

Public Perceptions of Transit Investment in New Jersey

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This report by the Alan M. Voorhees Transportation Center is intended to better inform public consideration of transportation funding in New Jersey by illuminating various costs and benefits that typically have not been taken into account outside of the transportation community. For instance, highway proponents historically have argued that road improvements “pay for themselves” through user fees. Yet, this argument fails to account for numerous public costs, such as enforcement, road and roadside maintenance, and street lighting, which require ongoing subsidy. The purpose is not to argue against highway funding, but rather to encourage better understanding of the true user and taxpayer costs of different modes of transportation, as well as the benefits transit service brings directly to its riders and indirectly to its service community. These indirect costs and benefits involve congestion, air, noise and water quality, energy consumption, land use, urban redevelopment, transportation options for the disadvantaged, traffic accidents, and public health and safety.

The report opens with a section that examines the obstacles the transit industry has confronted with policymakers and the public in establishing its viability, both nationally and in New Jersey. The following section will examine characteristics of New Jersey that have enabled it to overcome many of those obstacles and become a national leader in transit development. The paper will address issues of congestion, energy conservation, economic development, safety and security.

Prepared by:
Richard S. Remington

In December 1998, the Rutgers Board of Governors established the Alan M. Voorhees Transportation Center (VTC) within the Edward J. Bloustein School of Planning and Public Policy at Rutgers, The State University of New Jersey. VTC was created to spearhead an informed public discussion of transportation policy issues in the state of New Jersey. The center seeks to establish itself as a communication center with a commitment to simplifying and clarifying transportation issues, policies, and data for public consumption, allowing for more informed policy choices by voters and public officials.

VTC addresses a wide range of transportation issues that are of concern to New Jersey residents. The center also identifies and explores transportation linkages to other public policy areas, such as economic development, land use, political governance, finance, and social policy.

A primary objective of VTC is to conduct research on aspects of transportation not otherwise addressed by conventional sponsors. The center also plays a pivotal role in convening forums, conferences, and seminars on critical transportation issues.

Areas of concentration include:

- Interaction of transportation and land use
- State transportation finance
- Transportation institutional analyses
- Pedestrian and bicycle mobility and safety
- Governmental policy concerning freight movement
- Transit planning assistance to local governments

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This issue of Travel Trends has been prepared in collaboration with NJ TRANSIT. As part of the public outreach process during NJ TRANSIT's 2007 fare-setting dialogue, the organization was encouraged to undertake research examining public investment in transit. This report is responsive to that request.

When the AC Transit system based in Oakland, California concluded its 1995 budget year, agency officials were confronted with a \$2.3 million deficit that threatened to grow even deeper during the ensuing year. To close the gap, AC Transit cut bus service by 11 percent. The actions achieved \$4.8 million in savings for AC Transit and a balanced budget. But an independent followup study found that the cost of the service cuts to AC Transit's riders was 10 times higher—\$48 million in lost income, added travel expense and the value of added travel time. [1]

This anecdote illustrates how deeply and often imperceptibly public transit can impact a community. Just as painful budget cuts can render far more painful consequences on a service community, transit improvements can yield benefits that are not fully appreciated. Since the use of personal automobiles began dominating the American landscape, the transit industry has struggled to make its case with the public and policymakers about the true value its service brings to the economy, the environment and populations too young, too old or disabled to drive. More recently, attention has focused on public transit's actual and potential roles in advancing energy conservation, catalyzing station-area redevelopment, improving air quality, and strengthening public security.

As the authors of the AC Transit study concluded:

“Transit projects are often more complex to evaluate than highway projects, because they can include such a diversity of beneficiaries and the benefits in transit studies are not as predictable or easily defined as they are in the standard traffic stream of vehicles on highways.”[1]

I. Introduction

At the dawn of the 20th Century, the United States led the world in public transit use. By the end of the century, public transit had dwindled to only 2 percent of urban travel. [2] Public opinion polls showed support for public transportation nationally was, at best, lukewarm and stirred little concern as a policy issue. A cottage industry of anti-transit ideologues had taken root, appearing frequently before Congress and in the opinion pages of the nation's leading newspapers to denounce transit as the poster child for wasteful government spending. (The flavor of these attacks is well captured by the Heritage Foundation's Wendell Cox – in September 2007, Cox pressed his attack against the allocation of highway user fees to transit, contending that a new rail light rail line in Minnesota had added fewer new transit riders than the traffic volume carried on the I-35W bridge at the time it collapsed into the Mississippi River.) [3]

Yet, public transit staged a rebound during the closing years of the 20th Century in numerous markets across the United States, launching a revival that continues to gain momentum into the present. Between 1995 and 2005, public transportation ridership nationwide grew more than 26 percent, exceeding the 22 percent growth in use of the nation's highways. [4] Ironically, many of the same factors that had contributed to transit's long decline (such as the price of gas) now help account for its reversal of fortunes. Many of these trends took root earlier in New Jersey and have been more pronounced.

How the Nation Views Transit

The uphill battle transit advocates face in the competition for transportation dollars is borne out by a series of studies produced over the last 10 years. One of these, a study for the Transportation Research Board (TRB) that utilized public polling, an analysis of market research conducted by transit agencies, and an audit of media coverage, captured the public's impression of the nation's transit industry at the close of the 20th Century. [5] “The current image and position of public transportation is weak,” the researchers concluded.

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“Public concern for public transportation pales in comparison to other key public issues like education, crime, and air and water pollution. In addition, in terms of favorability, public transportation falls in the lower middle tier of industries.” [5]

However, the polling also found that the strongest support for transit came from users, while those who were least familiar were the least supportive. [5]

The study listed a series of negative perceptions from its nationwide polling that confront the transit industry:

- Public transportation should be funded exclusively by riders with no taxpayer support
- Transit is a lower priority than funding roads
- Using public transportation does not improve air quality
- Transit service does not benefit the community as a whole, only those who ride it. Researchers found a contingent of people who “do not believe public transportation attracts new business and tourism dollars to the community”
- Riding buses and trains is “more stressful and less relaxing” than driving
- Public transportation, particularly buses, lacks status. “Public transportation is perceived as only benefiting persons with disabilities, the elderly, unemployed, students, and those without a car. Because of this, most people cannot envision themselves sitting inside a bus”
- There is no role for public transportation in areas experiencing little traffic congestion [5]

The study underscored America’s love affair with the car, citing a 1999 survey [6] that found 92 percent of adult Americans drove a car, 80 percent considered their vehicle more of a necessity than a luxury and that 85 percent, even if they could get by without, would always want a car. Making that climb even steeper for the transit industry is its ability to effectively market its product against the automotive industry; in 2006, the automotive industry spent \$13.5 billion on advertising, [7] \$5 billion more than the entire FY 2006 budget of the Federal Transit Administration. [8]

Historical Background

How did public transportation lose ground over the course of the 20th Century? And how did this erosion occur when transit systems in Western Europe and Canada were able to flourish? These issues were explored in TRB studies that tracked the history of the nation’s transit industry and how it was impacted by the automobile and the development of the Interstate Highway System. [2, 9] A number of factors that emerge from those studies reveal how areas such as New Jersey were able to get ahead of the curve and lead the current revitalization of transit.

Public transportation in the United States peaked in the early 1920’s during the early electric streetcar era, and then began to slowly give way with the rise of the personal automobile and public highway construction. [2] Following a brief recovery during World War II, transit plunged into a decades-long swoon as mass suburbanization and highway construction took hold. The last domestic streetcar was built in 1951 and by the 1960s buses had become the dominant mode of public transportation in most cities. [2] The creation of the nation’s Interstate Highway System was authorized in 1944, but not funded until 1956 when Congress enacted the National Interstate and Defense Highways Act. [10] Congress, however, did not immediately resolve the question of whether Interstate Highways should be built around or through America’s cities until 1962 when it authorized federal Interstate dollars for “local” projects. Congress was persuaded in large part by a 1961 study commissioned by the Automobile Manufacturers Association that argued that freeways were needed to help people evacuate cities in the event of nuclear attack and that express buses operating on radial freeways represented the transit of the future. [11]

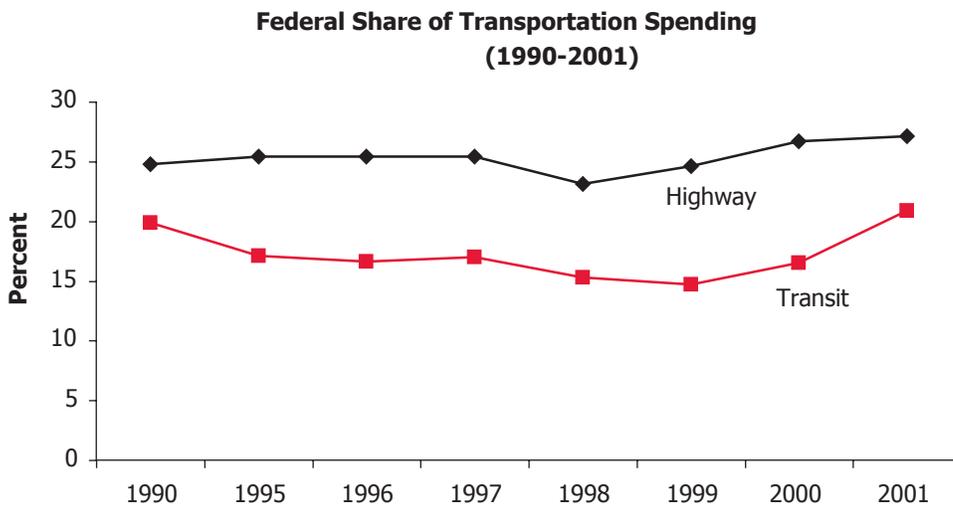
Providing access to a transportation program funded 90 percent by the federal government and requiring only a 10 percent local match proved irresistible to communities across the nation. “This funding formula created incentives to build interstate highways rather than invest in other highways, develop transit service, improve existing facilities, or consider other transportation alternatives,” TBR researchers concluded. [10]

The downward spiral of the transit industry accelerated during the 1960s and 1970s, eventually forcing the intervention of state and local governments to take over failing transit systems from private operators. After authorizing \$24.8 billion in grants to the states to build Interstate highways, Congress offered the transit industry \$50 million in the form of low-interest loans. [11] Subsequent reauthorization bills for the federal transportation program have slowly helped to correct this historic imbalance, but reports by the General Accounting Office (GAO) and the Brookings Institution illustrate how the transit industry continues to compete on an uneven playing field for federal transportation dollars. For instance, the federal government requires transit agencies to demonstrate the cost-effectiveness of projects when applying for New Start funding to finance major capital projects. The GAO notes, “In contrast, there are no similar federal requirements for economic analysis of highway projects, because highway projects are funded under a formula program, and there is no federal approval of project economic worthiness.” [12]

In 2003, Edward Beimborn and Robert Puentes of the Brookings Institution posed the theoretical question of how the nation’s transportation system would look if sponsors of highway projects had to compete for federal dollars under the same rules as the transit industry.

“Only 50 percent of the capital costs for major highways would be paid from federal sources rather than 80 or 90 percent. Cities would have to aggressively compete among one another for their highway funds based on the quality and justification of the proposed project. The rules for the competition would be subject to change without any input. Some states, cities, and metropolitan areas would never be able to build any highways even if there was a pervasive desire by the public and the local officials to do so. Only a few highway segments could begin construction in any year.” [13]

The actual costs attributable to the nation’s highway system, meanwhile, have come under closer scrutiny through Highway Cost Allocation Studies that the Federal Highway Administration is required to produce on a



Source: BTS National Transportation Statistics 2006 Table 3-29b: Transportation Expenditures by Mode and Level of Government From Own Funds, Fiscal Year (Chained 2000 \$ millions)

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periodic basis to ensure that federal user fees are assessed equitably on various users, such as private automobiles and heavy trucks. The most recent report, completed in 1997 and then updated with new data in 2000, for the first time explored how to apportion “external costs,” which it defined as “the costs of highway travel that are not borne by individual trip-makers, but that are imposed on other motorists, public agencies, or society as a whole.” Examples of such costs include “congestion costs imposed on other travelers, noise, air and water pollution, other environmental costs, certain safety-related costs, and a variety of other social and economic costs on different segments of the population.” [49]

The FHWA study estimated that the costs for noise, congestion, and traffic accidents alone totaled \$406 billion for 2000, of which \$50 billion involved societal costs borne by non-motorists. Traffic accidents accounted for 84 percent of these social costs, and included property damage, lost earnings, medical costs, emergency services, vocational rehabilitation, legal costs, and pain, suffering, and lost quality of life. The FHWA study made clear that its overall calculation was unable to account for the additional costs of air pollution and greenhouse gas emissions. [49] The \$406 billion in societal costs for 2000 measures against \$167 billion in total government expenditures on transportation during 2000. [50]

The Transit Experience in Western Europe, Canada

The relative success of transit in Western Europe and Canada during the second half of the 20th Century prompted Louis J. Gambaccini, then general manager of the Southeastern Pennsylvania Transportation Authority (SEPTA), in 1996 to request a special study by the TRB to find out why. Entitled “Making Transit Work: Insight from Western Europe, Canada, and the United States,” the report was issued in 2001 and cited critical differences between the United States and Western Europe and Canada. [2]

A number of common factors were cited:

Coordinated Planning

In Western Europe and Canada, the national and provincial governments control both urban land use planning *and* financing of transportation improvements. In the United States, land use is controlled locally and is largely disconnected from transportation planning which is a regional or state undertaking financed largely by the federal government. “The existence of a more broadly oriented national or state role in land use decision-making is perhaps the single most important factor distinguishing the transit-related policies and practices of Western Europe and Canada from those of the United States,” the researchers concluded.

Public Role

European and Canadian governments intervened during the 1950s and 1960s in investing and assuming ownership of their systems, successfully maintaining ridership, while the United States still regarded transit as a private business. By the time public agencies began intervening in the United States, they faced the more formidable task of rebuilding lost ridership.

Urban Mobility

In Canada and Europe, many cities concluded that extensive automobile use did not fit into their overall plans, opting for slower-speed arterials rather than high-speed highways, restricting automobile use with traffic-calming programs, and charging high parking fees for the limited number of spots made available. U.S. cities, on the other hand, overwhelmingly opted for radial freeways financed 90 percent by the federal government to accommodate automobile use. Germany designed its autobahns to connect cities, rather than go through them; in the United States, metropolitan areas account for one-third of the Interstate route mileage, but two-thirds of the Interstate vehicle miles traveled.

Cost of Driving

Motor fuel prices in Europe until recently were three to five times higher than in the United States, and taxes on automobile use were 4 to 10 times higher. As a result, European nations collect more revenue from automobile taxes than they spend on roads, ranging from a 1.3 ratio in Switzerland to 5.1 in The Netherlands. In the United

States, user taxes cover only 60 percent of roadway construction costs, largely because most local road construction is financed with general taxes. [10]

Notably, many of the factors that distinguished the United States from Western Europe underscored its similarities to Canada, such as low gasoline taxes, high rates of car ownership and powerful economic and demographic pressures for urban growth. And, just as in the United States, Canada also experienced rapid suburbanization and steep declines in transit use following World War II. But there the similarities end. Canada did not enact a federally funded Interstate Highways system, and its investments in transit had stemmed post-World War II ridership losses by 1960. Land use and transportation policy and funding is controlled at the provincial and city level, resulting in more transit-friendly infrastructure development. As a result, transit usage in Canada is roughly double that of the United States.

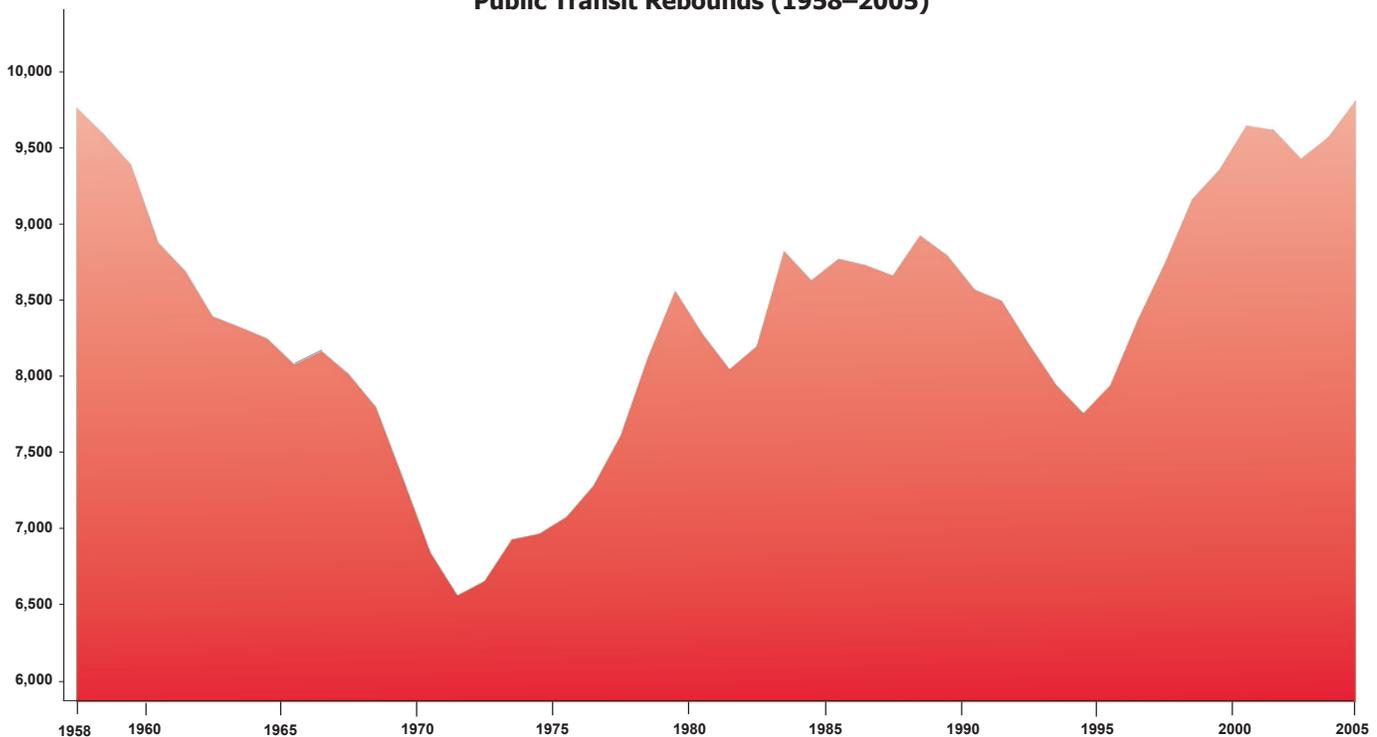
“Canadians have evidently accepted, and presumably demanded, regional planning that fosters more compact cities, fewer urban expressways, areawide parking policies, and a transit-first approach to traffic management,” the TRB researchers concluded.

Public Transit Rebounds

As noted earlier, these extensive studies were undertaken at the close of the 20th Century and utilized data from the early to mid-1990s when transit ridership was stagnating at the 7.7 billion mark, after rallying briefly from the 1972 low mark of 6.5 billion annual trips. Between 1995 and 2005, transit ridership surged more than 26 percent to over 9.8 billion unlinked passenger trips, its highest total in nearly 50 years.[14] (In 2006, total ridership broke the 10 billion plateau for the first time since 1957, at 10.1 billion unlinked passenger trips.) [15]

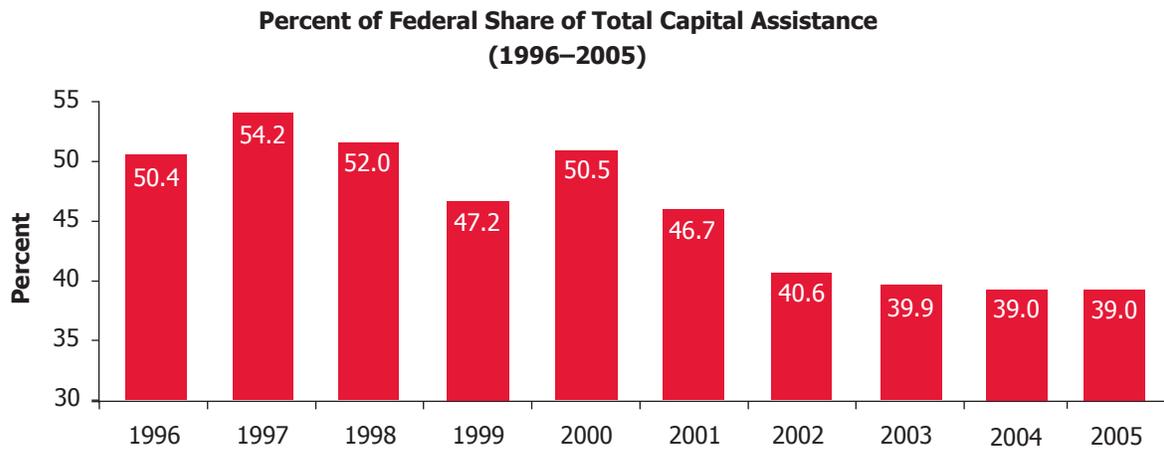
Between 1995-2005, bus (+20.5 %), commuter rail (+23 %), and particularly light rail service (+51.8 %), all contributed healthy ridership increases. [14] Capital support jumped 70 percent from \$6.9 billion in 1996 to \$11.6 billion in 2006, even as the federal government was reducing its share from just over half (50.4 % in 1996) to 39 percent by 2006. [16] In New Jersey, the federal share dropped from 41.9 percent in 1995 to 33.3 percent by 2005. [17]

Public Transit Rebounds (1958–2005)



Source: APTA, *Public Transportation Ridership Statistics, Unlinked Passenger Trips by Mode*

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Source: FTA, National Transit Database

In a 2005 survey of state funding for public transit, the U.S. DOT's Bureau of Transportation Statistics (BTS), found that the total amount of funds programmed for public transit had more than doubled since 1995 and that, of the 47 states reporting, 39 had increased their funding support. Also:

- Six of seven states that provided no funding for transit in 1990 had begun investing in service; four of the eight states in 2000 that were not funding transit started doing so by 2005
- By 2005, seven states, including Delaware and California, were allocating 10 to 25 times the amount of funding for transit as they had provided in 1990 [17]

Meanwhile, the costs of traffic congestion to the American economy and on individuals, as measured annually by the Texas Transportation Institute (TTI), continued to grow. In its most recent analysis, for calendar year 2005, TTI calculated:

- the cost of time and fuel wasted in traffic congestion reached \$78.2 billion, up from \$73.1 billion in 2004
- the average cost per traveler had grown to \$707 from \$680 in 2004
- 2.9 billion gallons of fuel were wasted, enough to fill 58 super-tankers or 290,000 gasoline tank trucks
- Two-thirds of the wasted fuel occurred in large urban areas, such as northern New Jersey and the state's Philadelphia suburbs, amounting to 38 gallons per person [18]

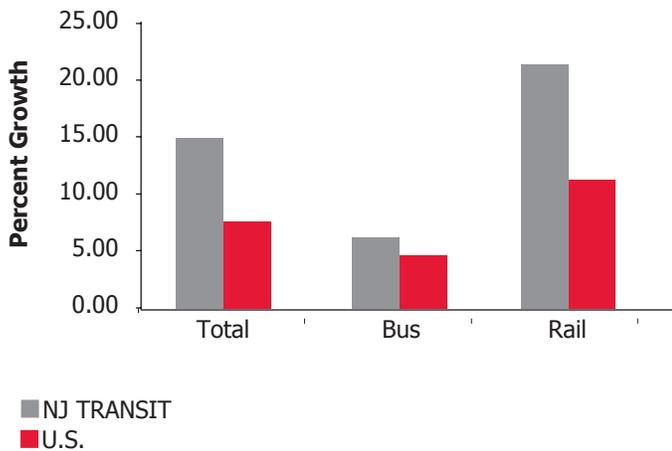
II. The New Jersey Experience

The resurgence of the transit industry took root early in New Jersey and has continued to outperform the industry nationally. For the period 1999-2005, overall transit ridership grew 15 percent in New Jersey, nearly twice as fast as the national growth rate (7.64 %). Both bus (+6.2 %) and commuter rail (+21.5 %) in New Jersey outperformed the national growth rates. [19]

The results were even more pronounced with light rail ridership. As a result of the launch of the Hudson Bergen Light Rail and RiverLINE systems, New Jersey's light rail ridership soared 214 percent, exceeding the 31.9 percent national growth rate. [19]

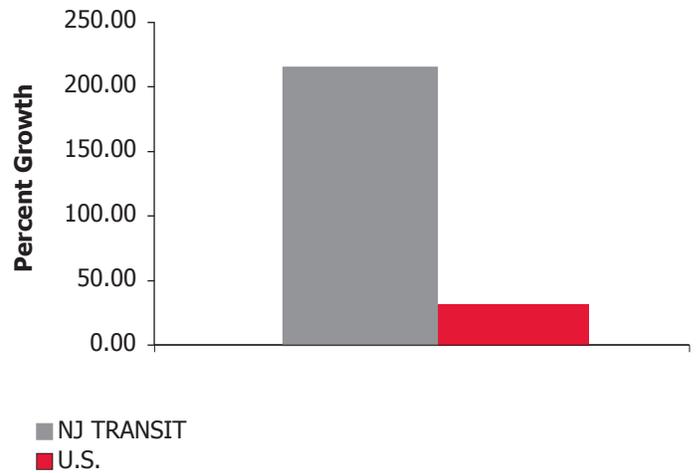
New Jersey's success can be attributed to a number of factors, including its population density, established transit infrastructure, and public support for transit service.

NJ vs US Transit Ridership Growth (1999-2005)



Source: FTA, National Transit Database

Light Rail Ridership Growth (1999-2005)



Source: FTA, National Transit Database

Population Density

A standard transit industry test for success is that transit service works best in those areas with high concentrations of workers, businesses, and households. Based on 2006 U.S. Census Bureau population estimates, [20] New Jersey more than meets that test as the nation's most densely populated state.

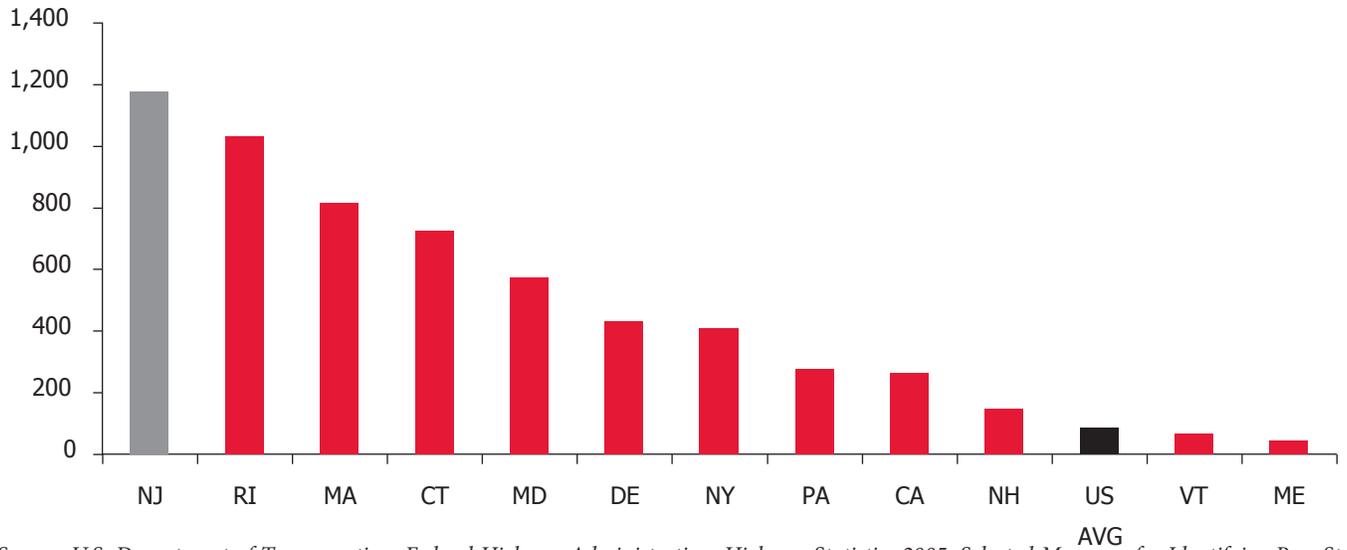
- Over half (51.2%) of New Jersey's net land area in 2006 was classified as "urban," second only to Rhode Island, and 12.5 times the national average
- New Jersey tied with Rhode Island as the state with the highest percentage of urbanized population (94.8 percent), well in excess of the national average (75.6%)

- New Jersey ranked first in population density (1,175 residents/square mile), 14 times the national average, nearly three times higher than New York and more than four times higher than either California or Pennsylvania. As further perspective, the state's population density exceeds that of India (914 people per square mile) and Japan (835 people per square mile.) [47] Along the Hudson Bergen Light Rail line, Hoboken had a 2006 estimated population density of 38,577 residents per square mile and Jersey City had 16,189 residents per square mile [20]

The population density in northern and central New Jersey is so high that seven counties each have a higher population than Wyoming. The state's most densely populated county, Bergen, is larger than six states. [21]

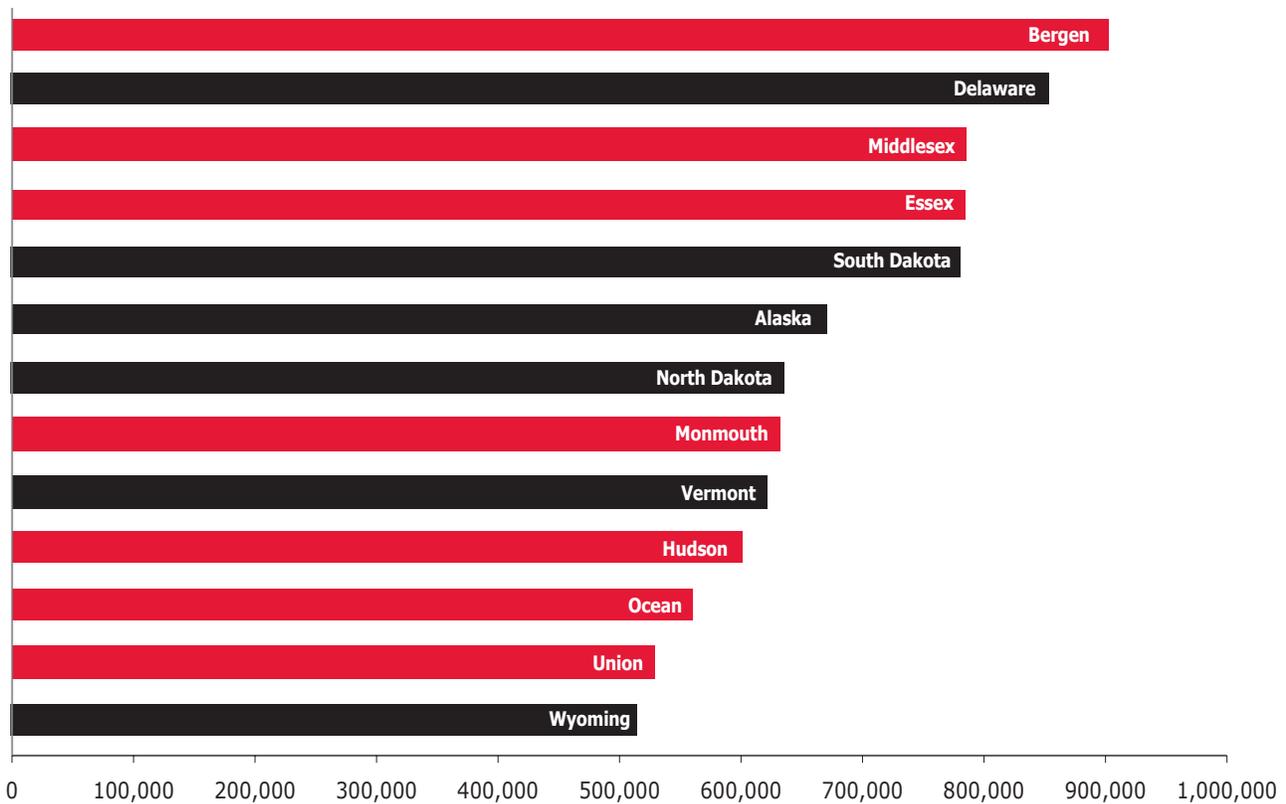
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Population/Square Mile



Source: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2005, Selected Measures for Identifying Peer States, Table PS-1

Population: If New Jersey Counties Were States



Source: U.S. Census Bureau, Population Estimates, GCT-T1. 2006 Population Estimates

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Public Support

As private bus and rail transit operations began collapsing across the United States in the 1970s, New Jersey took dramatic steps to shore up its system. Under the Public Transportation Act of 1979, the Legislature created NJ TRANSIT as a statewide agency to deliver transit service. In 1980, NJ TRANSIT began taking over the state's transit bus service, purchasing Transport of New Jersey, then the state's largest private bus company. Three years later, the agency expanded its portfolio to commuter rail service, taking over commuter rail operations from Conrail. NJ TRANSIT has evolved into the nation's third largest transit provider, operating 236 bus routes and 11 rail lines statewide, and now provides over 240 million passenger trips per year. [23]

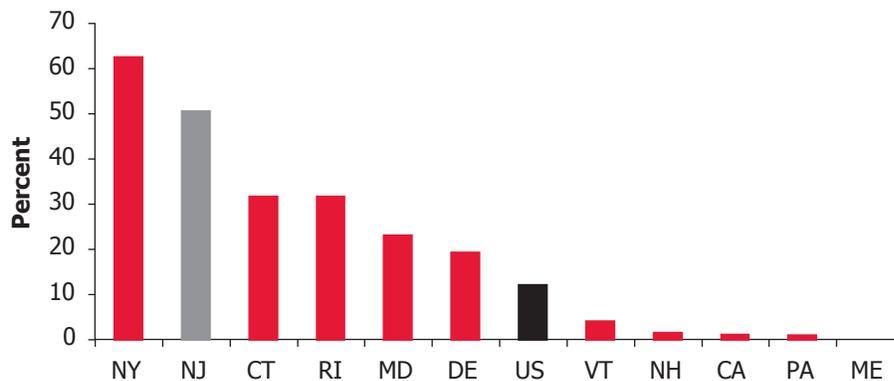
Public support in New Jersey for transit service was very high during the critical years in the 1970s when NJ TRANSIT was being created, according to polls conducted at the time by the Eagleton Institute of Politics at

Rutgers University. Asked in September 1979 whether it was more important for the state to improve highways or transit service, 61 percent chose transit. [24] A year later, 65 percent agreed that improving public transit would help overcome problems created by gasoline shortages. [25]

More recently, support for transit can be found in the state's annual budget deliberations. New Jersey each year since 2000 has allocated near or more than half of its transportation dollars to transit, one of only two states to do so. The other is New York. Direct state operating support, meanwhile, nearly doubled between 2000 and 2008, from \$150 million in FY2000 to over \$298 million in FY2008. [26] In 2003, only 12.04 percent of transportation dollars nationally were invested in transit. [27]

As previously noted, TRB researchers cited the disconnect between transportation and land use planning as the most significant impediment to transit growth in the United States when compared to Western Europe. This was underscored in New Jersey in the results of a

Transit Share of State Transportation Spending (2003)



Source: BTS, *Government Transportation Financial Statistics 2006*. Table 6-8: *Transportation Expenditures by State Governments: 2003*

Star-Ledger/Eagleton-Rutgers Poll conducted in 1999 which asked a random sample of state residents to evaluate the success of 12 long-term state initiatives undertaken at the close of the 20th Century. [28]

The only two initiatives rated as “not successful” were “the state plan for development to stop suburban sprawl and manage growth” and “moving commuters from the automobile to mass transit.” The poll director, Cliff Zukin, said at the time, “In some ways the perceived failure of the state plan and of public transportation are linked. As growth occurs in suburban areas mass transit becomes less of an option for workers.” [28]

Congestion

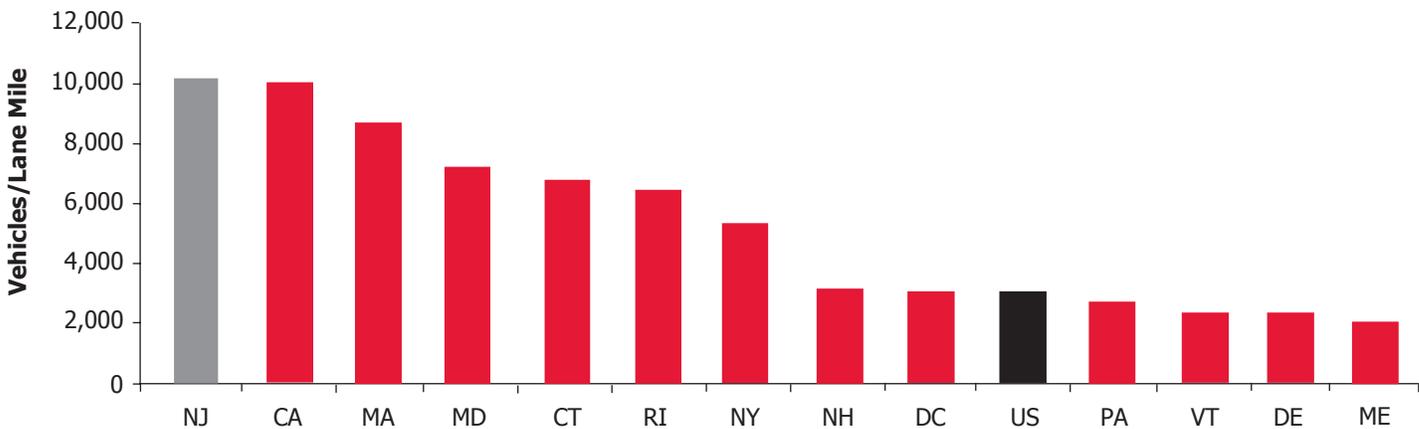
In addition to being the most densely populated state in the nation, New Jersey has the most congested highways. Based on 2005 data, New Jersey edged out California in a measure of annual average daily traffic (AADT) per lane mile [20] on state highways with over 10,000 vehicles per

lane mile. For commuters, the mean travel time to work in 2005 was nearly half an hour (29.5 minutes), the third highest in the nation and, again, exceeding California (27 minutes.) [29]

What is significant about this level of congestion is consideration of where it would stand absent the state’s relatively high use of transit service. In 2005, 10.3 percent of New Jersey commuters reported that they used public transit to get to work. This rate of transit use is second only to New York, and well over double the 4.6 percent national average. [28] Conversely, New Jersey-the state with the nation’s most congested highways-ranked fourth lowest (after New York, Alaska and Hawaii) in the percentage of commuters who drove alone to work. [29]

In its most recent mobility report, TTI calculated the costs of highway congestion in metropolitan regions throughout the U.S. and, for the first time, also the benefits derived from transit service. [18] For 2005, traffic congestion cost the New York City metropolitan region over 384 million person hours of time in traffic delays

Annual Average Daily Traffic (2005)



Source: FHWA

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and \$7.4 billion in wasted time and fuel. For each rush hour traveler, that equated to 46 hours stuck in traffic during 2005 and cost \$888, up substantially from just five years earlier when New York–area commuters each spent 34 hours stuck in traffic at a loss of \$563. For the Philadelphia region (including southern New Jersey counties), TTI calculated a total loss of 111.7 million person hours of time lost in traffic delays and over \$2 billion in wasted time and fuel for 2005. The per person costs for the Philadelphia region were 38 hours stuck in traffic (up from 30 hours in 2000) and \$711 (up from \$482 five years earlier.)

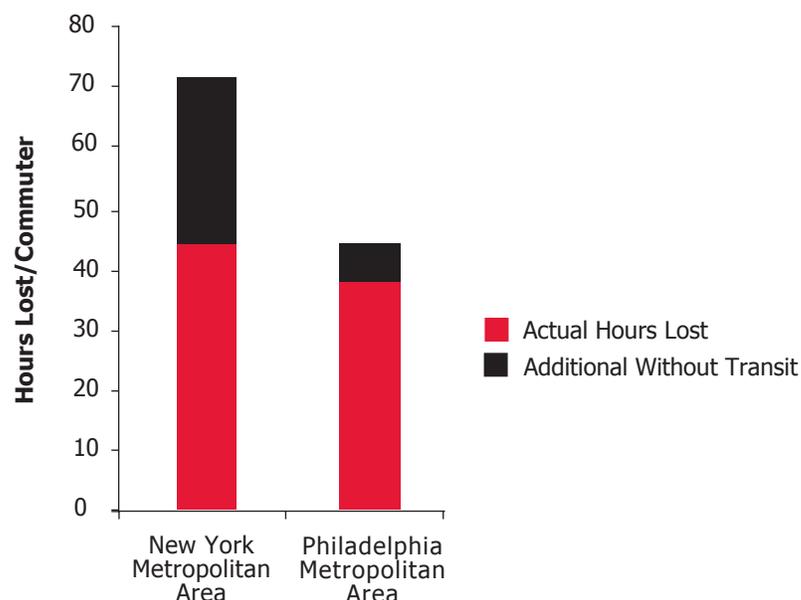
In terms of congestion benefits derived from transit use, TTI calculated the New York region would have lost an additional 216 million person hours of time and \$4.1 billion in wasted time and fuel during 2005 if transit were not available. Each rush hour commuter would have wasted the equivalent of another day (26 hours) stuck in traffic without public transit. For the Philadelphia region, another 19 million person hours of time and \$359.7 million in wasted time and fuel would have been lost without public transit service in 2005. Because of public transit operations, each commuter was spared another seven hours stuck in traffic. The New York area

alone accounted for 40 percent of the national total of 541 million hours of additional lost time in the absence of transit. [18]

Public transit's impact on the Hudson River crossings between New Jersey and New York was calculated by NJ TRANSIT as part of the Trans-Hudson Express Tunnel project (THE Tunnel), which would add a pair of new rail tunnels to increase transit capacity. [30] The study examined the how the George Washington Bridge and Holland and Lincoln tunnels would be impacted by 2025 with or without the rail project.

The study concluded that without THE Tunnel, daily automobile traffic across the Hudson River was projected to increase 11.2 percent, from 359,500 in 2000 to 399,700 trips by 2025. However, all three facilities currently operate at peak capacity during the morning and evening rush hours, and therefore would be unable to accommodate such an increase in volume. With construction of THE Tunnel, NJ TRANSIT travel forecast models predict that daily demand for trans-Hudson auto trips would decrease by five percent (29,500 person-trips in 20,500 autos) by 2025.

Stuck in Traffic: Hours Lost/Commuter (2005)



Source: Texas Transportation Institute: 2007 Urban Mobility Report

AM Peak Period Auto Work Trips to Downtown Jersey City

| Corridor | 2000 Census Vehicle Trips | | 2004 Route 139 Survey Vehicle Trips | | Change in # | Change in % |
|-----------------------------|---------------------------|---------------|-------------------------------------|---------------|-------------|---------------|
| Bayonne/Staten Island | 1,349 | 27.6% | 426 | 10.9% | -923 | -68.0% |
| M&E/280 | 341 | 7.0% | 258 | 6.6% | -83 | -24.0% |
| I-78/22 Raritan Valley Line | 443 | 9.1% | 565 | 14.4% | 122 | 28.0% |
| Northeast Corridor/Turnpike | 534 | 10.9% | 502 | 12.8% | -32 | -6.0% |
| NJCL/GSP | 798 | 16.3% | 693 | 17.7% | -105 | -13.0% |
| Route 9 Bus | 493 | 10.1% | 342 | 8.7% | -151 | -31.0% |
| I-78/Gladstone | 235 | 4.8% | 346 | 8.8% | 111 | 47.0% |
| Route 18 Bus | 71 | 1.5% | 190 | 4.9% | 119 | 168.0% |
| I-80 M&E | 330 | 6.8% | 200 | 5.1% | -130 | -39.0% |
| M&E Route 24 | 287 | 5.9% | 390 | 10.0% | 103 | 36.0% |
| TOTAL | 4,881 | 100.0% | 3,912 | 100.0% | -969 | -20.0% |

Note: Comparison only includes areas with comparable data

Source: NJ TRANSIT

Another recent NJ TRANSIT study found that, since the launch of light rail service between Bayonne and Jersey City, morning peak period auto trips into downtown Jersey City from Bayonne and Staten Island dropped 68 percent between 2000 and 2004. [31]

Fuel Prices

The allure of cheap gasoline which helped lead riders off of buses and trains across the United States during the second half of the 20th Century boomeranged early in the 21st Century when gas prices soared, driving many motorists back to public transit. Retail gasoline prices began rising in 2000, spiked during the summer of 2005 to over \$3 a gallon and now hover at that range.

NJ TRANSIT ridership forecasters estimated that retail gasoline prices in New Jersey had increased by about \$1.20 per gallon between 2000 and August 2006 after adjusting for inflation. They calculated the increase would cost a commuter with a 20-mile one-way trip \$32 to \$40 more per month in gasoline costs. According to their calculations, the spike in gasoline prices over \$3 per gallon that occurred in 2005 following Hurricane Katrina produced approximately 16,000 new weekday trips for NJ TRANSIT, consisting of 5,600 commuter rail trips, 6,500 local bus trips, 3,200 bus trips to Manhattan and 700 aboard light rail. [32]

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Energy Conservation

A 2007 study prepared for the American Public Transportation Association, “Public Transportation and Petroleum Savings in the U.S.: Reducing Dependence on Oil,” determined that public transit usage reduces U.S. gasoline consumption by 1.4 billion gallons each year, the equivalent of filling up nearly 300,000 cars a day. [33] The savings were calculated on the basis of the passenger volumes carried by transit vehicles versus single occupancy vehicles, the reduced congestion resulting from transit and the alternative energy sources utilized by transit. For example, many NJ TRANSIT commuter rail services operate on electricity.

Between 1996 and 2004, motor fuel consumption by passenger cars and motorcycles grew 9.8 percent (to 9,526 trillion Btu), while transit bus consumption of diesel grew at a rate of just 5.2 percent. The use of compressed natural gas in transit vehicles grew eight-fold during that period. [34]

The TTI study determined that 2.9 billion gallons of fuel were wasted nationally in traffic congestion during 2005, enough to fill 290,000 gasoline tank trucks. In New Jersey, the loss per motorist was 29 wasted gallons within the New York region and 24 gallons in the Philadelphia region. New Jersey ranked 11th in the nation in 2005 in motor fuel consumption at 5.3 billion gallons. Whereas auto trips consume 8,500 BTUs per passenger mile when a driver travels alone, transit service in New Jersey consumes only about 3,200 BTUs per passenger mile. [18]

A 2006 study by the Alan M. Voorhees Transportation Center (VTC) at Rutgers compared the work commute and energy consumption patterns for downtown Newark, an urban, transit-rich location, and Parsippany-Troy Hills, a prototypical auto-accessible, suburban office campus location. [35] Both locations have nearly 50,000 jobs, but with 48,000 jobs per square mile, the downtown Newark study area has a job density nearly fourteen times that of Parsippany-Troy Hills. The VTC study concluded that it required 57 percent more energy to transport commuters to Parsippany-Troy Hills than to Newark, the equivalent of 229 gallons of gasoline per year at a cost of \$27.50 per week.

Greenhouse Gas Emissions

A 2007 study conducted for APTA with funding from TRB concluded that public transportation in 2005 reduced the nation’s CO₂ emissions by 6.9 million metric tons and other greenhouse gas emissions by another 400,000 metric tons through a combination of reduced personal auto trips and reduced congestion. The 6.9 million metric tons of CO₂ exceeds the total transportation CO₂ emissions produced in states such as North Dakota (6.3 million metric tons) and Delaware (5 million metric tons.)

According to the APTA study, the carbon footprint for a typical two-car U.S. household is about 22 metric tons per year. A commuter with a 20-mile roundtrip journey to work could potentially reduce their CO₂ emissions by more than 4,800 pounds a year by switching to transit service. Utilizing public transit in place of a low occupancy vehicle on a daily basis could reduce a household’s carbon footprint between 25 to 30 percent. [36]

NJ TRANSIT has calculated, based on 2006 data, that its service eliminates 2.56 billion vehicle miles traveled annually in New Jersey; in 2006, the reduced automobile usage saved an estimated 1.16 million tons in CO₂ emissions. [51]

The Center for Neighborhood Technology under a contract with Transit Cooperative Research Program has developed a model for calculating the greenhouse gas emissions that are generated by using different types of transportation. Using the model, a commuter’s 116-mile daily roundtrip between downtown Trenton and downtown Newark was calculated for the month of October 2005, comparing a 2002 Honda Accord, 2002 four-wheel drive GMC Envoy and NJ TRANSIT commuter rail train. The calculation assumed that 25 percent of the trip would occur in stop-and-go traffic. The model shows the monthly CO₂ emissions per person, the number of 20-pound bags of charcoal briquets need to burn an equivalent level of CO₂, and the number of maple trees needed to offset the emissions. [37]

| | CO2 Emmissions (lbs) | # of Charcoal Bags | # of Maple Trees |
|-----------------|----------------------------|--------------------------|------------------------|
| Honda Accord | 1,926 | 26 | 300 |
| GMC Envoy | 3,031 | 41 | 473 |
| NJ TRANSIT Rail | 951 | 13 | 148 |

Economic Development

In the study undertaken by the Transportation Research Board at the close of the 20th Century to gauge public perceptions of transit, one of the hurdles it found the industry would need to overcome was a contingent in the public who “do not believe public transportation attracts new business and tourism dollars to the community.” [5]

In New Jersey, however, public transportation early on forged a symbiotic economic relationship that continues to the present between the state’s suburbs and the employment centers in Manhattan and Philadelphia, Rutgers Professors James W. Hughes and Joseph Seneca noted in their 2005 study, *A Transportation-Driven World-Class Economy: New Jersey at Risk*. [48]

| HBLR Total TOD Housing Units Built or Under Construction* Major Projects at Selected Stations | | | |
|--|---------------|----------------------------------|----------------------------------|
| | # of Units | Estimated Sale Value/ Unit | Total Estimated Sale Value |
| Hoboken 9th Street | 2,230 | \$400,000 | \$892,000,000 |
| Essex Street- Jersey Avenue | 4,265 | \$550,000 | \$2,345,750,000 |
| 34th Street Station, Bayonne | 2,331 | 400,000 | \$932,400,000 |
| Port Imperial | 3,142 | \$600,000 | \$1,885,200,000 |
| Bergenline Avenue | 52 | \$300,000 | \$15,600,000 |
| TOTAL | 12,020 | | \$6,070,950,000 |

*Since 2000, the opening of the HBLR

Source: VTC, “Land Development at Selected HBLR Stations”

“The early private rail, ferry, and bus commuter lines to New York City and Philadelphia underpinned the development of some of the strongest residential markets in the nation. This infrastructure afforded New Jersey residents access to among the highest-paying jobs in the nation, bolstering personal income in the state and creating powerful consumer markets. Similarly, the commuter transportation services provided the economies of New York City and Philadelphia a potent workforce from New Jersey, the absence of which would have substantially limited their economic growth potential.”

When New York City’s economy surged in the 1980s and 1990s, improved NJ TRANSIT service was a contributing factor, Hughes and Seneca wrote, noting that New Jersey residents hold 75 percent of all new jobs in Manhattan. In turn, residential real estate in New Jersey benefited, they added, citing the launch of Midtown Direct service in 1996 as “a case example” of the economic effects of transportation investment. “The extraordinary positive economic impact of public rail accessibility in the closing period of the twentieth century replicated that of private rail service in the early period of the century—higher property values in the affected suburban communities.”

Within New Jersey, research by VTC has documented millions of dollars in new development attributable to the state’s Transit Village program, and the development of the Hudson Bergen Light Rail Line. VTC found that, between 1999 and 2004, \$522 million was invested in the state’s Transit Villages, including \$191 million in residential construction of 879 units. A new VTC study of the Hudson Bergen Light Rail system has documented a staggering \$6 billion worth of new housing units either built or under construction in Hoboken, Jersey City, Bayonne, Weehawken, Union City and West New York. [31]

Transportation Equity

Public transit is vital to a sizable component of the population who, because of age or disability, cannot drive and require alternative transpor-

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tation. A study completed by VTC in 2005 [38] found that almost one in five New Jersey residents (17%) reported in the 2000 Census to have a disability, ranging from nearly one in four (24 %) Hudson County residents to nine percent in Hunterdon County. Whereas 74 percent of working age New Jerseyans without disabilities were employed, only 58 percent of the working age disabled had jobs. VTC cited national statistics that half of non-working disabled adults encountered difficulties looking for work, with 29 percent citing lack of transportation as a major impediment.

NJ TRANSIT has undertaken a number of initiatives to serve the state's disabled population, quadrupling the number of demand response trips it provided from approximately 250,000 in 1996 to over a million in 2005. In addition to accessible bus and rail service, NJ TRANSIT operates Access Link, an ADA paratransit service. In addition, local governments and non-profit organizations offer community transportation services. In the 2005 study, NJ TRANSIT reported that 99 percent of its 150 bus routes and 24 contracted services were accessible to passengers with mobility limitations. For commuter rail, 60 of 161 stations were identified as accessible; the Hudson Bergen and RiverLINE light rail systems were reported as 100 percent accessible.

In a survey of the state's disabled population undertaken for its study, VTC found that more than two-thirds (69 percent) used Access Link at least once per week for commuting purposes. Approximately 23 percent of the employed respondents said their job required travel during the work day; of those, almost half (43 percent) reported they used Access Link most often. The VTC survey also found high levels of satisfaction with Access Link: approximately nine out of ten respondents reported that Access Link services were "convenient" (85 percent); priced reasonably (88 percent); "easily accessible" for someone with their disability (89 percent); and "safe" (94 percent).

Value for the Dollar

To place the cost of operating New Jersey's public transit system in some perspective, a number of comparisons were developed for items in the state and federal budgets:

- Direct state operating and capital support for NJ TRANSIT in FY 2005 totaled \$702.5 million. [26] This amounted to \$2.88 per trip, less than the price of a gallon of gas.
- The U.S. Department of Defense has contracted with Lockheed Martin to produce three satellites as part of the Space Based Infrared System-High, which the company describes as "the nation's next-generation missile warning system." [39] For the cost of one of those satellites [40], New Jersey could operate its entire public transit system for over two years, transporting approximately a half-billion passengers without charging fares. [19]
- The 2008 Department of Defense Appropriations Act includes \$3 million for First Tee, a program intended to better the lives of youth "through the game of golf;" \$2.4 million for the Lewis Center for Education Research, an earmark added by Rep. Jerry Lewis (CA); and \$1.6 million for the Pat Roberts Intelligence Scholars Program, added by Sen. Pat Roberts (KS). [42] With the \$7 million in earmarks, NJ TRANSIT in 2005 could have operated 1.75 million bus trips, or 769,230 rail trips, or 1.42 million light rail trips without charging fares. [19]
- New Jersey's highway expenditures are the 11th highest in the nation, yet its fuel tax ranks 47th and has not been increased in 18 years. NJ TRANSIT riders, during that same time, have been assessed three fare hikes. Fare revenues in New Jersey roughly equal state support in covering the operating costs of the system. [19]
- The production of one F/A-22 Raptor fighter jet [41] would cover the entire cost of operating NJ TRANSIT's light rail system for five years [19].
- On November 11, 2007, The New York Times reported that the Department of Defense had cancelled a spy satellite program, called Future Imagery Architecture. [43] The cost overruns alone for the cancelled project, estimated at \$4 billion to \$5 billion, [44] would have covered the entire cost of running New Jersey's public transit system for three years and the transport of 750 million passengers. [19]



Photos: Seattle Department of Transportation

These illustrations (taken in Seattle) demonstrate the impact on a downtown street if the riders carried aboard one light rail vehicle were instead driving.

Conclusions

The anecdote that introduced this paper demonstrated how transit's contribution to its community can be undervalued and not fully appreciated by policymakers and the public. These circumstances historically and into the present have complicated the transit industry's ability to effectively argue its case in the competition for public transportation dollars. Transit advocates in New Jersey enjoyed success earlier than their counterparts in

other states and in recent years have effectively leveled the playing field for state funding. This was driven in large measure by the industry's ability to position itself as a solution to concerns over traffic congestion, sprawl development and transportation equity, underscored by the credibility derived from steadily rising ridership. The success of transit-oriented development in revitalizing older urban areas and generating new private investment

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and tax revenue, as well as expanding ADA paratransit service, are two illustrations of how transit in New Jersey has generated benefits outside of its traditional service community.

New Jersey has been among the nation's leaders in transit investment, a commitment that has produced ridership increases that exceed the national average. Transit trips in New Jersey remove vehicles from the road, reduce energy consumption and greenhouse gas emissions, foster urban redevelopment and contribute to economic vitality—all at a cost to the state of less than a gallon of gas per trip.

During the 1970s, when overall transportation spending lagged in New Jersey, the state's per capita income declined to a rate that was 16 percent higher than the rest of the nation, Hughes and Seneca wrote in their 2005 report. But when transportation investment surged during the 1980s and 1990s, per capita income in New Jersey by 2003 rose to 28 percent higher than the rest of the nation as office construction and the economy grew. [48]

The lessons learned were obvious, Hughes and Seneca wrote, in warning against a repeat of the 1970s experience.

“A future that portends transportation gridlock distressingly and convincingly conveys, perhaps like no other single aspect of quality of life, the prospect of intolerable time and money costs of operating and living in New Jersey. If congestion and transportation costs rise significantly because of inadequate investment, existing businesses and residents will increasingly choose to relocate outside of the state and region. Moreover, location choices by potential new businesses and new households will also be negatively affected... New Jersey must take the high road in making effective and immediate decisions to provide the transportation investments required to maintain the quality of its residents' lives and enhance their ability to work in a world economy where success is ever more dependent on access, speed, and movement.”

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