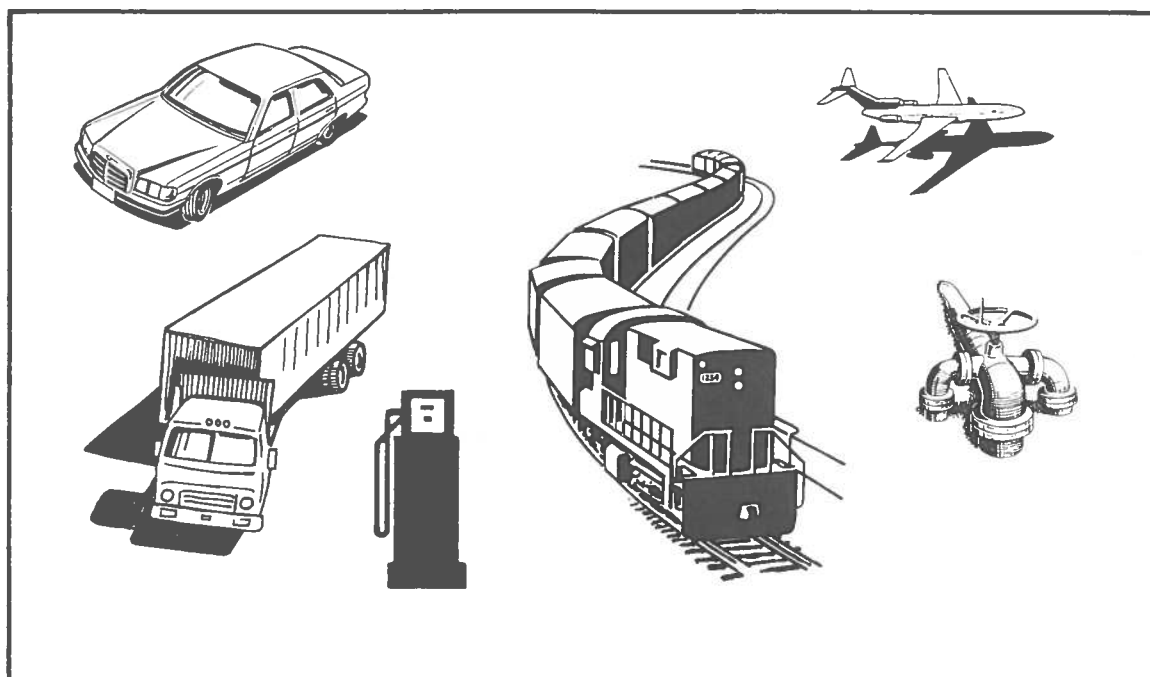
<sup>p</sup> = preliminary.

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

# SUPPLEMENTARY DATA

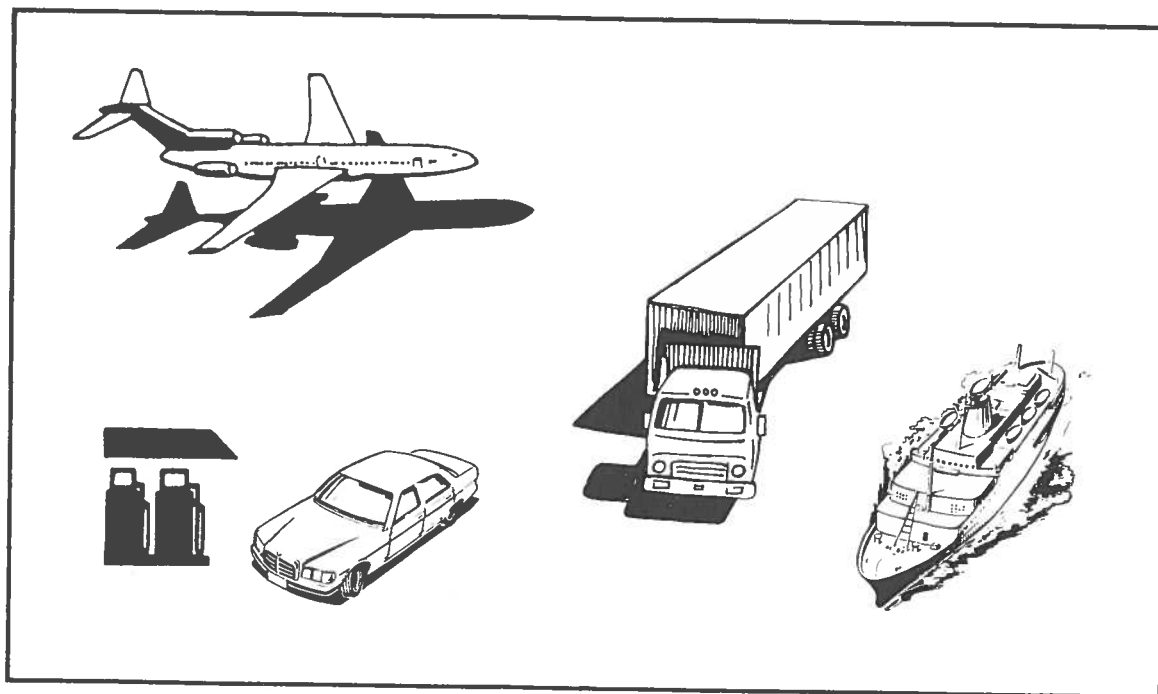
## Section II: Energy in Transportation

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 1978-1988/1989. 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 1978-1988/1989. In some instances data extend back to 1955.



**Table 39. U.S. Energy Consumption by the Transportation Sector  
(at 5-Year Intervals 1955-1970 and Annually 1971-1989)**

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	Trillion Btu	Quadrillion Btu
1955	1,627.9	8,804	0.25	259	9,063	4,563	15.6	9,079	23.4	38.82		
1960	1,881.2	10,136	0.35	362	10,498	4,770	16.3	10,514	24.0	43.80		
1965	2,204.6	11,876	0.50	516	12,392	4,652	15.9	12,408	23.6	52.68		
1970	2,839.7	15,315	0.72	742	16,057	4,633	15.8	16,073	24.3	66.43		
1971	2,952.9	15,913	0.74	763	16,676	4,537	15.5	16,692	24.6	67.89		
1972	3,136.6	16,900	0.77	791	17,691	4,440	15.1	17,706	24.8	71.26		
1973	3,303.3	17,821	0.73	745	18,566	4,186	14.3	18,580	25.0	74.28		
1974	3,226.6	17,404	0.67	686	18,090	4,258	14.5	18,105	25.0	72.54		
1975	3,266.8	17,615	0.58	592	18,207	4,273	14.6	18,222	25.8	70.55		
1976	3,429.4	18,502	0.55	560	19,062	4,338	14.8	19,077	25.7	74.36		
1977	3,562.4	19,237	0.53	540	19,777	4,212	14.4	19,791	25.9	76.29		
1978	3,708.4	20,040	0.53	538	20,578	4,336	14.8	20,593	26.4	78.09		
1979	3,653.7	19,832	0.60	611	20,443	4,256	14.5	20,458	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	19,470	4,206	14.4	19,484	26.3	73.99		
1982	3,398.2	18,425	0.60	616	19,041	4,288	14.6	19,056	26.9	70.85		
1983	3,431.0	18,579	0.49	505	19,084	4,300	14.7	19,102	27.1	70.52		
1984	3,553.9	19,276	0.53	546	19,822	4,483	15.3	19,841	26.8	74.10		
1985	3,602.6 <sup>r</sup>	19,541	0.50	516	20,057	4,704	16.1	20,091	27.2	73.95		
1986	3,726.7 <sup>r</sup>	20,217	0.49	504	20,721	4,714	16.1	20,749	27.9	74.24		
1987	3,828.9 <sup>r</sup>	20,779	0.52	536	21,315	4,878	16.6	21,360	27.8	76.84		
1988 <sup>r</sup>	3,960.1	21,503	0.61	628	22,131	5,110	17.4	22,148	27.6	80.20		
1989 <sup>p</sup>	3,960.3	21,504	0.59	607	22,111	5,200	17.7	22,129	27.2	81.23		

<sup>r</sup> = revised.

<sup>p</sup> = preliminary.

<sup>1</sup> Pipeline fuel.

<sup>2</sup> Sum of 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, Table A4 for Natural Gas Consumption by Non-Utility, and Table A7 for Electricity Consumption.

U.S. DOE, *Annual Energy Review 1989*.

<sup>5</sup> Sum of Total Fossil Fuels and Sales of Electricity.

U.S. DOE, *Annual Energy Review 1989*.

Petroleum: Table 61; Natural Gas: Table 75; Total Gross Energy Consumption: Table 4.

Edison Electric Institute, *Statistical Year Book*.

1955-1978: *Ibid.*, Section IV, Table 19; 1979-1980: *Ibid.*, Source and Disposition of Electricity, 1980.

1979-1980: *Ibid.*, Source and Disposition of Electricity, 1980.

1981-1982: *Ibid.*, *Statistical Year Book*, 1982.

1983: *Ibid.*, *Quarterly Statistical Report*, 1984.

1984-1989: *Ibid.*, personal communication.

Source: U.S. DOE, *Annual Energy Review 1989*.  
 Petroleum: Table 61; Natural Gas: Table 75; Total Gross Energy Consumption: Table 4.  
 Edison Electric Institute, *Statistical Year Book*.  
 1955-1978: *Ibid.*, Section IV, Table 19; 1979-1980: *Ibid.*, Source and Disposition of Electricity, 1980.  
 1979-1980: *Ibid.*, Source and Disposition of Electricity, 1980.  
 1981-1982: *Ibid.*, *Statistical Year Book*, 1982.  
 1983: *Ibid.*, *Quarterly Statistical Report*, 1984.  
 1984-1989: *Ibid.*, personal communication.

**Table 40. U.S. Government Energy Use, Fiscal Years 1978-1989**  
(trillion Btu)

Activity	1978	1979	1980	1981	1982	1983	1984	1985 <sup>r</sup>	1986 <sup>r</sup>	1987 <sup>r</sup>	1988 <sup>r</sup>	1989 <sup>p</sup>
Agency	1,365.7	1,384.6	1,394.8	1,455.4	1,484.3	1,475.1	1,524.1	1,494.7	1,460.5	1,537.3	1,492.0	1,492.0
Defense	87.1	86.9	84.0	85.3	89.1	91.3	95.5	97.1	92.0	93.2	96.7	89.9
Energy	58.6	56.0	52.3	50.9	49.4	48.4	50.5	51.0	51.5	53.3	55.8	60.2
Postal Service	39.4	38.5	38.2	37.4	38.0	38.7	40.0	40.6	41.8	42.0	44.4	44.9
Veterans Administration	41.3	40.5	38.9	39.1	38.9	37.8	38.0	35.4	34.1	32.4	30.4	30.6
General Services Admin.	28.9	27.6	27.6	28.0	28.5	28.7	29.2	28.2	28.0	28.0	27.5	27.5
Transportation	22.4	22.4	21.4	21.2	21.8	22.4	23.0	23.3	24.6	25.1	25.4	25.4
NASA	11.2	11.6	11.2	10.9	10.4	10.4	10.7	12.0	10.6	11.4	11.9	20.3
Agriculture	12.3	13.6	11.7	10.7	10.7	10.8	11.8	10.6	10.0	9.7	11.1	10.5
Interior	9.6	9.7	9.5	10.6	10.2	10.3	10.8	13.0	10.7	11.2	12.1	12.9
Health and Human Services	7.4	8.1	7.4	7.1	7.7	7.6	8.9	10.8	11.3	11.1	12.3	12.3
Justice	17.1	16.8	16.6	17.1	18.5	17.1	17.7	16.6	17.2	18.9	23.4	24.6
Other <sup>1</sup>	1,701.0	1,716.3	1,713.5	1,773.7	1,807.5	1,798.6	1,860.2	1,833.3	1,792.2	1,873.6	1,842.4	1,851.1
Total	1,002.3	1,012.7	1,011.5	1,065.8	1,082.5	1,060.7	1,093.6	1,052.3	1,032.2	1,069.6	1,034.1	1,035.2
Energy Source	59.6	58.6	56.1	52.9	52.9	51.4	51.0	50.5	45.3	43.0	42.5	43.1
Petroleum	6.2	4.7	4.9	4.6	3.6	2.6	1.9	1.9	1.4	1.0	6.1	6.0
Motor Gasoline	601.2	618.6	638.7	653.3	672.7	673.3	693.7	705.7	710.2	702.3	686.8	686.8
Aviation Gasoline	332.3	327.1	307.8	351.3	349.5	329.4	342.9	290.2	271.4	319.3	296.2	296.8
Jet Fuel	3.0	3.7	4.0	3.7	3.8	4.0	4.1	4.0	3.9	4.0	2.5	2.5
Distillate & Residual Fuel	479.2	479.9	482.2	491.5	501.6	515.2	530.1	551.4	538.6	574.4	579.8	588.8
Liquefied Petroleum Gases	144.7	148.9	147.3	142.2	146.2	147.8	157.4	149.0	141.2	145.7	144.5	150.0
Electricity	66.0	65.1	63.6	65.1	68.6	62.4	65.3	64.1	63.9	67.0	58.3	50.0
Natural Gas	8.7	9.7	9.1	9.1	8.6	12.4	13.8	16.6	16.2	16.9	25.7	27.1
Coal	1,701.0	1,716.3	1,713.5	1,773.7	1,807.5	1,798.6	1,860.2	1,833.3	1,792.2	1,873.6	1,842.4	1,851.1
Purchased Steam												
Total												

<sup>r</sup> = revised.

<sup>p</sup> = preliminary. Energy usage data for U.S. Department of Defense, Environmental Protection Agency, General Services Administration, U.S. Department of Transportation, NASA, National Science Foundation, U.S. Department of Justice and U.S. Department of Treasury are estimated.

<sup>1</sup> Includes National Archives, U.S. Department of Commerce, Panama Canal Commission, Tennessee Valley Authority, U.S. Department of Labor, National Science Foundation, Federal Trade Commission, Federal Communications Commission, Environmental Protection Agency, and Railroad Retirement Board. Environmental Protection Agency and the U.S. Department of Treasury data for 1982 are estimated. U.S. Department of Treasury data for 1983 are estimated. Environmental Protection Agency and National Science Foundation data for 1988 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 U.S. 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 1989*, Table 9.

Table 42. Fuel Consumption by Mode of Transportation, 1978-1988

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
<b>Class I Railroads</b>											
Locomotives											
Diesel Oil, gals x 10 <sup>6</sup>	3,980	4,081	3,956	3,774	3,178	3,137	3,388	3,144	3,039	3,102	3,182
Electricity, kWh x 10 <sup>6</sup>	331	309	190	81	34	0	0	0	0	0	0
Motor Cars											
Diesel Oil, gals x 10 <sup>6</sup>	2	3	2	1	1	1	1	1	1	1	1
Electricity, kWh x 10 <sup>6</sup>	991	1,062	968	380	905	52	37	0	0	0	0
<b>Air</b>											
Certified Carriers*											
Jet Fuel, gals x 10 <sup>6</sup>	8,726 †	9,376 †	9,096 †	8,555 †	8,439	8,673	9,624	10,121	11,137 <sup>r</sup>	11,918	11,905
General Aviation											
Aviation Gasoline, gals x 10 <sup>6</sup>	518	570	520	489	448	428	462	421	409	402	398
Jet Fuel, gals x 10 <sup>6</sup>	763	736	766	759	887	613	739	691	732	673	746
<b>Highway</b>											
Gasoline, gals x 10 <sup>6</sup>											
Pass. Cars & Taxis <sup>r</sup>	81,661	77,304	71,883	70,954	70,062	69,906	68,717	69,268	71,216	70,573	71,654
Motorcycles <sup>r</sup>	143	173	204	214	198	175	177	182	188	190	200
Diesel & Gasoline, gals x 10 <sup>6</sup>											
Commercial Buses <sup>1</sup>	615	618	696	711	721	737 <sup>r</sup>	679 <sup>r</sup>	688 <sup>r</sup>	708 <sup>r</sup>	721 <sup>r</sup>	710
School Buses	407	405	380	387	399	402	440 <sup>r</sup>	452 <sup>r</sup>	476 <sup>r</sup>	501 <sup>r</sup>	526
Single-Unit Trucks <sup>2r</sup>	24,055	24,742	23,594	23,697	23,845	25,556	27,687	29,021	30,265	32,266	32,760
Combination Trucks <sup>r</sup>	12,133	12,864	12,703	12,960	12,636	13,447	14,781	15,280	15,716	16,493	17,101
<b>Water Transport</b>											
Residual Fuel Oil, gals x 10 <sup>6</sup>	6,615	8,003	8,952	7,922	6,409	5,724	4,581	4,590	5,889	6,105	6,355
Distillate Fuel Oil, gals x 10 <sup>6</sup>	1,579	1,631	1,478	1,723	1,423	1,642	1,764	1,699	1,949	1,865	1,992
Gasoline, gals x 10 <sup>6</sup>	812	780	1,052	1,093	1,062	1,069	1,325	1,053	1,130	1,179	1,218
<b>Transit**</b>											
Electricity, kWh x 10 <sup>6r</sup>	2,223	2,473	2,446	2,655	2,722	2,930	4,238	4,216	4,489	4,625	4,747
Gallons of Motor Fuel, gals x 10 <sup>6</sup>											
Gasoline	9	9	11	14	12	9	50	46	43	47	44
Diesel Oil	422	423	431	446	456	450	600	609	629	639	628
<b>Pipelines</b>											
Natural Gas, cu. ft. x 10 <sup>6</sup>	530,451	600,964	634,622	642,325	596,411	490,042	528,754	503,766	485,041	519,170	613,912
<b>Non-Highway<sup>3</sup> Use of Gasoline x 10<sup>6</sup></b>	<b>3,577</b>	<b>3,645</b>	<b>3,655</b>	<b>3,515</b>	<b>3,260</b>	<b>3,216</b>	<b>3,885</b>	<b>4,005</b>	<b>4,068</b>	<b>4,108</b>	<b>4,020</b>

r = revised.

\* Domestic consumption only.

\*\* Prior to 1984, excludes commuter rail, automated guideway, urban ferryboat, demand response, and most rural and smaller systems. Series not continuous between 1983 and 1984.

† Includes Aviation Gasoline.

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

<sup>2</sup> 2-axle, 4-tire single-unit trucks only.

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

Source: See Appendix A, pp. A-21, A-22.



**Table 44. Total Motor Vehicle Fuel Consumption and Travel<sup>1</sup>, 1978-1988**

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
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	1,834,872	10,117	14.66	125,183	690
1987 <sup>r</sup>	183,872	1,921,204	10,449	15.07	127,515	694
1988	188,981	2,025,586	10,718	15.60	129,886	687

<sup>r</sup> = revised.

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

Source: 1978-1985: U.S. DOT/FHWA, *Highway Statistics, Summary to 1985*, Table VM-201A.  
1986-1988: *Ibid.*, *Highway Statistics*, 1988, Table VM-1.

Table 46. Fuel Consumption and Travel by Buses, 1978-1988

Year	Number <sup>1</sup> Registered (millions)	Average Miles Traveled per Vehicle			Average Miles Traveled per Gallon		Total Fuel Consumed (million gallons)		Average Gallons Consumed per Vehicle				
		Commercial	School	All Buses <sup>1</sup>	Commercial	School	All Buses <sup>1</sup>	Commercial	School	All Buses <sup>1</sup>			
1978	505,354	30,377	7,500	11,645	5.02	7.35	5.95	615	407	989	6,051	1,020	1,957
1979	526,765	29,691	7,179	11,290	5.06	7.36	5.97	618	405	996	5,872	976	1,891
1980	528,789	32,765	7,592	11,458	5.03	7.64	5.95	696	380	1,018	6,516	994	1,926
1981	543,894	32,996	6,780	11,475	4.98	7.65	5.92	711	387	1,054	6,626	886	1,938
1982	559,200	31,524	6,870	10,413	4.96	7.68	5.93	721	399	982	6,356	894	1,756
1983	582,884	32,795	6,532	8,919	4.95	7.70	5.92	737	402	878	6,625	848	1,507
1984	583,671	34,224#	10,000 <sup>r</sup>	7,950	4.21#	7.72 <sup>r</sup>	5.85	679#	440 <sup>r</sup>	793	8,122#	1,295 <sup>r</sup>	1,359
1985	593,485	36,859#	10,145 <sup>r</sup>	8,216	4.15#	7.74 <sup>r</sup>	5.84	688#	452 <sup>r</sup>	835	8,879#	1,311 <sup>r</sup>	1,407
1986	593,728	35,659#	10,571 <sup>r</sup>	8,544	4.12#	7.76 <sup>r</sup>	5.84	708#	476 <sup>r</sup>	867	8,646#	1,362 <sup>r</sup>	1,463
1987	602,055	36,818#	10,833 <sup>r</sup>	8,833	4.16#	7.78 <sup>r</sup>	5.89	721#	501 <sup>r</sup>	903	8,857#	1,392 <sup>r</sup>	1,500
1988	615,669	36,680	11,081	8,877	4.18	7.80	5.94	710	526	920	8,778	1,421	1,494

<sup>r</sup> = revised to show school buses only. In earlier years, non-revenue buses were included.

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

# Revised to reflect better data source.

Source: 1978-1985: U.S. DOT/FHWA, *Highway Statistics, Summary to 1985*, Table VM-201A.

1986-1988: *Ibid.*, *Highway Statistics*, 1988, Table VM-1.

1984-1988: Commercial/School Bus: Transportation Policy Associates, personal communication.

**Table 48. Motor Fuel and Total Energy Consumption  
by the U.S. Transit Industry  
(at 5-Year Intervals 1955-1975 and Annually 1976-1988\*)**

Year	Kilowatt Hours Consumed (millions)	Gallons of Motor Fuel Used (thousands)	
		Gasoline	Diesel
1955	3,530	246,000	172,600
1960	2,908	191,900	208,100
1965	2,584	124,200	248,400
1970	2,561	68,200	270,600
1975	2,646	7,576	365,060
1976	2,576	6,163	389,187
1977	2,303	9,273	402,842
1978	2,223	9,331	422,017
1979	2,473	8,973	423,212
1980	2,446	11,400	431,400
1981	2,655	13,950	445,950
1982	2,722	11,670	455,590
1983	2,930	9,460	450,260
1984	4,238	49,907	600,364
1985	4,216	45,704	608,738
1986	4,489	42,677	629,076
1987	4,625	46,527	638,506
1988 <sup>p</sup>	4,747	44,024	628,348

<sup>p</sup> = preliminary.

\* Prior to 1984, excludes commuter rail, automated guideway, urban ferryboat, demand response, and most rural and smaller systems. Series not continuous between 1983 and 1984.

Source: 1955-1988: American Public Transit Association, *Transit Fact Book*, 1989, Table 30, and similar table in earlier editions.

**Table 50. Price Trend of Gasoline vs. Other Consumer Goods and Services  
(at 5-Year Intervals 1955-1970 and Annually 1971-1989)**

Year	Retail Price of Regular Grade Gasoline (Cents Per Gallon)			Price Indexes of Motor Fuel and Other Consumer Items (Index: 1982-84 = 100)						
	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	23.37	89.70	113.6	113.5	121.3	110.6	80.2	130.1	
1988	65.85	24.10	89.95	118.3	118.2	127.1	115.4	80.9	138.6	
1989	74.87	24.80	99.67	124.0	125.1	132.8	118.6	88.5	149.3	

<sup>e</sup> = estimated by Transportation Policy Associates.

Source: Price of Regular Grade Gasoline:

1955-1980:

1981-1982:

1983-1989:

1955-1985:

1986-1989:

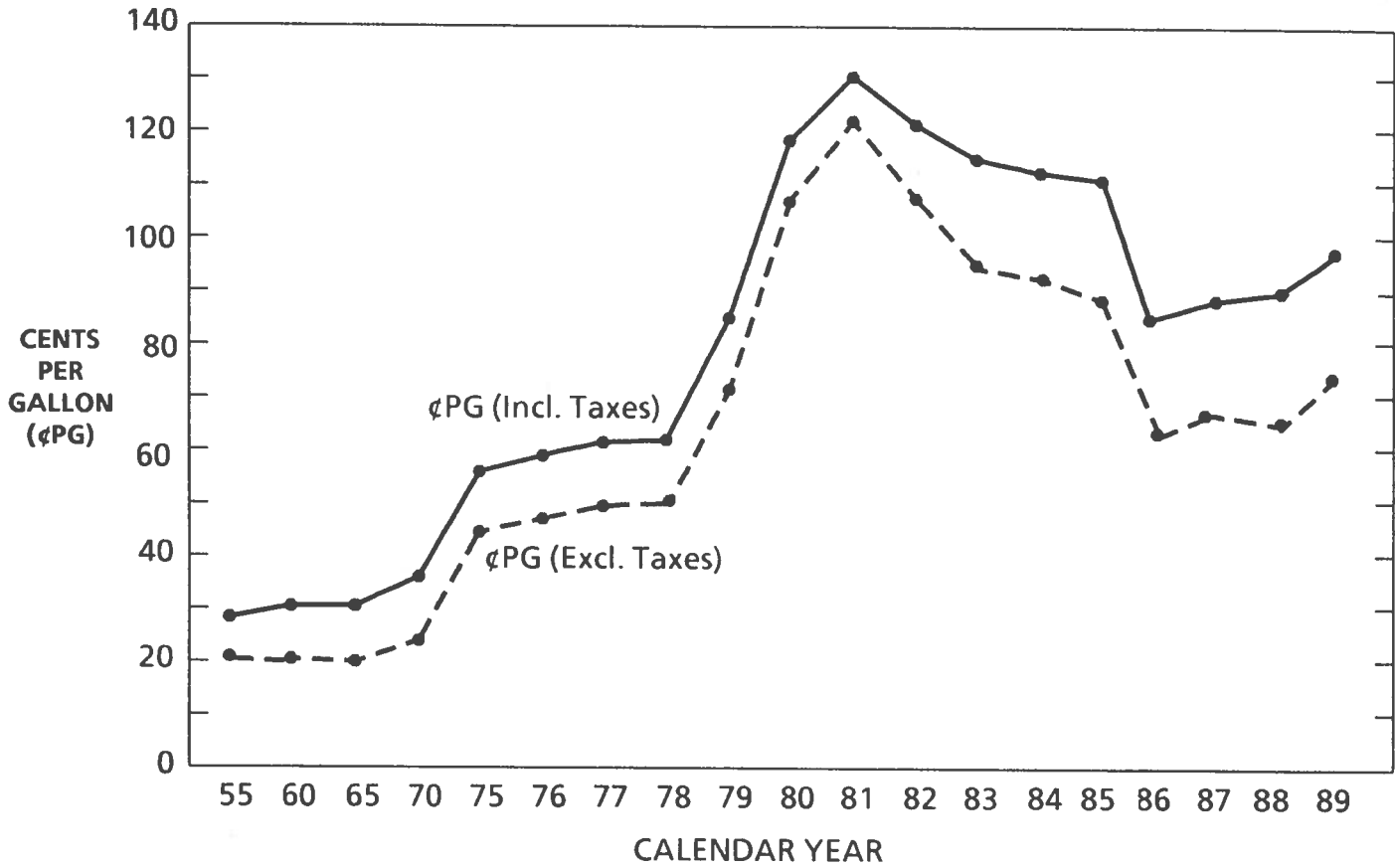
American Petroleum Institute, *Basic Petroleum Data Book*, Section VI, Table 4/4a.

U.S. DOL: Bureau of Labor Statistics, personal communication (December 31 figures).

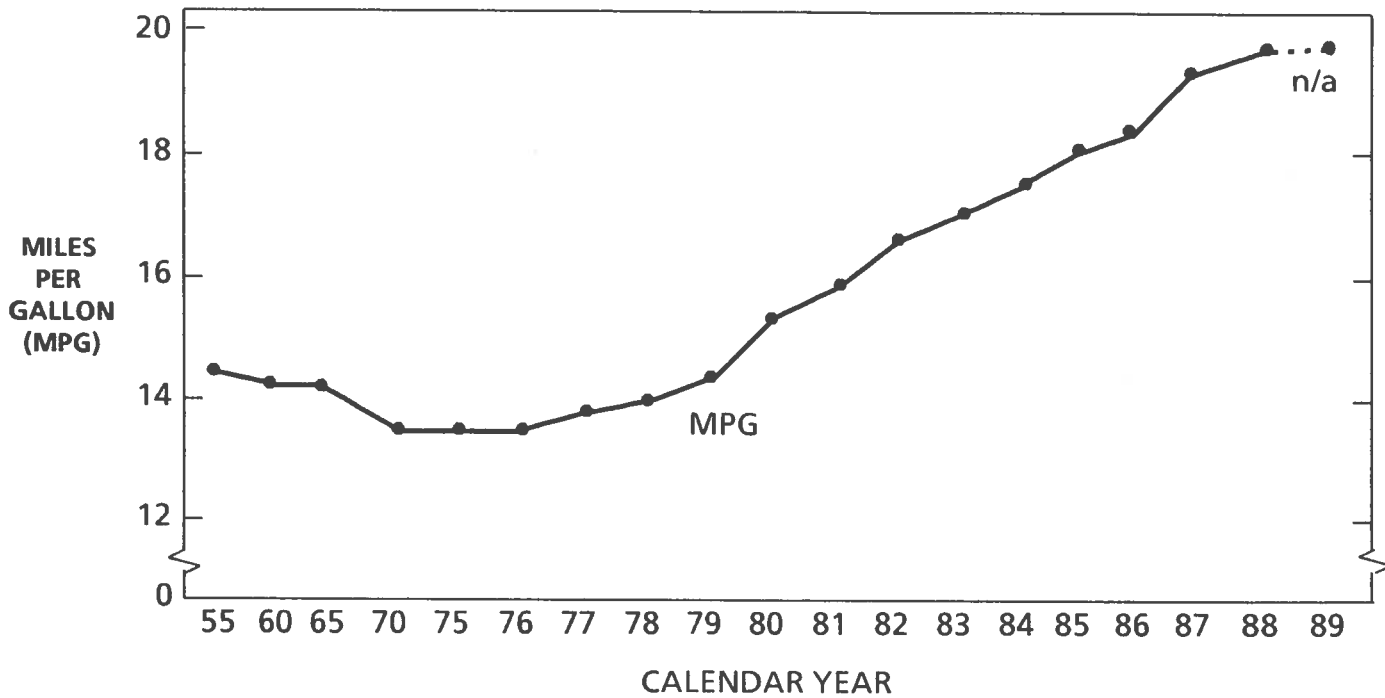
American Petroleum Institute, *Basic Petroleum Data Book*, Section VI, Table 5a.

101st Congress, 1st Session, Economic Report of the President, January 1989, Table B-58/59.

U.S. DOL: Bureau of Labor Statistics, *Monthly Labor Review*, April 1990, Table 31.



**Figure 33. Price Trend of Regular Grade Gasoline Prices, 1955-1989**



**Figure 34. Average Fuel Efficiency of U.S. Passenger Cars, 1955-1989**

n/a = not available.

**Table 53. Model Year Sales, Market Shares, and Sales-Weighted Fuel Economies of Domestic and Import Light Trucks, Model Years 1978-1989<sup>a</sup>**

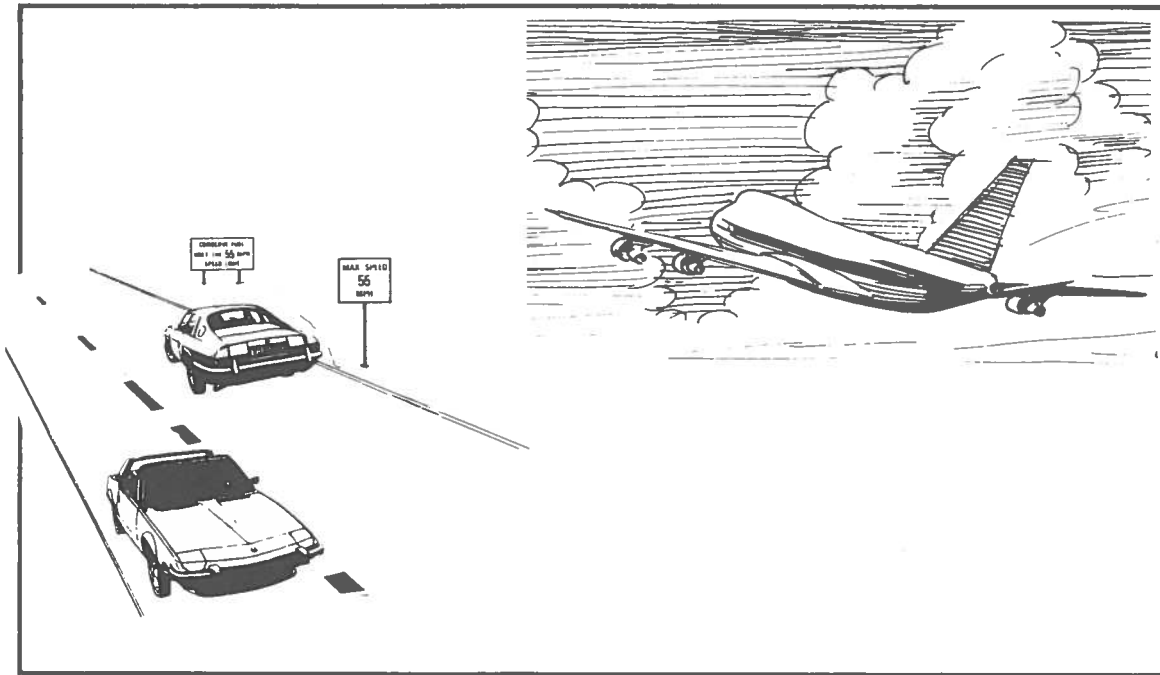
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
<b>SMALL PICKUP</b>												
Total sales, units	308,790	451,548	516,412	472,611	579,263	894,432	1,012,298	1,135,666	1,225,570	1,153,704	1,026,551	877,839
Market share, %	10.5	16.1	23.3	24.4	27.2	33.3	28.0	26.8	27.0	25.2	21.6	18.4
Fuel economy, mpg	26.9	23.6	25.5	28.1	28.1	27.2	27.2	27.3	26.1	26.6	26.1	25.7
<b>LARGE PICKUP</b>												
Total sales, units	1,886,782	1,635,745	1,115,248	967,242	1,000,772	958,408	1,218,972	1,407,153	1,325,547	1,324,839	1,453,255	1,580,916
Market share, %	64.2	58.4	50.3	50.0	46.9	35.7	33.7	33.2	29.2	28.9	30.6	33.2
Fuel economy, mpg	16.6	15.8	17.0	18.5	18.6	18.4	17.5	18.1	18.4	18.2	18.6	18.2
<b>SMALL VAN</b>												
Total sales, units	24,755	18,153	13,649	11,007	11,964	13,716	222,798	437,660	640,936	733,504	851,384	859,311
Market share, %	0.8	0.6	0.6	0.6	0.6	0.5	6.2	10.3	14.1	16.0	18.0	18.0
Fuel economy, mpg	19.5	17.9	19.6	18.8	22.5	21.0	25.0	23.9	23.8	23.4	22.9	22.9
<b>LARGE VAN</b>												
Total sales, units	670,453	580,883	328,065	327,730	379,110	484,349	545,595	536,242	510,558	473,268	486,981	471,762
Market share, %	22.8	20.7	14.8	16.9	17.8	18.0	15.1	12.7	11.3	10.3	10.3	9.9
Fuel economy, mpg	16.4	14.9	16.3	17.4	17.0	17.2	16.3	16.4	17.3	16.6	17.0	16.7
<b>SMALL UTILITY</b>												
Total sales, units	11,588	61,796	79,776	42,813	31,226	170,519	398,000	485,670	598,652	689,318	701,005	747,550
Market share, %	0.4	2.2	3.6	2.2	1.5	6.3	11.0	11.5	13.2	15.1	14.8	15.7
Fuel economy, mpg	15.7	17.0	16.7	19.5	20.0	23.0	23.0	22.3	21.5	22.9	22.3	21.7
<b>LARGE UTILITY</b>												
Total sales, units	40,091	53,038	163,387	114,013	130,505	165,875	215,271	232,974	233,625	205,403	223,824	228,664
Market share, %	1.5	1.9	7.4	5.9	6.1	6.2	6.0	5.5	5.2	4.5	4.7	4.8
Fuel economy, mpg	15.5	15.2	14.6	16.2	17.0	16.8	15.7	16.5	15.9	16.1	16.2	16.2
<b>FLEET</b>												
Total sales, units	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	4,743,000	4,766,042
Market share, %	100.0	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	17.3	16.5	18.1	19.8	20.0	20.5	20.0	20.5	20.8	20.9	20.7	20.2

<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, Model Year 1989*, Table 16.

## 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 1978-1988.



**Table 55. Energy Intensiveness of General Aviation, 1978-1988**

Year	Intercity Passenger-Miles (millions)	Fuel Consumption (million gallons)		Btu/Passenger-Miles
		AVGAS	Jet Fuel	
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
1988	12,100	398	746	12,276

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:: Eno Foundation for Transportation, *Transportation In America*, 1990, p. 9.

Fuel Consumed:

1978-1979: U.S. DOT/FAA, personal communication.

1980-1988: *Ibid.*, Office of Management Systems, *General Aviation Activity and Avionics Survey*, 1980-1989 editions, Table 5-1 and similar table in earlier editions.



Table 57. Energy Intensiveness of Trucks, 1978-1988<sup>r</sup>

Year	<u>Vehicle-Miles</u> (millions)		<u>Passenger-Miles</u> (millions)		<u>Fuel Consumed</u> (thousand gal.)		<u>Btu/Passenger-Miles</u>	
	Single-Unit Trucks*	Combinations	Single-Unit Trucks*	Combinations	Single-Unit Trucks*	Combinations	Single-Unit Trucks*	Combinations
1978	279,414	62,992	363,238	62,992	24,055	12,112	8,278	12,112
1979	291,905	66,992	379,477	66,992	24,742	12,864	8,150	12,864
1980	290,935	68,678	378,216	68,678	23,594	12,703	7,798	12,703
1981	296,343	69,134	385,246	69,134	23,697	12,960	7,689	12,960
1982	306,141	66,668	397,983	66,668	23,845	12,636	7,489	12,636
1983	327,643	69,754	425,936	69,754	25,556	13,447	7,500	13,447
1984	357,999	77,367	465,399	77,367	27,687	14,781	7,436	14,781
1985	373,072	79,600	484,994	79,600	29,021	15,280	7,480	15,280
1986	389,047	81,833	505,761	81,833	30,265	15,716	7,480	15,716
1987	415,449	86,064	540,084	86,064	32,266	16,493	7,468	16,493
1988	439,423	90,149	571,250	90,149	32,760	17,101	7,168	17,101

<sup>r</sup> = revised.

\* 2-axle, 4-tire single-unit trucks only.

Note: Passenger-mile data for single-unit trucks is based on vehicle-miles of 2-axle, 4-tire trucks only and an average occupancy rate of 1.3. Passenger-mile data for combination trucks is based on vehicle-miles and an average occupancy rate of 1.0.

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: 1978-1985: U.S. DOT/FHWA, *Highway Statistics, Summary to 1985*, Table VM-201A.

1986-1988: *Ibid.*, *Highway Statistics*, annual issues, VM-1.

**Table 59. Energy Intensiveness of Class I Intercity Buses, 1978-1988**

Year	Passenger-Miles (millions)	Fuel Consumed (million gallons)	Btu/Passenger-Miles
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	105.8 <sup>r</sup>	1,041 <sup>r</sup>
1984	13,420	104.7 <sup>r</sup>	1,082 <sup>r</sup>
1985	12,540	102.6 <sup>r</sup>	1,135 <sup>r</sup>
1986	12,063	94.2 <sup>r</sup>	1,083 <sup>r</sup>
1987	11,701	97.8 <sup>r</sup>	1,159 <sup>r</sup>
1988	11,935	101.6	1,181

<sup>r</sup> = revised.

Note: The heat equivalent factor used in Btu conversion is 138,700 Btu/gal.  
 Source: Revenue Passenger-Miles: 1978 - 1980: ABA, *Bus Facts*, 1982, p.5. Fuel Consumed: 1978 - 1982: ABA, personal communication. 1983 - 1988: TPA, personal communication.  
 1981 - 1982: ABA, personal communication. 1983 - 1988: TPA, personal communication.

**Table 60. Energy Intensiveness of Class I Railroad Freight, 1978-1988**

Year	Revenue Freight Ton-Miles (millions)	Fuel Consumed* (million gallons)	Btu/Revenue Freight Ton-Miles
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
1988	996,182	2,926	407

\* Diesel fuel only. Does not include electrically powered locomotives.

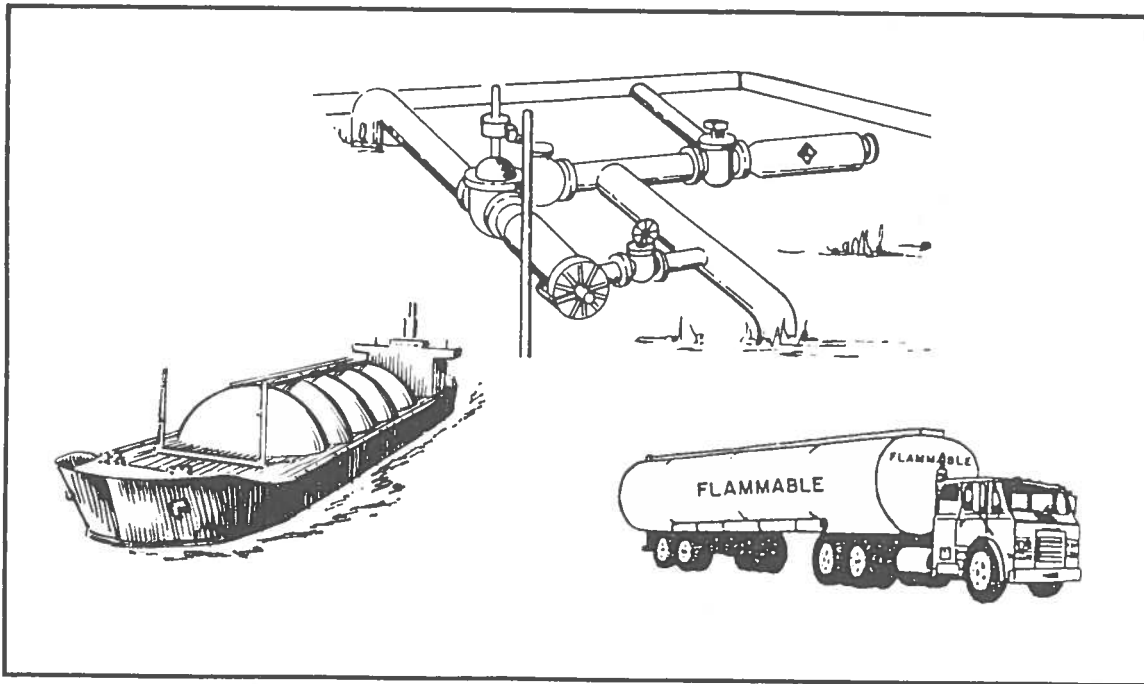
Note: The heat equivalent factor used for Btu conversion is 138,700 Btu/gal.  
 Source: *Railroad Ten-Year Trends*, Volume 6, pp. 90/95.



Figure 35. Energy Intensiveness by Passenger Mode, 1978-1988

## 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 1978-1988/1989, and in some instances extend back to 1955.



**Table 63. Refined Petroleum Products Transported in the U.S.  
by Mode of Transportation, 1978-1989**  
(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	
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	252.2 <sup>r</sup>	56.5 <sup>r</sup>	151.0	33.8	31.1 <sup>r</sup>	7.0 <sup>r</sup>	12.3 <sup>r</sup>	2.6 <sup>r</sup>	446.6 <sup>r</sup>
1989 <sup>p</sup>	248.0	55.6	156.4	35.0	29.5	6.6	12.6	2.8	446.5

<sup>r</sup> = revised.

<sup>p</sup> = preliminary.

<sup>e</sup> = estimate.

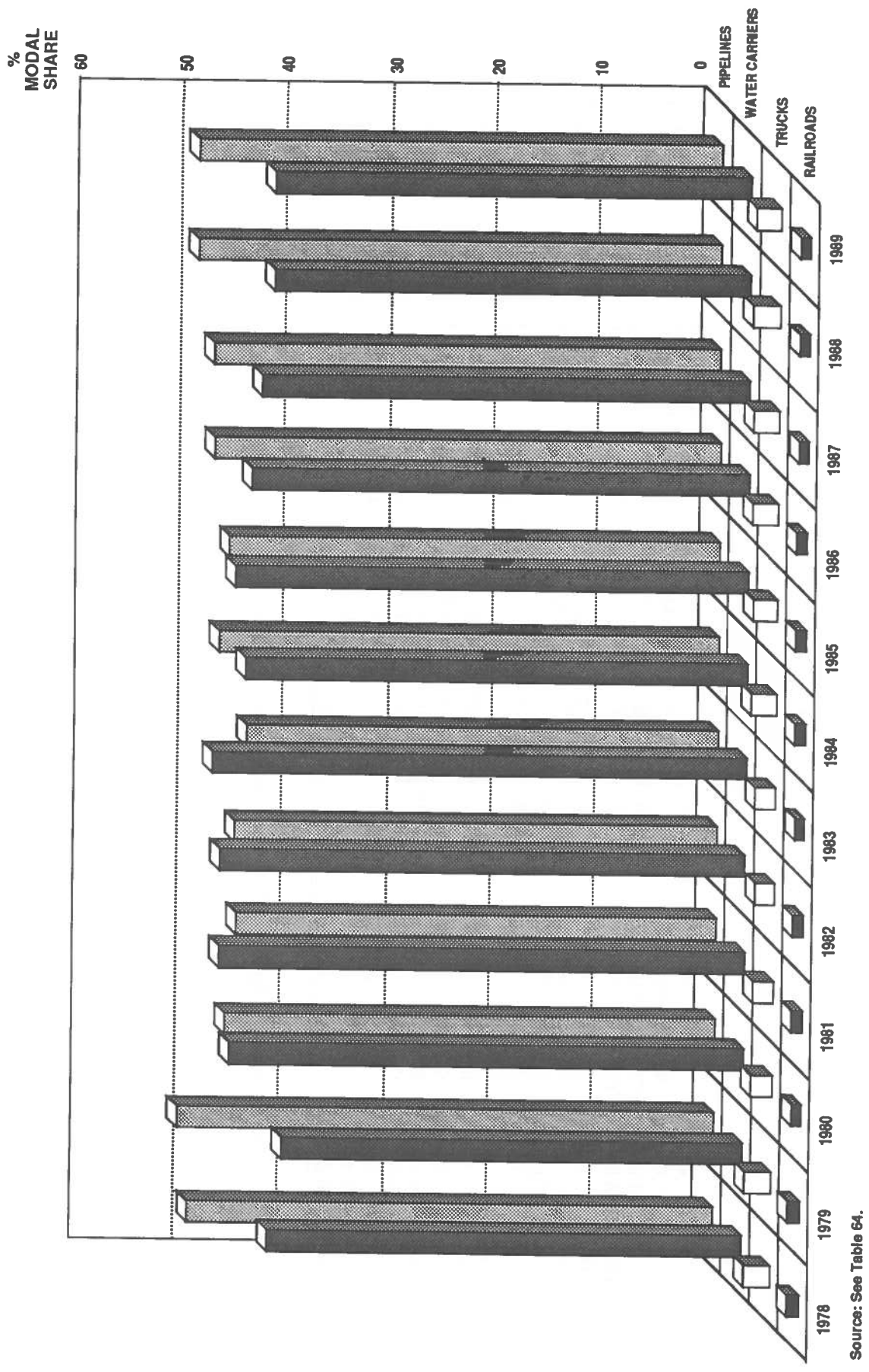
<sup>1</sup>

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).

1978-1987: Association of Oil Pipelines, *Shifts in Petroleum Transportation*, 1989, Table 3.

1988-1989: Eno Foundation for Transportation, *Transportation In America*, 1990, p. 18.

Source:



Source: See Table 64.

Figure 36. Crude Petroleum and Petroleum Products Transported in the U.S. by Modal Share, 1978-1989

**Table 66. U.S. Gas Utility Industry Miles of Pipeline and Main, by Type<sup>1</sup>**  
**(At 5-Year Intervals 1955-1970 and Annually 1971-1988)**  
**(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	94.3	271.2	753.4
1986	1,134.1	93.8	271.0	769.3
1987	1,151.2	93.6 <sup>r</sup>	273.8 <sup>r</sup>	783.8
1988	1,167.8	92.3	275.1	800.4

r = revised.

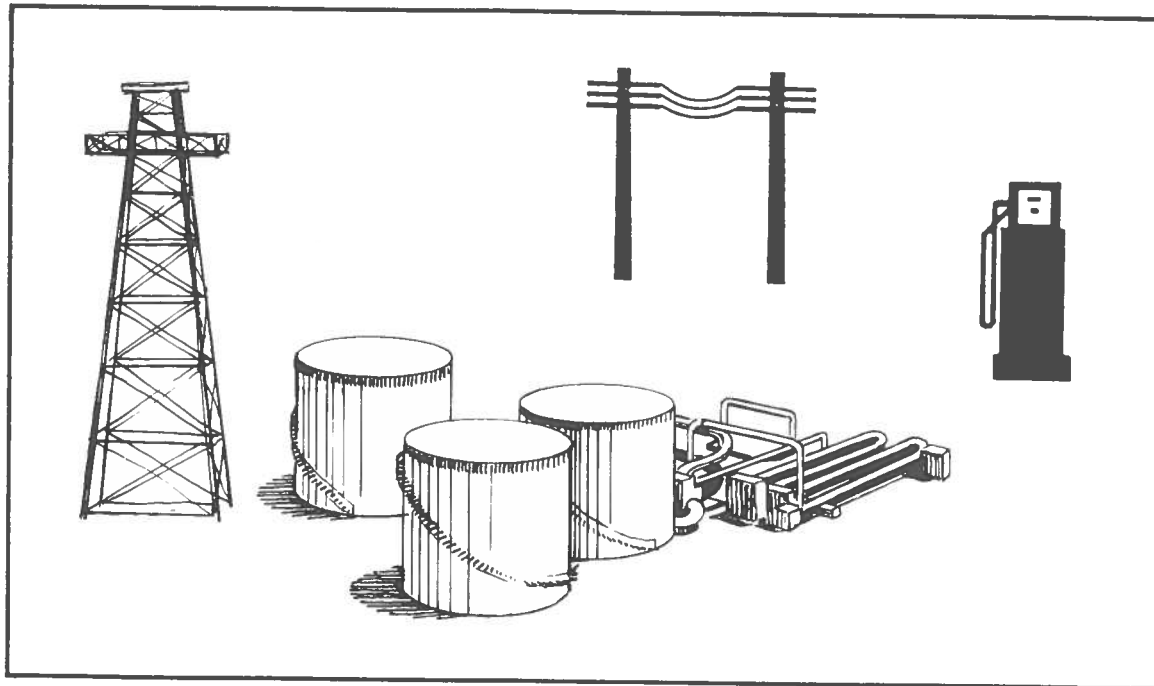
<sup>1</sup> Includes data for Alaska subsequent to 1960; excludes service pipe. Data not adjusted to common diameter equivalent. Mileage shown as of end of each year.

<sup>2</sup> Includes 5,000 miles of Underground Storage pipe 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, 1987, and 1988, some of which was formerly included in Field and Gathering pipe.

Source: 1955: American Gas Association, *Gas Facts*, 1980, Table 44.  
 1960-1988: *Ibid.*, 1989, 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 1955-1989.





**Table 69. Domestic Demand for Refined Petroleum Products  
Supplied by Sector  
(at 5-Year Intervals 1955-1970 and Annually 1971-1989)  
(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	20.30 <sup>r</sup>	50.90 <sup>r</sup>	61.8	4.25	82.33
1984	7.05	21.59	52.67 <sup>r</sup>	62.1	3.50	84.86
1985	7.02	21.19 <sup>r</sup>	53.53	63.2	3.00	84.74
1986	7.07	21.80 <sup>r</sup>	55.39 <sup>r</sup>	62.8 <sup>r</sup>	4.00	88.21
1987	7.19	22.51 <sup>r</sup>	56.93 <sup>r</sup>	63.2 <sup>r</sup>	3.44	90.07
1988 <sup>r</sup>	7.35	23.13	58.75	62.8	4.25	93.50
1989	7.30	22.42	58.92	63.2	4.62	93.20

<sup>r</sup> = revised.

<sup>1</sup> Data derived by multiplying figures in previous table by conversion factors in each sector column in Table A3 in U.S. DOE's *Annual Energy Review 1989*.

**Table 71. Domestic Demand for Gasoline  
(at 5-Year Intervals 1955-1970 and Annually 1971-1988)**  
(thousand gallons)

Year	Total Demand	Highway	Non-Highway					Total
			Agriculture	Aviation <sup>1</sup>	Marine	Other <sup>2</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	
1988	113,836,534	109,816,325	806,097	359,019	1,217,885	1,637,208	4,020,209	

<sup>1</sup> Does not include aviation jet fuel.

<sup>2</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.

1977-1988: *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, 17, 33, 34, 36, and 42, as well as the Modal Profiles. Readers who may require additional data or information should refer to the data source(s).

## Figure 2. Vehicle-Miles, 1988

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 (includes Taxi): U.S. DOT/Federal Highway Administration (FHWA), *Highway Statistics*, 1988, Table VM-1, includes total rural and urban.
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*, 1989, p. 69.
12. Local Transit: APTA, *Transit Fact Book*, 1989, p. 11.
13. Motor Bus: *Ibid.*
14. Heavy Rail: *Ibid.*
15. Light Rail: *Ibid.*
16. Trolley Bus: *Ibid.*
17. Demand Response: *Ibid.*
18. Ferryboat: *Ibid.*
19. Commuter Rail: *Ibid.*
20. Other: *Ibid.*
21. Rail: Sum of Passenger and Freight.
22. Passenger (commutation), Rail: Sum of Class 1 Rail and Amtrak.
23. Class 1 Rail: APTA, *Transit Fact Book*, 1989, Table 24.
24. Amtrak: AAR, *Railroad Facts*, 1989, p. 61.
25. Freight, Rail: *Ibid.*, p. 34.
26. Air: Includes Air Carrier only, General Aviation not available.
27. General Aviation: Not available.
28. Air Carrier: U.S. DOT/RSPA, *Air Carrier Traffic Statistics*, December 1989/1988, p. 2, sum of scheduled aircraft revenue miles, line 27, and nonscheduled aircraft revenue miles, line 50.
29. Total Majors: *Ibid.*, p. 5, sum of scheduled, line 27, and nonscheduled, line 50, services.
30. Scheduled: *Ibid.*, p. 5, line 27.
31. Nonscheduled: *Ibid.*, p. 5, line 50.
32. Total Nationals: *Ibid.*, p. 58, sum of scheduled, line 27, and nonscheduled, line 50, services.
33. Scheduled: *Ibid.*, line 27.
34. Nonscheduled: *Ibid.*, line 50.
35. Total Large Regionals: *Ibid.*, p. 93, sum of scheduled, line 27, and nonscheduled, line 50, services.
36. Scheduled: *Ibid.*, line 27.
37. Nonscheduled: *Ibid.*, line 50.
38. Total Medium Regionals: *Ibid.*, p. 155, includes domestic and international operations, sum of scheduled, line 27, and nonscheduled, line 50, services.
39. Scheduled: *Ibid.*, line 27.
40. Nonscheduled: *Ibid.*, line 50.
41. Water: Not available.

#### Figure 4. Revenue Ton-Miles of Freight, 1988

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. Single-Unit: TPA, personal communication, estimate.
6. Combination: *Ibid.*
7. Intercity: Eno Foundation for Transportation, *Transportation In America*, 1990, p. 7, total intercity ton-miles.
8. Rail: AAR, *Railroad Facts*, 1989, p. 29.
9. Air: Same as Air Carrier.
10. Air Carrier: U.S. DOT/RSPA, *Air Carrier Traffic Statistics*, December 1989/1988, 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. 58, 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. 93, 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. 155, 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*, 1989, 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*, 1990, 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, 1988

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 and Motorcycle.
4. Personal Passenger Car: U.S. DOT/FHWA, *Highway Statistics*, 1988, 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. Motorcycle: U.S. DOT/FHWA, *Highway Statistics*, 1988, Table VM-1. This figure includes private and commercial motorcycles (number of motorized vehicles registered).

### Figure 6. Number of Fatalities, 1988 (cont'd)

6. Motorcycle: *Ibid.*
7. Truck: Sum of Light Truck, Heavy Truck, and Other Truck.
8. Light: U.S. DOT/NHTSA/NRD-30, personal communication.
9. Heavy: *Ibid.*
10. Other: *Ibid.*
11. Bus: Sum of commercial and school bus occupant fatalities.
12. Commercial Bus: U.S. DOT/NHTSA/NRD-30, personal communication.
13. School Bus: *Ibid.*
14. Bicycle: U.S. DOT/RSPA/TSC, *Transportation Safety Information Report*, 1988 annual summary, Table 4.
15. Pedestrian: *Ibid.*, motor vehicle involvement only.
16. Other: *Ibid.*, includes Non-Occupant fatalities, does not include bus fatalities.
17. Rail Rapid Transit: *Ibid.*, Table 1.
18. 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.
19. Train Accident: *Ibid.*, Chart 14.
20. Non-Train Incident: *Ibid.*, Chart 16.
21. Train Incident: *Ibid.*, Chart 15.
22. Rail-Highway Grade Crossing: *Ibid.*, Table 8.
23. Air: Sum of General Aviation and Air Carrier.
24. General Aviation: U.S. DOT/RSPA/TSC, *Transportation Safety Information Report*, 1988 annual summary, Table 14.
25. Executive: *Ibid.*
26. Aerial Application: *Ibid.*
27. Business: *Ibid.*
28. Instructional: *Ibid.*
29. Personal: *Ibid.*
30. Other: *Ibid.*
31. Air Carrier: National Transportation Safety Board (NTSB), *NTSB Aviation Accident Statistics, 1979-1989*. Air Carriers operating under 14 CFR 121 and 14 CFR 135 (commuter air carriers and on-demand air taxis). Includes domestic and international operations.
32. Air Carrier: *Ibid.*, Airlines operating under 14 CFR 121, scheduled and nonscheduled services, Table 1.5.
33. Commuter: *Ibid.*, Air Carriers operating under 14 CFR 135, Table 4.
34. Air Taxi: *Ibid.*, On-Demand Air Carriers operating under 14 CFR 135, Table 5.
35. Marine: Sum of Waterborne and Recreational Boating.
36. Waterborne: U.S. DOT/USCG, G-MMI, personal communication.
37. Recreational Boating: *Ibid.*, Chart 52.
38. Pipeline: (includes Liquid and Gas Pipeline) *Ibid.*, Chart 59.

### Figure 7. Energy Consumed in Transportation, 1988

1. Domestic Transportation: Sum of Highway, Local Transit, Rail, Air, and Water. Pipeline not included in Total.
2. Highway: Sum of Auto, Truck, and Bus.
3. Auto: Sum of Personal Passenger Car and Motorcycle.
4. Personal Passenger Car (includes Taxi): U.S. DOT/FHWA, *Highway Statistics*, 1988, Table VM-1.

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3. American Public Transit Association, *Transit Fact Book*, 1989.
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5. Association of American Railroads, *Railroad Facts*, 1989, 1979.
6. *Ibid.*, *Railroad Ten-Year Trends*, annual issues.
7. *Ibid.*, *Statistics of Railroads of Class I in the U.S.*, 1983, 1980.
8. Association of Oil Pipelines, *Shifts in Petroleum Transportation*, 1989.
9. CAB, *Air Carrier Traffic Statistics*, December 1979.
10. *Ibid.*, *Air Carrier Financial Statistics*, December 1979.
11. Eno Foundation for Transportation, *Transportation In America*, 1990.
12. Federal Energy Regulatory Commission (FERC).
13. Interstate Commerce Commission, Bureau of Accounts and Statistics.
14. *Ibid.*, *103rd, 102nd, 94th Annual Report of the ICC*, 1989, 1988, 1980.
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19. Penn Well Publishing Company, *Oil and Gas Journal*, 1989, 1988, 1978.
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21. Transportation Policy Associates.
22. U.S. Army, Corps of Engineers, *Summary of U.S. Flag Passenger & Cargo Vessels*, annual issues.
23. *Ibid.*, *Waterborne Commerce of the United States*, Part 5, 1989, 1988, 1979.
24. U.S. Coast Guard, *Boating Statistics 1989, 1978*.
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 1989, 1982.
28. *Ibid.*, Bureau of the Census, *Statistical Abstract of the United States*, 1990.
29. U.S. Department of Energy, *Natural Gas Annual*, Vol. II, 1989.
30. *Ibid.*, *Statistics of Interstate Natural Gas Pipeline Companies*, 1988, 1987, 1979.
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 1989, July 1984.
33. U.S. Department of Transportation (DOT)/Federal Aviation Administration, Office of Management Systems, *General Aviation Activity and Avionics Survey*, 1989, 1988, 1978.

## TABLE REFERENCES

**Table 1. Average Passenger Revenue Per Passenger Mile, 1978-1988**

- Certificated Air Carrier, Domestic Operations, Scheduled Service:**
- 1978-1984: 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.
- 1985-1988: U.S. Department of Transportation (DOT) Research and Special Programs Administration (RSPA), *Air Carrier Financial Statistics Quarterly*, annual issues, 1985-1989, p. 1, lines 1, 2 and 3; *Air Carrier Traffic Statistics*, annual issues, 1985-1989, p. 2, lines 7, 8 and 9.
- Class I Rail:**
- 1978-1979: 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.
- 1981-1988: Transportation Policy Associates (TPA), personal communication.
- Amtrak:**
- 1978-1979: 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.
- 1980-1988: *Ibid.*, *Railroad Facts*, annual issues, p. 61.
- Class I Bus, Intercity:**
- 1978-1979: American Bus Association (ABA), *Bus Facts*, 1981, p. 12.
- 1980-1981: *Ibid.*, 1982, p. 7.
- 1982-1983: *Ibid.*, personal communication.
- 1984-1988: Interstate Commerce Commission (ICC), Bureau of Accounts, personal communication.
- Consumer Price Index:**
- 1978-1980: 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.
- 1984-1988: U.S. Department of Labor (DOL), Bureau of Labor Statistics, *Monthly Labor Review*, Table 31, December issues.

**Table 2. Average Freight Revenue Per Ton-Mile, 1978-1988**

- Certificated Air Carrier, Domestic Operations, Scheduled Service:**
- 1978-1984: 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.
- 1985-1988: U.S. DOT/RSPA, *Air Carrier Financial Statistics Quarterly*, 1985-1989, annual issues, p. 1, line 4; *Air Carrier Traffic Statistics*, 1985-1989, annual issues, p. 2, line 18. Freight revenue (Financial Statistics) divided by revenue ton-miles of freight (Traffic Statistics).
- Class I Rail:**
- 1978-1988: AAR, *Railroad Facts*, 1989, p.30.



**Table 4. Total Operating Revenues, 1978-1988 (cont'd)**

Oil Pipeline, ICC-Regulated and Non-regulated:  
1978-1988: Eno Foundation for Transportation, *Transportation In America*, 1990, p. 5, and previous issues published by TPA.

Gas Pipeline:  
1978-1988: Transmission Companies: American Gas Association (AGA), *Gas Facts*, 1989, p. 146.  
1978-1988: Distribution Companies: *Ibid.*, p. 145.

Class I Intercity Motor Carriers of Property:  
1978-1988: ICC, *103rd Annual Report of the ICC*, 1989, Appendix E, Table 6, and similar table in earlier editions.

Class I Rail:  
1978-1988: AAR, *Railroad Facts*, 1989, p. 9.

Amtrak:  
1978-1988: *Ibid.*, p. 61.

Water Transport:  
ICC-Regulated Carriers, Inland and Coastal Waterways:  
1978-1988: Eno Foundation for Transportation, *Transportation In America*, 1990, p. 11, and previous issues published by TPA.

Maritime Carriers:  
1978-1979: ICC, *94th Annual Report of the ICC*, 1980, Table 11 and similar table in earlier editions.  
1980-1988: U.S. DOT/Maritime Administration, personal communication.

Class A Freight Forwarders:  
1978-1988: Eno Foundation for Transportation, *Transportation In America*, 1990, p. 5, and previous issues published by TPA.

**Table 5. Vehicle-Miles, 1978-1988**

Air Carriers:  
Certificated, Domestic Operations, All Services:  
1978-1979: CAB, *Air Carrier Traffic Statistics*, 1979-1980, 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).  
1985-1988: U.S. DOT/RSPA, *Ibid.*, annual issues, 1985-1989, p. 2, line (27) plus line (50).

Total Majors, Domestic Operations:  
1978-1979: CAB, *Ibid.*, 1979-1980, annual issues, p. 6, line (27) plus line (50).  
1980-1984: *Ibid.*, 1981-1984/85, annual issues, p. 5, line (27) plus line (50).  
1985-1988: U.S. DOT/RSPA, *Ibid.*, annual issues, 1985-1989, p. 5, line (27) plus line (50).

Total Nationals, Domestic Operations:  
1978-1979: CAB, *Ibid.*, 1979-1980, annual issues, p. 7, line (27) plus line (50).  
1980-1984: *Ibid.*, 1981-1984/85, annual issues, p. 47, line (27) plus line (50).  
1985-1988: U.S. DOT/RSPA, *Ibid.*, annual issues, 1985-1989, pp. 57/58, line (27) plus line (50).

Total Large Regionals, Domestic Operations:  
1978-1979: Not available.  
1980-1984: CAB, *Ibid.*, 1981-1984/85, annual issues, p. 83, line (27) plus line (50).  
1985-1988: U.S. DOT/RSPA, *Ibid.*, annual issues, 1985-1989, pp. 86/93, line (27) plus line (50).

Total Medium Regionals, domestic and international operations:  
1978-1979: Not available.  
1980-1984: CAB, *Ibid.*, 1981-1984/85, annual issues, p. 113, line (27) plus line (50).  
1985-1988: U.S. DOT/RSPA, *Ibid.*, annual issues, 1985-1989, pp. 144/155, line (27) plus line (50).

**Table 6. Passenger-Miles, 1978-1988 (cont'd)**

General Aviation:	
1978-1988:	Eno Foundation for Transportation, <i>Transportation In America</i> , 1990, p. 9.
Highway:	
Passenger Car and Taxi:	
1978-1984:	U.S. DOT/FHWA, <i>Highway Statistics, Summary to 1985</i> , Table VM-201A. Passenger-miles derived by multiplying vehicle-miles by an average occupancy rate of 1.9 (1978-1979), 1.8 (1980-1982) and 1.7 (1983-1984).
1985-1988:	<i>Ibid.</i> , <i>Highway Statistics</i> , annual issues, Table VM-1. Passenger-miles derived by multiplying vehicle-miles by an average occupancy rate of 1.7.
Intercity Bus:	
1978-1988:	Eno Foundation for Transportation, <i>Transportation In America</i> , 1990, p. 9.
Single-Unit Truck:	
1978-1988:	U.S. DOT/FHWA, <i>Highway Statistics</i> , 1988, Table VM-1. Passenger-miles derived by multiplying 2-axle, 4-tire single-unit truck vehicle-miles by an average occupancy rate of 1.3.
Combination Truck:	
1978-1988:	<i>Ibid.</i> , Passenger-miles derived by multiplying combination truck vehicle-miles by an average occupancy rate of 1.0.
Local Transit:	
1978-1988:	APTA, <i>Transit Fact Book</i> , 1989, p. 54.
Rail (commutation):	
1978-1988:	<i>Ibid.</i>
Amtrak:	
1978-1988:	AAR, <i>Railroad Facts</i> , annual issues, p. 61.

**Table 7. Revenue Ton-Miles of Freight, 1978-1988**

Certificated Air Carrier, Domestic Operations, All Services:	
1978-1979:	CAB, <i>Air Carrier Traffic Statistics</i> , 1978-1980, annual issues, p. 4/5, line 3.
1980-1984:	<i>Ibid.</i> , 1981-1984/85, annual issues, p. 2, line 3.
1985-1988:	U.S. DOT/RSPA, <i>Ibid.</i> , annual issues, 1985-1989, p. 2, line 3.
Oil Pipeline:	
1978-1988:	Eno Foundation for Transportation, <i>Transportation In America</i> , 1990, p. 7.
Class I Rail:	
1978-1988:	AAR, <i>Railroad Facts</i> , 1989, p. 29.
Motor Vehicles:	
1978-1988:	Eno Foundation for Transportation, <i>Transportation In America</i> , 1990, p. 7.
Water Transport:	
Inland Waterways, including Great Lakes:	
1978-1988:	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.
Domestic Waterways:	
1978-1988:	<i>Ibid.</i> , Section 3, Table 1, and similar table in earlier editions.

**Table 8. Basic Intercity Mileage Within the Continental United States, 1978-1988**

Airways:	
1978-1988:	U.S. DOT/FAA, <i>FAA Statistical Handbook of Aviation</i> , 1988, 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.

**Table 10. Number of Vehicles, 1978-1988 (cont'd)**

Water Transport:

Total Inland Water Vessels:

1978-1988: Sum of non-self-propelled vessels and self-propelled vessels.

Non-self propelled vessels and self-propelled vessels:

1978-1979: U.S. Army, Corps of Engineers, *Summary of U.S. Flag Passenger & Cargo Vessels*, data as of Oct. 1.

1980: *Ibid.*, data as of Dec. 31, 1980.

1981-1982: *Ibid.*, Beginning in 1981 data are collected every 2 years and are shown in 1982 column.

1983-1984: *Ibid.*, data shown in 1984 column.

1985-1988: *Ibid.*, data as of Oct. 1.

Oceangoing Steam and Motor Ships:

1978-1988: U.S. DOT/Maritime Administration (MARAD), *Merchant Fleets of the World*, annual issues, Table 6 and similar table in earlier editions.

**Table 11. Number of New Vehicles Purchased by Mode, 1978-1988**

Air Carrier, All Services:

1978-1988: Aerospace Industries Association, *1989 Aerospace Year-End Review and Forecast*, Table V.

General Aviation:

1978-1988: U.S. DOT/FAA, *FAA Statistical Handbook of Aviation*, 1988, Table 10-1, aircraft production.

Passenger Car and Taxi:

1978-1988: U.S. DOC, Bureau of Economic Analysis, *Survey of Current Business*, July issues, p. S-32 and similar table in earlier editions.

Motorcycle:

1978-1988: Motorcycle Industry Council, Inc., *1989 Motorcycle Statistical Annual*, p. 12.

Moped:

1978-1988: *Ibid.*, p. 14.

Bicycle:

1978-1988: Bicycle Mfg. Assoc. of America, *The 1989 Bicycle Market in Review*.

Truck:

1978-1988: U.S. DOC, Bureau of Economic Analysis, *Survey of Current Business*, July issues, p. S-32 and similar table in earlier editions. Total of light, medium and heavy duty.

Class I Bus, Intercity:

1978-1988: Motor Vehicle Manufacturers Association, *Facts & Figures*, 1990, p. 12 and similar table in earlier editions.

Local Transit:

1978-1988: APTA, *Transit Fact Book*, 1989, Table 34.

Class I Rail:

Freight Cars, Locomotives and Passenger Train-Cars:

1978-1988: AAR, *Railroad Facts*, 1989, p. 51.

Amtrak:

Passenger Train-Cars and Locomotives:

1978-1982: *Ibid.*, p. 17.

1983-1988: Amtrak, Intergovernmental Affairs, personal communication.

Water:

Merchant Vessels and Gross Tonnage:

1978-1988: U.S. DOC, *Merchant Fleets of the World*, annual issues, p. 39 and similar table in earlier editions.

**Table 33. Employment in Transportation and Related Industries, 1978-1988**

**Transport Sector:**

**Air:**

1978-1982: U.S. Department of Labor (DOL), Bureau of Labor Statistics, *Supplement to Employment and Earnings, Revised Establishment Data*, July 1984, SIC 45.  
1983-1988: *Ibid.*, August 1989.

**Bus:**

1978-1982: *Ibid.*, July 1984, SIC 413.  
1983-1988: *Ibid.*, August 1989.

**Local Transport:**

1978-1982: *Ibid.*, July 1984, SIC 411.  
1983-1988: *Ibid.*, August 1989.

**Railroad:**

1978-1982: *Ibid.*, July 1984, SIC 40.  
1983-1988: *Ibid.*, August 1989.

**Oil Pipeline:**

1978-1982: *Ibid.*, July 1984, SIC 46. FERC-regulated companies employ approximately 85% of the total.  
1983-1988: *Ibid.*, August 1989.

**Gas Pipeline, Transmission and Distribution:**

1978-1988: AGA, *Gas Facts*, 1989, Table 17-2 and similar table in earlier editions.

**Taxi:**

1978-1982: U.S. DOL, Bureau of Labor Statistics, *Supplement to Employment and Earnings, Revised Establishment Data*, July 1984, SIC 412.  
1983-1988: *Ibid.*, August 1989.

**Trucking and Warehousing:**

**Trucking and Terminals:**

1978-1982: *Ibid.*, July 1984, SIC 421, 3.  
1983-1988: *Ibid.*, August 1989.

**Public Warehousing:**

1978-1982: *Ibid.*, July 1984, SIC 422.  
1983-1988: *Ibid.*, August 1989.

**Water:**

1978-1982: *Ibid.*, July 1984, SIC 44.  
1983-1988: *Ibid.*, August 1989.

**Transportation Services:**

1978-1982: *Ibid.*, July 1984, SIC 47.  
1983-1988: *Ibid.*, August 1989.

**Equipment Manufacturing:**

**Aircraft and Parts:**

1978-1982: *Ibid.*, July 1984, SIC 372.  
1983-1988: *Ibid.*, August 1989.

**Motor Vehicles and Equipment:**

1978-1982: *Ibid.*, July 1984, SIC 301 and 371, sum of motor vehicles and equipment and tires.  
1983-1988: *Ibid.*, August 1989.

**Railroad Equipment:**

1978-1982: *Ibid.*, July 1984, SIC 374.  
1983-1988: *Ibid.*, August 1989.

**Ships and Boat Building and Repair:**

1978-1982: *Ibid.*, July 1984, SIC 373.  
1983-1988: *Ibid.*, August 1989.

**Table 34. National Transportation and Economic Trends, 1978-1988**

Passenger-Miles:	
1978-1988:	Summation of all modes from Table 6. (This edition of NTS).
Revenue Ton-Miles:	
1978-1988:	Summation of all modes from Table 7. (This edition of NTS).
Population:	
1978-1988:	U.S. DOC, Bureau of the Census, <i>Statistical Abstract of the U.S.</i> , 1990, Table 2.
Industrial Production:	
1978-1988:	<i>Ibid.</i> , Bureau of Economic Analysis, <i>Survey of Current Business</i> , July 1989, p. S-1 and similar page in earlier editions.
Gross National Product:	
1978-1988:	<i>Ibid.</i> , Bureau of the Census, <i>Statistical Abstract of the U.S.</i> , 1990, Table 690 and similar table in earlier editions.

**Table 36. Expenditures and Overseas Travel by U.S. Residents and Foreign Visitors, 1978-1988**

U.S. Residents - Overseas Travelers:	
1978-1981:	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.
1988:	<i>Ibid.</i> , Bureau of the Census, <i>Statistical Abstract of the U.S.</i> , 1990, Table 412.
Total Travel and Passenger Fare Transactions:	
1978-1988:	Sum of Travel Payments in Foreign Countries and Passenger Fare Payments in Foreign Countries.
Travel Payments in Foreign Countries:	
1978-1988:	U.S. DOC, Bureau of Economic Analysis, <i>Survey of Current Business</i> , June 1989, p. 62, line 20.
Passenger Fare Payments to Foreign Countries:	
1978-1988:	<i>Ibid.</i> , line 21.
Foreign Visitors to U.S.:	
1978-1987:	<i>Ibid.</i> , May 1988, Table 5 and similar table in earlier editions.
1988:	<i>Ibid.</i> , Bureau of the Census, <i>Statistical Abstract of the U.S.</i> , 1990, Table 414.
Total Travel and Passenger Fare Transactions:	
1978-1988:	Sum of Travel Receipts in U.S. and Passenger Fare Receipts in U.S.
Travel Receipts in U.S.:	
1978-1988:	U.S. DOC, Bureau of Economic Analysis, <i>Survey of Current Business</i> , June 1989, page 62, line 5.
Passenger Fare Receipts in U.S.:	
1978-1988:	<i>Ibid.</i> , line 6.

**Table 42. Fuel Consumption by Mode of Transportation, 1978-1988**

Class I Rail:	
Locomotives:	
1978-1988:	Diesel Oil, AAR, <i>Railroad Facts</i> , 1989, p. 60.
1978-1982:	Electricity, AAR, <i>Statistics of Railroads of Class I in the U.S.</i> , 1983, p. 15.
1983-1988:	<i>Ibid.</i> , Economics and Finance Department, personal communication.
Motor Cars:	
1978-1988:	Diesel Oil, <i>Ibid.</i> , p. 80.
1978-1982:	Electricity, <i>Ibid.</i> , Table III-D-5.
1983-1988:	<i>Ibid.</i> , Economics and Finance Department, personal communication.

# **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, Amerijet, Arrow, Aspen, Challenge Air Cargo, Connie Kalitta, Emerald, Empress One, Five Star, Florida Express, Gulf Air Transport, International Air Service, Interstate, Key, Markair, MGM Grand, Midwest Express, Northern Air, Orion, Presidential, Reeve, Rich, Rosenbalm, Skyworld, Sun Country, Sunworld, Trans International, 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, and USAir. 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, Buffalo, Casino Express, Conner, Florida West, Great American, Independent Air, Jet Fleet, Millon, Pacific Interstate, Trans Air Link, and Trans Continental. 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 Wisconsin, Alaska, Aloha, America West, American Trans Air, Braniff, Inc., Evergreen, Hawaiian, Horizon Air, Midway, Pacific Southwest, Southwest, Southern Air, Tower, Trump Shuttle, 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.

**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.

**TROLLEYBUS:** Rubber-tired electric transit vehicle, manually steered, propelled by a motor drawing current--normally through overhead wires--from a central power source not on board the vehicle.

**UNLINKED PASSENGER TRIPS:** Transit trips taken by both initial-board (originating) and transfer (continuing) transit passengers; includes charter rides and special rides. Each passenger is counted each time that person boards a transit vehicle regardless of the type of fare paid or transfer presented.

**VANPOOL:** A type of transit service in which passengers share a van with one passenger designated "driver." The route is "fixed," but varies as passengers change. Purchase, maintenance, and recruitment of passengers may be handled by a sponsoring transit system. Fares may be charged, or the cost may be divided as agreed by the passengers.

**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 OPERATED:** Sum of all miles operated in regular service, special service, and non-revenue service by transit vehicles that carry passengers. When vehicles are operated in trains, each vehicle is counted separately, e.g., an eight-vehicle train operating for one mile equals eight vehicle miles.

**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:** Ships designed to carry dry bulk cargo. Includes ore/bulk/oil carriers and other combination bulk/oil, and ore/oil carriers.

**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.

**DRY CARGO BARGES:** Large flat-bottomed, non-self-propelled vessels used to transport dry bulk materials such as coal and ore.

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:** The movement of a car the distance of one mile (5,280 feet).

**CLASS I RAILROAD:** A railroad with an annual operating revenue of greater than \$93,500,000 effective January 1, 1990. The minimum annual operating revenue requirement is adjusted each year on January 1.

**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-MILE:** The movement of a locomotive unit the distance of one mile (5,280 feet).

**OPERATING EXPENSE:** Expenses of furnishing transportation service, including maintenance and depreciation of the plant used in the service.

**OPERATING REVENUE:** The amount of money that a carrier receives from transportation operations.

**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 mixture of hydrocarbon compounds and small quantities of various non-hydrocarbons existing in the gaseous phase or in solution with crude oil in natural underground reservoirs at reservoir conditions.

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

**REPRESSURING:** The injection of gas into oil or gas formation for pressure maintenance and cycling purposes.

**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.

# APPENDIX C

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