CHAPTER 2

Institutional Framework

States Study Ways to Save the Chesapeake

D.C. Gets $19 Million For Roads

Skinner Sets Grant And Praises Dixon

By Mary Ann
and Stephen
Washington Post S

Secretary of
Samuel K. Skinner a
million road grant
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Mayor-Elect Sharo
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"I think all of us w
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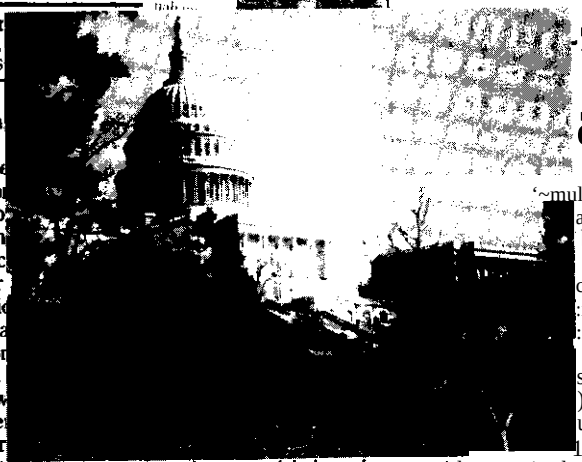

A Holiday Driver's Travel Torture Plan

I-95 Trek Expected

95

more vehicles between the cities

as Gas Tax Rises

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said Alexandria
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eople are using
the lower-priced regular unleaded
gas yesterday 20 cents less than

double the usual clip at the Exxon
station on North Henry Street il
Alexandria.

"Everyone wanted to grab h(
gas before the nickel hits," said at
tendant Steve "Tattoo" Avis, whose
namesakes covered his expose(
forearms and neck.

A Chevron station on Lee High
way in Arlington sold 4,800 gallon:
of gas Friday instead of the usua
3,200 or so. "The busiest day **I've**
ever seen in here;' attendant Jef
Basham said.

Southern California Ordered to Save Water J&W%$&?

ConservationPlan, First Since 1976, Drought-ImA" Region

By Jill Walker
Special toTk Washington Peat

alties, not yet determinec
imposed on violators.
The first phase called f

really sell In two days,'
Tucker, who

EPA's Reilly to Veto Dam

'Unacceptable'

Photo credit: Dan Braun, OTA Staff

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CHAPTER 2
Institutional Framework

. . . it is very hard to get your hands on this interface between transportation policy and environmental policy. ..1

Public works stakeholders include individual citizens, public officials, and politicians at every level of government; congressional committees, at least five major Federal agencies; environmental organizations; and industry, trade, and professional groups of every stripe. Their number and diversity make developing a coherent framework for either transportation or environmental public works seem an unattainable dream.

Moreover, the task of coordinating transportation and environmental concerns to address their combined impacts on lifestyles and economic vitality is clearly staggeringly difficult. The year-long process initiated by Transportation Secretary Samuel K. Skinner in 1989 of developing a national transportation policy[2] did create fresh dialog about issues between transportation interest groups, such as the automobile and highway lobbies and mass transit agencies, which had traditionally clung to their individual views. Discussion of elevating the Environmental Protection Agency (EPA) to Cabinet status could provide an opportunity for the same type of dialog about environmental public works issues. This chapter describes the actors and the setting for the complex theater of public works policy development.

Federal Role

Federal authority for public works—roads and bridges, mass transportation, ports and airports, waterways and water supply, wastewater treatment and solid waste disposal-has been evolving since shortly after the Nation was born, when a body of national engineers was formed. (See table 2-1 for Federal legislative benchmarks.) Responsibility is now distributed, often with considerable overlap and conflicting missions rooted in history, among a number of departments and agencies. The major players are the Department of Transportation (DOT), EPA, the Department of Defense, through the Army Corps of Engineers (Corps), the Bureau of Reclamation (BuRec) in the Department of the Interior, and the Soil Conservation Service in the Department of Agriculture. Some of these agencies issue regulations with which State and local officials must comply; others have tiding, programmatic, or operating functions; still others have all or some combination of these responsibilities. Other executive branch agencies also have an impact, and courts play a role as well. Congress shapes policies and programs through the legislative authorization and appropriations processes and regulatory mandates.

Many of the Federal entities responsible for managing the Nation's vast collection of public works infrastructure have recently experienced or are about to undergo major shills in their missions—from development and growth to management and preservation. This fundamental change is evident at the Corps, which is undertaking more environmental restoration projects than flood control projects, and BuRec, which announced in 1987 that it would no longer be a construction-oriented organization and would become a water resources management agency.[3]

The Federal role shifted in other ways, too, in the 1980s, with the transfer of a number of programs to the States and reductions in Federal support for most types of infrastructure (see table 2-2). For example, EPA's construction grant program for wastewater treatment plants is scheduled to end in 1994, with the States slated to takeover responsibility.[4] At DOT, as the Interstate highway system nears completion and

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[1] J. Craig potter, former Assistant Administrator fo, Air and Radiation, U.S. Environmental Protection Agency, in National Transportation Policy Alternatives, *Proceedings of a CRS Congressional Seminar* (Washington, *DC: Congressional* Research Service, June 12, 1990), p. 25.

[2] The process culminated in the release of the first national transportation policy and strategies document. See U.S. Department of Transportation *Moving America: New Directions, New Opportunities (Washington DC:* February 1990).

[3] U.S. Department of the Interior, Bureau of Reclamation, *Assessment '87, New Directions for the Bureau of Reclamation* (Washington, *DC:* U.S. Department of the Interior, September 1987), pp. 1-2.

[4] For further discussion, see U.S. Congress, Office of Technology Assessment, *Rebuilding the Foundations: A Special Report on State and Local Public Works Financing and Management,* OTA-SET-447 (Washington, DC: U.S. Government Printing Office, March 1990), chs. 2 and 3.

Table 2-l—Public Works Legislation Landmarks

1824		Rivers and Harbors Act authorized the Army Corps of Engineers to improve navigation by clearing channels and constructing harbors.
1850		Federal land grants to the Illinois Central-Mobile Ohio Railroads allowed the companies to expand westward. This was the first of massive grants to railroads seeking to reach the Pacific.
1887		Interstate Commerce Commission (ICC) established with limited authority to set rail rates. Legislation passed in 1903, 1906, and 1910 strengthened ICC'S regulatory powers.
1916		Federel-Aid Road Act authorized grants to States from the general treasury, through the Department of Agriculture, to help construct postal roads.
1925		AirMall Act authorized the Post Office Department to contract for air mail service with private operators. The 1926 Air Commerce Act gave aviation regulation authority to the Department of Commerce.
1938		Civil Aeronautics Act created the Civil Aeronautics Authority.
1941		Defense HighwayAct appropriated $200 million for the construction and rehabilitation of roads needed for the national defense, including access roads to military and defense industry sites.
1944		Federal-Aid Highway Act authorized the construction and building of a secondary and urban system of roads. The act also designated a national system of Interstate highways.
1946		Federal Airport Act initiated Federal financial assistance to States and municipalities for aviation.
1956		Federal-Aid Highway Act and Highway Revenue Act authorized completion of the Interstate system. The acts also established the Federal Highway Trust Fund to finance improvements in Federal-aid system roads. Truck weight and size limits were also set for Federal-aid roads.
1963		Clean Air Act asserted Federal interest in controlling air pollution.
1964		Urban Mass Transportation Act established the Urban Mass Transportation Administration (UMTA) within the Department of Housing and Urban Development. In 1968, UMTA was placed under the jurisdiction of the Department of Transportation (DOT).
1966		Department of Transportation Act created DOT from 35 transportation-related programs.

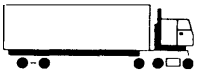
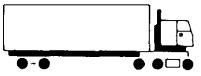
Continued *on next page*

Table 2-l—Public Works Legislation Landmarks-Continued

1967		Clean Air Act amendments authorized Federal standards and enforcement.
1969		National Environmental Policy Act required impact statements on all major Federal actions.
1970		Environmental Protection Agency (EPA) formed to administer numerous media programs.
		Airport and Airway Development Act expanded Federal support and established the Airport and Airways Trust Fund.
1971		Amtrak formed as a Federal corporation to provide passenger service. In 1973, the Regional Rail Reorganization Act established the Consolidated Rail Corporation (Conrail) for freight service.
1972		Water Pollution Control Act (Clean Water Act) set minimum wastewater treatment standards and established construction grants.
1973		Federal-Aid Highway Act increased the federally funded portion of transit capital projects and allowed expenditure of Federal-Aid Urban Systems highway funds for qualifying transit projects.
1974		Safe Drinking Water Act set standards for water quality.
		Mass Transportation Assistance Act expanded Federal support for transit.
1976		Resource Conservation and Recovery Act (RCRA) supported recycling and discouraged landfills.
1977		Clean Air Act Amendments strengthened EPA enforcement.
1978		Airline Deregulation Act abolished the Civil Aeronautics Board and its authority over domestic fares and mergers,
1980		Staggers Rail Act deregulated rail with the goal of improving the economic health of the railroads.

Continued on next page

Table 2-l—Public Works Legislation Landmarks-Continued

1980		Motor Carrier Act deregulated the trucking industry.
1981		Northeast Rail Service Act required DOT to look at ways to return Conrail to the private sector and to sell it if it achieved profitability. It was sold in 1987.
1982		Surface Transportation Assistance Act (STAA) boosted the gas tax, giving 1 cent to a Mass Transit Trust Fund. Truck weight and size limits were also raised, forcing States to permit all trucks meeting size standards to operate on Federal-aid roads.
1984		Hazardous and Solid Waste Amendments of the RCRA targeted hazardous waste management.
1986		Safe Drinking Water Amendments strengthened Federal requirements.
1987		Surface Transportation and Uniform Relocation Assistance Act provided the necessary funds to complete the Interstate system.
		Clean Water Act Amendments required that wastewater construction grants be phased out by 1991 and replaced until 1994 by capitalization grants to State Revolving Loan Funds.
1990		Clean Air Act reauthorization with additional controls on autos, buses, and trucks.

SOURCE: Office of Technology Assessment, 1991.

Table 2-2—Federal Infrastructure Expenditures, 1980-89
(in millions of 1982 adjusted dollars)

	1980	1982	1984	1986	1988	1989
Total	$29,863	$24,473	$24,425	$26,237	$24,328	$23,609
Transportation:						
Highways	10,584	8,284	10,438	12,934	12,188	11,392
Mass transit	3,732	3,930	3,639	3,007	2,754	2,838
Rail	3,531	2,199	1,405	798[a]	486	483
Aviation	4,334	3,526	4,145	4,722	5,048	5,378
Ports, harbors, and waterways	1,365	1,242	1,262	1,046	1,140	1,137
Environmental;						
Water supply	1,017	1,033	700	650	573[b]	284[b]
Wastewater	5,300	4,259	2,836	3,080	2,139	2,097

[a]Drop in expenditure reflects sale of Conrail.

[b]Low spending figures for water supply in 1988 and 1988 reflect repayments of Farmer's Home Administration water supply loans.

SOURCE: Office of Technology Assessment, 1991, based on Congressional Budget Office estimates from the Budget of the United States Government, various years, and from unpublished Office of Management and Budget data. Estimates for ports, harbors, and waterways based on Army Corps of Engineers data.

urban traffic congestion makes intermodal transfers ever more difficult, further changes are likely.

Department of Transportation

The regulatory and programmatic reach of DOT extends over the Nation's vast network of roads and railroads, ocean shipping, airways, and pipelines. DOT policies and regulatory actions affect State and local governments directly, influencing land-use planning, transportation facilities and service choices, energy conservation, environmental quality, and technological developments.

Formed in 1966 from 35 transportation-related programs spread throughout the Federal Government, DOT was envisioned by then President Johnson as a single unifying entity for managing the water, rail, airway, and road networks.[5] The new agency's five operating divisions included the following: the Federal Railroad Administration (FRA), an amalgamation of the Bureau of Railroad Safety, the Alaska Railroad, and the Office of High Speed Ground Transportation; the Federal Highway Administration (FHWA), formerly the Bureau of Public Roads and Federal-Aid Highway Programs; the Federal Aviation Administration (FAA), formerly an independent agency; the Saint Lawrence Seaway Development Corp from the Commerce Department; and the U.S. Coast Guard, from the Treasury Department. In 1967, the Urban Mass Transportation Administration (UMTA) was transferred from the Department of Housing and Urban Development to DOT. Later additions include the National Highway Traffic Safety Administration, the Maritime Administration (MARAD), and the Research and Special Programs Administration (RSPA), the only intermodal agency within DOT. RSPA manages some DOT research and regulates hazardous materials transportation, oil pipelines, and emergency preparedness.

Despite President Johnson's goal, the DOT Act, a political compromise, created strong modal administrators, as Congress wanted, thus maintaining separate programs for each transportation mode. However, it also established a strong office of the secretary, as the President had proposed.[6] Modal administrators have authority to regulate and manage their organizations, extending from budget formulation to field operations. This independence, the fact that authority over inland waterways was retained by the Corps, and the regional administration of key modal programs have worked to prevent intermodal coordination. To this day, congressional committee and subcommittee structure and industry and carrier interests have helped keep the autonomy of the modal or operating administrations intact.

Situated on top of the DOT organizational chart, the secretary's office recommends the department's budget to the Office of Management and Budget (OMB), formulates national transportation policies, evaluates programs, and attempts to coordinate the activities of the modal administrations. Assistant secretaries serve primarily as staff officers interposed between the secretary and the modal administrators. Since its formation, DOT has had 10 secretaries, several of whom tried to restructure the department along functional lines to facilitate intermodal strategies and establish a means for disbursing funds more equitably among modes. However, their average tenure of 2 to 4 years was too short to leave a permanent mark. Thus the agency has never implemented a multimodal national transportation policy requiring a high degree of cooperation between the separate operating branches. The current DOT initiative to implement the national transportation policy statement[7] seems unlikely to make a permanent impact on deeply entrenched modal interests unless the intermodal cooperation stressed by Secretary Skinner is somehow institutionalized so it survives under succeeding executives.

With a 1990 budget of $28 billion and 64,000 civilian employees, DOT administers user-supported trust funds of considerable size, including the highway and transit trust funds and the airport and airway trust fund.[8] At present the management of each mode rests firmly with the Federal Highway

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[5] "Message From the President of the United States, Transmitting a Proposal for a Cabinet-Level Department of Transportation Consolidating Various Existing Transportation Agencies," in U.S. Congress, House Committee on Government Operations, *Creating a Department of Transportation, Part I: Hearings Before a Subcommittee of the Committee on Government Operations* (Washington, DC: U.S. Government Printing Office, 1966), pp. 38-39.

[6] "Department of Transportation Act," Conference Report No. 89, House Report No. 2236, Oct. 12, 1966 to accompany H.R. 15963.

[7] U.S. Department of Transportation op. cit., footnote 2.

[8] Two additional transportation trust funds, the Inland Waterway Trust Fund and the Harbor Maintenance Trust Fund, fall under the purview of the U.S. Army Corps of Engineers.

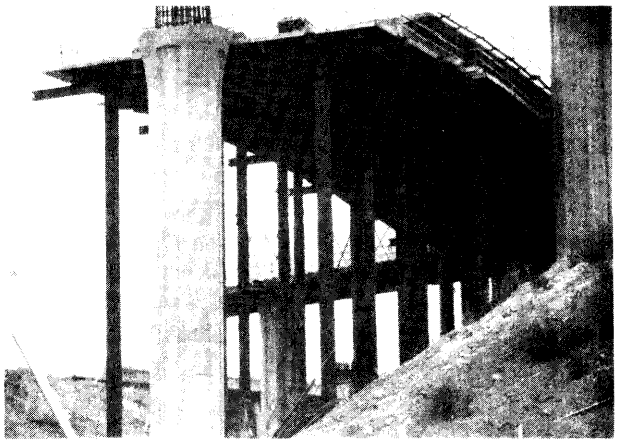

Photo credit: *Tom Burke*

The Federal Highway Administration in conjunction with State officials develops safety standards for the design, construction, and maintenance of bridges and highways on the Federal-aid system.

Administration, the Urban Mass Transportation Administration, the Federal Railroad Administration, the Federal Aviation Administration, the Maritime Administration, the IJ.S. Coast Guard, and the Saint Lawrence Seaway Development Corp.

Federal Highway Administration

FHWA has primary jurisdiction over highways and bridges in the Federal-aid system and sets safety standards for their design, construction, and maintenance and for motor carriers engaged in interstate commerce. It has divisions responsible for engineering and traffic operations; safety and traffic engineering; research, development, and technology; planning and policy development; right-of-way and environment; administration; and motor carrier safety.

FHWA also administers the Federal-aid highway program (see box 2-A), which distributes funds to the States to construct and rehabilitate the 843,000-mile Federal-aid highway system. Through the Highway Trust Fund, the government pays 90 percent of construction costs for Interstate highways; 75 percent for primary, secondary, and urban road construction; and 80 percent for bridge replacement and major rehabilitation. Federal funds cannot be used for highway or road operation or maintenance, and responsibility for these and the remainder of the road system rests with States and local governments. The Highway Bridge Replacement and Rehabilitation Program, also administered through States, is the major funding source for repairing and rehabilitating 'deficient bridges. States develop program needs and set priorities based on information from State bridge inventories and biennial inspections. Although States and communities that receive Federal matching funds must follow FHWA rules and regulations, flexibility permits nonuniform practices among the States. For further details, see chapter 3.

Box 2-A—Highways: From Postal Roads to Interstate

Systematic Federal assistance for highways began in 1916, with grants to States for construction of roads used to deliver the mail. Roads receiving Federal highway aid were to be free of tolls, and all proposed roads and methods of construction had to be agreed on by the Secretary of Agriculture and State highway departments.

Federal and State investment of more than $8 billion in the 1920s and 1930s boosted total mileage of paved roads from 387,000 in 1921 to 1.4 million by 1940. During World War II, appropriations for roads needed for national defense, including access roads to military sites, funded hundreds more projects totaling more than 2,200 miles.[1]

In each of the first 3 postwar years, $500 million in Federal funds was authorized for construction and funding of secondary roads to connect farms and small communities to the highway network and an urban system located in and around major cities+ An Interstate highway system was designated for connecting principal cities and industrial centers and connecting with routes in Canada and Mexico. Today's highway system, while retaining marks of all this history, is overlaid by legislation passed in 1956 authorizing completion of the Interstate system under the direction of the Department of Commerce and State highway departments, To speed travel, the system was to have no railroad crossings, traffic signals, or stop signs. In 1988, the system was 99 percent complete and consisted of 44,590 miles.[2] The cost of the system, intimated at $25 billion in 1956, will exceed $100 billion (in current dollars) before completion, expected in 1991.

[1]Bob Carpenter, "In the Early Days, Everyone Was a Roughrider," *Windows (Texas Engineering* Experiment Station, Texas A&M University), summer 1988.

[2]Federal Highway Administration, *Highway Statistics 1988* (Washington, DC: U.S. Department of Transportation, 1989), p. 132.

The Federal highway program is largely supported by the Highway Trust Fund under the jurisdiction of the U.S. Treasury, which invests funds not necessary for current expenditures and credits the interest to the Fund. Annual congressional appropriations to the Federal highway program are managed by FHWA and used to reimburse States for improvements to their Federal-aid highways. User fees supporting the Federal Highway Trust Fund in 1990 included a 9-cents-per-gallon tax on gasoline and special fuels used in highway vehicles (except gasohol, which is taxed at 3-cents-per-gallon), 1 cent of which is dedicated to mass transit; a 15-cents-per-gallon tax on diesel fuel; a graduated tax on tires over 40 pounds; a 12-percent fee on new trucks and trailers, and a heavy-vehicle use tax on trucks over 55,000 pounds. As part of the 1990 deficit reduction package, the fuel tax will rise 5 cents per gallon, with 2.5 cents of the increase going to the Trust Fund (0.5 cents of which is for mass transit) and 2.5 cents to the General Fund. This marks the first formal designation of Federal fuel tax revenues for purposes other than replenishing the Trust Fund. From its establishment in 1956 to 1989, the Trust Fund accumulated $220.1 billion, including interest on unspent balances, and has made available $209.5 billion to the States (as of Sept. 30, 1989).[9] The present legislation is scheduled to be reauthorized in 1991 for fiscal year 1992.

Urban Mass Transportation Administration

UMTA is the key Federal agency with responsibility for public transit. Through its grants program, it administers capital planning and operating assistance grants and loans (see box 2-B), and monitors the efficiency and environmental impacts of transit projects. UMTA also provides contracts, cooperative agreements, and grants for developing, testing, and demonstrating new technologies.

Legislation in 1982[10] provided for 1 cent of a 5-cent increase in the Federal motor fuels tax to be placed in a mass transit account for capital projects, increased funding for the formula grant program, and altered the allocation formula to include transit service data as well as population data.[11] In 1988, public transit accounted for 89 percent of all vehicle-miles operated by transit systems and 96 percent of all passenger trips by transit,[12] but transit agencncies have never realized the promise offered by a dedicated revenue source; most trust fund revenue remains unallocated.

Box 2-B—Mass Transportation: The Youngest Federal Transport Assistance Program

Federal capital grants for mass transit began with the Housing Act of 1961,[1] which provided funding for demonstrations ($25 million) and loans ($50 million) for mass transit projects to bolster the private transit industry. The Urban Mass Transportation Act of 1964[2] established the Urban Mass Transportation Administration (UMTA) within&@ Department of Housing and Urban Development to administer capital grants to transit systems on a two-thirds Federal, one-third local matching basis. This sparked a rapid conversion of failing, ***privately*** operated mass transit firms into public properties. The fraction of publicly owned transit system increased from 5 percent in 1960 to 55 percent in 1980, with the share of publicly owned vehicles rising from 36 to 90 percent over that period. In 1968, UMTA was moved to the newly created Department of Transportation, and the Urban Mass Transportation Assistance Act of 1970[3] authorized a $3. l-billion capital grants program Highway and transit legislation in 1973 and 1974 increased the federally funded portion of transit capital projects from **67 to 80 percent, allowed expenditure of some** highway funds for qualifying transit projects, and increased authorizations for discretionary capital funding. A population-based, formula grant program for cities was created, which could be used for either operations or capital projects. Increases in Federal transit funding came to an end in the early 1980s, reaching a peak of $4,7 billion in 1981.[4]

[1]75 Stat. 149 et seq.

[2]Title 49, secs. 1601-1611.

[3]84 Stat. 962.

[4]Urban Mass Transportation Administration, *1989 Statistical Summaries: GrantAssistance Programs* (Washington, DC: *V,&* Department of Transportation% 1990), p, 11.

[9]The Road Information Program, "The Federal Highway Trust Fund," *Transportation Quarterly*, vol. 44, No. 1, January 1990, pp. 25-35.

[10]96 Stat. 2140-2154 et seq.

[11]American Public Transit Association, *1989 Transit Fact Book* (Washington, DC: 1989), p. 73.

[12]Ibid., p. 14.

The Federal Railroad Administration

FRA has primary jurisdiction over the Nation's railroads, promulgating and enforcing safety regulations, administering limited financial assistance programs (see box 2-C), and conducting research and development (R&D) for improved railroad safety. FRA's Office of Safety implements regulations covering railroad track maintenance and inspection, equipment signals, railroad locomotives, safety appliances, power brakes, hours of service, transport of hazardous materials, and operating practices. The office also directs FRA's R&D program and investigates accidents. FRA's safety jurisdiction does not apply to light rail or rapid transit systems in urban areas. In fiscal year 1988, FRA spent about $40 million on safety activities. About one-half of this amount was used for regulatory enforcement-providing salaries for about 325 Federal rail safety inspectors and assistance for some 104 State inspectors-and about one-third of this amount went toward R&D.[13]

Through its Office of Passenger and Freight Services and Office of Northeast Corridor Improvement Project and Engineering, FRA administers a program of Federal assistance for national, regional, and local rail services that includes: rail freight service assistance programs, rail service continuation programs and State rail planning, labor/management programs, and Amtrak.

In 1980, Congress passed the Staggers Rail Act to improve the economic health of the railroads and ensure effective competition. Some freight rate regulation was retained in consideration of captive shippers,[14] but carriers were given greater flexibility to react to market forces[15] and greater freedom to abandon track. This has spurred significant growth in the number of shortline and regional freight railroads, most of which operate as private entities. (For further information, see chapter 3.)

Passenger Rail

The Federal Government now dominates intercity passenger rail through Amtrak; it even owns most of the track and structures along the northeast corridor between Boston and Washington. In other parts of the country, Amtrak's agreements with freight railroads permit its trains to use their track in return for fees based on miles traveled and other considerations, including upkeep of the track, bridges, and signals.

The Federal Government owns all of Amtrak's preferred stock, controls the appointment of its board of directors, and has a lien on most of its assets, including all locomotives and rolling stock. Amtrak generated over 5.86 billion passenger-miles in 1989.[16] The corporation receives yearly Federal grants of about $500 million from the Federal Government through FRA to cover its operating deficit.

Federal Aviation Administration

FAA has regulatory authority across the entire aviation system-airports, airways, aircraft, industry, and people, and FAA itself owns and operates one of the most complex transportation networks in the world, the U.S. National Airspace System. Industry participation in regulatory activities has a long history (see box 2-D) and has continued to grow since the 1950s, when Congress authorized Federal aviation agencies to designate part of the certification and inspection processes to the private sector.

While Federal aviation regulatory enforcement activities are relatively decentralized, with regional and district offices having considerable autonomy and independence, FAA is currently consolidating some activities in its Washington headquarters.[17] Although aviation maintains an enviable safety record, dramatic growth in air travel, turmoil associated with the firing of air traffic controllers in 1981, major changes in technology, and Federal budget constraints have left FAA scrambling to modernize

[13]Congressional Research Service, *Railroad Safety: Selected Options That Might Promote Safety*, issue brief (Washington, DC: Feb. 2, 1988), pp. 1-4.

[14]Senator Ernest F. Hollings, opening statement, hearings before the Senate Committee on Commerce, Science, and Transportation, Subcommittee on Surface Transportation@ Oversight of the Staggers Rail Act of 1980, July 26, 1983.

[15]Federal Railroad Administration, *Deferred Maintenance and Delayed Capital Improvements On Class II and Class III Railroads* (Washington% DC: U.S. Department of Transportation, 1989), p. 14.

[16]W. Graham Claytor, Jr., President and Chairman of the Board, National Railroad Passenger Corp., testimony athearingsbefore the House Committee on Appropriations, Subcommittee on Transportation and Related Agencies, Mar. 22, 1989, p. 1.

[17]Michael Zywokarte, project manager, Engineering, Federal Aviation Administration, personal Communication% J@ 12,1990.

Box 2-C—Railroads and Government: A Difficult Relationship

Federal assistance to railroads began as the industry sought to expand westward. Starting in 1850, land grants were made to railroads as they attempted to reach the Pacific. Federal regulatory power, however, was not *established until* 1887, when the Interstate Commerce Commission (ICC) was created and given authority to set some rail rates. Between 1893 and 1921, Congress passed several rail safety acts and gave ICC responsibility for implementing and enforcing the regulations. Little important railroad legislation was passed during the next 40 years, and railroad dominance in transportation declined, as Federal aid spurred expansion of the highway system and growth in the trucking industry.

Starting in 1965, legislation gradually transferred all safety responsibility from ICC to the Department of Transportation, including responsibility for regulations, inspection, enforcement, accident investigation and recordkeeping, and some hazardous materials functions. However, ICC retained authority for railroad accounting and costing procedures, construction and abandonment of rail lines, mergers, acquisitions, and issuance of securities. ICC also enforced the 'common carrier obligation," which requires a carrier to provide service to anyone who seeks it and is willing to pay the charge shown on rate schedules filed with the commission.[1]

ICC requirements constrained railroads' abilities to compete economically with trucks and played a crucial role in declining rail economic performance. By the early 1970s, seven railroads that had provided freight and passenger service in the Northeast and Midwest were bankrupt. From their remnants, Federal action created the Consolidated Rail Corporation @mi.ii), a private freight railroad company with government financing and oversight. At the same time, the quasi-public National Rail Corporation (Amtrak) was created to provide passenger service on the routes served by the bankrupt railroads; Amtrak, however, also incorporated the passenger service of other major railroads serving the rest of the country, to ensure a nationwide passenger system.

Federal funds compensated the bankrupt carriers, rebuilt track and equipment, and covered operating losses. Subsequent legislation allowed Conrail to make the changes necessary to make a refit, which it did in 1981 and succeeding years. Conrail was sold in 1987 through a public offering of its stock,[2]

[1]U.S. General Accounting Office, *Problems in Implementing Regulatory Accounting and Costing Systems for Railroads* (Washington, DC: July 17, 1980), p. 1.

[2]Nancy Heiser, Congressional Research Service, "Federal Aid to Domestic Transportation: A Brief History From the 1800s to the 1980s," Report 88-574, Aug. 16, 1988, pp. 5-7.

the system. Ongoing concerns center on whether FAA has the institutional capability and resources to carry out its operating, standard setting, rulemaking, and technology development functions effectively and to guarantee compliance through its inspection programs.[18]

To provide support for air traffic control (ATC) facilities, an Airport and Airway Trust Fund, financed mostly from taxes imposed on airline tickets and aviation fuel, was created in 1970. Economic deregulation in 1978 removed Federal controls over routes, fares, and new entries and transferred all remaining economic functions to DOT.

Non-Federal organizations, primarily local governments and regional authorities, own and operate most public airports, and local governments bear most of the responsibility for land-use planning and coordinating the surface transportation links to airports. The Airport and Airway Trust Fund provides about one-third of the capital for public airport improvements.[19]

International agreements establish minimum standards for aviation systems to ensure compatibility throughout the world. Historically, U.S. requirements, with the exception of security items, have been adopted worldwide. However, future communication, navigation, and surveillance technologies will permit precise traffic monitoring and control well beyond domestic borders, possibly worldwide. These advances may require new forms of international coordination, such as satellite system protocols, and require negotiation of sensitive issues such

[18]U.S. Congress, Office of Technology Assessment, *Safe Skies for Tomorrow: Aviation Safety in a Competitive Environment,* OTA-SET-381 (Washington, DC: U.S. Government Printing Office, July 1988), p. 45.

[19]For further details on financing and management, see Office of Technology Assessment, op. cit., footnote 4.

Box 2-D—Government and Aviation: A Close Marriage

The Air Mail Act of 1925 authorized the Post Office Department to contract for airmail service with private operators, greatly stimulating the growth of commercial air carriers, some of which evolved into today's major airlines. However, despite strong industry support for Federal aviation safety legislation, Congress was unable to reach agreement on a statute until 1926, when the Air Commerce Act was passed. The legislation charged the Department of Commerce with both regulatory authority over aviation and responsibilities aimed at promoting the fledgling industry. The major provisions of the act authorized the regulation of aircraft and airmen in interstateand foreign commerce, provided Federal support for airways and weather services, authorized aeronautical research and development (R&D) programs, and provided for the investigation of aviation accidents. Airport development was left to local governments.

During the 1930s, industry expansion and increasing traffic prompted a group of airlines to establish an air traffic control (ATC) system, which was transferred to the Department of Commerce in 1936. Economic regulation began in 1938, with the creation of the Civil Aeronautics Authority, responsible for safety programs, route certificates, airline tariffs, and air mail routes. Federal responsibilities for airway and airport development grew tremendously during World War II and came to include Federa1 financial assistance to States and municipalities. Surplus military airplanes and pilots and higher performance passenger transports brought enormous commercial aviation growth during the next decade. However, Federal support for ATC and airport development did not keep pace; some control towers and communications facilities were abandoned and R&D efforts curtailed.

The impending introduction of jet aircraft and a 1956 midair collision between two airliners led to the creation of the Federal Aviation Agency in 1958, with responsibility for fostering air commerce, regulating safety, ATC and navigation systems, and airspace allocation and policy. In 1966, the Federal Aviation Agency became the Federal Aviation Administration and was transferred to the newly formed Department of Transportation.

as whether U.S. ATC should monitor U.S. carrier traffic overflying other countries.

Maritime Administration

Established in 1950 and made a part of DOT in 1981, MARAD administers programs to support the development, promotion, and operation of the U.S. merchant marine. It administers programs to subsidize U.S. shipping and shipbuilding costs, funds training for seafaring personnel, and supports industry efforts to develop ports, facilities, and intermodal transport. In addition, MARAD maintains a National Defense Reserve Fleet of U.S. ships that it operates when required for national defense.

U.S. Coast Guard

The U.S. Coast Guard has a dual role; it is at all times a branch of the military services, operating as part of the Navy in wartime, and it is an operating agency of DOT during peacetime. Its responsibilities center on the safe and orderly operation of the Nation's waterways and ports, including sea search and rescue operations, law enforcement (e.g., suppression of smuggling and drug trafficking), pollution control, and aids-to-navigation and boating safety programs.

Saint Lawrence Seaway Development Corp.

The corporation was established in 1954 as an operating division of DOT responsible for the development, operation, and maintenance of that part of the Saint Lawrence Seaway between Montreal and Lake Erie. Coordinating its activities with Canadian authorities, the corporation administers all phases of Seaway daily operations as well as planning and capital improvements. Its goal is to encourage traffic through the seaway and fully develop its commercial potential.

U.S. Army Corps of Engineers (the Corps)

Responsible for operating and maintaining the Nation's waterways and born during the American Revolution, when army engineers built bridges and harbor fortifications, the Corps is one of the oldest Federal agencies. The need for a permanent cadre of military engineers led to legislation in 1802 creating the Corps, which has evolved continuously over the ensuing years to meet national engineering needs. Since 1977, the Corps has been a major military command of the U.S. Army, overseen by the assistant secretary for civil works. The Civil Works Program directs public waterways infrastructure

activities, hydroelectric power generation, flood control, and water supply.

The Corps' field organization, one of its most important groups for public works, consists of 9 division offices, which supervise geographic areas based on river basins, and 36 relatively autonomous districts responsible for operations, maintenance, construction, preparation of design studies, and real estate acquisition. The Corps produces nearly 30 percent of the Nation's hydropower and 3.5 percent of the total electric energy; 115 Corps' lakes store water for agricultural, municipal, and industrial use.[20] The agency supports some work of other Federal organizations, providing design, evaluation, and construction management assistance on a fee basis when its schedule permits.[21]

The Corps and Public Works

The Corps' involvement in water projects began in 1824, when it was charged with clearing channels and constructing harbors. Subsequent legislation expanded Federal water transport management and funded the Corps to deepen and widen inland waterways, ports, and harbor channels. In 1899, the Corps was authorized to issue permits governing discharge into navigable waterways, a power it retains to this day, although now the permits must comply with EPA regulations.[22]

Because most Corps undertakings have promoted local and regional economic growth and large projects were heavily federally funded[23] its agenda has always been warmly received by Congress. Throughout the 19th century, the Corps constructed flood control facilities, including dams, where they would not interfere with navigation, but the importance of water transport for freight declined significantly in the late 19th century, as railroads expanded their networks. In 1917, Congress permitted the Corps to build hydropower facilities at Federal dams and authorized a Corps flood control program in the mid- 1930s. Corps authority for navigation improvements was modified in 1944 to include recreation, erosion control (especially for beaches), water supply, and water quality.

Environmental Concerns

The Corps traditionally used structures such as jetties and groins to fortify harbors, and levees and flood walls to control rivers. However, following passage of the National Environmental Policy Act (NEPA) in 1969, Corps' activities came under acute scrutiny. Environmentalists charged that the Corps' construction-especially the massive flood-control dam projects-caused irreparable ecological damage and destroyed wildlife habitats. Nonstructural solutions were made eligible for Federal funds in 1974[24] (although costs have prohibited most communities from exploring such options), and Clean Water Act Amendments in 1972 and 1977 extended the Corps' responsibilities to include all water affecting the commerce chain.

Nonetheless, new project starts ground to a halt between 1976 and 1986[25] because of growing Federal budget difficulties, concern about environmental degradation, disputes about cost sharing between Congress and the Administration, and demands from the public and local governments for participation in the formulation of projects. Legislation in 1978 established modest user fees for barge operators in the form of a marine fuel tax, and money began to accumulate in the Inland Waterway Trust Fund to help pay for lock and darn construction.

Passage of the Water Resources Development Act of 1986 finally allowed new construction to resume but increased cost sharing for non-Federal project sponsors, a provision that scaled back projects[26] and transformed project planning and implementation. Cost-sharing requirements depend on project type, ranging from 100 percent for hydroelectric projects and municipal and industrial water supply from

[20] U.S. Army Corps of Engineering, *Secretary of the Army' sReport on Civil Works Activities, Fiscal Year 1987,* vol. 1 (Washington, DC: 1987).

[21] Ibid.

[22] U.S. Army Corps of Engineers, *Digest of Water policies and Authorities* (Washington, DC: February 1989).

[23] Historically, large flood control and inland navigation projects were federally funded, while water supply and hydropower facility costs were repaid by users. Local contributions of land, easements, and right-of-way provided a share of small, local flood control project costs. The 1986 Water Resources Development Act revised the Corps' cost-sharing policy.

[24] Jean Nienaber and David Mazmanian, *Can Organizations Change?* (Washington, DC: The Brookings Institution, 1979), p. 13.

[25] Lawrence Mosher, "The Dwindling Federal Role," *Forum for Applied Research and Public Policy,* vol. 2, winter 1987, p. 44.

[26] Steve Hughes, Congressional Research Service, "WaterResources Development Act: Implementing the Omnibus Project Reforms," updated Aug. 15, 1989.

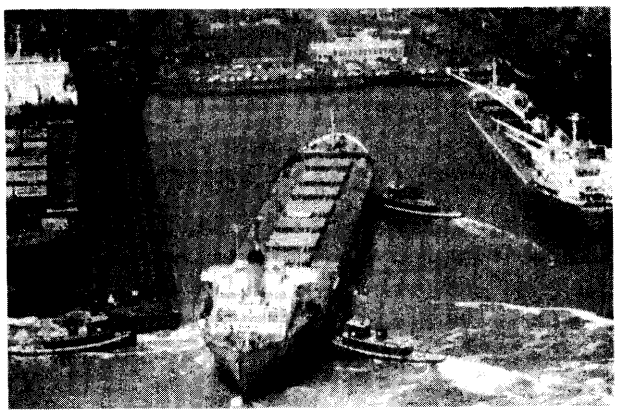

Photo credit: American Society of Civil Engineers

Harbor maintenance costs are partially paid from a trust fund supported by an ad valorem tax for operators of tankers and seagoing vessels.

Corps managed reservoirs, through 25 to 50 percent for flood control, to 10 to 50 percent for harbor construction. The Inland Waterway Trust Fund is currently sufficient to support replacement of from four to six projects each decade, only a small percentage of the construction projected as necessary to improve the fuel-taxed waterway system.

The only water-related user fee that can be used for maintenance is a tax established in the 1986 act on the dollar value of the commodities shipped through a port. The tax feeds the Harbor Maintenance Trust Fund, which covers about one-third of dredging costs. Virtually all operating and maintenance expenses for the Inland Waterway System are paid from the Federal General Fund. This contrasts to operations and maintenance for airports, highway, and mass transit, which State and local user fees commonly support.

The 1986 act also required that the Corps mitigate against fish and wildlife losses for each project, provided for wetlands preservation, and reaffirmed EPA's authority to review Corps' permits in navigational waters and wetlands. The divergent agency missions make EPA vetoes of some Corps' permits inevitable. Construction on new projects can begin only after provisions of the NEPA, Clean Water Act, Coastal Zone Management Act, Endangered Species Act, Fish and Wildlife Act, and National Historic Preservation Act have been satisfied.

The Corps' Future

Over the years the Corps has successfully metamorphosed to address changes in national priorities, and today represents a rich and valuable civil engineering resource. Nonetheless, Federal budget constraints and the national shift to reconditioning facilities rather than constructing new ones have dramatically reduced its civil works efforts.[27] These factors and environmental difficulties with many major water projects mean that the agency must again look toward change. Drawing on its in-house talent to assist other Federal agencies is one element of the Corps' strategy. It considers its support of EPA's hazardous waste disposal (Superfund) and wastewater treatment plant construction grant programs to be its most significant cooperation effort.[28] The Corps also assists States and territories in comprehensive water resource planning by providing land-use planners with information on flood hazards and technical assistance for dealing with floods. Agency officials have offered the Corps' assistance for the Department of Energy's radioactive waste cleanup program.

Environmental Protection Agency

Although local governments manage most of the Nation's environmental public works, EPA's guidelines and standards affect Cabinet departments (DOT, the Corps, and the Bureau of Reclamation), every sector of the U.S. economy, and virtually every category of public works managed by State and local officials. An independent agency headed by an administrator, EPA's activities include research; standard setting; monitoring and enforcement for safe drinking water, air quality in large urban areas with air pollution problems, and operation of wastewater treatment plants; and hazardous waste disposal. EPA, a White House initiative, was established by an executive order in 1970[29] to "organize rationally and systematically" the Federal Government's many disparate pollution-related activities. States had shown reluctance to enforce

[27] Robert W. Page, Assistant Secretary of the Army (Civil Works), testimony at hearings before the Senate Committee on Appropriations, Subcommittee on Energy and Water Development, May 3, 1989.

[28] Ibid.

[29] U.S. Congress, House Committee on Government Operations, Subcommittee on Executive and Legislative Reorganization, *Reorganization Plan Number 3 of 1970 (Environmental Protection Agency) (Washington DC:* U.S. Government Printing Office, 1970).

pollution control regulations against industry,[30] and Federal agencies, like the Department of the Interior and the then Department of Health, Education and Welfare (HEW), with longstanding environmental programs, had not actively enforced their own standards.

EPA was established by bringing together nine programs, including the National Air Pollution Administration and the bureaus of Solid Waste Management, Water Hygiene, and Radiology from HEW, and the Federal Water Quality Administration from the Department of the Interior. When creating the new agency, the Nixon Administration debated whether to organize it into functional programs such as research, monitoring, abatement, and compliance, or to keep intact the disparate media-specific pollution control programs inherited from other departments. The administrative need to create a single agency out of a number of existing Federal programs and the political urgency of vigorous enforcement against polluters pointed to retaining specific control programs, an organizational decision with results that persist today.

EPA's role as a guardian of environmental quality includes both determiningg regulatory guidelines and enforcing compliance with the regulations, known as the ''command and control' approach. The Agency initially monitored the air and water contamination by a small number of pollutants, but as the health effects of chemicals in the environment became better understood, Congress passed laws requiring EPA to regulate more organic and inorganic pollutants, in soil, water, and air (see table 2-1 again). In addition, the 1972 Clean Water Act authorized EPA to make wastewater treatment grants to finance local plant construction.

Today the Agency administers 10 major laws, including the Clean Water Act, the Safe Drinking Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, and the National Environmental Policy Act, and the environmental provisions of a number of other statutes. EPA's regulatory actions follow directly from the many laws it must enforce (with sometimes inconsistent results). Air quality standards, for example, are established by the need for protecting public health; Clean Water Act guidelines are linked to the technology capable of removing trace contaminants from wastewater.[31] EPA's divisions include Water, Air and Radiation, Solid Waste and Emergency Response, and Pesticides and Toxic Substances, each monitoring pollution control efforts in air, water, or soil. Although the divisions are not autonomous, their programs and activities are highly compartmentalized. Little effective coordination occurs between divisions,[32] despite a statement in EPA's fiscal year 1990 budget book that the Agency's interdisciplinary R&D program cuts across programmatic lines to consider environmental problems affecting several media.

Debate about EPA continues as a move to elevate it to Cabinet status gathers steam. As far back as 1970, proponents of a reorganization plan had argued that for the effective control of pollution, ". . . the environment must be perceived as a single, interrelated system. '[33] But Congress never passed a law giving EPA statutory authority to view the environment as a whole, and recent administrators point out that each division devotes itself to removing toxic chemicals from a single medium, diminishing the Agency's effectiveness enormously. "The single medium approach is setup like concrete in the practical day-to-day administrative operations of EPA. . . . We have to accept the fact that this general environmental strategy may be flawed."[34] Pollutants migrate from air to water and from water to soil or follow any number of other routes among the separate media. Municipal wastewater treatment plants generate air pollution as well as create sludge contaminated with toxic chemicals, and the cross-media impacts pose often serious compliance problems for municipal public works officials.

Studies released by the Agency in 1987 and in September 1990 assert that EPA is not adequately concentrating on problems of long-term threats to

[30] Council on Environmental Quality, *Environmental Quality, The 16th Annual* Report of the Council on Environmental Quality (Washington DC: 1985).

[31] James Q. Wilson (ed.), *The Politics of Regulation (New* York, NY: Basic Books, Inc., 1980), p. 277.

[32] Lee M. Thomas, "Systems Approach: Challenge for EPA," *EPA Journal,* September 1985, p. 22.

[33] House Committee on Government Operations, op. cit., footnote 29.

[34] Thomas, op. cit., footnote 32, p. 21.

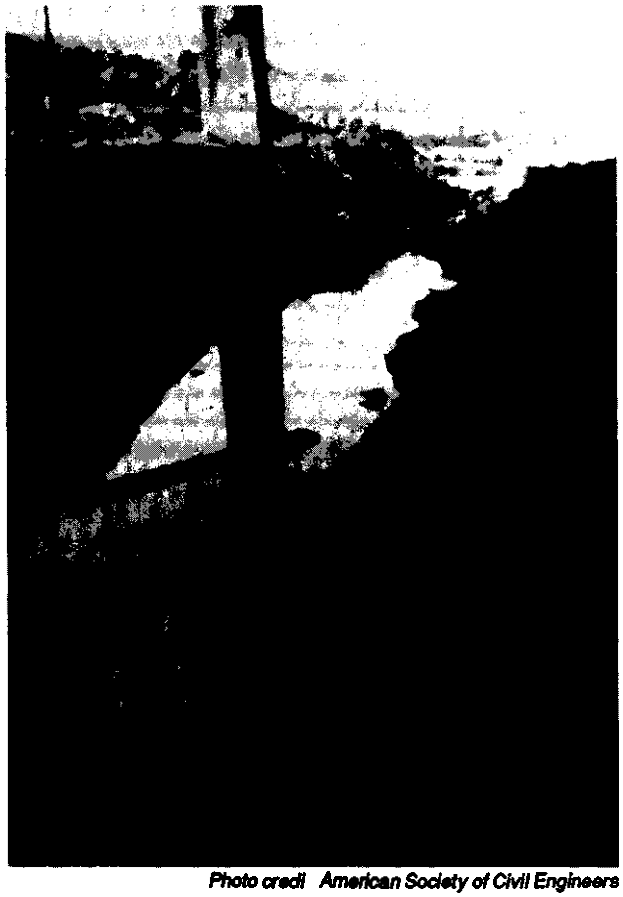

Photo credi American Society of Civil Engineers

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The National Envıronmen Policy Ac (NEPA ena ted ın 969 requıre Federal agen ıe to on sider the environmental consequences of their actions, and Federal agencies must file an environmental impact statement with EPA before approving major projects. NEPA has had significant impact on DOT's operations,[37] and Clean Air Act Amendments of 1990 increase the requirements for environmental sensitivity in DOT programs.

Bureau of Reclamation

Federal reclamation activities were established by Congress in 1902 as part of the U.S. Geological Survey in the Department of the Interior to turn large, arid Western States into rich farmlands through large irrigation projects. The Reclamation Service was renamed the Bureau of Reclamation in 1923, and by the 1930s, as expertise was gained from a number of irrigation dam projects, the agency began supplying municipal water. Eventually the Bureau's tasks came to include hydroelectric power, flood control, municipal and industrial water supply, recreational uses of lakes and rivers, and fish and wildlife conservation. The agency's golden age came during the Roosevelt Administration,[38] when huge river basin projects, combining irrigation, water supply, hydroelectric power generation, and flood control were conceived and built. The Bureau's largest projects—Hoover and Grand Coulee dams-required solutions to complex engineering problems (a steady water flow for navigation and power production, periodic and seasonal water releases for both irrigation and flood control) and established world records.

As the number, size, and geographical reach of the Bureau's water projects increased, so did their environmental impact, and criticism grew on the basis of safety, doubtful economic benefits, destruction of historic and scenic areas, and harm to fish and wildlife habitats. Conservationists began to work actively against project authorizations, succeeding for the first time in 1956 with the prevention of Echo

[35]U.S. Environmental Protection Agency, *Unfinished Business: A Comparative Assessment of Environmental Problems* (Washington, DC: 1987); and U.S. Environmental Protection Agency, Science Advisory Board, *Reducing Risks: Setting Priorities and Strategies for Environmental Protection* (Washington, *DC:* September 1990).

[36]Science Advisory Board, op. Cit., footnote 35.

[37]Martin Convisser, "Transportation and the Environment," *Current Issues in Transportation Policy,* Alan Altshuler (cd.) (Lexington, MA: Lexington BooIs, 1979).

[38]Michael C. Robinson, *Water for the West: The Bureau of Reclamation, 1902-1977* (Chicago, IL: Public Works Historical &X2@, 1979).

Park Dam.[39] Similar activism blocked construction of two dams in the Grand Canyon section of the Colorado River in the 1960s.[40] Congress responded by requiring consideration of water quality, wildlife and endangered species protection in project planning, and the filing of environmental impact statements. Nonetheless, recent assessments have shown groundwater degradation and surface water pollution from fertilizers and pesticides as byproducts of Bureau projects,[41] problems that can affect drinking water quality and complicate the tasks of State and local public works officials.

Recognizing that the Bureau had met its original objectives of harnessing the major rivers of the West to meet water demands, its officials undertook an internal assessment culminating in 1987 with a radical reordering of priorities.[42] Henceforth, water conservation, environmental protection and restoration, and improving system reliability and project optimization would take precedence over construction of large water projects. Future activities would be smaller in scale or designed to obtain maximum efficiency from existing projects and involve non-Federal partners. The new mission includes managing resources, promoting water conservation, removing legal and institutional barriers to water conservation, and creating more usable water supplies from existing projects. Still under way are two major water projects—the Central Arizona and the Central Utah-which will absorb a major portion of the Bureau's budget in the coming years. But beginning in the mid-1990s, the Bureau's task will increasingly be operations and maintenance of existing projects, with possible transfer of these responsibilities to local beneficiaries.

Department of the Treasury

As the executive agency that formulates tax policy, including rules for tax-exempt municipal bonds, the Department of the Treasury has a major influence on the availability of private capital for local public works projects. Treasury's Office of Tax Policy prepares tax legislation to support executive branch fiscal goals and protect Federal revenues. To reduce Federal revenue losses attributable to tax-exempt bonds, Congress passed Treasury-sponsored legislation, as part of the 1986 and 1988 Tax Reform Acts, to tighten eligibility and reporting requirements for tax-exempt financing and restrict opportunities for arbitrage.[43] Passage of the acts undercut efforts by other executive branch agencies to shift public works financing from Washington to State and local governments. However, OTA could find no evidence of communication over probable impacts on transportation or environmental public works investment between the tax lawyers at Treasury and program administrators at DOT and EPA, or between congressional tax-writing committees and those with jurisdiction for public works.

The immediate impact of the tax code changes was a dramatic drop in tax-exempt financing for private purpose projects such as civic centers and parking garages and a reduction in local use of arbitrage. Traditional governmental-purpose, municipal bond sales for water treatment plants and street improvements have returned to their pre-1986 levels after an initial drop,[44] indicating that results of the tax code changes were not as disastrous to traditional public works financing as local officials had at first feared.

Office of Management and Budget

Through its responsibility for preparing the President's budget and its oversight and review of the organization and operations of executive branch departments and agencies, OMB wields enormous influence over the Federal role in public works. Specifically, the office has authority to negotiate with departments over their budgets, to review proposals that Cabinet departments and agencies want included in the President legislative package, and to enforce spending cuts agreed to in the 1990 deficit reduction package.

OMB in recent years has played a major role in advocating governmental policies and in restraining

[39] Ibid., p. 93.

[40] William Warne, *The Bureau of Reclamation* (Boulder, CO: Westview Encore Reprint, 1985), p. 99.

[41] Mosher, op. cit., footnote 25, p. 45.

[42] Bureau of Reclamation, op. cit., footnote 3.

[43] The term arbitrage refers to the practice of investing bond issue proceeds, until they are needed, in securities with interest rates higher than the bond issue.

[44] Government Finance Research Center, "Federal Tax Policy and Infrastructure Financing," OTA contractor report, Sept. 13, 1989, p. ~-4.

Federal spending. In addition to recommending Federal Program cuts in most areas, OMB has gained virtual veto power over regulations. In 1981, President Reagan issued Executive Order 12291 that required departments to prepare cost/benefit analyses for all proposed Federal regulations and that they be submitted to OMB for review and approval. OMB's hand was further strengthened in 1985 by Executive Order 12498 requiring agencies to submit a calendar of significant regulatory actions they planned to take during the following year, thereby giving OMB more time to shape the development of regulations.[45]

OMB can refuse to consider or accept legislative proposals and departmental policies that do not conform with the Chief Executive's fiscal or policy priorities. Although DOT has a Cabinet officer to advocate its budget and programs, OMB's perspective stimulated modifications in the Federal financing recommendations in the department's long-range policy plan, *Moving America.*[46] As a regulatory agency lacking Cabinet representation, EPA is even more subject to OMB influence.

The Courts

During the last three decades, the Federal judiciary has heard thousands of administrative law cases dealing with the environment and issued a multitude of rulings affecting national health and environmental policies. This judicial activism has affected how Congress drafts legislation, the manner in which department rules are written, and the way the Federal bureaucracy functions. The threads of environmental policy are contained innumerous Federal statutes, rules, and the multitude of orders and rulings of Federal and State judges, making program administration and coordination difficult. EPA, as a regulatory agency, is profoundly affected by court activism,[47] but judicial rulings have an impact on DOT, BuRec, and the Corps, too.

While judicial oversight offers vital legal protections and opportunities for interest groups to be heard, it also lengthens and further fragments the policymaking process and complicates enforcement. Between 1%8 and 1978, Congress passed more regulatory statutes than it had in the Nation's previous 179 years. EPA was established specifically to administer the environmental laws.[48] These laws included the NEPA, the Consumer Product Safety Act, the Occupational Safety and Health Act, and a number of the environmental protection laws (see table 2-1 again). This wave of legislation, aimed at protecting the environment and shielding citizens from the risks of all kinds of pollutants, brought the courts into abroad and contentious arena characterized by scientific uncertainty and conflicting values.

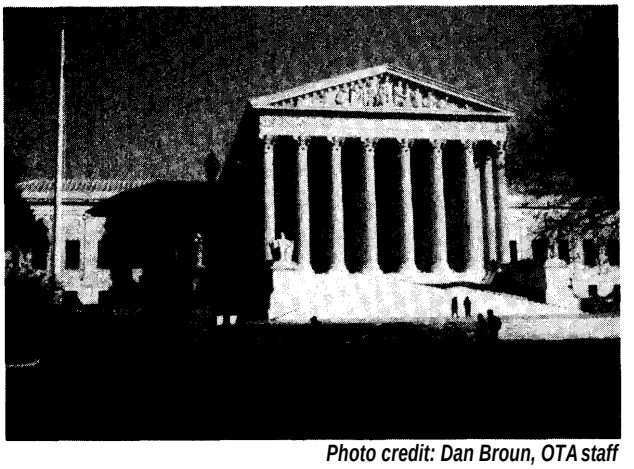

Photo credit: Dan Broun, OTA staff

Court rulings have become an almost inescapable part of the Federal regulatory and enforcement processes.

In most regulatory laws passed in the 1970s, Congress authorized citizens to file suit against administrators either for taking unauthorized action or for failing to perform "nondiscretionary' duties, so as to protect against bureaucratic foot-dragging and industry control.[49] This liberalization of 'standing," or who could sue, gave environmental and other interest groups new power and guaranteed court intervention. Moreover, the regulations gave the courts oversight of a wide range of activities. Statutes stipulated that every highway project using Federal funds must include a detailed environmental impact study; public facilities were mandated to

[45] Norman J. Vig and Michael E. Kraft, *Environmental Policy in the 1990s (Washington DC: Congressional* Quarterly, Inc., 1990), p. 42.

[46] Alyson Pytte, "Bush Transportation Policy Is Non-Starter in Congress," *Congressional Quarterly,* Mar. 10, 1990, p. 746; and David Broder, "Skinner's Moving America: A Cop-Out," *The Chicago Tribune,* Perspective section, Mar. 11, 1990, p.3.

[47] Over 80 percent of the 300 regulations the Environmental Protection Agency issues annually wind up in the courts. See Rochelle L. Stanfield, "Resolving Disputes," *National Journal, vol.* 18, No. 46, Nov. 15, 1986, p. 2764.

[48] R. Shep Melnick, *Regulations and the Courts (Washington DC: The* Brookings Institution, 1983), P. 5.

[49] Ibid., p. *8.*

provide access to disabled persons; and every business and facility that produced air pollution, wastewater, and solid waste was regulated to some extent. To counter criticism that it failed to provide enough guidance, Congress wrote detailed statutes requiring specific standards, procedures, and deadlines-creating fertile ground for potential litigants.

Impact of Court Activism

The expanding role of the courts has reduced the discretion of program administrators, lengthened the rulemaking process, expanded the scope of many regulations, and widened the gap between stated program goals and enforcement. Following the congressional lead, agency lawyers have learned to craft very specific regulations". . . for litigation and political reasons, [which] say what they must in order to satisfy those concerns. ' '[50] However, such specificity deprives Federal agencies of management latitude; the deadlines written into the Clean Water Act, for example, give EPA officials no flexibility to work with communities that have special compliance or fiscal problems.

Judges, removed from the daily operation of administrative agencies and exposed to a variety of scientific advice, often have difficulty adjudicating the complexity and ramifications of specific issues. In response to legislation and court rulings, particularly at the appellate level, agencies have expanded regulatory programs beyond the limits contemplated by administrators and scientific experts and seemingly without regard for the costs and the feasibility of enforcement. Setting standards has turned out to be easier than administering and financing an effective enforcement program, such as recent drinking water regulations that require local testing for 83 contaminants, many of which occur in amounts too small to measure. The result is a widening gap between program requirements and what agencies can reasonably expect to accomplish, a difficulty compounded by shrinking budgets for administration and implementation. Adjusted for inflation, EPA's operating budget has increased from only $1.4 billion in 1975 to $1.5 billion in 1990,[51] but its program responsibilities have burgeoned.

Court intervention has multiplied the time and money required to prepare regulations. Agencies that face frequent court challenges become risk sensitive and institute complex, time-consuming rulemaking procedures, diverting resources from research and enforcement. Furthermore, when opposing groups are focused on creating a record for litigation, negotiations are difficult. Although agencies pursue informal, negotiated rulemaking on those rules amenable to negotiation, and some disputes are settled out of court, the likelihood of litigation is a deterrent to negotiating hard issues.

Congress

Almost one-half of the 303 committees and subcommittees of the 10lst Congress claimed jurisdiction over some aspect of public works, inhibiting development of coordinated public policy and ensuring continuing Federal program gaps and conflicts for State and local governments. (See table 2-3 for a list of committees.) This fragmentation has characterized the long history of Federal involvement in public works. It continues because transportation and environmental infrastructure underpin and affect a wide range of activities essential to the economy and public health of every district. Furthermore, congressional history shows that, in most cases, Congress has chosen to decentralize and spread decisionmaking, rather than to consolidate and coordinate the Federal legislative process.

Evolution of the Committee System

Originally established in 1789 on an ad hoc basis to draft specific legislation, congressional committees have evolved into permanent bodies with authority to propose legislation, an independence that has given committees almost unassailable power over legislation in their specialized areas.[52] During the 19th century, standing committees proliferated, gaining more independence from chamber and party control and acquiring most of their present day powers; by 1913, the House operated with 61 standing committees and the Senate with 74. Committee chairs wielded enormous power after the "House revolution of 1910" decentralized leadership, limiting the role of the Speaker by establishing

[50] James Q. Wilson, *Bureaucracy (New York, NY:* Basic Books, 1989), p. 285.

[51] Vig and Kraft, op. cit., footnote 45, p. 19.

[52] Judy Schneider, updated by Carol Hardy, The *Congressional Standing Committee System—An Introductory Guide* (Washington, w: Congressional Research Service, May 1989), p. 2.

Table 2-3-Partial List of Congressional Committees With Jurisdiction Over Public Works

	Jurisdiction over environmental legislation	Jurisdiction over transportation legislation
House committees:		
Agriculture Subcommittee on Conservation, Credit, and Rural Development	X	X
Appropriations Subcommittees:		
Energy and Water Development	X	X
VA, HUD, and Independent Agencies	X	X
interior	X	—
Rural Development, Agriculture, and Related Agencies	X	X
Transportation	X	X
Banking, Finance, and Urban Affairs Subcommittees:		
Housing and Community Development	X	X
General Oversight and investigations	X	—
Policy Research and Insurance	X	X
Economic Stabilization	X	
Budget Committee	X	X
Energy and Commerce Subcommittees:		
Energy and Power	X	—
Health and the Environment	X	—
Oversight and Investigations	X	X
Transportation and Hazardous Materials	X	X
Foreign Affairs Subcommittee on Western Hemisphere Affairs	X	—
Government Operations Subcommittees:		
Environment, Energy, and Natural Resources	X	X
Government Activities and Transportation	X	X
Government Information, Justice, and Agriculture	X	.
Interior and Insular Affairs Subcommittees:		
Energy and the Environment	X	—
General Oversight and Investigations	X	—
Water, Power, and Offshore Energy Resources	X	—
Merchant Marine and Fisheries Subcommittees:		
Coast Guard and Navigation	X	X
Fisheries and Wildlife Conservation and the Environment	X	—
Oceanography and Great Lakes	X	—
Public Works and Transportation Subcommittees:		
Economic Development	X	X
Water Resources	X	X
investigations and Oversight	X	X
Aviation	—	X
Surface Transportation	—	X
Science, Space and Technology Subcommittees:		
Natural Resources, Agriculture Research, and Environment	X	—
Science, Research, and Technology	X	X
investigations and Oversight	X	X
Transportation, Aviation, and Materials	—	X
Senate committees:		
Agriculture, Nutrition, and Forestry Subcommittees:		
Agricultural Credit	X	—
Rural Development and Rural Electrification	.	X
Appropriations Subcommittees:		
Agriculture and Related Agencies	X	X
Energy and Water Development	X	X
Transportation	—	X
VA, HUD, and Independent Agencies	X	X
Interior	X	X
Banking, Housing, and Urban Affairs Subcommittee on Housing and Urban Affairs	X	X
Budget Committee	X	X
Commerce, Science and Transportation Subcommittees:		
Aviation	—	X
Merchant Marine	—	X
Science, Technology, and Space	X	X
National Ocean Policy Study	X	—
Surface Transportation	—	X

(Continued on next page)

Table 2-3-Partial List of Congressional Committees With Jurisdiction Over Public Works-Continued

	Jurisdiction over environmental legislation	Jurisdiction over transportation legislation
Energy and Natural Resources Subcommittees:		
Energy Regulation and Conservation	x	—
Energy Research and Development	x	—
Water and Power	x	—
Environment and Public Works Subcommittees:		
Water Resources, Transportation, and Infrastructure	x	x
Environmental Protection	x	—
Superfund, Ocean, and Water Protection	x	—
Toxic Substances, Environmental Oversight, Research and Development	x	—
Foreign Relations Subcommittee on International Economic Policy, Trade, Oceans, and Environment	x	—
Government Affairs Subcommittee on Oversight of Government Management	x	—

SOURCE: Office of Technology Assessment, 1991, based on material from *Congressional* Yellow Book (Washington, DC: Monitoring Publishing Co., fall 1989).

seniority as the major criteria for determining committee chairmanship and moving up in the ranks.[53]

Largely because the decentralized committee system hampered efficient policy development during World War II, Congress eliminated minor committees and merged many with related functions under the Legislative Reorganization Act of 1946. The act defined for the frost time the jurisdictions of each committee and established uniform procedures, including hiring of permanent committee staff. These committee jurisdictions, as they have been modified since 1946, are part of House rule X and Senate rule XXV.

Responding to the upsurge of socioeconomic, environmental, and foreign policy issues in the 1960s and 1970s, Congress gradually expanded the power of committees and their chairs and created a number of specialized subcommittees. The Legislative Reorganization Act of 1970 opened committee work sessions to the public, permitted committee chairs selection based on factors other than seniority, authorized subcommittees to hire separate staffs, and set the stage for further organizational reforms (see box 2-E).

Congress' internal party organizations in each house assign members to committees, considering their preferences, party needs, and the geographical and ideological balance of each committee. In the 10lst Congress, the Senate had 16 standing committees and 87 subcommittees; the House operated with ***22*** committees and 146 subcommittees.[54] The average Senate committee had five subcommittees, compared with seven in the House. Every House member, except top party leaders, served on at least one standing committee, and Senators served on at least two committees.

Committee Functions

Committees propose and review legislation, including bills to raise and spend public funds. Most bills are referred by the House or Senate leadership, in cooperation with the Parliamentarian, to one standing committee, but the complexity of public policy issues means that major bills are often sent to multiple committees with overlapping jurisdictions. Individual committee rules determine a bill's subcommittee assignments, which also can overlap. See table 2-4 for those committees with important legislative jurisdiction over public works.

Committees and subcommittees are also responsible for overseeing Federal agencies and programs under their jurisdiction. As part of oversight activities, agency officials are called to Capitol Hill to testify. EPA and DOT officials annually testify before numerous committees, each with a unique perspective and objective.

Authorizations and Appropriations

Authorizing committees in both houses report annual or multi-year authorization bills for Federal programs under their jurisdiction, thereby setting the maximum amount of money an agency may spend

[53] Ibid., p. 3.

[54] In addition, the 101st Congress has 9 *special* or select committees with 11 subcommittees and 4 joint committees with 8 subcommittees whose functions are primarily investigative.

Box 2-E—Anatomy of Recent Congressional Reforms

The most recent broad changes in House committee jurisdiction and procedures occurred in 1974, under the auspices of the House Select Committee on Committees, The committee's preliminary proposal called for cutting into the broad jurisdictions of Ways and Means, Commerce, and Education and Labor, while adding to the jurisdictions of Foreign Affairs, Public Works, Science and Astronautics, and for eliminating several narrow-purpose committees. The proposal also suggested a mechanism for referral of bills to multiple committees. The recommendatiom drew immediate fire from committee members, staff, and interest groups, who saw years of accumulated seniority or political connections threatened by committee dissolution or jurisdictional reduction. Responding to this pressure, the House chose not to eliminate any committees but required committees with 20 members or more to form subcommittees; it retained provisions for multiple referrals and for increased committee staffs.[1] Power, particularly in the House, shifted from full committees to subcommittees.

A year later, additional reform measures were adopted, primarily reducing the power of committee chairs. Election of Appropriations subcommittee chairs was shifted from the committee to the party caucus, an acknowledgment of their status as tantamount to full committee chairs.[2] In 1977 and 1979, the House rejected further attempts to reform committee organization, such as the consolidation of energy jurisdictions into one committee, although the jurisdiction of the Committee on Interstate and Foreign Commerce was broadened and it was renamed Energy and Commerce.

Senate committee reorganization has been somewhat more successful. In 1977, the Temporary Select Committee to Study the Senate Committee System recommended a reduction to 12 standing committees organized along functional lines. The proposal Called for anew Energy and Natural Resources Committee, consolidating most energy-related functions. Although the proposals required substantive committee restructuring and dissolution of several committees, the reorganization plan was carefully orchestrated by Senate bipartisan leadership and passed--with compromise amendments-by an overwhelming margin.[3]

Political muscle blocked several key consolidations, however. A recommendation to shift jurisdiction over the coastal zone management program from the Commerce Committee to the new Committee on Environment and Public Works was eventually rejected by the Rules Committee after strenuous objections by Commerce; jurisdiction over oceans, weather, and atmosphere was also retained by Commerce.[4] In addition, special interest groups lobbied sucessfully to preserve the Veterans' and Select Small Business committees and stopped plans to consolidate transportation legislation into one committee.[5] This 1977 realignment has not been changed.

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[1] Steven S. Smith and Christopher J. Deering, *Committees in* Congress (Washington, DC: Congressional Quarterly, Inc. 1984), p. 46.

[2] Ibid., p. 47.

[3] Ibid., p. 49.

[4] Congressional Quarterly, Inc., *How* Congress *Works* (Washington, DC: 1983), p, *84.*

[5] Ibid., p. 99.

on a specific program. The exceptions are entitlement programs, such as social security and Medicaid, which operate under permanent authorization and are effectively removed from the authorizing process. Authorizations are also linked to a budget resolution, prepared by House and Senate committees on the budget, establishing an overall ceiling and limits for major spending areas, like health or transportation. Authorizing, or legislative, committees and subcommittees are influential through their oversight functions when major new legislation is first passed, when an agency is created or its program substantially modified, and in setting funding authorizations. During the 1980s, deficit reduction laws and trends restricting spending, shortcomings in the budget process, and new programs greatly expanded the roles of the "money" committees-Appropriations, Budget, and Ways and Means on the House side and Appropriations, Budget, and Finance in the Senate-at the expense of authorizing committees.

Appropriation bills originate with the House Committee on Appropriations and its 13 subcommittees and effectively control spending, since authorized funds may not be spent unless they are also appropriated. EPA's State Revolving Loan Funds are authorized at much higher levels than have been appropriated, for example. Although, in theory, program policy and oversight is reserved for

Table 2-4-Congressional Committees and Their Roles in Public Works Programs

[Ap = appropriations, Au = authorizes major program areas, a = authorizes specific programs, b = sets funding guidelines, o = oversight of programs, t = jurisdiction over funding sources such as trust funds]

	Highways	Mass transit	Aviation	Railroads	Water resources	Drinking water	Wastewater	Solid and hazardous waste
Senate committees:	a/o	a/o	a/o	a/o	a/o	a/o	a/o	a/o
Agriculture								
Appropriations	Ap/o	Ap/o	Ap/o	Ap/o	Ap/o	Ap/o	Ap/o	Ap/o
Banking, Housing, Urban Affairs	—	Au/o			—	—	—	—
Budget	b/o	b/o	b/o	b/o	b/o	b/o	b/o	b/o
Commerce, Science and Transportation	Au/o	Au/o	Au/o		Au/o	—	—	—
Energy and Natural Resources	—	—			—	a/o	a/o	a/o
Environment and Public Works	Au/o	—	Au/o	Au/o	Au/o	Au/o	Au/o	Au/o
Finance	t/o	t/o	t/o	—	t/o	—	—	—
Governmental Affairs	o	o	o	o	o	o	o	o
House committees:								
Agriculture			a/o	a/o	—	a/o	a/o	a/o
Appropriations	+:0	Ap/o	Ap/o	Ap/o	Ap/o	Ap/o	Ap/o	Ap/o
Banking		a/o	—	—	a/o	a/o	a/o	a/o
Budget	b/o	b/o	b/o	b/o	b/o	b/o	b/o	b/o
Energy and Commerce	a/o	a/o	—	Au/o	S/o	Au/o	a/o	Au/o
Governmental Operations	o	o	o	o		o	o	o
Interior			—	—	A/o	—	—	—
Public Works and Transportation	Au/o	Au/o	Au/o		Au/o	Au/o	Au/o	a/o
Science, Space and Technology	a/o	a/o	Au/o		a/o	Au/o	Au/o	Au/o
Ways and Means	t/o	t/o	t/o	—	t/o	—	—	—
Joint Economic Committee	0	0	o	o	0	0	o	o

SOURCE: Office of Technology Assessment, 1991.

authorizing committees, appropriations committees, **which** have parallel subcommittees, frequently insert legislative provisions and funding for special projects into bills. Members, responding to district and constituent interests, direct appropriations to public works such as flood control dams, parking **garages,** and airport or mass transit facilities. The environmentally controversial Tennessee-Tombigbee Waterway in Alabama and Mississippi, built during the early 1980s with Federal funds, was financed in part with appropriations added by the House Appropriations Subcommittee on Energy and Water Development.[55] The appropriations committees' control over spending and tendency to add to previously authorized legislation creates tensions and intensifies intercommittee rivalries, particularly in the House where **a** smaller proportion of members serve on the Committee on Appropriations.

Jurisdictional Fragmentation

In Congress, jurisdiction or turf can mean additional staff, publicity, and power, prompting committees to seek broad jurisdictions and resist moves to narrow them, and perpetuating conflicts and overlaps. Transportation and environmental issues are particularly susceptible to fragmentation and competition because, while they cut a broad swath across national life, the concept of system integra**tion** is relatively new. Historically, each segment developed independently based on different goals **and** objectives and established supportive committee connections and constituencies that are hard to alter. For example, at least five House authorizing committees have responsibility for water pollution policy, regulation, and support programs, while authority over transportation is spread among three Senate committees and numerous subcommittees (see table 2-4 again). In addition, House and Senate appropriations, budget, and governmental operations committees have broad authority over most governmental programs.

Because of jurisdictional fragmentation and competition, committees have difficulty dealing comprehensively with either transportation or the environment, much less treating them as interrelated systems. Policy and funding levels are set separately for highways, aviation, mass transit, ports and waterways, and railroads and applied to each environmental medium, i.e., drinking water, wastewater, air, and solid waste (see table 2-5). Carefully targeted lobbying by special interest groups reinforces this pattern. Furthermore, executive branch bureaucracies that have grown up with each mode or medium fiercely protect their independent power. Congress has not found a good legislative mechanism to buck traditional allegiances and promote needed linkages, both physical and institutional, among rail, highway, and water transport, and lacks incentive **to fund** research, planning, or demonstrations for intermodal operations.

Overlapping committee jurisdictions can slow and even stall policy development and send mixed signals to the executive branch and lower levels of government. In 1989, EPA officials testified at 150 committee hearings and responded to 5,000 committee inquiries, enabling executive agencies to play one committee off against the other and in many cases maintain an independent path. Committees that try to develop comprehensive public works policies are frustrated by the vested interests of their sister committees, executive branch agencies, and powerful industry lobbying.

Interest Groups

Interest groups play major roles in the formulation of Federal public works funding and regulatory policy. Of an estimated 6,000 public and special interest groups active in Washington, at least one-third probably have a stake in some aspect of the diffuse public works activities[56] They employ technical experts and lawyers to press their cases to Congress, testifying at hearings, providing privileged information, drafting model legislation, publishing and distributing reports,[57] and meeting with congressional members and staff. Political Action Committees (PACs), the political arm of private interest groups, make campaign contributions. The number of interest groups increased dramatically during the 1970s and 1980s, at least in part because of the expansion of congressional subcommittees, which provided more opportunities for lobbying,

[55] Diane Granat, "Special Report: House Appropriations Committee," *Congressional Quarterly,* June 18, 1983, p. 1216.

[56] Deborah M. Burek et al. (eds.), *Encyclopedia of Associations,* vol. 2 (Detroit, MI: Gale Research, Inc., 1989).

[57] At least six national interest groups, including the American Association of State Highway and Transportation Officials, the American Public Transit Association and the American Transportation Advisory Council, have published policy plans for transportation in preparation for the renewal of the Surface Transportation Act in 1991.

Table 2-5-Number of Committees With Jurisdiction Over Public Works

Functions	Number of committees
Highways	16
Mass transit	15
Aviation	14
Railroads	10
Water resources	16
Drinking water	14
Wastewater	14
Solid hazardous waste	14

SOURCE: Office Office of Technology Assessment 1991.

and greater public participation in executive agency rulemaking.

An established, well-financed interest group can be very effective in presenting its case to Congress. However, the diverging points of view represented by interest groups concerned with public works divert policymakers from long-range, comprehensive governance issues and reinforce the existing policy framework. Executive agencies like EPA and DOT have become accustomed to the tenacious oversight of interest groups and to their active participation in rulemaking hearings-and to the lawsuits that ensue when interest groups are dissatisfied with Federal legislation or agency regulations.

Industry and Labor

The most numerous interest groups are industry and labor associations, representing public works equipment manufacturers, builders and contractors, facility owners and managers, professional and employee groups, suppliers, and users. (See table 2-6 for a partial listing.) In addition, a growing number of corporations employ their own lobbyists.

Industry clearly has an enormous stake in Federal public works spending and regulatory policies. At the most basic level, industry relies on public works systems for essential facilities (water supply and sewer service), and for transportation (highways, transit, airports, railroads, ports, and waterways) of workers and materials and the distribution of goods and services. International competitive position and

Table 2-6--A Selection of Major Industry Interest Groups

Highways	*Railroads*	*Mass transportation*
American Association of State Highway and Transportation Officials	Association of American Railroads	American Public Transit Association
Highway Users Federation	American Short Line Railroad Association	United Bus Operators of America
American Trucking Association	Regional Railroads of America	American Bus Association
National Private Truck Council	United Transportation Union	Amalgamated Transit Union
American Road and Transportation Builders Association		international Brotherhood of Teamsters, Chauffers, Warehousemen, and Helpers of America
international Bridge, Tunnel, and Turnpike Association		international Mass Transit Association
international Brotherhood of Teamsters, Chauffers, Warehousemen, and Helpers of America		

Airports	*Ports and waterways*	*Drinking water*
American Association of Airport Executives	American Association of Port Authorities	American Water Works Association
Airport Operators Council international, Inc.	American Waterway Operators	American Public Works Association
National Association of State Aviation Officials	National Waterway Conference	American Society of Civil Engineers
Air Transport Association of America	American Bureau of Shipping	Association of State Drinking Water Administrators
Aircraft Owners and Pilots Association	Inland Rivers, Ports, and Terminals	Association of Metropolitan Water Agencies
National Business Aircraft Association	Propeller Club of the U.S.	American Academy of Environmental Engineers
Air Line Pilots Association	Rivers and Harbors Congress	American Clean Water Association
Allied Pilots Association	international Longshoremen's Association	Water and Wastewater Equipment Manufacturers Association
National Association of Air Traffic Specialists		

Wastewater treatment	*Solid waste*
Water Pollution Control Federation	National Solid Wastes Management Association
American Public Works Association	Association of State and Territorial Solid Waste Management Officials
Association of State and interstate Water Pollution Control Administrators	Governmental Refuse Collection and Disposal Association
Association of Metropolitan Sewerage Agencies	American Recycling Association

SOURCE: Office of Technology Assessment, 1991.

profit levels are tied to manufacturing and distribution speed, efficiency, and flexibility, all of which are dependent on high levels of infrastructure services. Second, the construction of roads, bridges, sewer treatment plants, and other public works facilities, and the manufacture of construction and operating equipment, are pivotal segments of the national economy, employing millions and generating contracts worth billions of dollars. Finally, Federal safety and environmental regulations have profound impacts on industry operations and profits.

Associations less frequently initiate action than work to influence and shape prospective governmental policy changes. Although their positions vary on specific issues, their representatives uniformly work to increase benefits to their own industries and to minimize the impacts of Federal actions on their members. Trucking groups, for example, support increases in truck size and weight limits as a trade-off for fuel tax hikes, and contractors opposed the 1986 Tax Reform Act because they feared it would curb construction of quasi-public projects like parking garages and civic centers. Some accommodation must be reached between opposing industry and user groups if major legislation is to pass. Thus, while many industries engage in and benefit from intermodal transportation, only a handful support intermodal improvements.

Public Interest Groups

Special public interest groups are fewer in number and organize around issues rather than an industry. While some are long established, like the National Wildlife Federation or the Sierra Club, others rose out of the political ferment of the 1960s. Groups like the Environmental Defense Fund and Center for Auto Safety focus on public welfare issues such as environmental protection and motor vehicle safety. (See table 2-7 for examples of these groups.) They are vigorous and often effective advocates for increased Federal support for environmental and safety programs and for enforcement of antipollution and public health regulations, positions that often put them at odds with industry groups.

Governmental Interest Groups

State and local governmental organizations, like the National Governors' Association, the National League of Cities, the National Association of Towns and Townships, and the National Conference of State Legislators, forma small but influential group on Capitol Hill. Busy with their own agendas, they are often less assertive than industry in pressing their views in Congress. However, recently they have argued effectively for changes to the 1986 Federal tax law and for grant and regulatory flexibility. These groups have a major common concern: the impact on State and local governments of unfunded Federal mandates coupled with rising social service responsibilities and costly infrastructure needs.

Table 2-7-Selected Public Interest Groups Concerned With Public Works

Airline Passengers Association of America
Aviation Consumer Action Project
Center for Study of Responsive Law
Center for Auto Safety
Center for Concerned Engineering
Citizens for Reliable and Safe Highways
Environmental Defense Fund
Environmental Policy Institute
Environmental Action
National Association of Rail Passengers
National Audubon Society
National Wildlife Federation
Natural Resources Defense Council
Nature Conservancy
Professional Drivers Council for Safety and Health
Sierra Club

SOURCE: Office of Technology Assessment, 1991.

The State Role

Although for much of this century, the State role was limited to financing and constructing roads and highways, the States have assumed both greater programmatic and technical leadership and more financial responsibility for public works in recent years. To encourage economic development and compensate for Federal program cutbacks, States have invested heavily in transportation-funding about 50 percent of highway needs and, in many cases, transit, air, rail, ports, and harbors as well. As required by Federal legislative and regulatory actions, all States have expanded their participation in drinking water and wastewater treatment programs, and some have assumed a role in addressing solid waste disposal problems.

At present, State governments administer a variety of State funded and Federal-aid programs for public works and enforce a myriad of Federal and State regulations; many offer substantial financial and technical assistance programs as well (see chapters 3 and 4 for further details). In fact, many State officials and some experts contend that during the 1990s, institutional and financial innovations are

more likely to be found at the State and local level than in the Federal Government.[58]

States and Public Works Financing

In general, States have increased their fiscal autonomy, generating revenues for expanded programs by broadening general tax bases and increasing benefit and user fees. (Table 2-8 shows the major financing mechanisms.) Furthermore, States have learned how to negotiate public-private partnerships, and most have aggressive economic development programs. They have adopted new financing and management mechanisms, such as State revolving loan funds that leverage seed capital to multiply funds for financing environmental public works, to deal with increasingly complex public service issues. Most States now operate under the guidance of 5-to 6-year capital improvement programs that rank and schedule expenditures for major projects. Backed by well-researched data and with carefully constructed public information programs, States like New York and Iowa have won voter support for long-term transportation improvement plans tied to targeted tax increases. Some States are helping localities to finance public works improvement programs with carefully selected packages of State fees and taxes.[59] Box 2-F describes New Jersey's assistance programs.

However, each State's financial status and fiscal strategies differ, shaped by its unique geographic, political, and economic characteristics (see chapter 1, table 1-10 for a fiscal summary of the 50 States). Large, rural States and others dependent on agriculture or mining did not share the economic expansion of the second half of the 1980s. Their ability to pay for public investments-a capability grounded in economic factors such as per capita income, industrial production, and retail sales-is low, and these States rely on Federal assistance programs. States most dependent on Federal aid for transportation and environmental public works programs are shown in figures 2-1 and 2-2. In contrast, some States with strong, diversified economies have the fiscal capacity to generate additional revenue but elect to keep their tax structure narrow and rates low. (See appendix A for further information on fiscal capacity and effort.) At least 20 States, responding to taxpayer protests, have limited their own fiscal authority to spend and borrow, and many States hold local governments to strict bonding, taxing, and spending limits. Where feasible, they have also made local projects self-sufficient by offering loans rather than grants. (See box 2-G for a profile of the Washington State Trust Fund which offers loans to communities that have made strong self-help efforts.)

The Federal focus on individual transport modes and environmental media is replicated in well-established, independent State bureaucracies and strong industry groups. Local officials must deal with the results of this program segmentation and comply with a variety of specific Federal regulations, some of which may conflict. In addition, local managers must find ways to utilize Federal funding programs that do not mesh for interdependent facilities like highways and airports. Narrow categorical Federal funding programs afford little flexibility for integrated solutions to pressing problems, and programs that promote intermodal transportation are major casualties of these conditions. Although new State levies and tax rate increases are raising more funds than ever before, expenditures are climbing even faster, and the number of States struggling to balance their budgets is rising.[60] In particular, the growth rate of education costs and the State share of entitlement programs are outstripping revenue, necessitating program cutbacks. Medicaid costs already consume as much as 30 percent of some State budgets and are expected to rise to almost 50 percent during the 5 years between 1989 and 1994.[61]

Benefit and User Charges

Because general revenues must be used for entitlement programs, States have turned increasingly to benefit charges, such as user fees, developer impact charges, tolls, and special assessments for financing public works capital. Benefit charges are attractive and effective strategies because of their revenue potential, voter acceptability, and service

[58] David Osborne, *Laboratories of Democracy* (Boston, MA: Harvard Business School Press, 1989).

[59] For further information, see Office of Technology Assessment, op. cit., footnote 4, ch. 3.

[60] National Governors' Association and National Association of State Budget Officers, *Fiscal Survey of the States* (Washington, DC: 1989), p. 3.

[61] Office of Management and Budget, *Budget of the United States Government* (Washington, DC: U.S. Government Printing Office, 1989), historical tables, p. 293.

Table 2-8--Major Infrastructure Financing Mechanisms: Advantages and Disadvantages

	Advantages	Disadvantages
General fund appropriation	*Administrative:* appropriations reflect current legislative priorities. *Equity:* all taxpayers contribute to capital projects. Fiscal: no debt incurred, so projects cost less during periods of inflation.	*Administrative:* infrastructure must compete with other spending priorities each year; cannot plan long-term projects around uncertain funding. *Equity:* no direct link between beneficiary and who pays, and current generation pays for capital projects that benefit future generations.
General obligation bonds	*Equity:* capital costs shared by current and future users. fiscal: bonds can raise large amounts of capital; general obligation bonds usually carry lowest available interest rates.	*Administrative:* States often impose debt ceilings and require voter approval. Fiscal: adds to tax burden, especially if interest rates are high.
Revenue bonds	*Administrative:* do not require voter approval and are not subject to legislative limits. *Equity:* debt service paid by user fees, rather than from general revenues.	*Administrative:* require increased reporting and restricted by Tax Reform Act limitations. Fiscal: usually demand higher interest rates than general obligation bonds.
State gas tax	*Administrative:* established structure allows tax increase without additional administrative expense. *Equity:* revenues are usually earmarked for transportation, so users pay. Fiscal: revenues relatively high compared with other user taxes.	*Administrative:* revenue fluctuates with use of gas. *Equity:* fiscal burdens are not evenly distributed between urban and rural areas. Fiscal: revenue does not reflect differences in infrastructure use which can determine capital needs.
Other dedicated taxes	*Administrative:* voters prefer dedicated taxes. Fiscal: provides relatively reliable funding source not subject to annual budgeting.	*Administrative:* reduces districts' ability to meet changing needs. Fiscal: major economic downturns can reduce revenues significantly.
State revolving funds	*Administrative:* promote greater State independence in project selection. *Fiscal:* debt service requirements provide incentives for charging full cost for services; loans can leverage other sources of funds; loan repayments provide capital for new loans.	*Administrative:* States bear increased administrative and financial responsibility. *Equity:* poor districts cannot afford loans. Fiscal: repaying loans will mean increases in user charges or taxes.

SOURCE: Office of Technology Assessment, 1991.

management opportunities. However, these charges have major socioeconomic trade-offs, including administrative issues, equity, and revenue reliability in the case of a political backlash, an economic downturn, or real hardship. For example, States with low economic bases and/or small populations have great difficulty developing sufficient capital solely from user fees and other benefit charges.[62]

Because of the acceptability of financing transportation with State user fees (gas taxes and vehicle registration fees, primarily), States can provide more financial support for transportation improvements than for environmental public works programs. (See table 2-9 for State gas tax rates and yields.) Highways, aviation, and, to some extent, transit, rely on user-fee financing, while State revenues earmarked for water supply or wastewater treatment programs are unusual. However, inflation has eroded the purchasing power of per-gallon gas and fixed vehicle charges, and more fuel efficient

Photo credit: Dan Broun, OTA staff

Charges for vanity plates such as this one area popular form of State user fees. Drivers can tailor their own license plates for an extra fee.

[62] See Office of Technology Assessment, op. cit., footnote 4, pp. 114-116 for a more detailed discussion.

Box 2-F—New Jersey Infrastructure Financing

The New Jersey State Legislature enacted three infrastructure financing programs in the mid-1980s. The New Jersey *Transportation Trust Fund,* established in 1984, uses revenue bonds backed by dedicated motor vehicle fuel taxes to fund a $320.3 -million program. The trust fund undertakes direct spending programs and finances State aid to counties and municipalities for transportation system improvements.

The Resource Recovery and *Solid Waste Disposal Program,* first established in 1980 and substantially expanded in 1985, authorizes grants and low- or no-interest loans to local governments to cover 10 percent of project costs for the development of resource recovery facilities and environmentally sound sanitary landfills. The State Department of Environmental Protection manages the program, which is backed by $168 million ($135 in general obligation bonds and $33 million transferred from the general fund). The loans are secured by rate covenants or revenue bond letters of credit. Local payback of the loans commences 1 year after the plant begins operations.

The New Jersey *Wastewater Treatment Trust Fund,* established in 1985, is an independent financing authority with the power to issue bonds backed by the trust's loan agreements with borrower localities. These agreements, in turn, are secured by user-fee covenants, a State-appropriated reserve fund, and municipal bond insurance. Funds to localities come from the Wastewater Treatment Trust, an independent authority, and the Wastewater Treatment Fund, administered by the State Department of Environmental Protection. This program highlights two issues associated with the substitution of loans for grants, First, when a fiscally troubled jurisdiction considers the alternatives of environmental noncompliance and exceeding its debt capacity by applying for a loan, rather than a grant, polluting may well appear the lesser of two evils. Second, although grant allocation decisions are based on environmental priorities, local financial solvency is a major consideration, and a high credit rating often outweighs a top spot on the Federal Clean Water Act priority list.

[1]Material on New Jersey infrastructure financing is based on the following reports: Council on New Jersey Affairs, *New Jersey Issues: Papers From the Council on New Jersey Affairs* (Princeton, NJ: Princeton Urban and Regional Research Center, Woodrow Wilson School of Public and International Affairs, March 1988); and Sophie M. Korczyk, "State Finance for Local Public Works: Four Case Studies," OTA contractor report, Dec. 19, 1988 (available from NTIS, see app. D).

vehicles reduce the taxes received per mile traveled. Over the last 15 to 20 years user-fee revenues per mile have dropped about 50 percent.[63]

Importance of the Federal partnership

Public-private partnerships and higher benefit and user charges are part of the answer for States in meeting their backlogs of public works improvements. However, their contributions are necessarily limited by their rates of local growth and by equity considerations. These limitations and steady growth in social program costs for States underscore the importance of reliable Federal financial support. Although Federal funds contributed less than 20 percent of public works capital investment during the late 1980s, compared with almost 30 percent in the 1960s,[64] this support was essential in assisting States and their local governments to upgrade public works and meet Federal requirements.

Administration and Planning

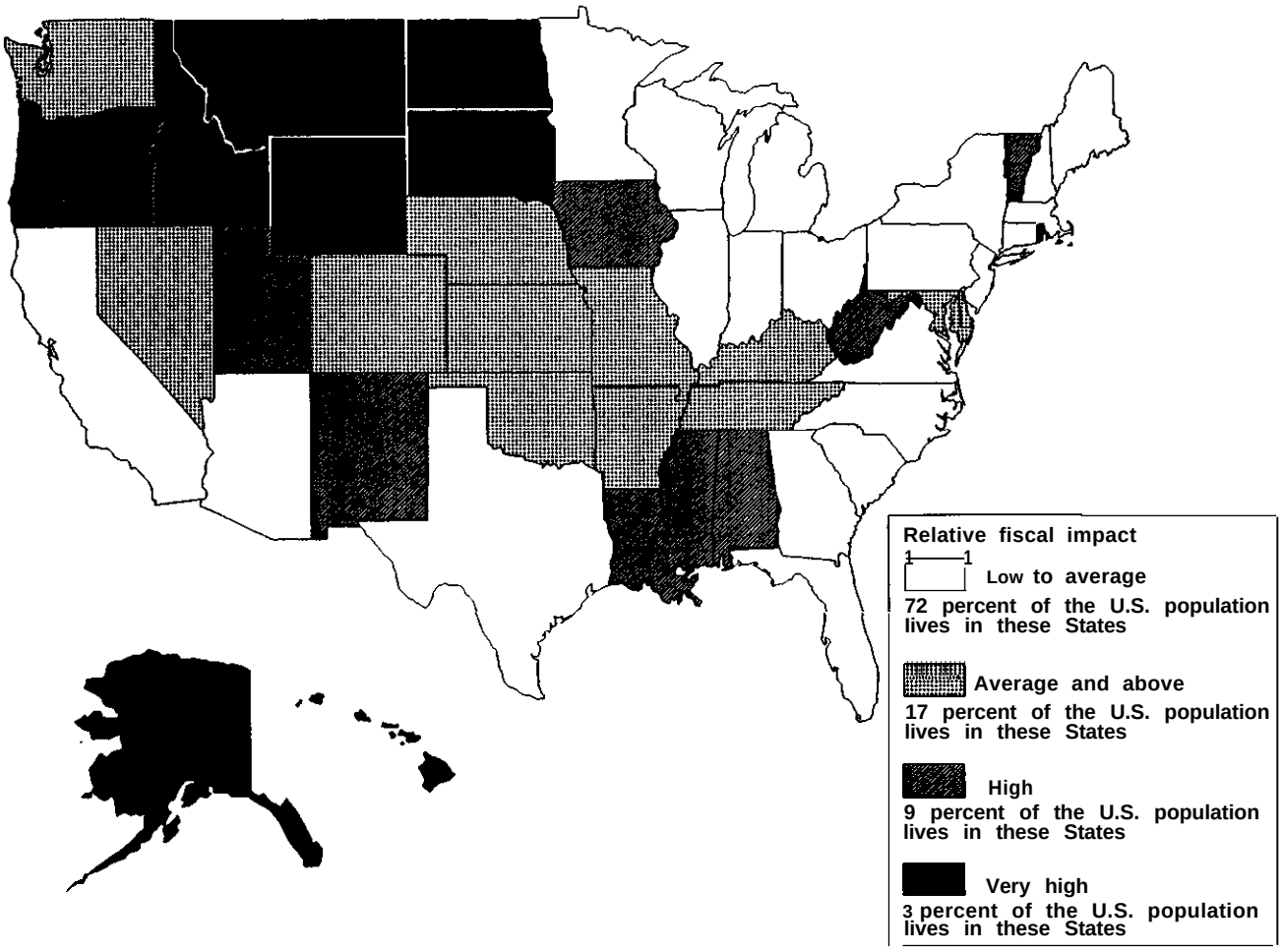
Most States play an active role in administering highway arid bridge programs and in enforcing Federal and State health and safety regulations. Generally, State officials accept the need for Federal regulations and enforcement to protect public health and safety. However, the sheer number of regulations and the frequency with which they change, their inflexibility, and the time and costs compliance adds to the project create administrative difficulties and frustrations.

State successes in achieving public works efficiency through effective land-use planning have been uneven, and most Federal grants that supported State planning efforts ended in the early 1980s. Some States do not have an official State planning program and offer no support for regional or local comprehensive planning. However, a few States, especially those with sustained growth, such as Florida, Georgia, and New Jersey, have taken steps

[63]Jenifer Wishart, vice president, James F. Hickling Management Consultants Ltd., testimony at hearings before the House Committee on Banking, Finance and Urban Affairs, Subcommittee on Policy Research and Insurance, May 8, 1990.

[64]Office of Technology Assessment, op. cit., footnote 4, P- 36.

Figure 2-1—Projected Impact on States of Reduced Federal Aid for Transportation[a]



[a]Impact is defined as the relative level of effort each State would have to make to replace a hypothetical 50 percent cut in Federal aid.
SOURCE: Office of Technology Assessment, 1991, based on information provided by Apogee Research, inc.

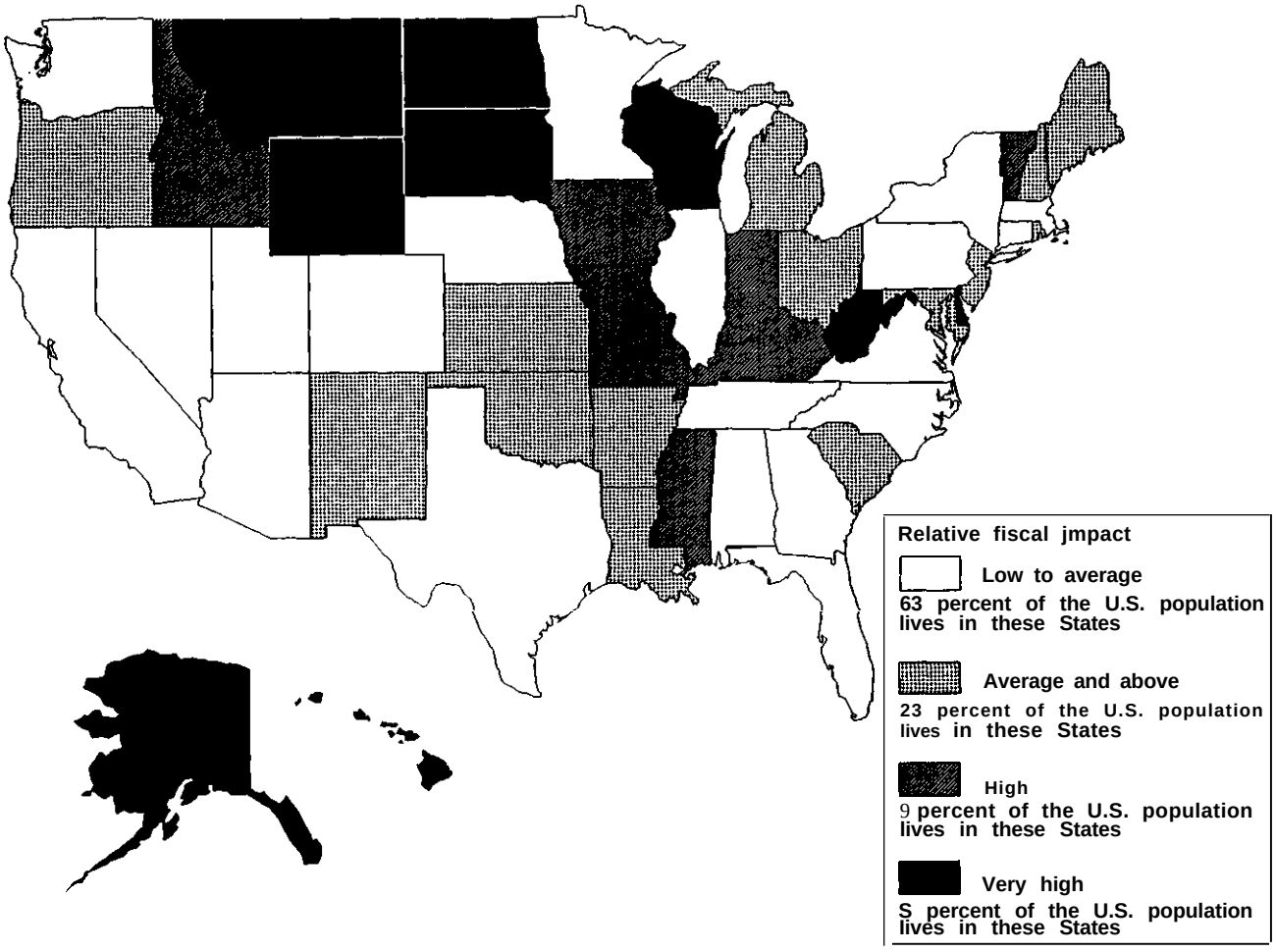
to require coordination between regional land-use policies and infrastructure development. Florida requires planning and development reviews at the State, regional, and local level (see box 2-H).

Pollution and natural resource issues transcend political boundaries and clash frequently with economic development goals. State administrators often must coordinate plans for and mediate disputes over environmental, development, and transportation issues among local jurisdictions, interest groups, State agencies, and other States. Interstate compacts, such as the one among Maryland, Virginia, Pennsylvania, and the District of Columbia to clean up the Chesapeake Bay, and State-supported regional planning programs like Florida's are promising institutional changes.

Local Government Service Providers

Rapidly growing counties, old central cities, and small towns are all caught in the squeeze between unfunded Federal and State environmental and social service mandates and escalating service demands on the one hand and budget constraints, weak institutions, and enforcement policies on the other. Direct links to Washington for grants or revenue sharing have disappeared, and while the best solutions are often local, the most difficult issues are frequently interjurisdictional. The opportunities for dispute have multiplied as communities have become more interdependent and interest groups more vocal and narrowly focused. Local officials must mediate conflicts between economic development and environmental interests (for exam-

Figure 2-2—Projected Impact on States of Reduced Federal Aid for Environmental Public Works[a]



[a]Impact is defined as the relative level of effort each State would have to make to replace a hypothetical 50 percent cut in Federal aid.
SOURCE: Office of Technology Assessment, 1991, based on information provided by Apogee Research, Inc.

pie, airport noise and expansion) and between neighborhoods and other communities over the siting of new highways and landfills. If institutional solutions to disputes are not available, stalemate will aggravate problems of congestion or public health. Even the threat of losing Federal funds or of frees may not be enough to trigger action.

Local Financing

Traditionally, the Nation's 83,000 local governments have financed most capital investment and all of their operating budgets locally, but their customary broad-based taxes, principally on property, no longer produce sufficient revenue to finance essential services. Local officials push property taxes as high as they can, and increase targeted (earmarked) sales, income, and other taxes. Economically strong communities have raised user fees for sewer and water service, established special improvement districts, and charged developers fees for roads and sidewalks (see box 1-C in chapter 1). But communities with weak economies or a large backlog of deficiencies have had to defer upgrading their systems to cut expenditures-about 37 percent of the Nation's cities in 1990.[65] Communities that appeal to their State governments for new or expanded tax authority may be frustrated by State limits on local borrowing and tax rates, and Federal

[65]Douglas D. Peterson, "City Fiscal Conditions in 199@" *Research Reports on America's Cities* (Washington, DC: National League of Cities, 1990), p. v.

Box 2-G—Washington State Public Works Trust Fund[1]

The Washington State Public Works Trust Fund (PWTF) is an example of a successful multipurpose infrastructure funding program. It emphasizes project self-sufficiency, comprehensive planning, and allocation according to ability to pay as well as severity of need.

The PWTF grew out of a 1982-83 statewide survey of Washington State infrastructure needs that pointed to serious gaps in the State's management of infrastructure. Capital spending for public works was at its lowest in 20 years and was expected to continue declining, while projected needs would require at least a 250 percent spending increase. These findings prompted the legislature to direct what is now the Washington State Department of Community Development (DCD) to prepare a plan for replacing and repairing local public works holdings.

As required by its mandate, DCD surveyed over 600 local jurisdictions about their needs and available resources. DCD found that total projected needs reached $4.3 billion, but that local resources could only meet 53 percent of this. The legislature responded by working with DCD to set up a new loan program and reaching out to localities, including them in the program design process, and linking the program directly to local needs and resources. DCD's subsequent report, *Financing Public Works: Strategies for Increasing Public Investment*, provided the design for the Public Works Trust Fund.

Annually DCD invites all Washington cities, counties, and special-purpose districts to apply for low-interest (1 to 3 percent) loans from the PWTF. The PWTF draws its funds from three sources: water, sewer, and garbage collection taxes; a portion of the real estate excise tax; and ultimately, loan repayments. A 13-member Public Works Board evaluates the applications. The Association of Washington Cities, the Association of Washington Counties, and associations of water, public utility, and sewer districts nominate elected officials and public works managers. Three members from each of the lists as well as four members of the general public with special public works expertise are appointed to the board The Governor selects one of these latter four to chair the board.

The board passes its annual project recommendations onto the State legislature. After approving a project list based on the board's list of priorities, the. legislature passes an appropriation from the Public Works Assistance Account to cover the cost of the loans granted. The Governor then signs the appropriation into law.

An important goal in the design of the PWTF was to discourage localities from deferring maintenance and repair, a side effect of traditional grant allocation systems, which dole money out to the neediest localities. The PWTF program calls for the Public Works Board to base less than one-half (40 percent) of a locality's score on needs, and a full 60 percent of the score on the jurisdiction's demonstrated commitment to help itself. The board evaluates local effort by reviewing the jurisdiction's maintenance strategy, the percentage of local funds dedicated to public works, and the overall system of financial management. Since 1986, the PWTF has provided 194 loans totaling $100 million. Local jurisdictions have matched this amount with about $128 million in local funds for the completion of the projects.

Before it can be considered for a loan, a locality must levy at least a 0.25-percent real estate excise tax earmarked for infrastructure spending. It also must develop a Capital Improvement Plan (CIP) for the specific infrastructure category (i.e., roads, bridges, water systems, storm sewers, and sanitary sewers) for which the loan is being sought.[2] For the 1991 loan cycle, DCD will require a comprehensive CIP covering all of the five categories of infrastructure for which loans are offered. To compensate for potential bias in favor of large, wellfunded jurisdictions, DCD offers zero-interest loans of up to $15,000 for the development of local, long-range CIPs. Without comprehensive CIPs, not even small jurisdictions will be able to apply for regular PWTF construction grants after 1991.

Loans are available only to projects that address existing needs; the funds may not be used for growth-related projects, allowing the board to avoid the touchy issue of determining where growth ought to occur. The effects of political interests are further muted by the stipulation that in reviewing the Public Works Board's list, the legislature may delete projects but not add any. This helps preclude pork barrel projects and ensure program integrity.

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[1] Material on the Washington State Public Works Trust Fund is based on Isaac Huang, Washington State Department of Community Development, interview, June 1989; and Sophie M. Korczyk, "State Finance for Public Works: Four Case Studies," OTA contractor report, Dec. 19, 1988 (available from National Technical Information Service, see app. D).

[2] The Public Works Board defines the minimum elements of an acceptable Capital Improvement Plan as: 1) needs assessment, 2) prioritization of major capital improvement projects for the coming 5 years, 3) project cost estimation, 4) proof that the plan has been updated in the past 5 years, 5) proof that the plan was developed with some general public input, and 6) formal adoption of the plan by a local legal entity.

Table 2-9-State Gas Tax Rates and Yields, 1990

	Gas tax (cents per gallon)	Yield per penny ($millions)		Gas tax (cents per gallon)	Yield per penny ($ millions)
Alabama	13	21	Montana	20	4
Alaska	8	2	Nebraska	22	8
Arizona	17	17	Nevada	18	6
Arkansas	14	12	New Hampshire	16	5
California	14	125	New Jersey	11	34
Colorado	20	15	New Mexico	16	7
Connecticut	22	15	New York	8	55
Delaware	16	4	North Carolina	22	39
District of Columbia	18	2	North Dakota	17	3
Florida	10	61	Ohio	20	44
Georgia	8	35	Oklahoma	16	16
Hawaii	11	4	Oregon	18	14
Idaho	18	5	Pennsylvania	12	46
Illinois	19	44	Rhode Island	20	4
Indiana	15	27	South Carolina	16	18
Iowa	20	14	South Dakota	18	4
Kansas	16	13	Tennessee	21	25
Kentucky	15	19	Texas	15	85
Louisiana	20	23	Utah	19	7
Maine	17	6	Vermont	16	3
Maryland	19	24	Virginia	18	34
Massachusetts	17	28	Washington	22	22
Michigan	15	42	West Virginia	20	10
Minnesota	20	18	Wisconsin	21	20
Mississippi	18	12	Wyoming	9	3
Missouri	11	26			

SOURCE: Office of Technology Assessment, 1991, based on data from The Road Information Program, 1989 State HighwayFundl~Methti(Whingtin, DC: 1990); and Sally Thompson, analyst The Road information Program, personal communication, Oct. 24,1990.

tax reform legislation increased the cost of borrowed capital for some types of local projects. The limits of their fiscal choices make it likely that many communities will be unable to comply with Federal environmental standards (see chapter4).

Management and Planning

Local officials must coordinate and administer a staggering variety of transportation and environmental public works programs. When Federal aid is available, it comes with many strings (environmental impact study and wage rate requirements,for example) that add years to project timelines and raise costs dramatically.[66] Most large android-size communities use a 3- to 5-year capital improvement program (CIP) to schedule and identify financing for major capital expenditures, a concept introduced through the Department of Housing and Urban Development's planning grant program during the 1960s and 1970s. However, most small jurisdictions operate without CIPs, and Federal grants to support their use have been severely cut.

Although most communities are part of regional planning organizations and Federal programs usually have a comprehensive regional planning requirement, these organizations have not been effective in achieving economic and operating efficiencies for public works.[67] Effective regional coordination in highway planning is rare and each jurisdiction fights to maintain its autonomy over land-use decisions. The most successfull regional planning groups have reliable funding,[68] needed to maintain core staff and technical and service capabilities, and clear authority from local governments and State agencies. In California, San Diego's Association of Governments has a major impact because it plays a key role in both transportation planning and **financing (see** box 2-I), Although local managers recognize their need for more efficient ways of doing

[66] Henry Hulme, former director of Public Works, Arlington County, VA, personal communication, March 1989.

[67] See Mice Of Technology Assessment, op. cit., footnote 4, ch. 4 for* information.

[68] Cutbacks in Federal funding for housing and environmental programs have left Department of Transportation funding as the primary Federal support for regional planning.

Box 2-H—Growth Management and Planning in Florida

Florida grows by an average of 900 new residents each day, and the State endured a fierce political and financial struggle over growth management after enacting one of the Nation's strongest land development regulatory programs in 1985 and taking a stand in favor of comprehensive planning at all government levels. Having survived repeated special interest attacks to weaken the law, the State has completed the required State and regional planning and is halfway through the first phase of the local government planning process. Although State and local officials are having problems finding the funds to implement the new planning and public works requirements, Florida's program can be instructive to other States that are considering a stronger role in growth management.

The State's role in planning began in 1975 with passage of the Local Government Comprehensive Planning Act, which required all local governments to prepare, adopt, and implement local comprehensive plans that included transportation and environmental public works. The initial results of the act were disappointing; most local plans contained only vague goals and policies that made implementation difficult. In 1982, a State study committee identified the absence of strong State and regional planning as a major reason the local plans were ineffective and recommended overhauling the 1975 legislation.[1]

Convinced of the need for strong State and local controls, the legislature adopted the local Government Comprehensive Planning and Land Development Regulation Act of 1985. The keystone provision is the requirement that each of the State's 67 counties, in conjunction with their respective cities, submit a comprehensive 10-year development plan to the State Department of Community Affairs (DCA) for approval. The plans must be consistent with the State comprehensive and regional plans and must spell out in detail what types of development are allowed and where, and where public works systems will go and how they will be financed. Each district must adopt a 5-year capital improvement program and an annual capital improvement budget. The teeth in the legislation is the "concurrency" requirement stipulating that a specified service level for highways, sewers, and other public facilities must be available at the time of the impact accompanying any new development. During the 12 months after a plan is submitted, a local government may not issue a development permit that will result in a reduction in the level of service for any facility identified in the plan.[2] In effect, the State is requiring local governments to provide services according to a comprehensive plan that is tied to a capital improvement budget. Twice a year, local districts may adopt comprehensive plan amendments and submit them to DCA for review. The penalty for noncompliance is a cutoff of State funds, primarily revenue sharing.

Since DCA began compliance review of local plans in April 1988, of the 248 plans received, 119 have been approved. Of the 128 plans currently not in compliance, 80 can be approved once changes agreed to in negotiations with the State have been made.[3] Despite some builders' claims that all development will be stymied unless local standards are lowered or the State substantially increases funding for public works, no county or city has a development moratorium.

Although local and State officials agree on the need for comprehensive planning, local governments want the State to take a bigger and more responsible role in financing needed public works, estimated to cost at least $1.6 billion annually through the year 2000. The State has resisted local pleas for an increase in the State gas tax rate. Local governments frequently have not included transportation projects, funded by the State Department of Transportation (DOT), in their local comprehensive plans, because the funding schedule for the projects has been unpredictable.[4] To remedy this, 1989 legislation enables local governments to count on State monies for the fist 3 years of DOT's 5-year plan and the State has begun to prohibit State funds to support transportation projects that are inconsistent with local plans. The legislature has also given local governments authority to levy a l-cent local sales tax dedicated to infrastructure and a l-cent local gas tax for roads, although both levies are subject to local referenda, which makes them unpopular with elected officials. Currently, 24 counties have passed the sales tax and 10 have defeated it.[5] Furthermore, Florida is establishing new funding mechanisms to help in local plan implementation, such as the Florida Communities Trust Act, which will provide State funds for local purchase of land identified in comprehensive plans as needed for environmental protection.

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[1] Daniel W. O'Connell, "Local Government Comprehensive Planning and Land Development Regulation Act," *Florida Environmental and Urban Issues, vol. 13, No.* 1, October 1985, p. 4.

[2] State of Florida, "Senate Staff Analysis and Economic Impact Statement," accompanying Senate Bill 2A, June 3, 1989, p. 1.

[3] Baker, legislative director, Florida State Department of Community Affairs, personal communication, Nov. 5, 1990.

[4] State of Florida, op. cit., footnote 2, p. 4.

[5] 513&~, op. cit., footnote 3.

Box 2-I-SANDAG: Financing Means Planning Power

Although State and local districts are often reluctant to sham authority with a regional organization, San Diego's Association of Governments (SANDAG)is an exception. Designated as the State Metropolitan Planning Organization (MPO), SANDAG plays a key role in both transportation planning and financing. In 1987, San Diego voters approved a general sales tax increase for capital projects identified in the Regional Transportation Improvement Plan (TIP), and the State designated SANDAG as the chief administering agency in charge of allocating the $100-million annual tax revenue. By virtue of its role as San Diego's MPG, SANDAG prepares the TIP, and thus it can develop and finance the implementation of its own plan-an unusually strong role for a regional agency. SANDAG's financial independence has greatly increased its power within the region and may well alter its other roles. Making financing options part Of the planning process ensures that SANDAG gives careful attention to setting priorities among TIP projects, with the result that plans are realistic and likely to have public support. In addition to transportation planning, SANDAG has initiated an effort to identify all regional public works needs and to develop a regional financing plan.

business, most lack fiscal flexibility to experiment with innovative materials, technologies, or procedures. The lack of a technically competent work force, particularly in small and mid-size communities, further deters experimentation with advanced technologies.

Conclusions and Policy Options

The complex institutional setting for infrastructure makes it difficult for the Federal Government to focus on either transportation or environmental public works problems for the two constituencies with the most pressing needs: small, low-density, or remote, rural jurisdictions and large, densely populated metropolitan areas. Many of today's Federal institutions were developed years ago to meet needs that have long since evolved and changed.

During the last decade or more, Federal leadership in public works policy has eroded. Recognizing the need for system changes and new institutions (e.g., for financing, delivering service, planning, and even conflict resolution), States and local governments are making independent plans and decisions. While these may not always be congruent with national interests, except for DOT's recent policy plan, Washington has been passive at a time of enormous economic, technological, and environmental change. Federal transportation programs and standard-setting have not kept up with industry, and trucking companies are integrating with railroads and shipping companies to form powerful new transportation organizations. States and international committees are taking the lead and setting their own policies. This lack of leadership, coupled with Federal spending cuts, has contributed substantially to the poor condition of the Nation's public works systems.

OTA finds the Federal Government has fallen behind industry, world credit markets, State, regional and local authorities, the courts, and international organizations in determining the national public works agenda. Stronger Federal leadership is needed to develop integrated, long-range national water resources, transportation, and environmental policies that will direct and coordinate intergovernmental and private activities. This effort may result in new goals as well as institutional mechanisms for achieving them. Of necessity, new institutions that change the established decisionmaking processes step on the toes of traditional governmental and private sector interests and compromise local decisionmaking and individual choice to some extent. But the alternative is stalemate, characterized by staggering increases in litigation, and steadily growing inefficiency.

OTA concludes that the time is ripe to review the Federal oversight structure and management practices for public works so that policies are better coordinated and more cost-effective, and decisions about priorities are made wisely. Key factors contributing to fragmented Federal infrastructure policies are the splintering of responsibility among congressional committees and Federal agencies. OTA concludes that EPA's and DOT's effectiveness could be improved significantly in the near term if Congress insisted that each agency integrate its programs to reflect the interdependent nature of transportation and environmental public works problems. One option is to require this for EPA as part of legislation elevating the agency to Cabinet status. Another is to direct EPA and DOT to report to Congress annually on their program coordination efforts. Clearly better

advance coordination is required in both Congress and the executive branch to avoid such snafus as the conflict between Federal attempts to reduce revenue loss from tax-exempt bonds in 1986, which worked at cross-purposes with efforts to encourage local private investment.

Almost one-half of congressional standing committees and subcommittees claim jurisdiction over some aspect of public works. The overlapping jurisdictions and divisions of power among congressional committees engender divisive turf battles, thwart coordination of Federal public works policy, and lead to the program conflicts and gaps that State and local governments experience. At the same time the current committee structure, crafted by Congress in the 1970s, has decentralized power, strengthened individual members, developed committee and subcommittee expertise on specific topics, and provided multiple forums for the differing points of view of departments, agencies, special interest groups, and constituents.

Congressional leaders could consider restructuring committee jurisdictions. Commonly suggested options for change include restructuring existing committees to consolidate environmental and transportation functions or establishing new committees that focus on metropolitan or rural infrastructure system issues, including public works. One option is to move authorizing and oversight responsibility for mass transit into Commerce, Science, and Transportation or Environment and Public Works, the principal infrastructure authorizing committees. The House may wish to consolidate authority for environmental programs, providing a more unified environmental policymaking structure. However, history shows structural change is exceedingly difficult. A less radical option is the formation of a select committee or task force composed of fictional area subcommittee chairs to explore and report within 12 to 18 months on the feasibility of developing an integrated national policy on public works.

The Nation's thousands of small communities must construct, operate, and maintain public service facilities that impose high per capita costs, but their fiscal resources are limited because their average per capita incomes are low and their populations are generally declining. Although modest Federal-aid programs exist for small systems, most are targeted for transportation. **Expanded aid is necessary for these communities, but large rural States and others dependent on agriculture or mining lack the ability to raise large amounts of capital to share with local governments. The Federal Government has a responsibility to consider financial and technical support for the States lacking the fiscal capacity to assist their small jurisdictions (see figures 2-1 and 2-2 again).**

Photo credIt:American Society of Civil Engineers

Older municipalities face traffic delays and massive costs for repairs necessitated by years of neglecting public works. Many of these cities are particularly hard-hit because the value of their tax base has declined.

More dramatic in scale, metropolitan area issues include airport and highway congestion, air and water pollution, often deficient planning and coordination of multimodal transportation facilities, and other growth-related problems. Older urban areas face massive costs for facility reconstruction caused by inadequate long-term maintenance and new Federal requirements; for example, the bill for meeting the EPA requirement to correct combined sewer overflows in many cities will cost billions of dollars. The fiscal burden is most severe in older central cities where the value of the tax base is declining. Public works, especially maintenance that can be deferred, has a lower fiscal priority than schools, new jails, and social welfare programs. Growing, economically healthy areas have a sufficient economic base to increase revenues from general taxes and benefit-based fees and taxes and to attract more private investment. **However, older metropolitan areas in which major public works systems are at the end of their design lives need special attention from State and Federal Governments. States must allow local governments authority to raise revenues, borrow capital,**

spend for needed improvements, and pursue new financing strategies. Removal of Federal prohibitions on toll financing and restrictions on some forms of public-private ventures would allow jurisdictions to pursue a wider range of fiscal opportunities.

Despite mounting small system and metropolitan needs, the Federal Government has reduced investment in public works infrastructure. During the 1980s, Federal outlays for all public works categories decreased about 22 percent; and although environmental public works needs are driven directly by Federal regulations, these programs took the largest cuts. **While State and local governments have accepted an increased share of the financing burden, they need a reliable financial partnership with the Federal Government to ensure the renewal and upgrading of their public works facilities.**

Stronger State and regional planning organizations and land-use controls tied to capital budgeting requirements are needed to improve the efficiency of public investment in infrastructure. But local governments resist sharing power, and planning organizations are typically underfunded and lack fiscal or statutory authority to implement their plans. Cutbacks in Federal funds for housing and environmental programs have left DOT funding as the primary support for regional planning, and State commitment to and support for planning varies widely. OTA concludes that the Federal Government can use regulations coupled with financial incentives to encourage effective planning at all governmental levels and **more efficient use of transportation and environmental infrastructure.** Florida's growth management plan and Washington State's Public Works Trust Fund (see boxes 2-G and 2-H again) provide good models.