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Fact Book**



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### **APTA's Vision Statement**

Be the leading force in advancing public transportation.

### **APTA's Mission Statement**

APTA serves and leads its diverse membership through advocacy, innovation, and information sharing to strengthen and expand public transportation.

## **WHAT IS APTA?**

File:APTA

APTA is the American Public Transportation Association. Originally founded more than one hundred years ago, APTA is a nonprofit international association of more than 1,270 organizations responsible for planning, designing, constructing, financing, and operating public transportation systems. In addition, APTA members include business organizations that supply products and services to the public transportation industry, as well as academic institutions, state associations, metropolitan planning organizations and departments of transportation. Over 90 percent of persons using public transportation in North America are carried by APTA members. APTA is governed by a Board of Directors representing the diverse membership of the organization and an 18-member executive committee of public transportation leaders, elected annually by the entire APTA membership. APTA members provide safe, efficient and cost-effective public transportation services and products that enhance the quality of life in our communities by improving transportation choices, congestion reduction, economic development, a cleaner environment, and mobility opportunities. APTA's mission is to serve and lead its diverse membership through advocacy, innovation, and information sharing to strengthen and expand public transportation.



**AMERICAN  
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TRANSPORTATION  
ASSOCIATION**



## Notes

File: NOTES

The **Public Transportation Fact Book** (formerly the **Transit Fact Book**) was first published in 1943. Available data are expanded by standard statistical methods to estimate U.S. national totals. *All data are for the U.S. only, except for the section on Canada.* Data for Canada were provided by the Canadian Urban Transit Association (CUTA), except as noted for fixed guideway data.

This book includes only public transportation data and excludes taxicab, unregulated jitney, school, sightseeing, intercity, military, and non-public service (e.g., governmental and corporate shuttles), and special application systems (e.g., amusement parks, airports, and international, rural, rural interstate, island, and urban park ferries).

Data are based on the annual National Transit Database (NTD) report published by the Federal Transit Administration (FTA). APTA supplements these data with special surveys. Bus and demand response data are calculated based on 1990 U.S. Census Bureau urbanized area population categories; in prior decades, urbanized areas designated by 1980 and 1970 censuses are used.

The number of employees is based on the concept of employee equivalents where each employee equivalent is equal to 2,080 labor hours. Beginning in 1993, the number of employees is based on the actual number of persons at the end of the fiscal year. Data are not continuous between 1992 and 1993.

Federal government funding data are based on reports prepared by the United States Department of Transportation.

Because of the time required to compile the large amount of data for this book, data for the last calendar year reported are preliminary and will be refined when additional data become available.

Many of the tables in this book will be updated prior to the next edition. See APTA's web site, [www.apta.com](http://www.apta.com), under "Statistics," under the appropriate subject for updated data.

## SECTION I

File: SUMMARY

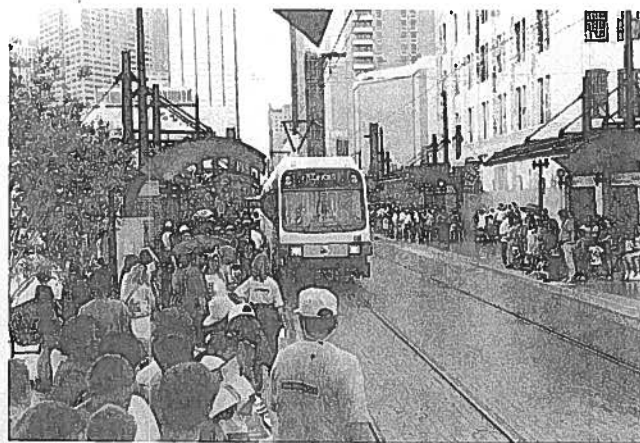
### Summary

#### What is Public Transportation?

Public transportation includes all multiple-occupancy vehicle services designed to transport customers on local and regional routes. These services are: private and public buses; rail; ferryboats; Amtrak, intercity bus, and taxi services operated under contract to a public transportation agency; any vanpool service operated by or under such a contract; and other transportation services for senior citizens and persons with disabilities.

#### Public Transportation's Customers

How many people use public transportation? In 1998, Americans took an estimated 8.7 billion trips using public transportation, an increase of 4.6 percent more than the previous year. Ridership has increased by 16 percent since 1995, an average of 4 percent each year. For those trips, 62 percent traveled on buses, 27 percent heavy rail, 4 percent commuter rail, and 3 percent light rail.



Passengers waiting to board Dallas Area Rapid Transit light rail trains in Texas.

APTA estimates about 13 million Americans used public transportation each weekday in 1998. The U.S. Department of Transportation estimates another 25 million use public transportation less frequently but on a regular basis. Within any given two-month period, nearly 12

percent of the national population uses public transportation, according to the 1995 National Personal Transportation Survey (NPTS). In the largest U.S. cities, 21 percent of the public or 28 million people use public transportation at least once in a typical two-month period. Ridership is also highest in large cities, during peak travel periods and for work trips.

Where do people go on public transportation? According to APTA data, work is the most popular destination with 54 percent of all trips ending at workplaces. Next, 15 percent of trips go to schools; 9 percent to shop; 9 percent, social visits; and 5.5 percent, medical appointments.

As the type of the trip varies on public transportation, so does the average distance traveled. Vanpool customers take the longest trips (35.9 miles). Next, commuter rail, 22.8 miles; demand response, 10.6 miles; ferryboat, 6.0 miles; heavy rail, 5.1 miles; light rail, 4.1 miles; bus, 3.8 miles; and other modes, 1.6 miles.

Many different types of people ride public transportation. Data collected by APTA shows the diversity of public transportation's customers. People age 65 and older represent 7 percent of riders; 18 years and under, 10 percent; women, 52 percent; White, 45 percent; African-American, 31 percent; Hispanic, 18 percent; and Asians and Native Americans, 6 percent.

Public transportation users come from all household income levels. The majority of passengers fall in the income range of \$15,000 to \$50,000; below \$15,000, 27 percent; more than \$50,000, nearly 20 percent.

The U.S. Department of Transportation's 1995 National Personal Transportation Survey estimated that 8 million of the 100 million U.S. households did not own a car, truck, van, motorcycle, or motor scooter. An additional 30 million households owned only one vehicle.

### **Public Transportation Modes**

Modes are different ways to get around on public transportation. Road modes include bus, trolleybus, vanpool, jitney, and demand response service. Rail modes include heavy rail, light rail, commuter rail, automated guideway transit, inclined plane, cable car, monorail, and aerial tramway. Water modes include ferryboat. An explanation of each mode is found in the definitions section.



*The Syracuse, New York CNY Centro system uses this typical demand response vehicle to transport disabled persons unable to use its fixed route buses.*

### **Number of Providers**

Approximately 6,000 public transportation systems operate in the U.S. and Canada. The majority of these agencies operate more than one mode of service. An estimated 2,250 agencies provide bus service, 5,200 operate demand response service, and 150 operate other modes. Two-thirds of U.S. public transportation agencies provide service designed to meet the needs of senior citizens and persons with disabilities. Also, many agencies typically contract service with private operators, further increasing the number of total public transportation providers.

### **Fixed Guideways**

All rail, ferryboat, and trolleybus modes operate on a separate right-of-way known as a fixed guideway. Bus service that operates on restricted busways or high-occupancy-vehicle lanes is also known as fixed guideway service. Fixed guideway mileage is divided among commuter rail (3,248 miles), bus (1,269), heavy rail (746), ferryboat (411), light rail (389), trolleybus (269) and other modes (26).

Currently under construction are 131 miles of bus high-occupancy-vehicle fixed guideway, 94 miles of light rail, 104 miles of commuter rail, 35 miles of heavy rail, 7 miles of trolleybus, and 10 miles of automated guideway.

### **The Public Sector's Investment in Public Transportation**

In fiscal year 2000, the third year of funding under the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), the federal investment in



public transportation is \$5.7 billion. TEA-21 funding provides the federal resources to ensure that public transportation remains safe and in good condition. Financial support by federal, state and local governments also helps people make a choice among travel modes. Public expenditures to operate, maintain and invest in public transportation systems in America amount to \$15.4 billion each year, according to the 1997 study *"Dollars and Sense: The Economic Case for Public Transportation in America,"* by the Campaign for Efficient Passenger Transportation. These expenditures have a positive and high return on the public investment made by taxpayers. The study reports that the estimated mobility and efficiency benefits of public transportation have a value between \$62 billion and \$78 billion annually, increasing the economic return on the public's dollars by nearly six times the total annual investment of \$15.4 billion (1995 dollars).

But unmet needs still exist in public transportation. The U.S. Department of Transportation finds that \$14 billion needs to be invested each year solely to maintain and improve existing conditions and performance.

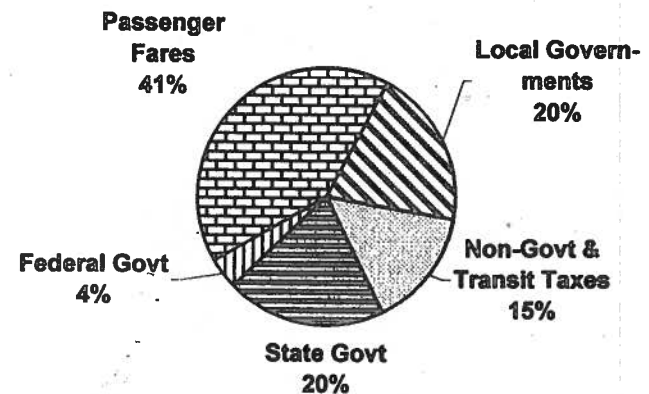
#### What it Costs to Operate Public Transportation

Public transportation funds come from two main sources, capital and operating. Capital funds are used to finance infrastructure needs such as new construction and rehabilitation of existing facilities. The federal government contributes 50 percent of all capital funding for public transportation. Up to 80 percent of the total capital cost may be federally-funded. The balance is typically paid for by a combination of state and local funds; many state and local governments provide more than the required minimum 20 percent of matching funds. In many cases, capital projects are financed solely by state and local funds. Public transportation agencies raise 26 percent of capital funds from taxes levied by the transportation system, tolls, fees, and non-governmental sources. States contribute 13 percent; local governments, 11 percent.

In 1998, public transportation received a total of \$7.1 billion in capital funds from all sources. Bus-related projects received 39 percent; fixed guideway modernization, 38 percent; new start transit projects, 21 percent, and 2 percent for planning.

Operating funds provide income for operational expenses. Most operating funds originate from local sources (76 percent). Passenger fares pay for 41 percent of operating expenses, local governments contribute 20 percent, and non-governmental sources and taxes levied by the transportation system, tolls and fees, 15 percent. State and federal governments contribute 20 percent and 4 percent, respectively.

### Operating Funds



In 1998, an adult passenger paid an average of \$1.06 in base cash fare when riding on public transportation. Zone and other surcharges increase the amount paid in many areas. Because children, senior citizens, and persons with disabilities usually ride free or at half-fare, and others use discounted passes and tickets, the average fare for an unlinked or single trip is often less. For example, passengers pay \$0.47 for trolleybus, \$0.55 for light rail, \$0.67 for bus, \$0.96 for heavy rail, \$1.60 for demand response, and \$3.28 for commuter rail.

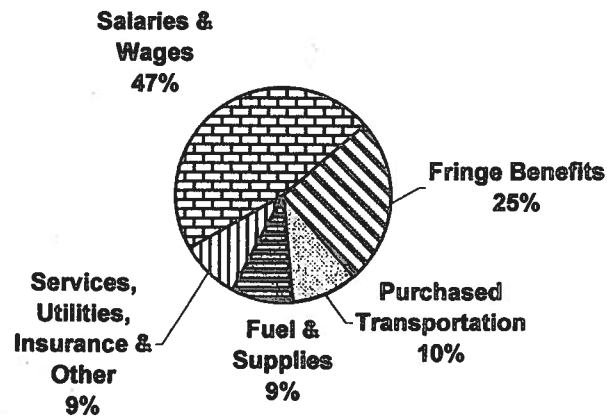
It takes regular capital and operating investments to keep public transportation on the move. **Capital expenses** represent money set aside for infrastructure and rolling stock and their renovation and replacement, plus planning, design, land acquisition and related costs. In 1998, public transportation invested \$7.1 billion in capital needs. Facilities cost 55 percent; vehicles, 33 percent; and equipment and services, 12 percent. Of these categories, heavy rail expenses accounted for 33 percent; bus, 33 percent; commuter rail, 19 percent; and light rail, 12 percent.



Among the capital projects constructed in recent years is this massive MTA Long Island Rail Road train storage yard west of Penn Station in New York City.

In 1998, public transportation spent \$19.2 billion on **operating expenses**. Salaries and wages cost 47 percent; fringe benefits, 25 percent; purchased transportation, 10 percent; and fuel and supplies, 9 percent. Services, utilities, insurance and other costs fill out the operating expense list. Of the money used to operate and maintain the vehicles used in revenue service, scheduling and operation of revenue vehicles represent 46 percent; maintenance, 18 percent; non-vehicle maintenance, 10 percent; purchased transportation, 10 percent; and 16 percent, general administration.

## Operating Expenses



## Employees

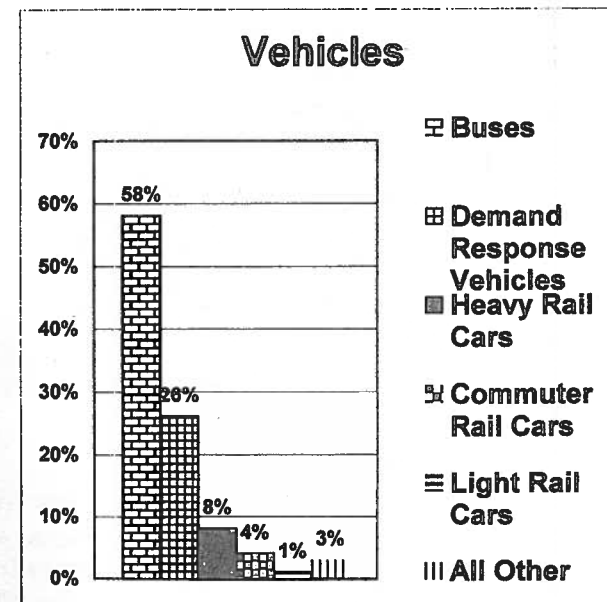
In 1999, the nation's 321,000 public transportation employees provided services to the highest levels of passengers since the inception of the federal transit program. These employees operate, maintain and manage all modes of public transportation. The majority of employees, or 61 percent, work in bus service, followed by 14 percent in heavy rail, 15 percent in demand response, and 7 percent in commuter rail.

A full 50 percent of the total number of public transportation employees serve as operators or conductors on board vehicles. Other vehicle operations employees represent 14 percent, vehicle maintenance personnel, 17 percent; non-vehicle maintenance, 9 percent; and administration, 10 percent.

In addition, an estimated 10,000 - 20,000 professionals work under contract to public transportation systems or are employed by engineering firms, manufacturers of public transportation equipment, consultants, local governments and private businesses.

## Vehicles

The public transportation fleet is comprised of 129,000 vehicles in active service. Of this number, buses represent 58 percent; demand response vehicles, 26 percent; heavy rail cars, 8 percent; commuter rail cars, 4 percent; light rail cars, 1 percent; and all other modes, 3 percent.



The age of vehicles varies by mode and by each agency that operates them. The average age for buses is 8.5 years; demand response vehicles, 3.4 years; commuter rail vehicles, 21.5 years; light rail vehicles, 20.2 years.

The length of vehicles varies by mode. For example, although the standard length of a bus is 40 feet, vehicles range from 15 to 65 feet long. The average length of a bus is 39.3 feet; demand response vehicles, 21.6 feet; commuter rail cars, 84.9 feet; heavy rail cars, 61.5 feet; and light rail cars, 70.7 feet. Vanpool vehicles are more compact at 17.5 feet. Ferryboats are the longest at 231.3 feet.

### Energy Consumption

In 1998, public transportation vehicles used nearly 800 million gallons of fossil fuels and 5.3 billion kilowatt-hours of electricity, less than 1 percent of all energy consumed in the U.S.

Among fossil fuels, diesel ranked as the highest consumed at 90 percent. Top users of diesel fuel are buses, 79 percent; commuter rail at 11 percent; demand response, 6 percent; and ferryboats, 3 percent. Among the non-diesel fuels, vehicles also used fossil fuels such as gasoline (47 percent), compressed natural gas (38 percent), propane (6 percent), and liquified natural gas (4 percent).

Most electricity, 63 percent, is consumed by heavy rail vehicles; commuter rail, 28 percent; and light rail, 7 percent.



*This compressed natural gas bus is operated by the Sacramento Regional Transit District in California.*

### Benefits of Public Transportation

Public transportation benefits the quality of life in communities across the country by providing safe, efficient and economical transportation service. Importantly, public transportation is also a vital component for a healthy economy. While public transportation benefits the people who use it, society in general benefits from its availability. Investing in public transportation:

#### **Saves Money:**

For most people, public transportation saves money. It is more cost efficient to use public transportation, especially to the central business district of an urban area.

The American Automobile Association in 1998 estimated annual costs for driving a single-occupant vehicle at \$4,826 for a small car and as high as \$9,685 for large car, depending on mileage driven.

Annual costs for public transportation may range from \$200 to \$2,000 depending on mileage traveled and include transfer, distance or zone, time-of-day, express, and parking charges.

A 1999 study, *"Public Transportation and the Nation's Economy,"* by Cambridge Systematics, Inc., estimated that for every \$10 million invested in public transportation, more than \$15 million is saved in transportation costs to both highway and public transportation users. These include operating, fuel and congestion costs.

**Creates Jobs:** The public transportation industry creates jobs for the nation's economy. In addition to the 300,000 people directly employed by the public transportation industry and thousands of others employed in the directly related engineering, construction, manufacturing and retail industries, other jobs are created. For every \$10 million invested in capital projects for public transportation, more than 300 jobs and a \$30 million gain in sales for business are realized, according to the 1999 Cambridge Systematics study.

**Provides Access to Jobs:** During the 1990s, federal and state governments took steps toward moving people off welfare and into the workforce. At the same time, a healthy economy has created thousands of new jobs. Transportation is a key force in moving former welfare recipients into the workforce as permanent wage earners. APTA's 1999 *Access to Work Best Practices Survey* reveals that an estimated 94 percent of welfare recipients attempting to move into the workforce do not own cars and rely on public transportation.

Under the current \$75 million federal access to jobs initiative, public transportation systems around the nation cooperatively work with state and local social service agencies to coordinate services to identify and assess mobility needs and to improve employment accessibility in their region. These new and expanded services will provide access to jobs for 8 million households without a car. TEA-21 guarantees \$500 million for these programs for a five-year period.

**Stimulates Economic Development:** New analysis confirms the important and positive economic impact of public transportation investment on new development and business revenues. The Cambridge Systematics study estimated that each \$10 million in capital investment yields \$30 million in increased sales, while each \$10 million operating investment yields \$32 million. The net return on the public investment is as high as six to one.

**Ease Traffic Congestion:** Public transportation helps to alleviate the crowded conditions on our nation's increasingly crowded network of roadways. The amount of time car drivers spent stuck in traffic grew to more than 40 hours in a year, in one-third of the cities studied by the 1999 Texas Transportation Institute (TTI) *Annual Mobility Report*. Also, drivers in half of the cities studied spent at least half as much time stuck in traffic as they did on vacation each year. These findings apply to small-to-medium sized cities as well as larger metropolitan areas.

The answer to more congestion is not building more roads. If adding more roads represented the only option, each of the cities in the TTI study would require an average of 37 more lane miles to keep pace with one year of increased traffic demand.



*This Toronto GO Transit train carries 1,600 passengers. If they all drove instead, the adjacent freeway would be totally gridlocked.*

**Fosters More Livable Communities:** Public transportation is a catalyst to strengthen community life through partnering with cities, small towns, and rural areas. These partnerships create transportation systems that enhance the quality of life. Public transportation's successful partnerships with communities bring together both the goals of transportation systems and the livability goals of communities, according to a Project for Public Spaces, Inc., report "*How Transportation and Community Partnerships are Shaping America*." Public transportation facilities and transportation corridors are "natural focal points for communities" for economic and social activities that help create strong neighborhood centers that are more economically stable, safe, and productive. These are areas where people can drive less or walk. When commuters ride public transportation or walk, face-to-face contact with neighbors tends to increase, which works to bring a community closer.

**Boosts Real Estate Values:** Public transportation fuels local development and in turn impacts local property values. For example, in the case of developments near the light rail system in Dallas, Texas, a 1999 University of North Texas study found that taxable values of properties located near Dallas Area Rapid Transit (DART) stations jumped by 25 percent between 1994 and 1998, as compared to values in neighborhoods not located near rail stations.

**Improves Air Quality:** Public transportation enables people to conserve energy and promote cleaner air. A 1996 FTA study reports that each year, America's public transportation use avoids the emission of more than 126 million pounds of hydrocarbons, a primary cause of smog, and 156 million pounds of nitrogen oxides, that can cause respiratory disease. Public transportation vehicles help reduce air pollution. For every mile traveled, less pollutants are emitted than by a single-passenger automobile. For example, buses emit 80 percent less carbon monoxide than single-occupant automobiles and rail transportation emits almost no carbon monoxides. Public transportation also reduces auto-fuel consumption by 1.5 billion gallons annually, according to the FTA study.

**Reduces Energy Consumption:** Public transportation can significantly reduce dependency on gasoline. For example, switching to public transportation, a person commuting 60 miles each way on a daily basis, using a car that travels 15 miles per gallon (m.p.g.) could save an estimated 1,888 gallons of gasoline each year. At 30 m.p.g., the savings amount to 944 gallons.

For a 40-mile trip, 1,259 gallons would be saved at 15 m.p.g. or 629 gallons at 30 m.p.g. Even switching to public transportation for a shorter 5-mile commute each way can save 157 gallons at 15 m.p.g. or 79 gallons at 30 m.p.g.

**Ensures Safety:** Safe travel is a high priority of public transportation systems, federal, state and local governments and APTA. According to the National Safety Council, riding the bus is already 47 times safer than car travel. By train, customers are 23 times safer than traveling by car.

**Enhances Mobility During Emergencies:** During many types of crisis conditions, including bad weather, people rely on public transportation as a valued service. For example, in 1989, in the San Francisco Bay area, an earthquake paralyzed the entire city. The San Francisco Bay Area Rapid Transit District (BART) played a significant role during the devastation of the area's bridges and freeways. During the month that the San Francisco-Oakland Bay Bridge was closed, BART ridership rose from 200,000 each day to more than 320,000. After the bridge reopened, BART retained a full one-third of its new ridership.

In 1994, public transportation made another major impact during the aftermath of the Northridge earthquake for the city of Los Angeles. Public transportation also came to the rescue following an underground tunnel flood in Chicago by moving more than 750,000 people in less than two hours without incident.

In 1998, when a tornado made an unprecedented visit to Nashville, Tennessee, public transportation services helped with evacuations and emergency transportation. Also, in 1998, public transportation provided invaluable service in the Daytona Beach, Florida area when parts of Volusia County were ravaged by wildfires. Public transportation vehicles operated around the clock to transport firefighters to the site of the wildfires; to evacuate nursing homes, adult day care facilities, and hospitals; and to bring out-of-town firefighters from the airport.

## SECTION II

### Profile of U.S. Public Transportation

TABLE 1

File: AGENCIES

Number of Transit Agencies by Mode

MODE	NUMBER
Aerial Tramway	1
Automated Guideway Transit	5
Bus	2,262
Cable Car	1
Commuter Rail	18
Demand Response	5,254
Ferryboat (b)	28
Heavy Rail	14
Inclined Plane	5
Light Rail	23
Monorail	2
Trolleybus	5
Vanpool	58
TOTAL (a)	6,000

(a) Total is not sum of all modes since many agencies operate more than one mode.

(b) Excludes international, rural, rural interstate, island, and urban park ferries.



TABLE 2

File: 35LGEAG

**35 Largest Transit Agencies, Fiscal Year 1998,  
Ranked by Number of Unlinked Passenger Trips (a)**

RANK	TRANSIT AGENCY	URBANIZED AREA
1	Metropolitan Transportation Authority (includes MTA New York City Transit, MTA Long Island Rail Road, MTA Metro-North Railroad, MTA Long Island Bus, and MTA Staten Island Railway)	New York, NY
2	Regional Transportation Authority (includes Chicago Transit Authority, Northeast Illinois Regional Commuter Railroad Corporation, and PACE Suburban Bus)	Chicago, IL
3	Los Angeles County Metropolitan Transp Authority	Los Angeles, CA
4	Massachusetts Bay Transportation Authority	Boston, MA
5	Washington Metropolitan Area Transit Authority	Washington, DC
6	Southeastern Pennsylvania Transp Authority	Philadelphia, PA
7	San Francisco Municipal Railway	San Francisco, CA
8	New Jersey Transit Corporation	New York, NY
9	Metropolitan Atlanta Rapid Transit Authority	Atlanta, GA
10	New York City Department of Transportation	New York, NY
11	Mass Transit Administration, Maryland Dept of Trp	Baltimore, MD
12	Metropolitan Transit Authority of Harris County	Houston, TX
13	King County Department of Transportation	Seattle, WA
14	San Francisco Bay Area Rapid Transit District	San Francisco, CA
15	Miami-Dade Transit Agency	Miami, FL
16	Tri-County Metropolitan Transp District of Oregon	Portland, OR
17	Port Authority of Allegheny County	Pittsburgh, PA
18	Regional Transportation District	Denver, CO
19	City & County of Honolulu Dept of Transp Services	Honolulu, HI
20	Port Authority of New York and New Jersey	New York, NY
21	Milwaukee County Department of Transportation	Milwaukee, WI
22	Greater Cleveland Regional Transit Authority	Cleveland, OH
23	Metro Transit	Minneapolis, MN
24	Alameda-Contra Costa Transit District	San Francisco, CA
25	San Diego Metropolitan Transit Development Board (includes San Diego Transit Corporation and San Diego Trolley)	San Diego, CA
26	Regional Transit Authority of Orleans and Jefferson	New Orleans, LA
27	Dallas Area Rapid Transit Authority	Dallas, TX
28	City of Detroit Department of Transportation	Detroit, MI
29	Bi-State Development Agency	Saint Louis, MO
30	Santa Clara Valley Transportation Authority	San Jose, CA
31	Orange County Transportation Authority	Los Angeles, CA
32	Regional Transportation Comm of Clark County	Las Vegas, NV
33	VIA Metropolitan Transit	San Antonio, TX
34	City of Phoenix Public Transit Department	Phoenix, AZ
35	Capital Metropolitan Transportation Authority	Austin, TX

(a) Excludes commuter-type services operated independently by Amtrak.

TABLE 3

File: AIRPORT

**Airports With Direct Rail Public Transportation Access (a)**

CITY	AIRPORT	RAIL TYPE	STATUS
Atlanta, GA	Atlanta	HR	Open
Baltimore, MD	Baltimore-Washington	LR	Open
Chicago, IL	Midway	HR	Open
Chicago, IL	O'Hare	HR	Open
Cleveland, OH	Cleveland-Hopkins	HR	Open
New York, NY	Kennedy	AG	Construction
Newark, NJ	Newark	AG	Construction
Philadelphia, PA	Philadelphia	CR	Open
Portland, OR	Portland	LR	Construction
Saint Louis, MO	Lambert-St. Louis	LR	Open
San Francisco, CA	San Francisco	HR	Construction
South Bend, IN	Michiana	CR	Open
Washington, DC	Reagan Washington	HR	Open

AG = automated guideway, HR = heavy rail, LR = light rail, CR = commuter rail

(a) Excludes airports that require a bus or van ride between the station and terminal and airports that only have internal rail circulation systems.



*A Bi-State Development Agency light rail train at the St. Louis airport. Such connections benefit not only travelers but also the thousands of persons who work at large airports.*



TABLE 4

File: GUIDMILE

## Fixed Guideway Mileage and Status of Future Projects (a)

MODE (b)	STATUS	MILES (c)
?	planning	445.6
?	proposed	49.8
<b>? TOTAL</b>		<b>495.4</b>
AG	construction	9.8
AG	design	3.0
AG	open	16.5
AG	planning	29.8
AG	proposed	0.7
<b>AG TOTAL</b>		<b>59.8</b>
CC	open	4.5
<b>CC TOTAL</b>		<b>4.5</b>
CR	construction	103.7
CR	design	168.1
CR	open	3,248.0
CR	planning	1,610.8
CR	proposed	1,600.2
<b>CR TOTAL</b>		<b>6,730.8</b>
FB	open	411.1
FB	planning	32.7
FB	proposed	25.0
<b>FB TOTAL</b>		<b>468.8</b>
HR	construction	34.9
HR	design	8.2
HR	open	745.7
HR	planning	69.4
HR	proposed	72.8
<b>HR TOTAL</b>		<b>931.0</b>
IP	open	1.5
<b>IP TOTAL</b>		<b>1.5</b>
LR	construction	93.5
LR	design	202.5
LR	open	388.9
LR	planning	519.3
LR	proposed	260.2
<b>LR TOTAL</b>		<b>1,464.4</b>
MB	construction	130.5

TABLE 4

File: GUIDMILE

## Fixed Guideway Mileage and Status of Future Projects (a)

MODE (b)	STATUS	MILES (c)
MB	design	233.2
MB	open	1,269.4
MB	planning	325.0
MB	proposed	216.3
<b>MB TOTAL</b>		<b>2,174.4</b>
MO	design	8.3
MO	open	2.7
MO	proposed	37.0
<b>MO TOTAL</b>		<b>48.0</b>
TB	construction	7.1
TB	design	9.2
TB	open	269.0
TB	planning	93.3
TB	proposed	3.8
<b>TB TOTAL</b>		<b>382.4</b>
TR	design	1.5
TR	open	0.6
<b>TR TOTAL</b>		<b>2.1</b>

? = Uncertain, unknown, or not reported; AG=automated guideway transit; CC=cable car; CR=commuter rail; FB=ferryboat; HR=heavy rail; IP=inclined plane; IR=intermediate rail; LR=light rail; MB=bus; MO=monorail; TB=trolleybus; TR=aerial tramway.

(a) Data as of July 1999, plus updated information where known.

(b) Bus data includes only fixed guideways 1.0 miles in length or longer; data for all other modes includes all guideways.

(c) Excludes data for a few guideways for which mileage was not reported.

Source: APTA survey

TABLE 5

Title: GUIDECON

**Fixed Guideways Under Construction (a)**

LOCATION	MILES
<b>AUTOMATED GUIDEWAY</b>	
Jacksonville, FL	0.4
New York, NY	9.4
<b>TOTAL</b>	<b>9.8</b>
<b>BUS</b>	
Dallas, TX	11.1
Denver, CO	3.3
Hartford, CT	
Houston, TX	9.9
Los Angeles, CA	31.2
Minneapolis, MN	0.9
New York, NY	1.0
Newport News, VA	8.0
Phoenix, AZ	14.0
Pittsburgh, PA	8.3
Salt Lake City, UT	19.0
San Bernardino, CA	9.9
San Diego, CA	4.0
Seattle, WA	9.9
Washington, DC	
<b>TOTAL</b>	<b>130.5</b>
<b>COMMUTER RAIL</b>	
Boston, MA	
Burlington, VT	20.0
Dallas, TX	24.0
New York, NY	6.2
Seattle, WA	40.0
Syracuse, NY	
Washington, DC	13.5
<b>TOTAL</b>	<b>103.7</b>
<b>HEAVY RAIL</b>	
Atlanta, GA	2.0
Los Angeles, CA	6.3

TABLE 5

Title: GUIDECON

**Fixed Guideways Under Construction (a)**

LOCATION	MILES
New York, NY	0.4
San Francisco, CA	8.7
San Juan, PR	10.7
Washington, DC	6.8
<b>TOTAL</b>	<b>34.9</b>
<b>LIGHT RAIL</b>	
Dallas, TX	23.8
Denver, CO	8.7
Kenosha, WI	1.8
New York, NY	2.0
Pittsburgh, PA	5.2
Portland, OR	7.8
Portland, OR	2.2
Saint Louis, MO	17.4
Salt Lake City, UT	15.0
San Francisco, CA	2.0
San Jose, CA	7.6
<b>TOTAL</b>	<b>93.5</b>
<b>TROLLEYBUS</b>	
Boston, MA	1.0
Dayton, OH	6.1
<b>TOTAL</b>	<b>7.1</b>

(a) Data as of July 1999, plus updated information where known.

Source: APTA survey

TABLE 6

Title: GUIDE BUS

## Bus Fixed Guideways 5.0 Miles or More in Length (a)

30

LOCATION	GUIDEWAY	SEGMENT	MILES
Atlanta, GA	I 20 HOV Lanes	Columbia Drive-I 75/I 85	9.0
Atlanta, GA	I 75 HOV Lanes	Kennedy-Aviation Blvd	21.0
Atlanta, GA	I 85 HOV Lanes	Chamblee Tucker-Brookwood	9.0
Boston, MA	I 93 South HOV Lane	Freeport St-Furnace Brook Parkway	6.0
Dallas, TX	I 30 East Interim HOV Lanes	Central Expressway-Jim Miller Rd	5.2
Dallas, TX	I 35E North Interim HOV Lanes	I 635-Round Grove Rd	7.3
Dallas, TX	I 635 Interim HOV Lanes	US 75-I 35E	6.8
Denver, CO	I 25 North HOV Lanes	Union Terminal-70th	6.8
Denver, CO	Santa Fe Blvd HOV Lanes	I 25-Prince	6.3
Fort Lauderdale, FL	I 95 HOV Lanes	Dade County Line-Palm Beach County Line	26.5
Hartford, CT	I 84 East HOV Lanes	Roberts St/Silver La-Vernon	9.5
Hartford, CT	I 91 North HOV Lanes	Hartford-Windsor Locks	10.0
Honolulu, HI	I H1 Contraflow/Shoulder HOV Lane	Waipahu-Pearl Harbor	11.0
Honolulu, HI	I H1 HOV Lanes	Waiawa-Keehi	8.9
Honolulu, HI	I H2 HOV Lanes	Mililani-Waiawa	5.3
Houston, TX	I 10 West HOV Lanes	TX 6-West Loop Terminus	13.0
Houston, TX	I 45 North HOV Lanes	I 10-FM 1960	19.9
Houston, TX	I 45 South HOV Lanes	US 59-Dixie-Farm Rd	15.5
Houston, TX	US 290 Northwest HOV Lanes	I 10-FM 1960	13.5

TABLE 6

Title: GUIDE BUS

## Bus Fixed Guideways 5.0 Miles or More in Length (a)

31

LOCATION	GUIDEWAY	SEGMENT	MILES
Houston, TX	US 59 North HOV Lanes	Quitman-FM 1960	15.2
Houston, TX	US 59 South HOV Lanes	Shepherd-Fort Bend County Line	12.3
Los Angeles, CA	CA 118 HOV Lanes	I 5-Ventura County Line	11.4
Los Angeles, CA	CA 134 HOV Lanes	US 101/CA 170-I 210	12.9
Los Angeles, CA	CA 14 HOV Lanes	CA 126-Sand Canyon	6.4
Los Angeles, CA	CA 170 HOV Lanes	I 5-US 101/CA 134	6.1
Los Angeles, CA	CA 55 HOV Lanes	CA 91-I 405	11.0
Los Angeles, CA	CA 57 HOV Lanes	CA 22-Los Angeles Co Line	11.7
Los Angeles, CA	CA 60 HOV Lanes	Brea Canyon Rd-San Bernardino County Line	7.5
Los Angeles, CA	CA 91 HOV Lanes	I 110-Orange County Line	14.3
Los Angeles, CA	CA 91 HOV Lanes	Riverside County Line-CA 57	12.8
Los Angeles, CA	I 10 HOV Lanes	Alameda/Arcadia-Baldwin Ave	16.5
Los Angeles, CA	I 105 HOV Lanes	I 605-I 405	16.5
Los Angeles, CA	I 110 HOV Lanes	CA 91-Adams	11.1
Los Angeles, CA	I 210 HOV Lanes	CA 134-Sunflower	18.5
Los Angeles, CA	I 405 HOV Lanes	CA 22-I 5	20.5
Los Angeles, CA	I 405 HOV Lanes	I 105-I 110	9.2
Los Angeles, CA	I 405 HOV Lanes	I 710-Orange County Line	7.6
Los Angeles, CA	I 405 HOV Lanes Extension	I 5-US 101	10.1

TABLE 6

Title: GUIDE BUS

## Bus Fixed Guideways 5.0 Miles or More in Length (a)

LOCATION	GUIDEWAY	SEGMENT	MILES
Los Angeles, CA	I 5 HOV Lanes	CA 1-CA 22/CA 57	27.3
Los Angeles, CA	I 605 HOV Lanes	I 10-South St	16.4
Memphis, TN	I 40 East HOV Lanes	Mt Juliet Rd-Old Hickory Blvd	8.0
Miami, FL	I 95 HOV Lanes	Broward County Line-FL 112	11.2
Miami, FL	South Dade Busway	Dadeland South-Cutler Ridge	8.4
Minneapolis, MN	I 35W South HOV Lanes Extension S/B	66th St-MN 13	7.4
Minneapolis, MN	I 394 HOV Lanes	N. 12th St-I 494	9.0
Minneapolis, MN	I 94/I 694 HOV Lanes Westbound	Brooklyn Blvd-Weaver Lake Rd	6.3
Minneapolis, MN	MN 47 HOV Lanes	37th Ave NE-85th Ave NE	6.4
Nashville, TN	I 24 East HOV Lanes	Hickory Hollow Pkwy-Sam Ridley Pkwy	10.0
Nashville, TN	I 65 South HOV Lanes	Armory Dr-TN 96	16.0
New York, NY	I 278 HOV Lane N/B	72nd St-Brooklyn-Battery Tunnel	9.0
New York, NY	Long Island Expressway HOV Lanes	NY 25-NY 112	30.0
New York, NY	New Jersey Turnpike HOV Lanes	Woodbridge-Newark	13.0
Norfolk, VA	I 64 HOV Lanes	VA 44/I 264-Battlefield Blvd	8.0
Norfolk, VA	I 64/I 564 HOV Lanes	VA 407-Taussig Blvd	10.3
Norfolk, VA	VA 44 HOV Lanes	I 64-Rosemont Rd	11.0
Phoenix, AZ	AZ 202 HOV Lanes	I 10-AZ 101	9.0
Phoenix, AZ	I 10 HOV Lanes	91st Ave-Chandler Blvd	28.0

TABLE 6

Title: GUIDE BUS

## Bus Fixed Guideways 5.0 Miles or More in Length (a)

LOCATION	GUIDEWAY	SEGMENT	MILES
Phoenix, AZ	I 17 HOV Lanes	Dunlap Ave-Beardsley Rd	7.0
Pittsburgh, PA	I 279-I 579 HOV Lanes	Bedford Ave-Perrysville Ave	6.9
Pittsburgh, PA	M.L. King Jr. East Busway	Liberty Ave/Grant St-Wilkinsburg	7.8
San Bernardino, CA	CA 60 HOV Lanes	Los Angeles Co Line-Riverside Co Line	10.2
San Bernardino, CA	CA 71 HOV Lanes Extension	Los Angeles Co Line-Riverside Co Line	9.5
San Diego, CA	I 15 HOV Lanes	CA 163-CA 56	7.6
San Francisco, CA	I 80/Bay Bridge HOV Lanes	San Francisco-CA 4	17.4
San Francisco, CA	I 880 HOV Lanes	Milpitas-San Leandro	20.0
San Francisco, CA	US 101 HOV Lanes	Marin Co Civic Center-CA 37	6.5
San Jose, CA	CA 237 HOV Lanes	I 880-Mathilda	5.5
San Jose, CA	CA 85 HOV Lanes	US 101 North-US 101 South	23.8
San Jose, CA	Capitol Expressway HOV Lanes	US 101-I 680	5.0
San Jose, CA	I 280 HOV Lanes	Magdalena Ave-Bascom Ave	10.5
San Jose, CA	Lawrence Expressway HOV Lanes	CA 237-I 280	6.0
San Jose, CA	Montague Expressway HOV Lanes	US 101-I 680	6.0
San Jose, CA	San Tomas Expressway HOV Lanes	CA 17-US 101	8.0
San Jose, CA	US 101 HOV Lanes	Bernal Rd-San Mateo County Line	25.0
Seattle, WA	I 405 HOV Lanes	I 5 South-NE 160th St	22.5
Seattle, WA	I 5 HOV Lanes	I 90-WA 516	14.9

TABLE 6

Title: GUIDEBUS

**Bus Fixed Guideways 5.0 Miles or More in Length (a)**

LOCATION	GUIDEWAY	SEGMENT	MILES
Seattle, WA	I 5 HOV Lanes	King County Line-WA 526	20.9
Seattle, WA	I 90 Center HOV Lanes	S. Rainier Ave-S. Bell Way	6.2
Seattle, WA	I 90 HOV Lanes	E. Mercer Way-WA 900	7.3
Seattle, WA	WA 167 HOV Lanes Extension	84th Ave S.-15th NW	5.6
Tucson, AZ	Broadway Blvd Bus Lanes	4th Ave-Alvema	5.0
Washington, DC	I 270 HOV Lanes	I 495-MD 121	19.0
Washington, DC	I 66 HOV Lanes	Potomac River-VA 234	28.0
Washington, DC	I 95/I 395 HOV Lanes	Eads St-Dumfries	30.5
Washington, DC	US 29 Shoulder Bus Lanes	MD 650-MD 198	5.9
Washington, DC	VA 267 HOV Lanes	I 495-VA 28	12.0
West Palm Beach, FL	I 95 HOV Lanes	Broward County-Delray Bch Linton Blvd	7.5

(a) Data as of July 1999, plus updated information where known.

Source: APTA survey

SECTION III

File: FUNDCAP

**Funding, Capital***Highlights. . . . .*

- \$7.1 billion was received from all sources in 1998.
- 50.0% came from the federal government,  
11.1% from state governments,  
12.9% from local governments,  
26.0% was raised by transit agencies from directly-levied  
taxes, advertising, interest income, and other sources.
- Federal capital and operating appropriations total \$5.8 billion for  
2000.
- Federal capital grant approvals for 1998 totaled \$4.2 billion.
- 38.8% of capital grants went for bus-related projects,  
37.8% for fixed-guideway modernization,  
21.3% for new start transit projects,  
2.1% for other planning projects.

TABLE 7

File: CAPFUND

**Capital Funding Sources, Millions of Dollars**

YEAR	FEDERAL ASSISTANCE	STATE ASSISTANCE	LOCAL ASSISTANCE	DIRECTLY GENERATED (a)	LOCAL PLUS DIRECTLY GENERATED	TOTAL
1988	2,519.5	489.6	769.0	86.5	855.5	3,864.6
1989	2,426.5	665.5	802.6	118.3	920.9	4,012.9
1990	2,872.5	696.8	1,176.9	189.3	1,366.2	4,935.5
1991	2,773.5	695.4	1,012.3	1,074.5	2,086.8	5,555.7
1992	2,673.0	801.0	830.0	1,131.7	1,961.8	5,435.7
1993	2,432.4	1,325.5	1,079.6	1,002.1	2,081.7	5,839.6
1994	2,622.8	1,047.8	997.9	1,164.2	2,162.1	5,832.7
1995	3,422.2	1,020.3	888.2	1,899.6	2,787.8	7,230.3
1996	3,592.8	915.9	926.0	1,649.1	2,575.1	7,083.8
1997	4,275.6	1,037.0	898.8	1,638.1	2,536.9	7,849.5
1998 P	3,574.8	789.0	923.1	1,856.5	2,779.6	7,143.4
1998 % of Total	50.0%	11.1%	12.9%	26.0%	38.9%	100.0%

P = Preliminary

(a) Includes non-governmental funding, subsidies from non-transit sectors of a transit agency's operations, and, beginning in 1991, taxes levied directly by a transit agency and bridge and tunnel tolls.

TABLE 8

File: FEDAPP

**Federal Public Transportation Appropriations, Federal Fiscal Years 1993-2000, Millions of Dollars**

PROGRAM	1993	1994	1995	1996	1997	1998	1999	2000
<b>MAJOR CAPITAL INVESTMENT PROGRAM:</b>	1,725.0	1,785.0	1,724.9	1,665.0	1,900.0	2,000.0	2,307.0	2,490.1
New Starts/Extensions	721.8	667.9	646.6	666.0	760.0	800.0	902.8	969.1
Fixed-Guideway Modernization	666.3	760.1	725.0	666.0	760.0	800.0	902.8	980.4
Bus/Bus Facility	336.9	357.0	353.3	333.0	380.0	400.0	501.4	540.6
<b>FORMULA PROGRAM:</b>	1,700.0	2,414.9	2,491.9	2,052.9	2,149.2	2,500.0	2,800.0	3,048.0
Urbanized Area	1,560.5	2,226.6	2,299.8	1,891.2	1,978.0	2,303.7	2,548.2	2,772.9
Nonurbanized Areas	90.8	129.6	132.9	110.1	115.1	134.1	177.9	193.6
Elderly & Disabled	48.6	58.7	59.2	51.6	56.0	62.2	67.0	72.9
Clean Fuels Vehicle Grants	—	—	—	—	—	—	0.0	0.0
Rural Transportation Access	—	—	—	—	—	—	2.0	3.7
Alaska Railroad	—	—	—	—	—	—	4.8	4.8
<b>PLANNING &amp; RESEARCH:</b>	85.0	92.2	93.1	85.5	85.5	92.0	98.0	106.7
Metropolitan Planning	38.3	41.5	41.5	39.5	39.5	39.5	43.8	49.6
Rural Transit Assistance Program	4.3	4.6	4.6	4.5	4.5	4.5	5.3	5.3
All Other Research & Training	42.5	47.4	47.0	41.5	41.5	48.0	48.9	51.8
University Research Centers	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Access to Jobs/Reverse Commute	—	—	—	—	—	—	75.0	75.0
Interstate Transfer	75.0	45.0	48.0	—	—	—	—	—
Washington DC Metro	170.0	200.0	200.0	200.0	200.0	200.0	50.0	—
FTA Administration	38.2	39.5	42.3	40.7	41.0	45.7	54.0	60.0
<b>TOTAL</b>	<b>3,799.2</b>	<b>4,582.6</b>	<b>4,606.2</b>	<b>4,050.1</b>	<b>4,381.7</b>	<b>4,843.7</b>	<b>5,390.0</b>	<b>5,785.7</b>

Source: U.S. Department of Transportation, Federal Transit Administration.



TABLE 9

File: CAPUSE

**Federal Capital and Planning Grant Approvals by Use, Millions of Dollars**

FEDERAL FISCAL YEAR	BUS (a)	FIXED-GUIDEWAY MODERNIZATION (a)	NEW STARTS (a)	PLANNING (b)	TOTAL
1984	1,039.6	1,110.0	709.9	62.7	2,922.2
1985	921.2	1,080.2	490.2	67.1	2,558.7
1986	1,022.6	869.1	1,228.3	66.0	3,186.0
1987	864.3	975.5	617.7	64.2	2,521.7
1988	820.0	1,145.7	538.2	70.3	2,574.2
1989	789.9	1,105.1	671.0	75.4	2,641.4
1990	760.9	998.9	603.7	64.4	2,427.9
1991	826.0	1,029.2	515.2	80.5	2,450.9
1992	941.7	1,153.8	492.5	80.8	2,668.8
1993	1,295.2	1,146.0	996.5	77.9	3,515.6
1994	1,401.6	1,474.3	657.2	97.2	3,630.3
1995	1,988.7	1,767.2	1,677.7	100.2	5,533.8
1996	1,465.7	1,482.3	1,109.3	122.8	4,180.1
1997	1,582.6	1,501.1	922.4	118.6	4,124.7
1998	1,640.9	1,598.2	898.0	88.2	4,225.3
1998 % of Total	38.8%	37.8%	21.3%	2.1%	100.0%

(a) Includes total funding for listed usage from capital, formula, and other funding programs.

(b) Includes funds used for planning from all funding programs.

Source: U.S. Department of Transportation, Federal Transit Administration.

TABLE 10

File: CAPPROG

**Federal Capital and Planning Grant Approvals by Source Funding Program, Millions of Dollars**

FEDERAL FISCAL YEAR	CAPITAL INVESTMENT (a)	FORMULA (b)	PLANNING (c)	OTHER (d)	TOTAL
1984	1,063.2	1,372.1	46.1	440.8	2,922.2
1985	695.6	1,523.7	48.4	291.0	2,558.7
1986	1,102.7	1,354.4	48.8	680.1	3,186.0
1987	659.7	1,411.4	47.0	403.6	2,521.7
1988	840.4	1,415.7	53.3	264.8	2,574.2
1989	1,164.9	1,002.5	51.9	422.1	2,641.4
1990	1,134.6	997.4	47.9	248.0	2,427.9
1991	1,073.6	1,069.8	54.5	253.0	2,450.9
1992	973.7	1,261.3	55.9	377.9	2,668.8
1993	1,745.9	1,473.3	50.5	245.9	3,515.6
1994	1,547.1	1,706.3	53.0	323.9	3,630.3
1995	2,608.5	2,520.1	52.5	352.7	5,533.8
1996	1,690.5	2,123.9	50.7	315.0	4,180.1
1997	1,716.3	2,130.0	76.0	202.4	4,124.7
1998	1,648.3	2,311.8	53.9	211.3	4,225.3
1998 % of Total	39.0%	54.7%	1.3%	5.0%	100.0%

(a) Bus and Bus Facilities, Fixed-Guideway Modernization, and New Start programs.

(b) Urbanized Area, Rural, and Elderly Individuals and Disabilities formula programs.

(c) Metropolitan Planning, State Planning, Rural Transportation Assistance Program, and Consolidated Planning Grants.

(d) Federal Aid Urban Systems, Interstate Transfer, and National Capital Transportation Act.

TABLE 11

File: FLEXFUND

**Flexible Highway Funds Obligated to Public Transportation, Millions of Dollars (a)**

FEDERAL FISCAL YEAR	CONGESTION MITIGATION & AIR QUALITY IMPROVEMENT PROGRAM	SURFACE TRANSPORTATION PROGRAM	INTERSTATE SUBSTITUTE & EARMARKED FEDERAL HIGHWAY ADMINISTRATION FUNDS	TOTAL
1992	177.0	25.2	101.6	303.8
1993	298.4	146.9	23.9	469.2
1994	317.0	183.2	109.5	609.7
1995	484.1	200.3	117.4	801.8
1996	344.6	324.2	111.3	780.1
1997	257.9	207.9	48.3	514.1
1998	223.3	243.9	0.1	467.3
1999	573.0	384.4	11.8	969.2
1999 % of Total	59.1%	39.7%	1.2%	100.0%

(a) Under Provisions of Intermodal Surface Transportation Efficiency Act of 1991.

Source: U.S. Department of Transportation, Federal Transit Administration.

TABLE 12

File: CFSTATE

**Federal Obligations by State, 1998, Millions of Dollars**

Alabama	20.8
Alaska	3.8
Arizona	31.5
Arkansas	11.1
California	749.1
Colorado	48.7
Connecticut	94.9
Delaware	8.5
District of Columbia	63.4
Florida	187.5
Georgia	157.8
Hawaii	1.8
Idaho	3.9
Illinois	290.7
Indiana	42.2
Iowa	13.8
Kansas	7.6
Kentucky	18.9
Louisiana	37.8
Maine	4.5
Maryland	44.5
Massachusetts	192.0
Michigan	58.7
Minnesota	11.6
Mississippi	5.3
Missouri	92.9
Montana	3.3
Nebraska	7.5
Nevada	10.5
New Hampshire	6.5
New Jersey	312.8
New Mexico	10.5
New York	763.1
North Carolina	32.4
North Dakota	3.3
Ohio	92.2
Oklahoma	12.4
Oregon	85.4
Pennsylvania	252.0
Rhode Island	27.8
South Carolina	15.5
South Dakota	2.9
Tennessee	29.8
Texas	101.5
Utah	85.0
Vermont	10.4
Virginia	47.3
Washington	102.2
West Virginia	5.7
Wisconsin	46.4
Wyoming	3.2
Puerto Rico & Territories	43.2
<b>TOTAL</b>	<b>4,316.1</b>

Source: Federal Transit Administration.

TABLE 13

File: COSTIMP

**Cost to Improve Public Transportation Conditions and Performance, 1996-2016, Millions of 1995 Dollars**

CATEGORY	Costs to Maintain Conditions & Performance	Incremental Cost to Improve Conditions & Maintain Performance	Incremental Cost to Improve Conditions & Performance	Total
<b>BUS</b>				
Vehicles (Replacement and Rehabilitation)	1,113	87	0	1,200
Non-Vehicles (Guideway, Facilities, Systems, Stations)	862	17	0	880
Fleet Expansion (Vehicles and Non-Vehicles)	1,116	0	0	1,116
New Bus (Vehicles and Non-Vehicles)	0	0	505	505
Elderly and Disabled Vehicles and Facilities	334	87	0	421
Nonurbanized Area Vehicles and Facilities	167	42	0	209
Subtotal Bus	3,592	233	505	4,330
<b>RAIL</b>				
Vehicles (Replacement and Rehabilitation)	1,277	210	0	1,488
Non-Vehicles (Guideway, Facilities, Systems, Stations)	3,277	764	0	4,041
Fleet Expansion (Vehicles and Non-Vehicles)	1,548	0	0	1,548
New Rail (Vehicles and Non-Vehicles)	0	0	2,815	2,815
Subtotal Rail	6,103	974	2,815	9,892
<b>TOTAL</b>	<b>9,696</b>	<b>1,207</b>	<b>3,320</b>	<b>14,223</b>

Source: U.S. Department of Transportation, 1997 Status of the Nation's Surface Transportation System, Condition and Performance.

**SECTION IV**

File: EXCAP

**Expenses, Capital**

Tunnel construction for a heavy rail line at the Washington Metropolitan Area Transit Authority. Some tunnels are bored deep underground by special machines. This one employs the cut-and-cover method—digging a trench, building the tunnel, and then covering it up.

**Highlights. . . . .**

- \$7.1 billion was spent in 1998.
- 33.2% was used for rolling stock,  
55.3% for facilities,  
11.5% for other capital expenses.
- 33.2% was used for bus projects,  
19.3% for commuter rail,  
32.9% for heavy rail,  
11.8% for light rail,  
2.8% for other modes.

## Notes on Capital Costs

File: CAPCOST

Capital expense costs reported to the Federal Transit Administration exclude expenses of purchased transportation contractors. Data in the following tables include APTA estimates for such expenses.

Because most capital projects take several years to complete, and data are reported each year as spent, it is not possible to correlate data to particular projects. Yearly totals rise and fall based on construction schedules, so comparison of data for various years has little value because of the differing projects included in each year.

**Bond Expenses** are not considered capital expenses by the FTA. Interest payments are considered a reconciling item for operating expenses. Principal repayments are not reported since the funds from bond issues have already been spent on rolling stock, facilities, and other equipment.

**Rolling Stock** expenses include revenue vehicles and locomotives only. Service vehicles are included in "other." They do not include fare collection or revenue vehicle movement control equipment (radios or cellular phones) or leased tires and tubes. They include replacement, rehabilitation, remanufacture, fleet expansion, major component (engines, transmissions, etc.), and rail overhaul costs.

**Facilities** include construction and rehabilitation of maintenance facilities, crime prevention and security equipment, service and support equipment, operational support (computer hardware and software, bus diagnostic equipment, etc.), transit malls, transfer facilities, intermodal terminals, shelters, passenger stations, depots, terminals, HOV facilities, transit ways, park-and-ride facilities, track, line equipment and structures, signals and communications, and power equipment and substations. Design, engineering, demolition, land acquisition, and relocations costs are included.

**Other** includes service vehicles, construction of general administration facilities, furniture, equipment not an integral part of buildings and structures, data processing equipment, fare collection equipment, and revenue vehicle movement control equipment (radios, cellular phones).

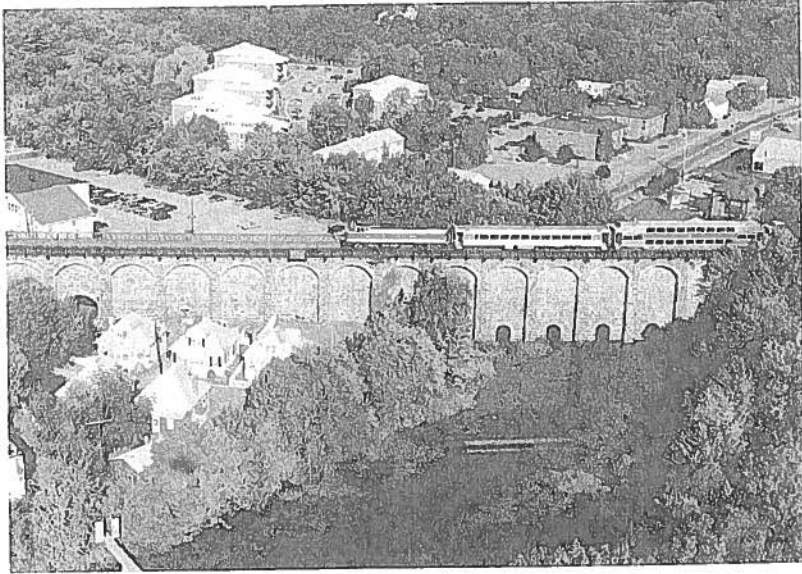
## Construction Costs

File: CONCOST

Although data for public transportation infrastructure construction costs (e.g., new rail lines, high-occupancy-vehicle lanes, and busways) are reported to the Federal Transit Administration National Transit Database, data are not reported by complete project--only by year by mode, which could cover several projects being constructed simultaneously. Also, most projects are constructed over a period of several years, and only broad category data (vehicles, facilities, and other) are reported. Details on mileage, number of stations, size of parking lots, and other variables are not reported. Dozens of variables impact the cost of a project, and some costs, such as the quality of construction and the artistic beauty of a project, cannot be accurately measured. A few of those variables include:

- 1) land acquisition,
- 2) land clearance and demolition,
- 3) relocation of existing businesses and residences,
- 4) availability of "free" or low-cost right-of-way such as abandoned railroads,
- 5) utility relocation,
- 6) number, size, and length of stations,
- 7) number of tracks or lanes,
- 8) length of trackage or roadway,
- 9) number and size of maintenance yards and facilities,
- 10) proportion in deep tunnel, shallow tunnel, on the surface, and elevated,
- 11) number and size of parking lots or garages,
- 12) number and size of bridges,
- 13) station and right of way enhancements such as landscaping, works of art, information kiosks, benches, telephones, concession booths, fountains, etc.,
- 14) type and number of fare vending and collection machines,
- 15) inflation over the several-year time period needed for most projects,
- 16) the going labor costs for and number of construction workers,
- 17) type and number of propulsion, signal, communication, and other operating systems,
- 18) when the project was constructed,
- 19) the number of vehicles required,
- 20) interest and other financing charges.

For these reasons, it is not possible to develop accurate comparative construction cost data on a per-mile or any other basis since the detailed data on the above (and other) variables are not reported to allow identification of comparable projects.



The rehabilitated Canton Viaduct built in the mid-1800s and still in use today by the Massachusetts Bay Transportation Authority commuter rail trains to Boston. A proportion of capital funds are spent to modernize old infrastructure such as this.



Not all projects are large and costly. This attractive small bus transfer center is used by the Corpus Christi Regional Transportation Authority in Texas.

TABLE 14

## Capital Expense by Mode, Millions of Dollars

YEAR	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
1992	1,301.9	1,310.5	67.6	2,054.1	494.9	34.8	171.9	5,435.7
1993	1,567.3	1,645.1	91.8	1,901.5	488.3	18.8	126.8	5,839.6
1994	1,470.3	1,436.4	99.3	2,070.1	544.1	57.4	155.1	5,832.7
1995	2,050.8	1,689.2	86.2	2,560.5	688.4	15.5	139.7	7,230.3
1996	2,035.6	1,690.1	105.2	2,228.0	849.9	19.2	155.8	7,083.8
1997	2,423.5	1,817.5	118.5	2,346.1	876.5	54.1	213.3	7,849.5
1998 P	2,371.4	1,379.7	82.3	2,350.8	840.6	67.0	51.6	7,143.4
1998 % of Total	33.2%	19.3%	1.2%	32.9%	11.8%	0.9%	0.7%	100.0%

TABLE 15

File: CAPEXTYP

**Capital Expense by Type, Millions of Dollars**

YEAR	ROLLING STOCK	FACILITIES	OTHER	TOTAL
1992	1,347.7	2,986.9	1,101.1	5,435.7
1993	1,616.2	2,826.3	1,397.1	5,839.6
1994	1,340.6	3,159.2	1,332.9	5,832.7
1995	1,834.5	3,836.9	1,558.9	7,230.3
1996	1,834.4	3,810.7	1,438.7	7,083.8
1997	2,355.7	4,468.1	1,025.7	7,849.5
1998 P	2,369.0	3,950.0	824.4	7,143.4
1998 % of Total	33.2%	55.3%	11.5%	100.0%

P = Preliminary

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TABLE 16

File: CAPEXM&amp;T

**Capital Expense by Mode and Type, 1998, Millions of Dollars**

TYPE	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
Rolling Stock	1,272.8	351.3	60.1	444.5	188.7	23.1	28.5	2,369.0
Facilities	736.7	924.0	10.1	1,607.2	612.0	39.4	20.6	3,950.0
Other	361.9	104.4	12.1	299.1	39.9	4.5	2.5	824.4
TOTAL	2,371.4	1,379.7	82.3	2,350.8	840.6	67.0	51.6	7,143.4
% of Total	33.2%	19.3%	1.2%	32.9%	11.8%	0.9%	0.7%	100.0%

All data are preliminary

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## IMPACTS OF PUBLIC TRANSPORTATION ON THE U.S. ECONOMY

### EMPLOYMENT:

- **CAPITAL INVESTMENT:** 314 jobs created in the year following for each \$10 million investment.
- **OPERATING INVESTMENT:** 570 jobs created for each \$10 million investment in the short run.

### BUSINESS SALES:

- **CAPITAL INVESTMENT:** \$30 million in increased sales per each \$10 million investment.
- **OPERATING INVESTMENT:** \$32 million in increased sales per each \$10 million investment.

**HIGHWAY & PUBLIC TRANSPORTATION USER COSTS:** \$15 million in operating, fuel, and congestion costs per each \$10 million investment.

**BUSINESS OUTPUT:** \$2 million per each \$10 million investment in first year, increasing to \$31 million per each \$10 million in the 20th year.

**PERSONAL INCOME:** \$0.8 million per each \$10 million investment in first year, increasing to \$18 million per each \$10 million in the 20th year.

**STATE & LOCAL GOVERNMENT REVENUE:** 4%-16% increase due to income and employment increases resulting from public transportation investments.

Source: *Public Transportation and the Nation's Economy*, Cambridge Systematics, 1999.

## SECTION V

## Funding, Operating

### Highlights. . . . .

- \$18.9 billion was received from all sources in 1998.
- 40.9% came from passengers,
  - 20.2% from local governments,
  - 19.9% from state governments,
  - 3.8% from the federal government,
  - 15.2% is raised by transit agencies from directly-levied taxes, advertising, interest income, and other sources.
- Average adult base cash fare was \$1.09.
- Average fare paid per unlinked trip was \$0.87.
  - for bus it was \$0.67,
  - commuter rail \$3.28,
  - demand response \$1.60,
  - ferryboat \$1.32,
  - heavy rail \$0.96,
  - light rail \$0.55,
  - trolleybus \$0.47,
  - vanpool \$1.62,
  - other modes \$0.62.

TABLE 17

File: OPFUND

## Operating Funding Sources, Millions of Dollars

YEAR	DIRECTLY GENERATED FUNDS (c)			GOVERNMENT FUNDS				TOTAL PUBLIC FUNDS (e)	TOTAL
	PASSENGER FARES (a)	OTHER	TOTAL	LOCAL (c)	STATE	FEDERAL	TOTAL		
1984	4,447.7	780.5	5,228.2	5,399.1 (b)	(b)	995.8	6,394.9	6,394.9	11,623.1
1985	4,574.7	701.8	5,276.5	5,978.5 (b)	(b)	939.6	6,918.1	6,918.1	12,194.6
1986	5,113.1	737.3	5,850.4	4,244.5	2,305.6	941.2	7,491.3	7,491.3	13,341.7
1987	5,114.1	776.6	5,890.7	4,680.6	2,564.6	955.1	8,200.3	8,200.3	14,091.0
1988	5,224.6	840.7	6,065.3	4,893.1	2,677.1	905.1	8,471.3	8,471.3	14,536.6
1989	5,419.9	836.7	6,256.6	4,995.4	2,796.3	936.6	8,728.3	8,728.3	14,984.9
1990	5,890.8	895.0	6,785.8	5,326.8	2,970.6	970.0	9,267.4	9,267.4	16,053.2
1991	6,037.2	766.8	6,804.0	5,373.4	3,199.5	955.9	9,728.8	9,728.8	16,532.8
1992 (d)	6,152.5	645.9	6,798.4	5,268.1	3,879.5	969.1	10,116.7	10,116.7	16,915.1
1993	6,350.9	764.0	7,114.9	5,490.6	3,704.2	966.5	10,161.3	10,161.3	17,276.2
1994	6,756.0	2,270.6	9,026.6	4,171.2	3,854.4	915.6	8,941.2	10,570.3	17,967.8
1995	6,800.9	2,812.2	9,613.1	3,980.9	3,829.6	817.0	8,627.5	10,171.7	18,240.6
1996	7,416.3	2,928.2	10,344.5	4,128.5	4,081.8	596.4	8,806.7	10,502.1	19,151.2
1997	7,545.7	3,308.4	10,854.1	4,095.1	3,918.7	647.0	8,660.8	10,524.4	19,514.9
1998 P	7,716.8	2,875.4	10,592.2	3,819.8	3,758.7	726.5	8,305.0	9,976.7	18,897.2
1998 % of Total	40.8%	15.2%	56.0%	20.2%	19.9%	3.9%	44.0%	52.8%	100.0%

P = Preliminary

(a) Includes fares retained by contractors; beginning 1991 includes fare subsidies formerly included in "other".

(b) "Local" and "state" combined.

(c) "Local" includes taxes levied directly by transit agency and other subsidies from local government such as bridge and tunnel tolls and non-transit parking lot funds. Beginning 1994, such funds reclassified from "local" to "other".

(d) Beginning 1992, "local" and "other" declined by about \$500 million due to change in accounting procedures at New York City Transit Authority.

(e) Includes "Total Government Funds" plus that portion of "Other Directly Generated Funds" included in "Local Government Funds" beginning in 1994 consisting of transit agency-raised taxes, tolls, and other dedicated funds.

TABLE 18

File: FAREMODE

## Passenger Fares by Mode, Millions of Dollars (a)

YEAR	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
1990	2,966.8	952.2	40.9	1,740.8	82.6	45.8	61.7	5,890.8
1991 (b)	3,098.4	958.0	68.9	1,700.6	97.8	51.6	61.9	6,037.2
1992	3,058.8	970.1	75.8	1,830.3	97.8	48.7	71.0	6,152.5
1993	3,116.7	995.5	93.9	1,913.3	102.5	52.4	76.6	6,350.9
1994	3,249.5	1,083.1	170.7	1,975.7	135.1	54.5	87.4	6,756.0
1995	3,287.2	1,077.5	146.3	2,018.2	126.5	54.0	91.2	6,800.9
1996	3,515.0	1,145.6	156.9	2,321.5	144.2	54.7	78.4	7,416.3
1997	3,557.8	1,177.6	170.4	2,350.9	138.6	56.9	93.5	7,545.7
1998 P	3,703.1	1,255.2	152.5	2,297.4	149.7	55.3	103.6	7,716.8
1998 % of Total	48.0%	16.3%	2.0%	29.8%	1.9%	0.7%	1.3%	100.0%

P = Preliminary

(a) These data are not available from the Federal Transit Administration National Transit Database reports. Estimates made by APTA from transit agency estimates, which are made according to each agency's procedures.

(b) Beginning in 1991 includes fare subsidies formerly classified as "Other" Operating Funding.

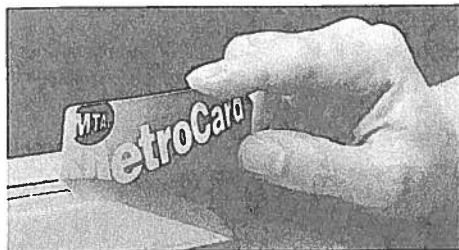
## Effects of Fare Increases on Ridership

There is a direct relationship between public transportation fares and ridership. A 1991 APTA study, "Effects of Fare Changes on Bus Ridership," found that on average, a 10 percent increase in bus fares would result in a 4 percent decrease in ridership.

The study also found that bus riders in small cities are more responsive to fare increases than those in large cities are, and peak-hour commuters are much less responsive to fare changes than other passengers.



Electronic turnstiles such as these at the Chicago Transit Authority are designed to accept electronic passes and tickets pre-purchased at vending machines or from sales agents. Some types also accept tokens and cash.



Passes provide unlimited rides during a specified time period, thereby providing reduced fares for frequent riders. This example is from New York's Metropolitan Transportation Authority.

TABLE 19

### Passenger Fares Summary

YEAR	PASSENGER FARES RECEIVED PER UNLINKED TRIP	PER CENT OF SYSTEMS WITH (c)				
		ADULT BASE CASH FARE (a)		PEAK PERIOD SURCHARGES	TRANSFER SURCHARGES	ZONE OR DISTANCE SURCHARGES
HIGHEST	AVERAGE (b)					
1984	0.503	1.50	0.569	9.5	36.6	34.0
1985	0.530	1.50	0.584	8.6	37.0	33.1
1986	0.583	2.10	0.617	8.8	30.7	27.9
1987	0.585	2.75	0.634	8.4	29.5	33.1
1988	0.603	2.75	0.662	7.8	30.2	33.2
1989	0.607	2.75	0.670	6.4	27.7	31.5
1990	0.669	2.75	0.730	6.5	28.8	38.9
1991	0.704	6.00	0.823	5.5	24.2	39.4
1992	0.724	6.00	0.860	5.6	26.6	39.0
1993	0.773	6.00	0.860	5.6	26.6	39.0
1994	0.850	6.00	0.955	6.4	25.2	37.7
1995	0.876	7.00	0.992	6.5	23.8	36.9
1996	0.933	7.00	1.047	7.0	22.9	32.6
1997	0.888	7.00	1.058	7.0	22.9	32.6
1998	0.871	7.00	1.065	6.1	21.9	32.9
1999	NA	4.00	1.087	6.5	26.8	35.0

P = Preliminary

(a) Lowest base fare is \$0.00 (free).

(b) Unweighted average of adult base cash fares; excludes surcharges; each transit agency counted equally.

(c) Per cents represent an approximately 300-transit-agency sample, not estimated for all transit agencies.

TABLE 20

File: FAREAVG

**Average Passenger Fare Per Unlinked Passenger Trip by Mode, 1998, Dollars**

MODE	FARE PER UNLINKED PASSENGER TRIP
Bus	0.69
Commuter Rail	3.28
Demand Response	1.60
Ferryboat (b)	1.32
Heavy Rail	0.96
Light Rail	0.55
Trolleybus	0.47
Vanpool	1.62
Other (a)	0.62
<b>TOTAL</b>	<b>0.87</b>

All data are preliminary

(a) Includes aerial tramway, automated guideway transit, cable car, inclined plane, and monorail.

(b) Excludes international, rural, rural interstate, island, and urban park ferries.

TABLE 21

**Federal Operating Grant Approvals for Urbanized Areas, Millions of Dollars**

FISCAL YEAR	GRANT APPROVALS UNDER FEDERAL TRANSIT ACT
1984	922.4
1985	881.1
1986	872.5
1987	820.4
1988	780.0
1989	779.1
1990	765.4
1991	779.4
1992	768.4
1993	795.7
1994	757.4
1995	763.9
1996	416.7
1997	450.2
1998	214.8

Source: U.S. Department of Transportation, Federal Transit Administration.

## SECTION VI

File: EXOPER

## Expenses, Operating

### Highlights. . . . .

- \$19.2 billion was spent in 1998.
- 46.0% was for vehicle operations,
  - 18.5% for vehicle maintenance,
  - 9.7% for non-vehicle maintenance,
  - 15.7% for general administration,
  - 10.1% for purchased transportation.
- over 80% of all costs were labor-related,
  - 47.1% was for salaries and wages,
  - 24.6% for fringe benefits,
  - 6.0% for services,
  - 10.1% for purchased transportation, about 75% of which was labor-related.
  - 9.4% was for materials and supplies,
  - 3.5% for utilities,
  - 2.4% for casualty and liability costs,
  - 3.1% for all other expenses.
- 57.4% was for buses,
  - 18.3% for heavy rail,
  - 12.3% for commuter rail,
  - 6.6% for demand response,
  - 2.6% for light rail,
  - 2.8% for all other modes.

TABLE 22

File: EXF&amp;O

## Operating Expense for 1998 By Function and Object Class, Millions of Dollars

FUNCTION AND OBJECT CLASS	VEHICLE OPERATIONS	VEHICLE MAINTENANCE	NON-VEHICLE MAINTENANCE	GENERAL ADMINISTRATION	PURCHASED TRANSPORTATION	TOTAL
Salaries & Wages	4,851.1	1,827.1	1,253.2	1,146.3	0.0	9,077.7
Fringe Benefits	2,533.5	891.8	659.0	643.8	0.0	4,728.1
Services	97.9	181.6	133.1	734.6	0.0	1,147.2
Fuels & Lubricants	384.5	50.5	2.0	0.0	0.0	437.0
Tires & Tubes	72.2	1.5	0.0	0.0	0.0	73.7
Materials & Supplies	32.7	791.0	210.3	273.4	0.0	1,307.4
Utilities	116.0	38.5	331.0	180.7	0.0	666.2
Casualty & Liability	32.1	6.9	10.6	414.4	0.0	464.0
Purchased Transp.	0.0	0.0	0.0	0.0	1,944.4	1,944.4
Other	729.0	-224.3	-721.2	-380.1	0.0	-596.6
Total	8,849.0	3,564.6	1,878.0	3,013.1	1,944.4	19,249.1
PER CENT						
Salaries & Wages	25.20%	9.49%	6.51%	5.96%	0.00%	47.16%
Fringe Benefits	13.16%	4.63%	3.42%	3.35%	0.00%	24.56%
Services	0.51%	0.94%	0.69%	3.82%	0.00%	5.96%
Fuels & Lubricants	2.00%	0.26%	0.01%	0.00%	0.00%	2.27%
Tires & Tubes	0.37%	0.01%	0.00%	0.00%	0.00%	0.38%
Materials & Supplies	0.17%	4.11%	1.09%	1.42%	0.00%	6.79%
Utilities	0.60%	0.20%	1.72%	0.94%	0.00%	3.46%
Casualty & Liability	0.17%	0.04%	0.06%	2.15%	0.00%	2.42%
Purchased Transp.	0.00%	0.00%	0.00%	0.00%	10.10%	10.10%
Other	3.79%	-1.17%	-3.75%	-1.97%	0.00%	-3.10%
Total	45.97%	18.51%	9.75%	15.67%	10.10%	100.00%

TABLE 23

File: EXFUN

## Operating Expense by Function Class, Millions of Dollars

YEAR	VEHICLE OPERATIONS	VEHICLE MAINTENANCE	NON-VEHICLE MAINTENANCE	GENERAL ADMINISTRATION	PURCHASED TRANSPORTATION	OPERATING EXPENSE	DEPRECIATION & AMORTIZATION	OTHER RECONCILING ITEMS	TOTAL EXPENSE
1984	5,141.9	2,149.4	912.3	2,914.7	455.7	11,574.0	885.5	497.6	12,957.1
1985	5,654.7	2,522.6	1,149.6	2,505.3	548.7	12,380.9	1,097.6	598.6	14,077.1
1986	5,690.6	2,733.6	1,295.2	2,748.0	484.3	12,951.7	1,148.2	626.2	14,726.1
1987	5,790.3	2,730.2	1,363.5	2,869.4	718.7	13,472.1	1,212.5	720.7	15,405.3
1988	6,052.3	2,865.1	1,447.6	3,077.8	844.5	14,287.3	1,377.6	776.9	16,441.8
1989	6,275.3	2,942.3	1,550.5	3,251.0	953.2	14,972.3	1,502.5	693.9	17,168.7
1990	6,653.3	3,038.8	1,592.0	3,449.9	1,008.1	15,742.1	1,593.1	643.9	17,979.1
1991	6,726.6	2,992.4	1,604.7	3,584.5	1,633.2	16,541.4	1,763.3	1,027.2	19,331.9
1992 (a)	7,659.7	3,047.5	1,783.9	2,674.2	1,616.1	16,781.4	2,033.9	1,218.3	20,033.6
1993	7,941.4	3,049.3	1,845.0	2,714.0	1,800.1	17,349.8	2,479.3	850.1	20,679.2
1994	8,211.9	3,184.5	1,819.4	2,752.0	1,952.1	17,919.9	2,768.6	964.1	21,652.6
1995	8,281.9	3,218.2	1,829.0	2,589.5	1,930.1	17,848.7	2,600.6	1,090.6	21,539.9
1996	8,331.9	3,295.1	1,802.2	2,744.3	2,167.2	18,340.7	2,885.0	1,034.4	22,260.1
1997	8,602.1	3,372.6	1,838.8	2,919.9	2,202.7	18,936.1	3,105.5	1,117.2	23,158.8
1998 P	8,849.0	3,564.6	1,878.0	3,013.1	1,944.4	19,249.1	3,349.3	1,116.4	23,714.8
1998 % of Total	46.0%	18.5%	9.7%	15.7%	10.1%	100.0%	17.4%	5.8%	123.2%

P = Preliminary

(a) Beginning 1992, operating expense declined about \$400 million due to change in accounting procedures at New York City Transit Authority.

TABLE 24

## Operating Expense by Object Class, Millions of Dollars

YEAR	SALARIES & WAGES	FRINGE BENE- FITS	SERV- ICES	MATER- IALS & SUPPLIES	UTILITIES	CASUAL- TY & LIABILITY	PURCH- ASED TRANS- PORTA- TION	OTHER	TOTAL
1984	5,487.8	2,716.7	469.2	1,462.2	465.7	328.5	455.7	188.2	11,574.0
1985	5,843.1	2,868.3	491.9	1,561.2	494.7	347.1	548.7	225.9	12,380.9
1986	6,119.2	3,125.9	583.8	1,524.3	497.1	491.4	484.3	125.7	12,951.7
1987	6,324.1	3,266.9	655.5	1,421.0	509.2	536.1	718.7	40.6	13,472.1
1988	6,675.0	3,528.9	715.3	1,446.2	503.9	527.8	844.5	45.7	14,287.3
1989	6,897.7	3,737.3	765.0	1,507.6	540.2	559.4	953.2	11.9	14,972.3
1990	7,226.3	3,986.0	794.3	1,608.4	552.9	640.5	1,008.1	-74.4	15,742.1
1991	7,394.5	3,998.4	818.0	1,559.7	575.9	625.6	1,633.2	-63.9	16,541.4
1992 (a)	7,670.5	4,318.6	907.8	1,529.1	608.5	557.8	1,616.1	-427.0	16,781.4
1993	7,932.1	4,400.3	914.0	1,536.1	624.0	587.8	1,800.1	-444.6	17,349.8
1994	8,223.8	4,451.7	849.3	1,593.9	644.0	614.2	1,952.1	-409.1	17,919.9
1995	8,213.1	4,484.0	849.3	1,613.4	628.9	512.8	1,930.1	-382.9	17,848.7
1996	8,437.6	4,401.4	923.9	1,677.0	667.2	502.7	2,167.2	-436.3	18,340.7
1997	8,771.7	4,503.7	1,055.2	1,734.1	685.0	502.5	2,202.7	-518.8	18,936.1
1998 P	9,077.7	4,728.1	1,147.2	1,818.1	666.2	464.0	1,944.4	-596.6	19,249.1
1998 % of Total	47.1%	24.6%	6.0%	9.4%	3.5%	2.4%	10.1%	-3.1%	100.0%

P = Preliminary

(a) Beginning 1992, operating expense declined about \$400 million due to change in accounting procedures at New York City Transit Authority.

TABLE 25

File: EXMODE

## Operating Expense by Mode, Millions of Dollars

YEAR	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
1988	8,136.4	1,675.3	462.6	3,521.7	198.4	101.7	191.2	14,287.3
1989	8,415.1	1,841.4	481.1	3,701.0	210.8	105.5	217.4	14,972.3
1990	8,903.1	1,938.5	517.8	3,825.0	237.1	108.6	212.0	15,742.1
1991	9,501.4	1,942.4	608.5	3,858.6	291.1	113.5	225.9	16,541.4
1992 (a)	9,881.2	2,012.6	667.3	3,555.1	308.9	124.4	231.9	16,781.4
1993	10,109.6	2,088.4	793.0	3,668.6	315.9	131.9	242.5	17,349.8
1994	10,144.1	2,227.8	942.7	3,786.2	412.8	132.9	273.4	17,919.9
1995	10,320.5	2,211.2	1,000.4	3,522.9	376.1	138.9	278.7	17,848.7
1996	10,574.9	2,294.1	1,186.6	3,401.9	441.6	134.6	307.0	18,340.7
1997	10,944.0	2,278.1	1,284.5	3,473.7	472.5	140.2	343.1	18,936.1
1998 P	11,048.4	2,364.7	1,273.1	3,529.6	502.5	146.5	384.3	19,249.1
1998 % of Total	57.4%	12.3%	6.6%	18.3%	2.6%	0.8%	2.0%	100.0%

P = Preliminary

(a) Beginning 1992 operating expense declined about \$400 million due to change in accounting procedures at New York City Transit Authority.



Public transportation managers are constantly faced with demands from units of government, voters, the media, and others to operate more efficiently. All too often, the demand is to "cut costs". What does this really mean?

Casualty and liability costs comprise 2.4% of the total, but efforts to reduce risk exposure (fewer miles operated, fewer accidents, and/or fewer employees) and therefore premiums and claims are often overwhelmed by litigation awards, inflation and state- or regionwide premium increases to cover insurer losses elsewhere.

Utility costs cover another 3.5% of the total. A large portion is for propulsion power to operate electric rail cars and trolleybuses. More efficient electric motors and propulsion systems are resulting in lower unit costs, but the total savings are modest. Some non-propulsion costs (heat and air-conditioning) are weather-related and uncontrollable. Others (lights, telephone, water, trash removal) are relatively fixed.

Fuel costs are 2.2% of expenses, but are hard to control due to unstable oil prices and consumption being partly a function of weight (the number of people on the vehicle). Some efficiency improvements in engines have been made, but the only way to really cut fuel costs is to operate fewer miles.

Tires, tubes, and other materials and supplies comprise 7.1% of costs. Buying fewer office supplies, spare parts, and cleaning supplies can be done, but with the result of decreased efficiency, delays in repairs, and postponing costs to the future when they will be more expensive due to inflation. Safety may suffer if too-bare-bones-an-approach results.

The bottom line, then, is that the only way to make substantial cost savings is to cut labor costs, which add up to almost 85% of all costs. They are comprised of salaries and wages (47.1%) and fringe benefits (24.6%), plus an estimated 75% of services (6.0%) and purchased transportation (10.2%) which are labor-related. There are 4 ways to do this: reduce the amount of service operated and therefore the number of employees needed, improve efficiency so that fewer employees are needed, reduce salaries, wages, and fringe benefits, and convert some functions or service operated to services or purchased transportation. Because labor contracts usually prohibit or severely restrict the last two options, it is seldom possible to reduce compensation (except by lowering rates for future employees) or to contract out services or transportation.

The almost unavoidable result is fewer miles and hours operated, which almost inevitably means fewer riders. It is a vicious cycle that has plagued public transportation throughout its history.

### Passengers

#### Highlights. . . . .

- 8.7 billion unlinked trips were taken in 1998,  
61.6% were by bus,  
27.4% by heavy rail,  
all other modes totaled only 11.0%.
- 58.7% of bus trips were in urbanized areas of 2,000,000 population or more,  
26.2% in areas between 500,000 and 1,999,999,  
only 15.1% in areas below 500,000 population.
- Average trip length was longest for vanpools at 35.9 miles, commuter rail trips averaged 22.8 miles, demand response trips 10.6 miles, ferryboat trips 6.0 miles, heavy rail trips 5.1 miles, bus trips 3.8 miles, light rail trips 4.1 miles, all other modes did not exceed 1.6 miles.
- 52% of trips are taken by women,  
7% by those 65 and older,  
10% by those 18 and under,  
31% by African Americans,  
18% by Hispanics,  
6% by Asian-heritage and Native Americans.  
54% are work-related,  
15% school-related,  
9% shopping-related,  
5.5% medically-related,  
9% socially-related,  
27% are by those with family incomes below \$15,000,  
55% by those with family incomes from \$15,000-\$50,000,  
17% by those with family incomes over \$50,000.  
Only a little over 1% by people with disabilities.

## Number of People Using Public Transportation

File: PEOPLE

All ridership data reported in this book relate to trips taken—not to people—because that is how data is collected and reported. The heavy use of passes, transfers, joint tickets, and cash by people transferring from one vehicle to another, one mode to another, and from one public transportation agency to another makes it impossible to count people. Only boardings (called unlinked passenger trips) can be counted with any accuracy. At the largest public transportation agencies, even the number of boardings may be estimated for at least a portion of the ridership (e.g., free shuttle vehicles without fareboxes and light rail service using the "proof-of-payment" system).

The majority of people using public transportation take two trips per day (one to work in the morning and one home in late afternoon or evening). A small proportion—perhaps 5%—make only one public transportation trip (e.g., they ride public transportation to the airport and then fly out of town, or they ride public transportation in the morning to work, but ride home with a friend in an automobile at night). A somewhat larger proportion (primarily the public transportation-dependent) take 4, 6, 8, or even 10 trips per day.

At most agencies perhaps 10% to 30% of riders must transfer to a second (and sometimes a third) vehicle to reach their final destination. Some transfer from bus to bus, from bus to train, from one agency's vehicle to another agency's vehicle, etc.; thus, there is a large amount of double-counting of people.

APTA's best estimate, taking these factors into account, is that the number of people using public transportation on any day is about 45% of the number of trips reported. Perhaps 13 million people use public transportation on a typical weekday. Saturday ridership is normally about one-half weekday ridership, and Sunday ridership is often one-half to two-thirds of Saturday ridership. In many smaller cities, public transportation service does not operate on Sundays; in a lesser number, there is no Saturday service.

## Trends of Public Transportation Ridership

File: RIDETRND

Public transportation ridership has gone through six major cycles of growth and decline during the Twentieth Century influenced by general social and economic forces. From 1900 to 1929 ridership grew steadily; first due to technical innovation and investment opportunities during the early development of street railways and then due to the economic boom of World War I and the post-war period. The Great Depression causes a steep decline in ridership between 1929 and 1939 as people made fewer work trips and often could not afford to take pleasure trips. A new federal law limiting utilities' ability to subsidize public transportation, as had been normal practice, led to a decline in public transportation capital facilities. World War II caused motor fuel rationing and an economic boom that led to a new rapid growth cycle in ridership. Ridership quickly declined from artificially high war levels as people fled to suburbs spurred on by cheap fuel and government policy favoring low-density suburban growth. In 1973 the ridership cycle reversed again and public transportation began a modest growth based on a partnership of local, state and federal government committed to improving American's transportation infrastructure.



*The Metropolitan Atlanta Rapid Transit Authority heavy rail system is one of the numerous new rail systems built since 1973.*

TABLE 26

File: TRIPS

## Unlinked Passenger Trips by Mode, Millions

YEAR	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
1984	5,908	267	62	2,231	135	165	61	8,829
1985	5,675	275	59	2,290	132	142	63	8,636
1986	5,753	306	63	2,333	130	139	53	8,777
1987	5,614	311	64	2,402	133	141	70	8,735
1988	5,590	325	73	2,308	154	136	80	8,666
1989	5,620	330	70	2,542	162	130	77	8,931
1990	5,677	328	68	2,346	175	126	79	8,799
1991	5,624	318	71	2,172	184	125	81	8,575
1992	5,517	314	72	2,207	188	126	77	8,501
1993	5,381	322	81	2,046	188	121	78	8,217
1994	4,871	339	88	2,169	284	118	80	7,949
1995	4,848	344	88	2,033	251	119	80	7,763
1996	4,887	352	93	2,157	261	117	81	7,948
1997	5,013	357	99	2,430	262	121	92	8,374
1998 P	5,387	382	95	2,393	275	117	97	8,746
1998 % of Total	61.6%	4.4%	1.1%	27.4%	3.1%	1.3%	1.1%	100.0%

TABLE 27

File: BUSTRIPS

## Bus Unlinked Passenger Trips by Population of Urbanized Area, Millions

YEAR	2,000,000 AND OVER	500,000 - 1,999,999	250,000 - 499,999	100,000 - 249,999	50,000 - 99,999	LESS THAN 50,000	TOTAL
1984 (a)	3,488	1,627	294	210	90	199	5,908
1985	3,338	1,557	295	214	86	185	5,675
1986	3,297	1,586	333	239	99	199	5,753
1987	3,197	1,504	312	221	96	284	5,614
1988	3,178	1,519	306	222	92	273	5,590
1989	3,185	1,512	322	226	95	280	5,620
1990 (b)	3,604	1,270	230	227	89	257	5,677
1991	3,537	1,261	233	230	95	268	5,624
1992	3,447	1,244	232	239	95	260	5,517
1993	3,323	1,253	231	237	94	243	5,381
1994	3,034	1,126	183	208	75	245	4,871
1995	3,003	1,128	182	207	77	251	4,848
1996	2,960	1,215	176	207	77	252	4,887
1997	2,989	1,251	182	207	79	305	5,013
1998 P	3,163	1,410	184	229	79	323	5,387
1998 % of Total	58.7%	26.2%	3.4%	4.2%	1.5%	6.0%	100.0%

P = Preliminary

(a) Transit agencies assigned by population of urbanized area based on 1980 United States Census.

(b) Beginning in 1990 transit agencies assigned by population of urbanized area based on 1990 United States Census.

TABLE 28

File:UZATRIPS

### Annual Unlinked Passenger Trips for Urbanized Areas Over 1,000,000 Population, 1998

RANK (a)	URBANIZED AREA	UNLINKED TRIPS
1	New York, NY-Northeastern NJ	3,508,540,600
2	Los Angeles, CA	557,416,300
3	Chicago, IL-Northwestern IN	561,328,900
4	Philadelphia, PA-NJ	284,070,100
5	Detroit, MI	65,901,700
6	San Francisco-Oakland, CA	414,999,200
7	Washington, DC-MD-VA	363,780,900
8	Dallas-Fort Worth, TX	67,871,000
9	Houston, TX	95,181,100
10	Boston, MA	340,078,600
11	San Diego, CA	89,592,800
12	Atlanta, GA	160,964,000
13	Minneapolis-Saint Paul, MN	66,048,800
14	Phoenix, AZ	36,664,800
15	Saint Louis, MO-IL	56,028,600
16	Miami-Hialeah, FL	82,906,000
17	Baltimore, MD	106,652,500
18	Seattle, WA	120,568,300
19	Tampa-St. Petersburg-Clearwater, FL	18,658,200
20	Pittsburgh, PA	77,187,400
21	Cleveland, OH	67,023,400
22	Denver, CO	72,600,000
23	San Jose, CA	53,896,000
24	Norfolk-Virginia Beach-Newport News, VA	17,715,500
25	Kansas City, MO-KS	15,458,600
26	Fort Lauderdale-Hollywood-Pompano Beach, FL	26,655,600
27	Milwaukee, WI	73,561,700
28	Cincinnati, OH-KY	32,556,600
29	Portland, OR-Vancouver, WA	87,112,400
30	Riverside-San Bernardino, CA	20,880,200
31	San Antonio, TX	42,004,100
32	Sacramento, CA	29,048,400
33	New Orleans, LA	69,289,400

(a) By urbanized area population in 1990 Census.

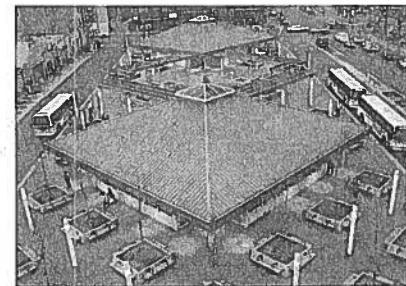
Source: unpublished Federal Transit Administration National Transit Database reports and APTA estimates.

TABLE 29

File: WKDYTRIP

### Average Weekday Unlinked Passenger Trips by Mode, 1998

MODE	AVERAGE WEEKDAY UNLINKED TRIPS	PER CENT OF TOTAL
Bus	18,256,000	61.9%
Commuter Rail	1,349,000	4.6%
Demand Response	340,000	1.1%
Ferryboat	168,000	0.6%
Heavy Rail	7,989,000	27.1%
Light Rail	871,000	3.0%
Other Rail	88,000	0.3%
Trolleybus	373,000	1.3%
Vanpool	43,000	0.1%
<b>TOTAL</b>	<b>29,477,000</b>	<b>100.0%</b>



Many cities have built special transfer centers in their central business districts to make transferring between buses as easy as possible. Many also operate timed-transfer service, in which all routes converge on the center at the same time and depart simultaneously to minimize waiting time. This Regional Transportation Commission center is in Reno, Nevada.



Bicycle racks on buses, trains, and ferries, such as on Omnitrans buses in San Bernardino, California, increase ridership by allowing cyclists to ride public transportation for part of their journeys.

TABLE 30

File: PASSMILE

**Passenger Miles by Mode, Millions**

YEAR	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
1984	21,595	6,207	349	10,111	416	364	382	39,424
1985	21,161	6,534	364	10,427	350	306	439	39,581
1986	21,395	6,723	402	10,649	361	305	369	40,204
1987	20,970	6,818	374	11,198	405	223	360	40,348
1988	20,753	6,964	441	11,300	477	211	434	40,580
1989	20,768	7,211	428	12,030	509	199	458	41,603
1990	20,981	7,082	431	11,475	571	193	410	41,143
1991	21,090	7,344	454	10,528	662	195	430	40,703
1992	20,336	7,320	495	10,737	701	199	453	40,241
1993	20,247	6,940	562	10,231	705	188	511	39,384
1994	18,832	7,996	577	10,668	833	187	492	39,585
1995	18,818	8,244	607	10,559	860	187	533	39,808
1996	19,096	8,351	656	11,530	957	184	604	41,378
1997	19,604	8,038	754	12,056	1,035	189	663	42,339
1998 P	20,602	8,716	1,012	12,284	1,118	182	742	44,656
1998 % of Total	46.1%	19.5%	2.3%	27.5%	2.5%	0.4%	1.7%	100.0%

P = Preliminary

TABLE 31

File: AGE

**Age of Public Transportation Riders by Population Group**

POPULATION OF URBANIZED AREA/ URBAN PLACE	18 AND UNDER	19-64	65 AND OVER
Under 50,000	21%	61%	18%
50,000-199,999	19%	68%	13%
200,000-500,000	15%	70%	15%
500,000-999,999	9%	77%	14%
1 million and more	10%	84%	6%
NATIONAL AVERAGE	10%	83%	7%

Source: APTA, *Americans in Transit*, 1992.

TABLE 32

**Annual Family Income of Public Transportation Riders by Population Group**

POPULATION OF URBANIZED AREA/ URBAN PLACE	UNDER \$15,000	\$15,000-\$50,000	ABOVE \$50,000
Under 50,000	61%	36%	3%
50,000-199,999	55%	39%	6%
200,000-500,000	54%	38%	8%
500,000-999,999	52%	42%	6%
1 million and more	25%	57%	18%
NATIONAL AVERAGE	28%	55%	17%

Source: APTA, *Americans in Transit*, 1992.

TABLE 33

File: ETHNIC

**Ethnicity and Race of Public Transportation Riders by Population Group**

POPULATION OF URBANIZED AREA/ URBAN PLACE	WHITE	BLACK	HISPANIC	OTHER
Under 50,000	82%	6%	9%	3%
50,000-199,999	63%	24%	8%	5%
200,000-500,000	48%	34%	14%	4%
500,000-999,999	45%	41%	9%	5%
1 million and more	45%	31%	18%	6%
NATIONAL AVERAGE	45%	31%	18%	6%

Source: APTA, *Americans in Transit*, 1992.

TABLE 34

**Purpose of Public Transportation Trips by Population Group**

POPULATION OF URBANIZED AREA/ URBAN PLACE	WORK	SCHOOL	SHOPPING	MEDICAL	SOCIAL	OTHER
Under 50,000	20%	9%	8%	34%	27%	2%
50,000-199,999	39%	22%	12%	6%	9%	12%
200,000-500,000	46%	19%	13%	5%	8%	9%
500,000-999,999	51%	15%	11%	5%	6%	12%
1 million and more	55%	15%	9%	5%	9%	7%
NATIONAL AVERAGE	54%	15%	9%	5%	9%	8%

Source: APTA, *Americans in Transit*, 1992.

TABLE 35

File: GENDER

**Gender of Public Transportation Riders by Population Group**

POPULATION OF URBANIZED AREA/ URBAN PLACE	MALE	FEMALE
Under 50,000	36%	64%
50,000-199,999	43%	57%
200,000-500,000	39%	61%
500,000-999,999	38%	62%
1 million and more	49%	51%
NATIONAL AVERAGE	48%	52%

Source: APTA, *Americans in Transit*, 1992.

*This woman exiting a Reno, Nevada Regional Transportation Commission bus is among the tens of thousands of disabled people using public transportation each day.*

TABLE 36

**Public Transportation Passengers with Disabilities by Population Group**

POPULATION OF URBANIZED AREA/ URBAN PLACE	PER CENT WITH DISABILITIES
Under 50,000	1.2%
50,000-199,999	1.1%
200,000-500,000	1.4%
500,000-999,999	2.5%
1 million and more	6.0%
NATIONAL AVERAGE	5.2%

Source: APTA, *Americans in Transit*, 1992.



TABLE 37

File: PROPEN

### Socioeconomic Characteristics Indicating a High Propensity for Public Transportation Use

CHARACTERISTIC	TRANSIT SHARE PERCENT
Central city dweller	11.5
Renter	9.5
Household with no vehicles	39.1
Women	6.0
Young (21-24 years)	6.4
Older (75+ years)	6.4
High income	
\$75,000-\$99,000	6.6
Over \$100,000	5.8
1-worker household	6.1
4-worker household	7.5
Female worker living alone in a central city	16.3
Black	14.8
Asian	11.0
Hispanic	8.8
ALL COMMUTERS	5.1

Source: *Commuting in America II: The Second National Report on Commuting Patterns and Trends*, Eno Transportation Foundation, Inc., Lansdowne, VA, © 1996.

TABLE 38

### Travel Time by Mode, 1990

MODE	TRAVEL TIME (MINUTES)
ALL COMMUTERS	22
Drive alone	21
2-person carpool	24
3-person carpool	29
4-person carpool	35
Bus, trolleybus	38
Heavy rail, light rail	45
Commuter rail	59
Bike, walk	11
Taxi	17
Ferryboat	58
Motorcycle	23

Source: *Commuting in America II: The Second National Report on Commuting Patterns and Trends*, Eno Transportation Foundation, Inc., Lansdowne, VA, © 1996.

TABLE 39

Title: TRLENGTH

### Average Trip Length by Mode, 1998

MODE	AVERAGE TRIP LENGTH (MILES)
Bus	3.8
Commuter Rail	22.8
Demand Response	10.6
Ferryboat (b)	6.0
Heavy Rail	5.1
Light Rail	4.1
Trolleybus	1.6
Vanpool	35.9
Other (a)	1.0
TOTAL	5.1

(a) Includes aerial tramway, automated guideway transit, cable car, inclined plane, and monorail.

(b) Excludes international, rural, rural interstate, island, and urban park ferries.

TABLE 40

### Means of Transportation to Work, 1990

MEANS	PER CENT
Automobiles/Vans/Motorcycles	
Single-occupant	73.4%
2-person carpool	10.5%
3-or-more-person carpool/vanpool	2.8%
Transit	5.1%
Walked	3.9%
Worked at home	3.0%
Bicycle	0.4%
Taxi	0.2%
All Other	0.7%
TOTAL	100.0%

Source: Federal Highway Administration, *New Perspectives in Commuting*, 1992.

TABLE 41

File: HIGHEST

**Cities with Highest Percentage of Workers Using Public Transportation, 1990**

CITY	PER CENT USING PUBLIC TRANSPORTATION
New York, NY	53.4
Hoboken, NJ	51.0
Jersey City, NJ	36.7
Washington, DC	36.6
San Francisco, CA	33.5
Boston, MA	31.5
Chicago, IL	29.7
Philadelphia, PA	28.7
Atlantic City, NJ	26.2
Arlington, VA	25.4
Newark, NJ	24.6
Cambridge, MA	23.5
Pittsburgh, PA	22.2
Baltimore, MD	22.0
Evanston, IL	20.9
Atlanta, GA	20.0
White Plains, NY	19.1
Camden, NJ	18.1
Oakland, CA	17.9
Hartford, CT	17.1
New Orleans, LA	16.9
Idaho Falls, ID	16.5
Minneapolis, MN	16.0
Seattle, WA	15.9
Berkeley, CA	15.2
Albany, NY	15.1

Source: U.S. Census Bureau, 1990 Census, *Journey to Work, Characteristics of Workers in Metropolitan Areas*

**SECTION VIII**

File: SERVICE

**Service Provided***Highlights. . . . .*

- 3.9 billion miles and 258.2 million hours of service were operated.
- Buses operated 58.3% of vehicle miles,
  - heavy rail 14.4%,
  - demand response 17.8%,
  - commuter rail 6.7%,
  - all other modes 2.8%.
- Buses operated 66.5% of vehicle hours,
  - demand response 16.3%,
  - heavy rail 11.3%,
  - commuter rail 3.3%,
  - all other modes 2.6%.
- If all service had been operated by buses, twice as many bus miles would need to have been operated.
- Average revenue service speed was highest for vanpools at 36.8 m.p.h.,
  - commuter rail was 31.8 m.p.h.,
  - heavy rail 20.5 m.p.h.,
  - demand response 16.5 m.p.h.,
  - light rail 15.5 m.p.h.,
  - bus 13.0 m.p.h.,
  - trolleybus 7.5 m.p.h.,
  - ferryboat 8.3 m.p.h.,
  - all others were 6.6 m.p.h.

TABLE 42

File: VEHMILE

## Vehicle Miles Operated by Mode, Millions

YEAR	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL	TOTAL BUS MILE EQUIV- ALENTS (a)
1984	1,844.7	167.9	256.1	435.8	16.8	15.3	13.0	2,749.5	3,461.9
1985	1,862.9	182.7	247.4	450.8	16.5	15.5	14.9	2,790.7	3,552.1
1986	2,002.3	188.6	274.5	475.8	17.0	14.7	12.9	2,985.8	3,765.7
1987	2,079.4	188.9	250.0	490.2	18.4	15.0	13.3	3,055.2	3,879.1
1988	2,097.3	202.2	288.9	517.4	20.8	14.7	16.0	3,157.3	4,011.2
1989	2,109.3	209.6	300.4	532.1	21.3	14.5	15.7	3,202.9	4,080.4
1990	2,129.9	212.7	305.9	536.7	24.2	13.8	18.3	3,241.5	4,127.5
1991	2,166.6	214.9	335.0	527.2	27.6	13.6	21.5	3,306.4	4,159.1
1992	2,178.0	218.8	363.5	525.4	28.6	13.9	26.4	3,354.6	4,187.0
1993	2,209.6	223.9	406.0	522.1	27.7	13.0	32.2	3,435.1	4,233.8
1994	2,162.0	230.8	463.7	531.8	34.0	13.7	31.5	3,467.5	4,248.2
1995	2,183.7	237.7	506.5	537.2	34.6	13.8	36.7	3,550.2	4,313.9
1996	2,220.5	241.9	548.3	543.1	37.6	13.7	45.2	3,650.3	4,397.2
1997	2,244.6	250.7	585.3	557.7	41.2	14.0	52.3	3,745.8	4,499.5
1998 P	2,291.4	264.9	697.7	565.7	43.4	13.6	55.4	3,932.1	4,627.3
1998 % of Total	58.3%	6.7%	17.8%	14.4%	1.1%	0.3%	1.4%	100.0%	

P = Preliminary

(a) Estimate based on average seating plus standing capacity of vehicle compared to that of a bus (70 passengers): light rail = 1.7, heavy rail = 2.6, commuter rail = 2.2, trolleybus = 1.0, demand response = 0.2, other = 1.0.

TABLE 43

File: VEH HOUR

## Vehicle Hours Operated by Mode, Millions

YEAR	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
1986	153.7	5.8	21.7	25.6	1.5	1.9	0.8	211.0
1987	160.3	5.8	21.9	26.0	1.6	1.9	1.1	218.6
1988	160.5	6.4	23.5	27.4	1.8	1.9	1.2	222.7
1989	161.4	6.6	24.0	28.2	1.9	1.8	1.0	224.9
1990	163.0	6.5	24.4	28.4	2.0	1.8	1.4	227.5
1991	163.8	6.4	26.3	24.6	2.2	1.8	1.4	226.5
1992	165.1	6.5	28.7	25.6	2.2	1.8	1.6	231.5
1993	166.2	6.6	30.5	27.2	2.1	1.8	1.8	236.2
1994	162.1	6.9	32.6	27.3	2.5	1.8	1.5	234.7
1995	162.9	7.2	34.9	27.6	2.5	1.8	1.6	238.5
1996	165.5	7.3	37.0	28.0	2.7	1.8	1.9	244.2
1997	167.0	7.5	39.5	28.8	2.8	1.8	2.1	249.5
1998 P	171.6	8.5	42.0	29.3	2.9	1.8	2.1	258.2
1998 % of Total	66.5%	3.3%	16.3%	11.3%	1.1%	0.7%	0.8%	100.0%

P = Preliminary

TABLE 44

Title: SPEED

**Average Vehicle Speed in Revenue Service by Mode, 1998**

MODE	AVERAGE SPEED (MILES PER HOUR)
Bus	13.0
Commuter Rail	31.8
Demand Response	16.5
Ferryboat (b)	8.3
Heavy Rail	20.5
Light Rail	15.5
Trolleybus	7.5
Vanpool	36.8
Other (a)	6.6
<b>TOTAL</b>	<b>15.1</b>

(a) Includes aerial tramway, automated guideway transit, cable car, inclined plane, and monorail.

(b) Excludes international, rural, rural interstate, island, and urban park ferries.

TABLE 45

**Vehicle Revenue Miles and Vehicle Revenue Hours by Mode, 1998**

MODE	VEHICLE REVENUE MILES (MILLIONS)	VEHICLE REVENUE HOURS (MILLIONS)
Bus	2,009.0	154.4
Commuter Rail	241.9	7.6
Demand Response	605.0	36.7
Ferryboat (b)	2.4	0.3
Heavy Rail	549.3	26.8
Light Rail	42.5	2.7
Trolleybus	13.1	1.7
Vanpool	47.8	1.3
Other (a)	2.8	0.4
<b>TOTAL</b>	<b>3,513.7</b>	<b>232.0</b>

(a) Includes aerial tramway, automated guideway transit, cable car, inclined plane, and monorail.

(b) Excludes international, rural, rural interstate, island, and urban park ferries.

**SECTION IX**

File: VEHICLES

**Vehicles**

Heavy rail, automated guideway, bus, and demand response vehicles at the Miami-Dade Transit Agency in Miami, Florida.

**Highlights. . . . .**

- There were about 129,000 active vehicles providing public transportation service in 1998.
- Buses comprised 57.9%, demand response vehicles 25.5%, heavy rail cars 8.0%, commuter rail cars 3.8%, light rail cars 0.9%, all other modes 3.9%.
- Average age of buses was 8.5 years, demand response vehicles 3.4 years, commuter rail cars 21.5 years, heavy rail cars 21.9 years, light rail cars 20.2 years.

- Average length of buses was 39.3 feet, demand response vehicles 21.6 feet, commuter rail cars 84.9 feet, heavy rail cars 61.5 feet, light rail cars 70.7 feet.
- 7.5% of buses used alternative power, demand response vehicles 11.4%, commuter rail cars 48.0%, heavy and light rail cars and trolleybuses 100%.
- 76.6% of buses were wheelchair accessible, 92.4% of demand response vehicles, 62.5% of commuter rail cars, 98.3% of heavy rail cars, 74.1% of light rail cars.
- Over 2,400 buses and about 370 demand response vehicles used compressed natural gas, about 200 more used CNG blends, about 300 used propane, about 800 used liquefied natural gas and LNG blends.
- About 150 to 350 new rail cars are built each year, 5,500 to 6,500 buses and demand response vehicles, 3,500 of the buses are 40 to 45 feet in length, and nearly 2,000 are below 27.5 feet.
- The new bus market is dominated by 7 manufacturers, over 38% of new buses may have alternative power sources, about 76% will be 40 feet in length, the average 40-foot bus costs about \$291,000.
- The new rail car market is split among 7 major manufacturers, new rail cars cost from \$1.0 to \$2.5 million apiece, new locomotives exceed \$2.0 million for diesel to about \$4.0 million for electric.

TABLE 46

## Active Passenger Vehicles by Mode

File: VEHACT

YEAR	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
1984	67,294	4,075	14,164	9,083	733	664	888	96,901
1985	64,258	4,035	14,490	9,326	717	676	867	94,368
1986	66,218	4,440	15,346	10,386	697	680	942	98,709
1987	63,017	4,686	15,944	10,168	766	671	875	96,127
1988	62,572	4,649	16,812	10,539	831	710	1,096	97,209
1989	58,919	4,472	15,856	10,506	755	725	1,060	92,293
1990	58,714	4,415	16,471	10,419	913	832	1,197	92,961
1991	60,377	4,370	17,879	10,331	1,095	752	1,595	96,399
1992	63,080	4,413	20,695	10,245	1,058	907	1,853	102,251
1993	64,850	4,494	23,527	10,261	1,025	851	2,308	107,316
1994	68,123	4,517	28,729	10,138	1,054	877	2,505	115,943
1995	67,107	4,565	29,352	10,157	999	885	2,809	115,874
1996	71,678	4,665	30,804	10,201	1,140	871	3,003	122,362
1997	72,770	4,943	32,509	10,242	1,229	859	3,808	126,360
1998 P	74,641	4,907	32,899	10,301	1,205	880	4,137	128,970
1998 % of Total	57.9%	3.8%	25.5%	8.0%	0.9%	0.7%	3.2%	100.0%

P= Preliminary

TABLE 47

File: VEHAGE

**Average Vehicle Age by Mode, 1999**

MODE	AVERAGE AGE (YEARS)
Bus	8.5
Commuter Rail	21.5
Commuter Rail Locomotive	17.7
Demand Response	3.4
Ferryboat	26.3
Heavy Rail	21.9
Light Rail	20.2
Other Rail	51.1
Trolleybus	16.2
Vanpool	3.0

Source: APTA survey. Data reported are not national totals.

TABLE 48

File: VEHLEN

**Average Vehicle Length by Mode, 1999**

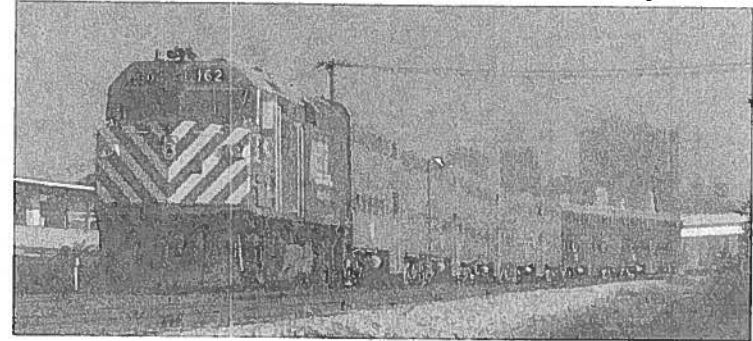
MODE	AVERAGE LENGTH (FEET)
Bus	39.3
Commuter Rail	84.9
Commuter Rail Locomotive	59.3
Demand Response	21.6
Ferryboat	231.3
Heavy Rail	61.5
Light Rail	70.7
Other Rail	42.1
Trolleybus	47.0
Vanpool	17.5

Source: APTA survey. Data reported are not national totals.

**Rail Vehicles**

File: RAILPIC1

Commuter rail trains are pulled (or pushed) by diesel or electric locomotives or are all-electric without locomotives. This METRA train in Chicago uses double-deck cars, but in older cities of the northeast tunnel and bridge clearances only allow single-deck cars.



Heavy rail trains such as this MTA New York City Transit train are totally electrified and use totally segregated right-of-way, thus allowing very frequent service carrying very "heavy" numbers of people.

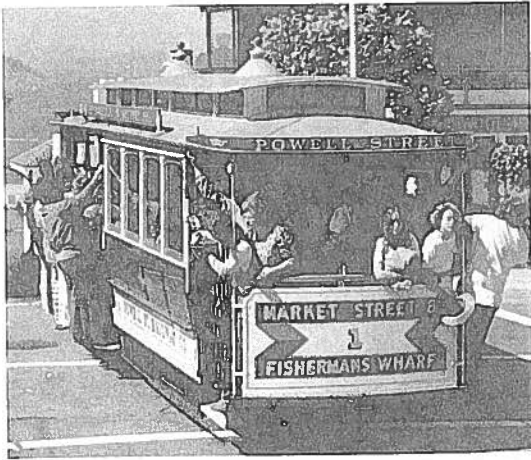


Light rail trains are also electric, but operate partly on non-segregated right-of-way such as city streets—often with single cars—and thus carry "light" loads of people compared to heavy rail. This train is operated by Baltimore, Maryland's Mass Transit Administration.

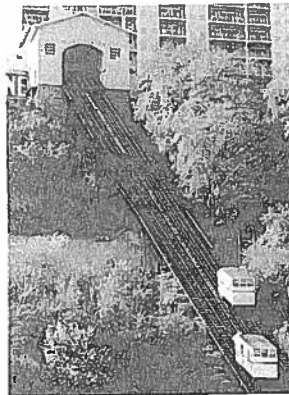


## More Rail Vehicles

File: RAILPIC2



The only transit system to operate cable cars is California's San Francisco Municipal Railway. These small cars are unpowered and move by clamping onto a moving cable in a trough underneath the street.



A few cities with very steep hills use an inclined plane, where cars are pulled and lowered by a cable operated from an engine house. This is the Monongahela Incline operated by the Port Authority of Allegheny County in Pittsburgh, Pennsylvania.

## Ferryboats

Several coastal and inland cities have found the water to be a perfect right-of-way. This Golden Gate Ferry is in San Francisco.



## Buses

File: BUSPIC

Houston's Metropolitan Transit Authority of Harris County operates this 40-foot-long bus, the most common. Most are high-floor models having two or three steps, but this is a low-floor model without steps.



In the largest cities, some routes require even larger buses. This articulated bus is 60 feet long and bends in the middle; it is operated by the Mass Transit Administration in Baltimore, Maryland.



Demand response service uses vans and minibuses because very few people are on board at one time. Indianapolis Public Transportation Corporation uses this van.





## Trolleys

File: TROLLPIC

Three types of vehicles are commonly called "trolleys."

*This trolleybus is a rubber-tired vehicle without an engine that is powered from two electric wires. Only five cities have them; this Dayton, Ohio version is operated by the Miami Valley Regional Transit Authority.*



*Often called a trolley, this vehicle with a body that imitates an old streetcar is called a "trolley replica bus." Its data are included with bus statistics, since it is rubber-tired and has an on-board power source. This is a Central Oklahoma Transportation and Parking Authority vehicle in Oklahoma City.*



*The original "trolley" was a rail car usually powered by one overhead wire. Often called a "streetcar," it is today called "light rail." This vehicle is at the Santa Clara Valley Transportation Authority in San Jose, California.*

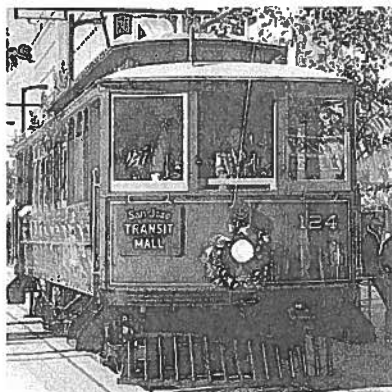


TABLE 49

File: VEHALPOW

## Alternative Power Vehicles by Mode, 1999 (a)

MODE	PER CENT USING ALTERNATIVE POWER
Bus	7.5%
Commuter Rail	48.0%
Commuter Rail Locomotive	41.2%
Demand Response	11.4%
Ferryboat	32.6%
Heavy Rail	100.0%
Light Rail	100.0%
Other Rail	50.5%
Trolleybus	100.0%
Vanpool	0.0%

(a) Alternative power includes all power except straight diesel and gasoline.

Source: APTA survey. Data reported are not national totals.

*This bus is powered by the most popular alternative power, compressed natural gas. Due to the low-floor configuration, the CNG tanks are located on the roof of the bus. The Pinellas Suncoast Transit Authority that serves the St. Petersburg, Florida area is the operator of this bus.*

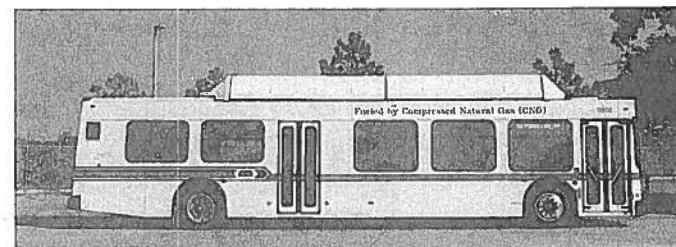


TABLE 50

File: VEHPOWER

## Passenger Vehicle Power Sources (a) (NOT National Totals)

POWER SOURCE	BUS	COMMUTER RAIL CAR	COMMUTER RAIL LOCOMOTIVE	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
Compressed Natural Gas	2,413	0	0	366	0	0	0	2	2,781
CNG Blends	81	0	0	121	0	0	0	1	203
Diesel	47,539	13	334	3,907	0	0	0	232	52,025
Diesel with Trap	206	0	0	0	0	0	0	0	206
Electric Battery	32	0	0	0	0	0	0	0	32
Electric Third Rail or Catenary	0	2,454	45	0	10,417	1,423	729	50	15,118
Electric & Diesel	6	0	198	0	0	0	236	15	455
Ethanol & Blends	375	0	0	15	0	0	0	0	390
Gasoline	194	0	0	2,898	0	0	0	2,516	5,608
Liquefied Natural Gas	430	0	0	76	0	0	0	0	506
LNG Blends	280	0	0	0	0	0	0	0	280
Methanol	17	0	0	0	0	0	0	0	17
Propane	9	0	0	287	0	0	0	0	296
Other (b)	26	0	0	13	0	0	0	0	39
Unpowered	0	2,643	13	0	3	0	0	50	2,709
TOTAL	51,608	5,110	590	7,683	10,420	1,423	965	2,866	80,665

(a) Data as of January 1, 1999 from APTA survey of about 300 transit agencies.

(b) Includes bio or soy diesel blends, hydrogen, jet fuel, and propane blends.

TABLE 51

File: BUSPOWER

## Bus Power Sources (NOT National Totals)

CALENDAR YEAR	CNG & BLENDS	DIESEL	ELECTRIC BATTERY/HYBRID	ETHANOL & BLENDS	GASOLINE	LNG & BLENDS	METHANOL	PROPANE	OTHER (a)	TOTAL
1993	225	50,595	18	86	257	80	160	28	176	51,625
1994	353	49,716	31	86	283	287	351	28	203	51,338
1995	678	50,158	37	82	243	357	399	31	202	52,187
1996	1,074	48,050	41	82	234	347	396	29	91	50,344
1997	1,562	47,177	24	347	230	347	63	25	66	49,841
1998	2,148	47,174	33	395	250	346	19	12	70	50,447
1999	2,494	47,745	41	375	194	707	17	9	26	51,608
1999 % of Total	4.8%	92.5%	0.1%	0.7%	0.4%	1.4%	0.0%	0.0%	0.1%	100.0%

Source: Data from APTA surveys of about 300 transit agencies represent about 67% of all buses.

(a) Includes bio or soy diesel blends, hydrogen, jet fuel, and propane blends.

TABLE 52

Title: VEHACC%

**Accessible Vehicles by Mode, 1999**

MODE	ACCESSIBLE VEHICLES (a)	VEHICLES REPORTED	PER CENT ACCESSIBLE (a)
Bus	39,549	51,608	76.6%
Commuter Rail	3,193	5,110	62.5%
Demand Response	7,098	7,683	92.4%
Ferryboat	12	49	24.5%
Heavy Rail	10,240	10,420	98.3%
Light Rail	1,054	1,423	74.1%
Other Rail	53	99	53.5%
Trolleybus	492	965	51.0%
Vanpool	53	2,718	1.9%

(a) Accessible vehicles include accessibility via lift, ramp, and station.

Source: APTA survey. Data reported are not national totals.



Community Transit in Snohomish County, Washington operates low-floor buses with a floor only 12-16 inches off the ground that use an extendable ramp for wheelchair access.

Traditional high-floor buses with steps such as this one at Riverside Transit Agency in California use lifts to accommodate wheelchair users.



TABLE 53

**Road Vehicles by Type of Wheelchair Accessibility (NOT National Totals)**

File: ROADACC

YEAR	BUS				DEMAND RESPONSE				TROLLEYBUS			
	LIFT	RAMP	NONE	TOTAL	LIFT	RAMP	NONE	TOTAL	LIFT	RAMP	NONE	TOTAL
1993	26,087	123	25,415	51,625	4,031	246	772	5,049	453	0	510	963
1994	27,986	174	23,178	51,338	4,585	313	739	5,637	477	0	457	934
1995	30,841	351	20,995	52,187	5,391	412	708	6,511	523	0	502	1,025
1996	31,690	583	18,071	50,344	5,797	504	650	6,951	526	0	502	1,028
1997	32,629	1,050	16,162	49,841	6,449	514	541	7,504	489	0	512	1,001
1998	34,831	1,733	13,883	50,447	6,967	559	568	8,094	470	0	473	943
1999	36,744	2,805	12,059	51,608	6,338	760	585	7,683	492	0	473	965
1999% of Total	71.2%	5.4%	23.4%	100.0%	82.5%	9.9%	7.6%	100.0%	51.0%	0.0%	49.0%	100.0%

Source: Data from APTA surveys. Trolleybus data are national totals, bus data represent about 67%, demand response data represent about 22% of national totals.

TABLE 54

File: CRHRACC

**Commuter and Heavy Rail Cars by Type of Wheelchair Accessibility (NOT National Totals)**

YEAR	COMMUTER RAIL					HEAVY RAIL				
	LIFT	RAMP	STATION	NONE	TOTAL	LIFT	RAMP	STATION	NONE	TOTAL
1993	10	63	1,359	3,117	4,549	0	0	8,614	1,779	10,393
1994	58	136	1,349	3,090	4,633	4	0	9,664	701	10,365
1995	58	234	1,717	2,643	4,652	4	0	9,655	698	10,357
1996	63	312	2,767	1,545	4,687	0	0	9,779	654	10,433
1997	87	660	2,662	1,429	4,838	0	0	9,740	651	10,391
1998	155	693	2,790	1,428	5,066	0	0	9,764	604	10,368
1999	197	664	2,332	1,917	5,110	0	0	10,240	180	10,420
1999% of Total	3.9%	13.0%	45.6%	37.5%	100.0%	0.0%	0.0%	98.3%	1.7%	100.0%

Source: Data from APTA surveys. Commuter rail data represent 99% of rail cars; heavy rail data are national totals. "Lift" and "ramp" columns refer to on-vehicle lifts and ramps; "station" column includes car-floor-level platform boarding and platform lifts.

TABLE 55

File: LRORACC

**Light and Other Rail Cars by Type of Wheelchair Accessibility (a) (NOT National Totals)**

YEAR	LIGHT RAIL					OTHER RAIL (a)				
	LIFT	RAMP	STATION	NONE	TOTAL	LIFT	RAMP	STATION	NONE	TOTAL
1993	71	0	435	738	1,244	0	0	37	46	83
1994	75	2	480	666	1,223	0	0	26	48	74
1995	96	11	498	624	1,229	0	0	35	48	83
1996	171	12	510	582	1,275	1	0	34	48	83
1997	123	65	549	575	1,312	1	0	42	45	88
1998	123	65	828	373	1,389	1	0	53	45	99
1999	123	17	914	369	1,423	1	0	52	46	99
1999% of Total	8.7%	1.2%	64.2%	25.9%	100.0%	1.0%	0.0%	52.5%	46.5%	100.0%

Source: Data from APTA surveys. Light rail data represent 98% and other rail data represent 60% of national totals. "Lift" and "ramp" columns refer to on-vehicle lifts and ramps; "station" column includes car-floor-level platform boarding and platform lifts.

(a) Includes aerial tramway, automated guideway, cable car, inclined plane, and monorail.

TABLE 56

File: NEWVEH

## New Passenger Vehicles Delivered by Mode

YEAR	RAIL CARS (c)			BUSES & DEMAND RESPONSE (a)				TROLLEY BUS	TOTAL (b)
	COMMUTER RAIL	HEAVY RAIL	LIGHT RAIL	29 SEATS OR FEWER	30-39 SEATS	40 SEATS OR MORE	TOTAL		
1984	128	521	59	393	509	2,992	3,894	0	1,920
1985	179	441	63	353	220	2,794	3,367	0	1,013
1986	140	854	149	739	240	2,400	3,379	0	1,459
1987	198	758	51	1,091	429	2,704	4,224	47	2,425
1988	74	311	24	766	474	2,308	3,548	4	2,192
1989	56	207	52	1,353	771	2,836	4,960	0	3,666
1990	83	10	55	1,389	489	2,901	4,779	118	2,974
1991	187	6	17	1,781	411	2,530	4,722	149	3,163
1992	110	163	35	1,322	549	1,555	3,426	0	2,969
1993	8	260	54	1,919	566	2,351	4,836	24	3,641
1994	47	55	72	2,502	433	2,483	5,418	36	3,837
1995	38	72	38	2,823	733	2,466	6,022	3	6,173
1996	111	10	39	2,620	1,531	1,865	6,016	3	6,179
1997	198	34	76	2,910	1,090	2,329	6,329	0	6,637
1998 P	122	120	80	2,250	1,272	2,928	6,450	32	6,804
1998 % of Total	1.8%	1.7%	1.2%	33.1%	18.7%	43.0%	94.8%	0.5%	100.0%

P = Preliminary

(a) Buses and demand response only; excludes vanpool vans. Bus comprises about 25% of the 29-seats-or-fewer size group and virtually 100% of the other size groups.

(b) Excludes vanpool vans, ferryboats, and other modes not listed.

(c) Source for rail modes; *Railway Age*, January issue.

TABLE 57

File: NEWBUSLG

## New Buses &amp; Demand Response Vehicles Delivered by Length (a)

YEAR	27'5" AND BELOW	27'6" - 32'5"	32'6" - 37'5"	37'6" - 45'0"	ARTICULATED/ DOUBLE DECKED	TOTAL
1988	599	250	518	2,181	0	3,548
1989	1,151	320	810	2,635	44	4,960
1990	932	450	567	2,782	48	4,779
1991	1,430	395	357	2,460	80	4,722
1992	968	338	584	1,482	54	3,426
1993	1,594	333	374	2,435	100	4,836
1994	2,333	147	350	2,513	75	5,418
1995	2,436	420	358	2,695	113	6,022
1996	2,282	383	405	2,885	61	6,016
1997	2,316	603	641	2,591	178	6,329
1998 P	1,781	531	418	3,546	174	6,450
1998% of Total	27.6%	8.2%	6.5%	55.0%	2.7%	100.0%

(a) Buses comprise about 5% of the 27'5"-and-below size group and virtually 100% of the other size groups.

P = Preliminary

TABLE 58

File: BUSMKT1

**New Bus and Trolleybus Market, 1998-2003 (a) (NOT National Totals)**

CATEGORY	BUILT IN 1998		ON ORDER JANUARY 1999		POTENTIAL ORDERS (b)	
	NUMBER	PER CENT	NUMBER	PER CENT	NUMBER	PER CENT
Total	4,225	100.0%	8,310	100.0%	14,190	100.0%
With air conditioning	3,992	94.5%	7,305	87.9%	13,651	96.2%
Wheelchair accessibility						
Via lift	3,139	74.3%	4,954	59.6%	7,857	55.4%
Via ramp (low floor)	1,086	25.7%	3,350	40.3%	6,318	44.5%
Via stations	0	0.0%	0	0.0%	0	0.0%
Non-accessible	0	0.0%	6	0.1%	15	0.1%
Type						
Articulated (55'-60')	174	4.1%	1,027	12.4%	769	5.4%
Intercity (35'-45')	80	1.9%	51	0.6%	892	6.3%
45' Transit (45')	180	4.3%	130	1.6%	259	1.8%
40' Transit (37'6"-42'5")	2,956	70.0%	5,929	71.3%	9,948	70.1%
35' Transit (32'6"-37'5")	362	8.6%	353	4.2%	1,000	7.0%
30' Transit (27'6"-32'5")	291	6.9%	621	7.5%	685	4.8%
Suburban (35'-45')	3	0.1%	0	0.0%	103	0.7%
Trolley Replica (all lengths)	98	2.3%	37	0.4%	85	0.6%
Van/Mini (<27'6")	81	1.9%	162	1.9%	449	3.2%

(a) Data from APTA survey including about 75% of buses and trolleybuses.

(b) DATA ARE TENTATIVE; SOME POTENTIAL ORDERS MAY NOT OCCUR.

TABLE 58 (continued)

File: BUSMKT2

**New Bus and Trolleybus Market, 1998-2003 (a) (NOT National Totals)**

CATEGORY	BUILT IN 1998		ON ORDER JANUARY 1999		POTENTIAL ORDERS (b)	
	NUMBER	PER CENT	NUMBER	PER CENT	NUMBER	PER CENT
Total	4,225	100.0%	8,310	100.0%	14,190	100.0%
Length						
55-60 feet	174	4.1%	1,027	12.4%	764	5.4%
45-51 feet	180	4.3%	130	1.6%	384	2.7%
38-41 feet	3,039	71.9%	5,985	72.0%	10,823	76.3%
33-37 feet	366	8.7%	355	4.3%	1,004	7.1%
28-32 feet	352	8.3%	643	7.7%	740	5.2%
18-27 feet	114	2.7%	170	2.0%	475	3.3%
Seating Capacity						
60 or more seats	174	4.1%	897	10.8%	686	4.8%
50-59 seats	180	4.3%	234	2.8%	488	3.4%
41-49 seats	1,717	40.6%	2,657	32.0%	5,556	39.2%
36-40 seats	1,338	31.7%	3,385	40.7%	5,327	37.5%
25-35 seats	641	15.2%	709	8.5%	1,404	9.9%
Below 25 seats	175	4.1%	428	5.2%	729	5.1%

(a) Data from APTA survey including about 75% of buses and trolleybuses.

(b) DATA ARE TENTATIVE; SOME POTENTIAL ORDERS MAY NOT OCCUR.

TABLE 58 (continued)

File: BUSMKT3

**New Bus and Trolleybus Market, 1998-2003 (a) (NOT National Totals)**

CATEGORY	BUILT IN 1998		ON ORDER JANUARY 1999		POTENTIAL ORDERS (b)	
	NUMBER	PER CENT	NUMBER	PER CENT	NUMBER	PER CENT
Total	4,225	100.0%	8,310	100.0%	14,190	100.0%
Manufacturer						
Electric Transit	32	0.8%	272	3.3%	NA	NA
Gillig	764	18.1%	1,752	21.1%	NA	NA
Motor Coach Industries	260	6.2%	51	0.6%	NA	NA
Neoplan	285	6.7%	553	6.7%	NA	NA
New Flyer	620	14.7%	2,127	25.6%	NA	NA
North American Bus	342	8.1%	919	11.1%	NA	NA
Nova BUS	1,012	24.0%	1,352	16.3%	NA	NA
Orion	655	15.5%	731	8.8%	NA	NA
All others	255	6.0%	553	6.7%	NA	NA
Power Source						
Compressed natural gas	550	13.0%	1,099	13.2%	3,415	24.1%
Diesel (inc particulate trap)	3,253	77.0%	6,709	80.7%	8,754	61.7%
Dual-power	9	0.2%	46	0.6%	294	2.1%
Electric catenary	32	0.8%	272	3.3%	159	1.1%
Gasoline	4	0.1%	1	0.0%	16	0.1%
Liquefied natural gas	374	8.9%	102	1.2%	465	3.3%
Propane	0	0.0%	71	0.9%	17	0.1%
All others	3	0.1%	10	0.1%	34	0.2%
Undecided	NA	NA	NA	NA	1,036	7.3%

(a) Data from APTA survey including about 75% of buses and trolleybuses.

(b) DATA ARE TENTATIVE; SOME POTENTIAL ORDERS MAY NOT OCCUR.

TABLE 59

File: RAILMKT1

**New Rail Car Market, 1998-2003 (a) (NOT National Totals)**

CATEGORY	BUILT IN 1998		ON ORDER JANUARY 1999		POTENTIAL ORDERS (b)	
	NUMBER	PER CENT	NUMBER	PER CENT	NUMBER	PER CENT
Total	232	100.0%	2,283	100.0%	1,785	100.0%
With air conditioning	232	100.0%	2,283	100.0%	1,777	99.6%
Wheelchair accessibility						
Via on-board lift	42	18.1%	46	2.0%	231	12.9%
Via on-board ramp (low floor)	36	15.5%	295	12.9%	278	15.6%
Via stations	154	66.4%	1,933	84.7%	1,256	70.4%
Non-accessible	0	0.0%	9	0.4%	20	1.1%
Type						
Single-deck articulated	38	16.4%	338	14.8%	336	18.8%
Single-deck non-articulated	116	50.0%	1,774	77.7%	1,045	58.5%
Double-deck	78	33.6%	168	7.4%	369	20.7%
Triple-deck	0	0.0%	3	0.1%	35	2.0%

(a) Data from APTA survey including about 99% of commuter, heavy, light, and other rail cars.

(b) DATA ARE TENTATIVE; SOME POTENTIAL ORDERS MAY NOT OCCUR.



TABLE 59 (continued)

File: RAILMKT2

**New Rail Car Market, 1998-2003 (a) (NOT National Totals)**

CATEGORY	BUILT IN 1998		ON ORDER JANUARY 1999		POTENTIAL ORDERS (b)	
	NUMBER	PER CENT	NUMBER	PER CENT	NUMBER	PER CENT
Total	232	100.0%	2,283	100.0%	1,785	100.0%
Length						
86-99 feet	12	5.2%	168	7.4%	215	12.0%
80-85 feet	78	33.6%	245	10.7%	1,095	61.3%
70-79 feet	40	17.2%	472	20.7%	133	7.5%
60-69 feet	0	0.0%	212	9.3%	35	2.0%
40-59 feet	102	44.0%	1,186	51.9%	307	17.2%
Seating Capacity						
130 or more seats	78	33.6%	171	7.5%	389	21.8%
100-129 seats	0	0.0%	55	2.4%	605	33.9%
75-99 seats	0	0.0%	112	4.9%	34	1.9%
50-74 seats	52	22.4%	447	19.6%	414	23.2%
40-49 seats	102	44.0%	960	42.0%	102	5.7%
Below 40 seats	0	0.0%	538	23.6%	241	13.5%

(a) Data from APTA survey including about 99% of commuter, heavy, light, and other rail cars.

(b) DATA ARE TENTATIVE; SOME POTENTIAL ORDERS MAY NOT OCCUR.

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TABLE 59 (continued)

File: RAILMKT3

**New Rail Car Market, 1998-2003 (a) (NOT National Totals)**

CATEGORY	BUILT IN 1998		ON ORDER JANUARY 1999		POTENTIAL ORDERS (b)	
	NUMBER	PER CENT	NUMBER	PER CENT	NUMBER	PER CENT
Total	232	100.0%	2,283	100.0%	1,785	100.0%
Manufacturer						
AAI Corp-CAF	0	0.0%	110	4.8%	NA	NA
ABB Daimler-Benz	102	44.0%	106	4.6%	NA	NA
American Passenger Rail	42	18.1%	0	0.0%	NA	NA
Bombardier	0	0.0%	778	34.1%	NA	NA
Breda	40	17.2%	275	12.0%	NA	NA
Kawasaki	36	15.5%	726	31.8%	NA	NA
Kinki Sharyo	0	0.0%	100	4.4%	NA	NA
Siemens	12	5.2%	169	7.4%	NA	NA
Sumitomo	0	0.0%	19	0.8%	NA	NA
Power Source						
Diesel	0	0.0%	0	0.0%	0	0.0%
Electric	154	66.4%	2,052	89.9%	1,187	66.5%
Unpowered	78	33.6%	231	10.1%	598	33.5%

(a) Data from APTA survey including about 99% of commuter, heavy, light, and other rail cars.

(b) DATA ARE TENTATIVE; SOME POTENTIAL ORDERS MAY NOT OCCUR.

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TABLE 60

File: B&amp;RCOST

**Average New Bus and Van Costs, 1998-1999, Thousands of Dollars (a) (NOT National Totals)**

TYPE OF VEHICLE	BUS	TROLLEYBUS	DEMAND RESPONSE	VANPOOL
Articulated (55'-60')	392	898	NA	NA
Intercity (35'-45')	460	NA	NA	NA
45' Transit (45')	371	NA	NA	NA
40' Transit (37'6"-42'5')	291	642	NA	NA
35' Transit (32'6"-37'5')	257	232	NA	NA
30' Transit (27'6"-32'5')	211	NA	111	NA
Suburban (35'-45')	272	NA	NA	NA
Trolley replica (all lengths)	250	NA	NA	NA
Van/Mini (<27'6")	142	NA	56	23

(a) Data from APTA survey of 10% of non-rail transit agencies. Cost includes amount paid to manufacturer plus in-house and third-party costs. Not all orders were reported. Each year of a multi-year order is counted as a separate order.

TABLE 61

**Average New Rail Vehicle Costs, 1998-1999, Thousands of Dollars (a) (NOT National Totals)**

TYPE OF VEHICLE	LIGHT RAIL	HEAVY RAIL	COMMUTER RAIL CAR	COMMUTER RAIL LOCOMOTIVE	OTHER
1-level cab	NA	1,197	1,028	NA	NA
1-level non-cab	NA	1,123	1,218	NA	NA
2-level cab	NA	NA	1,700	NA	NA
2-level non-cab	NA	NA	1,542	NA	NA
3-level cab	NA	NA	NA	NA	NA
3-level non-cab	NA	NA	NA	NA	NA
Diesel	NA	NA	NA	2,589	NA
Diesel-electric	NA	NA	NA	3,900	NA
Electric	NA	NA	NA	NA	NA
Articulated cab	2,308	NA	NA	NA	NA

(a) Data from APTA survey of 90% of rail transit agencies. Cost includes amount paid to manufacturer plus in-house and third-party costs. Not all orders were reported. Each year of a multi-year order is counted as a separate order.

**SECTION X**

File: EMPLOY

**Employees**

Many employees labor behind the scenes, such as this Tri-County Metropolitan Transportation District customer information representative in Portland, Oregon.

**Highlights. . . . .**

- There were over 321,000 operating employees, plus over 10,000 capital employees, in 1998.
- 50.2% were vehicle operators (including conductors), 14.2% other vehicle operations employees, 16.9% vehicle maintenance employees, 8.7% non-vehicle maintenance employees, 10.0% general administration employees.
- Bus employees were 60.2%, heavy rail 14.0%, demand response 14.8%, commuter rail 7.0%, light rail 1.9%, all other modes 2.1%.
- Average compensation per employee (salaries and fringe benefits) was over \$41,600.

TABLE 62

File: EMPMODE

## Operating Employees by Mode (a) (b)

YEAR	BUS	COMMUTER RAIL	DEMAND RESPONSE	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
1984	154,326	21,884	23,798	47,047	3,242	2,012	3,100	255,409
1985	157,581	22,929	23,767	49,670	2,980	1,893	3,217	262,037
1986	165,839	22,414	20,664	51,028	3,511	2,140	3,512	269,108
1987	165,176	23,270	19,068	51,333	3,806	2,090	3,340	268,083
1988	165,407	23,188	21,391	46,212	3,922	2,039	3,323	265,482
1989	162,990	22,215	21,453	46,690	3,952	2,013	3,604	262,917
1990	162,189	21,443	22,740	46,102	4,066	1,925	3,711	262,176
1991	163,555	21,083	24,196	47,423	4,175	1,826	3,599	265,857
1992	163,387	21,151	25,863	47,493	3,849	1,691	3,668	267,102
1993	177,167	20,634	30,021	52,433	3,920	1,944	3,400	289,519
1994	174,373	22,596	35,450	51,062	5,140	1,848	3,618	294,087
1995	181,973	22,320	39,882	45,644	4,935	1,871	3,866	300,491
1996	190,152	22,604	44,667	45,793	5,728	2,084	3,916	314,944
1997	196,861	21,651	44,029	45,935	5,940	2,037	4,306	320,759
1998 P	193,542	22,399	47,509	45,155	6,048	2,047	4,679	321,379
1998 % of Total	60.2%	7.0%	14.8%	14.0%	1.9%	0.6%	1.5%	100.0%

P = Preliminary

(a) Based on employee equivalents of 2,080 labor hours equals one employee; beginning 1993 equals actual employees. Series not continuous between 1992 and 1993.

(b) Excludes capital employees and an estimated 10,000-20,000 individuals not employed by transit agencies and whose compensation is classified as "services"—e.g. boiler repairman, marketing consultant, independent auditor.

TABLE 63

File: EMPJOB

## Employees by Function (a) (b)

YEAR	VEHICLE OPERA- TORS (c)	OTHER VEHICLE OPERA- TIONS	VEHICLE MAINTEN- ANCE	NON- VEHICLE MAINTEN- ANCE	GENERAL ADMINIS- TRATION	OPERATING TOTAL	CAPITAL	TOTAL
1984	122,843	32,397	31,420	43,227	25,522	255,409	7,788	263,197
1985	127,065	25,277	30,514	45,400	33,781	262,037	7,983	270,020
1986	129,263	24,543	33,621	45,629	36,052	269,108	8,746	277,854
1987	126,770	25,269	33,467	46,453	36,124	268,083	8,527	276,610
1988	126,565	25,149	33,743	44,054	35,971	265,482	10,101	275,583
1989	126,154	25,613	32,464	43,800	34,886	262,917	9,570	272,487
1990	127,039	23,517	31,424	44,282	35,914	262,176	10,663	272,839
1991	129,145	24,136	31,861	42,708	38,007	265,857	10,288	276,145
1992 (d)	130,312	39,237	48,270	24,062	25,221	267,102	11,893	278,995
1993	142,486	36,940	53,041	28,043	29,009	289,519	9,665	299,184
1994	145,102	38,571	51,405	27,004	32,005	294,087	10,207	304,294
1995	150,633	40,042	51,905	27,329	30,582	300,491	10,695	311,186
1996	155,700	43,915	54,645	27,239	33,445	314,944	11,682	326,626
1997	161,858	45,652	53,322	27,232	32,695	320,759	13,081	333,840
1998 P	161,370	45,514	54,412	27,894	32,189	321,379	10,349	331,728
1998% of Total	50.2%	14.2%	16.9%	8.7%	10.0%	100.0%		

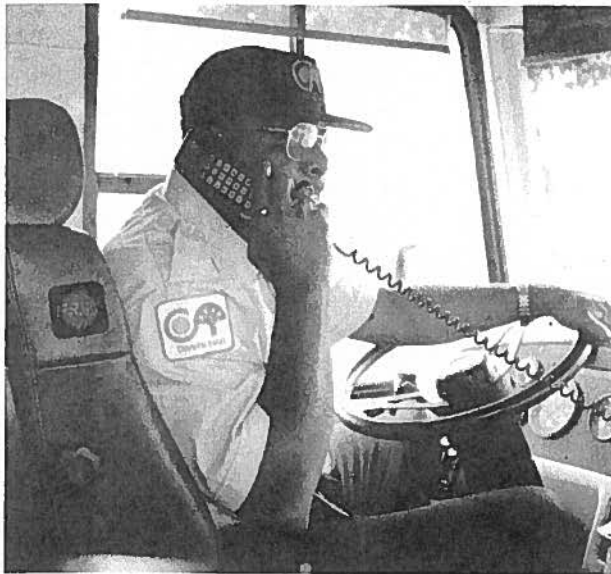
P = Preliminary

(a) Based on employee equivalents of 2,080 labor hours equals one employee; beginning 1993 equals actual employees. Series not continuous between 1992 and 1993.

(b) Excludes an estimated 10,000-20,000 individuals not employed by transit agencies and whose compensation is classified as "services."

(c) Includes conductors.

(d) Beginning 1992, ticketing, fare collection, and security employees reclassified from "General Administration" to "Other Vehicle Operations," and vehicle maintenance administrative and support employees reclassified from "Non-Vehicle Maintenance" to "Vehicle Maintenance."



*Bus operators are often the only public transportation employees most riders ever see. The Charlotte Transit System in Charlotte, North Carolina employs this operator.*



*Track workers at the MTA Metro-North Railroad in New York City pursue their never-ending task of making sure the roadbed and track are in good repair.*

*Mechanics must undergo extensive training to be able to repair the various types of equipment used by a transit agency. This wheel-chair lift mechanic is at the Los Angeles County Metropolitan Transportation Authority.*



*Commuter railroads still employ one of the oldest transportation professions—the conductor. This one is also in New York, but at the MTA Long Island Rail Road—the first to become a public transportation agency.*

TABLE 64

File: EMPCOMP

**Employee Compensation, Millions of Dollars**

YEAR	NUMBER OF EMPLOYEES (a)(b)	SALARIES AND WAGES	FRINGE BENEFITS	COMPENSATION	COMPENSATION PER EMPLOYEE (ACTUAL DOLLARS)
1984	263,197	5,487.8	2,716.7	8,204.5	31,172
1985	270,020	5,843.1	2,868.3	8,711.4	32,262
1986	277,854	6,119.2	3,125.9	9,245.1	33,273
1987	276,610	6,324.1	3,266.9	9,591.0	34,673
1988	275,583	6,675.0	3,528.9	10,203.9	37,027
1989	272,487	6,897.7	3,737.3	10,635.0	39,029
1990	272,839	7,226.3	3,986.0	11,212.3	41,095
1991	276,145	7,394.5	3,998.4	11,392.9	41,257
1992	278,995	7,670.5	4,318.6	11,989.1	42,972
1993	299,184	7,932.1	4,400.3	12,332.4	41,220
1994	304,294	8,223.8	4,451.7	12,675.5	41,655
1995	311,186	8,213.1	4,484.0	12,697.1	40,802
1996	326,626	8,437.6	4,401.4	12,839.0	39,308
1997	333,840	8,771.7	4,503.7	13,275.4	39,766
1998 P	331,728	9,077.7	4,728.1	13,805.8	41,615

P = Preliminary

(a) Based on employee equivalents of 2,080 labor hours equals one employee; beginning 1993 equals actual employees. Employee data not continuous between 1992 and 1993.

(b) Excludes an estimated 10,000-20,000 individuals not employed by transit agencies and whose compensation is classified as "services."

**SECTION XI**

File: ENERGY

**Energy and Environment***Highlights. . . . .*

- About 781 million gallons of fossil fuels and 5.3 billion kilowatt-hours of electricity were used to move transit vehicles in 1998.
- 89.6% of all fossil fuels used was diesel, 79.1% of all diesel was used by buses, 11.1% by commuter rail, 6.3% by demand response, 3.4% by ferryboats, 0.1% by other modes.
- 47.2% of the non-diesel fuel used was gasoline, 38.0% compressed natural gas, 6.3% propane, 4.0% liquefied natural gas, 4.5% other modes.
- 62.5% of the electric power used was by heavy rail, 28.2% by commuter rail, 7.3% by light rail, 2.0% by other modes.
- Fully loaded buses are 6 times more fuel efficient than single-occupant automobiles, fully loaded rail cars are 15 times more fuel efficient, a commuter using transit saves 200 gallons of gasoline a year.
- Public transportation uses less than 1% of the energy consumed in this country.
- Buses emit only 20% as much carbon monoxide as single-occupant automobiles per passenger mile, only 10% as much hydrocarbons, only 75% as much nitrogen oxides, Rail public transportation emits 25% as much nitrogen oxides and almost no hydrocarbons and carbon monoxides

TABLE 65

File: FOSFUEL

**Fossil Fuel Consumption by Mode, Thousands of Gallons (a)**

YEAR	DIESEL						NON-DIESEL (d)
	BUS	COMMUTER RAIL	DEMAND RESPONSE	FERRY BOAT (b)	OTHER	TOTAL	
1984	505,049	58,320	15,371 (c)	21,624	(c)	600,364	49,907
1985	518,137	55,372	14,482 (c)	20,747	(c)	608,738	45,704
1986	546,892	54,608	15,868	22,655	21	640,044	38,156
1987	543,314	51,594	15,393	19,901	71	630,273	34,220
1988	552,658	53,054	15,090	19,202	65	640,069	40,055
1989	551,156	52,516	14,824	19,402	118	638,016	39,389
1990	563,151	52,681	15,497	19,627	74	651,030	33,906
1991	572,861	54,315	17,422	20,465	95	665,158	34,467
1992	592,049	54,951	16,896	20,926	122	684,944	38,188
1993	575,740	59,766	22,890	19,968	147	678,511	47,251
1994	565,064	61,900	29,949	21,146	167	678,226	64,838
1995	563,767	63,064	28,958	22,307	190	678,286	71,470
1996	577,680	61,888	30,923	21,991	232	692,714	76,305
1997	597,636	63,195	32,020	23,881	220	716,952	83,369
1998 P	553,851	77,804	44,304	23,831	291	700,081	81,320
1998 % of Total	79.1%	11.1%	6.3%	3.4%	0.1%	100.0%	

P = Preliminary

--- Data not available

(a) Data includes passenger vehicles and locomotives; excludes non-passenger-vehicle and non-vehicle consumption.

(b) Excludes international, rural, rural interstate, island, and urban park ferries.

(c) Demand response and other combined.

(d) Prior to 1992, includes gasoline only. Series not continuous between 1991 and 1992.

TABLE 66

File: ALTFUEL

**Non-Diesel Fossil Fuel Consumption by Fuel, Thousands of Gallons (a)**

YEAR	COMPRESSED NATURAL GAS	GASOLINE	LIQUIFIED NATURAL GAS	METHANOL	PROPANE (LIQUID PETROLEUM GAS)	OTHER	TOTAL
1992	1,009	32,906	191	1,583	2,487	12	38,188
1993	1,579	37,928	474	4,975	2,098	197	47,251
1994	4,835	43,921	1,450	12,269	1,871	492	64,838
1995	10,740	42,769	2,236	11,174	3,686	865	71,470
1996	15,092	41,495	2,862	7,268	5,235	4,353	76,305
1997	23,906	41,547	4,030	965	5,150	7,771	83,369
1998 P	30,915	38,399	3,246	783	5,112	2,865	81,320
1998 % of Total	38.0%	47.2%	4.0%	1.0%	6.3%	3.5%	100.0%

P = Preliminary

(a) Data includes passenger vehicles; excludes non-passenger-vehicle and non-vehicle consumption.

TABLE 67

File: ELECPWR

**Electric Power Consumption by Mode, Millions of Kilowatt Hours (a)**

YEAR	COMMUTER RAIL	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER	TOTAL
1984	901	3,092	245 (b)			4,238
1985	1,043	2,928	245 (b)			4,216
1986	1,170	3,066	173	70	10	4,489
1987	1,155	3,219	191	70	21	4,656
1988	1,195	3,256	243	68	23	4,785
1989	1,293	3,286	242	68	23	4,912
1990	1,226	3,284	239	69	19	4,837
1991	1,239	3,248	274	72	20	4,853
1992	1,124	3,193	297	80	22	4,716
1993	1,196	3,287	281	79	22	4,865
1994	1,244	3,431	282	103	21	5,081
1995	1,253	3,401	288	100	26	5,068
1996	1,255	3,332	321	69	30	5,007
1997	1,270	3,253	361	78	26	4,988
1998 P	1,480	3,280	383	74	33	5,250
1998 % of Total	28.2%	62.5%	7.3%	1.4%	0.6%	100.0%

P = Preliminary

(a) Data includes passenger vehicles and locomotives; excludes non-passenger-vehicle and non-vehicle consumption.

(b) Light rail, trolleybus, and other combined.

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TABLE 68

File: FUELAUTO

**Examples of Fuel Savings to a Person Commuting to Work on Public Transportation**

LENGTH OF TRIP	MILES TRAVELED PER YEAR (a)	ANNUAL FUEL SAVINGS, GALLONS BASED ON FOLLOWING FUEL EFFICIENCIES					
		15 MILES PER GALLON	20 MILES PER GALLON	25 MILES PER GALLON	30 MILES PER GALLON	35 MILES PER GALLON	40 MILES PER GALLON
2 miles	944	62.9	47.2	37.8	31.5	27.0	23.6
5 miles	2,360	157.3	118.0	94.4	78.7	67.4	59.0
10 miles	4,720	314.7	236.0	188.8	157.3	134.9	118.0
20 miles	9,440	629.3	472.0	377.6	314.7	269.7	236.0
30 miles	14,160	944.0	708.0	566.4	472.0	404.6	354.0
40 miles	18,880	1,258.7	944.0	755.2	629.3	539.4	472.0
50 miles	23,600	1,573.3	1,180.0	944.0	786.7	674.3	590.0
60 miles	28,320	1,888.0	1,416.0	1,132.8	944.0	809.1	708.0

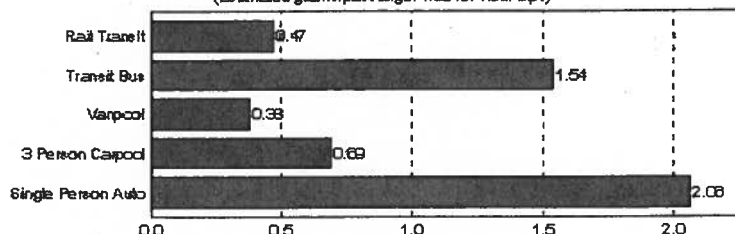
(a) Based on 472 trips per year based on 365 days minus 52 Saturdays minus 52 Sundays minus 7 holidays minus 10 days vacation minus 8 days sick leave times 2 trips per day.

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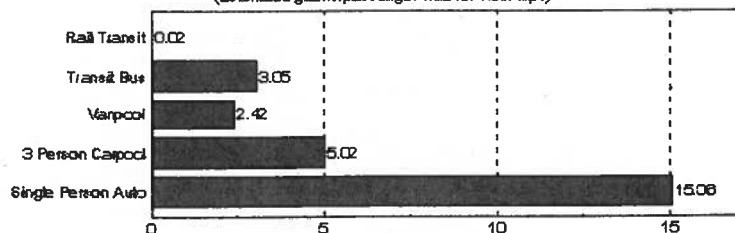
## Pollution Reduction Resulting From Transit Use

**Emissions of Nitrogen Oxides\***  
(Estimated grams/passenger-mile for work trips)



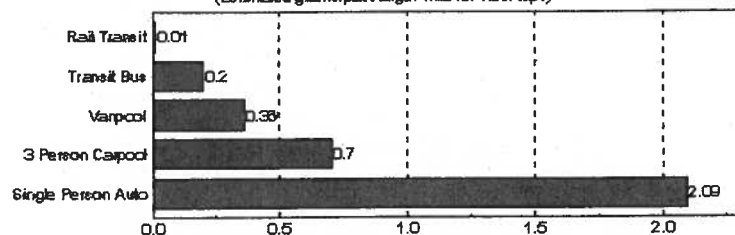
\*Damages lung tissues. Also precursor of ozone which irritates respiratory tract and eyes, decreases the lungs' working ability and causes both cough and chest pain.

**Emissions of Carbon Monoxide\***  
(Estimated grams/passenger-mile for work trips)



\*Limits blood's ability to transport oxygen to body tissues. Can cause dizziness, headaches, impaired coordination and death.

**Emissions of Hydrocarbons\***  
(Estimated grams/passenger-mile for work trips)



\*Precursor of ozone which irritates respiratory tract and eyes, decreases the lungs' working ability and causes both cough and chest pain.

Source: APTA, *Mass Transit - The Clean Air Alternative*, 1991.

TABLE 69

File: EMISSTD

## New Bus Engine Emission Standards, 1998 Grams per Brake Horsepower-Hour

EMISSION	STANDARD
<b>POLLUTANTS</b>	
Hydrocarbons	1.30
Carbon Monoxide	15.50
Nitrogen Oxides	4.00
Particulate Matter	0.05
<b>SMOKE (a)</b>	
Acceleration Mode	20%
Lug Mode	15%
Peak during either mode	50%

(a) Emissions measured in percent opacity during different operating modes.

Source: Federal Transit Administration, *Sourcebook on Transit-Related Environmental Regulations*, 1994.

## 2004 Model Year Diesel Engine Emission Standards

At the manufacturer's option:

2.4 grams emitted per brake horsepower-hour for all non-methane hydrocarbons plus Nitrogen Oxide, with no limit on non-methane hydrocarbons, OR

2.5 grams if non-methane hydrocarbons are limited to 0.5 grams.

Source: Environmental Protection Agency

## Other Environmental Requirements Affecting Transit

Transit agencies are also or will be subject to environmental regulations on the following:

- Diesel-electric locomotive emissions
- Scrap tires
- Vehicle air-conditioning system refrigerants
- Stormwater runoff from transit facilities
- Hazardous waste management
- Underground storage tanks
- Asbestos and lead-based paint removal
- Hazardous wastes in rights-of-way

TABLE 70

File: LOCEMIS

**Locomotive Exhaust Emission Standards**

YEAR BUILT	GASEOUS & PARTICULATE EMISSIONS (Grams/Brake Horsepower-hour)					SMOKE STANDARDS (Per cent Opacity--Normalized)		
	DUTY CYCLE	HYDRO-CARBONS	CARBON MONOXIDE	NITROGEN OXIDES	PARTICULATE MATTER	STEADY STATE	30-SECOND PEAK	3-SECOND PEAK
1973-2001	Line-haul Switch	1.00 2.10	5.0 8.0	9.5 14.0	0.60 0.72	30	40	50
2001-2004	Line-haul Switch	0.55 1.20	2.2 2.5	7.4 11.0	0.45 0.54	25	40	50
2005+	Line-haul Switch	0.30 0.60	1.5 2.4	5.5 8.1	0.20 0.24	20	40	50

Source: United States Environmental Protection Agency.

**SECTION XII**

File: SAFETY

**Safety and Crime****SAFETY**

Public transportation safety data, collected by the Federal Transit Administration since 1979, include incidents, fatalities, and injuries that do NOT involve criminal activity. However, these data for many transit agencies were incomplete or inaccurate because those systems were not in full compliance with the FTA reporting requirements. In addition, it has been impossible to separate out patron-only data for the various types of safety incidents because data reported combined patrons, employees, and other persons (e.g., automobile and other vehicle occupants, pedestrians, bicyclists). Only total patron fatalities data (which are zero 98% of the time) have been reasonably reliable.

In 1995, the FTA improved its efforts to ensure compliance and revised its reporting form to report patron, employee, and other data separately for each type of incident. By 1996 most of the reporting problems had been eliminated.

Great caution must be exercised in attempting to compare public transportation safety data to airlines, automobiles, intercity buses, intercity trains, school buses, and other modes of transportation. Public transportation's operating environment is unique compared to these other modes due to the unique nature of public transportation vehicles, stations, and methods of operation and the huge numbers of people involved. Among the unique factors are:

- No other mode of transportation operates in an environment so fraught with the potential for injury—twice a day for three or four hours a continuing flow of thousands of people bump into and jostle one another in the constricted spaces of public transportation vehicles and on the platforms, ramps, stairways, escalators, and elevators of public transportation stations and transfer centers.
- Most public transportation buses and vans have built-in lifts or ramps to accommodate those using wheelchairs, walkers, and other mobility aids, while most rail, bus, and ferry stations have

stairways, escalators, or elevators. All these have a significant risk factor resulting in a disproportionate number of safety incidents. No other mode of travel depends on such equipment to any significant extent.

- Minor incidents with less than \$1,000 in transit agency property damage are **not** counted as safety incidents unless a fatality, injury, or fire occurs. Such incidents (e.g., a 2-mile-an-hour collision with a post or another vehicle resulting in a dented bumper or broken taillight) are so common that they are considered "wear-and-tear" incidents that have no safety implications.
- A fatality is defined as a death confirmed within 30 days of an incident. Lingered injuries resulting in death months later are counted as injuries due to the impracticality of attempting to keep track of such injuries over long periods of time.
- All fires are counted even if they involve something as minor as a cigarette burning in a trash can.
- Heavy and commuter rail stations act as magnets for those contemplating suicide, with about one-third of all deaths reported to the FTA for these two modes being suicides. In addition, there are numerous injuries to persons failing in suicide attempts as well as to public transportation vehicle occupants (due to sudden braking) and to others in the wrong place at the wrong time. These casualties inflate the public transportation total, but are obviously beyond the transit agency's control.
- Unlike other transportation modes, the vast majority (over 80%) of safety incidents occur in urbanized areas with over 1,000,000 population.

## CRIME

1995 was the first year crime (technically called security) data relating to incidents, fatalities, and injuries resulting from criminal or illegal activities were collected by the Federal Transit Administration. On the assumption that almost no crime exists in small communities, only data for transit agencies in or serving urbanized areas over 200,000 population are collected. Data are derived from the FBI Uniform Crime Reporting Program.

The data for 1995 were quite incomplete since many transit agencies had not complied with the prescribed definitions and procedures. Some larger transit agencies still have not solved these problems. Even when they do, there will be several inherent problems with the data that will make much of it non-comparable:

- Some acts (such as drunkenness and loitering) are crimes in some states, counties, and cities, but not in others.
- Arrests may be handled by police forces in any of the dozens or hundreds of cities, towns, villages, and counties that the agency serves. A few of the largest agencies also have their own police forces. Accurate totals will require accumulation of data from each of these police forces, most of which probably cannot readily separate public transportation crimes from all other crimes in their jurisdiction. Failure of even one jurisdiction with numerous crime incidents to provide data will make the agency's data grossly inaccurate.
- Minor offenses such as trespassing and drunkenness are only counted if an arrest is made. When a citation or warning is issued, it is as if the incident never occurred. There will probably be considerable variances among police forces regarding the proportion of arrests vs. citations.
- Some crimes such as homicides have a high enforcement priority. Crimes low on the priority list such as drunkenness tend to be under-reported since scarce police resources have to be allocated to the most serious crimes, and the public, understanding that, does not report many less-serious crimes.

TABLE 71

File: SAFESUMM

**Safety Summary by Mode, 1998 (NOT National Totals)**

CATEGORY	BUS (a)	COMMUTER RAIL	DEMAND RESPONSE (a)	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER (a)	TOTAL (a)
<b>INCIDENTS (excluding suicides)</b>								
Collisions	23,040	180	2,585	273	297	158	224	26,757
On-Vehicle (b)	16,290	945	1,154	2,296	483	340	190	21,698
Other (c)	3,086	1,345	99	10,904	333	43	74	15,884
Fires (d)	331	599	28	2,811	85	4	4	3,862
<b>FATALITIES (excluding suicides)</b>								
Patron Vehicle (e)	27	12	6	19	1	0	0	65
Patron Other (c)	8	8	0	8	0	0	1	25
Employees	1	4	2	2	0	0	0	9
Other Persons	87	58	2	2	14	0	1	164
<b>INJURIES (excluding suicide attempts)</b>								
Patron Vehicle (e)	28,518	520	1,517	1,668	622	400	236	33,481
Patron Other (c)	867	208	53	5,521	182	15	41	6,887
Employees	7,073	893	630	3,814	191	87	182	12,870
Other Persons	4,867	117	219	32	81	53	19	5,388

Source: Federal Transit Administration, National Transit Database. Data reported include about 450 of the largest transit agencies.

(a) Data may significantly understate total since data for systems not reported by the FTA comprises a significant portion of these modes.

(b) Includes derailments/vehicles going off road, and non-collision inside-vehicle, boarding/alighting, and in-vehicle fires.

(c) Includes non-collision parking facility, right-of-way, station/bus stop, and in-station and right-of-way fires.

(d) Excludes arson fires. Many fires are double-counted in the other three categories.

(e) Includes collision, derailments/vehicles going off road, and non-collision inside-vehicle, boarding/alighting, and in-vehicle fires.

TABLE 72

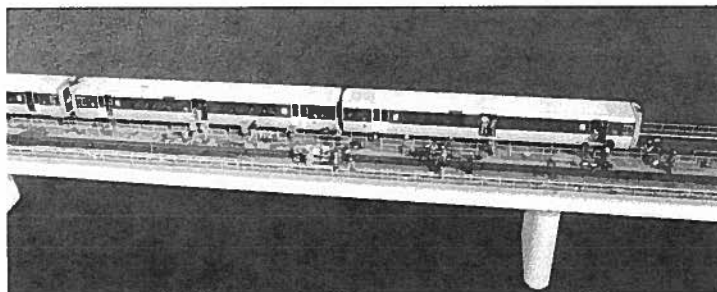
File: SAFEINCV

**Non-Suicide Vehicle-Related Safety Incidents by Mode (NOT National Totals)**

YEAR	BUS (a)	COMMUTER RAIL	DEMAND RESPONSE (a)	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER (a)	TOTAL (a)
1997	38,683	1,338	3,253	2,494	823	537	425	47,553
1998	39,330	1,125	3,739	2,569	780	498	414	48,455
1998 % of Total	81.2%	2.3%	7.7%	5.3%	1.6%	1.0%	0.9%	100.0%

Source: Federal Transit Administration, National Transit Database. Data reported include about 450 of the largest transit agencies.

(a) Data may significantly understate total since purchased service not reported by the FTA comprises a significant portion of these modes.



Transit systems routinely train for disasters and other unpreventable incidents. Drills such as this Washington Metropolitan Area Transit Authority evacuation of a train on a bridge over the Potomac River involve WMATA employees, fire and rescue personnel from both Washington, DC and Arlington, Virginia, and local power company employees.

TABLE 73

File: SAFEFATV

**Patron Non-Suicide Vehicle-Related Safety Fatalities by Mode (NOT National Totals)**

YEAR	BUS (a)	COMMUTER RAIL	DEMAND RESPONSE (a)	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER (a)	TOTAL (a)
1997	15	1	4	22	0	0	0	42
1998	27	12	6	19	1	0	0	65
1998 % of Total	41.6%	18.5%	9.2%	29.2%	1.5%	0.0%	0.0%	100.0%

Source: Federal Transit Administration, National Transit Database. Data reported include about 450 of the largest transit agencies.

(a) Data may significantly understate total since purchased service not reported by the FTA comprises a significant portion of these modes.

TABLE 74

**Patron Non-Suicide Vehicle-Related Safety Injuries by Mode (NOT National Totals)**

YEAR	BUS (a)	COMMUTER RAIL	DEMAND RESPONSE (a)	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER (a)	TOTAL (a)
1997	27,420	761	1,287	1,728	650	435	182	32,463
1998	28,518	520	1,517	1,668	622	400	236	33,481
1998 % of Total	85.2%	1.6%	4.5%	5.0%	1.8%	1.2%	0.7%	100.0%

Source: Federal Transit Administration, National Transit Database. Data reported include about 450 of the largest transit agencies.

(a) Data may significantly understate total since purchased service not reported by the FTA comprises a significant portion of these modes.

TABLE 75

File: NATSAFE

**Fatality Rates by Mode of Travel, 1995-1997 Average Deaths per 100 Million Passenger Miles**

TYPE OF VEHICLE	DEATH RATE
Automobiles	0.95
Intercity & commuter railroads	0.04
Airlines	0.04
Intercity buses	0.01
School buses	0.01
Transit buses	0.01
Heavy, light, & other rail vehicles	Not reported

Source: *Injury Facts*, National Safety Council, 1999.**Why is Public Transportation So Safe?**

The enviable safety record of public transportation is due to many factors, including:

- Public transportation vehicles are generally much larger and more sturdily built than personal automobiles or vans.
- People traveling on rail cars and those on busways are generally on separate rights-of-way. Only light rail, commuter rail, and cable cars encounter grade crossings, many of which are protected by crossing gates.
- Passengers generally sit 3-4 feet off the ground above the most common impact area.
- Public transportation vehicles operating on city streets are constantly starting and stopping and seldom travel more than 25 miles per hour, a speed that produces little damage.
- Operators of transit agency vehicles are highly trained to drive defensively and anticipate potential safety problems.

**Crime Incidents by Mode, 1998 (NOT National Totals)**

TYPE OF CRIME	BUS (a)	COMMUTER RAIL	DEMAND RESPONSE (a)	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER (a)	TOTAL (a)
VIOLENT CRIMES AGAINST PATRONS								
Homicide	3	0	0	6	3	0	0	12
Personal (c)	1,083	135	7	3,416	347	21	22	5,031
Property (d)	1,634	1,559	2	7,517	639	0	55	11,406
VIOLENT CRIMES AGAINST NON-PATRONS (EMPLOYEES AND OTHER PERSONS)								
Homicide	37	1	0	0	1	0	0	39
Personal (c)	724	79	11	131	45	22	2	1,014
Property (d)	901	932	22	524	130	102	38	2,649
OTHER CRIMES (b)								
Burglary & Arson	96	227	3	137	72	0	16	551
Disorderly Conduct (e)	4,521	1,525	5	8,227	1,408	122	89	15,897
Drunkenness (e)	3,046	156	34	7,340	1,844	207	16	12,643
Fare Evasion (e)	1,694	204	5	40,350	12,798	82	3,723	58,856
Vandalism (e)	3,656	778	10	1,067	947	63	50	6,571
Other (e)	4,747	3,651	32	4,944	1,191	97	265	14,927
TOTAL	22,142	9,247	131	73,659	19,425	716	4,276	129,596

Source: Federal Transit Administration, National Transit Database. Data reported include about 450 of the largest transit agencies.

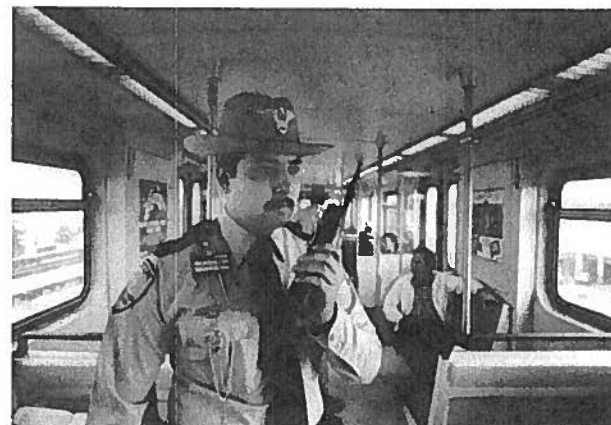
(a) Data may significantly understate total since data for systems not reported and data for urbanized areas under 200,000 population not reported by the FTA comprises a significant portion of these modes.

(b) Data include patrons and non-patrons. Patron-only data not collected.

(c) Includes forcible rape, robbery, aggravated assault.

(d) Includes larceny/theft and motor vehicle theft.

(e) Only includes incidents where arrests were made; when a citation is issued, the incident is not reported.



Most large transit systems have their own police forces, or contract with private security firms. Most smaller systems depend on local police and sheriff's departments for security. This officer is at the Miami-Dade Transit Agency in Miami, Florida.



Modern rail station design minimizes crime by eliminating columns, dark corners, and other areas where criminals can lurk. This Washington Metropolitan Area Transit Authority heavy rail station illustrates such design.

**Violent Crime Incidents by Mode (NOT National Totals) (b)**

YEAR	BUS (a)	COMMUTER RAIL	DEMAND RESPONSE (a)	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER (a)	TOTAL (a)
1997	5,425	3,178	62	15,771	1,081	858	134	26,509
1998	4,478	2,933	45	11,731	1,237	145	133	20,702
1998 % of Total	21.6%	14.2%	0.2%	56.7%	6.0%	0.7%	0.6%	100.0%

Source: Federal Transit Administration, National Transit Database. Data reported include about 450 of the largest transit agencies.

(a) Data may significantly understate total since data for systems not reported and data for urbanized areas under 200,000 population not reported by the FTA comprises a significant portion of these modes.

(b) Includes homicide, forcible rape, robbery, aggravated assault, larceny/theft, motor vehicle theft, burglary, and arson.

TABLE 78

**Non-Violent Crime Incidents by Mode (NOT National Totals) (b)**

YEAR	BUS (a)	COMMUTER RAIL	DEMAND RESPONSE (a)	HEAVY RAIL	LIGHT RAIL	TROLLEY BUS	OTHER (a)	TOTAL (a)
1997	25,615	7,688	148	69,022	6,615	958	4,564	114,610
1998	17,664	6,314	86	61,928	18,188	571	4,143	108,894
1998 % of Total	16.2%	5.8%	0.1%	56.9%	16.7%	0.5%	3.8%	100.0%

Source: Federal Transit Administration, National Transit Database. Data reported include about 450 of the largest transit agencies.

(a) Data may significantly understate total since data for systems not reported and data for urbanized areas under 200,000 population not reported by the FTA comprises a significant portion of these modes.

(b) Only includes incidents where arrests were made; when a citation is issued, the incident is not reported.

## SECTION XIII

## Mode Summaries

*Lymmo, a special circulator bus service on reserved lanes in the central business district of Orlando, Florida, is operated by LYNX, the Central Florida Regional Transportation Authority.*



This section contains data presented elsewhere in this book arranged by mode. Also included are modal information on average fare per unlinked trip, operating expense object classes and functions, average weekday unlinked passenger trips, vehicles, employees, and energy consumption.

Lists of the 35 largest bus agencies, ferryboat agencies, and trolleybus agencies are provided, as are lists of commuter rail, heavy rail, light rail, and other rail agencies with the number of stations of each.

"Other Rail" includes aerial tramway, automated guideway transit, cable car, inclined plane, and monorail.



TABLE 79

File: BUSSUM

**Bus National Total Data, Fiscal Year 1998**

Agencies, Number of	2,262
Fares Collected, Passenger	\$3,703,134,000
Fare per Unlinked Trip, Average	\$0.69
Expense, Operating Total	\$11,048,374,000
Salaries and Wages	\$5,263,440,000
Fringe Benefits	\$2,675,220,000
Services	\$654,970,000
Fuel and Lubricants	\$361,163,000
Materials and Supplies, Other	\$794,948,000
Utilities	\$131,977,000
Casualty and Liability	\$267,627,000
Purchased Transportation	\$908,267,000
Other	(\$9,238,000)
Vehicle Operations	\$5,727,368,000
Vehicle Maintenance	\$2,157,095,000
Non-vehicle Maintenance	\$441,469,000
General Administration	\$1,814,175,000
Expense, Capital Total	\$2,371,382,000
Rolling Stock	\$1,272,805,000
Facilities	\$736,673,000
Other	\$361,904,000
Trips, Unlinked Passenger, Average Weekday	18,256,000
Trips, Unlinked Passenger, Annual	5,387,138,000
Miles, Passenger	20,602,570,000
Trip Length, Average (miles)	3.8
Miles, Vehicle Total	2,291,412,000
Miles, Vehicle Revenue	2,009,009,000
Hours, Vehicle Total	171,601,000
Hours, Vehicle Revenue	154,380,000
Speed, Vehicle in Revenue Service, Average (m.p.h.)	13.0
Vehicles, Total	78,373
Active	74,641
Age, Average (years)	8.5
Air-conditioned	88.8%
Fareboxes, registering	92.2%
Radios, 2-way	97.8%
Lifts, Wheelchair	71.2%
Ramps, Wheelchair	5.4%
Accessible Only via Stations	0.0%
Power Source, Diesel or Gasoline	92.5%
Power Source, Alternative	7.5%
Rehabilitated	10.9%
Employees, Operating	193,542
Vehicle Operations	133,786
Vehicle Maintenance	33,886
Non-vehicle Maintenance	6,269
General Administration	19,601
Employees, Capital	2,272
Diesel Fuel Consumed (gallons)	553,851,000
Other Fuel Consumed (gallons)	37,744,000
Electricity Consumed (kwh)	354,000

TABLE 80

File: 35MBAG

**35 Largest Bus Transit Agencies, Fiscal Year 1998,  
Ranked by Number of Unlinked Passenger Trips**

RANK	TRANSIT AGENCY	URBANIZED AREA
1	Metropolitan Transportation Authority (includes MTA New York City Transit and MTA Long Island Bus, and MTA Metro-North Railroad)	New York, NY
2	Los Angeles County Metropolitan Transp Authority	Los Angeles, CA
3	Regional Transportation Authority (includes Chicago Transit Authority and PACE Suburban Bus)	Chicago, IL
4	New Jersey Transit Corporation	New York, NY
5	Southeastern Pennsylvania Transp Authority	Philadelphia, PA
6	Washington Metropolitan Area Transportation Auth	Washington, DC
7	Massachusetts Bay Transportation Authority	Boston, MA
8	New York City Department of Transportation	New York, NY
9	Metropolitan Transit Authority of Harris County	Houston, TX
10	San Francisco Municipal Railway	San Francisco, CA
11	Mass Transit Administration, Maryland Dept of Trp	Baltimore, MD
12	Metropolitan Atlanta Rapid Transit Authority	Atlanta, GA
13	City and County of Honolulu Dept of Trp Services	Honolulu, HI
14	Milwaukee County Department of Transportation	Milwaukee, WI
15	Regional Transportation District	Denver, CO
16	Tri-County Metropolitan Transp District of Oregon	Portland, OR
17	Metro Transit	Minneapolis, MN
18	Port Authority of Allegheny County	Pittsburgh, PA
19	King County Department of Transportation	Seattle, WA
20	Alameda-Contra Costa Transit District	San Francisco, CA
21	Miami-Dade Transit Agency	Miami, FL
22	Regional Transit Authority of Orleans and Jefferson	New Orleans, LA
23	City of Detroit Department of Transportation	Detroit, MI
24	Greater Cleveland Regional Transit Authority	Cleveland, OH
25	Orange County Transportation Authority	Los Angeles, CA
26	Dallas Area Rapid Transit Authority	Dallas, TX
27	Santa Clara Valley Transportation Authority	San Jose, CA
28	Regional Transportation Comm of Clark County	Las Vegas, NV
29	VIA Metropolitan Transit	San Antonio, TX
30	San Diego Metropolitan Transit Development Board ( includes San Diego Transit Corporation)	San Diego, CA
31	Bi-State Development Agency	Saint Louis, MO
32	City of Phoenix Public Transit Department	Phoenix, AZ
33	Connecticut Transit	Hartford, CT
34	Westchester County Transit System	New York, NY
35	Capital Metropolitan Transportation Authority	Austin, TX

TABLE 81

File: CRSUM

## Commuter Rail National Total Data, Fiscal Year 1998

Agencies, Number of	18
Fares Collected, Passenger	\$1,255,186,000
Fare per Unlinked Trip, Average	\$3.28
Expense, Operating Total	\$2,364,744,000
Salaries and Wages	\$1,010,611,000
Fringe Benefits	\$637,929,000
Services	\$165,929,000
Fuel and Lubricants	\$34,176,000
Materials and Supplies, Other	\$186,983,000
Utilities	\$159,326,000
Casualty and Liability	\$72,607,000
Purchased Transportation	\$170,196,000
Other	(\$73,013,000)
Vehicle Operations	\$881,342,000
Vehicle Maintenance	\$539,961,000
Non-vehicle Maintenance	\$387,904,000
General Administration	\$385,341,000
Expense, Capital Total	\$1,379,683,000
Rolling Stock	\$351,271,000
Facilities	\$924,012,000
Other	\$104,400,000
Trips, Unlinked Passenger, Average Weekday	1,349,000
Trips, Unlinked Passenger, Annual	382,176,000
Miles, Passenger	8,715,527,000
Trip Length, Average (miles)	22.8
Miles, Vehicle Total	264,900,000
Miles, Vehicle Revenue	241,925,000
Hours, Vehicle Total	8,488,000
Hours, Vehicle Revenue	7,613,000
Speed, Vehicle in Revenue Service, Average (m.p.h.)	31.8
Vehicles, Total (Passenger Cars Only)	5,112
Active	4,907
Age, Average (years)	21.5
Air-conditioned	100.0%
Fareboxes, registering	0.0%
Radios, 2-way	62.5%
Lifts, Wheelchair	3.9%
Ramps, Wheelchair	13.0%
Accessible Only via Stations	45.6%
Power Source, Diesel or Gasoline	0.3%
Power Source, Alternative	48.0%
Rehabilitated	37.4%
Employees, Operating	22,399
Vehicle Operations	8,029
Vehicle Maintenance	6,509
Non-vehicle Maintenance	5,260
General Administration	2,601
Employees, Capital	2,518
Diesel Fuel Consumed (gallons)	77,804,000
Other Fuel Consumed (gallons)	0
Electricity Consumed (kwh)	1,480,456,000

TABLE 82

File: CRAGENCY

## Commuter Rail Transit Agencies (a)

PRIMARY CITY SERVED	TRANSIT AGENCY	DIRECT- IONAL ROUTE MILES	TRACK MILES	CROSS- INGS	STA- TIONS	ACCESS- IBLE STA- TIONS (b)
Baltimore, MD	Mass Transit Administration, Maryland DOT	373.4	455.1	40	40	19
Boston, MA	Massachusetts Bay Transportation Authority	661.8	535.4	0	117	67
Chicago, IL	Northeast Illinois Regional Commuter Rail Corp	939.4	1,145.9	534	226	104
Chicago, IL	Northern Indiana Commuter Transp District	151.0	101.9	118	18	7
Dallas, TX	Dallas Area Rapid Transit Authority	13.7	17.6	13	3	3
Los Angeles, CA	Southern California Regional Rail Authority	768.6	575.4	400	46	46
Miami, FL	Tri-County Commuter Rail Authority	142.4	146.3	73	19	19
New Haven, CT	Connecticut Department of Transportation	101.2	103.9	3	8	8
New York, NY	Metropolitan Transp Auth Long Island Rail Road	638.2	701.1	401	124	88
New York, NY	Metropolitan Transp Auth Metro-North Railroad	535.4	800.8	107	106	20
New York, NY	New Jersey Transit Corporation	975.2	988.5	329	158	41
Philadelphia, PA	Pennsylvania Department of Transportation	144.0	144.0	7	14	3
Philadelphia, PA	Southeastern Pennsylvania Transportation Auth	443.4	695.4	116	177	30
San Diego, CA	North San Diego County Transit Devel Board	82.2	108.0	20	8	8
San Francisco, CA	Peninsula Corridor Joint Powers Board	153.6	129.5	52	34	14
San Jose, CA	Altamont Commuter Express	172.0	112.7	96	9	9
Syracuse, NY	ON TRACK	3.5	3.5	NA	3	3
Washington, DC	Virginia Railway Express	175.0	190.0	23	18	18
TOTAL		6,474.0	6,955.0	NA	1,125	504

(a) Excludes commuter-type services operated independently by AMTRAK.

(b) Some stations are wheelchair accessible, but may not comply with other provisions of the Americans with Disabilities Act.  
Source: Federal Transit Administration National Transit Database plus other sources.

TABLE 83

File: DRSUM

**Demand Response National Total Data, Fiscal Year 1998**

Agencies, Number of	5,254
Fares Collected, Passenger	\$152,543,000
Fare per Unlinked Trip, Average	\$1.60
Expense, Operating Total	\$1,273,095,000
Salaries and Wages	\$262,145,000
Fringe Benefits	\$102,055,000
Services	\$37,661,000
Fuel and Lubricants	\$20,578,000
Materials and Supplies, Other	\$28,975,000
Utilities	\$7,863,000
Casualty and Liability	\$19,778,000
Purchased Transportation	\$783,221,000
Other	\$10,819,000
Vehicle Operations	\$306,760,000
Vehicle Maintenance	\$78,824,000
Non-vehicle Maintenance	\$16,049,000
General Administration	\$88,241,000
Expense, Capital Total	\$82,285,000
Rolling Stock	\$60,146,000
Facilities	\$10,076,000
Other	\$12,063,000
Trips, Unlinked Passenger, Average Weekday	340,000
Trips, Unlinked Passenger, Annual	95,557,000
Miles, Passenger	1,011,733,000
Trip Length, Average (miles)	10.6
Miles, Vehicle Total	697,712,000
Miles, Vehicle Revenue	604,952,000
Hours, Vehicle Total	42,045,000
Hours, Vehicle Revenue	36,721,000
Speed, Vehicle in Revenue Service, Average (m.p.h.)	16.5
Vehicles, Total	34,356
Active	32,899
Age, Average (years)	3.4
Air-conditioned	95.8%
Fareboxes, registering	14.9%
Radios, 2-way	95.2%
Lifts, Wheelchair	82.5%
Ramps, Wheelchair	9.9%
Accessible Only via Stations	0.0%
Power Source, Diesel or Gasoline	88.6%
Power Source, Alternative	11.4%
Rehabilitated	0.5%
Employees, Operating	47,509
Vehicle Operations	38,251
Vehicle Maintenance	3,769
Non-vehicle Maintenance	813
General Administration	4,676
Employees, Capital	37
Diesel Fuel Consumed (gallons)	44,304,000
Other Fuel Consumed (gallons)	40,216,000
Electricity Consumed (kwh)	0

TABLE 84

File: FBSUM

**Ferryboat National Total Data, Fiscal Year 1998**

Agencies, Number of	28
Fares Collected, Passenger	\$68,764,000
Fare per Unlinked Trip, Average	\$1.32
Expense, Operating Total	\$267,037,000
Salaries and Wages	\$110,216,000
Fringe Benefits	\$26,960,000
Services	\$6,797,000
Fuel and Lubricants	\$15,613,000
Materials and Supplies, Other	\$26,237,000
Utilities	\$2,192,000
Casualty and Liability	\$2,767,000
Purchased Transportation	\$73,560,000
Other	\$2,695,000
Vehicle Operations	\$144,226,000
Vehicle Maintenance	\$26,028,000
Non-vehicle Maintenance	\$10,963,000
General Administration	\$12,260,000
Expense, Capital Total	\$18,735,000
Rolling Stock	\$11,843,000
Facilities	\$6,875,000
Other	\$17,000
Trips, Unlinked Passenger, Average Weekday	168,000
Trips, Unlinked Passenger, Annual	52,268,000
Miles, Passenger	345,194,000
Trip Length, Average (miles)	6.0
Miles, Vehicle Total	2,404,000
Miles, Vehicle Revenue	2,390,000
Hours, Vehicle Total	301,000
Hours, Vehicle Revenue	290,000
Speed, Vehicle in Revenue Service, Average (m.p.h.)	8.3
Vehicles, Total	124
Active	124
Age, Average (years)	26.3
Air-conditioned	0.0%
Fareboxes, registering	0.0%
Radios, 2-way	10.2%
Lifts, Wheelchair	NA
Ramps, Wheelchair	NA
Accessible Only via Stations	NA
Power Source, Diesel or Gasoline	65.3%
Power Source, Alternative	32.6%
Rehabilitated	0.0%
Employees, Operating	3,433
Vehicle Operations	2,780
Vehicle Maintenance	287
Non-vehicle Maintenance	188
General Administration	178
Employees, Capital	199
Diesel Fuel Consumed (gallons)	23,831,000
Other Fuel Consumed (gallons)	50,000
Electricity Consumed (kwh)	0

TABLE 85

File: FBAGENCY

**Ferryboat Transit Agencies (a)**

PRIMARY CITY SERVED	TRANSIT AGENCY
Balboa, CA	Balboa Island Ferry
Boston, MA	Massachusetts Bay Transportation Authority
Bremerton, WA	Kitsap Transit
Cincinnati, OH	Anderson Ferry Boat
Galveston, TX	Texas Department of Transportation
Hartford, CT	Connecticut Department of Transportation
Houston, TX	Texas Department of Transportation
Jacksonville, FL	Florida Department of Transportation
Long Beach, CA	Long Beach Transit
New Orleans, LA	Louisiana Dept of Transportation and Development
New York, NY	New York City Department of Transportation
New York, NY	Port Authority of New York & New Jersey
Norfolk, VA	Transportation District Commission of Hampton Roads
Philadelphia, PA	Riverbus
Port Huron, MI	Blue Water Area Transportation Commission
Port Townsend, WA	Washington State Department of Transportation
Portland, ME	Casco Bay Island Transit District
San Diego, CA	Harbor Excursion
San Francisco, CA	Alameda-Oakland Ferry Service
San Francisco, CA	Angel Island-Tiburon Ferry Company
San Francisco, CA	Golden Gate Bridge, Highway & Transportation Dist
San Francisco, CA	Harbor Bay Maritime
San Francisco, CA	Red & White Fleet
San Francisco, CA	Vallejo Transit
San Juan, PR	Puerto Rico Ports Authority
Seattle, WA	Washington State Department of Transportation
Tacoma, WA	Pierce County Ferry Operations
Tacoma, WA	Washington State Department of Transportation

(a) Excludes international, rural, island, and urban park ferries.

TABLE 87

File: TBSUM

**Trolleybus National Total Data, Fiscal Year 1998**

Agencies, Number of	5
Fares Collected, Passenger	\$55,256,000
Fare per Unlinked Trip, Average	\$0.47
Expense, Operating Total	\$146,491,000
Salaries and Wages	\$77,737,000
Fringe Benefits	\$45,980,000
Services	\$8,877,000
Fuel and Lubricants	\$179,000
Materials and Supplies, Other	\$9,410,000
Utilities	\$3,432,000
Casualty and Liability	\$3,650,000
Purchased Transportation	\$0
Other	(\$2,774,000)
Vehicle Operations	\$84,775,000
Vehicle Maintenance	\$25,422,000
Non-vehicle Maintenance	\$11,734,000
General Administration	\$24,560,000
Expense, Capital Total	\$67,025,000
Rolling Stock	\$23,112,000
Facilities	\$39,411,000
Other	\$4,502,000
Trips, Unlinked Passenger, Average Weekday	373,000
Trips, Unlinked Passenger, Annual	116,940,000
Miles, Passenger	181,717,000
Trip Length, Average (miles)	1.6
Miles, Vehicle Total	13,615,000
Miles, Vehicle Revenue	13,058,000
Hours, Vehicle Total	1,804,000
Hours, Vehicle Revenue	1,746,000
Speed, Vehicle in Revenue Service, Average (m.p.h.)	7.5
Vehicles, Total	965
Active	880
Age, Average (years)	16.2
Air-conditioned	11.6%
Fareboxes, registering	92.2%
Radios, 2-way	92.2%
Lifts, Wheelchair	51.0%
Ramps, Wheelchair	0.0%
Accessible Only via Stations	0.0%
Power Source, Diesel or Gasoline	0.0%
Power Source, Alternative	100.0%
Rehabilitated	0.0%
Employees, Operating	2,047
Vehicle Operations	1,457
Vehicle Maintenance	322
Non-vehicle Maintenance	122
General Administration	146
Employees, Capital	30
Diesel Fuel Consumed (gallons)	0
Other Fuel Consumed (gallons)	0
Electricity Consumed (kwh)	73,600,000

TABLE 86

**Trolleybus Transit Agencies**

PRIMARY CITY SERVED	TRANSIT AGENCY
Boston, MA	Massachusetts Bay Transportation Authority
Dayton, OH	Miami Valley Regional Transit Authority
Philadelphia, PA	Southeastern Pennsylvania Transp Authority
San Francisco, CA	San Francisco Municipal Railway
Seattle, WA	King County Department of Transportation

TABLE 88

File: HRSUM

## Heavy Rail National Total Data, Fiscal Year 1998

Agencies, Number of	14
Fares Collected, Passenger	\$2,297,366,000
Fare per Unlinked Trip, Average	\$0.96
Expense, Operating Total	\$3,529,622,000
Salaries and Wages	\$2,062,755,000
Fringe Benefits	\$1,083,873,000
Services	\$210,072,000
Fuel and Lubricants	\$2,412,000
Materials and Supplies, Other	\$294,453,000
Utilities	\$313,428,000
Casualty and Liability	\$79,795,000
Purchased Transportation	\$0
Other	(\$517,166,000)
Vehicle Operations	\$1,453,982,000
Vehicle Maintenance	\$608,846,000
Non-vehicle Maintenance	\$896,467,000
General Administration	\$570,327,000
Expense, Capital Total	\$2,350,765,000
Rolling Stock	\$444,520,000
Facilities	\$1,607,142,000
Other	\$299,103,000
Trips, Unlinked Passenger, Average Weekday	7,989,000
Trips, Unlinked Passenger, Annual	2,392,835,000
Miles, Passenger	12,284,382,000
Trip Length, Average (miles)	5.1
Miles, Vehicle Total	565,678,000
Miles, Vehicle Revenue	549,306,000
Hours, Vehicle Total	29,312,000
Hours, Vehicle Revenue	26,809,000
Speed, Vehicle in Revenue Service, Average (m.p.h.)	20.5
Vehicles, Total	10,420
Active	10,301
Age, Average (years)	21.9
Air-conditioned	97.9%
Fareboxes, registering	0.6%
Radios, 2-way	28.6%
Lifts, Wheelchair	0.0%
Ramps, Wheelchair	0.0%
Accessible Only via Stations	98.3%
Power Source, Diesel or Gasoline	0.0%
Power Source, Alternative	100.0%
Rehabilitated	47.3%
Employees, Operating	45,155
Vehicle Operations	19,492
Vehicle Maintenance	7,902
Non-vehicle Maintenance	13,697
General Administration	4,064
Employees, Capital	4,877
Diesel Fuel Consumed (gallons)	0
Other Fuel Consumed (gallons)	0
Electricity Consumed (kwh)	3,279,706,000

TABLE 89

File: HRAGENCY

## Heavy Rail Transit Agencies

PRIMARY CITY SERVED	TRANSIT AGENCY	DIRECT- IONAL ROUTE MILES	TRACK MILES	CROSS- INGS	STA- TIONS	ACCESS- IBLE STA- TIONS
Atlanta, GA	Metropolitan Atlanta Rapid Transit Authority	92.2	115.0	0	36	36
Baltimore, MD	Mass Transit Administration, Maryland DOT	29.4	34.4	0	14	14
Boston, MA	Massachusetts Bay Transportation Authority	75.8	107.7	0	53	33
Chicago, IL	Chicago Transit Authority	206.3	287.8	25	141	43 (a)
Cleveland, OH	Greater Cleveland Regional Transit Authority	38.2	41.9	0	18	6
Los Angeles, CA	Los Angeles County Metropolitan Transp Auth	19.6	21.8	0	13	13
Miami, FL	Metro-Dade Transit Agency	42.2	53.2	0	21	21 (a)
New York, NY	Metropolitan Transp Auth New York City Transit	492.9	834.2	0	468	30
New York, NY	Metropolitan Transp Auth Staten Island Railway	28.6	32.5	0	22	2
New York, NY	Port Authority of New York & New Jersey	28.6	43.1	2	13	6
Philadelphia, PA	Port Authority Transit Corp of PA & New Jersey	31.5	38.4	0	13	5
Philadelphia, PA	Southeastern Pennsylvania Transportation Auth	76.1	102.3	0	76	4
San Francisco, CA	San Francisco Bay Area Rapid Transit District	190.1	246.3	0	39	39
Washington, DC	Washington Metropolitan Area Transit Authority	193.5	209.7	0	78	78
TOTAL		1,545.0	2,168.3	27	1,008	330

(a) Some stations are wheelchair accessible, but may not comply with other provisions of the Americans with Disabilities Act.  
Source: Federal Transit Administration National Transit Database plus other sources.

TABLE 90

File: LRSUM

## Light Rail National Total Data, Fiscal Year 1998

Agencies, Number of	23
Fares Collected, Passenger	\$149,669,000
Fare per Unlinked Trip, Average	\$0.55
Expense, Operating Total	\$502,467,000
Salaries and Wages	\$243,942,000
Fringe Benefits	\$130,989,000
Services	\$48,214,000
Fuel and Lubricants	\$443,000
Materials and Supplies, Other	\$35,896,000
Utilities	\$40,441,000
Casualty and Liability	\$11,830,000
Purchased Transportation	\$0
Other	(\$9,288,000)
Vehicle Operations	\$209,666,000
Vehicle Maintenance	\$113,611,000
Non-vehicle Maintenance	\$92,124,000
General Administration	\$87,066,000
Expense, Capital Total	\$840,615,000
Rolling Stock	\$188,715,000
Facilities	\$612,001,000
Other	\$39,899,000
Trips, Unlinked Passenger, Average Weekday	871,000
Trips, Unlinked Passenger, Annual	274,621,000
Miles, Passenger	1,117,837,000
Trip Length, Average (miles)	4.1
Miles, Vehicle Total	43,435,000
Miles, Vehicle Revenue	42,456,000
Hours, Vehicle Total	2,920,000
Hours, Vehicle Revenue	2,742,000
Speed, Vehicle in Revenue Service, Average (m.p.h.)	15.5
Vehicles, Total	1,438
Active	1,205
Age, Average (years)	20.2
Air-conditioned	71.8%
Fareboxes, registering	49.1%
Radios, 2-way	76.4%
Lifts, Wheelchair	8.7%
Ramps, Wheelchair	1.2%
Accessible Only via Stations	64.2%
Power Source, Diesel or Gasoline	0.0%
Power Source, Alternative	100.0%
Rehabilitated	25.5%
Employees, Operating	6,048
Vehicle Operations	2,610
Vehicle Maintenance	1,483
Non-vehicle Maintenance	1,289
General Administration	666
Employees, Capital	408
Diesel Fuel Consumed (gallons)	0
Other Fuel Consumed (gallons)	0
Electricity Consumed (kwh)	383,350,000

TABLE 91

## Light Rail Transit Agencies

File: LRAGENCY

PRIMARY CITY SERVED	TRANSIT AGENCY	DIRECT- IONAL ROUTE MILES	TRACK MILES	CROSS- INGS	STA- TIONS (a)	ACCESS- IBLE STATIONS (a) (b)
Baltimore, MD	Mass Transit Administration, Maryland DOT	71.2	51.5	52	32	32
Boston, MA	Massachusetts Bay Transportation Authority	55.9	77.5	56	95	9
Buffalo, NY	Niagara Frontier Transit Metro System	12.4	14.1	8	14	7
Cleveland, OH	Greater Cleveland Regional Transit Authority	30.8	33.0	22	33	5
Dallas, TX	Dallas Area Rapid Transit Authority	40.8	46.7	66	20	20
Dallas, TX	McKinney Avenue Transit Authority	2.8	2.8	NA	0	0
Denver, CO	Regional Transportation District	10.6	10.3	34	15	15
Detroit, MI	Detroit Downtown Trolley	1.2	1.2	NA	0	0
Fort Worth, TX	Tandy Center Subway	1.0	1.0	0	2	0
Galveston, TX	Island Transit	4.9	4.9	57	3	3
Los Angeles, CA	Los Angeles County Metropolitan Transp Auth	82.4	85.8	77	36	36
Memphis, TN	Memphis Area Transit Authority	6.3	6.6	40	27	27
New Orleans, LA	Regional Transit Auth of Orleans & Jefferson	16.0	13.7	124	9	9
Newark, NJ	New Jersey Transit Corporation	8.3	8.3	1	11	0
Philadelphia, PA	Southeastern Pennsylvania Transportation Auth	69.3	171.0	1,702	64	0
Pittsburgh, PA	Port Authority of Allegheny County	38.1	46.5	42	13	13
Portland, OR	Tri-County Metropolitan Transp Dist of Oregon	64.9	71.9	111	47	46
Sacramento, CA	Sacramento Regional Transit District	36.2	34.0	86	28	0
Saint Louis, MO	Bi-State Development Agency	34.0	36.2	12	18	18
Salt Lake City, UT	Utah Transit Authority	30.0	29.8	46	16	16
San Diego, CA	San Diego Trolley	48.3	48.3	70	49	49
San Francisco, CA	San Francisco Municipal Railway	49.7	54.2	191	11	0
San Jose, CA	Santa Clara Valley Transportation Authority	55.4	56.3	NA	46	21
Seattle, WA	King County Department of Transportation	3.7	2.1	14	14	14
TOTAL		774.2	907.7	NA	601	340

(a) Many light rail lines stop in the middle of the street and do not have stations.

(b) Some stations are wheelchair accessible, but may not comply with other provisions of the Americans with Disabilities Act.  
Source: Federal Transit Administration National Transit Database plus other sources.

TABLE 92

File: ORSUM

## Other Rail National Total Data, Fiscal Year 1998

Agencies, Number of	14
Fares Collected, Passenger	\$18,212,000
Fare per Unlinked Trip, Average	\$0.62
Expense, Operating Total	\$87,606,000
Salaries and Wages	\$40,346,000
Fringe Benefits	\$22,233,000
Services	\$9,936,000
Fuel and Lubricants	\$57,000
Materials and Supplies, Other	\$3,143,000
Utilities	\$7,269,000
Casualty and Liability	\$3,723,000
Purchased Transportation	\$354,000
Other	\$545,000
Vehicle Operations	\$36,322,000
Vehicle Maintenance	\$10,806,000
Non-vehicle Maintenance	\$20,905,000
General Administration	\$19,219,000
Expense, Capital Total	\$20,995,000
Rolling Stock	\$6,279,000
Facilities	\$12,211,000
Other	\$2,505,000
Trips, Unlinked Passenger, Average Weekday	88,000
Trips, Unlinked Passenger, Annual	29,330,000
Miles, Passenger	28,959,000
Trip Length, Average (miles)	1.0
Miles, Vehicle Total	2,866,000
Miles, Vehicle Revenue	2,802,000
Hours, Vehicle Total	430,000
Hours, Vehicle Revenue	422,000
Speed, Vehicle in Revenue Service, Average (m.p.h.)	6.6
Vehicles, Total	189
Active	178
Age, Average (years)	51.1
Air-conditioned	50.5%
Fareboxes, registering	0.0%
Radios, 2-way	52.5%
Lifts, Wheelchair	1.0%
Ramps, Wheelchair	0.0%
Accessible Only via Stations	52.5%
Power Source, Diesel or Gasoline	0.0%
Power Source, Alternative	100.0%
Rehabilitated	9.1%
Employees, Operating	993
Vehicle Operations	443
Vehicle Maintenance	212
Non-vehicle Maintenance	248
General Administration	90
Employees, Capital	4
Diesel Fuel Consumed (gallons)	0
Other Fuel Consumed (gallons)	0
Electricity Consumed (kwh)	32,098,000

TABLE 93

File: ORAGENCY

## Other Rail Transit Agencies

RAIL TYPE (a)	PRIMARY CITY SERVED	TRANSIT AGENCY	DIRECTIONAL ROUTE MILES	TRACK MILES	CROSSINGS	STATIONS	ACCESSIBLE STATIONS
AG	Detroit, MI	Detroit Transportation Corporation	2.9	3.0	0	13	13
AG	Jacksonville, FL	Jacksonville Transportation Authority	2.1	1.1	0	6	6
AG	Las Colinas, TX	Las Colinas Area Rapid Transit	2.8	1.4	0	4	4
AG	Miami, FL	Metro-Dade Transit Agency	8.5	9.4	0	21	21 (c)
AG	Morgantown, WV	West Virginia University	7.2	8.7	0	5	0
CC	San Francisco, CA	San Francisco Municipal Railway	8.8	8.8	NA	0 (b)	0 (b)
IP	Chattanooga, TN	Chattanooga Area Regional Transp Auth	1.9	1.0	0	2	2
IP	Dubuque, IA	Fenelon Place Elevator	0.1	0.1	0	2	0
IP	Johnstown, PA	Cambria County Transit Authority	0.2	0.2	0	2	0
IP	Los Angeles, CA	Angels Flight Railway	0.1	0.1	0	2	2
IP	Pittsburgh, PA	Port Authority of Allegheny County	0.5	0.5	0	4	3
MO	Las Vegas, NV	Las Vegas Monorail	1.6	1.6	0	2	2
MO	Seattle, WA	City of Seattle Monorail	1.1	1.1	0	2	0
TR	New York, NY	Roosevelt Island Operating Corporation	1.2	0.6	0	2	0
	TOTAL		39.0	37.6	NA	67	53

(a) AG = automated guideway transit, CC = cable car, IP = inclined plane, MO = monorail, TR = aerial tramway

(b) Cable cars stop in the middle of the street and do not have stations.

(c) Stations are wheelchair accessible, but may not comply with other provisions of the Americans with Disabilities Act. Source: Federal Transit Administration National Transit Database plus other sources.



TABLE 94

File: VPSUM

**Vanpool National Total Data, Fiscal Year 1998**

Agencies, Number of	58
Fares Collected, Passenger	\$16,597,000
Fare per Unlinked Trip, Average	\$1.62
Expense, Operating Total	\$29,699,000
Salaries and Wages	\$6,509,000
Fringe Benefits	\$2,824,000
Services	\$4,761,000
Fuel and Lubricants	\$2,354,000
Materials and Supplies, Other	\$1,100,000
Utilities	\$276,000
Casualty and Liability	\$2,175,000
Purchased Transportation	\$8,792,000
Other	\$908,000
Vehicle Operations	\$4,627,000
Vehicle Maintenance	\$3,989,000
Non-vehicle Maintenance	\$379,000
General Administration	\$11,912,000
Expense, Capital Total	\$11,874,000
Rolling Stock	\$10,267,000
Facilities	\$1,590,000
Other	\$17,000
Trips, Unlinked Passenger, Average Weekday	43,000
Trips, Unlinked Passenger, Annual	10,252,000
Miles, Passenger	367,651,000
Trip Length, Average (miles)	35.9
Miles, Vehicle Total	50,127,000
Miles, Vehicle Revenue	47,841,000
Hours, Vehicle Total	1,367,000
Hours, Vehicle Revenue	1,299,000
Speed, Vehicle in Revenue Service, Average (m.p.h.)	36.8
Vehicles, Total	3,858
Active	3,835
Age, Average (years)	3.0
Air-conditioned	99.7%
Fareboxes, registering	0.0%
Radios, 2-way	0.0%
Lifts, Wheelchair	1.9%
Ramps, Wheelchair	0.0%
Accessible Only via Stations	0.0%
Power Source, Diesel or Gasoline	100.0%
Power Source, Alternative	0.0%
Rehabilitated	0.0%
Employees, Operating	253
Vehicle Operations	36
Vehicle Maintenance	42
Non-vehicle Maintenance	8
General Administration	167
Employees, Capital	4
Diesel Fuel Consumed (gallons)	291,000
Other Fuel Consumed (gallons)	3,310,000
Electricity Consumed (kwh)	0

**SECTION XIV**

File: TRVSAUTO

**Public Transportation  
vs. Automobile Costs**

*Numerous people use public transportation to save money, including social and recreational riders such as this family boarding the San Diego Trolley in California.*

**Highlights. . . . .**

- Typical cost to a user to ride public transportation for a year ranges from \$189 to \$2,077, depending on base fare, surcharges, and discounts available.
- Typical single-occupant personal vehicle driving costs range from \$4,826 per year for a small car to \$9,685 per year for a large car, depending on mileage.
- \$2 to \$3 billion per year is paid by society for highways and motor vehicle use, but only 53% to 68% of that amount is paid by users.

TABLE 95

File: TRANCOST

## Examples of Cost of Riding Public Transportation

COST	\$0.50 BASE FARE	\$0.75 BASE FARE	\$1.00 BASE FARE	\$1.25 BASE FARE	\$1.50 BASE FARE
BASE ANNUAL COST (472 TRIPS)					
No discounted fare media used	236.00	354.00	472.00	590.00	708.00
Monthly passes with 20% discount used	188.80	283.20	377.60	472.00	566.40
ADDITIONAL ANNUAL COSTS (including 20% discount)					
\$ .25 surcharge to transfer to another vehicle	94.40	94.40	94.40	94.40	94.40
\$2.00 zone or distance surcharge (\$.50 each for 4 zones)	755.20	755.20	755.20	755.20	755.20
\$ .50 peak-hour surcharge	188.80	188.80	188.80	188.80	188.80
\$ .25 surcharge for express service	94.40	94.40	94.40	94.40	94.40
\$2.00 per day parking surcharge	755.20	755.20	755.20	755.20	755.20
TOTAL ANNUAL COST (including 20% discount)					
Including transfer surcharge only	283.20	377.60	472.00	566.40	660.80
Including distance surcharge only	944.00	1,038.40	1,132.80	1,227.20	1,321.60
Including distance and peak-hour surcharges	1,132.80	1,227.20	1,321.60	1,416.00	1,510.40
Including distance and express surcharges	1,038.40	1,132.80	1,227.20	1,321.60	1,416.00
Including distance and parking surcharges	1,699.20	1,793.60	1,888.00	1,982.40	2,076.80

Annual number of trips estimate based on 365 days minus 52 Saturdays minus 52 Sundays minus 7 holidays minus 10 days vacation minus 8 days sick leave times 2 trips per day.

TABLE 96

File: DRIVCOST

## Automobile Driving Costs, 1999

CATEGORY	SMALL CAR	MIDSIZE CAR	LARGE CAR	SPORT UTILITY VEHICLE	VAN
OPERATING COSTS (cents per mile)					
Gasoline & Oil	4.8	5.7	6.3	6.5	5.8
Maintenance	3.1	3.4	3.5	3.7	3.5
Tires	1.3	1.6	2.2	1.4	1.3
SUBTOTAL	9.2	10.7	12.0	11.6	10.6
OWNERSHIP COSTS (cost per year)					
Insurance	1,012	885	1,012	1,316	972
License, registration, taxes	175	223	279	410	392
Depreciation	2,871	3,355	4,084	3,648	3,468
Finance charge	603	812	1,070	958	890
SUBTOTAL	4,661	5,275	6,445	6,332	5,722
DEPRECIATION FOR EXCESS MILEAGE (per 1000 miles over 15,000 miles annually)	151	161	168	129	157
TOTAL ANNUAL COST					
10,000 miles per year	4,826	5,526	7,036	6,416	5,783
15,000 miles per year	6,041	6,880	8,245	8,072	7,313
20,000 miles per year	7,256	8,219	9,685	9,297	8,628

Source: American Automobile Association and Runzheimer International, *Your Driving Costs, 1999 Edition*. Data for a popular model of each type listed with ownership costs based on 60,000 miles before replacement.

TABLE 97

File: PUBCOST

**Cost of Motor Vehicle Use in 1990, Billions of Dollars (a)**

	LOW	HIGH
<b>1. NATIONAL PAYMENTS</b>		
New Vehicles & financing costs	265.4	265.4
Gasoline & oil	124.0	124.0
Other automobile	167.3	179.8
Highway freight transportation	278.1	278.1
Less taxes also reported in item 2	-39.2	-39.2
TOTAL	795.6	808.2
<b>2. TAXES &amp; OTHER FEES PAID BY USERS</b>	70.3	72.3
<b>3. HIDDEN PRIVATE SECTOR EXPENDITURES</b>		
Free nonresidential parking (excluding taxes)	101.4	217.8
Other hidden costs	45.1	71.1
Less payments for parking	-57.9	-32.6
TOTAL	88.6	256.3
<b>4. PUBLIC EXPENDITURES FOR HIGHWAY INFRASTRUCTURE &amp; SERVICES</b>		
Highway construction, maintenance, services, and administration	76.5	76.5
Police	7.9	12.6
Fire	1.4	3.2
Court, judicial system, and corrections	6.5	13.5
Other public expenditures	10.6	30.1
TOTAL	103.0	135.9
Less taxes also reported in item 2	-70.3	-72.3
NET TOTAL	32.6	63.6
<b>5. NONMONETARY EXTERNAL COSTS</b>		
Congestion time costs on others	128.9	149.5
Pain & suffering inflicted on others due to accidents	132.1	138.8
Mortality & morbidity effects of air pollution	40.0	200.0
Other external costs	25.5	96.7
TOTAL	326.5	585.0
<b>6. NONMONETARY PERSONAL COSTS</b>		
Personal pain & suffering due to accidents	132.1	138.8
Travel time excluding external congestion & paid freight drivers	677.7	814.3
Other nonmonetary personal costs	40.9	97.9
TOTAL	850.7	1,051.0
<b>TOTAL COSTS OF MOTOR VEHICLE USE</b>	<b>2,164.3</b>	<b>2,836.4</b>
<b>PER CENT PAID BY USERS</b>		
Motor vehicle user fees (Item 2 total)		
divided by public expenditures (Item 4 total)	68.3%	53.2%

Source: *Saving Energy in U.S. Transportation*, Office of Technology Assessment, Congress of the United States, July, 1994.

**SECTION XV****Federal Legislation**
**History and Provisions of the Federal Transit Act  
And Other Major Laws Affecting Public Transportation**

File: FTA

In 1964 the United States Congress found that "the welfare and vitality of urban areas, the satisfactory movement of people and goods within such areas, and the effectiveness of housing, urban renewal, highway, and other federally aided programs were being jeopardized by the deterioration or inadequate provision of urban transportation facilities and services. . . ." In response, Congress enacted the Urban Mass Transportation Act of 1964, which provided federal aid to transit agencies for capital equipment purchases.

Continuing this commitment into its fourth decade, Congress enacted the Transportation Equity Act for the 21<sup>st</sup> Century (TEA 21). TEA 21 authorizes higher levels of funding for public transportation than any previous law, with the major portion of funding guaranteed to be included in budget amounts available for annual appropriations. It also continues and improves provisions of prior authorizing laws that are important to the continuing Federal commitment to improve public transportation service throughout America.

Landmarks in the evolution of the federal public transportation assistance program over the years include:

1961: The Housing and Urban Development Act of 1961 provided public transportation demonstration funding and mass transportation project loans.

1964: The Urban Mass Transportation Act of 1964 established the Urban Mass Transportation Administration (UMTA) within the Department of Housing and Urban Development to provide capital grants to transit agencies.

1966: The Urban Mass Transportation Act of 1966 expanded capital funding and allowed funding for research, planning, and training. UMTA

was moved to the newly created Department of Transportation (DOT).

1970: The Urban Mass Transportation Assistance Act of 1970 authorized a \$3.1 billion program of capital grants.

1973: The Federal-Aid Highway Act of 1973 increased the federally funded portion of public transportation capital projects from 66 2/3% to 80% and authorized the use of Federal-Aid Urban Systems highway funds and Interstate Highway Transfers for qualifying public transportation projects.

1974: The National Mass Transportation Assistance Act of 1974 increased authorizations for discretionary capital funding and created a formula grant program to allocate funding directly to urbanized areas that could be used for either operations or capital projects.

1978: The Federal Public Transportation Act of 1978, Title III of the Surface Transportation Assistance Act of 1978 divided the formula grant program into categorical programs that included capital grants for bus purchases and additional operating grants for fixed guideway systems and places outside of urbanized areas.

1982: The Federal Public Transportation Act of 1982, Title III of the Surface Transportation Assistance Act of 1982 provided that 1 cent of a 5 cents per gallon increase in the Highway Trust Fund tax on motor fuels would be placed into a Mass Transit Account for capital projects, increased the portion of all funding allocated through the formula grant program, and altered the formula grant program allocation formula to include public transportation service data as well as population data.

1984: The Tax Reform Act of 1984 allowed employees to receive a *de minimis*, up to \$15 per month, tax-free fringe benefit in the form of an employer-provided public transportation subsidy or pass.

1987: The Federal Mass Transportation Act of 1987, Title III of the Surface Transportation and Uniform Relocation Assistance Act of 1987 provided that a portion of the Highway Trust Fund Mass Transit Account would be allocated by formula for capital purposes.

1990: The Omnibus Budget Reconciliation Act of 1990 raised to 1.5 cents per gallon the portion of the Highway Trust Fund tax on motor fuels to be placed in the Mass Transit Account.

1990: The Americans with Disabilities Act of 1990 (ADA) required transit agencies to provide service accessible to persons with disabilities.

1990: The Clean Air Act Amendments of 1990 recast transportation planning to provide for improved air quality.

1991: The Federal Transit Act Amendments of 1991, Title III of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) extended public transportation assistance through FY 1997, increased the amounts authorized, re-named the transit law the Federal Transit Act and the Urban Mass Transportation Administration the Federal Transit Administration, and converted the rail modernization portion of Section 5309 major capital funds to a formula basis.

Surface Transportation, Title I of ISTEA provided that specific funds authorized through Federal-Aid Highways programs may be used for either public transportation or highway projects. These flexible funds are to be used for the mode of transportation best suited to meeting the needs of individual areas and states.

1991: The Omnibus Transportation Employee Testing Act of 1991 mandated the establishment of anti-drug and alcohol misuse programs for safety-sensitive employees of recipients and contractors to recipients of Major Capital Investment, Urbanized Area Formula, and Rural Area Formula public transportation funds.

1992: The Energy Policy Act of 1992 increased the tax-free amount of the public transportation commuter fringe benefit to \$60 per month with an inflation provision, removed the cliff provision which had made the entire benefit taxable if the monthly limit was exceeded, and extended the benefit to vanpools.

1993: The Omnibus Budget Reconciliation Act of 1993 raised to 2 cents per gallon the portion of the Highway Trust Fund tax on motor fuels to be placed in the Mass Transit Account, effective October 1, 1995.

1994: The Federal Transit Act was codified as Title 49, Chapter 53—Mass Transportation, of the United States Code.

1997: The Taxpayer Relief Act of 1997 raised to 2.86 cents per gallon the portion of the Highway Trust Fund tax on motor fuels to be placed in the Mass Transit Account, effective October 1, 1997.

1997: Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) was extended through March 31, 1998.

1998: The Federal Transit Act of 1998, Title III of the Transportation Equity Act for the 21st Century (TEA 21) extends the public transportation program through FY 2003. TEA 21 increases public transportation funding authorizations, up to 70 percent above ISTEA appropriation levels if all authorized amounts are appropriated. A total of \$41 billion is authorized for the six-year period, of which \$36 billion is guaranteed. Guaranteed amounts are protected in the budget process and can only be appropriated for public transportation uses. The guaranteed amounts, however, are subject to annual appropriation by the Congress.

TEA 21 retains and improves many provisions of ISTEA including the transportation planning process and flexible funding. The distribution of formula funds among sections 5307, 5310, and 5311 is revised. The definition of eligible uses of Urbanized Area Formula capital funds is expanded to include preventive maintenance and ADA related expenditures for all urbanized areas and to include operating expenditures for urbanized areas under 200,000 population. The Rail Modernization program formula is adjusted to increase the proportion of new funds for newer fixed-guideway systems. The public transportation commuter benefit is expanded to include employee purchase of public transportation passes with pre-tax dollars.

Two new programs are created. The Clean Fuels Formula Grant program provides funds for adoption of clean fuel technologies including purchase or lease of clean fuel buses and facilities. The Job Access and Reverse Commute program funds projects that improve job access for current and former welfare recipients and other eligible low-income individuals.

#### **Funding Provisions of the Federal Transit Act**

Funds for federal public transportation assistance come from two sources. Money from general governmental revenues is appropriated each year by Congress. As part of that process Congress sets a limit on the amount of money from the Highway Trust Fund Mass Transit Account that can be used to fund public transportation projects during the next year.

Transit agencies receive funds from several Federal Transit Act programs, which allocate funding to urbanized areas or states by formula or for specific projects through discretionary processes. The largest are:

**Capital Investment, 49 USC 5309:** Original grant program, begun in FY 1964, provides capital assistance to eligible public transportation projects in three categories: (1) construction of new fixed-guideway systems or extensions of existing systems called "New Starts," (2) modernization of existing fixed-guideway systems called "Rail Modernization," and (3) major bus related construction projects or equipment acquisition called "Bus Capital."

*Status:* Authorized through FY 2003.

*Recipients of Funds:* State or local public bodies and agencies.

*Eligible Expenditures:* Capital projects only.

*Method of Allocation:* Rail Modernization funds are distributed to urbanized areas with fixed-guideway systems in operation for at least seven years on a formula basis. New Start and Bus Capital funds are distributed to specific projects at the discretion of the Congress or the Federal Transit Administration if the Congress does not specify a distribution. Eligible New Start projects for FY 1998 through FY 2003 and some Bus Capital project amounts for FY 1999 and FY 2000 are authorized in TEA 21. Amounts for individual projects are specified in annual appropriations laws. Authorizing legislation designates 40% of the funds for New Starts, 40% for Rail Modernization, and 20% for Bus Capital.

*Matching Ratio:* 80% federal, 20% state and local.

**Urbanized Area Formula (UAF), 49 USC 5307 and 5336:** Apportions operating and capital assistance on a formula basis to urbanized areas.

*Status:* Authorized through FY 2003.

*Recipients of Funds:* Directly to urbanized areas of at least 200,000 population, through state governors to urbanized areas under 200,000 population.

*Eligible Expenditures:* For urbanized area of at least 200,000 population, capital expenditures by local decision. Eligible capital expenditures include acquisition of public transportation vehicles, construction of facilities including fixed-guideway rights-of-way, purchase of equipment, rehabilitation of buses, overhaul of rail vehicles, preventive maintenance, up to 10 percent of the apportioned amount for non-fixed-route ADA paratransit service, and other uses. For urbanized areas under 200,000

population, capital expenditures as for larger urbanized areas and operating expenditures.

*Method of Allocation:* By six formulas based on urbanized area population and mode of public transportation service. Amount is 91.23% of total UAF, RAF, and Elderly and Disabled funds beginning in FY 1999. These formulas are:

- (1) Fixed guideway operations in urbanized areas of at least 200,000 population, basic formula, 28.87% of the UAF. The formula is 60% fixed guideway revenue vehicle miles operated and 40% fixed guideway route miles. Urbanized areas of at least 750,000 population that have commuter rail operations receive a minimum of 0.75% of this formula.
- (2) Fixed guideway operations in urbanized areas of at least 200,000 population, incentive formula, 1.32% of the UAF. The formula is the number of fixed guideway passenger miles traveled multiplied by the number of fixed guideway passenger miles traveled per dollar of operating cost. Urbanized areas of at least 750,000 population that have commuter rail operations receive a minimum of 0.75% of this formula.
- (3) Bus operations in urbanized areas of at least 1,000,000 population, basic formula, 40.31% of the UAF. The formula is 50% bus revenue vehicle miles operated, 25% urbanized area population, and 25% urbanized area population density weighted by population.
- (4) Bus operations in urbanized areas from 200,000 to 999,999 population, basic formula, 14.61% of the UAF. The formula is 50% bus revenue vehicle miles operated, 25% urbanized area population, and 25% urbanized area population density weighted by population.
- (5) Bus operations in urbanized areas of at least 200,000 population, incentive formula, 5.57% of the UAF. The formula is the number of bus passenger miles traveled multiplied by the number of bus passenger miles traveled per dollar of operating cost.
- (6) Mass transportation operations in urbanized areas under 200,000 population, 9.32% of the UAF. The formula is 50% urbanized area population and 50% urbanized area population density weighted by population.

*Matching Ratios:* Operating assistance: 50% federal, 50% state and local. Capital assistance: 80% federal, 20% state and local.

**Elderly and Disabled Persons, 49 USC 5310:** Established by the UMT Act of 1970 to assure mass transportation availability to elderly and disabled persons.

*Status:* Authorized through FY 2003.

*Recipients of Funds:* Private, non-profit corporations and associations providing mass transportation services for the elderly and disabled or public bodies coordinating such service or providing service where no non-profit service is available, through state governors.

*Eligible Expenditures:* For capital equipment and cost of leased or contracted service.

*Method of Allocation:* Allocated by formula to states based on of elderly and disabled population. Amount is 2.4% of total UAF, RAF, and Elderly and Disabled funds beginning in FY1999.

*Matching Ratio:* 80% federal, 20% state and local.

**Rural Area Formula (RAF), 49 USC 5311:** Established by the STA Act of 1978 to apportion funds for mass transportation in rural areas outside of urbanized areas.

*Status:* Authorized through FY 2003.

*Recipients of Funds:* Mass transportation providers outside of urbanized areas through state governors.

*Eligible Expenditures:* Operations or capital projects.

*Method of Allocation:* Formula based on non-urbanized area population of each state. Amount is 6.37% of total UAF, RAF, and Elderly and Disabled funds beginning in FY 1999.

*Matching Ratio:* Operating assistance: 50% federal, 50% state and local. Capital assistance: 80% federal, 20% state and local.

**Rural Transit Assistance Program, 49 USC 5311(b)(2):** Established by the FMT Act of 1987 to provide research, technical assistance, and training grants and related support services to non-urbanized areas. Allocated separately from funds in remainder of section 5311.



**Clean Fuels Formula Program, 49 USC 5308:** Established by TEA 21 to expedite the adoption of clean fuels bus technologies.

*Status:* Authorized through FY 2003.

*Recipients of Funds:* Designated recipients in urbanized areas that make application for funds by January 1 of each fiscal year.

*Eligible Expenditures:* To purchase or lease clean fuel vehicles and related facilities, to improve existing facilities for clean fuel buses, and to re-power, retrofit, or rebuild pre-1993 engines under certain conditions. Eligible clean fuels include compressed natural gas, liquefied natural gas, biodiesel fuels, batteries, alcohol-based fuels, hybrid electric, fuel cell, clean diesel, and other low or zero emissions technology.

*Method of Allocation:* Funds are apportioned to grant applicants in air-quality non-attainment and maintenance areas under a formula that weighs bus fleet size and bus passenger miles by severity of non-attainment. Two thirds of funds must go to urban areas with at least 1,000,000 population and one third to urban areas under 1,000,000 population.

*Matching Ratio:* 80% federal, 20% state and local.

**Job Access and Reverse Commute Program, Section 3037 of TEA 21:** Established by TEA 21 to improve job access for current and former welfare recipients and eligible low-income individuals.

*Status:* Authorized through FY 2003.

*Recipients of Funds:* Local governmental authorities and agencies or nonprofit organizations selected by Metropolitan Planning Organizations in urbanized areas of at least 200,000 population and selected by the chief executive officer of the state for urbanized areas under 200,000 population.

*Eligible Expenditures:* Capital and operating costs of equipment, facilities, and associated capital maintenance items related to providing access to jobs, promoting public transportation use by workers with non-traditional work schedules, promoting the use of vouchers by appropriate agencies, the purchase or lease of vehicles for shuttle service at suburban locations, costs associated with adding reverse commute service or to otherwise

facilitate transportation to suburban job opportunities, and promoting the use of employer provided transportation and public transportation pass benefits. Planning and coordination activities are not eligible.

*Method of Allocation:* Awarded to eligible applicants on a competitive basis with consideration given to several factors including percentage of the population that are welfare recipients, need for additional services, coordination and use of existing services, proposal of innovative approaches, and other factors.

*Matching Ratio:* 50% federal, 50% state and local. Federal funds from agencies outside of the Department of Transportation that are eligible for use for transportation expenditures can be used for the state and local match.

### **Provisions of Other Major Federal Laws Affecting Public Transportation**

**Americans with Disabilities Act of 1990,** prohibits discrimination based on disabilities in the areas of employment, public services, public accommodations and services operated by private entities, public transportation, and telecommunications.

Employers are prohibited from discriminating against any qualified individual with a disability in regard to job application procedures, the hiring, advancement or discharge of employees, employee compensation, job training, and other terms, conditions, or privileges of employment. All private company, state and local government, employment agency, and labor union employers with 15 or more employees had to comply by July 26, 1994.

All programs, activities and services provided or made available by state and local government, including public transportation, are prohibited from discriminating on the basis of disability, regardless of whether or not those entities receive federal financial assistance.

All new public transportation buses and rail cars must be accessible to the mobility, hearing, and sight-impaired. At least one car on every train must be accessible. All new passenger stations must be accessible, and older "key" stations must be retrofitted for accessibility, unless an extension was granted for extraordinarily expensive retrofitting. These provisions and those requiring complementary paratransit service for those unable to use fixed-route service were fully effective January 26,



**Clean Air Act Amendments of 1990**, recast transportation planning to ensure that, in areas experiencing air quality problems, planning is geared to improved air quality as well as mobility. State and local officials are required to find ways to reduce emissions from vehicles (including public transportation buses), to develop projects and programs that will alter driving patterns to reduce the number of single-occupant vehicles, and to make alternatives such as public transportation a more important part of the transportation network. The Act focuses on the issue of "conformity", which is a determination made by the metropolitan planning organization and the U.S. Department of Transportation that transportation plans and programs in non-attainment areas meet the requirement of reducing pollutant emissions.

The Environmental Protection Agency imposed emissions standards as a result of the Act that require public transportation bus engines to meet increasingly strict emission standards, culminating in the following in 1998: nitrogen oxides--4.0 grams/brake horsepower-hour (a 33% reduction from the 1990 pre-law standard), and particulate matter (soot)--.05 g/bhh (a 92% reduction).

No reductions in the 1990 carbon monoxide and hydrocarbon emissions levels of 15.5 g/bhh and 1.3 g/bhh were mandated, since they are not feasible due to technological limitations.

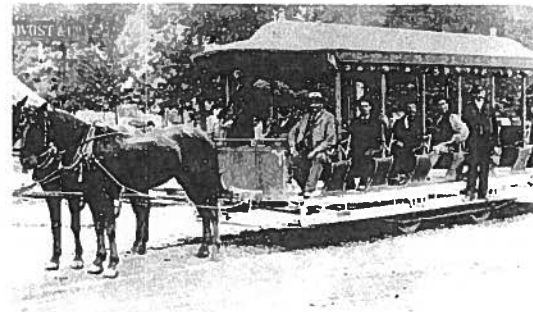
**Omnibus Transportation Employee Testing Act of 1991**, mandates regulations requiring recipients of financial assistance under the Capital Investment, Urbanized Area Formula, and Rural Area Formula sections of the Federal Transit Act and Section 103(e)4 of Title 23 of the United States Code to establish multifaceted anti-drug and alcohol-misuse programs for their own as well as contracted safety-sensitive employees. All transit agencies were required to implement such programs by January 1, 1996.

Safety-sensitive positions include revenue vehicle operators, dispatchers, maintenance staff, non-revenue vehicle operators if a Commercial Driver's License is required, police and security personnel carrying a firearm, and supervisors when performing safety-sensitive functions.

Commuter rail employees are exempt, since they are covered by Federal Railroad Administration regulations. Ferryboat employees are covered, but are also subject to Coast Guard regulations.

## History

*This 1887 Montreal, Canada horsecar typified public transportation prior to electrically-powered streetcars.*



Public transportation, except for ferryboats, was not a part of life until the 19th century, since home, work, and recreation were almost always within walking distance of each other.

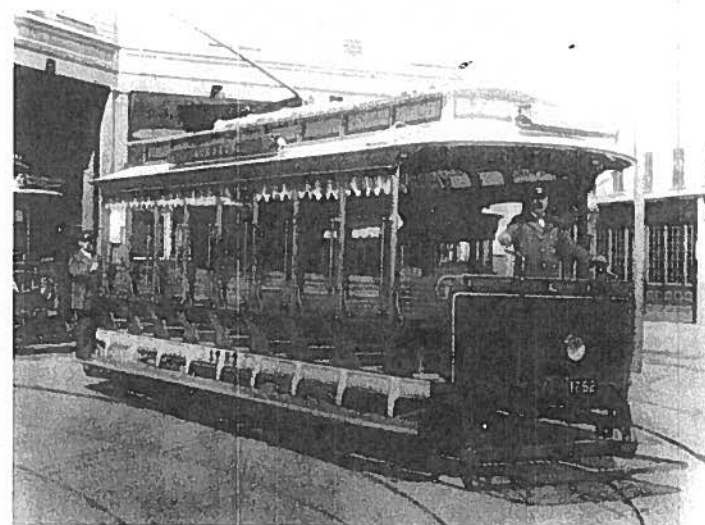
Today's public transportation evolved from three European developments in the late 18th and early 19th centuries: distances between housing and work in larger cities increased so that walking was no longer feasible for many people, horse-pulled stagecoaches were introduced to meet this need for the few who could afford it, and the railroad was invented. The horsecar--initially a horse-pulled stagecoach body on special wheels that ran on rails--was devised to operate on the unpaved or poorly paved streets of that era.

As technology developed, elevated steam railroads, cable-pulled cars, electric streetcars, and underground electric trains all became common, and many of these developments were pioneered in the U.S. All operated on rails, and it wasn't until the 1910-1920 period that improved street pavement and internal combustion engines led to the widespread introduction of buses. Only the largest cities today need the high-capacity rail vehicles developed in the 1800s.

The following pages highlight the most important milestones in U.S. public transportation history. It should be noted that some of these developments were preceded by similar developments in Europe and thus are not world "firsts."

## Milestones in U.S. Public Transportation History

1630	Boston—reputed first publicly operated ferryboat
1740	New York—reputed first use of ox carts for carrying of passengers
1811	New York—first mechanically operated (steam-powered) ferryboat
1827	New York—first horse-drawn urban stagecoach (omnibus) line (Dry Dock & East Broadway)
1830	Baltimore—first railroad (Baltimore & Ohio Railroad Co.)
1832	New York—first horse-drawn street railway line (New York & Harlem Railroad Co.)
1835	New Orleans—oldest street railway line still operating (New Orleans & Carrollton line)
1838	Boston—first commuter fares on a railroad (Boston & West Worcester Railroad)
1850	New York—first use of exterior advertising on street railways
1856	Boston—first fare-free promotion
1861	New York—first failed attempt to form street railway labor organization
1868	New York—first cable-powered (& first elevated) line (West Side & Yonkers Patent Railway)
1870	New York—first pneumatic-powered (& first underground) line (Beach Pneumatic Railroad Co.)
1870	Pittsburgh—first inclined plane
1871	New York—first steam-powered elevated line (New York Elevated Railroad Co.)
1872	Great Epizootic horse influenza epidemic in eastern states kills thousands of horses (the motive power for most street railways)
1873	San Francisco—first successful cable-powered line (Clay St. Hill Railroad)
1874	San Francisco, CA—first recorded strike by street railway workers
1882	Boston—American Street Railway Association (APTA's original predecessor) formed
1883	New York—first publicly operated cable-powered line (Brooklyn Bridge)
1883	New York—first surviving street railway labor organization (Knights of Labor Local 2878)



The first U.S. rail car for underground use was put into service on a light rail line in Boston in 1897 by a predecessor of today's Massachusetts Bay Transportation Authority. That line is still in service today.



Early buses, such as this bus Albuquerque, New Mexico operated in 1928, were usually boxy passenger compartments on a truck body. It wasn't until the 1930s that the engine-in-rear, flat-front design seen today became common.

TABLE 98 (continued)

**Milestones in U.S. Public Transportation History**

1884	Cleveland—first electric street railway line (East Cleveland Street Railway)
1884	first public transportation-only publication (The Street Railway Journal)
1886	Montgomery, AL—first semi-successful citywide street railway transit agency (Capital City Street Railway Co.)
1888	Richmond, VA—first successful electric street railway transit agency (Union Passenger Railway)
1889	New York—first major strike by street railway workers
1892	Indianapolis—first national street railway labor union founded (Amalgamated Association of Street Railway Employees of America, now called the Amalgamated Transit Union)
1893	Portland, OR—first interurban rail line (East Side Railway Co.)
1894	Boston—first public transportation commission (Boston Transit Commission)
1895	Chicago—first electric elevated rail line (Metropolitan West Side Elevated Railway)
1897	Boston—first electric underground street railway line (West End Street Railway/Boston Elevated Railway Co.)
1897	Boston—first publicly-financed public transportation facility (street railway tunnel)
1898	Chicago—first electric multiple-unit controlled rail line (Chicago & South Side Rapid Transit Railroad Co.)
1904	Bismarck, ND—first state-operated street railway (State of North Dakota Capital Car Line)
1904	New York—first electric underground (& first 4-track express) heavy rail line (Interborough Rapid Transit Co.)
1905	New York—first public takeover of a private public transportation company (Staten Island Ferry)
1905	New York—first bus line (Fifth Avenue Coach Co.)
1906	Monroe, LA—first municipal street railway
1908	New York—first interstate underground heavy rail line (Hudson & Manhattan Railroad to New Jersey)
1910	Hollywood, CA—first trolleybus line (Laurel Canyon Utilities Co.)
1912	San Francisco—first publicly operated street railway in a large city (San Francisco Municipal Railway)

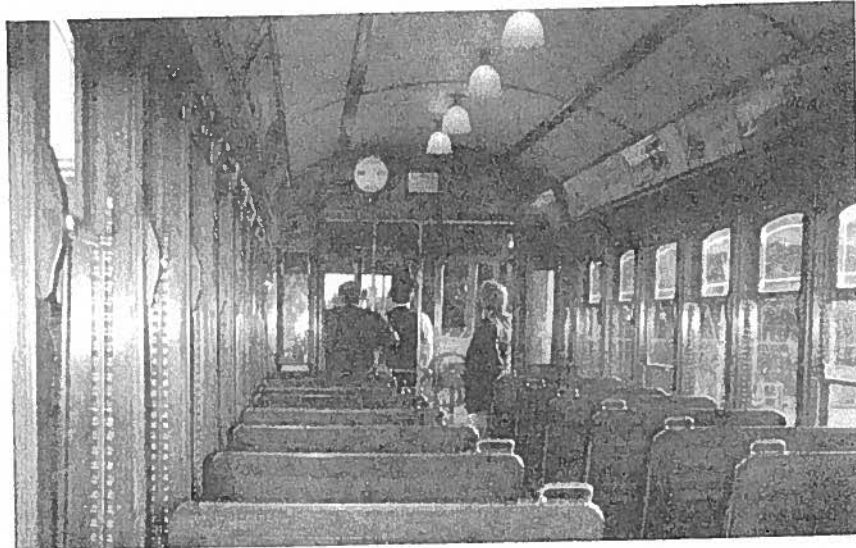
TABLE 98 (continued)

**Milestones in U.S. Public Transportation History**

1912	Cleveland—first street railway to operate buses (Cleveland Railway)
1914	Los Angeles—first jitney
1916	Saint Louis—first public bus-only transit agency (St. Louis Division of Parks and Recreation Municipal Auto Bus Service)
1917	New York—last horse-drawn street railway line closed
1918	New York—APTA's predecessor organization first calls for public takeover of public transportation
1920	first bus not based on truck chassis (Fageol Safety Coach)
1921	New York—first successful trolleybus line
1923	Bay City, MI, Everett, WA, Newburgh, NY—first cities to replace all streetcars with buses
1926	highest peacetime public transportation ridership before World War II (17.2 billion)
1927	Detroit—first bus without cowl-type engine
1927	Philadelphia—first automobile park and ride lot and first bus-rail transfer facility for a non-commuter rail line
1932	New York—first publicly operated heavy rail line (Independent Subway)
1933	San Antonio—first large city to replace all streetcars with buses
1934	New York—Transport Workers Union of America founded
1935	Washington—Public Utility Holding Company Act of 1935 enacted requiring most power companies to divest themselves of public transportation operations and eliminating much private public transportation financing
1936	bus manufacturers began to assume control of or influence street railways, leading to rapid replacement of streetcars with buses
1936	New York—first industry-developed standardized street railway car (P.C.C. car) (Brooklyn & Queens Transit System)
1936	Washington—first large-scale federal government public transportation assistance (Public Works Administration)
1938	Chicago—first use of federal capital funding to build a public transportation rail line
1939	Chicago—first street with designated bus lane



*Early heavy rail trains, such as this restored 1917 ceremonial train in New York City, were pretty spartan, lacking most of the amenities taken for granted today. Note the ceiling fans and non-recessed lights.*



*Many streetcar lines made an attempt at elegance. This restored San Antonio, Texas car has wooden seats, brass hardware, and interesting light fixtures.*



*The Presidents' Conference Committee (PCC) car was the industry's concerted attempt in the 1930s to standardize and modernize the numerous streetcar designs and win back riders. The Southeastern Pennsylvania Transportation Authority in Philadelphia operated this one.*



*In the 1940s and 1950s most buses were similar to this General Motors bus operated by the Salinas Transit System in California, now part of Monterey-Salinas Transit.*

TABLE 98 (continued)

**Milestones in U.S. Public Transportation History**

1940	first time bus ridership exceeded street railway ridership
1940	San Francisco becomes last surviving cable car transit agency
1941	New York, NY—first racially-integrated bus operator workforce
1943	Los Angeles—first rail line in expressway median (Pacific Electric Railway)
1943	New York—first issue of <i>Transit Fact Book</i> (then called "The Transit Industry of the United States, Basic Data and Trends")
1946	highest-ever public transportation ridership (23.4 billion)
1946	Washington—U.S. Supreme Court bans racial segregation in interstate transportation
1952	San Francisco—last new PCC car for U.S. transit agency placed in service
1958	Washington—authority to allow railroads to discontinue commuter passenger service transferred from states to U.S. Interstate Commerce Commission
1961	Washington—first significant federal public transportation legislation (Housing & Urban Development Act of 1961)
1962	Seattle—first monorail (Seattle World's Fair)
1962	New York—first automated heavy rail line (Grand Central Shuttle)
1963	Chicago becomes last surviving city with interurban line (Chicago, South Shore, & South Bend Railroad)
1964	Washington—first major U.S. government public transportation program (Urban Mass Transportation Act of 1964)
1966	New York—first public takeover of commuter railroad (Long Island Rail Road Co.)
1966	Providence—first statewide transit agency (Rhode Island Public Transit Authority)
1968	Washington—agency administering federal public transportation program re-named Urban Mass Transportation Administration and moved to new Department of Transportation
1968	Minneapolis—first downtown transit mall (Nicollet Mall)
1968	Cleveland—first rail station at an airport opened

TABLE 98 (continued)

**Milestones in U.S. Public Transportation History**

1969	Washington—first transitway (Shirley Highway)
1969	Philadelphia—first modern heavy rail transit agency replacing former rail line (Port Authority Transit Corporation)
1970	Fort Walton Beach, FL—first dial-a-ride demand response transit agency
1971	Washington—first federally subsidized intercity passenger railroad (AMTRAK)
1972	San Francisco—first computer-controlled heavy rail transit agency (Bay Area Rapid Transit District)
1972	public transportation ridership hits all-time low (6.6 billion)
1973	Washington—some public transportation service required to be accessible to disabled (Rehabilitation Act of 1973)
1973	Washington—use of funds from cancelled Interstate Highway projects allowed for public transportation
1973	Boston, Dayton, OH, Philadelphia, San Francisco, & Seattle become last surviving trolleybus systems
1974	Boston, Cleveland, Newark, New Orleans, Philadelphia, Pittsburgh, & San Francisco become the last street railway systems
1974	Washington—first federal public transportation operating assistance legislation (National Mass Transportation Assistance Act of 1974)
1974	American Public Transit Association formed from merger of 2 organizations
1975	Morgantown, WV—first automated guideway transit agency (West Virginia University)
1977	San Diego—first wheelchair-lift-equipped fixed-route bus
1979	Washington—first standardized public transportation data accounting system (Section 15)
1980	San Diego—first completely new light rail transit agency in decades (San Diego Trolley)
1983	Washington—public transportation trust fund for capital projects created thru dedication of one cent of federal gas tax
1989	Miami—first completely new commuter rail transit agency in decades (Tri-County Commuter Rail Authority)
1990	Washington—virtually all public transportation service required to be accessible to disabled (Americans with Disabilities Act of 1990)
1990	Washington—one cent dedicated portion of federal fuel tax increased to 1.5 cents
1991	Washington—public transportation buses subject to strict pollution controls (Clean Air Act of 1990)



TABLE 98 (continued)

**Milestones in U.S. Public Transportation History**

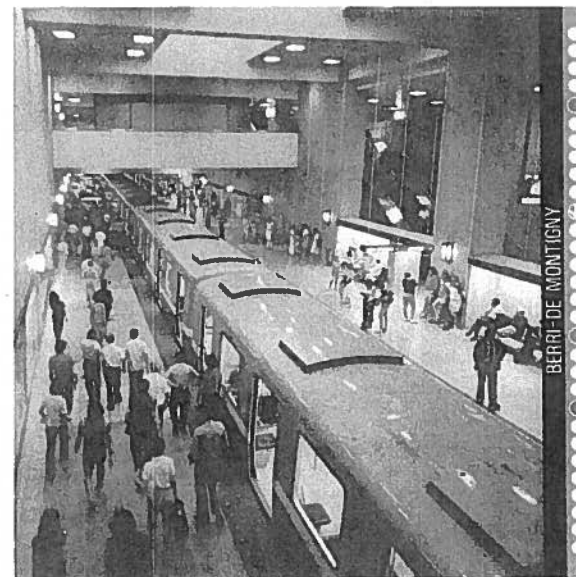
1991	Washington—federal government allowed to subsidize its employees' commuting costs
1991	Washington—first general authorization of use of highway funds for public transportation (Intermodal Surface Transp. Efficiency Act of 1991)
1992	Washington—first limitation on amount of tax-free employer-paid automobile parking benefits and tripling of value of tax-free benefit for public transportation use (National Energy Policy Strategy Act)
1993	Washington—public transportation workers in safety-sensitive positions subjected to drug and alcohol testing
1995	Washington—1.5 cents dedicated portion of federal fuel tax increased to 2 cents
1998	Washington—major expansion and restructuring of federal public transportation program (Transportation Equity Act for the 21 <sup>st</sup> Century)
2000	American Public Transit Association changes name to American Public Transportation Association

**SECTION XVII**

File: CANADA

**Canadian Statistics**

*The Montreal Urban Community Transit Society operates the only rubber-tired rail system in the U.S. and Canada.*



Data in this section are extracted from the **Summary of Canadian Transit Statistics** and predecessor documents published each year by APTA's Canadian counterpart, the Canadian Urban Transit Association. Although definitions of terms are generally similar to U.S. terms, many are somewhat different, and comparison of Canadian and U.S. data can be misleading as a result.

Public transportation use in Canada (as well as in the rest of the world) has historically been much greater than the U.S. because it has a less automobile-dependent culture than the U.S. Consequently, measures of public transportation use will be considerably higher than the U.S.

TABLE 99

File: CANSUM

**Canadian Fixed-Route Summary Statistics, Millions**

YEAR	NUMBER OF AGENCIES (a)	REVENUE PASSENGER TRIPS	VEHICLE MILES	NON-GOVT OPERATING FUNDING (b)	OPERATING EXPENSE (b)
1984	78	1,371.6	427.0	871.8	1,630.9
1985	70	1,434.1	444.4	932.0	1,680.4
1986	73	1,521.3	477.5	1,060.7	1,853.2
1987	72	1,500.0	443.7	1,085.5	1,969.8
1988	74	1,538.4	479.6	1,163.2	2,114.0
1989	76	1,519.3	468.4	1,241.3	2,260.6
1990	77	1,532.4	487.1	1,312.9	2,451.4
1991	92	1,450.0	484.0	1,401.0	2,518.6
1992	92	1,398.7	467.5	1,404.8	2,644.0
1993	91	1,370.1	483.4	1,457.8	2,719.7
1994	88	1,353.2	482.2	1,465.0	2,707.4
1995	88	1,354.2	486.9	1,496.5	2,716.4
1996	86	1,347.5	469.1	1,576.2	2,752.1
1997	67	1,378.9	482.3	1,712.3	2,755.5

(a) Number of agencies reporting.

(b) Monetary data are Canadian Dollars.

Source: Canadian Urban Transit Association.

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TABLE 100

File: CANVEH

**Canadian Fixed-Route Active Passenger Vehicles by Mode**

YEAR	LIGHT RAIL	HEAVY RAIL	COMMUTER RAIL	TROLLEY BUS	BUS	OTHER	TOTAL
1984	405	1,619 (a)	(a)	600	10,538	2	13,164
1985	398	1,574 (a)	(a)	552	10,114	75	12,713
1986	507	1,558 (a)	(a)	551	10,284	80	12,980
1987	516	1,449 (a)	(a)	513	10,434	77	12,989
1988	524	1,439 (a)	(a)	523	10,492	76	13,054
1989	593	1,652 (a)	(a)	488	9,961	235	12,929
1990	532	1,381 (a)	(a)	472	10,626	446	13,457
1991	527	1,379 (a)	(a)	272	10,992	372	13,542
1992	500	1,724 (a)	(a)	358	10,507	119	13,208
1993	547	1,679 (a)	(a)	308	10,776	255	13,565
1994	547	1,381	331	345	10,560	179	13,343
1995	548	1,381	359	305	10,542	85	13,220
1996	520	1,373	359	320	10,506	102	13,180
1997	520	1,381	336	322	10,506	81	13,146

(a) Prior to 1994, heavy rail and commuter rail combined.

Source: Canadian Urban Transit Association.

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TABLE 101

File: CANNEWVE

**Canadian Fixed-Route New Passenger Vehicle Purchases by Mode**

YEAR	LIGHT RAIL	HEAVY RAIL	COMMUTER RAIL	TROLLEY BUS	BUS	OTHER	TOTAL
1984	29	0	NA	24	340	0	393
1985	0	0	NA	0	407	0	407
1986	0	0	NA	0	326	0	326
1987	0	0	NA	0	500	0	500
1988	0	0	NA	0	354	0	354
1989	20	77	NA	0	641	15	753
1990	0	0	NA	0	487	67	554
1991	0	0	NA	0	528	8	536
1992	16	0	NA	0	549	60	625
1993	0	0	NA	0	163	45	208
1994	0	0	NA	0	250	37	287
1995	20	0	0	0	348	61	429
1996	0	18	0	0	517	64	599
1997	0	80	0	9	283	19	391

Source: Canadian Urban Transit Association.

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TABLE 102

File: CANFARES

**Canadian Fixed-Route Passenger Fares (a)**

YEAR	AVERAGE PASSENGER FARE PER REVENUE PASSENGER TRIP	ADULT BASE CASH FARE		
		HIGH	LOW	AVERAGE
1984	0.64	1.00	0.50	0.74
1985	0.65	1.50	0.50	0.79
1986	0.70	1.50	0.50	0.86
1987	0.72	1.50	0.60	0.90
1988	0.76	1.50	0.50	0.95
1989	0.82	1.50	0.50	1.01
1990	0.86	1.75	0.50	1.07
1991	0.97	2.00	0.75	1.18
1992	0.97	2.50	0.75	1.22
1993	1.03	2.60	0.75	1.31
1994	1.05	2.60	0.05	1.35
1995	1.07	2.60	0.05	1.45
1996	1.14	3.00	0.05	1.57
1997	1.18	2.60	1.20	1.69

(a) Data reported in Canadian dollars.

Source: Canadian Urban Transit Association.

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TABLE 103

File: CANEMP

## Canadian Fixed-Route Employees by Type

YEAR	VEHICLE OPERATORS	OTHER VEHICLE OPERATIONS	VEHICLE MAINTENANCE	NON-VEHICLE MAINTENANCE	GENERAL ADMINISTRATION	TOTAL
1984	19,804 (a)	(a)	5,486	2,537	6,301	34,128
1985	20,505 (a)	(a)	5,976	2,782	5,550	34,813
1986	19,206	2,840	6,824	3,174	3,952	39,996
1987	19,951	2,902	6,939	3,165	4,061	37,018
1988	20,402	3,028	7,235	3,031	4,297	37,993
1989	20,739	2,870	7,374	3,262	5,061	39,306
1990	21,040	3,223	7,336	3,569	4,560	39,728
1991	21,502	3,135	7,936	2,641	4,364	39,578
1992	21,316	2,621	7,195	2,820	5,378	39,330
1993	21,240	2,619	6,657	3,272	4,283	38,071
1994	21,475	2,806	6,845	3,282	4,747	39,218
1995	21,495	2,835	6,964	3,227	4,477	38,976
1996	20,878	2,786	6,982	3,324	4,564	38,531
1997	20,160	3,098	6,655	3,714	4,458	38,082

(a) Vehicle operators and other vehicle operations combined.

Source: Canadian Urban Transit Association.

TABLE 104

File: GUIDMILE

## Fixed Guideway Mileage and Status of Future Projects (a)

MODE (b)	STATUS	MILES (c)
AG	construction	12.7
AG	open	17.9
AG	planning	18.6
AG	proposed	
<b>AG TOTAL</b>		<b>49.2</b>
CR	design	5.0
CR	open	342.6
CR	proposed	31.9
<b>CR TOTAL</b>		<b>379.5</b>
FB	open	4.1
<b>FB TOTAL</b>		<b>4.1</b>
HR	construction	4.0
HR	open	72.5
HR	proposed	8.1
<b>HR TOTAL</b>		<b>84.6</b>
IP	open	0.1
<b>IP TOTAL</b>		<b>0.1</b>
IR	open	4.0
IR	proposed	1.9
<b>IR TOTAL</b>		<b>5.9</b>
LR	construction	2.7
LR	design	5.0
LR	open	97.1
LR	planning	6.0
LR	proposed	59.1
<b>LR TOTAL</b>		<b>169.9</b>
MB	construction	12.5
MB	design	20.5
MB	open	98.9
MB	proposed	18.4
<b>MB TOTAL</b>		<b>150.3</b>
TB	open	210.3
<b>TB TOTAL</b>		<b>210.3</b>

TABLE 104

File: GUIDMILE

**Fixed Guideway Mileage and Status of Future Projects (a)**

MODE (b)	STATUS	MILES (c)
----------	--------	-----------

? = Uncertain, unknown, or not reported; AG=automated guideway transit; CC=cable car; CR=commuter rail; FB=ferryboat; HR=heavy rail; IP=inclined plane; IR=intermediate rail; LR=light rail; MB=bus; MO=monorail; TB=trolleybus; TR=aerial tramway.

(a) Data as of July 1999, plus updated information where known.

(b) Bus data includes only fixed guideways 1.0 miles in length or longer; data for all other modes includes all guideways.

(c) Excludes data for a few guideways for which mileage was not reported.

Source: APTA survey



North America's longest driverless automated rail system—nearly 18 miles long—is SkyTrain of Vancouver, British Columbia.



Canada also claims North America's most extensive system of dedicated busways—the Ottawa-Carleton Regional Transit Commission's transitways.

TABLE 105

**Bus Fixed Guideways 5.0 Miles or More in Length (a)**

Title: GUIDEBUS

LOCATION	GUIDEWAY	SEGMENT	MILES
Montreal, PQ	Pie-IX Bus Lanes	Pierre-de-Coubertin-D'Amos	5.3
Ottawa, ON	East Transitway	Laurier-Blair	5.7
Ottawa, ON	Southeast Transitway	Hurdman-South Keys	5.1
Ottawa, ON	West Transitway	Lebrétion-Baseline	7.3
Vancouver, BC	Barnet Highway HOV Lanes	Port Moody-Boundary Rd	18.2

(a) Data as of July 1999, plus updated information where known.

Source: APTA survey

Canadian Services for Disabled Summary Statistics, Millions

YEAR	NUMBER OF AGENCIES (a)	REVENUE PASSENGER TRIPS	VEHICLE MILES	NON-GOVT OPERATING FUNDING (b)	OPERATING EXPENSE (b)
1991	47	4.6	17.0	15.9	64.4
1992	47	5.2	18.7	17.9	75.6
1993	50	7.2	29.3	19.2	118.3
1994	46	8.0	26.8	11.0	141.9
1995	49	8.6	28.8	12.9	144.9
1996	49	8.6	28.6	13.1	145.6
1997	50	8.8	29.0	14.3	146.5

(a) Number of agencies reporting.

(b) Monetary data are Canadian Dollars.

Source: Canadian Urban Transit Association.

## SECTION XVIII

## Definitions

File: DEFINE

Definitions of terms defined by the Federal Transit Administration National Transit Database are from the latest NTD Reporting Manual. "(APTA)" indicates a term defined by APTA in the absence of an NTD definition.

## GENERAL

**Commuter (APTA)**--A person who travels regularly between home and work or school.

**Intermodal (APTA)**--Those issues or activities which involve or affect more than one mode of transportation, including transportation connections, choices, cooperation and coordination of various modes. Also known as "multimodal."

**Mass Transit (APTA)**--Another name for "Mass Transportation" or "Public Transportation."

**Mass Transportation**--Transportation by bus, or rail, or other conveyance, either publicly or privately owned, providing to the public general or special service (but not including school buses or charter or sightseeing service) on a regular and continuing basis. Also known as "mass transit", "public transportation", and "transit".

**Multimode Transit Agency (APTA)**--A transit agency operating more than one mode of service.

**Multimodal (APTA)**--Another name for "intermodal".

**National Transportation System (APTA)**--An intermodal system consisting of all forms of transportation in a unified, interconnected manner to reduce energy consumption and air pollution while promoting economic development and supporting the Nation's preeminent position in international commerce. The NTS includes the National Highway System (NHS), public transportation and access to ports and airports.

**Public Transit Agency**--A public entity responsible for administering and managing transit activities and services. Public transit agencies can directly operate transit service or contract out for all or part of the total transit service provided.

**Public Transportation (APTA)**--Another name for "Mass Transportation" or "Transit."

**Reverse Commuting (APTA)**--Movement in a direction opposite the main flow of traffic, such as from the central city to a suburb during the morning peak period.

**Ridesharing (APTA)**--A form of transportation, other than a transit agency, in which more than one person shares the use of the vehicle, such as a van or car, to make a trip. Also known as "carpooling" or "vanpooling."

**Transit (APTA)**--Another name for "Mass Transportation" or "Public Transportation."

**Transit Agency (APTA)**--An entity (public or private) responsible for administering and managing transit activities and services. Transit agencies can directly operate transit service or contract out for all or part of the total transit service provided.

**Transit System (APTA)**--Another name for "Transit Agency."

## GEOGRAPHY

**Urban Place (APTA)**--A U.S. Bureau of the Census-designated area (less than 50,000 population) consisting of closely settled territory not populous enough to form an urbanized area.

**Urbanized Area (UZA)**--An area (50,000 or more population) so designated by the U.S. Bureau of the Census.

## INFRASTRUCTURE

**Accessible Station**--A public transportation passenger facility which provides ready access, is usable, and does not have physical barriers that prohibit and/or restrict access by individuals with disabilities, including individuals who use wheelchairs.

**Bus Lane (APTA)**--Another name for "Busway".

**Busway**--A roadway reserved for buses only. It may be a grade separated or controlled access roadway. Also known as "Bus Lane".

**Commuter Lane (APTA)**--Another name for "High-Occupancy Vehicle Facility."

**Contraflow Lane (APTA)**--Reserved lane for buses on which the direction of bus traffic is opposite to the flow of traffic on the other lanes.

**Controlled Access Right-of-Way**--Lanes restricted for at least a portion of the day for use by transit vehicles and/or other high occupancy vehicles. Use of controlled access lanes may also be permitted for vehicles preparing to turn. The restriction must be sufficiently enforced so that 95 percent of vehicles using the lanes during the restricted period are authorized to use them.

**Exclusive Right-of-Way**--Roadway or other right-of-way reserved at all times for transit use and/or other high occupancy vehicles. The restriction must be sufficiently enforced so that 95 percent of vehicles using the right-of-way are authorized to use it.

**Fixed Guideway**--Any public transportation facility utilizing and occupying a separate right-of-way or rails for the exclusive use of public transportation service including, but not limited to, fixed rail, automated guideway transit, and exclusive facilities for buses and other high-occupancy vehicles; and also means a public transportation facility using a fixed catenary system and right-of-way useable by other forms of transportation.

**High-Occupancy Vehicle (HOV) Facility**--An exclusive or controlled access right-of-way which is restricted to high occupancy vehicles at all times or for a set period of time. The designation of a HOV facility is determined by state and/or local officials. Also called "busway," "transitway," or "commuter lane."

**Kiss and Ride Facility** (APTA)--A part of a park and ride facility where commuters who are passengers in non-transit vehicles are dropped off to board a mass transportation vehicle.

**Park and Ride Facility**--A parking garage and/or pavement used for parking passengers' automobiles, either free or for a fee, while they use transit agency facilities. Park-and-ride facilities are generally established as collector sites for rail or bus service. Park-and-ride facilities may also serve as collector sites for vanpools and carpools, and as transit centers.

**Station** (APTA)--A public transportation passenger facility.

**Transfer Center** (APTA)--A fixed location where passengers interchange from one route or vehicle to another.

**Transitway** (APTA)--Another name for "High-Occupancy Vehicle Facility."

## MODES

**Aerial Tramway**--Unpowered passenger vehicles suspended from a system of aerial cables and propelled by separate cables attached to the vehicle suspension system. The cable system is powered by engines or motors at a central location not on board the vehicle.

**Automated Guideway Transit**--Guided transit passenger vehicles operating singly or in multi-car trains with a fully automated system (no crew on transit units). Service may be on a fixed schedule or in response to a passenger-activated call button. Automated guideway transit includes personal rapid transit, group rapid transit and people mover systems.

**Bus**--Rubber-tired vehicles operating on fixed routes and schedules on roadways. Buses are powered by diesel, gasoline, battery or alternative fuel engines contained within the vehicle.

**Cable Car**--Streetcar type of passenger vehicles operating by means of an attachment to a moving cable located below the street surface and powered by engines or motors at a central location not on board the vehicle.

**Carpool** (APTA)--An arrangement where two or more people share the use and cost of privately owned vehicles in traveling together to and from pre-arranged destinations.

**Commuter Rail**--Long-haul rail passenger service operating between metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fares for multiple rides, and commutation tickets for regular, recurring riders. Also known as "regional rail" or "suburban rail."

**Demand Response**--Passenger cars, vans or buses with fewer than 25 seats operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations. A demand response operation is characterized by the following: (a) The vehicles do not operate over a fixed route or on a fixed schedule except, perhaps, on a temporary basis to satisfy a special need; and (b) typically, the vehicle may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations and may even be interrupted en route to these destinations to pick up other passengers. The following types of operations fall under the above definitions provided they are not on a scheduled fixed route basis: Many origins-many destinations, many origins-one destination, one origin-many destinations, and one origin-one destination. Also called "Dial-a-Ride" and "Paratransit."

**Dial-a-Ride** (APTA)--Another name for "Demand Response."

**Ferryboat**--Vessels carrying passengers and/or vehicles over a body of water. The vessels are generally steam or diesel-powered conventional ferry vessels. They may also be hovercraft, hydrofoil and other high speed vessels.

**Fixed-Route** (APTA)--Service provided on a repetitive, fixed-schedule basis along a specific route with vehicles stopping to pick up and deliver passengers to specific locations; each fixed-route trip serves the same origins and destinations, unlike demand response. Includes route deviation service, where revenue vehicles deviate from fixed routes on a discretionary basis.

**Heavy Rail**--High-speed, passenger rail cars operating singly or in trains of two or more cars on fixed rails in separate rights-of-way from which all other vehicular and foot traffic are excluded. Also known as "rapid rail,"

"subway," "elevated (railway)," or "metropolitan railway (metro)."

**Inclined Plane**--Special tramway type of vehicles operating up and down slopes on rails via a cable mechanism so that passenger seats remain horizontal while the undercarriage (truck) is angled parallel to the slope.

**Jitney**--Passenger cars or vans operating on fixed routes (sometimes with minor deviations) as demand warrants without fixed schedules or fixed stops.

**Light Rail**--Lightweight passenger rail cars operating singly (or in short, usually two-car, trains) on fixed rails in right-of-way that is not separated from other traffic for much of the way. Light rail vehicles are driven electrically with power being drawn from an overhead electric line via a trolley or a pantograph. Also known as "streetcar," "tramway," or "trolley car."

**Metropolitan Railway** (APTA)--Another name for "Heavy Rail."

**Mode**--A transit system category characterized by specific right-of-way, technological and operational features.

**Monorail**--Guided transit vehicles operating on or suspended from a single rail, beam or tube. Monorail vehicles usually operate in trains.

**Non-Fixed-Route** (APTA)--Service not provided on a repetitive, fixed-schedule basis along a specific route to specific locations. Demand response is the only non-fixed-route mode.

**Paratransit** (APTA)--Another name for "Demand Response."

**Rapid Rail** (APTA)--Another name for "Heavy Rail."

**Rapid Transit** (APTA)--Rail or bus transit service operating completely separate from all modes of transportation on an exclusive right-of-way.

**Regional Rail** (APTA)--Another name for "Commuter Rail."

**Suburban Rail** (APTA)--Another name for "Commuter Rail."

**Trolleybus**--Rubber-tired passenger vehicle operating singly on city streets. Trolleybuses are driven electrically with the power being drawn from an overhead electric line via trolleys. Also known as "trolley coach" or "trackless trolley."

**Urban Ferryboat** (APTA)--Ferryboats that have at least one terminal within an urbanized area, excluding international, rural, rural interstate, island, and urban park ferries.

**Vanpool**--Vans and/or buses seating less than 25 persons operating as a voluntary commuter ride sharing arrangement, which provides transportation to a group of individuals traveling directly between their homes and their regular places of work within the same geographical area. The vans should have a seating capacity greater than seven persons, including the driver. It is a mass transit service operated by a public entity, or in which a public entity owns, purchases, or leases the vehicles. Other forms of public participation to encourage ridesharing arrangements such as the provision of parking spaces, utilization of high occupancy vehicle (HOV) lanes, coordination or clearing house service, do not necessarily qualify as public vanpools.

## VEHICLES

**Accessible Vehicle**--Public transportation revenue vehicles which do not restrict access, are usable, and provide allocated space and/or priority seating for individuals who use wheelchairs.

**Active Vehicle**--The vehicles that are available to operate in revenue service, including vehicles temporarily out of service for routine maintenance and minor repairs.

**Aerial Tramway**--Unpowered passenger vehicles suspended from a system of aerial cables and propelled by separate cables attached to the vehicle suspension system. The cable system is powered by engines or motors at a central location not on board the vehicle.

**Automated Guideway Vehicle**--Guided transit passenger vehicles operating under a fully automated system (no crew on transit units).

**Bus**--Rubber-tired passenger vehicle powered by diesel, gasoline, battery or alternative fuel engine contained within the vehicle. Types include:



**Articulated Bus**--Extra-long (54 to 60 feet) bus with the rear body section connected to the main body by a joint mechanism. The joint mechanism allows the vehicle to bend when in operation for sharp turns and curves and yet have a continuous interior.

**Double Decked Bus**--High-capacity bus having two levels of seating, one over the other, connected by one or more stairways. Total bus height is usually 13 to 14.5 feet, and typical passenger seating capacity ranges from 40 to 80 people.

**Intercity Bus (APTA)**--A bus with front door only, separate luggage compartments, and usually with restroom facilities and high-backed seats for use in high-speed long-distance service.

**Suburban Bus (APTA)**--A bus with front doors only, normally with high-backed seats, and without luggage compartments or restroom facilities for use in longer-distance service with relatively few stops.

**Transit Bus (APTA)**--A bus with front and center doors, normally with a rear-mounted engine, low-back seating, and without luggage compartments or restroom facilities for use in frequent-stop service.

**Trolley Replica Bus (APTA)**--A bus with an exterior (and usually an interior) designed to look like a streetcar from the early 1900s.

**Cable Car**--Streetcar type of passenger vehicle operating by means of an attachment to a moving cable located below the street surface and powered by engines or motors at a central location not on board the vehicle.

**Commuter Rail Car**--Commuter rail passenger vehicle. There are two types:

**Commuter Rail Passenger Coach**--Not independently propelled and requiring one or more locomotives for propulsion.

**Commuter Rail Self-propelled Passenger Car**--Not requiring a separate locomotive for propulsion.

**Commuter Rail Locomotive**--Commuter rail vehicle used to pull or push commuter rail passenger cars. Locomotives do not carry passengers themselves.

**Downtown People Mover (APTA)**--A type of automated guideway transit vehicle operating on a loop or shuttle route within the central business district of a city.

**Ferryboat**--Vessel for carrying passengers and/or vehicles over a body of water. The vessel is generally a steam or diesel-powered conventional ferry vessel. It may also be a hovercraft, hydrofoil or other high speed vessel.

**Heavy Rail Car**--Rail car with motive capability, driven by electric power taken from overhead lines or third rails, configured for passenger traffic and usually operated on exclusive right-of-way.

**High Occupancy Vehicle (HOV) (APTA)**--Vehicles that can carry two or more persons. Examples of high occupancy vehicles are a bus, vanpool and carpool. These vehicles sometimes have exclusive traffic lanes called "HOV lanes," "busways," "transitways" or "commuter lanes."

**Inclined Plane Vehicle**--Special type of passenger vehicle operating up and down slopes on rails via a cable mechanism.

**Light Rail Vehicle**--Rail car with motive capability, usually driven by electric power taken from overhead lines, configured for passenger traffic and usually operating on non-exclusive right-of-way. Also known as "streetcar," "tramway," or "trolley car."

**Monorail Vehicle**--Guided transit passenger vehicle operating on or suspended from a single rail, beam or tube.

**Passenger Vehicle (APTA)**--A vehicle used to carry passengers in transit service.

**Rehabilitation**--The rebuilding of revenue vehicles to original specifications of the manufacturer. Rebuilding may include some new components but has less emphasis on structural restoration than would be the case in a remanufacturing operation, focusing on mechanical systems and vehicle interiors.

**Streetcar (APTA)**--Another name for "Light Rail Vehicle."

**Trackless Trolley (APTA)**--Another name for "Trolleybus."

**Tramway (APTA)**--Another name for "Light Rail Vehicle."

**Trolley Car (APTA)**--Another name for "Light Rail Vehicle."

**Trolley Coach (APTA)**--Another name for "Trolleybus."

**Trolleybus**--Rubber-tired electrically powered passenger vehicle operating on city streets drawing power from overhead lines with trolleys. Also known as "trolley coach" or "trackless trolley."

**Van**--Vehicles having a typical seating capacity of 5 to 15 passengers and classified as a van by vehicle manufacturers. A modified van is a standard van which has undergone some structural changes, usually made to increase its size and particularly its height. The seating capacity of modified vans is approximately 9 to 18 passengers.

## OPERATING EXPENSES

**Function**--A function is the activity performed or cost center of a transit agency. There are four basic functions, as follows:

**Vehicle Operations**--All activities associated with the subcategories of the vehicle operations function: transportation administration and support; revenue vehicle operation; ticketing and fare collection; and system security.

**Vehicle Maintenance**--All activities associated with revenue and non-revenue (service) vehicle maintenance, including administration, inspection and maintenance, and servicing (cleaning, fueling, etc.) vehicles. In addition, vehicle maintenance includes repairs due to vandalism and accident repairs of revenue vehicles.

**Non-Vehicle Maintenance**--All activities associated with facility maintenance, including: administration; repair of buildings, grounds and equipment as a result of accidents or vandalism; operation of electric power facilities; and maintenance of vehicle movement control systems; fare collection and counting equipment; structures; tunnels and subways; roadway and track; passenger stations; operating station buildings, grounds and equipment; communication systems; general administration buildings, grounds and equipment; and electric power facilities.

**General Administration**--All activities associated with the general administration of the transit agency, including transit service development, injuries and damages, safety, personnel administration, legal services, insurance, data processing, finance and accounting, purchasing and stores, engineering, real estate management, office management and services, customer services, promotion, market research and planning.

**Operating Expense**--The expenses associated with the operation of the transit agency, and classified by function or activity and the goods and services purchased. It is the sum of "Vehicle Operations," "Vehicle Maintenance," "Non-Vehicle Maintenance," and "General Administration." Alternatively, it is the sum of the various object classes listed below.

**Object Class**--An object class is a grouping of expenses on the basis of goods and services purchased. Object Classes are as follows:

**Salaries and Wages**--The pay and allowances due employees in exchange for the labor services they render in behalf of the transit agency. The allowances include payments direct to the employee arising from the performance of a piece of work. Also called "Labor."

**Labor**--Another name for "Salaries and Wages."

**Fringe Benefits**--The payments or accruals to others (insurance companies, governments, etc.) on behalf of an employee and payments and accruals direct to an employee arising from something other than a piece of work. These payments are transit agency costs over and above labor costs, but still arising from the employment relationship. Fringe benefits include retirement, pension, medical, dental, life insurance and short-term disability plans; unemployment insurance; workers' compensation insurance; sick, holiday, vacation, and other paid leave; and, uniform and work clothing allowances.

**Employee Compensation (APTA)**--Sum of "Salaries and Wages" and "Fringe Benefits."

**Services**--The labor and other work provided by outside organizations for fees and related expenses. In most instances, services from an outside organization are procured as a substitute for in-house employee labor, except in the case of independent audits which could not be performed by employees in the first place. The substitution is

usually made because the skills offered by the outside organization are needed for only a short period of time or are better than internally available skills. The charge for these services is usually based on the labor hours invested in performing the service. Services include management service fees, advertising fees, professional and technical services, temporary help, contract maintenance services, custodial services and security services.

**Materials and Supplies**--The tangible products obtained from outside suppliers or manufactured internally. Freight-in, purchase discounts, cash discounts, sales and excise taxes (except on fuel and lubricants) are to be included in the cost of the material or supply. Charges to these expense accounts will be for the materials and supplies issued from inventory for use and for the materials and supplies purchased for immediate use, i.e., without going through inventory. Three types are:

**Fuel and Lubricants**--The costs of gasoline, diesel fuel, propane, lubricating oil, transmission fluid, grease, etc., for use in vehicles.

**Tires and Tubes**--The lease payments for tires and tubes rented on a time period or mileage basis, or the cost of tires and tubes for replacement of tires and tubes on vehicles.

**Other Materials and Supplies (APTA)**--Materials and supplies other than fuel and lubricants and tires and tubes.

**Utilities**--The payments made to various utilities for utilization of their resources (e.g., electric, gas, water, telephone, etc.). Utilities include propulsion power purchased from an outside utility company and used for propelling electrically driven vehicles, and other utilities such as electrical power for purposes other than for electrically driven vehicles, water and sewer, gas, garbage collection, and telephone.

**Casualty and Liability**--The cost elements covering protection of the transit agency from loss through insurance programs, compensation of others for their losses due to acts for which the transit agency is liable, and recognition of the cost of a miscellaneous category of corporate losses. The costs of repairing damaged property are recorded in labor, fringe benefit, material and services object classes. The costs of writing off property damaged beyond repair are recorded in the depreciation object class. The costs of transit agency employees engaged in insuring and processing claims for and against

the transit agency are recorded in labor and fringe benefit object classes. Casualty and liability costs include premiums for physical damage insurance, recoveries of physical damage losses, premiums for public liability and property damage insurance, payouts for and recoveries from insured and uninsured public liability and property damage settlements, and premiums for other corporate insurances (e.g., fidelity bonds, business records insurance, etc.).

**Purchased Transportation**--The payment or accrual to other transit agencies, public or private, for providing transportation service including fare revenues retained by the seller, other expenses incurred by the buyer of service, and other expenses incurred by the seller of service when the purchased transportation agreement pays for only part of the costs.

**Other (APTA)**--The sum of taxes, miscellaneous, and expense transfers expenses:

**Taxes**--The taxes levied against the transit agency by Federal, State and Local governments. Sales and excise taxes on materials and services purchased other than fuel and lubricants are not included in this category but are to be accounted for as part of the base price of the material or service. Taxes include income, property, fuel and lubricant, and electric propulsion power taxes; and, vehicle licensing and registration fees.

**Miscellaneous Expenses**--The expenses which cannot be attributed to any of the other major expense categories.

**Expense Transfers**--Accounts to be used for reporting adjustments and reclassifications of expenses previously reported. Expense transfers include reclassifications of expenses from one function to another; a composite category of expense encompassing labor, fringe benefits, materials and services used in the transit agency's internal information system to reclassify costs between cost centers and work orders; and, a credit account to be used for adjusting entries transferring expenses to receivables, property, or work-in-process for capital projects.

**Depreciation and Amortization**--The charges that reflect the loss in service value of the transit agency's assets. Depreciation and amortization include the depreciation of the physical facilities such as

guideways, tracks and roadbeds, elevated structures, passenger stations and parking facilities, revenue vehicles, operating stations, and facilities (including buildings, equipment and furnishings) for power generation and distribution, revenue vehicle movement control, data processing, revenue collection and processing, and other general administration. Amortization of the intangible costs of the transit agency includes organization costs, franchises, patents, goodwill and other intangible assets.

**Other Reconciling Items** (APTA)—All other expenses in addition to "Total Operating Expense" and "Depreciation and Amortization" including interest expense, leases and rentals, purchase lease payments, related parties lease agreements, and any other costs.

**Total Expense** (APTA)—The sum of "Total Operating Expense," "Depreciation and Amortization," and "Other Reconciling Items."

## OPERATING FUNDING

**Operating Funding Source** (APTA)—Funds used to pay for operating expense.

**Government Funds** (APTA)—Funds provided by federal, state, and/or local governments. For some purposes, also includes directly generated taxes, tolls, fees, and other imposed funding sources.

**Federal Funds**—Financial assistance from the federal government to assist in paying the operating costs of providing transit service.

**State Funds**—Financial assistance from a state government(s) to assist with paying the operating costs of providing transit service.

**Local Funds**—Financial assistance from local governments (below the state level) to help cover the operating costs of providing transit service.

**Directly Generated Funds**—Any funds generated by or donated directly to the transit agency, including passenger fares, advertising revenues, donations and grants from private foundations. Directly generated funds also include directly levied taxes and other funds dedicated to transit, such as development fees where the transit agency has the legal authority to impose the development fees.

**Passenger Fares**—The revenue earned from carrying passengers in regularly scheduled service. Passenger fares include the base fare, zone premiums, express service premiums, extra cost transfers and quantity purchase discounts applicable to the passenger's ride. They also include revenues earned but paid for by some organization rather than the rider, and for rides given along special routes for which revenue may be guaranteed by a beneficiary of the service. They include revenue from services operated directly by the transit agency as well as service operated by purchased transportation contractors.

**Adult Base Cash Fare** (APTA)—Minimum cash fare paid by an adult for one transit ride; excludes transfer charges, zone or distance charges, express service charges, peak period surcharges, and reduced fares.

**Passenger Fares Received per Unlinked Passenger Trip** (APTA)—"Passenger Fares" divided by "Unlinked Passenger Trips."

**Peak Period Surcharge** (APTA)—An extra fee required during peak periods (rush hours).

**Transfer Surcharge** (APTA)—An extra fee charged for a transfer to use when boarding another transit vehicle to continue a trip.

**Zone or Distance Surcharge** (APTA)—An extra fee charged for crossing a predetermined boundary.

**Other Operating Funds** (APTA)—The sum of school bus service revenues, freight tariffs, charter service revenues, auxiliary transportation revenues, non-transportation revenues, revenue accrued through a purchased transportation agreement, and subsidy from other sectors of operations:

**School Bus Service Revenues**—The revenue earned operating vehicles under school bus contracts. School bus service is the operation of buses exclusively to carry school passengers to and from their schools.

**Freight Tariffs**—The revenue earned from carrying all types of freight on runs whose primary purpose is passenger operations.

**Charter Service Revenues**--The revenue earned operating vehicles under charter contracts. Charter service is the operation of vehicles hired for exclusive use and that do not operate over a regular route, on a regular schedule and are not available to the general public.

**Auxiliary Transportation Revenues**--The revenue earned from operations closely associated with transportation operations. Revenue includes station concessions, vehicle concessions, advertising and automotive vehicle ferriage.

**Non-Transportation Revenues**--The revenue earned from activities not associated with the provision of transit service. Non-transportation revenues include revenues earned from sales of maintenance service on property not owned or used by the transit agency, rentals of revenue vehicles to other operators, rentals of transit agency buildings and property to other organizations, parking fees generated from parking lots not normally used as park and ride locations, and donations.

**Revenue Accrued through a Purchased Transportation Agreement**--Revenue accrued by a seller of transportation services through purchased transportation agreements. These are the contract revenues earned (payments and accruals) by a transit agency under contract to another transit agency or governmental unit.

**Subsidy from Other Sectors of Operations**--The funds obtained from other sectors of a transit agency's operations to help cover the cost of providing transit services.

## CAPITAL EXPENSES

**Capital Expense**--The expenses related to the purchase of tangible property or other items eligible to be capitalized (e.g., vehicle tire leasing). Property includes tangible assets with an expected service life of more than one year at the time of their installation, and a unit cost greater than \$1,000. Generally, these are any items eligible as a capital expense under federal, state or local requirements.

**Rolling Stock**--The revenue vehicles used in providing transit service for passengers. The term revenue vehicles includes the body and chassis

and all fixtures and appliances inside or attached to the body or chassis, except fare collection equipment and revenue vehicle movement control equipment (radios). For rubber-tired vehicles, it includes the cost of one set of tires and tubes to make the vehicle operational, if the tires and tubes are owned by the transit agency.

**Facilities**--The following items are facility and facility-related projects: construction of maintenance facilities (including design and engineering, demolition, etc.); rehabilitation of maintenance facilities (including design and engineering, land acquisition, relocation, etc.); crime prevention and security equipment; purchase or installation of service and support equipment; operational support (computer hardware and software, bus diagnostic equipment, and other activities that enhance system operations and efficiency while reducing operating costs); transit malls, transfer facilities, intermodal terminals, shelters, passenger stations, depots, terminals, HOV facilities, transit ways, and park-and-ride facilities; and track; line equipment and structures; signals and communications; and power equipment and substations.

**Other**--Any other item not described above, such as service vehicles, construction of general administration facilities, furniture, equipment that is not an integral part of buildings and structures, data processing equipment (including computers and peripheral devices whose sole use is in data processing operations), fare collection equipment, and revenue vehicle movement control equipment.

## CAPITAL FUNDING

**Capital Funding Source (APTA)**--Funds used to pay for capital expense.

**Government Funds (APTA)**--Funds provided by federal, state, and/or local governments. For some purposes, also includes directly generated taxes, tolls, fees, and other imposed funding sources.

**Federal Funds**--Financial assistance from the federal government to assist in paying the capital costs of providing transit service.

**State Funds**--Financial assistance from a state government(s) to assist with paying the capital costs of providing transit service.

**Local Funds**--Financial assistance from local governments (below the state level) to help cover the capital costs of providing transit service.

**Directly Generated Funds**--Any funds generated by or donated directly to the transit agency, including passenger fares, advertising revenues, donations and grants from private foundations. Directly generated funds also include directly levied taxes and other funds dedicated to transit, such as development fees where the transit agency has the legal authority to impose the development fees.

## EMPLOYEES

**Capital Employee**--The employee labor hours whose cost is reimbursed under a capital grant or is otherwise capitalized.

**Operating Employee**--The employees engaged in the operation of the transit system. They are:

**General Administration Employee**--Executive, professional, supervisory, and secretarial transit system personnel engaged in general management and administration activities: preliminary transit system development, customer services, promotion, market research, injuries and damages, safety, personnel administration, general legal services, general insurance, data processing, finance and accounting, purchasing and stores, general engineering, real estate management, office management and services, general management, and planning.

**Non-Vehicle Maintenance Employee**--Executive, professional, supervisory, and secretarial transit system personnel engaged in non-vehicle maintenance, personnel providing maintenance support to such personnel for inspecting, cleaning, repairing and replacing all components of: vehicle movement control systems; fare collection and counting equipment; roadway and track; structures, tunnels, and subways; passenger stations; communication system; and garage, shop, operating station, general administration buildings, grounds and equipment. In addition, it includes support for the operation and maintenance of electric power facilities.

**Other Vehicle Operations Employee**--Executive, professional, and supervisory transit system personnel engaged in vehicle operations,

personnel providing support in vehicle operations activities, personnel engaged in ticketing and fare collection activities, and personnel engaged in system security activities.

**Vehicle Maintenance Employee**--Executive, professional, secretarial, and supervisory transit system personnel engaged in vehicle maintenance, personnel performing inspection and maintenance, vehicle maintenance of vehicles, performing servicing functions for revenue and service vehicles, and repairing damage to vehicles resulting from vandalism or accidents.

**Vehicle Operator**--The personnel (other than security agents) scheduled to be aboard vehicles in revenue operations including vehicle operators, conductors, and ticket collectors.

## PASSENGERS

**Average Trip Length (APTA)**--Passenger miles divided by unlinked passenger trips.

**Passenger Miles**--The cumulative sum of the distances ridden by each passenger.

**Revenue Passenger Trips (APTA)**--The number of fare-paying transit passengers with each person counted once per trip; excludes transfer and non-revenue trips.

**Unlinked Passenger Trips**--The number of passengers who board public transportation vehicles. A passenger is counted each time he/she boards a vehicle even though he/she may be on the same journey from origin to destination.

## SERVICE PROVIDED

**Average Speed (APTA)**--Vehicle miles divided by vehicle hours.

**Directional Route Miles**--The mileage in each direction over which public transportation vehicles travel while in revenue service. Directional route miles are a measure of the facility or roadway, not the service carried on the facility, i.e., number of routes or vehicle revenue miles. Directional route miles are computed with regard to direction of service, but without



regard to the number of traffic lanes or rail tracks existing in the right-of-way.

**Miles of Track**--The number of tracks per one-mile segment of right-of-way. Miles of track are measured without regard to whether or not rail traffic can flow in only one direction on the track. All track is counted, including yard track.

**Total Bus Mile Equivalents (APTA)**--The number of vehicle miles that would have been operated by a transit mode if the service had been provided by buses. Based on average seating plus standing capacity of the vehicle as compared to the capacity including standees (70 people) of a standard-size bus.

**Vehicle Hours**--The hours a vehicle travels while in revenue service (vehicle revenue hours) plus deadhead hours. For rail vehicles, vehicle hours refer to passenger car hours. Vehicle hours exclude hours for charter services, school bus service, operator training and maintenance testing.

**Vehicle Miles**--The miles a vehicle travels while in revenue service (vehicle revenue miles) plus deadhead miles. For rail vehicles, vehicle miles refer to passenger car miles. Vehicle miles exclude miles for charter services, school bus service, operator training and maintenance testing.

## SECTION XIX

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