Transit Fact Book 1981

American Public Transit Association
1225 Connecticut Ave., N.W., Washington, D.C. 20036 Phone (202) 828-2800

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John Neff, Manager

1225 Connecticut Ave., N.W., Suite 200, Washington, DC 20036

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1225 Connecticut Ave., N.W., Suite 200
Washington, DC 20036

(202) 828-2800

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Transit Fact Book

1981 Edition

Annual Summary of Trends in Urban Mass Transportation for the United States of America

The American Public Transit Association (APTA) is the recognized source for statistical data and information about urban mass transportation in the United States. APTA obtains data from member transit systems, and uses the figures to estimate trends for the entire United States transit industry. Because of the time required for transit systems to compile and report the large amount of data required for the ***Transit Fact Book,*** figures for calendar year 1980 are preliminary and will be refined when additional information becomes available. Changes in figures reported for calendar year 1979 and prior years, evident when comparing the ***1981 Transit Fact Book*** with information published in previous editions, result from subsequent availability of additional data.

The 1981 Edition of the ***Transit Fact Book*** is the thirty-seventh edition of this publication compiled by APTA and its predecessor organizations. Transit industry trends reported in the ***Transit Fact Book*** are for organizations, both publicly owned and privately owned, providing urban public transit service in the United States of America including the Commonwealth of Puerto Rico.

Summary Tables 2 through 18 in the ***Transit Fact Book*** report operating and financial data for all United States transit systems operating motor buses, heavy rail cars, light rail cars, trolley coaches, cable cars, and inclined plane cars. Data for commuter railroads, common-carrier automated guideway transit railways, ferry boats, intercity bus commuter service, and public paratransit operations are ***not included*** in Summary Tables 2 through 18. Data for commuter railroads and intercity bus commuter service are reported separately in Tables 21 and 22. Non-transit services such as taxi-cab, school bus, unregulated jitney, sightseeing bus, intercity bus, and special application mass transportation systems (e.g., amusement parks and airports) are ***excluded*** from all tables.

American Public Transit Association

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Transit: Facing Challenges New and Old

by Jack R. Gilstrap
Executive Vice President
American Public Transit Association

Transit in the 1980s will face stiff challenges. The federal government has challenged the propriety of financial assistance to transit. There are questions raised about the efficiency of transit operations. Some have questioned whether transit should fall into the private sector.

Many of these challenges have been answered before, and will be answered again in the same way: by marshalling the facts. Transit is a proven public service essential to the economic well-being of urban areas. Transit meets a public need which historically has not been met wholly by private resources or at the farebox. Transit has rarely, if ever, been a viable profitmaker in the private sector. Furthermore, transit provides benefits to the entire community, and as with any other public service, the entire community should share the cost of transit service.

The biggest challenge to transit is to provide needed service in the most efficient and effective manner possible. It has been argued that federal financial assistance to transit has led to inefficient operations; yet the cost for carrying one passenger on one transit trip has stayed the same (in real dollars) since federal operating assistance began. Before that, the cost increased nearly every year.

The federal financial assistance program for transit has achieved exactly what was mandated: ridership increased and economies of scale were put in place. Predictable federal funding has allowed long-term planning and service implementation. In addition to maintaining the successful federal financial assistance program, the government must replace complicated and burdensome regulations with the concept that individual communities should determine how best to provide service for their citizens.

Along with meeting the challenges facing the transit industry, it is APTA's expectation that the 1980s will see the acceptance of transit as an essential service, effectively and efficiently operated by public agencies.

Q&A: Transit Issues and Answers

Q & A: Transit Issues and Answers

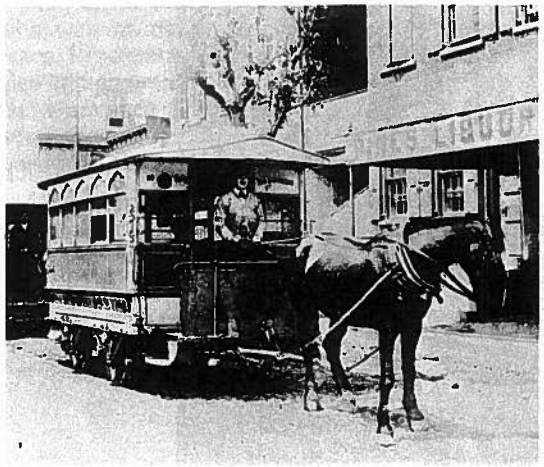
APTA and the Transit Industry

What is the American Public Transit Association?

The American Public Transit Association is the national organization representing the urban transit industry. APTA represents over 300 local bus and rail transit systems in the United States, Canada, and several foreign countries. APTA member transit systems carry 94% of all transit riders in the United States. In addition to transit systems, APTA members include manufacturers and suppliers of transit equipment, consultants, state and local departments of transportation and planning agencies, universities, and transit construction contractors.

APTA presents a nationally unified voice for the common policy, needs, and goals of the transit industry across the country. Those common needs include legislative efforts to provide efficient and equitable financial assistance for transit from the federal government; legislative efforts to make federal regulations practical, efficient, and beneficial; research efforts to solve technical problems common to many transit systems; and communication efforts to provide APTA members and the public with information and data that can maximize the benefits of transit to their communities.

Members participate in APTA through working committees, regional and national conferences, professional seminars, and contests designed to improve the quality and efficiency of both APTA member and non-member transit systems. In addition to the continuing development of APTA's policies and goals, working committees have recently developed a Minority Business Enterprise program for the transit industry; developed a transit education kit for use in elementary schoolrooms; provided training sessions for transit personnel in marketing, planning, human resources, and maintenance and purchasing; managed a National Transit Internship Program to attract promising college students to the transit industry; assisted the AFL-CIO Appalachian Council in production of new transit employee orientation programs and training courses; and published several technical manuals for use by transit systems.



Nearly a century has passed since APTA's predecessor, the American Street Railway Association, was formed to solve common problems many transit systems were having with the operation of their horse cars. Today, the predominant mode of public transit is the motor bus. Although the technology of transit has changed, transit systems need to exchange ideas and information more than ever to ensure they maintain maximum efficiency of their operations.

Besides publishing the *Transit Fact Book* and other statistical materials of interest to transit systems, APTA publishes material of interest to both the transit industry and general public. *Passenger Transport,* a weekly newspaper, keeps its readers abreast of the latest developments in transit.

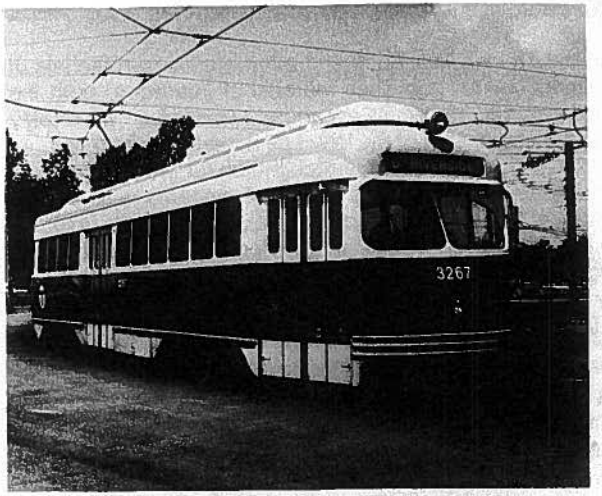
Competitions sponsored by APTA provide recognition for the hard work of transit industry employees. Annual awards to transit systems with exceptional records in bus safety and an annual rodeo to pick the best bus drivers in North America keep the industry concentrated on improving its already commendable safety record. APTA's newest award program encourages improved marketing by recognizing outstanding achievement in transit advertising and information distribution in printed and electronic media.

How long has APTA been the voice of the transit industry?

APTA has grown from a handful of transit operators, gathered together in a Boston hotel room where they discussed the price of oats for their horses, to a united organization of more than 300 transit system members. Founded as the American Street Railway Association on December 12, 1882, members in the era of horse-drawn cars looked forward to industry advancement through introduction of cable-drawn cars and even electrically operated vehicles.

Six years after the formation of ASRA, electric traction became a practical reality. By 1905, electric railway companies constituted a basic part of the American economy. As horsepower and cable power gave way to electric traction, operations were no longer confined to the city. Suburban service became increasingly important, and numerous interurban electric railways were built to connect urban centers. In response to this growth and the changing needs of its membership, ASRA rechartered and formed the American Street and Interurban Railway Association. The dominance of electric propulsion in the urban transportation industry resulted in the ASIRA being reformed as the American Electric Railway Association in 1910.

Recognizing the increased importance of the motor bus and the trolley coach, AERA was renamed the American Transit Association in 1932. A new



The best known streetcar ever, over 16,000 PCC cars have been built in the United States and Europe. The car was designed by the Electric Railway Presidents' Conference Committee which became the Institute for Rapid Transit before merging with the American Transit Association to form APTA in 1974.

constitution, providing Association leadership for the increasingly significant urban motor bus and trolley coach operations, was formally adopted in 1934. The 1930's also saw the abandonment of most of the nation's interurban electric railways; urban public transit became the main thrust of Association activities concerned with changing member needs.

Standard classification of electric railway accounts evolved by 1917 through Association work with the Interstate Commerce Commission; interaction of the Association with the federal government is a legacy which APTA continues today. Association involvement with the federal government increased upon relocation of ATA headquarters from New York City to Washington, D.C., in 1966.

Another APTA predecessor organization, the Institute for Rapid Transit, can be traced to 1929 when the Electric Railway Presidents' Conference Committee was organized by the principal executive officers of certain street railways in the United States for the purpose of developing a radically different streetcar—the PCC car—that was intended to protect the investment and improve the service of street railway operations.

Six years later, in 1935, the Presidents' Conference Committee incorporated the Transit Research Corporation. By the end of 1950, TRC held 111 patents and had applications on file for an additional 15. Although challenges to the transit industry were met by TRC's high degree of technical skill, changing conditions indicated that challenges of the 1960's would have to be met by effective congressional liaison, thereby leading to formation of the Institute for Rapid Transit.

Recommendations of a joint ATA/IRT merger study committee headed by past presidents of both organizations culminated in the formation of APTA. Upon the merger of ATA and IRT on October 17, 1974, the American Public Transit Association became the strengthened urban mass transportation trade association needed to carry forward the traditions of both the American Transit Association and the Institute for Rapid Transit. Formation of APTA provided the U.S. transit industry with a single organization capable of the widest possible exchange of information and ideas for improving the day-to-day job of moving people quickly, safely, and efficiently.

The Scope of the Transit Industry

What is the role of transit in America's transportation system?

Transit is an essential public service in the day-to-day life of metropolitan America. It is the most efficient and economical method of moving large numbers of people in often congested urban areas. In doing so transit uses less energy than other modes of transportation, produces less pollution, and reduces traffic congestion. In addition, transit is often the only means of urban transportation available to many urban residents.

Public service, however, is the essential role of transit. Many benefits of transit accrue to the urban community as a whole as well as to specific individuals. Transit is a public service which returns benefits to the community in proportion to the community support provided.

Transit provides both a personal travel option and transportation security. Transit provides the option of a relaxed trip to work for an automobile driver tired of fighting traffic. Transit provides a secure alternative for the automobile driver whose auto is being repaired or is stuck in a snow drift, and for many urban residents, transit is wholly depended upon for mobility.

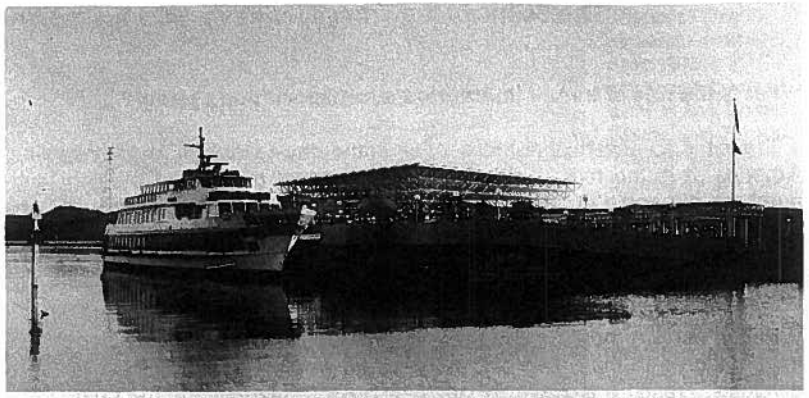
Cities which take advantage of these community benefits are able to conserve urban space by building highways for average conditions rather than the peak hour crush. Transit service encourages a more efficient concentration of urban activities in downtowns and satellite areas than would be possible with automobile-oriented transportation alone. This concentrated activity promotes economic development and keeps badly needed taxpaying business and commercial establishments in the central city.

Benefits of Public Transit

- Reliable Transportation
- Economical Transportation
- Mobility for Nondrivers
- Reduced Air Pollution
- Reduced Energy Consumption
- Concentrated Urban Activities
- Conservation of Urban Space
- Stimulated Economic Development
- Increased Employment Opportunities

Transit can be used as an effective tool in planning the development of urban areas. By providing improved access to specific locations in an urban area, transit can help concentrate or relocate growth in conformance with areawide development goals.

Transit is a service to urban residents that places emphasis on people. Among the transportation options available to American cities, transit provides a service consistent with visions of what a city should be. America needs cities that offer a variety of services, employment, entertainment, and residential choices. Transit helps make cities in which travel is efficient, inexpensive, and pleasant so that residents may take advantage of all the amenities that distinguish urban living.



The largest transit vehicles in the United States are ferry boats, some of which can carry up to 2,500 passengers per trip. This Golden Gate Transit ferry boat can carry 750 passengers each trip from park-and-ride lots in Marin County to downtown San Francisco.

How large is the transit industry?

America's 1,055 transit systems provide service to large cities and small urban and rural areas throughout the United States. Over 75% of the U.S. population is in areas served by fixed route transit service. Demand-responsive and other types of special service transit operations provide mobility for many other Americans.

Transit carried over 12 times as many passengers in 1980 as all types of intercity common-carrier transportation modes combined. In terms of passenger-miles, transit ranked second to airlines. Airlines, of course, are characterized by very long trip lengths compared to the high-volume, short-length urban trips of transit systems.

The transit industry is a major employer throughout the United States. The transit industry's 190,000 employees transported over 8½ billion passengers to their jobs, to stores, to schools, and to recreational facilities. U.S. transit systems operate 75,000 revenue vehicles ranging in size from 18-foot-long buses used for special handicapped person transit service to 380-foot-long ferry boats carrying 2,500 passengers on a single trip.

Comparative Size of Common Carrier Passenger Modes, 1980

Carrier	Millions of Passenger Trips	Millions of Passenger Miles	Passenger Miles Per Trip
Transit	8,577	40,600	5
Intercity Bus	373	27,700	74
Amtrak	21	4,500	214
Airlines	285	205,600	721

What types of service are operated by the transit industry?

The transit industry offers a variety of mass transportation services from the familiar fixed-route bus and rail lines to unique special services which meet specialized local requirements.

Special transit services can be adopted to meet unusual urban transportation needs. Chartered buses and rail cars are used to move groups of people between specific locations in urban areas for school field trips, convention tours, and similar special occasions.

Loop and shuttle buses provide frequent trips for people going short distances in congested downtown areas and other major activity centers.

Many transit systems meet the special transportation needs of handicapped persons with demand-responsive buses which can pick people up at their homes and take them directly to jobs or other destinations. Special demand-responsive service is also provided by some transit systems in low density areas where it more efficiently meets community needs than fixed-route transit service.

Fixed-route transit service is offered by several types of transit vehicles. Specific transit services identified by vehicle type are called modes. Motor bus, heavy rail, light rail, and trolley coach are the transit modes familiar to most Americans. Other modes of transit service are commuter railroad, automated guideway transit, urban ferry boat, cable car, inclined plane, and aerial tramway.

In large cities, the most efficient transit service is often provided by using high-speed trains for the line-haul portion of a trip and buses to pick-up and return passengers in residential neighborhoods. This Metropolitan Suburban Bus Authority bus has just dropped-off passengers at a Long Island Rail Road train station for their trip into New York City.

What is the best mode of transit service?

There is not, of course, any best mode of transit service to meet all the requirements of any city. Each transit mode is suited to particular conditions of population density, city size, environmental characteristics, demand for transit service, and economic constraints.

America's largest cities operate several modes of transit service to meet their varied needs. In the New York City area, for example, a transit rider can choose from bus, heavy rail, light rail, commuter railroad, ferry boat, and aerial tramway service depending upon his destination. Each of the nine largest U.S. urbanized areas is served by at least two transit modes with the seven modes operated in the San Francisco-Oakland urbanized area representing the greatest variety of transit vehicle types. An additional 15 smaller urbanized areas are served by at least two transit vehicle modes.

Each transit mode is best used when coordinated with other transit services and the non-transit passenger transportation system in an urban area. Rail transit, for example, is used most efficiently when its service is carefully coordinated with a feeder bus network. Buses circulate through the neighborhoods adjoining rapid transit stations, transporting passengers to the train connection and returning them home later in the day. Although the traveler may live miles from the rail station, rail access is as close as the nearest corner bus stop. Today, rail system designers make special efforts to assure the ease and convenience of bus/rail transfers.

Transit Mode Suitability Criteria
Determined by Regional Plan Association

Transit Vehicle Mode	Minimum Downtown Size, Square Feet of Contiguous Nonresidential Floor Space (Millions)	Minimum Residential Density, Dwelling Units per Acre
Local Bus	2.5	4 to 15[a]
Express Bus	7	3 to 15[a]
Light Rail	21	9
Heavy Rail	50	12
Commuter Rail	70	1 to 2[a]

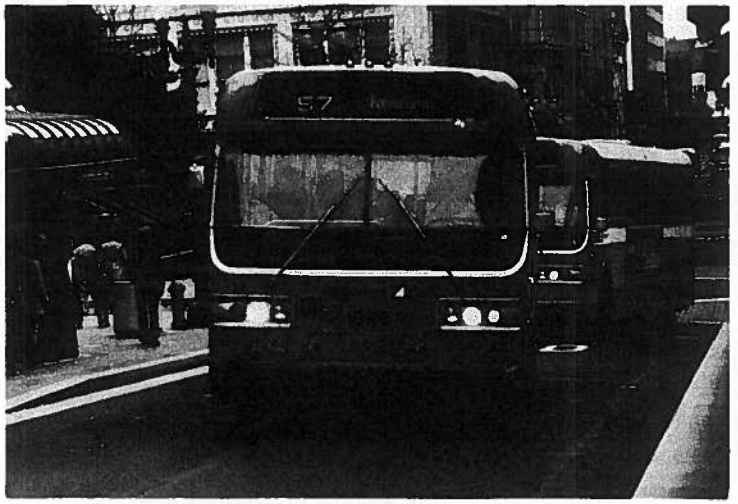
(a) Varies with type of access and frequency of service.

Source: Regional Plan Association, ***Where Transit Works: Urban Densities for Public Transportation***, New York, 1976. Copyrighted material used with permission.

Note: The American Public Transit Association neither advocates nor endorses these criteria for selecting any specific transit vehicle mode.

Which mode of transit service is found in most American cities?

The most common mode of transit service in United States cities is the motor bus. Over 65% of all transit riders are carried on motor buses operated



In the majority of cities, transit and the bus are synonymous. Nearly 60,000 buses are operated by 1,022 transit systems in the United States. Most transit buses are full-size buses such as these 40-foot long coaches operated by Tri-Met in Portland, Oregon, pictured above, or this 35-foot long coach operated by the Capital District Transportation Authority in the Albany, New York region.

by 1,022 transit systems. Nearly 75% of America's population lives in counties served by transit bus operators.

Transit bus systems vary in size and type of operation. Several large transit systems operate over 2,000 buses each, 24 hours a day with less than one minute time between buses on their heaviest routes during rush hours. On the other extreme are one and two bus owner-operated systems that provide commuter service during the morning and evening rush hours.

Some transit systems also provide special services such as downtown distributor bus routes and demand-responsive service. Demand-responsive bus service, especially valuable in providing transportation for handicapped persons, takes riders directly from their homes to their destinations. Bus service is found in most cities because of its relatively low capital cost and its suitability to areas of low ridership demand.

Which cities have electrically powered transit service?

One or more of the three major modes of electrically powered transit vehicles; heavy rail, light rail, and trolley coach are operated in 16 U.S. cities. Each of these modes provides pollution free, rapid, efficient transit service. The mode operated in an area depends to a large extent on the population density and level of demand for transit service in that area. The lists below show that it is common to operate more than one mode to serve varied conditions in the same area. In Boston, Philadelphia, and the San Francisco-Oakland region all three electric vehicle modes are operated while two electrically powered modes are operated in the New York-Newark region, Cleveland, and Seattle.

Heavy rail is by far the most extensive electrically powered transit mode. In 1980 heavy rail systems in 9 cities operated 9,693 heavy rail cars to carry 2.3 billion passenger trips.

Cities and the heavy rail systems they are served by are:

Atlanta, GA: Metropolitan Atlanta Rapid Transit Authority

Boston, MA: Massachusetts Bay Transportation Authority

Chicago, IL: Chicago Transit Authority

Cleveland, OH: Greater Cleveland Regional Transit Authority

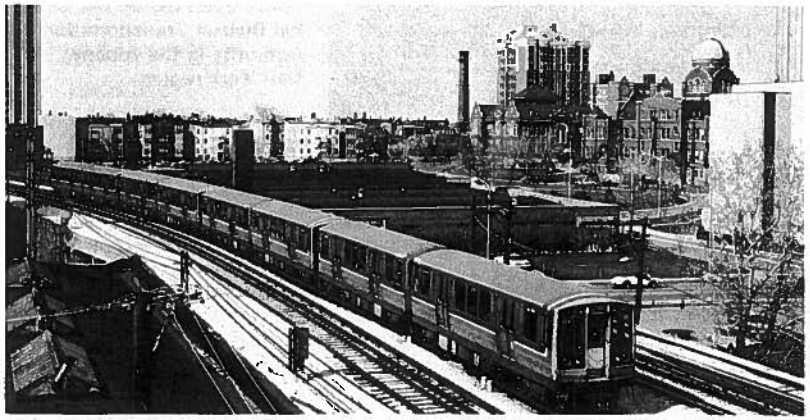
New York, NY: New York City Transit Authority; Port Authority Trans-Hudson Corporation

Philadelphia, PA: Southeastern Pennsylvania Transportation Authority; Port Authority Transit Corporation of Pennsylvania and New Jersey

San Francisco/Oakland, CA: San Francisco Bay Area Rapid Transit District

Seattle, WA: Municipality of Metropolitan Seattle

Washington, DC: Washington Metropolitan Area Transit Authority



The second largest United States heavy rail system is the Chicago Transit Authority. In 1980 the CTA carried over 150 million passengers on its heavy rail lines, using 1,100 cars such as those pictured above. Light rail vehicles are gradually replacing streetcars on light rail systems. When operated on private rights-of-way they have similar operational characteristics to heavy rail cars. The San Francisco Municipal Railway light rail cars on the next page operate in a subway under Market Street for the downtown portion of their trips.

Light rail transit service is provided in 9 cities. Transit systems in those cities operated 1,013 light rail cars in 1980 carrying a total of 107 million passenger trips.

Cities and the light rail systems they are served by are:

Boston, MA: Massachusetts Bay Transportation Authority

Cleveland, OH: Greater Cleveland Regional Transit Authority

Detroit, MI: Detroit Department of Transportation

Ft. Worth, TX: Dillard's Department Store

Newark, NJ: New Jersey Transit

New Orleans, LA: New Orleans Public Service, Inc.

Philadelphia, PA: Southeastern Pennsylvania Transportation Authority

Pittsburgh, PA: Port Authority of Allegheny County

San Francisco, CA: San Francisco Municipal Railway

Trolley coach transit service is the least common of the major electrically powered transit modes, being operated in only 5 cities. In 1980 transit systems in those cities operated 823 trolley coaches and carried 85 million passenger trips.

Cities and the trolley coach systems they are served by are:

Boston, MA: Massachusetts Bay Transportation Authority

Dayton, OH: Miami Valley Regional Transit Authority

Philadelphia, PA: Southeastern Pennsylvania Transportation Authority

San Francisco, CA: San Francisco Municipal Railway

Seattle, WA: Municipality of Metropolitan Seattle

Are commuter railroads a part of the transit industry?

Commuter railroads, an important form of transportation from more distant suburbs to the central city since the 19th century, are rapidly being merged into the transit industry. Until the 1970's a predominantly privately owned public transportation mode, all commuter railroads are now either publicly owned or receive financial support from public agencies.

Eighteen agencies with 27 operating divisions provide commuter railroad service in 11 metropolitan areas. The largest commuter railroad network is in New York where seven operators use 2,500 cars to transport 525,000 riders on a typical weekday. In Chicago, the next largest commuter railroad center, nine carriers operating 850 cars transport over 290,000 riders on a typical weekday.

Cities and the commuter railroads they are served by are:

Baltimore, MD: Amtrak; The Baltimore and Ohio Railroad Company

Boston, MA: Massachusetts Bay Transportation Authority; Consolidated Rail Corporation

Chicago, IL: Burlington Northern; Chicago and Northwestern Transportation Company; Chicago, Milwaukee, St. Paul, & Pacific Railroad; Chicago, Rock Island & Pacific Railroad Company; Chicago South Shore & South Bend Railroad; Consolidated Rail Corporation; Illinois Central Gulf Railroad Company; Norfolk and Western Railway Company

Commuter railroads provide long-distance transit service from outlying suburban areas to central cities. This Long Island Rail Road train carries passengers from the outlying counties of Long Island to Queens, Brooklyn, and Manhattan in New York City. The LIRR operates 1,000 cars and carries 250,000 passengers on an average weekday.

Detroit, MI: Amtrak; Southeastern Michigan Transportation Authority

Los Angeles, CA: Amtrak

New York, NY: Consolidated Rail Corporation; The Long Island Rail Road Company; Staten Island Rapid Transit Operating Authority

Philadelphia, PA: Amtrak; Southeastern Pennsylvania Transportation Authority

Pittsburgh, PA: The Pittsburgh and Lake Erie Railroad Company; Port Authority of Allegheny County

San Diego, CA: Amtrak

San Francisco, CA: Southern Pacific Transportation Company

Washington, DC: Amtrak; The Baltimore and Ohio Railroad Company

Are there other types of vehicles used in transit service?

There are several other types of vehicles operated by U.S. transit systems. The most common of these are ferry boats, operated in 12 urbanized areas by 16 operators. In 1980 these systems operated 68 ferry boats and transported 63 million passenger trips.

Cities and ferry boat systems they are served by are:

Boston, MA: Commonwealth of Massachusetts Executive Office of Transportation and Construction; Massachusetts Bay Line, Inc.

Chicago, IL: Wendella Sightseeing Corporation

Cincinnati, OH: Anderson Ferry

Corpus Christi, TX: Texas State Department of Transportation and Highways

Galveston, TX: Texas State Department of Transportation and Highways

Los Angeles, CA: Balboa Island Ferry, Inc.

New Orleans, LA: Mississippi River Bridge Authority

New York, NY: City of New York Department of Marine and Aviation (Staten Island Ferry); Rockaway Boat Lines

Portland, ME: Casco Bay Lines

San Francisco, CA: Angel Island Ferry; Golden Gate Bridge, Highway and Transportation District; Harbor Carriers, Inc.; Mare Island Ferry Company

San Juan, PR: Puerto Rico Ports Authority

Seattle, WA: Washington State Ferries

Four other modes of transit, all fixed rail, are found in a total of seven urban areas.

Cities and other fixed rail modes they are served by are:

Chattanooga, TN: Chattanooga Regional Transportation Authority Lookout Mountain Incline (Inclined Plane)

Dubuque, IA: Fourth Street Elevator (Inclined Plane)

Johnstown, PA: Johnstown-Westmont Incline (Inclined Plane)

Morgantown, WV: West Virginia University (Automated Guideway Transit)

New York, NY: Roosevelt Island Special Service Corporation (Aerial Tramway)

Pittsburgh, PA: Port Authority of Allegheny County Monongahela Incline (Inclined Plane); Duquesne Heights Incline (Inclined Plane)

San Francisco, CA: San Francisco Municipal Railway (Cable Car)

Characteristics of the Urban Transit Fleet as of December 31, 1980

Characteristic	Motor Bus	Heavy Rail	Light Rail	Trolley Coach
Number of Vehicles	59,411	9,693	1,013	823
Number of Vehicles Equipped with Air Conditioning	42,891	4,690	132	271
Number of Vehicles Equipped with Two-Way Radios	38,469	7,198	315	594
Number of Vehicles Equipped with Wheelchair Lifts or Ramps	6,133	0	0	110
Average Age, Years	8.8	18.0	28.4	9.1
Average Length	38'3"	58'4"	52'8"	39'6"
Average Number of Seats	45.6	53.6	50.1	47.4
Propulsion Power	Diesel: 96.1% Gasoline: 3.3% Propane: 0.6%	Electricity	Electricity	Electricity
Length/Gross Weight of a Typical Vehicle	40' 34,000 lbs.	60' 81,000 lbs.	47' 56,000 lbs.	40' 33,500 lbs.
Average Operating Speed in Revenue Service	11.8 mph	19.8 mph	9.6 mph	8.3 mph

What are the characteristics of the vehicles used for each mode of transit service?

The characteristics of the four major modes of transit used in central cities are presented in the table at the left.

The differences between modes result from differences in their rights of way, historical development, and operations characteristics rather than differences associated with the vehicles. Heavy rail cars, for example, have the highest average speed because they operate on private right-of-way. Light rail cars and trolley coaches are slowest because they operated on the most congested routes in each city. Heavy rail cars have relatively few seats compared to buses because they are designed to accomodate large numbers of standees during rush hours. These differences show the uses of each vehicle, not whether one vehicle type is better than another.

Transit's Effects on Cities

How does transit affect the way a city looks?

The image of a city with intensive transit service is an image of concentration. Tall modern office buildings in the city center, large downtown shopping areas, pleasant apartments, and convenient residential neighborhoods. It is an image of a busy, crowded city but a city with structure and personal accessibility.

The population density of a city is certainly affected by the type and quality of the city's transit service. Of America's 20 largest cities, six of nine with heavy rail systems have residential densities of over 10,000 persons per square mile. Of the 11 remaining cities without heavy rail systems, only one has as high a residential density.

Cities with extensive bus transit service share many of the visual characteristics of heavy rail cities. Fewer expressways cut through residential neighborhoods because fewer commuters take their autos to jobs in the central city. The Chicago Transit Authority estimates that 100 miles of additional six-lane expressways would be needed in Chicago alone if transit service were ended. Fewer commuters using autos means that fewer parking places are required in congested urban areas. Autos brought to the Loop area of Chicago by those 100 extra miles of freeway would need six times the parking area now available in the Loop.

Cities with transit service are also cleaner. The lower levels of emissions from transit compared to other transportation result in lower levels of air pollution. Not only is the air cleaner, but buildings, cars—anything exposed to the dirt and corrosive effects of air pollution—are also cleaner.

The greatest effects of transit, however, are not in what you see in the city, but the effects you cannot see. Fewer highway and parking places around activity centers makes more high revenue producing land available, increasing the community tax base. Better access to job opportunities helps increase employment; fewer people will need public welfare assistance, employers will be able to find more qualified employees, and many citizens will be able to take jobs offering more personal satisfaction.

The concentration resulting from transit means that both transit and non-transit trips will be shorter. Shorter trips use less energy so that energy demand drops. Concentration also reduces utility costs. The cost of utility and road installation is estimated at over $5,000 less per household in a medium density city compared to a sprawling, unplanned community.

How important is transit to the business community?

Transit provides accessibility for people—people who are the workers and customers of the business community. Business knows that a developed transit system stabilizes and often improves existing downtown markets and helps to create new ones by facilitating accessibility to newer retail centers. Where transit is convenient a shopper can spend time shopping rather than traveling and spend money on consumer goods, entertainment, and restaurant meals rather than parking. A retail business located near a transit stop has an extra stream of potential customers brought past its doors.

The accompanying table points out the large percentage of customers brought to major downtown retail centers by transit systems in very divergent cities. Gimbels, with the large New York subway system at its door, has 75% of its customers arriving by transit, but J. C. Penney in downtown Portland, Oregon, where only bus service is currently available, still has 60% of its customers arriving by transit.

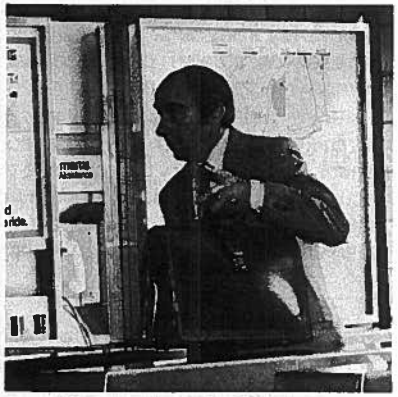
Business is convinced enough of transit's importance to make major capital investments to build retail, commercial, and rental facilities near new transit stations. Estimates have been made that the subway system in Washington will stimulate $6 billion worth of private development by the time it is completed. The BART rail system has been credited with stimulating $1.4 billion worth of construction in San Francisco since it opened and is an important consideration in two-thirds of all business location decisions made in that area.

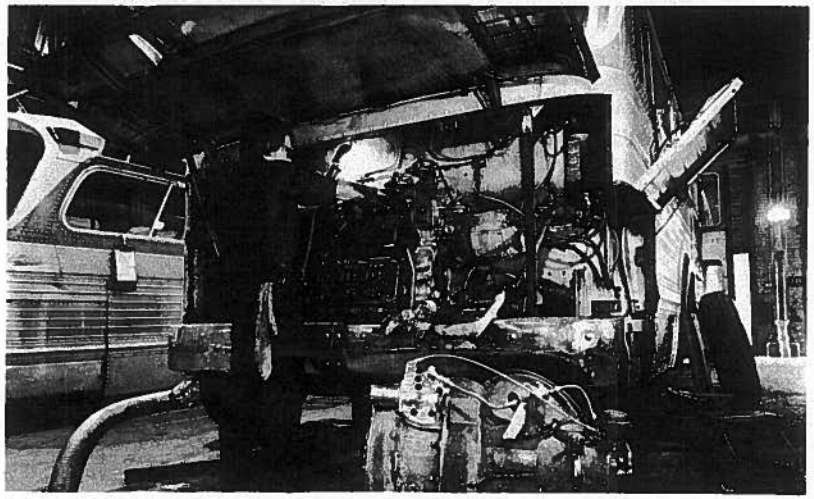
Improved commercial feasibility due in part to transit leads to these new investments in development and renovation. New investment then leads to increased land and property values which then lead to a broadened tax base and greater tax revenues for the community. The investment a community makes in transit benefits the business sector as well as transit users and in the long run, with an improved business climate and higher tax revenues, returns much of transit's cost back to the community.

Downtown Retail Store Customers Arriving By Transit

Selected Downtown Stores	Percent of Customers Arriving By Transit
J.C. Penney, Portland	60%
The Corner, Boston	37%
The Gallery, Philadelphia	67%
Gimbels, Philadelphia	56%
Woodward and Lothrop, Washington	50%
Gimbels, New York	75%

Transit is a people business—a labor-intensive business whose product is the transportation of people in urban areas. People ride transit because it is the most convenient and dependable way to travel in cities. To keep the transit system operating, many highly-skilled people in a large number of trades and professions are needed.





Does transit create jobs?

Transit creates jobs in three ways: the direct jobs of transit workers, the jobs of people who supply the transit industry and build transit facilities, and the jobs of people who take transit to work.

By far, the largest of these groups is the people who take transit to work. It may seem facetious to say that transit creates the jobs of its passengers, but in many cases transit is the only means that people have to get to their jobs and without this transportation they would be out of work or would take only the less attractive jobs that they could reach without transit.

This job accessibility is important to the employer as well as the employee and explains why many businesses compete for prime locations near transit service. The businesses benefit in many ways. They have an expanded labor pool with a variety of skills from which to choose. In contrast to an isolated automobile-only-access location, the business does not need to build massive parking lots or maintain facilities such as cafeterias. The employee benefits because businesses cluster and thus provide more opportunities for job selection. That employees use transit to reach jobs in high-employment-density downtown areas is apparent from the accompanying chart. The percent of employees reaching jobs in the downtown areas of America's largest cities varies from 38% to 80%. This use of transit is not only a big-city phenomenon; a smaller city such as Madison, Wisconsin, has 30% of its downtown employees commuting on transit.

Transit itself is a major employer. The wages, salaries, and fringe benefits of transit's 190,000 employees accounted for 73.5% of transit operating expenses in 1980. Every one of those dollars stayed within the local community and was respent in those communities for goods and services. As a labor-intensive industry, transit will continue to be a major employer as well as a vital means for its passengers to obtain and hold jobs.

Percent of Work Trips To Central Business District on Transit

City	Percent of Trips
Philadelphia	64%
Atlanta	40%
Seattle	50%
Washington	38%
New York	80%
Cleveland	50%
Chicago	80%
Madison	30%

What is the cost of not providing transit service?

Very simply stated, the cost of not providing transit service is the higher cost of providing alternative means of urban transportation plus the loss of mobility to urban residents who have no other means of transportation.

Urban Transportation System Resource Use

Energy Consumption

Transportation System	Millions of BTUs per 1,000 Passenger Miles
Taxicab	15.0
Automobile	6.0
Light Rail	4.6
Commuter Rail	3.3
Heavy Rail	3.0
Motor Bus	2.7

Material Consumption for Vehicles

Transportation System	Pounds per 1,000 Passenger Miles
Taxicab	39.8
Automobile	23.1
Motor Bus	6.2
Light Rail	4.9
Heavy Rail	1.9
Commuter Rail	1.5

Space Consumed by Roadway

Transportation System	Acres of Roadway per 1,000 Passenger Miles per Day
Taxicab	1.70
Automobile	0.95
Light Rail	0.70
Commuter Rail	0.30
Motor Bus	0.14
Heavy Rail	0.04

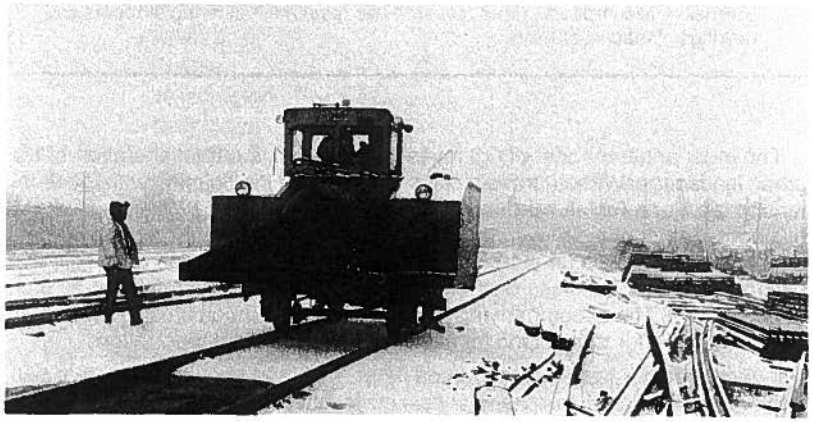
Source: Based on exhibits from Regional Plan Association, ***Where Transit Works: Urban Densities for Public Transportation,*** New York, 1976. Copyrighted material used with permission.

Note: For assumptions used by authors, refer to source document. Based on alternative assumptions, other research has resulted in differing amounts and rankings of resources used.

The most apparent cost of not investing in transit is a total alteration of the urban landscape. Without transit, cities will develop inefficiently with lower intensity land use for all purposes in all parts of the city. While the central business district of a city with a high level of transit use might require 40 percent or less of its area for streets and parking, the land devoted to streets and parking in central business districts in low transit use cities might be as high as 60 percent. The accompanying table shows that a much smaller amount of land is required for transit than for alternative modes of transportation.

Investments for transit in resources other than land show a consistent pattern when compared to other transportation alternatives. Transit requires a

The day of a snowfall is the best time to see that people know transit is dependable in emergency situations. Buses and rail cars are overloaded with passengers unable to use other types of transportation during the adverse weather. This Bi-State bus (above) is picking up passengers a few days after a typical St. Louis snowfall. In the other pictures, Metropolitan Transportation Authority workers are preparing for operations as snow falls in the New York area. At the left, a worker is attaching an ice scraper shoe to a commuter railroad car third-rail electric power contact. Below, workmen use a snowblower to keep tracks cleared for train operation.



smaller investment in materials for vehicles, uses less energy for operation, and uses less energy during construction.

Lack of investment in transit would severely restrict the mobility of millions of urban Americans. The U.S. Department of Transportation found in the 1972 Nationwide Personal Transportation Study that 21% of urban households do not own automobiles. Households among the lowest income groups show the lowest percentage of automobile ownership. Without transit, the employment alternatives and accessibility to amenities of these households would be reduced.

Why is transit everyone's friend in a crisis?

A daily transit rider is familiar with the scene at his bus stop when it snows. The number of people waiting for a bus is double what it was the day before. Most of these added passengers only ride transit when there is a crisis in their normal travel pattern. They ride transit because they know transit is dependable. They ride transit because they know a transit bus or rail car will be the last vehicle still operating during a weather crisis.

This dependability makes transit as important to the occasional rider as it is to the regular rider. Although the occasional rider might take the bus or subway only ten times a year, he must still get to work when it snows, when his automobile is being repaired, or when he's leaving town from work but can't leave his car in the city overnight. Because transit is available in these situations, the occasional rider can avoid confronting a real travel crisis.

The Cost and Financing of Transit

Who owns the transit industry?

The transit industry is primarily owned by the American public through their city, county, regional, and state governments. Over half the transit systems in the United States, carrying 94% of all transit passengers, are owned by public agencies.

Public ownership of transit is not a recent development. The first publicly owned transit system in the United States began operation in 1904, by World War II 20 street railways and motor bus systems—carrying 7% of America's transit riders—were publicly owned. The shift from private to public ownership accelerated in the post-war years with over 50% of transit riders carried by publicly owned transit systems in 1967 and 94% riding publicly owned transit by 1980.

Public ownership is the result of many factors which make private ownership of transit systems unprofitable. As with most private utilities, private transit systems are regulated by local or state government. Regulatory agencies often prohibit fare increases or service cutbacks by private operators. Since costs, affected by inflation, continue to increase, the transit operation becomes unprofitable. Declining transit ridership from 1946 to 1972 also reduced the economies of scale experienced by private operators and often left large investments in vehicles and physical plants underutilized. Faced with the possibility of unprofitable private transit systems ceasing operations and

the incentive of federal government financial assistance, many municipalities adopted public ownership of their transit systems.

Transit systems are publicly owned because many of transit's benefits accrue to the public rather than to the transit rider. Privately owned transit systems are restricted to revenues from fares paid by transit riders. Publicly owned transit systems are supported by both the fares of the transit rider and tax revenues from both transit riders and nontransit riders who benefit from transit service.

Why does transit receive financial assistance?

Most items which people buy are for their own benefit. A person who buys a radio, a house, or a dozen eggs expects to receive the benefits of listening to the radio, living in the house, or eating the eggs. These are called "private goods" because the goods benefit the person who pays for them. There are other types of goods which provide benefits to the general public as well as the person who uses them. These are called "public goods" and include public services such as parks, streets, police protection, and transit service.

Transit receives financial assistance from local, state, and federal governments because transit is a public service that benefits everyone, not only the transit rider. Like any public service, transit costs more than the individual rider can normally afford to pay. Individual transit riders are charged fares to pay a portion of the cost of transit service, and governments provide transit systems with financial assistance to pay for benefits from transit that accrue to the general public.

The public benefits of transit are extensive. Transit helps reduce traffic congestion so that cities do not need to build additional streets, highways, and parking garages. Transit allows persons who do not own automobiles access to jobs they could not otherwise reach, thus easing unemployment. Transit promotes urban concentration which reduces the size and cost of sewer and utility installations. Transit helps reduce cleaning and medical costs by reducing air pollution. Transit saves energy so that limited petroleum resources are available for other uses such as home heating and agriculture.

Financial assistance for transit is not a free ride for the transit user; rather, transit user fares help support a necessary public service that benefits the entire urban community.

Where do cities obtain funds for transit?

Funds for transit come from user's fees, sales of services, and financial assistance from government agencies. User's fees include passenger revenue for regular service and charter fees for special services. In 1980 user's fees accounted for 40.7% of transit operating revenue. Transit also earns revenue from advertising concessions, and sales of other services. These sales accounted for 2.0% of transit operating revenue in 1980.

The majority of transit operating funds now come from government agency financial assistance. In 1980 government financial assistance from all sources accounted for 57.3% of operating revenue.

The percent of operating assistance provided by various levels of government has remained surprisingly consistent over the past four years. Since 1977 federal government operating assistance has dropped from 30.7% to

Sources of Transit Financial Assistance for Operations, 1975-1980

Calendar Year	Percent of Total Assistance for Operations (Excludes Farebox Revenue)		
	Federal Government	State Governments	Local Governments
1975	21.4%	28.9%	49.7%
1976	25.7%	22.3%	52.0%
1977	30.7%	25.1%	44.2%
1978	30.9%	25.3%	43.8%
1979	30.4%	21.4%	48.1%
1980	30.2%	22.7%	47.1%

30.2% of all operating assistance, state government operating assistance has dropped from 25.1% to 22.7% of all operating assistance, and local government operating assistance has risen from 44.2% to 47.1% of all operating assistance. In terms of total operating revenue in 1980, federal operating assistance accounted for 17.3%, state operating assistance for 13.0%, and local operating assistance for 27.0%.

Almost all transit capital revenue is also received from government agencies. In 1980 the federal government contributed 2.8 billion dollars toward the purchase of transit capital equipment. Based on a ratio of 80% federal contributions and 20% local contributions, state and local governments contributed an additional 0.7 billion dollars toward capital purchases by transit systems.

What is federal transit financial assistance used for?

The federal government began providing financial assistance for the purchase of transit capital equipment in 1964. At that time, the federal government contributed two dollars toward a capital purchase for every dollar contributed by a local government. The relatively small amount of funding during the 1960s was used by many cities to buy the vehicles and facilities owned by private transit systems that were on the verge of bankruptcy. In those

The majority of federal financial assistance is used for capital purchases of buses and bus facilities and for the modernization of rail facilities. Federal funds are also paying part of the capital cost of five new rail systems now under construction including the Metropolitan Atlanta Rapid Transit Authority heavy rail system.

Equipment and Facilities Funded In Part By U.S. Government Capital Assistance, 1964-1980

42,692	Motor Buses
678	Trolley Coaches
3,218	Heavy Rail Cars
497	Light Rail Cars
1,720	Commuter Railroad Cars
96	Commuter Railroad Locomotives
16	Ferry Boats
2	Inclined Plane Cars
2	Automated Guideway Transit Systems**
12	Miles of Commuter Railroad Lines*
23	Miles of Busways*
240	Miles of Heavy and Light Rail Lines*
	Plus bus garages, office buildings, passenger shelters, communications systems and many other items.

* Includes only mileage actually under construction, in engineering, or completed. Mileage being planned not included.
** Includes one airport system.

cities federal assistance not only improved transit, but saved it from extinction.

During the 1970s the amount of capital funds spent by the federal government has increased many times and the federal portion of a capital purchase has been increased to 80% of its cost.

Since the inception of its capital assistance program, the federal government has participated in the purchase of 48,919 transit vehicles of all types, the design and construction of 275 miles of fixed guideways for transit vehicles, the construction of 2 automated guideway transit systems, and the construction of numerous buildings and other facilities.

In 1974 the federal government began providing operating assistance to transit systems. The amount of funding available to an individual transit system is based on the size of the urbanized area it operates in and can be as much as the amount of operating assistance provided by local and state governments, although the amount of money appropriated is seldom enough to do this. In 1975 federal operating assistance provided 8.7% of transit revenue. By 1980 the federal contribution had increased to 17.3% of all operating revenue. This percentage is, however, expected to decrease over the next several years.

What would be the effects of eliminating federal operating assistance?

The elimination of federal operating assistance proposed by some federal government officials would reduce transit operating revenue by 1.1 billion dollars: 17.3% of transit's revenue in 1980. The effects to both transit and the American economy would be far reaching.

The Regional Plan Association in New York has estimated the effects of a one billion dollar reduction in operating assistance. They predict that transit fares would increase 37%; transit ridership would decline 11%; annual automobile usage would increase by 2.4 billion miles; annual gasoline usage would increase by 167 million gallons; consumer cost for gasoline would increase by 240 million dollars; U.S. payments for foreign crude oil would increase by 650 million dollars; the Gross National Product would decline by 1.1 billion dollars; and the Consumer Price Index would increase by 0.1 percent.

The predictions of the Regional Plan Association may actually be underestimated. In 1980 transit revenue from passengers was 2.46 billion dollars. A 1.1 billion dollar increase in passenger revenue would require a 41% increase in fares above inflation if all passengers still rode transit after the fare increases. Historically, every 1% increase in transit fares above inflation is accompanied by a 0.3% decrease in transit passenger trips. Although the loss in passengers would not be this great, an open-ended spiral of increased fares followed by lost passenger trips would ensue. In actuality, it is doubtful that passenger fares could make up for the revenue loss. Thus local and state tax dollars would need to be used to replace lost federal tax dollars.

In December 1980 transit fares represented 0.41 percent of the Consumer Price Index market basket in urban areas. A 41% increase in transit fares would thus inflate the CPI by 1.6%. If applied directly to the 1980 U.S. Gross National Product, this 1.6% inflation would inflate the GNP by 42 billion dollars.

The greatest loss would be to small urban and rural areas. Many new transit systems in these areas rely heavily on the availability of federal assistance for operations. Without this assistance, it is likely that 100 to 150 of these transit systems will have to cease operations.

The Effect of Eliminating Federal Operating Assistance to Transit

- Transit fares would increase 37%
- Transit ridership would decline 11% or 900 million passenger trips
- Automobile usage would increase by 2.4 billion miles
- Gasoline usage would increase by 167 million gallons
- Consumer cost for gasoline would increase by $240 million
- U.S. payment for foreign crude oil would increase by as much as $650 million
- The Gross National Product would decline as much as $1.1 billion
- The Consumer Price Index would increase 0.1 percent

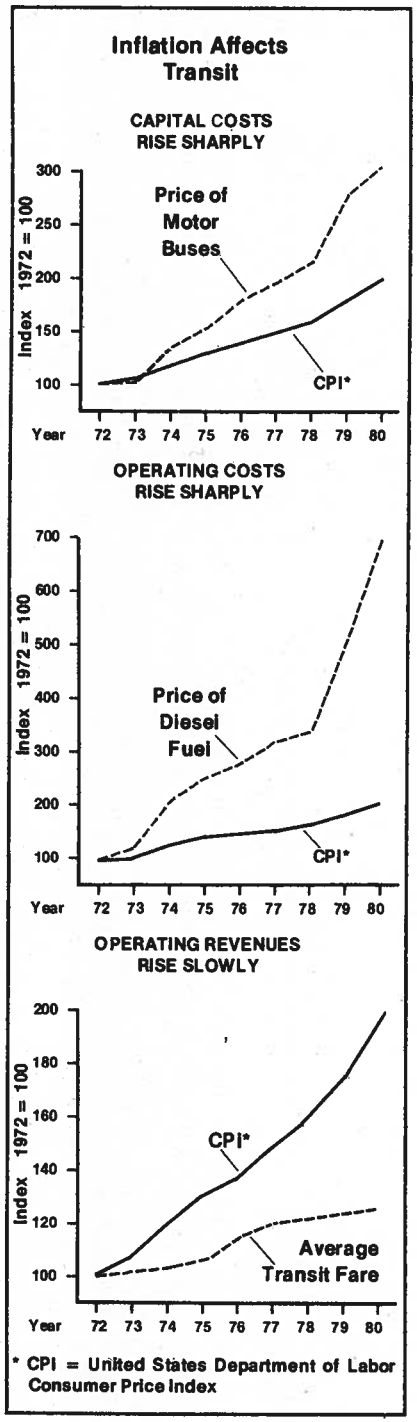
Source: Regional Plan Association, New York

Is transit affected by inflation?

Both the revenues and expenses of transit are negatively affected by inflation. Transit expenses increase more rapidly than inflation while transit revenues increase at a slower rate than general inflation. A vivid example of the increasing cost of transit capital equipment are motor buses, which increased 202% in cost from $40,500 in 1972 to $122,200 in 1980. During the same time period the United States Department of Labor Consumer Price Index rose only 97%. Transit faces ever increasing costs for consumables also. Between 1972 and 1980 the cost of diesel fuel for buses rose 588%, over 6 times the inflation rate of consumer prices.

Unlike many businesses, transit is not able to pass increased costs through to its customers. Transit fares are established by government bodies that must consider the overall welfare of their community, not just the balance sheet of their transit system. In many cases, these governing bodies find community welfare to be maximized when transit fares are kept low in order to encourage higher transit ridership. When this policy is adopted, transit fares do not rise quickly enough to keep pace with inflation.

This effect is not new or unique to transit. Like many other service industries during periods of high inflation, transit is severely affected by the delay in passing costs through to the consumer. During the U.S. involvement in World War I, the consumer price index rose an average of 17% per year, higher than the rate it has risen in the past three years. In those three years, 1916 through 1918, one-third of all U.S. transit companies went into bankruptcy because their costs inflated but their revenues remained fixed by government regulation.



Inflation has severely affected the transit industry for the past several years. The prices of capital equipment such as buses and consumables such as diesel fuel have skyrocketed. One way transit systems fight inflation is to increase the productivity of their workforces. This articulated bus operated by the Municipality of Metropolitan Seattle can carry 50% more passengers than a normal-size bus with only a small increase in operating expenditures.

How much financial assistance should transit receive?

There is no magic number of dollars that would create perfect transit systems for America's cities. Transit is a means of meeting urban transportation needs. As those needs change the money required to satisfy them changes.

Urban passenger transportation needs are changing. Transportation using less energy is needed to combat petroleum shortages. Transportation producing fewer emissions is needed to stop air pollution. Transportation that can be used to plan growth and development is needed to reduce wasteful urban sprawl. Transit is part of the solution to each of these problems. The financial assistance that transit should receive depends upon how extensively governments wish to fight energy waste, pollution, and chaotic growth.

Transit also needs assistance to rebuild a capital plant that was left to deteriorate since the 1930's when governments began enacting policies that favored other means of transportation. Many transit systems still use maintenance facilities built by street railways at the end of the 19th century when private utilities were allowed to legally subsidize transit operations.

A minimum transit ridership increase of 100% over the next decade is necessary to begin to accomplish these goals. To purchase buses, rail cars, and other capital equipment to carry these new riders, and to build maintenance facilities, the government has established that transit will need approximately $50 billion in the next decade. Financial assistance for operations will also need to be increased because of growth and increased costs.

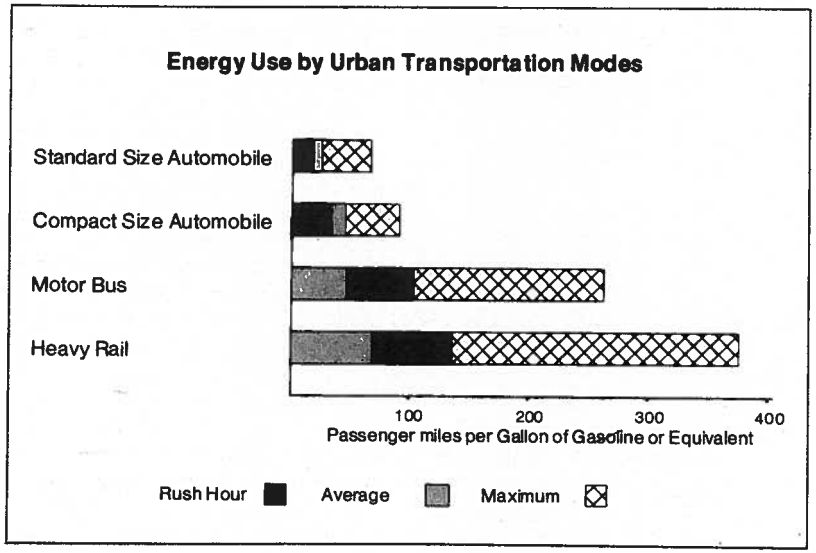
Transit, Energy, and the Environment

Does transit reduce energy consumption?

Transit is an important mechanism in reducing the amount of energy used for urban passenger transportation. Transit provides its riders with a high level of mobility while consuming relatively small quantities of petroleum. Electrically powered transit modes do not require petroleum at all. In 1980, transit used only 29,900 barrels of petroleum a day for propulsion; 15 one-hundredths of one percent of total U.S. demand for refined petroleum products. Taken by automobile, these trips would have used 144,000 barrels of petroleum fuel daily, over four times the fuel used by transit.

The majority of urban passenger travel now takes place in individual gasoline powered automobiles, which are relatively inefficient compared to all transit modes. Cities with large established transit systems show low auto fuel usage compared to cities with smaller transit systems. A licensed driver in Chicago, a city with extensive rail and bus service, purchases 6.8 gallons of gasoline per week. In Washington, D.C., where rail service has only been in operation since 1976, the average purchase is 8.2 gallons per week and in Los Angeles and Houston, cities where transit use has been small but is now growing rapidly, the average gasoline purchase per driver is 14.0 and 16.2 gallons per week, respectively. As transit systems increase in capacity and begin to affect the way cities grow, there will be fewer cities where there is a high demand for gasoline.

During peak periods when crush loads are experienced, transit buses are up to 15 times more energy efficient than automobiles, achieving 280 passenger miles per gallon of fuel compared to the 19 passenger miles per gallon achieved by the average commuter automobile. A modern heavy rail car capable of carrying over 250 passengers at a maximum load is the most fuel efficient form of urban transportation. Under these fully loaded conditions a heavy rail car is 53 times more fuel efficient than an average commuter automobile.



Every individual who uses transit accomplishes significant energy savings. W. P. Goss and J. G. McGowan studied the energy use of New York commuters in *Energy Requirements for Passenger Ground Transportation Systems*. They found that a commuter going 35 miles from Long Island to Manhattan uses as much energy by driving an automobile in four years as a transit rider uses in his entire 40-year working life. With an automobile using 1,233 gallons of fuel per year in this example, a transit user can save almost 45,000 gallons of fuel in his work life.

What is transit's role in America's battle to save energy?

Each person who switched from an automobile to transit in 1980 saved 0.15 gallons of gasoline per trip. With millions more persons using transit each year, transit use has the potential of causing large direct petroleum fuel savings. This is the most obvious role of transit in America's battle to save energy, but represents only a small portion of transit energy saving potential.

Transit can also help to channel and concentrate urban development by establishing corridors and zones of rapid high capacity transportation. Concentrated growth reduces the amount people and goods travel, thereby reducing transportation energy demand. Transit helps reduce traffic congestion, allowing other modes of transportation to operate more efficiently. Transit reduces the size of highways and parking facilities needed in urban areas.

Transit's immediate benefit to many Americans is as an alternative way to get to work or go shopping when ever more frequent gasoline shortages make it impossible for everyone to drive. Today's transit systems will provide the basis of the truly mass public transportation that will be needed when rising gasoline prices make driving a luxury or limited gasoline supplies make driving a privilege.

Conserving petroleum fuels by using transit has all the benefits of any fuel conservation program. The petroleum fuel saved can be used for other purposes such as raw materials for chemicals, plastics, and other

Petroleum Fuel Saved by Transit Riders*

Year	Barrels of Petroleum Fuel
1960	46,111,000
1961	43,961,000
1962	43,121,000
1963	41,616,000
1964	41,338,000
1965	40,934,000
1966	39,966,000
1967	40,145,000
1968	39,663,000
1969	38,804,000
1970	36,508,000
1971	34,129,000
1972	32,758,000
1973	33,040,000
1974	34,246,000
1975	34,254,000
1976	34,574,000
1977	35,463,000
1978	37,165,000
1979	39,023,000
1980	39,400,000

* Includes Commuter Railroad

petroleum based products. Transit's fuel efficiency also leads to a dramatic reduction in urban air pollution.

Because transit vehicles use less fuel per passenger mile than automobiles, transit vehicles create fewer air polluting emissions per passenger mile compared to automobiles.

Richard Thomas Shehan in "Energy Profile: Auto vs. Transit" has shown the overall toxicity of automobile emissions to be over eight times that of either bus transit or rail transit.

Propulsion Energy Required to Move 200 Commuters 10 Miles in Line-Haul Service

Type of Vehicle	Passengers Per Vehicle	Number of of Vehicles	Btu* per Passenger Mile	Total Btu*
Heavy Rail Car	200	1	103	205,060
Heavy Rail Car	100	2	205	410,120
Transit Bus	67	3	517	1,040,250
Transit Bus	40	5	867	1,733,750
Vanpool	10	20	1,389	2,777,800
Vanpool	6	33	2,314	4,583,370
Carpool	4	50	2,224	4,484,000
Average Automobile	1.3	154	6,898	13,810,720

* British Thermal Units

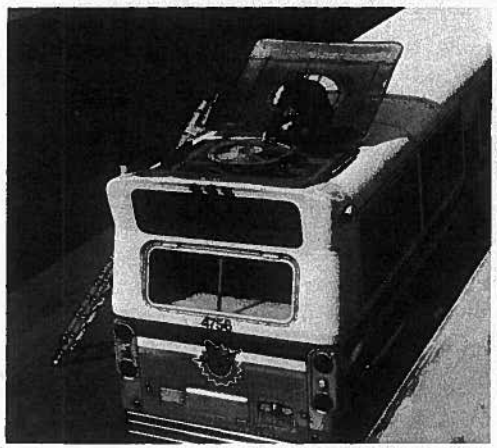
How much does transit reduce air pollution?

Because of inherent operating efficiency, transit vehicles generate far fewer air polluting emissions per passenger than automobiles. Transit vehicles produce fewer hydrocarbons and nitrogen oxides and less carbon monoxide than automobiles providing an equal number of passenger miles.

Transit is especially beneficial during rush hours when air pollution is normally at its worst. During rush hours automobiles produce over 70 grams of hydrocarbons per 100 passenger miles while buses produce only 20 grams and heavy rail only 1 gram; automobiles produce nearly 220 grams of nitrogen oxides per 100 passenger miles while buses produce only 30 grams and heavy rail only 15 grams; and automobiles produce 650 grams of carbon monoxides per 100 passenger miles while buses produce only 50 grams and heavy rail produces none.

Transit systems make significant efforts to reduce transit vehicle emissions. Most motor bus transit systems use No. 1-D diesel fuel, a more refined grade of fuel that produces fewer emissions than regular grades of diesel fuel. Rail transit also offers the advantage of power generation plants located away from central city areas, thus diffusing pollutants associated with generation of electricity.

If all transit trips over the past 10 years had been made by automobiles, America's cities would have been polluted by an additional 138,000 tons of



Transit contributes many positive effects to the urban environment as a result of moving people efficiently. Less land is devoted to streets and parking, air pollution is lowered, property values are raised, and energy is saved. Transit systems in Pueblo, Colorado (above); Phoenix, Arizona (left); and Baltimore, Maryland (below) are only three of over 1,000 transit systems working to keep U.S. cities functioning.

hydrocarbons, 1,360,000 tons of carbon monoxide, 327,000 tons of nitrogen oxides, and 46,000 tons of particulate matter.

Air Pollutants Avoided By Use of Transit*

Year	Tons of Air Pollutants			
	Hydrocarbons	Carbon Monoxide	Nitrogen Oxides	Particulate Matter
1970	14,800	145,400	35,200	4,900
1971	13,800	135,200	32,800	4,900
1972	13,200	129,400	31,400	4,400
1973	13,200	129,100	31,200	4,400
1974	13,600	134,200	32,300	4,500
1975	13,500	133,700	32,000	4,500
1976	13,500	133,400	31,900	4,500
1977	13,500	133,700	31,900	4,500
1978	14,200	140,700	33,600	4,800
1979	14,700	146,300	34,900	5,000
1980	14,900	147,800	35,300	5,000

* Excludes Commuter Railroad

How will transit react during the next energy crisis?

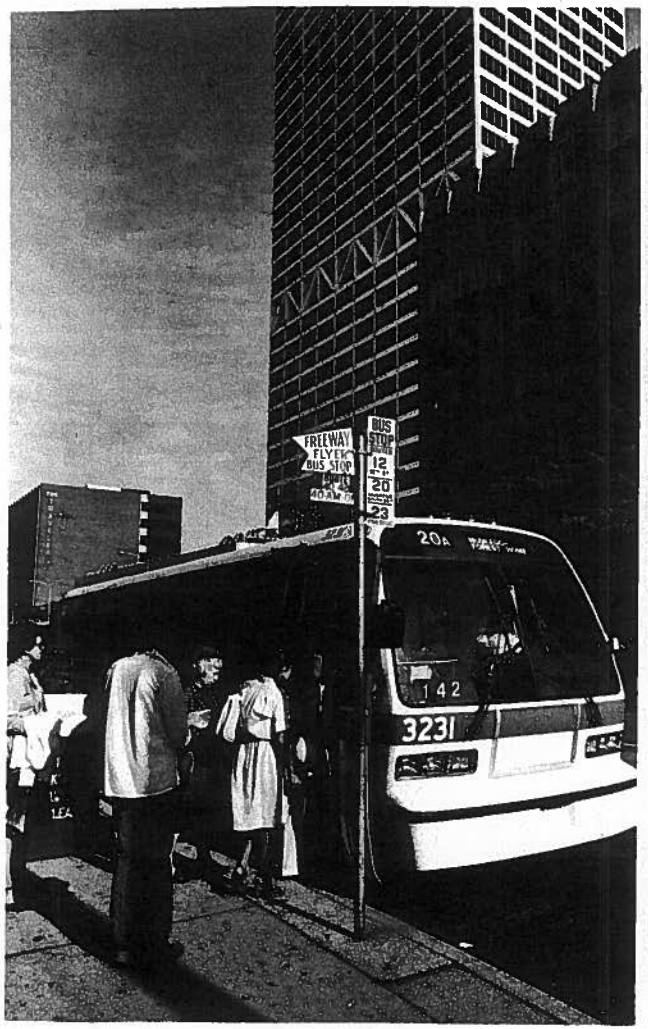
Transit's ability to react to and help urban areas cope with the next petroleum shortage depends very much on transit-related decisions being made now. A well-run transit system takes many years to develop and cannot be turned on and off like a water faucet.

The two greatest ridership growth periods for transit since World War II were during the gasoline shortages of 1974 and 1979. In some months ridership increased nationally up to 13% with increases in harder-hit cities up to 40%. Transit was able to respond for short periods of time by operating vehicles and working personnel longer hours than normal. The long-term petroleum shortages predicted for the future cannot be met with such a patchwork response.

The lead time to build a bus is often nine months and combined with the time taken to submit requests for funding and receive and approve bids from manufacturers means a bus planned for today may not arrive at a transit system for two years. A rail system may take 10 years from the time it is planned to the time the first part of the system is operational. Even when buses and rail cars are available, it takes months to train personnel to operate them effectively. Besides bus drivers and rail car motormen, trained mechanics, dispatchers, schedule makers, and many other personnel are needed.

If, as many analysts predict, future petroleum shortages are inevitable, it is necessary to plan expanded transit systems now to ensure urban mobility when those shortages occur.

Statistical Trends of Transit Finances and Operations



SECTION B

TABLE 1

The United States Transit Industry in 1979 and 1980: Modes at a Glance

MODE	NUMBER OF SYSTEMS		UNLINKED PASSENGER TRIPS (MILLIONS)		ESTIMATED PASSENGER MILES (MILLIONS)		AVERAGE LINKED PASSENGER TRIP LENGTH (MILES)	
	1979	1980	1979	1980	1979	1980	1979	1980
Motor Bus	1,024	1,022	5.552	5,731	22,401	23,178	4.7	4.9
Heavy Rail	11	11	2,381	2,290	10,760	10,558	7.3	7.4
Light Rail	9	9	107	107	407	381	4.9	4.7
Trolley Coach	5	5	75	85	204	263	3.7	3.7
Commuter Railroad (a)	18	18	284	285	5,878	5,898	20.7	20.7
Cable Car	1	1	*	*	*	*	*	*
Inclined Plane	2	2	1	1	*	*	*	*
Urban Ferry Boat (a)	16	16	62	63	335	340	5.4	5.4
Aerial Tramway (a)	1	1	*	*	*	*	*	*
Automated Guideway Transit (a)	1	1	*	*	*	*	*	*
Total (b)	1,057	1,055	8,479	8,577	40,000	40,633	6.0	6.1

TABLE 1 (Continued)
The United States Transit Industry in 1979 and 1980: Modes at a Glance

MODE	VEHICLES OWNED AND LEASED		VEHICLE MILES OPERATED (MILLIONS)		OPERATING REVENUE (MILLIONS)		OPERATING EXPENSE (MILLIONS)	
	1979	1980	1979	1980	1979	1980	1979	1980
Motor Bus	54,490	59,411	1,633.6	1,677.2	$ 1,782	$ 1,899	$ 4,124	$ 4,893
Heavy Rail	9,522	9,693	380.5	384.7	695	735	1,340	1,458
Light Rail	959	1,013	19.1	19.5	29	32	104	112
Trolley Coach	682	823	11.7	13.0	16	26	37	44
Commuter Railroad (a)	4,350	4,448	161.0	163.9	410	436	915	973
Cable Car	39	39	*	*	*	*	*	*
Inclined Plane	4	4	0.1	0.1	*	*	*	*
Urban Ferry Boat (a)	65	68	1.6	1.6	48	—	100	—
Aerial Tramway (a)	2	2	*	*	*	*	*	*
Automated Guideway Transit (a)	45	45	*	*	*	*	*	*
Total (b)	70,158	75,546	2,208.4	2,260.8	$ 2,983	$ 3,180	$ 6,627	$ 7,601

(a) Not included in "Transit Industry" Summary Tables 2 through 18.
(b) Includes Commuter Railroad, Urban Ferry Boat, Aerial Tramway, and Automated Guideway Transit not included in "Transit Industry" Summary Tables 2 through 18.
* Data not available for modes with fewer than three transit systems in these categories.
— Not available.

TABLE 2

Transit Systems Classified by Vehicle Type and Population Group*

POPULATION OF URBANIZED AREA	ALL-RAIL SYSTEMS (a)		MULTI-MODE SYSTEMS (b)		ALL-BUS SYSTEMS		TOTAL SYSTEMS	
	1979	1980	1979	1980	1979	1980	1979	1980
1,000,000 and greater	3	3	15	15	381[c,d]	348[c,d]	399[c,d]	366[c,d]
500,000 to 1,000,000	1	1	2	2	61	61	64	64
250,000 to 500,000	0	0	0	0	64	59	64	59
100,000 to 250,000	0	0	1	1	133	131	134	132
50,000 to 100,000	0	0	0	0	86	91	86	91
Less than 50,000[e]	0	0	0	0	280	332	280	332
Total U.S. Transit Systems	4	4	18	18	1,005	1,022	1,027	1,044

* As of December 31, 1979 and December 31, 1980.

(a) Includes transit systems operating one of the following modes exclusively: either heavy rail or light rail.

(b) Includes transit systems operating two or more of the following modes: heavy rail, light rail, trolley coach, motor bus, cable car, inclined plane, ferry boat, aerial tramway, and commuter railroad.

(c) Commuter bus service operated by Greyhound Lines, Inc. and affiliates in 20 Urbanized Areas and commuter bus service operated by Trailways, Inc. and affiliates in 9 Urbanized Areas not included, see Table 22.

(d) Includes 156 motor bus owners which function collectively as 12 "bus-owners associations" regulated by the State of New Jersey Board of Public Utility Commissioners in 1979 and 111 motor bus owners which function as 10 "bus-owners associations" in 1980.

(e) Population of urban place with less than 50,000 population outside an urbanized area.

NOTE: Table excludes exclusive urban ferry boat, automated guideway transit, and commuter railroad transit systems.

TABLE 3

Publicly Owned Transit as a Portion of the Transit Industry*

CALENDAR YEAR	NUMBER OF TRANSIT SYSTEMS	PERCENT OF INDUSTRY TOTAL	TOTAL TRANSIT VEHICLES OWNED AND LEASED	PERCENT OF INDUSTRY TOTAL	VEHICLE MILES OPERATED (MILLIONS)	PERCENT OF INDUSTRY TOTAL	LINKED PASSENGER TRIPS (MILLIONS)	PERCENT OF INDUSTRY TOTAL
1940	20	2%	4,934	7%	—	—	—	—
1945	29	2%	14,609	16%	—	—	—	—
1950	36	3%	24,570	28%	—	—	—	—
1955	39	3%	22,011	30%	—	—	—	—
1960	58	5%	23,738	36%	—	—	—	—
1965	88	8%	29,592	48%	—	—	—	—
1970	159	15%	40,778	66%	1,280	68%	4,567	77%
1971	177	17%	41,301	68%	1,292	70%	4,398	80%
1972	203	19%	42,499	70%	1,282	73%	4,308	82%
1973	246	24%	47,508	79%	1,468	80%	4,606	87%
1974	308	33%	48,410	81%	1,621	85%	5,034	90%
1975	333	35%	51,964	83%	1,706	86%	5,090	90%
1976	375	39%	54,149	85%	1,770	87%	5,162	91%
1977	455	45%	54,662	86%	1,790	89%	5,221	91%
1978	463	48%	55,393	87%	1,825	90%	5,456	91%
1979	523	51%	57,292	87%	1,840	91%	5,872	92%
P 1980	576	55%	64,128	90%	1,939	93%	5,945	94%

P = Preliminary

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

* Publicly owned transit systems include all transit systems owned by municipalities, counties, regional authorities, states, or other governmental agencies including transit systems operated or managed by private firms under contract to governmental agency owners.

— Data Not Available

TABLE 4

Transit Industry Financial Statement for 1979 and 1980 (P)

	1979	1980 (P)
REVENUES		
Passenger Revenue	$2,436,333,000	$2,462,296,000
Other Operating Revenue	87,834,000	105,888,000
Total Operating Revenue	$2,524,167,000	$2,568,184,000
Net Auxiliary Operating Revenue	$ 26,291,000	$ 35,669,000
Non-Operating Income	97,345,000	91,722,000
Total Non-Operating Revenue	$ 123,636,000	$ 127,391,000
Local Operating Assistance	$1,416,903,000	$1,703,862,000
State Operating Assistance	637,734,000	820,373,000
Federal Operating Assistance	855,751,000	1,093,870,000
Total Operating Assistance	$2,910,388,000	$3,618,105,000
Total Revenue	$5,558,191,000	$6,313,680,000
EXPENSES		
Transportation Expense	$2,734,953,000	$3,208,474,000
Vehicle Maintenance Expense	1,070,180,000	1,143,550,000
Non-Vehicle Maintenance Expense	398,788,000	634,240,000
General Administration Expense	1,027,743,000	1,063,847,000
Total Operating Expense	$5,231,664,000	$6,050,111,000
Depreciation and Amortization	$ 253,372,000	$ 277,605,000
Other Reconciling Items	126,346,000	186,494,000
Total Expense	$5,611,382,000	$6,514,210,000

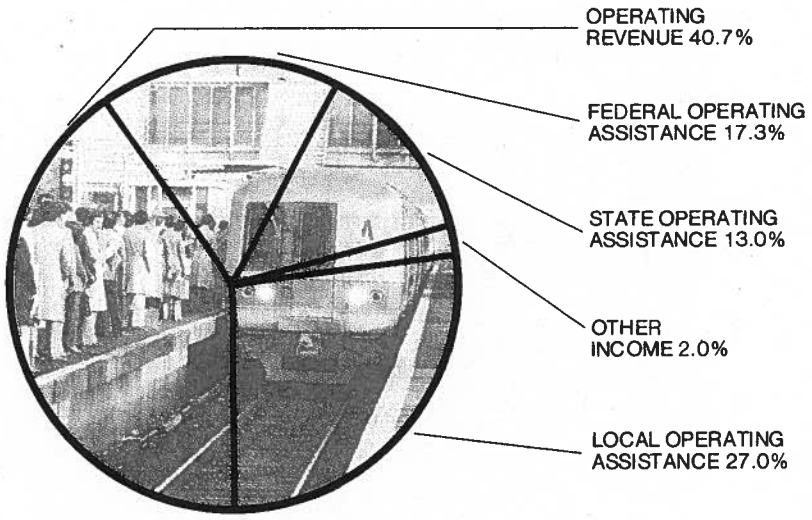
P = Preliminary

NOTE: The difference between "total revenue" and "total expense" is due to several factors including (1) use of the accrual system of accounting rather than the cash system of accounting, (2) amalgamation of accounts of transit systems recording revenue and expense in a variety of fiscal or calendar years, (3) inclusion of depreciation and amortization costs in "total expense" that are met from revenue sources not included in "total revenue," (4) exclusion of "extraordinary revenues" and "extraordinary expenses," (5) actual profit or loss of privately owned transit systems, and (6) actual surplus or deficit of publicly owned transit systems.

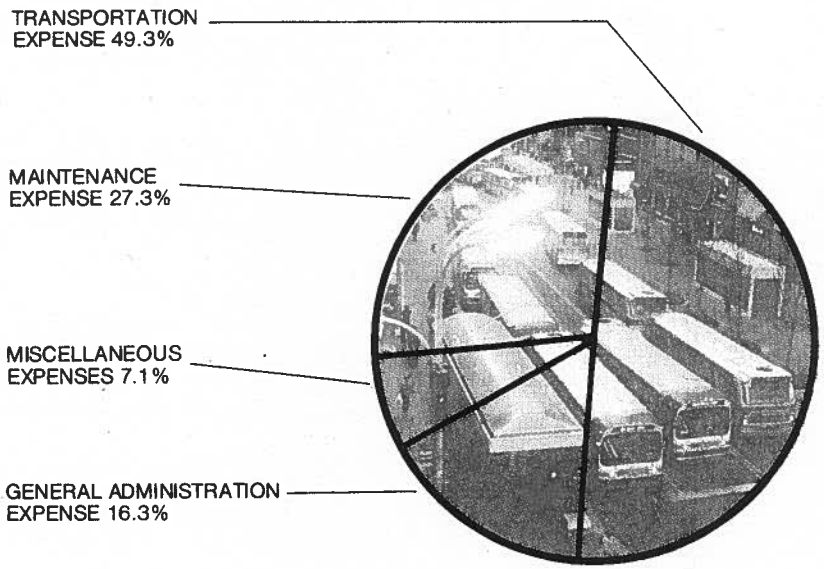
Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

FIGURE I

Transit Industry Revenue and Expense in 1980



TRANSIT REVENUE



TRANSIT EXPENSE

TABLE 5

Trend of Transit Revenues

CALENDAR YEAR	PASSENGER REVENUE	TOTAL OPERATING REVENUE	NON-OPERATING AND AUXILIARY REVENUE	OPERATING ASSISTANCE				TOTAL REVENUE
				LOCAL	STATE	FEDERAL	TOTAL	
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	$ 701.5	$ 737.0	—	—	—	—	—	—
1945	1,313.7	1,380.4	—	—	—	—	—	—
1950	1,386.8	1,452.1	—	—	—	—	—	—
1955	1,358.9	1,426.4	—	—	—	—	—	—
1960	1,334.9	1,407.2	—	—	—	—	—	—
1965	1,340.1	1,443.8	—	—	—	—	—	—
1970	1,639.1	1,707.4	—	—	—	—	—	—
1971	1,661.9	1,740.7	—	—	—	—	—	—
1972	1,650.7	1,728.5	—	—	—	—	—	—
1973	1,683.7	1,797.6	—	—	—	—	—	—
1974	1,805.2	1,939.7	—	—	—	—	—	—
1975	1,860.5	2,002.4	$ 40.6	$ 699.4	$ 406.6	$ 301.8	$ 1,407.8	$ 3,450.8
1976	2,025.6	2,161.1	75.0	857.4	367.1	422.9	1,647.3	3,883.4
1977	2,157.1	2,280.0	73.6	841.1	478.4	584.5	1,904.1	4,257.7
1978	2,271.0	2,381.1	68.8	977.8	564.3	689.5	2,231.7	4,681.5
1979	2,436.3	2,524.2	123.6	1,416.9	637.7	855.8	2,910.4	5,558.2
P 1980	2,462.3	2,568.2	127.4	1,703.9	820.4	1,093.9	3,618.1	6,313.7

P = Preliminary — Data not available NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

TABLE 6

Trend of Transit Expenses

CALENDAR YEAR	TRANSPORTATION	MAINTENANCE		GENERAL ADMINISTRATION	DEPRECIATION AND AMORTIZATION	OTHER RECONCILING ITEMS	TOTAL OPERATING EXPENSE
		VEHICLE	NON-VEHICLE				
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	—	—	—	—	—	—	$ 660.7
1945	—	—	—	—	—	—	1,231.7
1950	—	—	—	—	—	—	1,385.7
1955	—	—	—	—	—	—	1,370.1
1960	—	—	—	—	—	—	1,376.5
1965	—	—	—	—	—	—	1,454.4
1970	—	—	—	—	—	—	1,995.6
1971	—	—	—	—	—	—	2,152.1
1972	—	—	—	—	—	—	2,241.6
1973	—	—	—	—	—	—	2,536.1
1974	—	—	—	—	—	—	3,239.3
1975	$ 1,876.5	$ 814.4[a]		$ 846.4	$ 121.0	$ 94.2[b]	3,752.5
1976	2,033.4	894.1[a]		929.9	136.3	88.9	4,082.6
1977	2,219.8	972.7[a]		928.5	161.4	84.2	4,366.6
1978	2,508.7	776.6	292.1	961.7	149.6	100.2	4,788.9
1979	2,735.0	1,070.2	398.8	1,027.7	253.4	126.3	5,611.4
P 1980	3,208.5	1,143.6	634.2	1,063.8	277.6	186.5	6,514.2

P = Preliminary — = Data not available NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.
(a) Vehicle Maintenance and Non-Vehicle Maintenance combined
(b) Includes "Total Income Deductions" after 1975.

FIGURE II

Transit Operating Expense for 1980 Classified By Function and Object Class* (Total Dollars in Thousands)

Function and Object Class	Transportation	Vehicle Maintenance	Non-Vehicle Maintenance	General Administration	Total
Salaries and Wages	1,933,654	608,818	273,125	326,161	3,141,758
Fringe Benefits	786,287	252,815	111,822	144,954	1,295,878
Services	11,420	52,793	92,528	119,325	276,066
Fuel and Lubricants	390,531	9,883			400,414
Tires and Tubes	38,426	729			39,155
Other Materials and Supplies	10,381	202,495	66,728	39,834	319,438
Utilities		10,681	114,189	68,252	193,122
Casualty and Liability Costs		7,136	1,453	229,535	238,124
Other	37,775	(1,800)	(25,605)	135,786	146,156
Total	3,208,474	1,143,550	634,240	1,063,847	6,050,111

* Includes Motor Bus, Heavy Rail, Light Rail, Trolley Coach, Cable Car, and Inclined Plane Only; Excludes Commuter Railroad and Ferry Boat.

FIGURE II, continued

Transit Operating Expense for 1980 Classified By Function and Object Class* (Percent of Total)

Function and Object Class	Transportation	Vehicle Maintenance	Non-Vehicle Maintenance	General Administration	Total
Salaries and Wages	31.96	10.06	4.52	5.39	51.93
Fringe Benefits	12.99	4.18	1.85	2.40	21.42
Services	0.19	0.87	1.53	1.97	4.56
Fuel and Lubricants	6.46	0.16			6.62
Tires and Tubes	0.64	0.01			0.65
Other Materials and Supplies	0.17	3.35	1.10	0.66	5.28
Utilities		0.18	1.88	1.13	3.19
Casualty and Liability Costs		0.12	0.02	3.79	3.93
Other	0.62	(0.03)	(0.42)	2.25	2.42
Total	53.03	18.90	10.48	17.59	100.00

* Includes Motor Bus, Heavy Rail, Light Rail, Trolley Coach, Cable Car, and Inclined Plane Only; Excludes Commuter Railroad and Ferry Boat.

TABLE 7

Trend of Operating Revenue

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	TOTAL OPERATING REVENUE
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL (a)			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	$ 327.8	$ 128.3	$ 456.1	$ 25.0	$ 255.9	$ 737.0
1945	560.1	149.4	709.5	68.4	602.5	1,380.4
1950	361.7	216.4	578.1	122.0	752.0	1,452.1
1955	175.5	264.3	439.8	130.8	855.8	1,426.4
1960	87.6	281.8	369.4	81.9	955.9	1,407.2
1965	55.7	310.1	365.8	41.7	1,036.3	1,443.8
1970	55.2	384.4	439.6	31.5	1,236.3	1,707.4
1971	48.8	379.4	428.2	32.3	1,280.2	1,740.7
1972	48.4	417.2	465.6	32.8	1,230.1	1,728.5
1973	48.5	461.0	509.5	25.2	1,262.9	1,797.6
1974	36.5	505.8	542.3	20.1	1,377.3	1,939.7
1975	28.9	517.1	548.8	15.9	1,437.7	2,002.4
1976	26.9	630.7	660.2	15.3	1,485.6	2,161.1
1977	25.0	653.2	680.8	14.8	1,584.4	2,280.9
1978	27.4	664.9	695.1	14.6	1,671.4	2,381.1
1979	28.9	694.6	726.5	15.9	1,781.8	2,524.2
P 1980	31.8	735.3	770.2	26.5	1,898.9	2,695.6

P = Preliminary
NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.
(a) Includes cable car and inclined plane beginning in 1975.

TABLE 8

Trend of Passenger Revenue

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	TOTAL PASSENGER REVENUE
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL (a)			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	$ 304.0	$ 123.8	$ 427.8	$ 24.9	$ 248.8	$ 701.5
1945	513.4	142.3	655.7	68.0	590.0	1,313.7
1950	322.4	209.6	532.0	120.6	734.2	1,386.8
1955	146.6	257.5	404.1	128.5	826.3	1,358.9
1960	74.0	296.6	343.6	81.0	910.3	1,334.9
1965	48.6	279.0	327.6	40.6	971.1	1,340.1
1970	46.6	368.5	415.1	30.4	1,193.6	1,639.1
1971	40.1	363.8	403.9	31.2	1,226.8	1,661.9
1972	39.6	401.9	441.5	31.4	1,177.8	1,650.7
1973	38.7	437.6	476.3	23.6	1,183.8	1,683.7
1974	31.7	486.7	518.4	17.2	1,269.6	1,805.2
1975	28.1	504.3	535.0	15.4	1,310.1	1,860.5
1976	25.7	616.5	644.7	15.0	1,366.0	2,025.6
1977	23.9	634.2	660.6	14.5	1,482.0	2,157.1
1978	26.6	652.2	681.4	14.4	1,575.2	2,271.0
1979	27.9	675.9	706.8	15.7	1,713.8	2,436.3
P 1980	30.7	717.4	751.1	26.0	1,791.1	2,568.2

P = Preliminary
NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.
(a) Includes cable car and inclined plane beginning in 1975.

TABLE 9

Trend of Transit Passenger Trips Classified by Population Groups*

CALENDAR YEAR	HEAVY RAIL	SURFACE LINES						TOTAL TRIPS/ RIDES
		500,000 AND OVER	250,000-500,000	100,000-250,000	50,000-100,000	LESS THAN 50,000	SUBURBAN AND OTHER	
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
Revenue Passenger Rides*								
1940[a]	2,282	4,305	1,312	1,020	742	291	552	10,504
1945	2,555	6,969	2,920	2,359	1,899	932	1,348	18,982
1950	2,113	5,207	2,007	1,585	1,323	728	882	13,845
1955	1,741	3,478	1,286	953	786	360	585	9,189
1960	1,670	2,997	911	691	554	230	468	7,521
1965	1,678	3,000	606	416	474	192	432	6,798
1970	1,574	2,610	529	342	395	140	342	5,932
1971	1,494	2,399	739	234	196	107	328	5,497
1972	1,446	2,330	681	220	182	97	297	5,253
1973	1,424	2,386	682	229	175	104	294	5,294
1974[b]	1,435	3,544	269	231	49	77	—	5,606
1975	1,388	3,604	286	226	58	81	—	5,643
1976	1,353	3,632	306	230	67	85	—	5,673
Unlinked Transit Passenger Trips*								
1977	2,149	4,293	375	284	82	103	—	7,286
1978	2,285	4,438	395	296	89	113	—	7,616
1979	2,381	4,745	431	330	108	136	—	8,130
P 1980	2,290	4,861	451	345	125	157	—	8,228

P = Preliminary

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

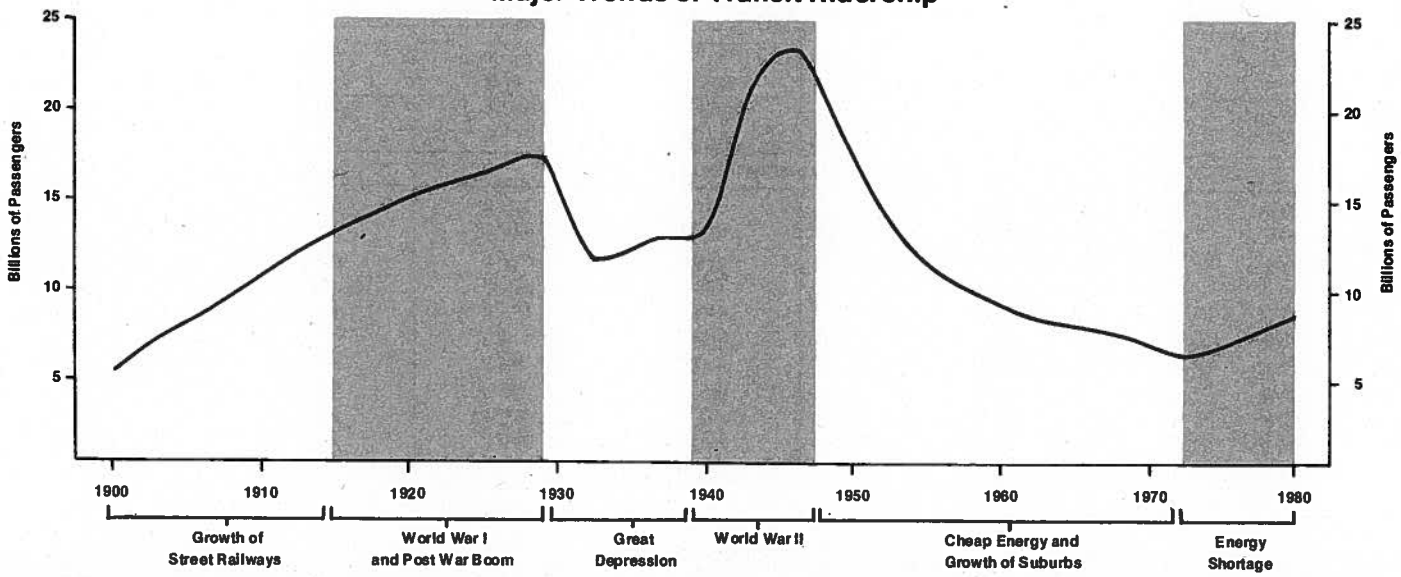
* "Revenue Passenger Rides" from 1940 through 1976; "Unlinked Transit Passenger Trips" beginning in 1977; series not continuous between 1976 and 1977.

(a) From 1940 through 1973 transit systems assigned by population of headquarters city.

(b) From 1974 through 1980 transit systems assigned by population of urbanized area excepting urban places of less than 50,000 population outside urbanized areas.

FIGURE III

Major Trends of Transit Ridership



Transit ridership has gone through five major cycles of growth and decline during the Twentieth Century influenced by social and economic forces outside the transit industry. From 1900 to 1929 transit ridership grew steadily; first due to technical innovation and investment opportunities during the early growth of the street railway industry and then due to the economic boom of World War I and the post war period. The Great Depression caused a steep decline in ridership between 1929 and 1939 as people made fewer work trips and often could not afford to take pleasure trips. World War II caused motor fuel rationing and economic boom that led to a new rapid gowth cycle in transit ridership. Ridership quickly declined from the artificially high war levels as people fled to the suburbs spurred on by cheap fuel and government policy favoring low density suburban growth. In 1973 the ridership cycle reversed again and transit began a long term growth period that may continue through the end of the Twentieth Century. Rising motor fuel prices and shortages clearly signal the end of the era of cheap energy. Increasing trends of movement back to higher density cities indicate the need for efficient urban transportation will continue to push transit ridership in its newest growth cycle.

TABLE 10

Trend of Originating and Continuing Transit Passenger Trips*

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	ALL MODES PASSENGER RIDES/TRIPS
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL (a)			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
Total Passenger Rides*						
1940	5,943	2,382	8,325	534	4,239	13,098
1945	9,426	2,698	12,124	1,244	9,886	23,254
1950	3,904	2,264	6,168	1,658	9,420	17,246
1955	1,207	1,870	3,077	1,202	7,250	11,529
1960	463	1,850	2,313	657	6,425	9,395
1965	276	1,858	2,134	305	5,814	8,253
1970	235	1,881	2,116	182	5,034	7,332
1971	222	1,778	2,000	148	4,699	6,847
1972	211	1,731	1,942	130	4,495	6,567
1973	207	1,714	1,921	97	4,642	6,660
1974	150	1,726	1,876	83	4,976	6,935
1975	124	1,673	1,810	78	5,084	6,972
1976	112	1,632	1,759	75	5,247	7,081
Unlinked Transit Passenger Trips*						
1977	103	2,149	2,267	70	4,949	7,286
1978	104	2,285	2,404	70	5,142	7,616
1979	107	2,381	2,503	75	5,552	8,130
P 1980	107	2,290	2,412	85	5,731	8,228

P = Preliminary NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.
*"Total Passenger Rides" from 1940 through 1976; "Unlinked Transit Passenger Trips" beginning in 1977; series not continuous for individual modes between 1976 and 1977.
(a) Includes cable car and inclined plane beginning in 1975.

TABLE 11

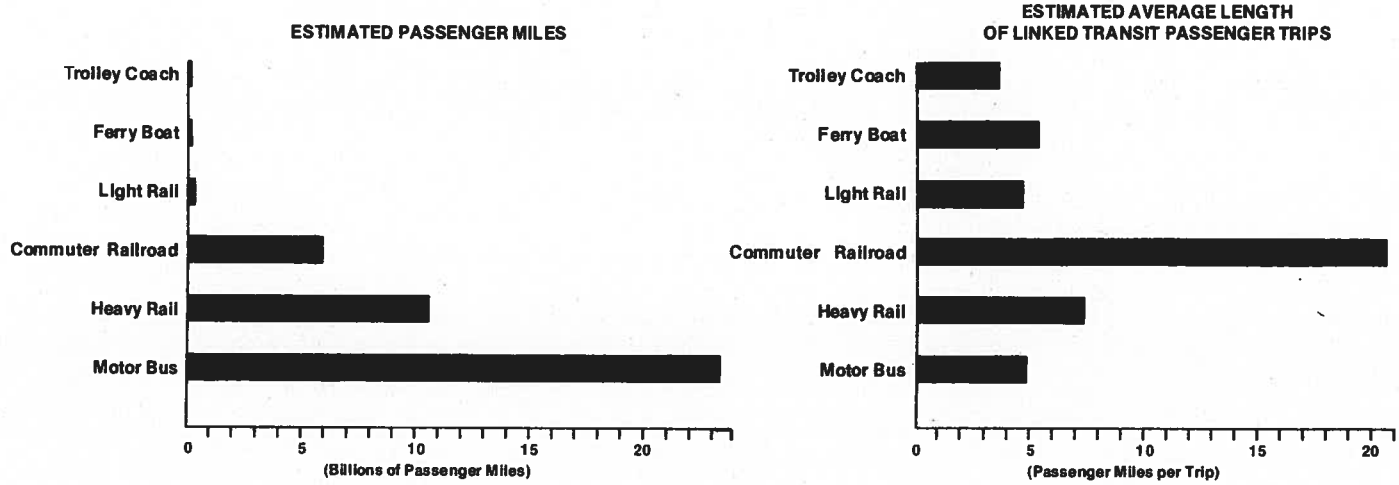
Trend of Originating Transit Passenger Trips*

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	ALL MODES PASSENGER RIDES/TRIPS
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL (a)			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
Revenue Passenger Rides*						
1940	4,182	2,282	5,464	419	3,620	10,504
1945	7,081	2,555	9,636	1,001	8,335	18,982
1950	2,790	2,213	4,903	1,261	7,681	13,845
1955	845	1,741	2,586	869	5,734	9,189
1960	335	1,670	2,005	447	5,069	7,521
1965	204	1,678	1,882	186	4,730	6,798
1970	172	1,574	1,746	128	4,058	5,932
1971	155	1,494	1,649	113	3,735	5,497
1972	147	1,446	1,593	100	3,561	5,253
1973	144	1,424	1,567	74	3,653	5,294
1974	114	1,435	1,549	60	3,998	5,606
1975	94	1,388	1,492	56	4,095	5,643
1976	86	1,353	1,450	54	4,168	5,673
Linked Transit Passenger Trips*						
1977	79	1,335	1,425	51	4,246	5,723
1978	80	1,415	1,506	51	4,406	5,963
1979	83	1,474	1,569	55	4,746	6,370
P 1980	81	1,420	1,513	71	4,774	6,358

P = Preliminary NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.
*"Revenue Passenger Rides" from 1940 through 1976; "Linked Transit Passenger Trips" beginning in 1977.
(a) Includes cable car and inclined plane beginning in 1975

FIGURE IV

Estimated Passenger Miles and Estimated Average Length of Linked Transit Passenger Trips by Vehicle Mode in 1980



NOTE: Passenger-mile and average transit passenger trip-length data are not collected by transit systems on a continuing basis. Data presented in Figure IV are estimated by APTA from special studies conducted by a limited number of transit systems and metropolitan planning organizations. Average passenger trip-length data from national sources presented in Table 12 depict the variability of such studies. Because of the uncertainty attached to all transit passenger-mile and average trip-length data, Figure IV and Table 12 illustrate the relative number of passenger miles and the relative length of passenger trips on each type of transit service rather than the absolute number of passenger miles and the absolute length of passenger trips on each type of transit service. Passenger mile data collection was required by the UMT Act Section 15 Reporting System beginning in 1978. This data is not yet available on a current basis.

TABLE 12

Estimates of Average Length of Linked Transit Passenger Trips

SOURCE	ESTIMATED AVERAGE LENGTH OF LINKED TRANSIT PASSENGER TRIPS IN MILES							
	HEAVY RAIL	MOTOR BUS	LIGHT RAIL	TROLLEY COACH	ALL TRANSIT (Except Commuter Railroad and Urban Ferry Boat)	COMMUTER RAILROAD	URBAN FERRY BOAT	ALL TRANSIT
National Personal Transportation Study[a]	7.5	7.4	7.4	—	—	28.0	—	—
U.S. Census of 21 Metropolitan Areas[b] (Home-to-Work Trips Only)	10.1	7.0	7.0	—	—	24.4	—	8.9
U.S. Census of 20 Metropolitan Areas[c] (Home-to-Work Trips Only)	10.2	5.0	5.0	—	—	36.0	—	8.8
American Public Transit Association Estimate[d]	**7.4**	**4.9**	**4.7**	**3.7**	**5.4**	**20.7**	**5.4**	**6.1**
National Transportation Report[e]	6.3	5.4	—	—	—	17.3	—	5.6

(a) *1977 National Personal Transportation Study, Preliminary Results* U.S. Department of Transportation/Federal Highway Administration, Washington, DC, 1980; All Transit Trips.
(b) *Selected Characteristics of Travel to Work in 21 Metropolitan Areas: 1975,* U.S. Department of Commerce, Bureau of the Census, Washington, DC, 1978; *Home-to-Work Trips Only.*
(c) *Selected Characteristics of Travel to Work in 20 Metropolitan Areas: 1976,* U.S. Department of Commerce, Bureau of the Census, Washington, DC, 1978; *Home-to-Work Trips Only.* Note: References (b) and (c) represent two separate samples of a total of 41 metropolitan areas.
(d) *1981 Transit Fact Book,* American Public Transit Association, Washington, DC, 1981; *All Transit Trips.*
(e) *1974 National Transportation Report, Profiles of Public Transportation Plans and Programs,* U.S. Department of Transportation, Washington, DC, 1975. Data converted from average length of unlinked transit passenger trips to average length of linked passenger trips by APTA; *All Transit Trips.*

TABLE 13

Trend of Passenger Vehicle Miles Operated

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	TOTAL VEHICLE MILES OPERATED
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL (a)			
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1940	844.7	470.8	1,315.5	86.0	1,194.5	2,596.0
1945	939.8	458.4	1,398.2	133.3	1,722.3	3,253.8
1950	463.1	443.4	906.5	205.7	1,895.4	3,007.6
1955	178.3	382.8	561.1	176.5	1,709.9	2,447.5
1960	74.8	390.9	465.7	100.7	1,576.4	2,142.8
1965	41.6	395.3	436.9	43.0	1,528.3	2,008.2
1970	33.7	407.1	440.8	33.0	1,409.3	1,883.1
1971	32.7	407.4	440.0	30.8	1,375.5	1,846.3
1972	31.6	386.2	417.8	29.8	1,308.0	1,755.6
1973	31.2	407.3	438.5	25.7	1,370.4	1,834.6
1974	26.9	431.9	458.8	17.6	1,431.0	1,907.4
1975	23.8	423.1	448.4	15.3	1,526.0	1,989.7
1976	21.1	407.0	429.6	15.3	1,581.4	2,026.3
1977	20.4	361.3	383.2	14.8	1,623.3	2,021.3
1978	19.5	363.5	384.5	13.3	1,630.5	2,028.3
1979	19.1	380.5	400.2	11.7	1,633.6	2,045.5
P 1980	19.5	384.7	404.8	13.0	1,677.2	2,095.0

P = Preliminary NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.
(a) Includes cable car and inclined plane beginning in 1975.

FIGURE V

Transit Operating Cost per Passenger Over Two Decades

Between 1960 and 1980 the cost of a transit trip increased 94% in constant 1980 dollars, from $0.41 to $0.79. This increase in transit operating costs is a direct result of changes in transit ownership and operating policy and excessive price increases in items used by transit systems.

Most large transit systems went from private to public ownership in the 1960s and early 1970s. In order to maintain profit, private transit systems had been forced to defer maintenance, eliminate unprofitable routes, and eliminate customer services to reduce costs. When public authorities took over former privately owned systems, large increases in spending were needed for improved vehicle maintenance, larger public relations staffs, long term planning, restoring service on eliminated routes, and special services.

Federal government policies have also increased transit costs. More complicated transit buses necessary to meet federal handicapped accessibility requirements are more costly to maintain and weigh more, thus using more fuel. At the same time, items purchased by transit systems have increased disproportionately in cost. Between 1972 and 1980 the cost of diesel fuel increased 6 times more quickly than inflation while the cost of a transit bus increased at 3 times the inflation rate.

Recent ridership increases which allow economies of scale and efforts to enhance productivity have, however, resulted in a decline in the real cost per passenger since 1976. Since the beginning of federal government operating assistance in late 1974, the real cost of carrying a passenger has not changed.

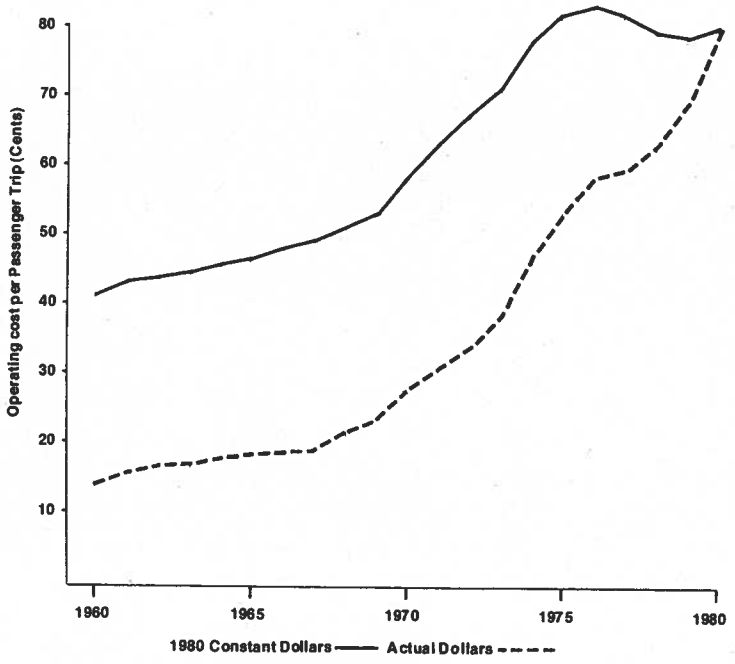


TABLE 14

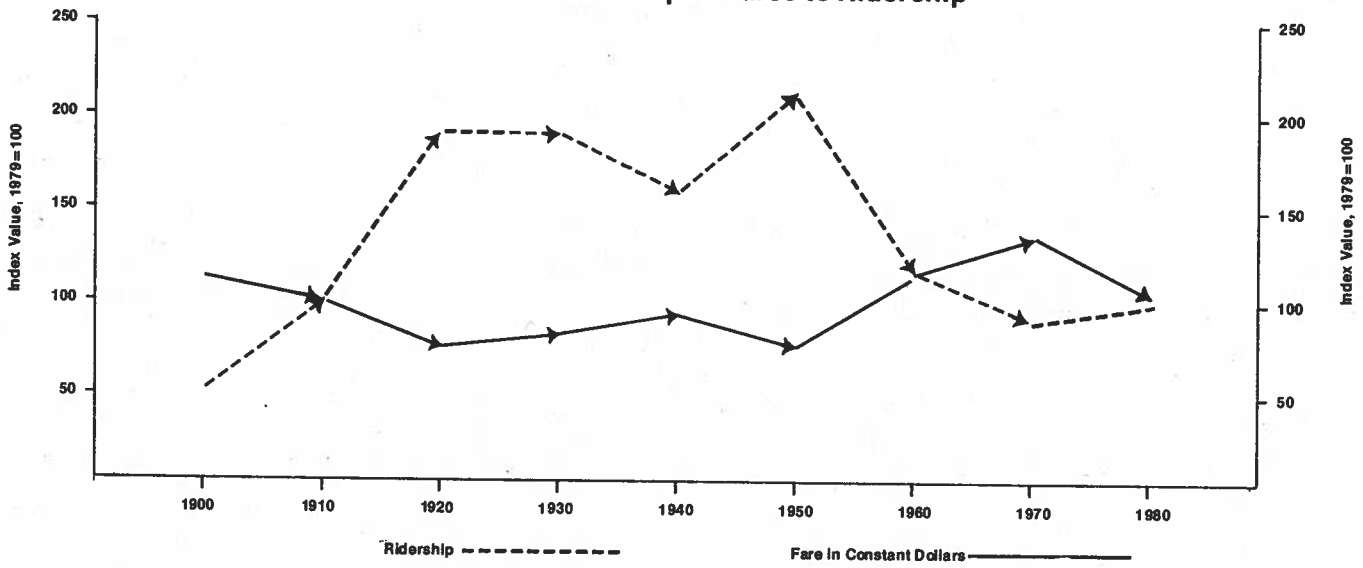
Trend of Average Fare

CALENDAR YEAR	AVERAGE FARE (REVENUE) PER LINKED TRANSIT PASSENGER TRIP(a)					ADULT CASH FARE (BASE PERIOD)		
	LIGHT RAIL	HEAVY RAIL	TROLLEY COACH	MOTOR BUS	ALL MODES	HIGH	LOW	MEAN (b)
1940	7.3¢	5.4¢	5.9¢	6.9¢	6.7¢	10¢	5¢	—
1945	7.2	5.6	6.8	7.1	6.9	10	5	—
1950	11.6	9.9	9.6	9.6	10.0	17	5	—
1955	17.4	14.8	14.8	14.4	14.8	20	5	—
1960	22.1	16.1	18.1	18.0	17.8	30	7	—
1965	23.8	16.6	21.8	20.6	19.7	35	10	—
1970	27.0	23.4	23.8	29.4	27.6	50	10	—
1971	25.8	24.2	27,6	32.2	29.8	50	15	—
1972	26.9	27.8	31.6	33.1	31.4	50	Free	—
1973	27.0	30.7	32.1	32.4	31.8	60	Free	—
1974	27.9	33.9	28.9	31.8	32.2	60	Free	—
1975	29.9	36.3	27.5	32.0	33.0	75	Free	—
1976	29.9	45.6	27.8	32.8	35.7	75	Free	—
1977	30.2	47.5	28.2	34.9	37.7	75	Free	32.6¢
1978	33.4	46.1	28.1	35.8	38.1	75	Free	33.6
1979	33.6	45.9	28.7	36.1	38.2	75	Free	35.7
P 1980	37.9	50.5	36.6	37.5	38.4	75	Free	40.3

P = Preliminary NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.
(a) Includes transfer charges and zone charges; includes reduced-fare and free-fare trips.
(b) Unweighted average of adult cash fares, each U.S. transit system counted equally.
— Data not available.

FIGURE VI

The Relationship of Fares to Ridership



Economic theory states that the demand for goods decreases when the real price of those goods increases. Most of us know this from recent experience. When the price of coffee or meat or other groceries has gone up many consumers have substituted other less expensive products for those that have increased most rapidly in price. The same long-run effect can be seen when comparing the real price of transit fares to transit ridership. In every decade in this century when the real price of a transit trip adjusted for inflation has gone up, transit ridership has gone down; and when the real price of a transit trip has gone down, transit ridership has gone up. Many other factors, of course, effect transit ridership. Some studies show that in particular locations or particular time periods the price of a transit trip has a relatively unimportant affect on ridership change. Other factors that influence transit ridership include availability and price of motor gasoline, percent of population in urban places, density of the urban population, congestion, unemployment rates, and quantity and quality of transit service. One thing remains certain, when transit fares go up and ridership goes down the entire urban community suffers from decreased mobility, increased pollution, increased congestion, and increased costs for other forms of transportation.

TABLE 15

Transit Passenger Vehicles Owned and Leased

CALENDAR YEAR	RAILWAY			TROLLEY COACH	MOTOR BUS	TOTAL PASSENGER VEHICLES
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL (a)			
1940	26,630	11,032	37,662	2,802	35,000	75,464
1945	26,160	10,217	36,377	3,711	49,670	89,758
1950	13,228	9,758	22,986	6,504	56,830	86,310
1955	5,300	9,232	14,532	6,157	52,400	73,089
1960	2,856	9,010	11,866	3,826	49,600	65,292
1965	1,549	9,115	10,664	1,453	49,600	61,717
1970	1,262	9,338	10,600	1,050	49,700	61,350
1971	1,225	9,325	10,550	1,037	49,150	60,737
1972	1,176	9,423	10,599	1,030	49,075	60,704
1973	1,123	9,387	10,510	794	48,286	59,590
1974	1,068	9,403	10,471	718	48,700	59,889
1975	1,061	9,608	10,712	703	50,811	62,226
1976	963	9,714	10,720	685	52,382	63,787
1977	992	9,639	10,674	645	51,968	63,287
1978	944	9,567	10,556	593	52,866	64,013
1979	959	9,522	10,524	725	54,490[b]	65,696
P 1980	1,013	9,693	10,749	823	59,411[b]	70,983

P = Preliminary

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

(a) Includes cable cars and inclined plane cars beginning in 1975.
(b) Includes all types of buses and vans operated by transit systems.

TABLE 16

New Passenger Vehicles Delivered

CALENDAR YEAR	RAILWAY CARS			TROLLEY COACHES	MOTOR BUSES				TOTAL PASSENGER VEHICLES
	LIGHT RAIL	HEAVY RAIL	TOTAL RAIL		29 SEATS OR FEWER	30-39 SEATS	40 SEATS OR MORE	TOTAL BUSES	
1940-44	1,525	189	1,714	1,377	—	—	—	21,842	24,933
1945-49	2,130	665	2,795	3,492	6,369	10,817	16,114	33,300	39,587
1950-54	79	599	678	1,003	441	3,879	9,120	13,440	15,121
1955-59	0	1,771	1,771	43	19	854	9,165	10,038	11,852
1960-64	0	2,588	2,588	0	22	620	12,279	12,921	15,509
1965-69	0	1,878	1,878	0	202	1,131	11,725	13,058	14,936
1970	0	308	308	0	77	73	1,274	1,424	1,732
1971	0	250	250	1	95	70	2,349	2,514	2,764
1972	0	360	360	1	124	199	2,581	2,904	3,265
1973	0	238	238	1	182	317	2,701	3,200	3,439
1974	0	92	92	0	345	251	4,222	4,818	4,910
1975	0	127	127	1	419	128	4,714	5,261	5,389
1976	4	472	472	260	395	251	4,099	4,745	5,481
1977	62	506	568	198	549	308	1,580	2,437	3,203
1978	35	172	207	0	610	222	2,973	3,805	4,012
1979	70	94	164	141	408	130	2,902	3,440	3,745
P 1980	32	130	162	98	287	143	4,142	4,572	4,832

P = Preliminary — Data Not Available

TABLE 17

Trend of Energy Consumption by Transit Passenger Vehicles

CALENDAR YEAR	ELECTRIC POWER CONSUMED (KILOWATT HOURS IN MILLIONS)	FOSSIL FUELS CONSUMED (GALLONS IN THOUSANDS)		
		GASOLINE	DIESEL	PROPANE
1940	6,334	—	—	0
1945	7,033	510,000	11,800	0
1950	5,251	430,000[a]	98,600	(a)
1955	3,530	246,000	172,600	30,000
1960	2,908	153,600	208,100	38,300
1965	2,584	91,500	248,400	32,700
1970	2,561	37,200	270,600	31,000
1971	2,556	29,400	256,800	26,500
1972	2,428	19,647	253,250	24,400
1973	2,331	12,333	282,620	15,152
1974	2,630	7,457	316,360	3,142
1975	2,646	5,017	365,060	2,559
1976	2,576	5,203	389,187	960
1977	2,303	8,077	402,842	1,196
1978	2,223	9,318	422,017	13
1979	2,473	8,961	423,212	12
P 1980	2,446	11,400	441,300	—

P = Preliminary
— Data not available
(a) Propane included with gasoline

NOTE: Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

FIGURE VII

Motor Bus Diesel Fuel Costs

The fastest growing cost for bus transit systems in the last decade has been motor bus fuel. Most transit systems use No. 1-D diesel fuel, a highly refined middle distillate that minimizes air polluting emissions from buses. The cost of No. 1-D diesel fuel has risen 630% in the last ten years, from 12 cents per gallon excluding taxes in 1970 to 88 cents per gallon excluding taxes in 1980.

This incredible price increase of diesel fuel is six times as great as the Consumer Price Index, which rose only 113% during the same time period. Because fuel costs are rising more quickly than inflation, they are becoming a much larger portion of transit system expenses.

In 1970 diesel fuel costs accounted for 2.5% of transit system budgets for motor bus operations. By 1980 diesel fuel accounted for 8.2% of the cost of motor bus operations. The rising portion of transit expenditures going to diesel fuel requires transit systems to economize in other areas to help prevent excessive cost increases while continuing to improve transit service to their communities.

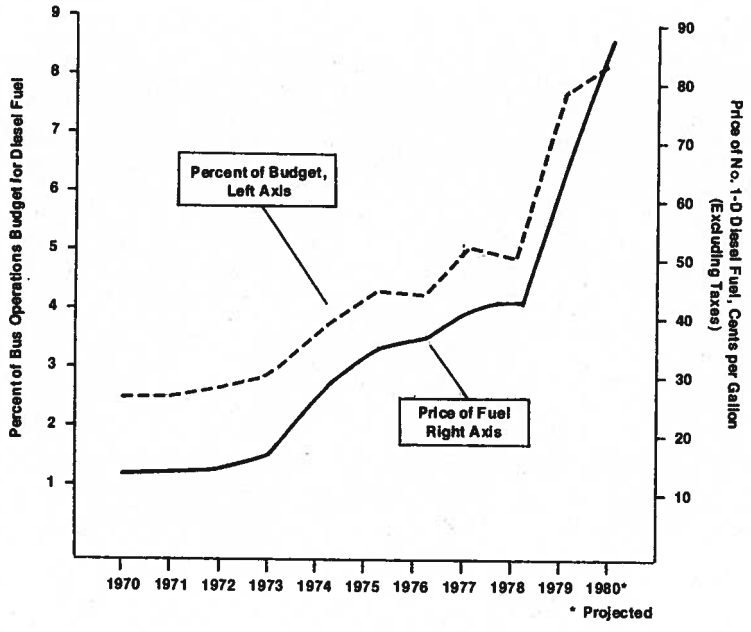


TABLE 18

Trend of Transit Employment, Compensation, and Labor Costs

CALENDAR YEAR	AVERAGE NUMBER OF EMPLOYEES		SALARIES AND WAGES (THOUSANDS)	FRINGE BENEFIT COSTS (THOUSANDS)	TOTAL LABOR COSTS (THOUSANDS)
	FULLTIME	PARTTIME			
1940	203,000		$ 360,000	—	—
1945	242,000		632,000	—	—
1950	240,000		835,000	—	—
1955	198,000		864,000	—	—
1960	156,400		857,300	—	—
1965	145,000		963,500	—	—
1970	138,040		1,274,109	—	—
1971	139,120		1,393,148	—	—
1972	138,120		1,455,486	—	—
1973	140,700		1,624,241	—	—
1974	153,100		1,967,100	—	—
1975	159,800		2,236,063	$ 613,274	$ 2,849,337
1976	162,950		2,403,683	681,684	3,085,367
1977	162,510		2,546,720	813,607	3,360,327
1978	165,400		2,740,557	964,096	3,704,653
1979	177,000	1,750	3,025,041	1,090,376	4,115,417
P 1980	184,700	4,600	3,141,758	1,295,878	4,437,636

P = Preliminary — Data not available

NOTE: In the "Interstate Commerce Commission (ICC) System of Accounts" and in the "American Transit Accountants' (ATA) Association Classification of Accounts," employee compensation in the form of sick leave, paid vacation time, and paid holidays is classified as "salaries and wages" In the "Urban Mass Transportation (UMT) Act, Section 15, Uniform System of Accounts and Records," employee compensation in the form of paid sick leave, paid vacation time, and paid holidays Is classified as "fringe benefits." Beginning with the calendar year 1977, as transit systems converted their accounting systems from either ICC accounts or ATA accounts to UMT Act Section 15 accounts, reclassification of these compensation types results in a shift of these labor-related expenses from salary and wage accounts to fringe benefit accounts.

Table excludes automated guideway transit, commuter railroad, and urban ferry boat.

TABLE 19

United States Government Capital Grant Approvals for Mass Transportation*

FISCAL YEAR (a)	UMT ACT SECTION 3 (b)	UMT ACT SECTION 5 (c)	URBAN SYSTEMS (d)	INTERSTATE TRANSFERS (e)	TOTAL APPROVALS (f)
	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)	(MILLIONS)
1965-69	$547.8	$ 0.0	$0.0	$ 0.0	$547.8
1970	133.4	0.0	0.0	0.0	133.4
1971	284.8	0.0	0.0	0.0	284.8
1972	510.0	0.0	0.0	0.0	510.9
1973	863.7	0.0	0.0	0.0	863.7
1974	870.3	0.0	34.6	51.0	955.9
1975	1,196.6	9.1	15.7	65.7	1,287.1
1976	1,346.1	32.3	23.3	553.0	1,954.8
1977	1,250.0	39.4	42.0	392.3	1,723.7
1978	1,400.0	50.1	30.4	556.4	2,036.9
1979	1,225.0	255.6	21.3	599.7	2,101.6
1980	1,655.0	431.2	25.6	675.4	2,787.1

* The U.S. Government term "Mass Transportation" means "transportation by bus, or rail or other conveyance, either publicly or privately owned, which provides to the public general or special service (but not including school buses or charter or sightseeing service) on a regular and continuing basis." (49 USC 1608)

(a) Fiscal Years 1965 through 1975 began July 1 and ended June 30; Fiscal Year 1976 began July 1, 1975 and ended September 30, 1976; Fiscal Years 1977 through 1980 began October 1 and ended September 30.

(b) Urban Mass Transportation Act of 1964 as amended, Section 3 (49 USC 1602)

(c) Urban Mass Transportation Act of 1964 as amended, Section 5 (49 USC 1604)

(d) Federal-Aid Highway Act of 1973 (23 USC 142)

(e) Federal-Aid Highway Act of 1973 (23 USC 103)

(f) Excludes direct Congressional authorizations.

NOTE: Table 19 includes United States Government data reported on a fiscal-year basis. Tables 1 through 18 of the *Transit Fact Book* include American Public Transit Association data reported on a calendar-year basis. Therefore, Table 19 is not directly comparable to Tables 1 through 18.

Source: U.S. Department of Transportation, Urban Mass Transportation Administration.

TABLE 20

United States Government Operating Grant Approvals for Mass Transportation*

FISCAL YEAR (a)	UMT ACT SECTION 5 GRANT APPROVALS FOR OPERATING ASSISTANCE	
	NUMBER OF GRANTS	TOTAL APPROVALS (MILLIONS)
1975	100	$ 142.5
1976	211	411.8
1977	386	571.8
1978	398	685.3
1979	376	868.5
1980	498	1,120.7

* The U.S. Government term "Mass Transportation" means "transportation by bus, or rail or other conveyance, either publicly or privately owned, which provides to the public general or special service (but not including school buses or charter or sightseeing service) on a regular and continuing basis." (49 USC 1608)

(a) Fiscal Year 1975 began July 1, 1974 and ended June 30, 1975; Fiscal Year 1976 began July 1, 1975 and ended September 30, 1976; Fiscal Years 1977 through 1980 began October 1 and ended September 30.

(b) Urban Mass Transportation Act of 1964, as amended, Section 5 (49 USC 1604)

NOTE: Table 20 includes United States Government data reported on a fiscal-year basis. Tables 1 through 18 of the *Transit Fact Book* include American Public Transit Association data reported on a calendar-year basis. Therefore Table 20 is not directly comparable to Tables 1 through 18.

Source: U.S. Department of Transportation, Urban Mass Transportation Administration

TABLE 21

Trend of Commuter Railroad Operations

CALENDAR YEAR	NUMBER OF SYSTEMS	OPERATING REVENUE	OPERATING EXPENSE	LINKED PASSENGER TRIPS	COMMUTERS RAIL CARS OWNED AND LEASED	VEHICLE MILES OPERATED
		(MILLIONS)	(MILLIONS)	(MILLIONS)		(MILLIONS)
1973	15	$250	$413	239	—	—
1974	15	263	495	254	—	—
1975	15	283	571	260	—	—
1976	15	334	657	260	4,438	—
1977	15	347	671	265	4,340	160
1978	17	370	778	267	4,473	159
1979	18	410	915	284	4,350	161
P 1980	18	436	973	285	4,448	164

P = Preliminary
NOTE: Commuter railroad financial data and statistical data are not included in transit industry summary data on Table 2 through Table 18.

TABLE 22

Trend of Local Operations by Class I Intercity Bus Carriers*

CALENDAR YEAR	INTERCITY MOTOR BUS CARRIER LOCAL AND SUBURBAN SERVICE (a)			
	PASSENGER REVENUE	PERCENT OF ALL CARRIER REVENUE (b)	REVENUE PASSENGERS CARRIED	VEHICLE MILES
	(MILLIONS)		(MILLIONS)	MILLIONS
1965	—	—	29	23.9
1966	$12.5	2.0%	25	20.9
1967	14.2	2.1%	27	22.1
1968	15.0	2.2%	30	22.8
1969	13.1	1.9%	22	17.4
1970	13.3	1.8%	21	16.9
1971	12.6	1.7%	19	16.2
1972	11.7	1.5%	16	15.2
1973	13.8	1.7%	17	16.9
1974	14.0	1.5%	17	16.7
1975	11.7	1.2%	14	13.0
1976	12.0	1.2%	14	11.9
1977	11.1	1.1%	12	10.6
1978	8.0	0.8%	8	6.6
1979	8.8	0.7%	8.7	6.5
1980	10.0	0.7%	8.9	6.8

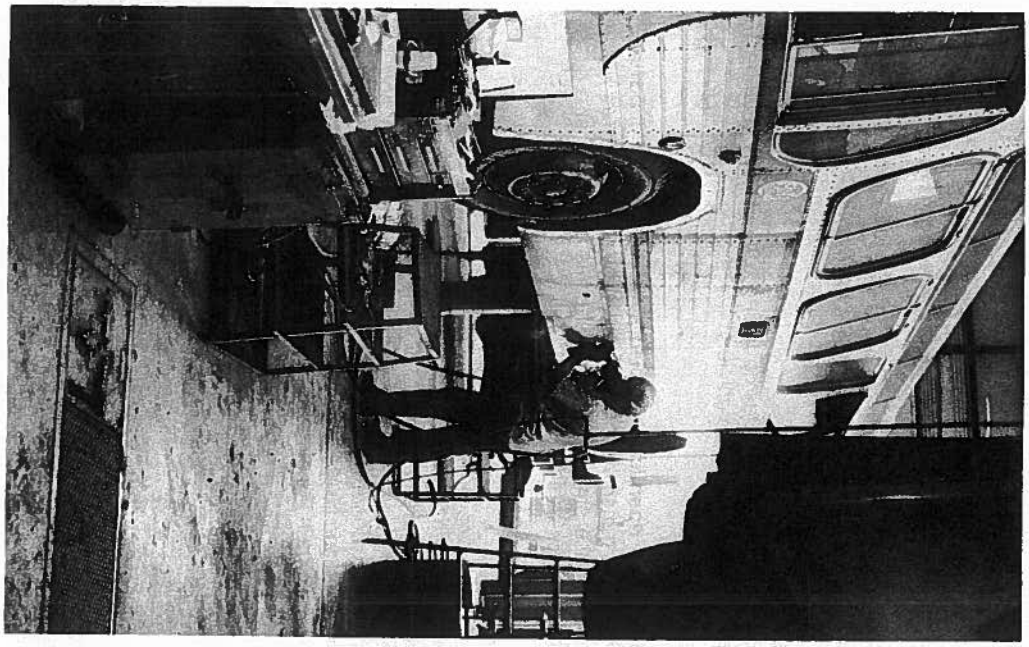
* Includes Class I Intercity Motor Carriers only. Class I Motor Carriers include all intercity bus companies with gross revenues over $200,000 from 1965 through 1968; with gross revenues over $1,000,000 from 1969 through 1976; and with gross revenues over $3,000,000 beginning in 1977.

(a) "Intercity Motor Bus Carrier Local and Suburban Service" is defined by the Interstate Commerce Commission as "transportation within a city or its contiguous suburbs."

(b) Passenger Revenue from Local and Suburban Service divided by all Class I Intercity Motor Carrier operating revenue.

NOTE: Intercity Bus Local and Suburban financial data and statistical data are not included in transit industry summary data on Table 1 through Table 18.

Source: American Bus Association



Glossary Of Transit Industry Terms

Glossary of Transit Industry Terms

Adult Cash Fare (Base Period)
Basic full fare paid by one person for one transit ride; excludes transfer charges, zone charges, express service charges, peak period surcharges, and reduced fares.

Aerial Tramway
System of aerial cables with suspended unpowered passenger vehicles propelled by separate cables attached to the vehicle suspension system and powered by engines or motors at a central location not on board the vehicle.

Average Fare (Revenue) per Linked Transit Passenger Trip
"Passenger Revenue" divided by "Linked Transit Passenger Trips."

Average Length of Linked Transit Passenger Trip
"Passenger Miles" divided by "Linked Transit Passenger Trips."

Average Length of Unlinked Transit Passenger Trip
"Passenger Miles" divided by "Unlinked Transit Passenger Trips."

Automated Guideway Transit
Fixed-guideway rapid transit vehicles operating without vehicle operators or other crewpersons on board the vehicle.

Cable Car
Transit vehicle railway operating in mixed street traffic with unpowered, individually-controlled transit vehicles propelled by moving cables located below the street surface and powered by engines or motors at a central location not on board the vehicle.

Commuter Railroad
That portion of "main-line railroad" (not "electric railway") transportation operations which encompasses urban passenger train service for local short-distance travel between a central city and adjacent suburbs; suburban rail passenger service — using both locomotive-hauled and self-propelled railroad passenger cars — is characterized by multi-trip tickets, specific station-to-station fares, railroad employment practices, and usually only one or two stations in the central business district.

Ferry Boat
Passenger-carrying marine vessel providing frequent "bridge" service over a fixed route and on a published time schedule between two or more points.

Heavy Rail
Subway-type transit vehicle railway constructed on exclusive private right-of-way with high-level platform stations; formerly known as "subway" or "elevated (railway)."

Inclined Plane
Transit passenger vehicle railway operating over private right-of-way on steep grades with unpowered vehicles propelled by moving cables attached to the vehicles and powered by engines or motors at a central location not on board the vehicle.

Light Rail
Streetcar-type transit vehicle railway constructed on city streets, semi-private right-of-way, and exclusive private right-of-way; formerly known as "streetcar" ("trolley car") and "subway-surface" depending upon local usage or preference.

Linked Transit Passenger Trips
Transit trips taken by initial-board (originating) transit patrons paying a full fare, a reduced rate of fare, or no fare (free fare); excludes all transfer rides and all charter rides. Identical to "Revenue Passenger Rides" except that all originating free-fare passengers are included.

Motor Bus
Rubber tired, self-propelled, manually steered transit vehicle with fuel supply carried on board the vehicle.

Passenger Miles
The number of person-miles traveled by all passengers riding transit vehicles; one person traveling one mile aboard a transit vehicle is one passenger mile.

Publicly Owned Transit System
A transit system owned by any municipality, county, regional authority, state, or other governmental agency including a transit system operated or managed by a private management firm under contract to the government agency owner.

Rapid Transit
Transit vehicles operating over completely grade-separated private right-of-way. The term rail rapid transit, also known as "rapid rail transit," applies to both operation of light rail vehicles over exclusive private right-of-way and operation of heavy rail vehicles; the term bus rapid transit applies to operation of motor buses over exclusive bus roads ("rapid busways").

Revenue Passenger Rides (Revenue Passengers)
Single-vehicle transit rides by initial-board (first-ride) transit patrons only; excludes all transfer rides and all non-revenue rides.

Single-Vehicle Transit Ride
One person traveling aboard one transit vehicle.

Total Labor Cost
Sum of "Salaries and Wages" and "Fringe Benefit Costs"; see Glossary of Financial Terms.

Total Passenger Rides (Total Passengers)
Combined total of all single-vehicle transit rides by (1) initial-board (first-ride) revenue passengers, (2) transfer passengers on second and successive rides, and (3) non-revenue passengers entitled to transportation without charge.

Total Vehicle Miles Operated
Sum of all passenger vehicle miles operated in line (regular) service, special (charter) service, and non-revenue service. When vehicles are operated in trains, each vehicle is counted separately, e.g., an eight-vehicle train operating for one mile equals eight vehicle-miles.

Transit System
An organization providing intraurban common-carrier passenger service over at least one regular fixed route with a published time schedule, not including variable-route service, unscheduled service, or interurban service.

Trolley Coach
Rubber-tired transit vehicle, manually steered, propelled by electric motors drawing current — normally through overhead wires — from a central power source not on board the vehicle.

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

Glossary of Financial Terms

Financial terms used in the *1981 Transit Fact Book* are based on the "Urban Mass Transportation Act, Section 15, Uniform System of Accounts and Records." The following definitions of financial terms do not, however, identify specific ledger accounts from "Section 15" or any other accounting system and are not intended to serve as model definitions of financial terms in publications other than the *1981 Transit Fact Book.* Changes in financial term titles and definitions evident when comparing the *1981 Transit Fact Book* with previous editions were made in order to more closely conform to the "Section 15" accounting system.

Transit system financial data reported in the *1981 Transit Fact Book* are based on the accrual system of accounting. Unlike the cash system of accounting which records only monies actually received or monies actually paid out, the accrual system of accounting records revenues received as well as anticipated and expenses incurred as well as anticipated during the accounting period.

Income Statement Terms

Passenger Revenue
Fares, including transfer charges and zone charges, paid by transit passengers traveling aboard transit vehicles operating in regular service; also known as "farebox revenue."

Other Operating Revenue
Revenue derived from provision of transit service other than line (regular) service; includes charter service revenues, special service revenues, and sale of advertising space aboard transit vehicles.

Total Operating Revenue
Total revenue derived from provision of transit service; the sum of "Passenger Revenue" and "Other Operating Revenue."

Net Auxiliary Operating Revenue
Net revenue from affiliated facilities and organizations rendering services other than provision of transit service.

Non-Operating Income
Net income from transit system facilities or operations not associated with providing transportation or transit service.

Total Non-Operating Revenue
The sum of "Net Auxiliary Operating Revenue" and "Non-Operating Income."

Local Operating Assistance
Financial assistance for transit operations (not capital expenditures) which originated at the local government level.

State Operating Assistance
Financial assistance for transit operations (not capital expenditures) which originated at the state government level.

Federal Operating Assistance
Financial assistance for transit operations (not capital expenditures) which originated at the federal government level.

Total Operating Assistance
The sum of "Local Operating Assistance," "State Operating Assistance," and "Federal Operating Assistance."

Total Revenue
Total receipts derived from provision of transit service plus additional monies related to provision of transit service but derived from other sources; the sum of "Total Operating Revenue," "Total Non-Operating Revenue," and "Total Operating Assistance."

Transportation Expense
Total expense of all labor, materials, fees, and rents required for operating transit passenger vehicles and passenger stations including all fuels for vehicle propulsion except electric propulsion power.

Vehicle Maintenance Expense
Total expense of all labor, materials, services, and equipment used to repair and to service transit passenger vehicles and service vehicles.

Non-Vehicle Maintenance Expense
Total expense of all labor, materials, services and equipment used to repair and service transit system way and structures, vehicle movement control systems, fare collection equipment, communication systems, buildings and grounds, and equipment other than vehicles; includes expense of electric propulsion power for transit passenger vehicles.

General Administration Expense
Total expense of all labor, materials, and fees associated with general office functions, insurance, safety, legal services, and customer services.

Total Operating Expense
The sum of all transit system operating expenses: "Transportation Expense," "Vehicle Maintenance Expense," "Non-Vehicle Maintenance Expense," and "General Administration Expense."

Depreciation and Amortization
Total decline in value of transit system assets incurred through use of tangible property (depreciation) and intangible property (amortization). Because property is depreciated or amortized on a formula basis over several years, the amount recorded as depreciation or amortization normally does not represent the actual money spent for property in any specific time period.

Many publicly owned transit systems receive financial assistance for the purchase of property (capital assistance). Although the property purchased with capital assistance might be depreciated or amortized and thus reported as an "operating expense" in the ***Transit Fact Book,*** any financial assistance received for the purchase of property is not included in "operating revenue" or "operating assistance" amounts in the ***Transit Fact Book.***

Other Reconciling Items
All transit system expenses in addition to "Total Operating Expense" and "Depreciation and Amortization;" includes interest expenses and leases and rentals.

Total Expense
Total expenditures related to provision of transit service; the sum of "Total Operating Expense," "Depreciation and Amortization," and "Other Reconciling Items."

Expense Object Class Terms

Salaries and Wages
All pay and paid monetary allowances, including overtime, paid to transit employees for performance of specific pieces of work.

Fringe Benefits
All compensation in the form of payments or accruals made to transit employees not for performance of a specific piece of work including sick pay, holiday pay, vacation pay, pension plans, life insurance, health insurance, unemployment insurance, social security, workmen's compensation, and other allowances.

Services
Expense for labor or other work provided by outside organizations for a fee.

Fuel and Lubricants
Expense for gasoline, diesel fuel, and lubricants for buses and service vehicles.

Tires and Tubes
Expense for tires and tubes including lease payments.

Other Materials and Supplies
Expense for materials and supplies other than "Fuel and Lubricants" and "Tires and Tubes."

Utilities
Expense for utilities including electric, gas, water, and telephone, and propulsion power for electric transit vehicles.

Casualty and Liability Costs
Expense for protection of transit system from loss through insurance programs or for compensation of others for losses due to acts for which the transit system is liable.

Other
Expenses not identified in the eight object categories defined above including taxes, purchased transportation service, expense transfers, and miscellaneous expenses.

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