must prepare X-budgets detailing program reductions and efficiencies that will reconcile expenditures and resource envelopes.

Efficiencies and reductions of scale in current programs also increase the policy reserve available for new projects. This has encouraged ongoing assessments of priorities, benefits, and costs of existing and proposed policies and programs within each policy sector. Several departments with positive policy reserves have submitted X-budgets to increase the resources available for capital projects.

Each capital project of more than $1 million (Canadian) requires clearance by the Treasury Board before submission for Cabinet approval. For any proposal, the Treasury Board requires several clear statements: whether the project is an operational need or a response to congestion; how much it would cost; and how well does it hold up under analysis of benefits and costs, of cost effectiveness, or of other economic or efficiency factors. Final approval depends on highly detailed cost estimates based on vendors' bid prices. Any cost overrun that develops after approval must be financed from the A-base budget, not from the policy reserve.

SOURCE: Analysis prepared for CBO by James F. Hickling Management Consultants Limited, *Capital Management Abroad*, Study for the Congressional Budget Office, Ottowa, Canada (May 1984), and Congressional Budget Office, *Tax Expenditures: Budget Control Options and Five-Year Budget Projections for Fiscal Years 1983-1987* (November 1982).

On closer scrutiny, program changes have thinned the federal commitment to each component, rather than to substitute new for old priorities. Federal spending on highway programs is only slightly higher now (after correcting for price changes) than it was in 1970 or even 1960. In general terms, the three new program areas have largely diluted Interstate construction activity, while the broad categories of activities of the Federal-Aid highway program have expanded at the expense of special or demonstration projects. This latter group is currently less than 2 percent of federal spending for highways. But while substituting new activities for existing ones in principle implies comparisons of their relative importance, evidence that this has occurred in highway program management is mixed. In fact, as the following section discusses, the use of trust funds in general has impeded the evolution of programs.

Trust Fund Financing

Debate on the 1966 Safety Acts covered the then controversial proposal that safety programs should be financed from the Highway Trust Fund. The effect of delaying completion of the Interstate network by about two years was a matter of concern. Since 1966, however, the completion date for the Interstate system has slipped a further 18 years to 1990, largely because other initiatives in highway financing seem simply to have diluted, rather than substituted for, ongoing activities. Much of the dilution results from the desire of program proponents to insulate their programs from line-item competition with other programs and to assure a steady source of revenue from the Trust Fund. Thus, while infrastructure managers have often used trust fund mechanisms to isolate their programs from general budgetary pressures, recent experience with the highway program suggests that the assured source of revenue for the fund also attracts a variety of only partly related programs that detract from achieving the fund's original goals.

An important advantage to trust funds--if the level of contributed taxes is set with regard to financial and efficiency goals--is good control in a program's financial management. Tight financial controls on the Highway Trust Fund, taking four forms, emphasize the direct link between spending and resources:

- The Byrd amendment, which prohibited annual deficits in the fund during 1956 to 1982, and the current procedures for projecting revenue shortfalls;
- The clear policy statement that no general revenue taxes should be used on the highways, and that taxes on highway users should be distributed fairly;
- The reconciliation process established under the Budget Act of 1974; and
- Annual obligation ceilings imposed routinely since 1975. 2/

The restriction on annual deficits and revenue sources, as well as obligation ceilings, have been effective in fostering dual attention to appropriations and tax revenues. Because of the shorter lapses now intervening between the last year of authorization of trust fund programs and the

2. The first of these features dates from the Highway Revenue Act of 1956, and the second from the Highway Revenue Act of 1982. The policy of avoiding general deficits and fair taxation dates from the 1956 Act. Obligation ceilings on highway spending are set out in the Appropriations Act for the Department of Transportation in each year since 1975.

scheduled expiration date of the fund, the restriction on overall deficits in the fund now commonly leads to simultaneous consideration of program authorizations and tax or revenue issues. Trust fund programs are now authorized through 1986, and the trust fund itself is scheduled to expire in 1988, so that only two years' revenues are available to cover any gap between authorizations and income. When just established in 1956, however, the Highway Trust Fund had a scheduled life of 15 years, but programs were fully authorized for only three years, so that the effect of the restriction on overall deficits on spending was not severe.

In important instances, particularly when management efficiency can be improved, tight financial controls can be the preferred strategy. Better choices among development options tend to be made if rewards for good decisions and consequences for bad ones accrue to program managers than if managers are able to call on public subsidies to cover mistakes. In some cases, financial self-sufficiency as an agency goal (which may sometimes require fees to cover capital and overhead costs) can be more important to orderly infrastructure management than are strict efficiency goals in pricing. Trust funds are a way of imposing this discipline on programs not managed by enterprises.

The administrative advantages of trust funds, however, have to be balanced against other aspects tending to detract from program efficiency. In all trust funds, program financing needs have dominated consideration of pricing policies and taxation rates, so that serious issues of cross-subsidy have arisen among trust fund contributors, and between contributors and other infrastructure users. Finance shortfalls have led to increases in earmarked tax rates without regard to the broad priority for investments to be financed relative to other programs. The efficiency of the investments financed by the funds and even the priorities for investments in different sectors of the industry are jeopardized by these distortions.

Contributors, too--though sometimes willing to pay added taxes--demand that all tax revenues, including those from new or increased rates, be spent on their programs. The level of investment therefore tends to be determined by the rate of taxation, and not by the relative costs and benefits of new or expanded infrastructure, and equally not by the relative national priorities for trust-fund-financed and other infrastructure programs. Infrastructure investments are irregular, generally occurring periodically and in large amounts, whereas tax revenues follow more regular trends reflecting changes in activity levels or tax rates. Trust fund programs therefore tend to underfinance at critical periods and to even out investment rates by financing delayed projects at higher cost later on. Financing reasons, for example, were and remain the principal motives for extending target completion of the Interstate highway network to 1990.

Pressure to spend surpluses is apparent in the airport and the transit funds. Barge officials seek guarantees that the revenues from barge fuel taxes will be spent only on the waterways, even though revenues cover only 10 percent of projected spending. Trust funds encourage users to demand the dedication of the fees they pay to programs for new facility construction. Thus, they impede proper consideration of the appropriate level of investment in each activity, of trade-offs among different types of investment, and even of the proper balance to be sought in capital and maintenance activities when only one is subject to trust fund financing.

Hence, Congressional discretion on the balance between different programs is severely constrained by a predetermined mix of earmarked and general tax revenues available. Most of the time, the trust funds used in infrastructure programs seem to dilute and confuse issues for program management, thus they seem to make changes in program direction difficult to implement.

INCENTIVES FOR STATE AND LOCAL AGENCIES

Rather than reduce the nationwide sum of resources needed to implement projects, federal aid to states and localities redistributes costs among different groups in the nation. National measures of resources should properly influence priorities. But perceptions of the costs and benefits that flow from different courses of action differ at federal and local levels. (*Box 9 describes efforts in state agencies to alter choices to favor agency goals.*) Without aid, local choices could be expected to favor projects with the most local benefits and/or the least local costs, without reference to effects on outsiders. Local infrastructure agencies can be expected to favor choices furthering their own interests, sometimes without reference to overall state or local impacts, especially if relatively financially independent. To achieve its aim, therefore, the offer of federal aid must be organized in such a way as to eliminate the incentive to favor local rather than national solutions. 3/

Federal aid for highway construction, as an example, lowers local costs of providing for through traffic and improves the local attractiveness of these projects relative to improvements on local roads. More Interstate highways will be constructed than the states would otherwise fund. But the extra highway miles are constructed at the expense of unaided projects

3. Categorical federal aid alters state and local choices through two effects. First, by lowering the local costs of projects in aided categories, states are encouraged to spend more than they would on those projects. Second, by increasing overall resources available, states are encouraged to spend more on all projects, including those in the aided group.

BOX 9
AGENCY STRATEGIC PLANNING--
MAKING CHOICES IN NEW YORK, NEW JERSEY, AND PENNSYLVANIA

"Strategic planning," the public sector's version of corporate planning, has helped agencies redefine their roles and set new directions. Public managers, though usually not so free as corporations to set new objectives, often have wide discretion on the interpretation of goals and how to pursue them. In both the Pennsylvania Department of Transportation (a traditional state agency) and the Port Authority of New York and New Jersey (serving two states), strategic planning has been integrated with agencies' annual budget processes.

Both these bodies introduced strategic planning by identifying activity areas consistent not only with wide-ranging reviews of opportunities for the future but also with their own agency abilities. Each identified four priority activities. The Port Authority review revealed two new ventures and two traditional activities important to its goal of economic development. In Pennsylvania, a different emphasis emerged on the role and focus of the department's traditional activities.

In both cases, the activities identified cut across the institutions' functional lines. Both revised their management systems to reflect new mixes of interests. Pennsylvania introduced seven strategic subcommittees of upper-level managers reporting to top management's strategic management committee. The former set and review policies and goals as problem-solving groups not representing their line management functions but rather in an advisory peer review capacity. In the Port Authority, line departments must submit (or have prescribed for them) performance targets and "sunset" (expiration date) conditions for each activity undertaken, so that managerial and budgetary review can formally monitor and compare progress toward objectives.

From routinely reviewing goals and progress, both the Port Authority and the Pennsylvania DOT report significant gains. Line managers develop a much broader view of the agencies' aims, and thus they generate a much wider range of options for action. Views of agency responsibilities as simply conservation of physical assets have been discarded. Instead, agency divisions have come to see themselves as part of their communities' activities and have been able to develop system approaches to service development. By clarifying links between mandated objectives and services to users, the agencies have become more responsive to both.

within and outside highway programs because the federal assistance requires local matches, and local authorities raise these sums by canceling other projects or by increasing taxes. In an ideal case, then, the availability of highway assistance would be managed to encourage replacement of all locally preferred projects of lower national worth than national trade routes, but in such a way as to prevent its use to build unjustified road segments or segments with lower value than projects displaced. Federal aid attempts to achieve this by both lowering the prices of favored activities (through matching shares), and by increasing resources available through grants-in-aid. Incentives for project choices are thus provided as much through the eligibility conditions applied to federal matching grants as through the amount of federal financial aid.

Federal Capital Grants--Stimulus or Substitute?

Up to 60 percent to 70 percent of federal aid now exerts little influence on local choices for infrastructure improvements. States and localities substitute up to this proportion of federal grants for their local tax revenues and increase the overall spending in response to federal programs by only around 30 percent. In other words, were federal infrastructure aid to be substantially reduced, then states and local governments would face local pressure to raise taxes to finance projects now financed federally. In the long run, national infrastructure spending would probably change by much less than any federal cut.

Whether federal grants have stimulated state expenditures, or merely substituted for them, can be determined by looking at the increment of spending on federally assisted activities. An 80 percent federal match, for example, reduces the local cost for an infrastructure facility aided to one-fifth the cost of another, unsubsidized project. As a result, local officials can be expected to alter their own budgetary priorities to emphasize subsidized projects and put aside ones for which they would bear the full costs. Such adjustments would develop slowly, because of the increases in state or local resources needed to match federal funds. In simple arithmetic terms, the upper limit to such stimulated spending is reached when additional projects have an overall cost equal to the inverse of the matching share times the federal amount. For an 80 percent federal share, for example, the maximum total additional spending attributable to the federal leverage would be one-fourth again the amount of the federal outlays (1 divided by 0.8 equals 125 percent). At this 125 percent level, the new local budget would include all projects originally selected by local agencies, plus additional projects to the maximum extent of federal aid. A ratio greater than one but less than the inverse of the matching share indicates that some new projects are undertaken but also that some federal aid is being used for

projects that local officials would implement without a subsidy. A ratio of one or less indicates that federal spending has simply replaced more state funds. In this case, the value of the additional projects undertaken is less than the amount of federal aid.

Eleven studies measuring these effects for different federal programs have produced generally consistent findings (see Table 8). Although numerical results differ somewhat because of analytic distinctions, the studies concur that--apart from highway construction activity, for which something near the maximum stimulation might have occurred--federal investment grants have largely substituted for part of state and/or local spending. This is emphasized in the different results in those studies of the highway program covering the decade when half of the Interstate construction program was completed and those studying highway federal grants for ABC highways on state and local networks. 4/ Between 1958 and 1966, federal highway aid overall broadly stimulated state highway spending, but federal programs assisting non-Interstate systems, during this period and after it, have been found to substitute partly for state spending. 5/ Further, the more recent studies indicate that the extent of the substitution may have increased.

The general substitution of federal for nonfederal capital in infrastructure programs can be seen in the decline in state and local capital formation since 1975, a period when federal spending was increasing (see Figure 4). Further evidence is in the difficulty in devising objective tests of financing prospects. Of the projects presented, 93 percent pass the federal test--that is, without federal Urban Development Action Grant support, they would not be undertaken, even though as many as one-third are demonstrable substitutes for other investments. 6/

The management implication of the high degree to which states and localities substitute federal aid for part of their own resources is that federal infrastructure policies exert much less influence on nonfederal priorities than the 50 percent federal share of capital financing would imply. This suggests that the priorities for infrastructure development in state and local budgets could be better attuned to national priorities and goals by changes in the amounts and costs of federal aid.

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4. The ABC highway network is the first federally assisted network and covers, A--primary highways, B--secondary highways, and C--urban extensions of these two.

5. Compare for example the results in Table 8 of Thomas O'Brien, with those of Edward Miller and Harry G. Meyers.

6. See Congressional Budget Office, *The Federal Government in a Federal System: Current Inter-Governmental Programs & Options for Change* (August 1983).

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TABLE 8. STIMULATION AND SUBSTITUTION EFFECTS OF FEDERAL GRANTS FOR CAPITAL PROGRAMS FOUND BY ELEVEN STUDIES

Study	Mode	Years	Total Additional Spending per Dollar of Federal Aid		Principal Effect of Federal Aid	Remarks
			Maximum	Actual		
Pogue & Sgontz [a]	Highways	1958–1965	1.25–1.75	1.65	Stimulative	Maximum ratio based on program mix.
Smith [b]	Highways	1965	1.25	0.17	Substitutive	Single year variations in spending may mask underlying responses to grants.
Osman [c]	Highways	1960	1.32	1.37	Stimulative	See note above.
O'Brien [d]	Education	1958–1966	N.A.	2.64	Stimulative	No fixed match.
	Highways	1958–1966	1.25–1.75	1.06	Stimulative	
	Health & Hospitals	1958–1966	N.A.	1.67	Stimulative	No fixed match.
	All Programs	1958–1966	N.A.	1.52	Stimulative	
Miller [e]	ABC Highways	1960–1969	2.00	Not Estimated	Substitutive	The study shows variations among states. Federal grants stimulated spending in thinly populated western states receiving 15 percent of federal aid.

(Continued)

TABLE 8. Continued

Study	Mode	Years	Total Additional Spending per $1.00 Federal Aid		Principal Effect of Federal Aid	Remarks
			Maximum	Actual		
Sherman [f]	Interstate Construction	1957–1970	1.11	1.62	Stimulative	--
	Primary Highways	1957–1970	2.00	Negligible	Substitutive	--
	Secondary Highways	1957–1970	2.00	Negligible	Substitutive	--
Irwin [g]	Highways	1951–1968	1.25–2.00	0.53	Substitutive	--
Consad [h]	Interstate Construction	1957–1977	1.11	1.08	Stimulative	The ratio for interstate construction is high relative to the maximum feasible of 1.11. Study authors caution that it may be biased upward.
	ABC Highways	1957–1977	1.43–2.00	1.08	Stimulative	The study does not separate highway programs.
	Wastewater	1957–1977	1.33–2.00	0.60	Substitutive	--
	Mass Transit	1957–1977	1.25–1.51	0.75	Substitutive	--
Gramlich [i]	Categorical Grants	1946–1981	N.A.	0.38	Substitutive	The study covers all state and local expenditures. Results shown relate to nonconstruction spending.
	Block Grants	1946–1981	N.A.	0.20	Substitutive	--

(Continued)

TABLE 8. Continued

Study	Mode	Years	Total Additional Spending per $1.00 Federal Aid		Principal Effect of Federal Aid	Remarks
			Maximum	Actual		
Jondrow & Levy [j]	Wastewater	1949–1981	3.33–1.33	0.33	Substitutive	The study also found a temporary displacement effect. For each $1.00 in unspent federal budget authority municipalities postpone $0.28 of capital construction anticipating grant approval.
Meyers [k]	ABCD Highways	1976–1982	1.33–1.42	0.37	Substitutive	The study indicates that nonfederal funds freed by the substitution of federal funds remain in highway budgets.

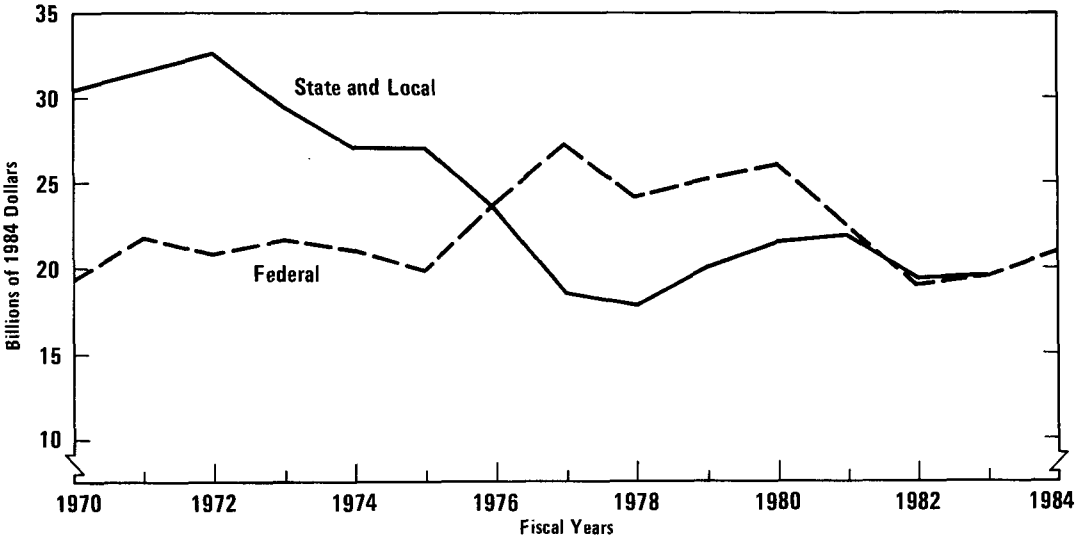
SOURCE: Congressional Budget Office from studies noted below.

NOTES: N.A. = Not Available; the effective federal match in these cases cannot be estimated reliably.

The term "stimulative" is used when additional spending is at least equal to the federal contribution. The term "substitutive" indicates that additional spending is less than the federal finance provided. In all cases, however, total spending by all levels of government is shown to increase.

a. Thomas Pogue and L.G. Sgontz, "The Effects of Grants in Aid on State-Local Spending," *National Tax Journal*, June 1968.
b. David Smith, "The Response of State and Local Governments to Federal Grants," *National Tax Journal*, September 1968.
c. Jack Osman, "On the Use of Intergovernmental Aid as an Expenditure Determinant," *National Tax Journal*, December 1968.
d. Thomas O'Brien, "Grants-in-Aid: Some Further Answers," *National Tax Journal*, March 1971.
e. Edward Miller, "The Economics of Matching Grants, *National Tax Journal*, June 1974.
f. Leonard Sherman, "Impacts of the Federal-Aid Highway Program on State and Local Highway Spending," Doctoral Dissertation, Massachusetts Institute of Technology, 1975.
g. Laura Irwin, *Expenditure Effects of Federal-Aid: Data Aggregation and the Risk of Uncertainty*, Publius, vol. 5, Fall, 1975.
h. Consad Research Corporation, *A Study of Public Works Investment in the United States*, U.S. Department of Commerce, April 1980.
i. Edward M. Gramlich, *An Econometric Examination of the New Federalism*, Brookings Papers on Economic Activity, 2:1982.
j. James Jondrow and Robert A. Levy, "The Displacement of Local Spending for Pollution Control by Federal Construction Grants, *American Economic Review*, vol. 74, no. 2, May 1984.
k. Harry G. Meyers, *Displacement Effects of Federal Grants for the Primary, Secondary and Urban Federal Aid Highway Systems*, Office of Management and Budget, Special Studies Division, July 1985.

Figure 4.
Federal and Nonfederal Capital Spending on Public Works Infrastructure, 1970-1984



SOURCE: Congressional Budget Office.

How would changing the federal aid mix of categorical, block, and untied grants tend to alter the shares of investment and recurrent spending in public sector budgets? Some study results indicate the difference between lump-sum block grants and the program-by-program categorical grants has little effect on nonfederal investment decisions.[7] This could mean that the numerous divisions in the Federal Aid highway program, for example, have little influence on the mix of projects in states' lists for highway spending. A further result estimates that states would be willing to accept 10 percent to 15 percent less in federal aid if it were provided as untied grants or general revenue rather than as categorical or block grants

7. Gramlich, op. cit.

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associated with particular programs.[8] The Department of Commerce's study of public works investment concludes that, during the 1970s, states and cities together have used about one-third of general revenue assistance for public investments--states generally less than 20 percent, but cities--particularly medium-sized and small ones--sometimes up to 50 percent and more.[9] At the higher ranges, these are not much lower than the ratios of additional spending per federal dollar reported in the same study (also shown in Table 7) for typical urban investments (wastewater 60 percent and transit 75 percent), particularly taking into account that smaller amounts of untied aid can be substituted. Thus, while untied aid could be as effective a federal strategy for assisting cities, for states and large metropolitan areas, either categorical or block grants may be preferable for promoting public investment.

The opportunity for substitution arises when aid is made available for activities for which state or local benefits from projects are sufficient to justify local financing for projects that also further national goals. The results presented above average across some state programs in which more federal aid could have been used on viable projects, along with others in which no additional projects were financed by the extra funds. The results for state and local ABC highway systems show this variability--thinly populated western states expanded highway programs with federal ABC aid, though nationally, the aid substituted partly for state funds.[10] Variation in local financing capacity is also seen in the different cost-sharing agreements originally proposed by the Corps of Engineers for new water resources projects in its 1986 budget submission. Nominal local cost shares for new starts recommended by the Corps since 1983 have ranged between 35 percent and 100 percent, with an average of 57 percent. Administrators of some discretionary programs have been able to vary project finance conditions other than the local cost share in ways that change the effective federal share of project cost, and thus distribute federal subsidies more closely to the need for subsidy than would fixed-share formula aid. Cutting back in areas in which federal funds have substituted for state or local programs would not generally reduce these programs commensurately, but would allow federal aid to be channeled to infrastructure programs that are currently underfunded, thereby promoting additional investment. Thus allowing nonfederal applicants to negotiate both types and conditions of aid could help avert unnecessary demands for subsidy.

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8. Gramlich, op.cit.

9. Consad, op.cit.

10. Miller, op. cit.

Tax Exempt Bonds

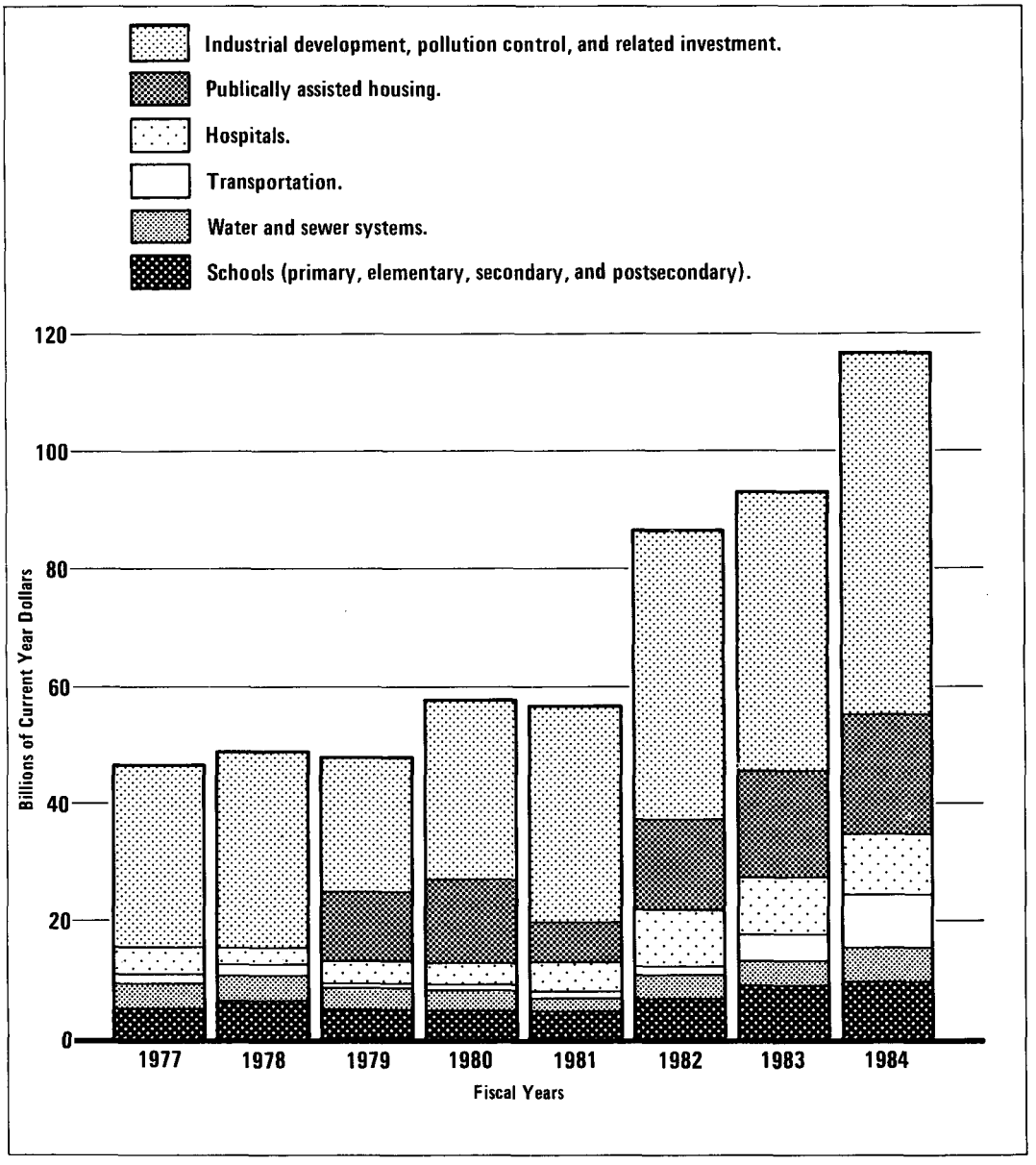
Of all the federal mechanisms for financing investments, tax incentives rely most on local appraisals of investment opportunities. Indeed, many projects financed by tax breaks proceed through planning and construction phases with little federal intervention, though some may have been prompted at the outset by federal mandates (air pollution control projects, for example) or other standards. Local scrutiny, however, can be more stringent, as when users or taxpayers are asked to approve a bond issue for project financing.

But the detailed local scrutiny and concern with project viability is obtained at high cost. First, tax-exempt financing displaces taxable investment, and thus it reduces federal tax revenues. Further, a lower interest rate means that the project being financed will often supplant higher return projects in capital markets, since the two appear equally attractive to lenders such as bond buyers. Moreover, the current differential between taxable and tax-exempt returns, about 25 percent, provides a larger subsidy to those investors in the highest income brackets than the subsidy just needed to induce those investors to purchase the bonds. These investors are therefore encouraged to favor investments with tax-exempt financing over taxable projects of equal or greater national return, or lower risk. Second, except through such broad measures as the *per capita* limit on tax-exempt industrial development bond issues imposed in 1984, the Congress has no way of determining how much of the federal budget is to be devoted to these investments, nor can it gauge whether national objectives are being sought. No control is exercised over either the allocation of the financing among different types of projects, or the national priorities implied in federal support for the mix of projects chosen.

Between 1980 and 1984, federal tax revenue losses associated with tax-exempt investment financing increased by more than half.[11] Almost all of the increase arose from the post-1981 growth in the volume of debt outstanding; little stemmed from increased bond yields. Bonds sold for all purposes--including infrastructure, utilities, and other industrial projects--raised $116 billion in financing in 1984, compared with the annual rate of around $49 billion in the late 1970s (see Figure 5). Though bond issues financing traditional public purposes have contributed significantly to this rise--transportation issues, for instance, increased sevenfold between 1980 and 1984, and those for water and sewer system development rose by 130 percent--the largest volume increase was in so-called "nontraditional"

11. Data in this section on federal tax revenue losses are taken from Office of Management and Budget, Budget of the United States Government, Special Analysis G, various years.

Figure 5.
Nonfederal Bond Financing by End Use: 1977-1984



SOURCES: Congressional Budget Office data and information from *The Bond Buyer's Municipal Handbook '84,* page 8 and Department of the Treasury, *S01 Bulletin* (Summer 1984), page 107.

percent--the largest volume increase was in so-called "nontraditional" borrowing (that for industrial and other economic development). This now accounts for more than half of all municipal debt issues.

The importance of federal tax subsidies for infrastructure development varies considerably among programs. For airport development, for which the responsibility for infrastructure financing is *de facto* borne locally, tax expenditures in 1984 added around half the amount of direct federal grants to federal capital subsidies. In transit, for which federal grant programs have expanded to provide significant direct assistance to most local operators, tax subsidies are incurred only on behalf of the larger agencies whose formula apportionments do not cover all capital projects. Even so, tax expenditures on transit bond issues add 10 percent to general federal capital assistance through formula grants. The additional subsidy for the construction of wastewater treatment plants may be around 8 percent of EPA construction grants. Though details are insufficient to make similar comparisons for other programs, tax losses probably add similar unplanned subsidies to all other infrastructure spending.

CHAPTER VII

WAYS TO RECAST THE FEDERAL ROLE IN INFRASTRUCTURE MANAGEMENT

A broad-based recasting of the federal government's role in managing public works infrastructure could build on two aspects of the management system:

- Improving the information from federal agencies on which the Congress bases its budgetary and policy decisions, and
- Improving the incentives to state and local managers to further national objectives.

When properly balanced and integrated, adaptation directed toward these two wide goals could offer long-term resolution of problems now impeding optimal infrastructure management. These problems include disregard of evolving conditions, overinvestment in ineffective systems, diversion of national resources to purely local purposes, failure to gather information from users about demand, and inability to maximize system efficiency through pricing.

Any Congressional effort to improve infrastructure management must, however, take account of the constraining reality that the federal government now provides financing for more than double the volume of investments it actually controls. The predominant federal role is in providing financing for investments made by other governments. Except in the direct investment programs, Congressional decisions about allocation of recourses are made at the program, rather than the project, level. For about 20 percent of investment, however, federal programs directly provide infrastructure systems or collaborate with state or local agencies in planning or operating facilities. Thus, the functions of identifying and appraising project choices are carried out in both federal agencies and state and local institutions. The Congress' allocation decisions therefore rely on information on program needs provided in large part by federal agencies, and on sound project selection made by states and localities. Hence, improving federal infrastructure management requires improved information about progress and effectiveness of programs, and improved incentives for state and local infrastructure choices.

IMPROVING MANAGEMENT INFORMATION

With only a few exceptions, most information that federal agencies provide to the Congress regarding infrastructure programs is descriptive. By and large, it is limited to reports that support budget requests. These reports detail how spending would be distributed over different agency activities (such as salaries, travel, equipment purchases, grants, and other subsidies), as well as over different program activities within a given agency (for example, Interstate Highway System construction, Primary system highways, and safety programs). Such reports display variations from current spending for each program activity. And to accommodate policy changes as they affect each budget account, a projection four years beyond the budget year shows expected variations from the level of spending suggested by "current services" spending.

Though the Congress also receives periodic status reports on programs from agencies, these vary in frequency and coverage. The Federal Highway Administration, for example, submits an annual report on the bridge program, and biennial reports on highway conditions and performance. The Environmental Protection Agency presents "needs surveys" for wastewater treatment every two years. Water resources and power programs, however, have no regular status reporting requirements, though the Army Corps of Engineers makes special reports from time to time--for example, its surveys on dam safety, the most recent in 1982, and the national waterways study in 1983.[1/] In 1984, the Urban Mass Transportation Administration (UMTA) made the first of a series of biennial reports on the status and future requirements of the mass transit program.[2/] Such reports tend, however, to concentrate on the current condition of infrastructure, and on estimates (akin to needs estimates) of the spending required to bring that condition to some preferred level over a specified time.

Rarely do agencies formally examine the effects of eligibility rules for financing or standards for the efficiency of the investments made with federal assistance. Even more rarely do they monitor programs against broader objectives. The current services baseline on which each program is based presupposes a constant level of service, disregarding changed conditions or

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1. See U.S. Army Corps of Engineers, *National Program of Inspection of Non-Federal Dams, Final Report to Congress* (Washington, D.C., May 1982) and *National Waterways Study--A Framework for Decision Making* (Washington, D.C., January 1983).

2. Urban Mass Transportation Administration, *Report of the Secretary of Transportation to the United States Congress* (Washington, D.C.: UMTA, September 1984).