

Policy Analysis

ISTEA

A Poisonous Brew for American Cities

by Randal O'Toole

Executive Summary

Will travel be faster and easier in the 21st century, or will traffic be bogged down by a cumbersome central planning process that creates more urban congestion and gridlock? The answer depends on how Congress acts on the Intermodal Surface Transportation Efficiency Act (ISTEA). Passed in 1991 and recently extended for six months, the act is to be reauthorized early next year.

A better title for the law, which allocates billions of dollars from the federal gasoline tax, might be the "Urban Immobility and Pork-Barrel Act." ISTEA creates enormous incentives for urban areas to waste money on pork-barrel projects that are unlikely to meet local needs and that will actually promote congestion.

ISTEA especially promotes mass transit such as light rail and subways. But those systems carry only a fraction of commuters and cost from 10 to a 100 times more per mile to build than do roads. Worse, many supporters of transit, the so-called New Urbanists, actually favor increased congestion on roads. They see it as a way to get people out of cars and to force them to live in central cities rather than suburbs.

But increased congestion will not result in significant shifts by commuters to transit; it will only result in millions of wasted hours and increased levels of air pollution as commuters sit in gridlocked traffic.

Transportation policy is best left with state and local authorities as well as with the private sector. Congress thus could make travel more efficient by getting out of the transportation business and repealing the federal gasoline tax that pays for federal pork.

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Introduction

Both supporters and critics of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA, pronounced "ice-tea"), which is due to be reauthorized in 1998, say the conflict is between advocates of highways and advocates of mass transit.¹ That is wrong. The conflict is between mobility and immobility.

Two centuries ago few Americans ventured more than a few miles from their homes. A century ago travel of more than a few hundred miles was rare. Today Americans routinely travel tens of thousands of miles each year. Although many of the longer trips are by air, most short- and medium-length trips are by automobile. It is this mobility that is being attacked by proponents of ISTEA.

The automobile has created a lifestyle unheard of in the history of the world: a lifestyle characterized by extraordinary freedom of movement, immense trade in manufactured goods and services, high employment levels and social mobility, and unheard-of opportunities for individuals to choose where and how they want to live.

The automobile has also created problems, including air pollution and solid waste. But rather than address those particular problems, many critics, especially the New Urbanists, as they call themselves, attack the automobile itself.

Increased mobility is a sign that people "lack community."²

Increased trade in goods and services is a sign of a "sick consumerism." People's ability to live where they want to has led to "sterile suburbs" and "sprawl."³

Given a clear choice, few Americans would be willing to give up their cars and the lifestyles they make possible. Yet an extreme anti-auto view has become the dominant paradigm behind ISTEA. That has happened because the supporters of immobility have stolen the terms of the debate by claiming to want to reduce congestion and pollution whereas, in fact, they want to increase congestion and, in effect, pollution. In truth, ISTEA

- mandates for transportation a comprehensive central planning process that has been captured by the New Urbanists in many cities;

- gives cities huge incentives to build rail lines and other expensive but practically useless transportation projects;

- creates perverse incentives for cities to increase congestion, making them less likely to meet federal air quality standards; and
- hands out billions of federal dollars for mass transit, roads, and other projects that satisfy political agendas rather than local transportation needs.

Instead of renewing ISTEA, the federal government should back out of the urban transportation arena. The "TEA-2" proposal, supported by Sen. Connie Mack (R-Fla.) and Rep. John Kasich (R-Ohio), eliminates most of the federal gas tax and devolves transportation decisions to state and local governments. A proposal such as that would allow cities to focus on transportation rather than the game of getting dollars from the U.S. Treasury.

History of Urban Transport

Through the end of the 19th century, Americans were content to leave urban transportation to the private sector. Urban developers always dedicated a large share of land to streets to allow for a flow of commercial and private traffic. As the technology became available, private developers also built streetcar lines and other forms of rail transit to promote the housing developments accessed by those rails. Private toll roads connected many cities.

Because of limited mobility, most cities had densely populated urban cores. Small lot sizes and multifamily housing reflected both high land prices and people's need to be close to employment and shops. Streetcar lines allowed many people to escape to "railroad suburbs," but even those suburbs tended to be densely populated because most people wanted to be able to walk easily to the streetcar stops.

In the early part of the 20th century, the increasing popularity of the automobile led to a "good roads" movement that advocated government construction and ownership of roads. That revolutionary idea was partly a response to the perceived excesses of "monopolistic" railroad and toll road owners. But it was also in tune with the Progressives' vision of "scientific management" by government officials.

Advocates of good roads felt that user fees, in the form of gasoline taxes and vehicle registration fees, would make roads self-funding and promote efficient, government-managed transportation systems. In fact, user fees have

paid for the vast majority of the highways, roads, and streets in the United States. But there are serious flaws with funding roads with user fees.

Differential Costs

User fees make sense only so long as all roads cost about the same to build and provide about the same level of service. The system breaks down when some roads cost far more to build than others as well as when travel demand is significantly greater during some hours of the day than others.

An urban freeway may cost from 10 to 100 times as much per mile to build as a street yet offer drivers only two to four times the speed. But drivers who are asked to pay the same access fee whether they use the freeway or the street would be foolish to choose the street. The significant speed benefit of freeways, at no extra cost to drivers, explains why urban freeways seem to be used to capacity soon after they open.

In the 1950s the federal government started building the interstate highway system, paid for with gasoline taxes. Although intended to be an interstate system, it quickly turned into an intraurban system, providing cities with throughways and beltways that were used mainly by local commuters. Urban interstates allowed drivers to go two to four times faster than they could on streets--but cost the government 10 or more times more to construct.

To account for the significant differences in costs and benefits between freeways and streets, cities might have charged tolls for use of the freeways. Even better would have been to reduce peak-hour demand through congestion tolls that were higher during rush-hour periods than slack periods. But federal law forbade states and cities to charge tolls for roads built with federal funds unless the roads that were rebuilt with federal funds or replaced by federally funded roads had been toll roads. Thus, only a few eastern states have toll roads, and until recently none used rush-hour pricing.

Creating Suburbs

Freeways and the automobile transformed American cities by allowing people to live a considerable distance from where they worked and shopped. The auto's door-to-door

service allowed people to live on large lots, away from the congestion in the city centers. By the 1960s a majority of Americans lived not in rural areas or cities but in suburbs. By the 1980s most jobs were also located in the suburbs as employers followed their workers away from urban congestion.

Increased mobility improved American life in many other ways. Drawing on a huge consumer base, stores could provide increased variety and reduced prices. A typical American grocery store in 1900 offered about 3,000 different products. By the 1950s supermarkets were offering 15,000 different products. Today some superstores sell well over 100,000 different products.

Automotive technology also gave urbanites a greater appreciation for nature, and urban residents demanded more parks and open space within the cities as well as wilderness and other recreation areas outside the cities. Fortunately, the spread of the suburbs allowed the creation of many types of open space, from large back yards to greenbelts and forest parks such as those in New York, Chicago, and St. Louis.

Problems for Cities

The automobile is not without its problems, of course.

Air pollution is an obvious problem, but more subtle is the tension between the central cities and the suburbs. Central city officials consider the suburbs parasites, benefiting from city services but failing to pay their share of taxes.

Suburbanites have often successfully opposed annexation, city-county consolidation, and other attempts by the central cities to absorb the suburbs into their tax bases.

For many city officials, the most upsetting thing about the suburbs is not that they seem to be parasites on the cities but that the suburbs do not even need the cities. With jobs, shopping areas, and various cultural facilities moving to the suburbs, central city downtowns have declined in importance. In fact, as Frank Lloyd Wright realized as early as 1922, the invention of the telephone, automobile, and electric lighting made downtowns obsolete. Joel Garreau, author of Edge City, points out that "we have not built a single old-style downtown from raw dirt in seventy-five years."⁴

City officials and planners have viewed the decline of downtowns as a crisis and responded in various ways. In the 1950s they combined "urban renewal," which often proved

disastrous, with freeways built through downtowns, creating enormous congestion.⁵ In the 1960s, when many cities bought transit companies with federal help, they stoutly maintained the downtown orientations of bus routes, so that transit riders going from suburb to suburb were forced to go through downtown.

The downtown orientation of transit continued in the 1980s when rail transit became popular. Los Angeles's freeways, bus routes, and new rail lines are all oriented around downtown even though downtown provides only 5 percent of employment in the Los Angeles area.

Another problem was that planners' downtown orientation led them to build freeways through well-settled and often historic neighborhoods, provoking enormous opposition. In 1968 the city of Portland, Oregon, published a highway plan that would have forced 1 of 10 residents to either move or live right next to a freeway or expressway.

Successful opposition to new highway construction created something of a crisis in industries grown dependent on lavish, federally funded interstate highways. Transportation consultants, engineering and design firms, sand and gravel companies, and other parts of the construction industry looked around for something else to do.

New Urbanism

As long ago as the 1950s air pollution, congested freeways, the decline of downtowns, and the supposed sterility of the suburbs led to a growing nostalgia for life before automobiles. By the 1980s several architects had developed that nostalgia into what they variously called "neotraditional town planning" or "New Urbanism."⁶

In essence, neotraditionalists and New Urbanists decided that the best way to make Americans less dependent on cars would be to redesign cities to look as they had looked before autos were dominant. In the late 19th and early 20th centuries, American cities were typified by multifamily housing, housing mixed together with commercial uses, and single-family housing on small lots, all connected by streetcar lines. So high densities, mixed uses, and light rail (the updated name for streetcars) became characteristic of New Urbanism.

But New Urbanism reverses cause and effect. The automobile allowed people to live in lower densities, and forc-

ing people to live in high densities will not lead them to give up their cars. Indeed, throughout the nation high density is always accompanied by increased congestion. But that fact does not make New Urbanism any less popular among people who wish they could "uninvent" the automobile.

In fact, New Urbanists view increases in congestion as a good because they think of mobility as a vice. When asked what he would do to change suburbs, one New Urban planner told Washington Post writer Joel Garreau that he "would increase dramatically the real residential population. . . . I'd raise the gasoline tax by 300 percent. I'd raise the price of automobiles enormously. . . . I'd limit movement completely. . . . And then I would put enormous costs on parking." In short, comments Garreau, that planner would "force Americans to live in a world that few now seem to value."⁷

Overview of ISTEA

Congress passed ISTEA in 1991 to develop

a National Intermodal Transportation System that is economically efficient and environmentally sound, provides the foundation for the Nation to compete in the global economy, and will move people and goods in an energy efficient manner.⁸

Behind those lofty goals was a more basic political motivation: money--up to \$155 billion over six years. The so-called federal highway trust fund piles up tens of billions of dollars in revenues each year, mainly from the 18.4 cent per gallon federal gasoline tax. The federal gas tax was originally instituted to pay for the interstate system, but by 1991 that system was nearly complete. As a result, Congress was not spending all the receipts on highways. Major funding has been provided for alternatives to auto and highway transportation.

Advocates of mass transit found their justification for spending gasoline taxes on nonhighway projects in the problem of air pollution. Although autos emit less pollutants now than in the past and air in American cities thus is cleaner, a few cities--notably Los Angeles, San Francisco, and some on the east coast--still fail to meet rising Environmental Protection Agency pollution standards. An important thrust of ISTEA is to use clean air as a wedge to divert more and more gasoline taxes from highways to transit.

Before ISTEA, up to 2 cents per gallon of the gas tax had been available for transit. But ISTEA greatly expands transit's share: after deducting 4.3 cents dedicated to deficit reduction, the law dedicates nearly half of remaining gas taxes to either transit or "flexible" funds that may be spent on either transit or highways. That creates a shortfall in funds for highway improvements.

Essence of ISTEA

At nearly 138,000 words in eight different titles, ISTEA is the size of a medium-length book. The most important titles are Title I, Surface Transportation, and Title III, Transit. Between them, those two titles account for more than two-thirds of ISTEA's verbiage and over 90 percent of its spending.

Title I, which deals mostly with highways, contains two or three provisions that market advocates might cheer. It allows toll roads, whereas previously tolls were not allowed for federally funded highways (except where they had been charged before federal funds were received). It specifically allows up to five experiments with congestion pricing--tolls that are higher during rush hours than during other hours of the day. And it allows experiments with private construction of roads.

Otherwise Titles I and III stick with the same old command-and-control, central planning process that has caused most transportation problems in the first place. The two titles earmark billions of dollars for hundreds of highway, rail, transit, bridge, and other projects in every state.

The titles also create a new set of planning processes. To be eligible for federal funding, each state and urban area is required to prepare transportation plans with significant public involvement. While public involvement supposedly prevents "backroom decisions" that are closed to the public, in practice all it really means is that a different set of special-interest groups ends up dominating the process.

ISTEA authorizes funding for 1991 through 1997 and must be reauthorized next year so that congressional appropriators can continue to spend money from the highway trust fund. Reflecting the decline in discretionary spending, ISTEA's reauthorization is the biggest pork barrel in the

105th Congress. And Congress has responded to the promise of pork with gusto: Individual members have proposed hundreds of expensive projects in their districts. The demand for seats at the table when the decisions are made has been so great that the House Transportation and Infrastructure Committee, with 73 members, has become by far the largest committee in Congress. At 50 members, the House Subcommittee on Surface Transportation may be one of the largest subcommittees in congressional history.

Proposals for Change

Three basic proposals for reauthorization have been on the table:

- "NEXTEA," proposed by the administration, basically would continue ISTEA for another six years.
- "Step 21" is an alternative favored by those states that end up "donating" more in gas taxes than they receive in federal funding. This proposal requires that each state get at least 95 percent of the funds it pays into the highway fund. It also reduces ISTEA's many categories of funds to two: a highway fund and a flexible "surface transportation" fund.
- "TEA-2," sponsored by Mack and Kasich, would devolve most policy decisions and funds back to the states. It would eliminate all but about 6 cents of the federal gas tax. Four cents would still go to deficit reduction, and 2 cents would be dedicated to maintenance of the interstate system. The states could then increase gas or other taxes and make their own decisions about transportation funding.

Bud Shuster (R-Pa.), chairman of the House Committee on Transportation and Infrastructure, has made no secret of his opposition to devolution. "There is a clear federal role in transportation which must be maintained and strengthened," he says. His main goal is to get the trust fund "off budget" so that, except for the 4 cent deficit-reduction tax, it is protected from raids by other congressional committees.

ISTEA Interest Groups

Five different interest groups are making common cause to renew ISTEA:

- Central city officials who are eager to maintain the prominence of their cities over the suburbs and resent the mobility that has allowed suburbanites to escape city taxes and regulation;
- Downtown interests that desire to reverse the "declines" of downtowns relative to suburban "edge cities" and tend to resent the mobility that has created suburban shopping and business competitors;
- New Urbanist planners who believe everyone would be better off if people spend more time within "their communities";
- Urban environmentalists who view the automobile as a great evil and thus oppose more freeways; and
- Engineering and construction firms and unions looking for federal dollars to spend on urban public works projects.

The main battle in Congress has been between the "donor" states and highway interests on one side, who want to renew ISTEA, with more funds for themselves, and the "recipient" states and transit interests on the other, who tend to support the status quo. A bill marked up by Shuster's committee, the Building Efficient Surface Transportation Equity Act of 1997, authorizes \$218 billion in total spending over six years and provides for a more balanced distribution of funds among the states. Unfortunately, there is little discussion of the adverse effects of ISTEA over the past six years and the likely effects in the future. A renewed ISTEA's built-in planning provisions and incentives all tend to reduce, not increase, America's mobility and the efficiency of the transportation system.

The Perverse Incentives of Flexible Funding

In passing ISTEA in 1991, Congress declared that it is the policy of the United States to have a "transportation system that is economically efficient and environmentally sound." The good intentions behind ISTEA were to create a balanced transportation system that is not based exclusively on a single mode or technology.

It might seem reasonable to suppose that the proportion of funds spent on various modes of transportation should reflect the public's demand for those modes. For example, if Americans want to make 10 percent of their trips on mass

transit, then it seems reasonable to spend 10 percent of transportation dollars on transit. And if the only major source of transportation dollars is highway user fees, then it appears sensible to divert some of those fees to transit modes.

It also appears sensible to use a rational planning process to determine what share of transportation dollars should go to each mode. And since autos are notorious for causing air pollution and congestion, it seems sensible to dedicate a share of highway user fees to congestion and pollution mitigation.

In actual practice, those ideas turn out to be not so sensible at all. In the hands of various interest groups, each with its own agenda, the rational planning process intended by ISTEA produces extremely irrational results.

The problem is not with ISTEA's goals but with its means. Instead of finding new sources of revenue for pedestrians and transit, ISTEA made highway funds available. A portion of federal gasoline tax revenues is dedicated to highways, and a portion is dedicated to transit, but a large share is "flexible," available for highways, transit, or pedestrian ways.

The flexible funds have become a "commons," leading advocates of the various modes and regions to try to get their "fair share" before some other mode or region gets it. As the executive of Portland's metropolitan planning agency recently said about ISTEA reauthorization, "The region must take action to bring Oregon's fair share of federal transportation dollars back home or they will be lost to other regions of the country."⁹

Making billions of dollars of highway user fees available for a variety of nonhighway uses creates incentives for people to distort the process in their favor. Since rail is so expensive, for example, building a useless rail line helps a region to get its "fair share" (or more) of federal dollars. Rail construction creates many local engineering and construction jobs. Although buses are nearly always a far more cost-effective form of transit, most money spent on buses goes to bus manufacturers. Unless a city is home to a bus manufacturer, then, city politicians get little political benefit from spending federal dollars on buses.

The problem is exacerbated by the structure of the Department of Transportation. The department's Federal Highway Administration, which distributes highway construc-

tion funds and oversees highway planning, is separate from the Federal Transit Administration, which distributes transit funds and oversees transit planning. Similar divisions exist at the state and local level. That means that at no level is there an incentive to do an objective analysis of rail vs. bus vs. highway transportation.

The Federal Transit Administration seems to be devoted to the New Urbanist goals of density, reduced auto usage, and increased transit, especially rail transit. Rail's expense gives the agency a bureaucratic reason to support rail despite its failure to reduce congestion or pollution. In a recent report sponsored by the Federal Transit Administration, the separation of agencies is seen as a barrier, not to more reasoned analysis, but to getting more funds for rail transit.¹⁰

ISTEA earmarks billions of dollars for specific projects regardless of their efficiency or contribution to transportation. To judge by the size of the House Transportation Committee and its Surface Transportation Subcommittee, Congress appears eager to continue such earmarking in the 1998 reauthorization.

Such earmarking, of course, ensures that much transportation spending is based on politics rather than reason or need. That often allows a coalition of central city officials, New Urbanists, environmentalists, and the rail construction industry to dominate over other urban interest groups.

Supposed Subsidies to Autos

Proponents of ISTEA justify the diversion of highway user fees to mass transit by the subsidies that society has supposedly provided for automotive travel. Most auto critics reckon that those subsidies average \$2 to \$3 per gallon of gasoline. But a critical review of their analyses reveals that most of the "subsidies" are imaginary.

For example, Getting There, by auto critic Stephen Goddard, includes some estimate of subsidies to the automobile (Table 1).¹¹

On the basis of the estimate given in Table 1, and the fact that Americans use about 133 billion gallons of fuel per year, Goddard calculates that gasoline taxes would have to be raised by at least \$2.25 per gallon to end subsidies

Table 1
Alleged Annual Subsidies to Autos

Subsidy	Cost (\$ billions)
General tax subsidies to build roads	21
Police and safety services	6.1
Highway administration	4.9
Interest and debt service	5.5
Loss of tax revenues from free parking	21.2
Military presence in Persian Gulf	25
Annual cost of Strategic Petroleum Reserve	1.5
Costs of traffic congestion	100
Air pollution and health costs	9
Casualty insurance premiums	99
Total	293.2

Source: Stephen B. Goddard, Getting There: The Epic Struggle between Road and Rail in the American Century (New York: Basic Books, 1994), p. 255.

(estimates based roughly on 1989 figures). But Goddard's estimates are riddled with errors.

General Tax Subsidies. Goddard says that gas taxes and motor vehicle fees "cover only about 60 percent of the \$53.3 billion that all levels of government spend [on highway construction and maintenance] each year. The remaining \$21.3 billion comes from general tax revenues that state and local governments assess on drivers and nondrivers alike." Goddard's arithmetic, which is based on 1989 figures, misses four important points.

First, in 1989 highway user fees spent on highways totaled \$44.3 billion. That was only \$9 billion less than the \$53.3 billion cost of construction and maintenance, not \$21.3 billion as Goddard claims.¹² Apparently Goddard got his value for the difference from a source that he did not realize had added to the total costs of construction the costs of police, administration, and debt servicing. In other words, he did not acquire construction costs and user fees from the same data series. That means that he double

counts police protection since he includes it as a separate cost item.

Second, the vast majority of "general tax revenues" goes for local neighborhood streets, not highways, and about a quarter of those revenues comes from property taxes. It is reasonable to expect local homeowners to contribute to the streets and sidewalks in front of their houses because they will use them whether they drive or not.

Third, \$5.8 billion of the \$21.3 billion cited by Goddard is not paid out of general tax revenues but is interest earned on investments of highway user fees before they are spent.¹³ Since Goddard is quick to charge highway users for interest on bonds (so quick that he double counts them, as shown below), it is hardly fair that he counts interest earned on user fees as a subsidy to highways.

Fourth, Goddard and his source, a World Resources Institute study, overlook the fact that a considerable portion of highway user fees is diverted to nonhighway activities, such as state general funds, mass transit, and, since passage of ISTEA, federal deficit reduction.¹⁴ If those fees are put back on the revenue side of Goddard's calculations, the so-called subsidy is reduced. In 1989 nearly \$7 billion in highway user fees was diverted to other uses.¹⁵ After ISTEA that amount ballooned, and in 1995 diversions reached \$21.5 billion. That more than offset the \$21.4 billion in non-user-fee taxes that went into highways and streets in 1995.¹⁶

Police and Safety Services, Highway Administration, Interest and Debt Service. Goddard is double counting here. All of these costs are included in the amount spent on highways (\$71.2 billion in the year Goddard uses, \$92.5 billion in 1995). Hence, all of these costs are covered by highway user fees or by the other offsets.

Loss of Tax Revenues from Free Parking. Goddard says that employers should charge their employees to park and pay them extra rather than just give them free parking. But if employers did that, the federal government would collect taxes on the additional pay given to employees to cover parking costs, reducing the so-called subsidy.

This is a specious argument at best. Employers do not charge employees for use of office space or office Christmas parties. They often cover the cost of health insurance and pay for other nontaxed benefits. In any case, a benefit given by an employer to an employee cannot be considered a

subsidy from the public trough since the wages in question are not public property to begin with.

Cost of Traffic Congestion. Goddard relies on the Texas Transportation Institute's estimate that congestion costs Americans \$100 billion per year. But he does not ask how much longer travel would take without the automobile. Nor does he note that a primary reason for increasing congestion is the fact that so many billions of dollars in highway user fees have been spent on rail transit projects rather than activities that could really reduce congestion.¹⁷

Air Pollution and Health Costs. These are certainly two of the adverse effects of autos. If autos were eliminated, no doubt many pollution and health costs would be reduced significantly, but others would be created. It is difficult to say what the net effects would be.

Casualty Insurance Premiums. Since those premiums are paid by auto drivers themselves, they can hardly qualify as a subsidy. The same is true of "drivers' costs in highway tolls," which Goddard does not calculate but says "could also [be] added."¹⁸

In sum, Goddard's \$293.2 billion subsidy turns out to have been a mere \$10.5 billion subsidy in 1995. When spread across the 143.3 billion gallons of fuel consumed by American motorists in 1995, this results in merely a 7 cent per gallon subsidy.¹⁹ With motorists going about 3.7 trillion passenger-miles, that works out to a subsidy of about one-quarter of a penny per passenger-mile.²⁰

Subsidies to Transit

American urban transit riders paid \$6.3 billion in fares in 1994, but transit operations cost \$17.3 billion.²¹

Transit capital improvements cost another \$5.6 billion, leaving a \$16.6 billion deficit--\$6.0 billion of which was paid by highway users.²² With transit riders traveling some 40 billion passenger-miles,²³ the result is an average subsidy of about 42 cents per transit passenger-mile, roughly 150 times more than similar subsidies to auto travel.

Subsidies from auto drivers to transit have been growing since 1974, when some states started spending gas taxes on transit. In 1983 Congress followed their example by dedicating first 1 cent and later 2 cents of the federal gasoline tax to mass transit. By 1995 cumulative diversions

of highway fees to mass transit totaled nearly \$50 billion in 1995 dollars.²⁴ (States diverted another \$80 billion to their general funds, and since 1991, the federal government has diverted about \$35 billion to deficit reduction.)²⁵

Many cities that are building rail transit systems are actually spending more of their transportation funds on transit than on roads, even though most of the funding comes from road users and transit typically carries well under 10 percent of local trips. In Portland, for example, total government capital and operating expenditures on rail and bus transit outweigh federal, state, and local expenditures on roads two to one. Since Portland has an ambitious rail construction program that will last well into the next century, that ratio is not likely to change. Yet Portland planners say that rail transit is unlikely to ever carry more than about 2 to 3 percent of Portland-area trips.

ISTEA Redistribution

One of the major issues of ISTEA reauthorization is protests by states that get far less than their residents pay into the highway account of the highway trust fund (so-called donor states). Yet the disparity for mass transit is far worse than for highways.

Most states get between 80 and 130 percent of what their residents pay into the highway account. In 1995, for example, only one state, South Carolina, received less than 70 percent of what its residents paid into the highway account and only three states, Alaska, Massachusetts, and Rhode Island, and the District of Columbia received more than 200 percent of what they paid in.²⁶ That disparity has been enough to create a major controversy over ISTEA reauthorization.

Because transit makes sense only in the largest cities, the difference between donors to and recipients of the transit account is far more serious. Since passage of ISTEA, more than half the states have received less than 40 percent or more than 200 percent of what their residents paid into this account.²⁷

- Eight states and the District of Columbia received more than twice what they paid into the mass transit account: Connecticut (207 percent), Hawaii (216 percent), Illinois (225 percent), Massachusetts (271 percent), New Jersey (384 percent), New York (504 percent), Oregon (388 percent), Pennsylvania (215

percent) and Washington, D.C. (1,511 percent).²⁸ Not surprisingly, cities in most of those states are building major new rail transit projects.

- Two-thirds of the states received less than 80 percent of what they put in, and more than half received less than 60 percent.

- On a total dollar basis, the biggest winners were New York, New Jersey, Illinois, and Washington, D.C., each of which received hundreds of millions of dollars more than their residents paid into the transit fund.

- On a per capita basis, the big winners were residents of Washington, D.C., New York City, and Portland, each of which got well over \$20 in federal transit grants for every dollar they paid into the transit account.

The differences between donor and recipient states are exacerbated by the huge amounts earmarked for transit projects in ISTEA and subsequent appropriations bills. Over the past four years, congressional appropriators have earmarked \$3.5 billion for transit projects; more than half of that amount has gone to just three states--California, Georgia, and Oregon--that contributed just 15 percent to the mass transit account.²⁹ Add New Jersey, New York, and Texas and the total earmarking comes to more than 75 percent.

So-called flexible funding is merely an open invitation for big cities to fleece other American taxpayers and for powerful members of Congress to divert federal funding to their states and districts.

Congestion Mitigation

ISTEA does appropriate \$1 billion per year for a congestion mitigation and air quality (CMAQ) fund to help cities reduce congestion and pollution. Unfortunately, the fund has two important counterproductive restrictions. First, it cannot be used on "scrappage," the purchase for scrap of older cars, even though older cars tend to be the most polluting. The dirtiest 10 percent of all cars--which tend to be the oldest cars--produce about half of all pollution.³⁰ A program that purchased and scrapped those cars could go far in reducing pollution.

Second, in metropolitan areas that violate any federal air quality standards, CMAQ funds cannot be spent on highway

improvements that increase the capacity for single-occupancy vehicles, that is, roads not dedicated to carpools or buses. Yet such capacity increases can reduce congestion, which in turn can reduce many types of pollution.

On the other hand, CMAQ funds can be spent on activities that increase congestion. One activity, traffic calming, consists of reducing road capacities by, among other things, installing blockades in roads to reduce vehicle speeds. Such blockades may make sense on uncongested neighborhood streets where residents want to make sure drivers stay under legal speed limits for safety reasons. But New Urbanists are now installing various forms of blockades on major congested collector and arterial roads with the goal of making the streets more "pedestrian friendly."

One such blockage, a "bumpout," consists of an extension of a corner curb into the street, preventing autos from using the street's shoulder as a right-turn lane. That means that drivers turning right must slow down in the stream of traffic, delaying everyone behind them. When used on busy streets, traffic calming devices do not noticeably increase pedestrian traffic, but they do reduce the flow and speed of auto traffic. Since slower speeds mean an increase in many forms of pollution, traffic calming leads to dirtier air.

Advocates of traffic calming have a remarkably flippant attitude toward people who use automobiles. Cars should move "at the speed of a horse and buggy" in downtowns and other parts of a city, says Toronto urban planner Ken Greenberg. "A lot of people are furious about tampering with their ability to drive fast," says Florida traffic engineer Walter Kulash, "but they aren't politically organized."³¹ Supporters of traffic calming also seem to confuse cause and effect. "Anywhere that doesn't have congestion, you probably wouldn't want to be there," says Greenberg.³² The typical traffic calmer's rationale seems to be that, since popular places are congested, creating congestion in unpopular places will make those places more popular.

In at least one case, CMAQ funds have been used to subsidize a high-density apartment building. The developer stated that he planned to build an apartment building on that site, but without the subsidy he would have built to a much lower density.³³ The high-density development, of course, will actually lead to an increase in congestion and congestion-related pollution.

Air Pollution and Mobility

Air pollution is the justification for spending automotive gas taxes on transit and other non-road-related projects. ISTEA, which has clear links to the Clean Air Act Amendments of 1990, particularly limits how cities that do not meet clean air standards can spend their share of federal transportation dollars.

Automobiles produce several significant pollutants, including carbon monoxide (CO), nitrogen oxides (NO_x), hydrocarbons (HC), particulate matter, and volatile organic compounds (VOCs). Between 1971 and 1996 federal air pollution requirements reduced most emissions from new cars by 80 percent to 95 percent.³⁴

That reduction has significantly improved the air quality of most American cities. Except for Los Angeles, virtually every city that was out of compliance with federal air quality standards (the "pollution standards index") on more than one day in 1983 saw at least a two-thirds reduction in the number of days it violated those standards by 1992.³⁵

At the same time, Americans are driving more than ever. Due partly to the increasing number of women in the workforce and partly to a growing economy, the number of miles driven per person is increasing by more than 2 percent per year.³⁶ That suggests that urban air pollution might worsen again in the future.

When Congress imposed air pollution standards on new cars, it made no changes to the standards for older cars. A California study found that half of all automotive air pollution comes from the dirtiest 10 percent of all cars--mostly older cars.³⁷ Removing those dirty cars from the road would do more to clean up the air than would imposing tighter standards on new cars.

What Pollutes

For any given car, most pollution is a function of three variables:

- Engine temperature: HC and, to a lesser extent, CO are mostly produced when a vehicle's catalytic converter is not yet heated to operating temperature. Thus, a cold start followed by a 2-mile trip produces almost as much HC and CO as a cold start followed by a 10-mile

trip. That pollution could be eliminated by adding heaters to autos' catalytic converters.³⁸

- Operating speed: Cars emit far more of most pollutants at slow speeds--0 to 20 miles per hour--than at 20 to 55 mph. The effect is most pronounced for CO and VOCs. NO_x (which contribute to smog) decline from 0 to 20 mph but then increase as speeds rise above 25 mph, although the increase is not significant until speeds reach 40 mph.³⁹

- Density: Some pollutants, particularly CO, dissipate quickly in the atmosphere and present health problems only where automobile traffic is extremely dense or congested.

One way to reduce automotive air pollution is to get people to reduce their driving. New Urbanist planners hope to do that by attracting people, especially commuters, to other modes of travel such as walking, cycling, bus, and rail. Their plans include several elements aimed at reaching that goal:

- Higher population densities so mass transit will be more feasible;
- Mixing housing and commercial uses so people will be better able to walk or bicycle to work or shopping;
- Pedestrian-friendly designs aimed at making commercial areas more amenable to people on foot and bicycles;
- Transit-oriented designs, particularly higher density residential developments around rail stations and other transit centers and along transit corridors; and
- Construction of rail transit facilities to connect high-density job and residential centers.

As attractive as those ideas may sound on paper, in practice they fail to fulfill most of their promises. At best, New Urban plans will slightly reduce the share of trips people make by auto and even more slightly reduce the distance they drive. Those reductions come about not because New Urbanism makes walking or transit more attractive but because it increases congestion and parking costs so much that cars are less attractive. Congestion, in turn, increases many forms of pollution, particularly those dependent on speed and density.

The Virtue of Cars

New Urbanists often describe Americans' relationship with their cars as a "love affair" or an "addiction." The implication is that Americans' use of autos is irrational or some sort of sickness. In fact, for short-distance travel within a large urban area, the auto is the most convenient and efficient form of transportation ever devised.

That is largely because the auto is completely decentralized. Urban areas, too, are decentralized, partly because centralization, with or without autos, creates uncomfortable crowding and congestion. Few cities have work centers that employ more than 15 to 20 percent of the city's workers. So very few trips have the same origin and destination.

Thus, high-capacity rail transit is not a viable alternative to the automobile. There simply are not enough origins and destinations between which enough people want to travel to justify rail. Even large buses are marginal as substitutes for the auto. One possible substitute might be jitney services that provide door-to-door transportation for no more than 10 or 12 people at one time. But many cities forbid the private provision of such services, and most public transit agencies are more interested in rail and other large projects than in jitney service.

Density and Driving

New Urbanists attempt to counter decentralization both by providing more transit and by increasing population densities to make high-capacity transit more viable. But that is self-defeating because most people in high-density developments will still use cars for most of their travel. Thus, high-density developments without added road capacity simply lead to increased congestion.

All of the numbers support this view. According to Census Bureau data, there is no clear relationship between a city's density and the share of trips in that city that is made by auto.⁴⁰ The New York metropolitan area, which includes northeastern New Jersey, has the smallest percentage of commuters driving automobiles--65 percent--and the highest percentage using transit--26 percent. But no other large metropolitan area has less than 81 percent auto usage or more than 14 percent transit usage. Two college towns, Iowa City, Iowa, and State College, Pennsylvania, have slightly less than 80 percent auto usage but less than 8

percent transit usage. The difference is due to students' walking and cycling.⁴¹

Even if another city could match New York's level of transit usage by increasing its population density, the density increase required would swamp the reduction in the auto's share of trips. The density of the average U.S. metropolitan area is a little more than half that of New York, and 88 percent of urban workers commute by car. Doubling densities to reduce auto usage from 88 to 65 percent--a 26 percent decrease--translates into a 50 percent increase in auto traffic within the target area.

New York is an anomaly. Figure 1 compares the share of commuters using autos with the population densities of the nation's 282 largest urban areas. Autos hold more than 75 percent of the market in every area except New York and more than 90 percent in the vast majority of areas, including Los Angeles and Miami, the two densest areas. There is no clear correlation between density and auto usage.

Figure 1
Population Density and Share of Commuter Trips Made by Auto in 1990

Figure 2
Population Density and VMT in 1995

Source: Federal Highway Administration, Highway Statistics 1995 (Washington: FHWA, 1996), Table HM-71.

For comparison, in Figure 2 shows that the correlation between population density and vehicle-miles traveled (VMT) per square mile is strong. New Urbanists would predict that VMT would tend to decline in the 391 most densely populated areas in the United States, but the data indicate otherwise. Here, a clear correlation is evident: higher densities lead to more auto travel. Unless those higher densities are accompanied by higher road capacities, higher densities also lead to more congestion.

Even the most optimistic New Urbanists say that increased density reduces only the share of trips using autos, not the total number of miles driven. One study predicts that doubling density will reduce the auto's share of trips by 20 to 30 percent.⁴² But if density doubles from, say, 2,000 people to 4,000 people per square mile and the auto's share of trips declines by 30 percent, there will still be 1,400 trips generated for every 1,000 trips before the density increase.

Planners in Portland use a transportation forecast model that the U.S. Department of Transportation regards as one of the most sophisticated in the nation. In 1994 planners applied the model to a plan for increasing Portland's density by 75 percent, emphasizing mixed-use and transit-oriented developments, and building 120 miles of rail lines but minimal new highway capacity. The model concluded that the plan would induce less than 5 percent of auto drivers to shift to mass transit. That in turn would increase congestion more than threefold.⁴³

In 1980 San Diego imposed a New Urbanist plan on its region, encouraging density in the city and discouraging development outside. The plan "was considered a model for effective management of growth." But by 1990 congestion had become severe, and the city "estimated that it would cost over \$1 billion to make up the infrastructure shortfall."⁴⁴

The Issue of Air

Air pollution is obviously the result of many factors, including geography, industry, energy sources, and climate. But in major U.S. cities and metropolitan areas, smog problems are strongly correlated with population density.⁴⁵

Table 2 shows the average 1990 population densities of areas by EPA smog rating. The table shows both the 391 metropolitan areas defined by the Census Bureau and the 76 central cities with more than 200,000 people. In every case, cleaner air correlates with lower densities.

It is worth examining the cities that come closest to meeting the New Urbanists' ideal of higher densities; low per capita freeway mileage; mixed-use developments; and huge transit, especially rail transit, investments. The major metropolitan areas with the highest densities are Los Angeles, Miami, San Jose, New York, Ft. Lauderdale, New Orleans, and San Diego. Those cities also tend to be characterized by mixed-use developments, and all have or are installing major rail systems. Except San Jose, which has "moderate" problems, all of those high-density cities are rated by the EPA as having "extreme" or "serious" smog problems.

People are often surprised to learn that the Los Angeles metropolitan area has the greatest population density of any U.S. urban area.⁴⁶ Los Angeles also has the fewest miles of freeways per capita--slightly more than 50 miles per million people, compared to an average of 110 miles for

Table 2
Average Population Densities by EPA Smog Rating

Smog Rating	Average Density (mi ²)	Sample Size
<i>Metropolitan Areas</i>		
Extreme	3,362	26
Serious	2,378	49
Moderate	2,077	56
Marginal	1,744	26
None	1,505	234
<i>Central Cities</i>		
Extreme	8,771	13
Serious	4,148	9
Moderate	3,089	23
Marginal	2,968	10
None	1,403	21

Source: Density from Census Bureau, 1990
Census of Population and Housing (Washington:
Census Bureau, 1992); smog ratings from EPA
Office of Air Quality and Standards.

all metropolitan areas.⁴⁷ Thus, Los Angeles should be a perfect advertisement for New Urbanism. In fact, New Urbanist planners in Portland say that Los Angeles "represents an investment pattern we desire to replicate."⁴⁸ Yet Los Angeles has the nation's worst air pollution problems.

New Urbanists also say that a mixture of land uses will lead to a reduction of dependence on the automobile. But a 1994 study by Cambridge Systematics for the U.S. Department of Transportation found that "land use mix does not impact drive alone mode share to a degree that is statistically significant."⁴⁹ On the other hand, "financial incentives [programs that reward people for carpooling or using transit] do have a significant impact on drive alone mode share."⁵⁰

Rejecting Rail

An excellent example of a report that ignores its own conclusions is Clean Air through Transportation, jointly published by the Department of Transportation and the EPA.⁵¹

Using data from San Diego and Los Angeles, the report indicates that huge investments in both rail and bus transit systems are likely to reduce CO pollution by less than 1 percent and HC by only 1 to 3 percent (see Table 3). By comparison, relatively cheap investments in signaling to improve the flow of auto traffic can reduce pollution three to six times as much.⁵²

Although the report rejects huge investments in rail, it strongly endorses land-use policies aimed at reducing trip distances. The report indicates that a 10 percent reduction in home-to-work distances may reduce pollution by 1.4 to 2 percent, and a 25 percent reduction in home-to-work distances may reduce pollution by 4 to 12 percent. But the report fails to assess the costs of reducing home-to-work distances by 10 to 25 percent. In fact, it would be almost impossible to achieve such reductions through land-use policies.

Portland is proposing major expenditures and huge impositions on its residents, including

- increasing overall population density by 70 percent;
- tripling or quadrupling congestion;
- charging for parking throughout the urban area;
- requiring all work and retail developments and many residential developments to meet pedestrian-friendly and transit-oriented design standards; and
- constructing 90 more miles of rail transit at a cost of roughly \$6 billion to \$10 billion.

The transportation model used by Portland planners projects that all of those things will reduce trip lengths by less than 5 percent.⁵³ That would correspond to roughly a 0.7 to 1.0 percent reduction in air pollution--about a third of what might be obtained with traffic signaling improvements. So the endorsement of New Urbanist land-use planning goals by the authors of Clean Air through Transportation makes no sense except as an ideological stance.

Table 3
Selected Strategies for Reducing Auto Emissions

Strategy	Description	Reduction (%)	
		HC	CO
<i>San Diego</i>			
Transit expansion	20-mile rail extension, double bus service	0.4	0.6
Ridesharing	Increase vehicle occupancy 25%	0.4	0.7
Flexible work schedules & telecommuting	15% participation in telecommuting, 5% shift in work hours	0.8	1.1
Land-use impacts	10% reduction in overall home-work distance	1.4	2.0
Traffic flow improvements	Regionwide signal control	2.2	2.5
Parking management	60% increase in costs	2.4	4.1
<i>Los Angeles</i>			
Transit expansion	Add 300 miles to rail system, expand bus service by 50%	0.9	3.1
Traffic flow improvements	Signal control, truck restrictions	2.1	4.9
Flexible work schedules & telecommuting	Eliminate 3 million worktrips, 60% participation in flexible schedules	2.2	6.9
Land-use impacts	25% reduction in overall home-work distance	4.1	11.8

Sources: U.S. Department of Transportation and Environmental Protection Agency, Clean Air through Transportation: Challenges in Meeting National Air Quality Standards (Washington: U.S. Department of Transportation, 1994), p. 125.

Despite the apparent disconnect between the New Urbanists' claims and reality, their ideology has become the dominant paradigm in the U.S. Department of Transportation and in many state and metropolitan planning agencies. Ultimately, for New Urbanists, the goal is not to reduce congestion and pollution but to reduce auto travel, even if only

slightly, and to punish with increased congestion those people who continue to drive.

The False Panacea of Urban Rail

Electric-powered rail transit is a 19th-century technology that was quickly replaced by the automobile, which is faster, more convenient, and not tied to an expensive rail right-of-way. Yet rail technology is a critical component of New Urbanism.

In addition to the fact that rails are a solution to a problem that would not exist if New Urbanists did not insist on density, the main difficulty with rails is that they do not work. Compared with the auto, which "goes where you want to go when you want to go, trains just don't cut it," says Garreau. "Trains require you to go where someone else wants you to go when someone else wants you to go."⁵⁴

So why are proposed rail systems so popular? As Kenneth Dueker of Portland State University's Center for Urban Studies notes, rail is a "feel-good" issue: people support it because they hope it will reduce congestion even though they do not plan to ride it themselves.⁵⁵

Another reason for strong support of rail is the "romance of the rails." Jonathan Richmond, investigating the myths behind rail transit, found that people "tend to reject findings [about rail] which fail to confirm prior beliefs."⁵⁶

ISTEA gives cities huge incentives to build enormously expensive rail transit projects that will carry very few people. Central city officials and downtown interests want to keep current jobs and residents in and attract new ones to the city centers rather than the suburbs. They see new rail construction as an environmentally correct means to that end. Just as important is the fact that under ISTEA the federal government pays at least half of the bill for rail, so the high cost of new rail construction is viewed as a virtue. Although an expanded decentralized bus system could carry far more people at far lower cost, buses do not create local, though temporary, jobs that boost union and construction-company support for politicians.

Examination of the actual results from rail lines that have been built in the past two decades shows that nearly all fail to meet the goals set for and provide the benefits expected from them.

Rail's Track Record

Rail construction takes so long that few of the rail lines authorized by the 1991 ISTEA have been completed, and those that have been completed are too new to judge. However, more than a dozen cities have built new rail lines in the past two decades, and those lines provide a good measure of rail's success in moving people efficiently and in reducing congestion and pollution.

Light rail was originally proposed as an inexpensive alternative to highways. In 1973 the state of Oregon estimated that Portland light-rail service could begin on 46 route-miles for less than \$84 million, or about \$2 million per mile.⁵⁷ Costs quickly escalated after federal funds became available and cities committed themselves to rail. Portland's first 15-mile light-rail line, originally projected to cost \$135 million when construction began in 1979, ended up costing \$214 million, or \$14 million per mile; a 17-mile line now under construction is costing \$963 million, or \$56 million per mile. A proposed 29-mile line was originally estimated to cost \$2.85 billion, or nearly \$100 million per mile.

Weekday ridership, which was projected to reach 42,500 after 5 years and 57,000 after 10 years, has stubbornly remained less than half of projections, around 25,000 riders per day. Moreover, most of the riders were formerly bus riders, and at least a third of all riders drive to park-and-ride stations, which means that they produce almost as much cold-start pollution as they would if they drove all the way to work.

Portland transit ridership actually declined between 1980, when light-rail construction began, and 1990, four years after its completion. Since Portland was rapidly growing during those years, that means that transit lost a significant share of both the total transportation and the commuter market to the automobile. That is particularly disappointing because Portland's transit system increased its share of the commuter market during the 1970s, when it was exclusively a bus system.

Portland's experience is the rule rather than the exception. Of all the rail systems built in the past two decades, only two--in Washington, D.C., and San Diego--were accompanied by significant increases in overall transit ridership.

The Washington, D.C., Metro boosted transit ridership by 67 percent. But at the same time, transit's overall share of Washington-area commuter traffic declined slightly.

In 1990 more than four of five commuters still relied on the automobile and fewer than 14 percent used transit.⁵⁸ Washington's Regional Air Quality Plan estimates that the rail system has reduced air pollution by only about 1 percent.⁵⁹

San Diego's light-rail line helped to boost transit ridership by 40 percent.⁶⁰ But in 1980 San Diego also adopted a New Urban plan that promoted denser inner-city development and discouraged suburban development. The overall gain in transit ridership may be due as much to densification as to light rail. But the gain did not come without a huge cost: over the same period, San Diego's traffic congestion grew faster than did that of any other American city, and the city now estimates that it will need to spend \$1 billion on infrastructure to restore urban services to their 1980 levels.⁶¹

Except for those in Washington and San Diego, no recent urban rail lines in the United States could be considered successful on any basis. As a 1989 report by Department of Transportation researcher Don Pickrell found, nearly all recent rail projects cost far more and carried far fewer riders than originally projected.⁶²

Pickrell also found that operating costs and amortized capital costs per rider were far higher for rail than for bus transit. By his calculations, the total cost per rider (in 1988 dollars) was about \$6 to \$16.⁶³ That was not only two to nine times greater than the forecast cost, it was several times greater than the cost per bus rider, which typically averages \$2 to \$4. Moreover, since most rail riders were previously bus riders, Pickrell found that the cost per new rider--that is, the cost of getting a drive-alone person out of a car--ranged from \$9 to \$36.⁶⁴

"The systematic tendency to over-estimate ridership and to under-estimate capital and operating costs," concluded Pickrell, "introduces a distinct bias toward the selection of capital-intensive transit improvements such as rail lines." That bias would benefit cities whose goal is to get as large a share of federal funding as possible.

Advocates of rail claim that Pickrell's study was done too soon after the lines in the cities studied were opened and therefore did not accurately show ridership. But in 1995 Robert Dunphy of the Urban Land Institute updated

Pickrell's report and reached similar conclusions.⁶⁵

Dunphy found that the rail systems Pickrell had studied did not have "dramatic ridership growth to change the early assessment." Dunphy also looked at several newer systems, all but one of which was "following the pattern . . . of overestimating ridership and underestimating costs."⁶⁶

Four of seven cities that built light-rail lines during the 1980s actually suffered significant losses in transit commuting between 1980 and 1990. Transit commuting fell by 9 percent in Baltimore, by 17 percent in Denver, by 20 percent in Portland, and by 25 percent in Buffalo. Transit commuting grew in three cities. It increased by 2 percent in Sacramento, by 18 percent in Los Angeles, and by 43 percent in San Diego.

All of the light-rail lines opened since 1987, after the Pickrell report, "were in cities with a net loss in transit commuting during the 1980s," says Dunphy. Those lines included the ones in San Jose and St. Louis and new lines in Baltimore and Denver. All of those lines, except the one in St. Louis, followed the pattern of costing more and carrying fewer riders than anticipated.

Dunphy reports that the St. Louis line was "a surprise" because its ridership actually exceeded expectations and construction costs were within budget. But rail ridership still accounts for only a small fraction of total trips in that city.

The pattern of rail construction and overall declines in transit ridership is so common that it must be more than a coincidence. Transit agencies that sink most of their capital funds into rail lines that will replace, at most, two or three bus lines find that they do not have the funds to maintain and improve bus service on other routes. As a result, overall patronage falls.

In most cities much of the impact is borne by the poor as bus service is curtailed in lower class neighborhoods in order to pay for rail transit. In Los Angeles lower income transit riders recently formed a bus riders' union that, with the help of civil rights groups, sued the transit agency for neglecting buses while it builds expensive rail lines. The union charged that the transit agency had spent 70 percent of its budget on rails that carry only 8 percent of its riders, most of whom are white and well-to-do while bus riders tend to be minorities and poor.⁶⁷ The agency signed a consent decree agreeing to buy more buses but now

says it has no funds with which to do so.⁶⁸

Dunphy concluded that cities now contemplating light rail "are not well served by unduly positive reviews" given by rail proponents. "Light rail is expensive," he noted, adding that it "will not reduce traffic congestion." But he optimistically (or perhaps cynically) points out that "congestion relief should be one of the best sales tools, since few residents will use transit but all would gain benefits from less congestion."⁶⁹

The Problems of Alternatives

ISTEA requires regional planning. And as a prerequisite to securing federal funds, local planners must file environmental impact statements (EISs). A review of dozens of those statements reveals many omissions by planners and shows that, even by their own standards, rail is not a good transportation bargain.

Nearly all rail EISs consider an identical range of alternatives:

- A "no-build" alternative that contemplates no change from current transit operations;
- A "transportation systems management" alternative that contemplates low-cost improvements in bus service and actions that might promote carpooling, cycling, walking, or other alternatives to single-occupancy vehicles; this is generally the baseline alternative with which other alternatives are compared;
- One or more alternatives for building exclusive busways or high-occupancy vehicle lanes; and
- One or more alternatives for building rail lines.

The most recent EISs usually come out in three versions:

- A draft EIS that considers a variety of rail routes,
- A draft supplemental EIS that narrows the routes to just one option, and
- A final EIS that usually contains little or no new information other than public comments.

Rail, particularly light rail, is promoted as an inexpensive alternative to expanding highway capacity. Backers of light rail often claim that a dual-track light-rail line can carry as many people as a six-lane freeway. But rail EISs almost never compare actual costs and ridership of rail with the cost and capacity of highway expansion.

A six-lane freeway, with interchanges and bridge work, will typically cost about \$30 million per mile to build. Adding lanes to an existing freeway typically costs about \$5 million per lane-mile. At a cost of \$1 million to \$2 million or less per mile, light-rail, in the first proposals made during the 1970s, sounded relatively inexpensive.

The problem is that light rail has proven to be far more expensive than originally thought. According to the two dozen EISs this author reviewed, the cost of light rail would range from \$10 million to more than \$100 million per mile.

Only one of the EISs reviewed compared transit with highway expansion: the I-15/State Street Corridor plan for Salt Lake City. In addition to two light-rail alternatives, that plan considered adding two, three (one reversible), or four lanes to Interstate 15, the north-south freeway through Salt Lake City. The EIS measured reductions in congestion by the number of person-hours of time each alternative would save.

The light-rail alternatives were projected to have capital costs of about \$125 million more than transportation system management and to save about 5,176 person-hours of time each day, for a capital cost of nearly \$24,000 per daily hour saved. By comparison, adding two lanes to the freeway would cost about \$166 million but would save more than 30,260 hours of time, at a cost of less than \$5,500 per daily hour saved. Each hour saved by light rail would cost more than four times as much as an hour saved by highway expansion.

Ignoring Important Data

In addition to ignoring obvious alternatives to rail, many of the EISs failed to present data that should be critical to a decision. Most presented basic financial data such as capital and operating costs and the number of new transit riders the line would generate. Many left out important data such as

- how much traffic currently travels the routes the rail line would parallel,
- how much of that traffic the rail line would relieve, and
- how many miles of rail line would be built.

Since nearly all EISs claimed that new rail lines were needed to relieve congestion, it seems strange that a majority did not actually calculate how much congestion relief the lines would provide. One explanation is that such calculations do little to support the decision to build rail. The EISs that did make such calculations almost invariably found that congestion relief would be insignificant.

Biased Cost-Effectiveness Index

An important part of the rail planning process designed by the Department of Transportation is the calculation of a "cost-effectiveness index" for each alternative. That index purports to estimate the cost of each new transit rider attracted by rail or other alternatives. Since most new riders would presumably otherwise travel by car, the cost-effectiveness index measures the cost of reducing congestion and pollution.

To calculate the cost-effectiveness index, the capital and operating costs of the transportation system management alternative are subtracted from those of the rail or other construction alternatives. The capital costs are annualized using a discount rate such as 7 percent or 10 percent. If the rail alternative saves transit riders time over the baseline alternative, that is counted as a benefit by subtracting it from costs. The total cost is then divided by the projected number of new riders.⁷⁰

As a rule of thumb, the Department of Transportation will provide discretionary funds only for projects that cost less than \$6 per new rider. None of the EISs reviewed calculated a cost-effectiveness index much less than \$10 (to be precise, \$9.97 was the lowest).

A major problem with this index is the value of time savings for transit riders. For the past several years Department of Transportation guidelines have directed planners to assume that transit riders' time is worth \$11.70 per hour. The previous value was set in 1984 at only \$2 to \$4

per hour. By arbitrarily inflating the value of the transit rider's time, the government makes the build alternatives look much more attractive than they really are.

The real problem is that the index considers only the time of transit riders; the time of automobile users is effectively presumed to be zero. Yet auto users' time is affected by rail proposals in at least two ways.

First, rails are often at the same grade as roads, so autos are delayed when trains cross their paths. Many cities are even adjusting traffic signals to give rail lines priority over cars. The one EIS to calculate this cost, that for Denver's Southwest Corridor, estimated that rail would save each transit rider 19 minutes but cost each auto driver 1 minute. Since the plan projected more than 40 auto users in the corridor for each transit rider, auto users lost more than 2 minutes for every minute saved by transit riders.

Second, auto users are affected by rail because any city has limited funds for transportation capital improvements. A plan to spend hundreds of millions of dollars on rail means less money is available for highway improvements.

As found by the I-15 Corridor study for Salt Lake City, highway improvements can sometimes save people time at less than a quarter of the cost of rail.

Conflict between Conclusions and Decisions

Despite failure to consider a wide range of alternatives, calculate appropriate effects on congestion, or use a reasonable index of cost-effectiveness, most of the EISs reviewed concluded that rail construction would have insignificant effects on congestion and pollution. Nevertheless, every EIS that designated a preferred alternative recommended rail construction.

It is claimed that rail lines can carry as many people as a six-lane freeway, yet none of the EISs reviewed projected ridership that came close to approaching freeway usage levels. While a six-lane freeway can easily carry 100,000 cars per day and, at 1.2 people per car, 120,000 people, the EISs reviewed projected rail ridership levels closer to 30,000 to 40,000 people per day. None of the American light-rail lines built in the past two decades carried more than 44,000 people per day in 1995.⁷¹

The EISs also estimated that the vast majority of

light-rail riders would be former bus riders and that rail construction would attract no more than 2,000 to 10,500 new transit trips per day over and above low-cost bus alternatives. Since an urban area of 1 million people typically generates about 5 million trips per day, combining auto, transit, and cycling and walking, even 10,500 new transit riders per day have no significant effect on congestion.

Another measure of rail's effect on congestion is the share of total trips carried by transit. About half the EISs studied estimated this share. None estimated that light rail would increase transit's share of traffic by more than 0.4 percent; most estimates were under 0.3 percent. Yet light-rail construction would often consume more than half of a city's total capital funds for transportation.

Many of the EISs explicitly concluded that rail would not greatly reduce congestion. For example:

- "Impact of proposed alternatives on congestion: None" (Twin Cities Central Corridor).
- "Auto travel times will deteriorate significantly over today's levels by the year 2015 regardless of whether the no-build or LRT alternative is implemented" (Denver Southwest Corridor).
- Light rail "does not significantly mitigate congestion on Mississippi River crossings" (East St. Louis St. Clair County Corridor).
- "On a daily basis the reduction or difference in VMT between the alternatives is not considered significant" (Santa Clara County Tasman Corridor).
- "Because travel time savings are minor, mode choice for downtown work trips [is] relatively insensitive to transportation improvements in the mid-coast corridor" (San Diego Mid-Coast Corridor).
- "The traffic analysis did not reveal any substantial difference in levels of service [congestion] between the No Build, TSM, and Build Alternatives" (San Diego East Urban Corridor).

Some of the EISs claimed that reductions in congestion would be significant even when the data did not support those claims. The preferred alternative for the South Sacramento Corridor "is expected to induce a shift from auto to transit. . . . Major shifts are predicted for corridor

freeways." But a "major shift" turns out to be 2,600 cars out of 360,000, or a reduction of about 1.2 percent. Rail in Dallas's North Central Corridor "would reduce regional vehicle-miles traveled by 96,560 miles daily." But since Dallas residents drive well over 20 million vehicles-miles per day, that is a reduction of less than 0.5 percent.

No matter what was claimed in prose, no EIS presented any data suggesting that rail construction would significantly reduce congestion, VMT, auto usage, or pollution or significantly increase transit ridership or transit's market share over levels projected for the low-cost transportation system management alternatives. That did not stop planning agencies from always proposing to use federal funds to build rail.

One reason for those proposals is that rail is an important part of New Urban planning. John Fregonese of Portland's Metro expresses that view. Light rail "is not worth the cost if you're just looking at transit," he admits. "It's a way to develop your community at higher densities."⁷²

The False Panacea of Planning

A major innovation of ISTEA is a requirement that states and urban areas produce state and regional transportation plans. ISTEA ties those plans and federal transportation funding to federal air quality standards. Cities that violate those standards, for example, are required to spend federal dollars mainly or exclusively on activities that supposedly will reduce air pollution.

The prime lesson of the 20th century is that government planning does not work. Compared with economic freedom as expressed in the market, planning has three strikes against it. Planners simply cannot get enough data about current problems, future needs, and public preferences to write an efficient and sensible plan. Even if planners could determine the public interest, giving government the power to plan creates opportunities for special interests to tilt the planning process in their favor. And even if special interests can be overcome, the constraints that planners place on personal freedom inevitably result in unintended consequences that are often the exact opposite of the planned goal.

Traditional state transportation (mainly highway) planning minimized those problems by minimizing planning's

scope and time horizon. Historically, road planners simply responded to people's movements, adding capacity wherever there was congestion. Except when captured by downtown interests, state road planners made few attempts to direct

people's movements to places where people did not want to go.

Highway planning was not perfect, of course. One problem was pricing: funding roads out of gasoline taxes created excess demand for the most expensive roads and failed to regulate peak-hour demand. Another problem was conflicts of interest: a major freeway interchange could greatly alter local land values, and few people were surprised when developers with representatives on state highway boards often turned out to own land where such interchanges were to be located.

In the 1970s urban planners and environmentalists raised a new criticism, charging that highway planners failed to assess the connection between transportation and land use. Highways, said the urban planners, were destructive of urban and rural environments, promoting sprawl, congestion, and pollution. The solution was a longer term planning process that accounted for more variables, such as pollution, land use, and alternatives to the automobile.

Such a planning process was built into ISTEA. But the increased complexity of ISTEA planning only created more opportunities for fads and special-interest groups to dominate the process. The fad currently endorsed by the U.S. Department of Transportation is New Urbanism.

Transit and Urban Form, a report sponsored and distributed by the U.S. Department of Transportation's Federal Transit Administration, focuses on the connections between transportation and land use. The report endorses most New Urban concepts, including higher population densities or "compact cities," mixing commercial and residential uses, and creating pedestrian-friendly environments.⁷³

As previously noted, New Urbanism provides significant benefits for several major interest groups: central city officials, downtown businesses, urban planners, urban environmentalists, and construction and engineering firms. But it is detrimental to the interests of most urban residents because it leads to significant increases in congestion.

As is typical of New Urbanism, Transit and Urban Form downplays the increases in congestion by focusing not on congestion but on market share for transit and VMT per capita. "A doubling of residential densities," says Transit and Urban Form, "correlates with a decrease of 20 percent to 30 percent in VMT per capita."⁷⁴ But that optimistic assumption implies a 40 to 60 percent increase in miles driven

per square mile. Congestion will significantly increase if the doubling of density is not accompanied by a 40 to 60 percent increase in road capacity.

Elsewhere, Transit and Urban Form says that a "doubling of residential density more than doubles transit use." But except in New York City, transit has no more than a 14 percent market share of commuter traffic (and a smaller share of all traffic) in any U.S. metropolitan area. Even with a doubling of transit use, doubling densities still leads to significant increases in VMT per square mile and-- unless accompanied by new highway capacity--increases in congestion. Transit and Urban Form is not an isolated example; other DOT reports also support New Urbanism.⁷⁵

Many of the planning techniques required by ISTEA or endorsed by the Department of Transportation help a variety of special-interest groups to dominate the planning process. Those techniques include the legal requirement that planning be done by a metropolitan planning organization (MPO), "visioning" advisory committees, focus groups, unscientific public opinion surveys, and various forms of grassroots lobbying.

The MPO requirement has an important unintended consequence. The central cities tend to dominate the MPOs even though they have only a plurality of residents in a metropolitan area. That gives the central cities an opportunity to gain control over the suburbs--an opportunity previously denied them by the suburbs' resistance to annexation, city-county consolidations, and other efforts by the central cities. Since the central cities are generally denser than the suburbs, they readily embrace New Urbanist density goals.

"Visioning," as defined by the Department of Transportation, "results in a long-range plan with a 20- or 30-year horizon."⁷⁶ Visioning, however, is inherently unrealistic because no one can know future needs. Who would have known, 20 or 30 years ago, of personal computers, the Internet, and telecommuting? Many people "visioning" the future during the energy shocks of the 1970s would have assumed that auto usage would decline and transit usage would increase. Yet the opposite has happened. In practice, visioning has merely become a way for idealists to impose their views on a city rather than deal with the city's actual needs.

Nominally, citizen advisory committees include representatives of a broad cross section of the public. In fact, they tend to be dominated by special-interest groups--often

with the complicity of the planning agency. For example, about 5 percent of U.S. urban transportation is by walking or bicycling, and planning agencies usually go out of their way to ensure that cyclists and pedestrians are represented on advisory committees. Some 85 to 90 percent of urban transport is by auto, yet advisory committees rarely have members explicitly representing drivers. And advisory committees do not have anyone explicitly representing the taxpayers who will have to foot the bill.

The Department of Transportation describes focus groups as "a way to identify customer concerns, needs, wants, and expectations."⁷⁷ But focus groups are really a sales technique, a way of finding out how to convince the public to support planners' preconceived notions. Through focus groups, for example, planners may learn to use terms such as "livability" when they mean "density" and "balanced transportation" when they mean "increased congestion."

Scientific public opinion surveys can give useful results if the questions are objectively worded. But too many planning surveys are unscientific, with leading questions and a self-selecting sample. While noting that "informal" surveys "tend to bring responses from . . . those who are more personally interested in specific transportation issues," the Department of Transportation effectively endorses such surveys by saying that they can "reach a broader group than those who attend public meetings."⁷⁸

Grassroots lobbying, through which planners explicitly encourage people who support their views to participate in planning, is implicit in many of the planning techniques and has been endorsed by the Department of Transportation. The department calls the Minneapolis-St. Paul region's public involvement program "exemplary" but chides planners for failing "to build grassroots support for the multimodal transportation philosophy."⁷⁹ On the other hand, the department commends Seattle's planning agency for forming "active partnerships with community and special interest groups, including advocates for bicycle facilities."⁸⁰

ISTEA's public involvement requirement is supposed to bring transportation decisions out of the "back room" and into the open where, supposedly, they will more accurately reflect the public interest. But if "back-room" decisions were most responsive to highway contractors and developers, the ISTEA planning process has often been captured by a combination of central city officials, New Urbanists, rail contractors, and cyclists and pedestrians, none of whom have an interest in seeing reduced highway congestion. As a

result, the transportation mode of choice for 85 to 90 percent of trips in U.S. urban areas is seriously slighted by many MPOs.

The Case of Portland

A good example of all of the use of those techniques is provided by Metro, the MPO for Portland, Oregon. Dominated by New Urbanists, Metro has as its goal making the suburbs as dense and congested as Portland itself. "Suburbs are passé," says Michael Burton, Metro's director.⁸¹ One of the major proponents of Metro's planning process is City Commissioner Charles Hales, who refers to the suburbs as "trash . . . godawful subdivisions."⁸² Hales's complaint is that many of Portland's suburbs are low density which, in his opinion, wastes land.

Metro has formed numerous advisory committees, all dominated by New Urbanist supporters, most of whom live in the central city rather than the suburbs. Metro has used both focus groups and unscientific public opinion surveys and is proud of the fact that most of the 17,000 comments it received on its land-use plan supported density and less reliance on autos. But Metro never mentions that scientific polls it commissioned found that a majority of Portlanders who have an opinion oppose density. Metro's pollster specifically warned that the people responding to Metro's public involvement processes "hold views that are not necessarily reflective of the community as a whole."⁸³

Metro and the city of Portland both engage in various forms of grassroots lobbying. For example:

- For several years, Portland has sponsored an "annual rail summit" at which advocates of light rail gather to organize, learn about lobbying techniques, and rally in support of their favorite pork. Such "transportation fairs" are another technique endorsed by the Department of Transportation.⁸⁴

- Documents Metro distributes to the public claim that higher densities and light rail will relieve congestion, reduce people's dependence on cars, and keep Portland from becoming "like Los Angeles."⁸⁵ Yet technical documents prepared by Metro planners show that density increases congestion; light rail has no effect on congestion; and Los Angeles, with the highest urban density in the United States, represents "an investment pattern we [Metro] desire to replicate."⁸⁶

• Metro's "community outreach" plan for its light-rail planning specifies that it will "identify citizens, business and community leaders willing to speak and make presentations."⁸⁷ Metro has indeed identified and arranges speaking engagements for more than 50 citizens who favor light rail but none who oppose it.

Metro's land-use and transportation plans for Portland will be a disaster for most of the area's residents. The plans will more than triple road congestion, make single-family homes almost unaffordable, and raise taxes--and those are only the intended consequences. Unintended consequences could include increased air pollution and crime and the creation of a permanent underclass forced to live its lives in rental housing because home ownership is too expensive.

Metro's Regional Transportation Plan includes a list of 570 "preferred network" projects with an estimated cost of about \$4.5 billion, and a list of 240 "financially constrained network" projects with an estimated cost of about \$1 billion. Planners say that funding is ensured only for the constrained list.⁸⁸

The most glaring problem is that planners made no attempt to evaluate the effects of the various transportation projects on land use, congestion, air pollution, or other important aspects of life. For example, the south-north light-rail line proposed for the reauthorization of ISTEA is projected to carry fewer than 1 percent of all person-trips in the Portland area, at a cost of nearly \$3 billion. That amount, with the funds for the constrained list, would allow Portland to cover the costs of its preferred list, the one that presumably would be most beneficial to the city.

By what standard will planners judge the success of their projects? Portland's transportation plan says that congestion in residential and commercial areas will "signal positive urban development for these areas."⁸⁹

Yet even with the proposed 120-mile rail system, planners predict that Portlanders will continue to drive the vast majority of their local trips. Automobiles currently account for 92 percent of the metropolitan area's trips, and the plan predicts that they will account for 87.8 percent of trips by the year 2040 (Table 4). Transit's share of trips will increase from 2.8 percent to less than 6.4 percent, and most of that increase will be in bus riders (the remaining trips will be made on foot or by bicycle).⁹⁰

Table 4
Portland, Oregon, New Urban Transportation Mix

Mode of Travel	1990	2040	Change
Auto	92.05%	87.79%	-4.6%
Transit	2.78%	6.38%	+129.5%
Walk or bike	5.17%	5.83%	+12.8%
Total trips (millions)	4.48	7.9200	+77.8%
Auto trips (millions)	4.12	6.950	+68.7%
Congested roads (miles)	150	454	+202.7%

Source: Metro, Region 2040 Recommended Alternative Technical Appendix (Portland: Metro, 1994).

Note: The 1990 column represents the current situation; the 2040 column represents the projected situation after implementation of Portland's New Urban plan.

Although the plan would cause a 4.6 percent reduction in the auto's share of trips, a 77 percent increase in the projected number of trips means that the number of auto trips will increase by 69 percent. Since Portland's New Urban plan calls for just a 14 percent increase in road capacities, planners predict that congestion will triple. That congestion contributes to a projected 10 percent increase in NO_x, a component of automotive exhaust that contributes to smog.⁹¹

Density, mixed use, light rail, pedestrian-friendly design, and transit-oriented developments turn out to have little effect on modes of travel. Instead, the basis of the prediction of fewer auto trips is probably the unrealistic assumption that all employers and shopping centers will begin to charge for parking.⁹²

Despite the lack of analysis in Portland's transportation plan, several important tradeoffs are apparent. For example, for \$66 million, Tri-Met, Portland's transit agency, could start "fastlink" service on a dozen different bus routes. Tri-Met describes fastlink as the bus equivalent of light rail. More frequent buses would go on existing routes but stop much less frequently, leading to faster speeds and greater service reliability. Tri-Met's experience is that

express buses cost less to operate than does light rail.

Yet Metro notes that the cost of operating the south-north light-rail line will limit future bus expansion.

Despite all of the flaws in Portland's transportation plan, it received a glowing endorsement from the U.S. Department of Transportation.⁹³ The department was particularly enthusiastic about Portland's "promising" land-use planning process. Reviewers did not note whether they were aware that Portland planners projected a 300 percent increase in congestion and a 10 percent increase in smog-related pollution.

Conclusion

Many of ISTEA's supporters may have good intentions, but the law's flaws produce consequences contrary to its stated goal of producing a transportation system that is economically efficient and environmentally sound to move people and goods in an energy-efficient manner.

ISTEA creates perverse incentives. States and localities view the federal Treasury as a commons, available primarily to those who are first in line. Rather than promote efficiency, ISTEA's funding system places cities in competition with one another to get federal dollars for expensive transportation systems that rarely meet local needs.

ISTEA in fact is based in part on the ideology of New Urbanists who see cars as a scourge that breaks up communities and creates "sterile suburbs." They would increase road congestion as a way to induce individuals to live in downtowns, shop in local shops rather than large malls, and make rail a more attractive and economically viable alternative to the car.

Light-rail systems built in recent decades, however, have cost 10 to 100 times as much per mile as roads but have attracted few net new riders. Meanwhile, as congestion increases, air pollution problems will most likely get worse. But the fact that cities may suffer federal sanctions at some point in the future if they fail to clean up their air is less important than the fact that cities with dirty air today are eligible for additional federal funding.

States and cities managed to bridge the rivers that divide them and join roads across their borders long before the creation of the federal interstate highway system.

Transportation, especially urban transportation, is ultimately a local problem, not a national one.

Ironically, past federal involvement in transportation created many of the problems that ISTEA purports to solve, including congested urban freeways unregulated by tolls or congestion fees.

The only way out of the current dilemma is for the federal government to take itself out of the transportation planning and funding process. It is time to repeal the federal gasoline tax and reduce the U.S. Department of Transportation's jurisdiction to areas of strictly inter-state concern that cannot be managed by the states alone. That is to say, it is time to repeal ISTEA.

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Cost-effectiveness index = (Cap cost + Op cost -
Time savings) ÷ New riders

where

Cap cost = the annualized capital cost of the rail or other construction alternatives (the build alternatives) minus the cost of the transportation system management alternative,

Op cost = the operating cost of the build alternatives minus the cost of the transportation system management alternative,

Time savings = the amount of time transit riders would save under the build alternatives compared with the transportation system management

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tive, and

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