

The Benefits of Public Transportation

Critical Relief for Traffic Congestion



As more and more vehicles crowd the nation's roadways, traffic congestion has an increasingly debilitating effect on our quality of life. Across America, people, business and industry, the economy and the environment pay a higher and higher price for mounting congestion—through delays, lost opportunities, higher costs, increased accidents, reduced competitiveness, pollution, frustration and much more.

The data are clear: Providing fast, affordable, reliable public transportation is essential in blunting the effects of crippling congestion, and providing sustained relief that:

- Protects personal freedom, choice and mobility
- Enhances access to opportunity
- Enables economic prosperity
- Protects our communities and the natural environment

Congestion: A Mounting Problem

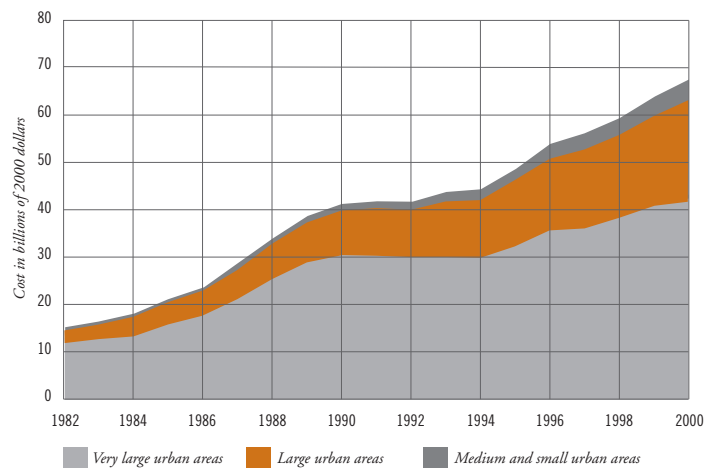
The longest-running study of traffic congestion in America—the Urban Mobility Study conducted annually for 19 years by the Texas Transportation Institute (TTI)—confirms the trend: on a daily basis, Americans are experiencing longer delays, longer periods of congestion, and the spread of congestion across more and more of the nation’s roadways. This study of 75 urban areas, ranging in size from New York City to areas with 100,000+ population, suggests that traffic congestion will continue to worsen as the number of vehicle miles traveled continues to grow. The data include the following:

- Each person traveling in peak periods wastes, on average, 62 hours a year—nearly eight full working days—in congestion delays.¹
- Urban travelers can now expect to encounter congested roadways during seven hours of the day.¹
- Congestion is becoming more widespread, experienced by nearly 60 percent of urban roadways in 2000.¹
- Congestion is no longer confined to our largest metropolitan areas. As long ago as 1997, two-thirds of peak-period traffic was congested in areas of 500,000 or less.²

“Unless we manage highway congestion, our nation will continue to incur economic costs in foregone productivity, wasted fuel, and a reduced quality of life.”

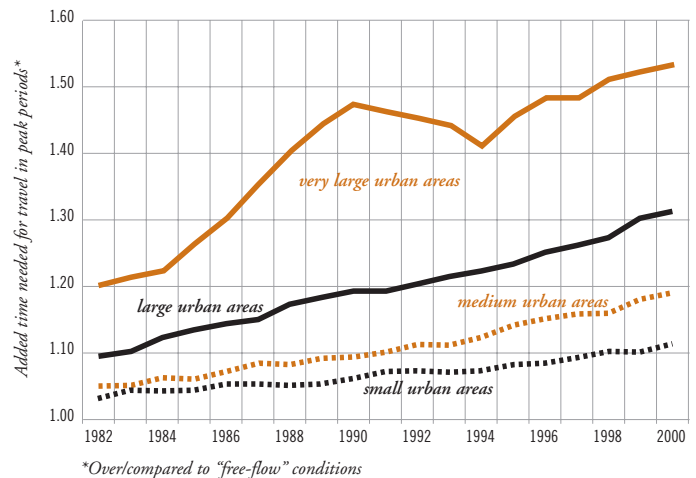
Mary E. Peters, Administrator
Federal Highway Administration

Figure 1
Annual Cost of Congestion



Source: Texas Transportation Institute, 2002 Urban Mobility Study: Mobility Issues and Measures, College Station, Texas, 2002, http://mobility.tamu.edu/ums/study/issues_measures/congestion_cost.stm

Figure 2
Growth in Peak-Period Travel Times



Source: Texas Transportation Institute, 2002 Urban Mobility Study: Mobility Issues and Measures, College Station, Texas 2002, http://mobility.tamu.edu/ums/study/issues_measures/congested_roads.stm

The Cause

Regardless of whether congestion is recurring (traffic regularly exceeds roadway capacity) or non-recurring (predictable and unpredictable events cause delays), there is one root cause of congestion: too many vehicles crowding available road space coupled with a lack of travel options.

Disproportionate increases in private vehicle use. Population and economic growth spur travel demand, which, in the absence of other travel options, results in disproportionate increases in the use of motor vehicles. From 1980 to 2000, the U.S. population grew 24 percent,³ while the number of registered motor vehicles increased 46 percent and the number of vehicle miles traveled grew 80 percent.⁴

Chronic under-investment in public transportation and lack of travel alternatives reinforce private vehicle use. Despite recent expansion in public transportation services and resulting record ridership increases in some urban areas, relatively few Americans have access to reasonable or attractive transit options.

■ Only 4.3 percent of miles on our road system are served by public transportation.

■ Only 49 percent of Americans live within one-quarter mile of a transit stop.

■ Nearly 60 percent of the U.S. population lives in major metropolitan areas of over 1 million, but only 8.3 percent of households have access to subway service.⁵

Business strategies require more road space. “Just-in-time” business strategies designed to keep America competitive in the global economy require smaller but more frequent deliveries, resulting in more freight traffic on our roadways and more congestion.⁶

Public policies reinforce auto-oriented patterns of development. Sprawling development patterns in America’s urban and suburban areas often provide no choice but to use private vehicles for every travel need, continually increasing congestion and requiring ever more land devoted to roads and parking.

The Consequences

The breakdown of our street and highway network is exacting a fearsome price across urban and suburban America. The consequences include:

Staggering costs in lost hours, wasted fuel. According to the TTI study, in 2000 the total cost of congestion in terms of lost hours and wasted fuel was \$68 billion. Nationwide, the total annual cost may approach \$100 billion.¹

Costs to individuals and families. The personal costs of congestion are also enormous.

■ In 2000, each peak-period road user lost \$1,160 in wasted fuel and time, including time shared with family and friends.¹ In Las Vegas, for example, where vehicle travel has increased over 80 percent, each motorist pays hundreds of dollars per year in a “hidden tax” due to delays and wasted fuel caused by traffic congestion.⁷

■ The cost of owning and operating a vehicle can run as high as \$6,000 or more a year.⁸ In New York, where public transportation is widely available, 15.3 percent of consumer expenditures go for transportation; in Houston, where there are fewer transportation options, the figure is 23 percent—50 percent higher.⁹

Higher business costs. In an increasingly competitive global economy that relies on “just-in-time” flows of raw materials and finished products, on-time deliveries are critical. Because trucks are the sole providers of goods to 75 percent of American communities, congestion delays increase business costs.⁶ As a consequence of the auto dependence that has created our congestion problem, in 2000, \$71.5 billion was lost in wages and productivity due to motor vehicle injuries.¹⁰

Continued dependence on foreign oil. Nearly 43 percent of America’s energy resources are used for transportation—compared to industrial use (39 percent) and residential use (11 percent)—and a substantial amount is consumed because of congestion.¹¹ The 5.7 billion gallons of gasoline wasted in congestion in 2000 (an average of 100 gallons annually by each peak-period road user) would fill 114 supertankers or 570,000 gasoline trucks.¹¹

Growing Public Frustration

Traffic congestion is now a top concern of residents across the country. According to the Federal Highway Administration (FHWA), since 1995 traffic flow has been the only roadway characteristic out of eight that has experienced a decline in public satisfaction levels.²

The sentiment is expressed in areas around the country. For example, according to 2000 and 2001 surveys in Houston, congestion has become the number one issue, more important than the economy and crime, which topped the charts in previous surveys.¹² In Atlanta, 63 percent of residents favored expanding transportation options or reducing sprawl, compared to 22 percent who favored expanding roads.¹³ Across the country, the FHWA found that 7 of 10 respondents favored expanding existing public transportation, while fewer than 4 in 10 favored building more highways to ease traffic problems.²

The Solution: Added Emphasis on Public Transportation

Our options are clear. To relieve congestion, our emphasis—and investment priority—must shift toward dramatic expansion of high-capacity public transportation systems, including light rail, heavy rail, commuter rail, bus rapid transit (BRT), express bus services and transit/HOV lanes. This must be coupled with targeted investments in and better management of the current highway network.

The rationales for greater emphasis on transit are powerful. Public transportation reduces the number of vehicles on the road and vehicle miles traveled. The Maryland Department of Transportation estimates that:

- A full rail car removes 200 cars from the road.
- A full bus removes 60 cars.
- A full van removes 12 cars.¹⁴

Public transportation reduces hours of delay in major travel corridors. Increased public transportation use reduces delays for both public transportation riders and highway users. According to an FTA study of six urban corridors served by high-capacity rail transit:

- Public transportation passengers saved 17,400 hours daily over auto travel in the corridors.
- Remaining road users in the corridors saved 22,000 hours of delay per day due to the absence of vehicles from public transportation users.
- Travelers on surrounding roads in the corridors saved an additional 20,700 hours daily as spillover congestion was reduced.

These reductions represent a savings of \$225 million annually in the six corridors analyzed.¹⁹

Public transportation generates substantial savings to the economy. The FTA values the aggregate benefits from transit-related congestion relief at \$19.4 billion annually.²⁰ Another study indicates that every dollar of public funds invested in public transportation returns up to \$6 in economic benefits in urban regions.²¹

Public transportation reduces the need for highway expansion. Highway expansion has become increasingly difficult and controversial. There often is not space, money and public support to add roadway capacity needed to create and

Congestion Relief Provided by Public Transportation

Area	Congestion relief in key locations at critical times
Albany, NY	Preferential treatment for buses along a 16-mile corridor will provide riders with a 15-20 percent savings in travel time. ¹⁵
Los Angeles, CA	Transit carries 30 percent of all trips into central Los Angeles. Without transit, Los Angeles would need an additional 1,400 freeway lane-miles. ¹⁶
Maryland	Transit removes 570,000 cars from traffic daily. ¹⁴
Minneapolis, MN	Buses in the Twin Cities bypass congestion by operating on 200 miles of bus shoulder lanes. ¹⁷
St. Louis, MO	MetroLink light rail users keep 12,700 cars a day out of rush-hour traffic. ¹⁸
San Diego, CA	Transit carries 18 percent of trips into San Diego, removing 35,000 cars from the road daily. ¹⁶
San Francisco, CA Bay Bridge Corridor	Transit carries 38 percent of all trips in the corridor, without which a 50-percent increase in freeway capacity would be needed. ¹⁶

sustain acceptable conditions.¹ In addition, there is mounting evidence that additions to highway capacity “induce” added traffic. Increasing lane-miles by one percent may induce a nearly equivalent increase in vehicle-miles of travel within a period as short as five years. By inducing significant traffic, additional road building may do little to reduce congestion.²²

Benefits Support Other National and Local Goals

Public transportation offers a host of important ancillary benefits by taking the place of private vehicles when and where the highway network is most burdened.

Improved air quality. For every passenger-mile traveled, public transportation produces 95 percent less carbon monoxide, more than 92 percent fewer volatile organic compounds and nearly half as much carbon dioxide and nitrogen oxides.¹¹

Reduced energy consumption and dependence. According to Shapiro et al:¹¹

- Energy consumed in transportation in 2000 exceeded the energy consumed in producing all the country's goods.
- Public transportation uses about one-half the fuel of private automobiles, SUVs and light trucks per passenger-mile traveled.
- Public transportation users today save the U.S. the equivalent of one month's oil imports from Saudi Arabia, over 850 million gallons a year or 45 million barrels of oil.

Preservation of land for smarter growth and more productive development. As much as one third of a city's land is devoted to serving the motor vehicles when roads, service stations and parking lots are considered.²³ Public transportation drastically reduces the amount of land needed for cars.

- Urban rail systems can provide more capacity in a 100-foot right-of-way than a six-lane freeway requiring a 300-foot right-of-way.¹⁸
- Required parking spaces can be reduced 30 and 50 percent, respectively, for office and retail development in transit-intensive areas.²⁴
- For a peak-period transit trip, the roadway space and time required for an auto passenger may be 25 times greater than for the time and space required for a bus passenger and 60 times greater than the time and space required for a rail transit passenger.²⁵

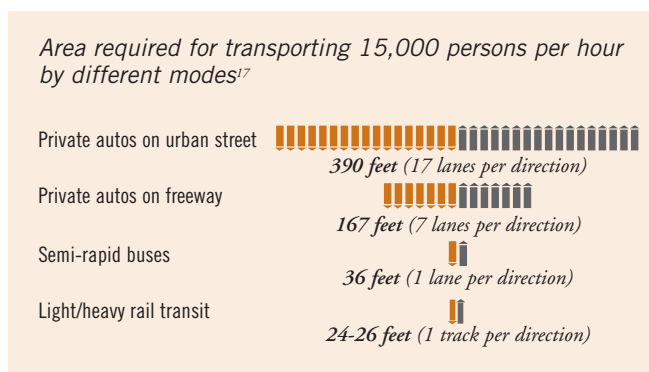
Investing in Policies that Make Public Transportation Work

Public transportation systems in many areas are now beginning to experience their own congestion. Since 1995, public transportation ridership has grown over 22 percent—faster than both highway travel and airline travel—forcing many systems to the limits of their capacity, and sometimes beyond.

Substantial increases in public transportation investment are needed now to assure that current and planned services remain comfortable, convenient and attractive. To obtain the greatest return from that investment, however, renewed emphasis also must be placed on a number of existing, public transportation-supportive policies and initiatives.

Intelligent transportation systems (ITS). New technologies applied to both public transportation and highways can help relieve congestion. *In public transportation, universal fare systems based on "smartcard" technology; real-time, on-street customer information; and integrated scheduling and dispatching systems can dramatically enhance the attractiveness of public transportation use.*

Figure 3
Comparative Land Displacements of Different Travel Modes



Source: Vuchic, Vukan R., *Transportation for Livable Cities*, Center for Urban Policy Research, Rutgers University, New Brunswick, NJ, 1999, p. 58

The public transportation/land-use connection. As a strategy in relieving congestion, public transportation can be more effective with policies and actions that expand "transit-oriented development." *In the interest of serving travel demand more effectively with public transportation, more investment, incentives and pilot projects and programs should be introduced to encourage or provide for increased density, mixed-use and walkable design in development in major public transportation corridors.*

Enlarging and expanding the public transportation commute benefit. Employers can offer a powerful incentive to their employees to help reduce roadway congestion by offering a tax-free transit pass of up to \$100 per month. The cost of this commute benefit is deductible as a normal business expense. Alternatively, the transit commute benefit can be provided through payroll deductions before taxes, with employer and employee sharing the cost, as desired. *The \$100 ceiling should be raised to match parking cost deductibility, and many more businesses should be encouraged to offer the commuter benefit.*

Location-efficient mortgages. Proximity to public transportation reduces the costs of auto-oriented transportation, freeing household income for other uses, such as home mortgages. Fannie Mae, the nation's largest source of financing for home mortgages, is currently testing a 2-year, \$100 million program that makes home buying more affordable for buyers locating near public transportation. *The pilot program is now underway in Chicago, Los Angeles, Orange County, San Francisco and Seattle. Watch for expansion of this partnership of public transportation agencies, mortgage lenders and housing financiers and its effect on congestion.*

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