all major transit modes.[5] Load factors tend to be lower in transit than in other transportation services because of the heavy peaking of commuter traffic. But an average bus loading of 20 percent means that only one-fifth of the places available throughout the day are used by passengers. If buses are full in rush hour, they may be running lightly loaded or perhaps even empty during the rest of the day; and if they carry significant numbers of shoppers and others in nonrush hours, they may be lightly loaded at the peaks.

The only mode offering efficient use of agency fleets is vanpools, in which 91 percent of the fleet is regularly used and load factors (because vanpools rarely offer off-peak service) average 96 percent of capacity. Many more vanpools are organized privately than by transit agencies: in all states except New York and North and South Dakota, about one-fifth of workers take carpools or vanpools to work, making this form of shared transport the preferred national alternative to the drive-alone commute.

The low load factors are important for two reasons. First, they indicate overinvestment, or at least poor management of transit capital. Second, low load factors imply that there are too many buses on the roads; empty and lightly loaded buses may be adding to, rather than reducing, traffic congestion on the main corridors. Moreover, when assigned exclusive lanes, poorly patronized buses may actually reduce road capacity. Buses are two to three times more intrusive in traffic than cars or vans, and they are often assigned exclusive lanes to improve traffic flow. This may actually reduce road capacity if the busways are carrying fewer passengers than their equivalent in cars or vanpools. Opening busways to all high-occupancy vehicles may often be more effective in improving the use of road capacity, and reducing commuting times, than any transit investment.[6]

Vanpools are the cheapest form of public transportation. They are also the most fuel-efficient, and hence less polluting than buses. They

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5. The supply of transportation services is typically measured in terms of capacity miles, and demand for or use of services in passenger miles (ton miles for freight). A typical 35-seat transit bus has capacity (counting seats and standing room) for 65 to 70 passengers. Thus a bus traveling one mile supplies up to 70 capacity miles of service. If 30 passengers travel on that bus over the one-mile route, transit demand is 30 passenger miles, and the bus's load factor is 43 percent.

6. See, for example, John F. Kain, "Choosing the Wrong Technology: Or How to Spend Billions and Reduce Transit Use," *Journal of Advanced Transportation*, vol. 21 (Winter 1988).

carry an insignificant portion of the transit agencies' traffic, however. Next in order of cost is bus service, followed by trolley buses and then by the commuter services of railroads (which share their infrastructure cost with long-distance rail services). Demand-response services, used mostly by elderly and handicapped people, are the most expensive form of bus or van service. Essentially these services substitute 12-passenger vans for taxi service, since they operate on demand, but they average only two passengers per trip. Finally, rapid rail systems are three to five times more expensive per passenger mile than buses.

Is Federal Aid Funding the Right Projects?

Neither of the two forms of federal aid--the formula program and the discretionary program--seems to be tailored to the needs of present-day transit systems. Some cities receive more aid than they can use, while others are encouraged to undertake transit investments that will benefit only a fraction of their commuters. Cities with older rail systems, however, lag behind in modernization, although they carry more of the nation's transit passengers.

The Formula Program. The increased use of formula assistance under the 1982 Surface Transportation Assistance Act has shifted capital aid away from the main transit needs of the cities. Unobligated balances of appropriations and contract authority for transit aid increased from $663 million in 1982 to a peak of nearly $2 billion at the end of 1985, falling off by the end of 1987 to $1.7 billion. In 1985, more than $1 billion in unused formula funds was available to cities and rural centers. A study by the General Accounting Office at that time showed that about $707 million of this total was apportioned to cities of less than 1 million population with no transit projects to undertake.[7] Since 1985, lower Congressional appropriations for transit have helped to draw down the unobligated balances for formula assistance; by the end of 1987, they stood at a lower, though still substantial, $850 million.

One reason for the unused formula resources is that the urban formula program apportions aid--for all but the very largest cities--

7. General Accounting Office, *Budget Issues, Analysis of Unexpected Balances at Selected Civil Agencies* (September 1986).

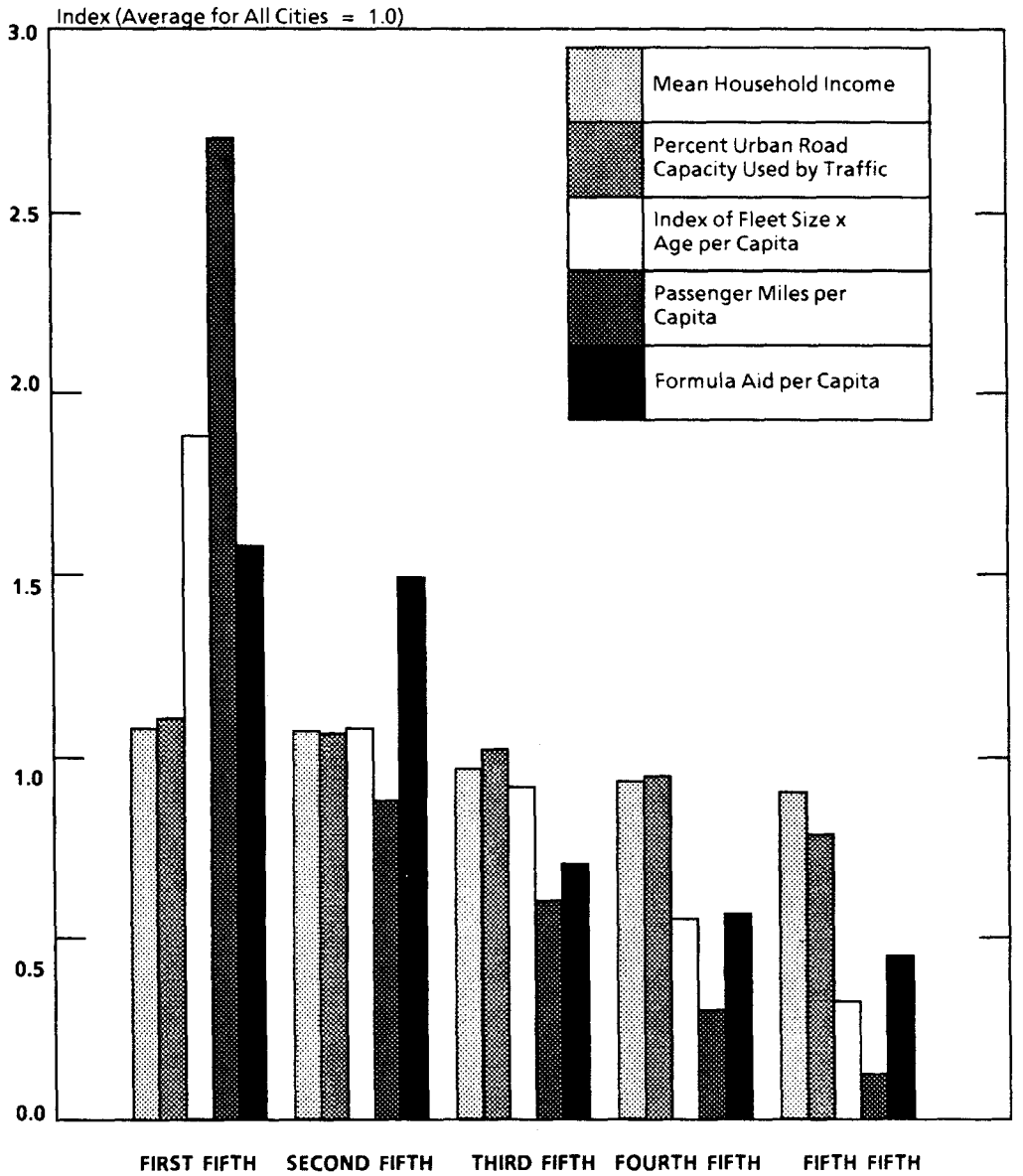
well in excess of reasonable indicators of need. Figure 3 compares indexes of transit aid with indexes reflecting apparent needs for investment or federal subsidies. The indexes are grouped in blocks, each representing one-fifth of the population in cities receiving federal aid for transit, arranged by city size. The first block shows data for the largest three cities (all with populations of 7 million or more) that together have 20 percent of the population in cities receiving transit aid under the urban formula; and the fifth block shows data for the smallest 244 cities (with populations ranging from 180,000 to 50,000). The bars show the average value of the variables in each block in relation to the average for all cities receiving aid. For example, mean household income in the largest cities is 10 percent above the average for all cities receiving aid (a plot point of 1.1), and passenger miles per capita in the largest cities is about 2.7 times the average for all aided cities.

As shown in the figure, formula aid per capita drops from 1.6 times the national average in the largest cities to half the national average in the smallest, for an overall ratio between highest and lowest of 3.2 to 1. But the need for transit investment declines even faster: as measured by a fleet index based on numbers of vehicles and their average ages, the need for investment drops from highest to lowest in the ratio of 6.3 to 1; and as measured by passenger miles per capita, the need for investment drops from highest to lowest in the ratio of 27 to 1.

Thus transportation requirements do not argue for giving relatively more transit assistance to small cities. Urban road congestion is about the same in all cities receiving transit aid. In the smaller cities, however, transit is an insignificant mode, and relieving the congestion depends on projects other than transit. The notion that federal "seed capital" for transit development in smaller cities could promote a solution to urban traffic snarls is not borne out by the demand for transit services. Moreover, variations in household income do not support such generous aid to small cities: median household income is only 20 percent lower in the smallest cities than in the largest, and is close to the national median of $23,000.

The formula apportionments reflect mostly the effects of the population and population density variables in the formulas. These variables were originally included in the formulas for lack of good data on

Figure 3.
Distribution of Formula Aid and Indicators of Transit Need, by City Size



SOURCE: Congressional Budget Office, based on data from the Urban Mass Transportation Administration, Federal Highway Administration, Bureau of the Census, and American Passenger Transit Association.

NOTE: The indexes are grouped in blocks, each representing one-fifth of the population in transit-aid cities, arranged by city size. The first block represents the fifth of the population in the largest cities, and the fifth block the fifth in the smallest cities.

TABLE 8. COMPARATIVE PERFORMANCE OF BUS AGENCIES, BY SIZE

Number of Buses Operated at Peak	Percentage of Fleet Used in Rush Hour	Passenger Load Factor (Percent)	Percentage of Revenue from Fares		Percentage of Revenue from Federal Aid	
			Bus-Only Operators	All Operators	Bus-Only Operators	All Operators
Fewer than 25	72	8	27	20	26	16
25 to 49	77	6	35	25	22	23
50 to 99	79	14	47	35	7	16
100 to 249	81	19	50	41	10	13
250 to 499	79	19	23	29	9	10
500 to 999	82	22	30	26	8	7
1,000 or more	86	28	27	41	11	6
All Agencies	82	19	34	37	11	8

SOURCE: Urban Mass Transportation Administration, *National Urban Mass Transportation Statistics, 1985, Section 15 Annual Report* (August 1987).

transit performance. But the population variables are a poor reflection of transit needs and use. Transit use is more closely tied to urban size than to population numbers, and the effects of density are ambiguous: high densities may have lower transit demand because travel distances are shorter in such areas, and low densities may also have lower demand because dispersed activities must often be more self-contained.

Smaller towns have sought to cope with their "excess" federal aid by converting as much of it as possible to operating subsidies. On average, the three largest cities that house the first one-fifth of the population in Figure 3 use 65 percent of their federal formula apportionments to finance capital projects, while the next largest 11 cities spend 72 percent of their available funds on investment. The smallest 244 cities use less than 40 percent of their formula aid for capital improvements.[8]

8. American Public Transit Association.

Smaller cities use more federal operating aid for two reasons. First, their operating costs are higher, since transit is relatively less efficient in smaller cities than in the larger centers. Table 8, above, shows that load factors in agencies with fewer than 50 buses average as low as 6 percent to 8 percent (that is, passenger miles traveled are only 6 percent and 8 percent of capacity), and that the percentages of fleets used in peak hours are markedly lower than in large agencies. Both of these conditions inflate operating costs. Second, smaller cities typically offer deeper fare discounts. The smallest transit agencies set fares at around 20 percent of costs, and small bus agencies at less than 30 percent, compared with a national average of 37 percent. Thus the relatively greater dependence of smaller cities on federal operating aid reflects largely local policy choices on fare subsidies, and poor management of federally subsidized capital assets.[9]

The Discretionary Program. New transit systems financed with federal aid--particularly rapid rail projects--have not lived up to their promise. Generally, they have lowered the efficiency of transit service by adding expensive unused capacity. For example, Washington, D.C., and Atlanta have greatly expanded their transit capacity, but six-sevenths of their capacity goes unused. Providing the unused service has been expensive: costs per passenger mile in Atlanta rose from an average of 28 cents (at 1985 prices) in 1980 to 86 cents in 1985, and in Washington, D.C., from 86 cents to $1.12 (see Table 9). In Miami, which also made a substantial rail investment with federal assistance, costs increased from 31 cents in 1980 to 71 cents in 1985.

For the most part, the new rapid rail systems took the place of existing bus service, but their failure to attract large numbers of new riders to fill the extra seats they offered stems chiefly from the effect of that switch on travel times and costs. To compete with autos, public transportation must be attractive in terms of convenience, time, and cost. The locations of routes, the frequency of service, and the fare are all important in attracting riders. The new rail systems may be less attractive to previous bus riders than the buses they replaced, and hence, as a corollary, are less likely to divert auto drivers to transit. Typical transit buses seat 40 to 45 riders, and can carry about 70 including standees. New rapid rail cars carry 200 to 220 riders, with

9. Small agencies in all transit modes look to federal subsidies for 20 percent of their operating costs, compared with a national average of 8 percent.

perhaps 6 cars to a train--or as many passengers as 15 to 20 buses. Some riders will find trains faster, cleaner, and more convenient than buses. But a single train will not offer the same total satisfaction as would 15 or 20 buses; riders from a much greater catchment area will find that faster rail trips are offset by longer times spent in making connections at either end. Even those who live or work conveniently to the stations may have to pay for faster travel by train with longer waiting times. In fact, much of the poor performance of the rail systems can be traced to the difficulties in managing capacity in large

TABLE 9. TRANSIT PERFORMANCE IN CITIES WITH NEW OR RECENTLY EXPANDED RAIL TRANSIT SYSTEMS

	Transit Performance, 1980[a]				Transit Performance, 1985[a]			
	Capacity Miles (Billions)	Passenger Miles (Billions)	Passenger Load Factor (Percent)	Cost per Passenger Mile (Cents)[b]	Capacity Miles (Billions)	Passenger Miles (Billions)	Passenger Load Factor (Percent)	Cost per Passenger Mile (Cents)
Atlanta	2.1	0.5	25	28	3.8	0.5	14	86
Baltimore	1.6	0.4	25	41	1.3	0.4	27	45
Cleveland	0.7	0.5	69	52	1.3	0.3	23	58
Miami	1.5	0.4	26	31	1.8	0.3	17	71
Pittsburgh	2.7	0.6	22	39	2.1	0.4	18	46
Washington, D.C.	6.4	1.2	18	86	8.0	1.2	15	112

SOURCE: Congressional Budget Office, based on data from the Urban Mass Transportation Administration and Table 7.

a. All cost estimates are in 1985 prices, and include capital replacement and operations and maintenance expenses. Operating costs in each city are based on statistics for each mode reported to UMTA, and estimates of capital cost at replacement value from sources in Table 7.

b. Calculated as follows: in Atlanta, for example, operating costs per capacity mile for motor buses are estimated at just under 6.9 cents and for rail at just under 17.1 cents. With a 1985 load factor of 17.4 percent on the buses, bus costs then average 39.4 cents a passenger mile (6.9 cents divided by 17.4 percent) and rail costs average $1.51 a passenger mile (.171/.113). Weighting each of these by the passenger miles on each mode gives a city average for 1985 of 86 cents a passenger mile.

(Continued)

train-load units while maintaining acceptable service routings and frequencies.

Had managers been able to hold load factors at 1980 levels, service costs in Atlanta would have risen to only 49 cents a passenger mile, or 60 percent of current levels (see Table 9). But this would have meant running the new rapid rail system at service intervals that would have led many riders to switch to auto travel, or else cutting fares sufficiently to induce a very large shift to transit use. Improved

TABLE 9. Continued

	Effect of Service Changes on Cost (Cents)				
	Overall Cost Increase per Passenger Mile	Estimated Cost at 1980 Load Factor, per Passenger Mile[c]	1985 Estimated All-Bus Cost per Passenger Mile[d]	1985 Revenue per Passenger Mile (Cents)	Estimated Percentage Reduction in Operating Subsidy for All-Bus System[e]
Atlanta	57	49	23	7	27
Baltimore	4	49	32	14	28
Cleveland	6	51	32	11	25
Miami	40	47	33	11	40
Pittsburgh	7	38	38	14	21
Washington, D.C.	26	103	23	15	75

c. Estimated by substituting the 1980 load factor for the 1985 load factor in the calculations of cost per passenger mile. In Atlanta, for example, cost per passenger mile at a 25 percent (1980) load factor is 26.6 cents for buses and 68.9 cents for rail. Bus and rail estimates are then combined into a city average by reestimating the split between bus and rail traffic at 1980 loadings.

d. Estimated by assuming all passengers are carried on the bus system. In Atlanta, for example, this would raise the load factor from 14 percent to almost 30 percent and lower costs per passenger mile to 23 cents.

e. Excludes allowances for capital replacement. In Atlanta, for example, operating costs per passenger mile (from data reported to UMTA) were 22 cents. Revenue per passenger mile was just under 7 cents. Thus the subsidy was 15 cents a passenger mile. Under these estimates, operating costs for an all-bus system in Atlanta would be about 18 cents a passenger mile. Therefore, an all-bus system might reduce the 15 cents-a-mile subsidy for each rider by 4 cents or 27 percent.

bus service might, on balance, have attracted the same levels of patronage. If all transit patronage in 1985 had been on the bus service that existed in 1980 (redeployed to meet changes in travel patterns), transit costs could have fallen to around 23 cents a passenger mile in both Washington and Atlanta, and to between 30 cents and 40 cents a passenger mile in the other cities. These lower costs could have meant substantial reductions, at current fares, in the operating subsidies. In Washington, where fares are relatively high (that is, fares in Washington cover nearly 40 percent of cost compared with a national average of 37 percent), the subsidy might have been reduced by as much as 75 percent. In other words, if investment had been geared to lowering costs of service, and if service had been managed so as to maximize the effective deployment and productivity of bus fleets, operating subsidies could have been held in check in many of the larger cities, even at current fare levels.

THE OUTLOOK

Unless it is restructured, federal transit aid will continue to be at cross-purposes. Cities other than the largest will increasingly not be able to spend their excess formula dollars except by converting them to fare subsidies, by shortening capital replacement cycles, or by other artificial devices. These irrational incentives will undermine the efforts in many transit agencies to strengthen capital planning by applying standards of cost-effectiveness to investment planning. Moreover, formula assistance will be available for more special projects as modernization needs tail off, and demands for discretionary aid will narrow to new starts (and extensions of earlier new starts). But the current crop of proposed new-start projects is no better than the new starts already in service in terms of their likely adverse effects on transit costs and ridership.

There is limited scope for effective investment within the federally funded transit aid program, other than possibly in a few cities where commuter rail services still need modernizing. The bus services have a 20 percent surplus of vehicles, sufficient to replace obsolescent vehicles over about the next three years without new purchases (on a national basis). But raising the very low productivity of the bus fleet could allow both fleet replacements and transit service expansion, in

ways that reduce operating subsidies without raising fares, for many years to come. Raising average load factors on buses from 20 percent to 30 percent, for instance, would absorb all the growth in transit use in the next 30 years, and would also reduce operating subsidies at current fares by one-third. In short, better management of the existing bus fleet would largely obviate the need for new investment other than long-term fleet renewal.

Proposed new rapid rail projects are not likely to prove more cost-effective than the others discussed here. The systems to be constructed with federal assistance in Los Angeles, Seattle, St. Louis, and Houston may only add to the costs of transportation service in those cities without attracting enough new riders to reduce the need for operating subsidies.[10] Other new projects include extensions of the Washington, Miami, and Atlanta rapid rail systems, which, as shown earlier, have not added to the ridership and affordability of transit service in those cities as much as improvements in bus service would have.

Many transportation analysts and economists argue that the poor showing on rail transit projects reflects not simply poorly designed systems but a fundamentally wrong choice of transit technology.[11] Transportation requirements are governed by the public's preference for suburban living, the growth of jobs mainly in the suburbs, and the dispersal of trip origins and destinations. Some form of bus transit will inevitably be cheaper, more effective, and of higher quality than any rail system in most U.S. cities. Even large-bus services may be the wrong technology insofar as they reduce service frequencies and increase passenger waiting times, thus discouraging use.[12] A 1986 CBO study found that, in a generalized case, overall transit costs including bus operations and passenger time would be 20 percent to 25 percent lower on a route with small buses (25 seats or fewer) than on a route with large buses (more than 35 seats) because of reductions in waiting times.[13] This is another way in which federal willingness to

10. Congressional Budget Office, *Federal Policies for Infrastructure Management* (June 1986).

11. Kain, "Choosing the Wrong Technology."

12. See, for example, A.A. Walters, "Externalities in Urban Buses," *Journal of Urban Economics*, vol. 11 (January 1982).

13. Congressional Budget Office, *Federal Policies for Infrastructure Management.*

finance new systems may have inappropriately influenced local investment choices.

Finally, buses equipped to provide special services for elderly and handicapped transit users are at least five times as expensive and consume twice as much energy as regular buses. In many cases, levels of service could be raised significantly by using other modes of transportation for these special services rather than continuing to invest in specially equipped buses.

Leaving these negative considerations to one side, improvements can be made in the effectiveness of transit services. All cities face growing urban traffic congestion on at least some main routes, and in nine states urban congestion is severe. This study estimates that although highway construction in general will not provide attractive investment returns in the 1990s, highway expansion projects to relieve urban traffic delays could earn between 10 percent and 20 percent on the investments, provided that no cheaper or more effective ways can be found to free up traffic (see Chapter I). As an alternative, getting more from the existing infrastructure by encouraging higher vehicle occupancies in both public and private uses will often be more cost-effective than new highway construction, and will provide faster as well as more lasting reductions in traffic delays.

POLICY OPTIONS FOR THE FEDERAL TRANSIT PROGRAM

With modernization mostly completed, federal transit policies could be redirected toward long-term goals for public transportation--reductions in urban congestion and pollution, and mobility for those dependent on public services. Since most of the benefits and costs of transit operation are local, and since efficient urban transportation depends on wider programs that also encompass highway develop-ment, land use, congestion, and parking arrangements that a transit assistance program does not easily address, the range of policy options is broad. At one end, having restored transit in most cities, the federal government has the opportunity to walk away and allow financial and market forces to determine the future of public transit. Alternatively, federal transit aid could be restructured, in the recognition that transit systems have entered a steady state of fleet replacement cycles, to

provide incentives for productivity enhancements in urban transportation and to make services more available to special transit-dependent groups such as the handicapped or the elderly.

Withdraw Federal Financial Aid

Federal aid now provides over 70 percent of investment spending and about 15 percent of operating subsidies nationally, so that nearly one-quarter of the national transit budget is financed federally. Replacing these resources would require a variety of responses from local governments. Many agencies would be forced to improve efficiency, raise fares, find new local sources of finance, and/or modify services.

Some proponents of this option argue that decisions about transit service, like those about other municipal services, should be made locally; and that now that the fleet modernization backlog has been overcome by assisting in the purchase of 67,000 buses and 7,000 rail cars since 1965, federal support is no longer essential. Others maintain that the federal subsidies themselves are a major cause of the poor efficiency and high cost of transit service.[14] From this point of view, ending the subsidies would help force efficiency improvements in transit management.

A strong government role in transit is often seen as benefiting not only transit users but the general public through side effects such as reduced pollution and less traffic congestion. Certainly, increasing the average number of riders in each vehicle lowers overall cost and fuel consumption (and hence emissions) for any given amount of traffic. But such benefits are not in themselves an argument for federal transit policies. First, other strategies might provide them more effectively. Data from transit agencies (summarized in Table 7) show that at current levels of productivity the cost per passenger mile of vanpooling is about one-third that of bus service, while its fuel efficiency is over three times greater. Since private vanpools and carpools carry about four times the traffic of public transit (20 percent of work trips compared with 5 percent), the broad benefits from private ride-sharing

14. See, for example, Urban Mass Transportation Administration, *The Status of the Nation's Local Mass Transportation: Performance and Conditions*, Report to Congress (June 1987).

must now be running at about 12 times those contributed by public transit services.

Second, 25 years of experience have shown that even high levels of government subsidy (from all governments) do not make transit broadly attractive to the public. The subsidies have not overcome factors that work against transit--the preference for low-density suburban living even with long commutes, the practices of including company cars and free parking in employee benefits, and low fuel prices. From a national point of view, many of the benefits sought through public transit have instead been provided by private transportation arrangements, while much of the subsidy intended to encourage transit use has been nullified by local community and business practices that favor drive-alone commuters.

Much is made of the superior efficiency of private transit over public transit, and, indeed, "privatization" has been a plank of the Administration's approach to federal transit policy for at least the last four years. But the benefits of privatization--other than through a full-scale deregulation of public transportation services in the cities--should not be made an argument for a federal withdrawal from transit assistance. Since the federal assistance program began, transit has passed from being largely private (64 percent of the transit fleets in cities of 50,000 or more were under private ownership in 1960) to mostly public (only 7 percent of those fleets are now privately owned). Current experience with privatization is of limited scope, mostly concerned with contracting out or franchising by public agencies rather than with encouraging competitive service by private firms. Much of the cost saving shown in privatization studies stems from experiments in contracting out small parcels of the public service in order to avoid the cost-increasing features of large-scale transit agencies--high peaking, difficulties in fleet deployment, high overheads, and so on.[15]

If contracting in itself aids efficiency, it is through the attention to transit performance that makes contracts rewarding to bidders. Such potential savings are available to all transit agencies, whether publicly or privately managed, if they are given incentives to improve effi-

15. For a discussion of these results, see Urban Mass Transportation Administration, *Status of Local Mass Transit* (Chapter 7).

ciency by pursuing performance goals.[16] It is not realistic to expect a privately operated transit monopoly to be more efficient than a publicly operated monopoly if neither is required to meet agreed-upon performance targets. Financial failures among the private transit monopolies of the 1950s and 1960s were, after all, one factor prompting federal entry into transit financing.

Lasting benefits from privatization will arise only if cities foster competitive transportation services. But if the federal government--by far the minority partner in financing transit--were to withdraw its aid, this would not be likely to encourage many cities to sell off their transit agencies in favor of competitive private service. In fact, most cities with anything salable would find a federal withdrawal manageable. The expansion needs of all but the major rail systems over the next several years could easily be met by improving the productivity of existing capital, thus reducing the need for new capital subsidies. As far as operating subsidies go, more than three-quarters of the national transit ridership is on systems that rely on federal operating aid for only 8 percent of their revenue (the national average for both bus and rail companies) or less; altogether, over 93 percent of transit use is on systems for which federal operating subsidies are one-sixth or less of revenue. Only three cities with populations above 1 million are not included in the low-subsidy group--Kansas City (19 percent of revenue from federal aid), Fort Lauderdale (20 percent from federal aid) and Buffalo (17 percent from federal aid).[17] Of these three cities, only in Buffalo is transit use more than 10 percent of commuting. While a federal withdrawal would require adjustments, agencies handling the great bulk of transit service could fill the gap with some combination of relatively small adjustments: improvements in productivity, cost-cutting measures, fare increases, and support from local governments.

Some agencies would be hard hit, however. Local transit agencies that use federal operating aid at more than twice the national rate (for more than one-sixth of their revenue) carry only 7 percent of national transit ridership but account for 27 percent of federal operating sub-

16. These points are discussed in Anthony U. Simpson, "Implications of Efficiency Incentives on Use of Private Sector Contracting by the Public Transit Industry," in Charles A. Lave, ed., *Urban Transit, The Private Challenge to Public Transportation* (Cambridge: Ballinger, 1985).

17. Urban Mass Transportation Administration data.

sidies. This list includes the smallest 200 cities receiving federal aid, all but three of them with populations under 1 million. But if cities in this group would have most to lose from a withdrawal of federal aid, they would potentially have much to gain also: their transit services now are among the least efficient, and pressure to reduce costs could only improve them. This was certainly the effect of the withdrawal of federal subsidies from Conrail and also, to a lesser extent, of reductions in federal support for Amtrak.

On the negative side, a withdrawal of federal aid might work against the federal interest in a balanced development of the highway system by giving communities an incentive to build more roads as a way of solving urban traffic problems. Also, transit-dependent groups might be hurt if transit agencies reduced special services as a cost-cutting measure. This latter possibility is of most concern in cities with 1 million or fewer people where transit is not a major commuter mode but is used for shopping, hospital, and social trips by those without autos. In larger cities, the availability (if not always the accessibility) of services for noncommuters may be assured to some degree by the demand for commuter service. In localities where transit-dependent groups might suffer from a cessation of federal aid, one remedy might be to redesign the federal regulations governing special services for elderly and handicapped riders, particularly if smaller cities opted to deregulate or to sell transit franchises to private operators. Alternatively, transit vouchers (discussed in the following section) might be a way of protecting the interests of special groups in the event of a federal withdrawal from general transit aid.

Restructure Federal Assistance

Restructuring federal assistance could open the way for new policies that would recognize past accomplishments in modernizing transit, reward cities that adopt efficient urban transport policies, and foster improvements for those dependent on transit services. The new policies would also reflect a refocusing of federal interest from urban renewal and fuel conservation in the 1960s and 1970s to suburban traffic and pollution problems in the 1980s and 1990s. A restructured aid program following these principles could consist of two types of payments:

- A combined grant, set at a fairly low share of transit operating and capital replacement costs; and

- Vouchers issued to transit-dependent individuals, redeemable for transportation service provided by any supplier, public or private.

There is no obvious level at which to fund a restructured assistance program. Equally strong arguments could be made for continuing the present level of aid, increasing it, or reducing it. The following discussion assumes the first alternative, based on the CBO 1990 baseline for transit assistance of $3.6 billion a year.

The Combined Grant. The only payment that would be made to all transit agencies under such a restructured program would be a basic grant. If it was set at a fixed amount per passenger mile, the grant would simply reflect the amount of transportation provided by each agency. A fixed payment per passenger mile would make transit agencies or their local sponsors responsible for financing increases in the revenue gap, whether these increases arose on the cost side or as fare discounts, but would reward managers who increased ridership. In this way it would provide an incentive to contain costs and develop patronage.

The grant would cover some portion of operating expenses plus an allowance for a share of capital depreciation. Although some large and medium transit agencies use advanced capital planning systems, many agencies continue to do their capital accounting on a cash basis. Including depreciation allowances in the grant (thus paying for a share of capital as it is used rather than as it is bought) would encourage the introduction of modern methods for planning the use and replacement of transit fleets.

In setting the appropriate amount for the combined payment, broad principles suggest that it be consistent with efficient use of facilities and good management practices. A single rate of payment per passenger mile could reflect some long-term productivity target--say, a specific load factor. A declining rate per passenger mile would imply gradually increasing productivity over a number of years. A single rate based on a long-run productivity target for transit could have the highest productivity-enhancing effect and cost the least. If it

was based on the current average of federal payments, adjusted to, say, a 45 percent average load factor, the rate would range from around 6.5 cents a passenger mile for bus services to nearly 11 cents (because of higher depreciation charges) for rapid rail systems. Assuming 1985 traffic, payments at these rates would be $2.8 billion a year. Since fewer than 20 systems achieve 45 percent loadings, almost all agencies would be given an incentive to raise their performance or lower their costs.

In-City Transportation Vouchers. Federal transportation vouchers could help transit-dependent groups obtain better service. Transit-dependent users would be defined as those whose choices are limited by physical requirements--as, for example, some of the elderly or handicapped--or by poverty. Though commuters in major cities may be said to be transit-dependent, they are relatively affluent (typically white-collar workers with incomes above $20,000) and would not qualify for vouchers.

Under federal rules, transit agencies receiving federal assistance must develop a program of special services to provide for elderly and handicapped patrons, using at least 3 percent of their budgets.[18] So far, agencies have tended to provide such services with relatively expensive transportation systems, so that the effectiveness of the special budgets has been limited. Vouchers allowing elderly and handicapped riders to pay for taxis, buses, and trains, or to buy gas for the family car, would increase the options available for many of them and encourage transit agencies to be more responsive to their needs in planning special services budgets.

Cities that have used vouchers to provide services for the elderly or handicapped report significant cost savings because many of the target group do not need special equipment--lifts, and so on--and can use regular bus or taxi service. The Congressional Budget Office has

18. Federal regulations allowing agencies to cap allocations for special services for elderly and handicapped riders at 3 percent of their operating budgets were recently overruled, on the grounds that the cap is arbitrary and hence does not meet the minimum service requirements of the 1982 Surface Transportation Assistance Act or the 1973 Rehabilitation Act. See the ruling of Judge Marvin Katz in the U.S. District Court for the Eastern District of Pennsylvania, January 1988.

estimated that 80 percent of disabled or elderly people could use regular transportation systems with only minor modifications.[19]

The question of who would be eligible for vouchers raises issues of policy. Currently, the explicit federal policy is that special efforts be made for elderly and handicapped users of transit services. Federal operating assistance obliquely aids other dependent groups--the young, the poor--by helping to hold fares as low as they are. In addition, many people with low income receive federal income supplements under welfare programs, and if additional assistance is appropriate, questions would arise whether transit vouchers, food stamps, or other benefits were more appropriate. If the main intent of federal assistance for transit was to assist the poor, the elderly, and the disabled, then all of the transit assistance--$3.6 billion--could be paid to them in voucher form in lieu of federal aid to transit agencies.

If transit assistance was limited to the $3.6 billion mentioned earlier, then the combined payment discussed above ($2.8 billion in combined grants at 6.5 cents a passenger mile) would leave about $800 million for voucher assistance. This level represents about one-fifth of current federal aid (including capital and operating assistance) and about two and one-half times what transit agencies would budget under the 3 percent rule for special services. Even so, it would be enough to provide transit vouchers worth approximately the average annual federal subsidy per commuter (about $100 to $160 at a basic bus subsidy rate of 6.5 cents a passenger mile, or $180 to $260 at 11 cents for rail) for each of the 5 million or so disabled people who find transit difficult to use. It would provide a much higher rate of assistance for the million or so severely disabled, blind, or deaf people living near transit but unable to use regular services. Spread over more recipients, the subsidy would be less than that for commuters generally; but a larger number of recipients might have more bargaining power in their efforts to improve transit services than transit-dependent groups have at present.

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19. Statement of Alice M. Rivlin, Director, Congressional Budget Office, before the Subcommittee on Housing and Urban Affairs of the Senate Committee on Banking, Housing and Urban Affairs, May 20, 1981.

An argument against vouchers is that states and localities are responsible for making transit accessible to all users, and that some would become lax in their efforts if federal vouchers were introduced. The net gain in mobility from using vouchers might thus be much less than the level of aid offered. Also, though vouchers are preferable to agency subsidies in directing assistance to target groups, they are less efficient than cash payments of the same value unless they can be traded dollar-for-dollar for cash. Food stamps can be exchanged for their face value in cash, but whether transit vouchers would be equally exchangeable would depend on the value of transportation services in household budgets.[20]

20. See for example, Daniel S. Hamermesh and James M. Johannes, "Food Stamps as Money: The Macroeconomics of a Transfer Program," *Journal of Political Economy*, vol. 93, no. 1 (1985).