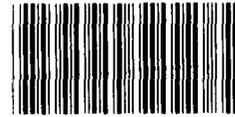


April 1986

HIGHWAY FUNDING

Use of Toll Revenues in Financing Highway Projects



129793

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Resources, Community, and
Economic Development Division
B-222322

April 1, 1986

The Honorable Lawton Chiles
United States Senate

Dear Senator Chiles:

In response to your March 1, 1985, letter, and subsequent discussions with your office, we describe the operation of toll authorities in Florida and Illinois as illustrations of how states raise revenues to finance specific highway projects. We also identify issues that would merit consideration by states and localities once these governmental entities decided to implement new or expanded toll operations on federal-aid highways. Finally, we provide our observations on issues that the Congress may wish to consider during its deliberations on proposed toll road legislation.

To prepare the two descriptive toll authority case studies, we developed information on the toll authorities' prescribed powers and management responsibilities, processes of identifying and developing toll projects, and current financial positions. We reviewed Florida and Illinois legislation, bond indentures, annual reports and financial statements, and held extensive discussions with toll authority and state transportation officials. To identify issues meriting consideration by states and localities in expanding toll highway usage, we drew upon recent literature on toll highways and discussions with various federal and state government, industry, and research organizations. To provide observations concerning toll road policy issues that the Congress may wish to consider, we reviewed the major toll proposals pending in the House and Senate, including a proposal by the administration. In addition, we discussed the proposals and our observations with Federal Highway Administration (FHWA) officials. Details on our objectives, scope, and methodology are provided in appendix I. The descriptive studies of toll authorities in Florida and Illinois are contained in appendixes II and III, respectively.

We have coordinated our efforts with the Congressional Budget Office (CBO), which prepared a report on toll financing at the request of the Subcommittee on Transportation, Senate Committee on Environment and Public Works. The report, Toll Financing of U.S. Highways, was issued in December 1985. We have included CBO's report summary as appendix IV because it provides information on the costs and benefits of toll financing and outlines the effects of several alternative federal policies for toll road financing.

Federal Toll Road Policy: A Brief History

Over the years, toll financing has been used to a greater or lesser extent as a revenue source. The first toll road was chartered in 1785. By the late 1800's, however, the structural and financial failure of many private toll roads led to public disillusionment and spurred a movement by states and localities to develop quality toll-free roads. Although the popularity of toll roads waned in the early twentieth century, a resurgence occurred subsequent to World War II. This stemmed from a growing demand for improved highway facilities to handle the growth in traffic volumes at a time of limited government resources.

Since the establishment of the federal-aid highway program in 1916, states have generally been prohibited from imposing tolls on new or existing federally assisted roads. Federal toll policy has been modified over the years, however, in consideration of specific circumstances and changing economic conditions. For example, on an exception basis, states are allowed to use federal funds to construct toll bridges, tunnels, and approaches to federal-aid highways. However, the states must agree to discontinue the tolls upon retirement of all bond indebtedness unless the Congress passes legislation waiving this requirement.

Another exception to the federal no-toll policy relates to the inclusion of toll roads on the interstate system. At the time the 1956 Federal-Aid Highway Act was passed by the Congress, several toll roads had already been built in the same corridors as the routes designated to be part of the interstate system. The act allowed many of these existing toll facilities to be incorporated into the interstate system. However, once again the states are required to discontinue tolls when the bonds are retired, unless the Congress passes specific legislation abrogating this requirement and the states agree to pay back all federal funds. Despite these exceptions to the federal toll policy, the underlying principles of the federal-state program—to develop and preserve a vast network of quality toll-free highways—remain intact.

Toll Facilities Nationwide

While institutional arrangements vary nationwide, toll facilities are now typically the responsibility of state departments of transportation, state highway departments, or specially created commissions and/or authorities. In some instances, city or county governments are responsible for owning and maintaining such facilities. According to CBO's analysis of FHWA toll facility statistics, there were 72 toll roads, 157 toll bridges, and 11 toll tunnels operating in the United States as of January 1985. Illustrative of the shift towards public sector involvement, only 7 toll roads,

22 toll bridges, and 1 toll tunnel are currently privately owned and operated. With respect to toll highway mileage, the aggregate length of toll roads, bridges, and tunnels nationwide totalled 5,176 miles, or one-tenth of 1 percent of the approximately 3.9 million miles of roadway nationwide. Focusing on toll highway facility mileage by highway categories, table 1 shows that 3,702 miles, or approximately 72 percent, of the total toll mileage is on the federal-aid system, with the remaining 1,474 toll mileage off the federal-aid system.

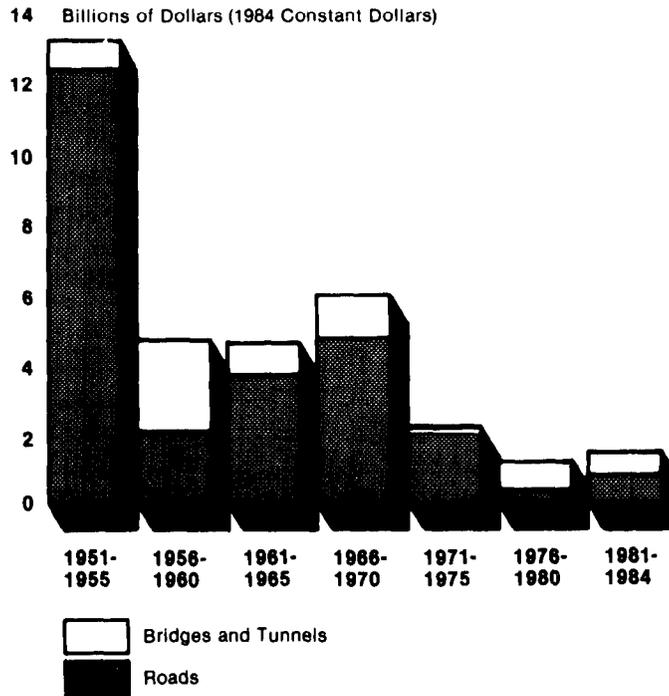
Table 1: Toll Facilities Mileage Nationwide (As of January 1985)

Road system	Total number of miles ^a
Federal-Aid Highway System	
Interstate	2,691
Primary	952
Secondary	27
Urban	32
Other Highways	
State	1,288
Local	186
Total	5,176

^aMileage includes "nontoll" sections of toll facilities that may be used free of charge by local residents. Source: Federal Highway Administration.

Between 1951 and 1984, state and local governments raised approximately \$32 billion (in 1984 constant dollars) in new bond financing for toll facilities nationwide. Of this amount, \$25.6 billion, or 80 percent, was spent on toll roads, with the remainder used for bridge and tunnel construction. As shown in figure 1, the volume of new debt toll financing has declined since the 1956 Federal-Aid Highway Act was enacted. According to the CBO study, several factors have contributed to the decline. For example, the 1956 act encouraged the states to build their sections of the interstate system by increasing the federal share of construction costs from 60 percent to 90 percent, authorizing large sums for interstate construction, and creating the separate Highway Trust Fund to provide a continuous source of funding. These features made reliance on federal resources for highway construction increasingly attractive to the states while attraction to toll financing diminished. Subsequent increases in federal taxes on motor fuel, enacted in 1959 and 1982, compounded these effects.

Figure 1: New Debt for Toll Facilities, 1951-1984 (By Toll Facility Type)



Source: Congressional Budget Office

Some State Considerations in Expanding Toll Usage¹

During the 99th Congress, bills have been introduced in the House and the Senate to modify the current federal no-toll policy. The proposals are intended to give states greater flexibility in financing highway projects. If federal law is revised to allow the placement of tolls on new or existing federally supported highways, and states choose to make greater use of toll financing, the states will have to address a number of issues. We found, for example, that states with toll highway programs have gone through a similar development process, addressing issues such as establishing a toll authority that meets the state's legal requirements, determining toll collection procedures, and utilizing toll revenues after highway bonds are retired. These issues are discussed below.

¹Reference to State Laws Under This Caption Have Not Been Subject to Independent Legal Verification or Analysis by GAO's Office of General Counsel.

Establishing a Toll Authority

We found that states were required to enact laws that identify agency(ies) within the states allowed to own and operate toll roads and specify their powers and responsibilities. These agencies included specially created authorities or commissions, state departments, or city or county governments. Each state's constitution determined what kinds of arrangements were needed. Some state enabling legislation permitted agencies to undertake varied activities, including project development, financing, construction, and actual management of a project or a number of projects. Others restricted what an agency could do in areas such as financing methods, commitments, pledges of tax revenues, and actual facility operations.

According to a recent study published by the Transportation Research Board, several examples of broadly written enabling legislation include those governing toll authorities located in Indiana, Kansas, Ohio, and Texas. For example, the Texas Turnpike Authority is authorized to build and operate toll road projects throughout the state. By contrast, examples of more restrictive legislation can be found in Maine, Massachusetts, and New Jersey. The enabling legislation establishing the powers and responsibilities of the Maine Turnpike Authority, for example, limits the authority's jurisdiction over construction, operation, and maintenance to specific roadway sections. A similar situation is found in New Jersey, where three individual toll road authorities are each responsible for a specific toll road.

State Legal Considerations Affecting Toll Facilities

State constitutions affect how tolls can be used as a highway funding mechanism. For example, state constitutions (1) affect whether debt financing can be used, (2) control what type of bonding authority is allowed (e.g., bonds given full faith and credit of state), and (3) impose various other statutory limitations on the toll agencies.

States' legislation further specify whether toll revenues can be (1) dedicated to a particular project or (2) dedicated towards the construction and/or improvement of other highways or for other transportation needs such as public mass transit. As an illustration, in the New York metropolitan area, the Triborough Bridge and Tunnel Authority has periodically increased highway tolls and diverted a large portion of the added revenues to support mass transit systems. Also, the State of New Jersey recently established a special transportation fund to help augment limited federal and state resources, with revenues contributed by the state's three toll road agencies based upon specified annual contributions.

Toll Collection Systems

Deciding upon an appropriate collection technique depends largely on the goals of the toll highway program. For example, a state needs to determine if a goal of its toll program is to collect fees from all highway users or to collect from a select category of user. At present, two basic types of toll road collection systems are being used nationwide—“closed” collection systems and “open” collection systems. Closed collection systems involve the dispensation of tickets to all vehicles at access point entrances. Toll charges are paid as vehicles exit, with the charges reflecting distances traveled. Most closed systems have toll plazas at either end of a road and have entrance and exit ramps located along the route, thereby collecting tolls from all highway users.

In contrast, open toll collection systems are not designed to collect tolls from all highway users. Typically, toll barriers are placed at selected intervals across a main roadway, with flat toll rates charged each user. This system allows certain types of local trips to be made toll-free.

Use of Tolls Following Bond Retirement

Under existing federal law, once the bonded indebtedness for federal-aid system toll highways has been retired, the roads must be made toll-free and turned over to state control. For states wishing to continue tolls after the repayment of outstanding obligations, the Congress has had to enact specific legislation granting exceptions to the federal no-toll policy. As previously discussed, states are required to repay the federal investment in order to continue charging tolls.

Because of growing financial constraints and mounting repair and rehabilitation costs, states do not like to eliminate existing toll roads because the roads provide a steady stream of revenues. For example, several years ago, Ohio recognized that control of its turnpike would have to be transferred from the Ohio Turnpike Commission to the Ohio State Department of Transportation and made toll-free sooner than anticipated because excess toll revenues were being used to repay the turnpike's outstanding bonded indebtedness at an accelerated pace. According to an official of the Ohio Department of Transportation, the state did not want to assume responsibility for the 241-mile turnpike any sooner than the date specified in the original bond indentures because the removal of tolls would have resulted in a loss of revenue at a time when up to an estimated \$450 million was needed to rehabilitate the roadway.

In addition, the state would have had to incur additional expenses for the removal of toll barriers, the reconstruction of toll interchanges, and

the construction of new interchanges to provide greater access to the interstate. To postpone such expenditures, the Commission (1) issued new bonds to refinance the outstanding turnpike bonds and (2) prepared a new trust agreement specifying a repayment schedule that allowed the bonds to be retired no sooner than the original maturity date.

Recent Legislative Proposals

In 1982 the Congress considered and ultimately rejected an administration proposal to allow the states to use federal funds in planning, designing, and constructing new toll facilities. The subject of toll road financing was again considered and rejected in 1983, when legislation was introduced to permit federal participation in constructing new toll roads in Illinois and Pennsylvania. The proposals were similar to the bill considered previously except that the 1983 bills were state-specific.

Legislative proposals recently introduced in the House and the Senate will, according to their sponsors, increase the states' flexibility in financing necessary highway projects. The bills, H.R. 3473 and S. 1488, both include provisions for using toll financing for new or previously constructed federally-assisted highway facilities. States would be allowed to use trust fund revenues along with toll revenues in constructing new toll roads and reconstructing existing toll roads requiring expansion due to congestion problems in growth areas across the nation. Under these proposals, federal participation in eligible projects on any of the federal-aid highway systems (e.g., interstate, primary, secondary, and urban) would not exceed 50 percent of project costs.

The bills also specify that states could elect to retain existing tolls (once the nonfederal share of road construction costs are repaid), if toll revenues in excess of those required to meet operation, maintenance, and debt repayment requirements are used for other surface transportation projects. In addition to highways, other surface transportation projects include mass transit and bridges. The bills also provide that states would not be required to repay the federal investment if an existing free road is converted into a toll road.

The administration recently submitted legislation (H.R. 4144) to reauthorize the federal-aid highway program. The bill contains a proposal to permit states to combine federal-aid highway funds with toll revenues to construct new toll roads or reconstruct existing toll roads. Federal share of project costs would not exceed the levels currently prescribed for the various federal-aid systems (e.g., federal project cost participation up to 90 percent on the interstate system). The bill also

stipulates that states would be allowed to continue charging tolls once all nonfederal financial obligations were repaid, if states agree to use revenues in excess of those required to meet toll facility operation and maintenance costs for other eligible public highway construction projects. However, H.R. 4144 does not change existing federal law prohibiting states from placing tolls on existing free roads constructed with federal-aid highway funds. In commenting on the proposal, the Secretary of Transportation said that the proposal is designed to increase the states' flexibility and increase the purchasing power of state highway funds.

Some Federal Considerations

The proposals discussed above either differ or do not address the following important issues involving (1) the funding of toll highway resurfacing, restoration, rehabilitation, and reconstruction (4R) work and (2) the parameters for selecting toll routes. These are issues that will be significant as the Congress considers the various legislative proposals.

Financing 4R Work

Under existing federal law, states are allowed to use 4R funds on tolled segments of the federal-aid interstate system if states enter into Secretarial agreements that require the removal of tolls once all outstanding nonfederal financial obligations are repaid. For a state wishing to continue tolls after the repayment of outstanding obligations, the Congress has to enact specific legislation granting an exception to the no-toll policy and the state is required to repay the federal investment. The administration's bill would continue to allow states to use federal 4R funds for existing toll roads and would also allow their use for new toll roads, up to the limits prescribed for the various federal-aid systems. Once the outstanding nonfederal financial obligations are repaid, states would have to either make the road toll-free or use excess toll revenues (above the costs required to properly operate and maintain a toll facility) for other public highway construction projects. The repayment of federal funds would not be required.

The bills in the House and the Senate would also allow states to use 4R funds on existing toll highways as well as new toll highways. In these bills, however, excess revenues could be used to finance not only highway construction projects but also other surface transportation projects eligible for federal highway funds, including mass transit. Consistent with the administration's bill, states would not be required to repay federal funds. As previously discussed, federal participation in

toll projects on any of the federal-aid highway systems could not exceed 50 percent of project costs.

Selecting Toll Roads

Under current federal law, states with toll roads on the interstate highway system are required to ensure that one or more reasonably satisfactory alternative free routes are available so that highway users can bypass the tolled section. The bills in the House and the Senate would permit states, without limitation, to place tolls on any existing or new federal-aid highway. The extent of the parallel free routes could become an important issue in assessing the feasibility and desirability of expanded toll road development, given that the states would have discretion to add tolls on any of the nation's approximately 42,500 miles of interstate highways.

As directed by your office, we have not obtained formal agency comments; however, we have discussed the contents of this document with agency officials. We also discussed the description of Florida toll roads with the Florida Department of Transportation and the description of Illinois toll roads with the Illinois Toll Authority. These organizations have advised us that the descriptive studies accurately portray toll road operations in their respective states.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time we will send copies to the Director, Office of Management and Budget; the Secretary of Transportation; appropriate congressional committees; and other interested parties.

Sincerely yours,



J. Dexter Peach
Director

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Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
CBO	Congressional Budget Office
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
GAO	General Accounting Office
IDOT	Illinois Department of Transportation
NIPC	Northeastern Illinois Planning Commission

Objectives, Scope, and Methodology

In a March 1, 1985, letter, Senator Lawton Chiles, a member of the Senate Appropriations Committee, requested that we describe the operation of the several Florida toll road authorities and the Illinois State Toll Highway Authority. The two case studies were intended to illustrate how states can raise additional local revenues to supplement available resources to finance specific highway projects designed to address growing highway capacity problems. The Senator expressed concern about the limited ability of states and localities to expeditiously finance critically needed highway capacity projects. Based on that and subsequent discussions with the Senator's staff, our review objectives were to:

- Describe the operation of toll authorities in Florida and Illinois, covering such topics as legal requirements; project identification process; management structure and responsibilities; and bond financing and repayment practices.
- Identify issues that would merit consideration by states and localities once they decide to implement new or expanded toll operations on federal-aid highways.
- Provide observations concerning issues that the Congress may wish to consider in its deliberations on proposed toll road legislation.

Our overall approach to developing the Florida and Illinois case studies was to obtain information on the toll authorities' prescribed powers and management responsibilities, processes of identifying and developing toll projects, and current financial positions. To determine the scope of their powers and responsibilities, we obtained and analyzed applicable state legislation and other toll authority documents, including annual reports. We supplemented our review by holding discussions with officials from state departments of transportation, state toll authorities, and regional Federal Highway Administration offices. Our discussion on the impact of the state legislation has not been subject to independent legal verification or analysis by our Office of General Counsel.

To ascertain the processes used by the toll authorities to identify potential toll projects and proceed to construct such facilities, we reviewed various transportation planning documents, including project feasibility studies. Similar to our approach concerning the authorities' powers and responsibilities, we obtained state transportation officials' explanations concerning how they determine the feasibility of developing a toll road. We cover such subjects as assessing toll revenue projections and construction cost estimates. Additionally, we obtained information on bond financing techniques, rate setting, and debt servicing.

To examine the financial conditions of the authorities, we reviewed numerous financial documents, including annual financial reports and applicable state legislation outlining issuance requirements and limitations. We also reviewed bond indentures describing how toll receipts are to be applied in repaying bond indebtedness, interest, and other associated expenses incident to the construction of a toll facility. Once again, we supplemented this review approach with discussions with officials involved in the process of toll project financing.

In identifying some of the salient administrative issues that require consideration once states decide to proceed with the expanded use of toll-based highway financing, we drew upon information obtained from current literature sources obtained through a literature search and conversations with various industry, research, and government organizations, including the American Association of State Highway and Transportation Officials (AASHTO); Transportation Research Board; Urban Institute; International Bridge, Tunnel, and Turnpike Association; and the Transportation Infrastructure Advisory Group. We also based our discussion on interviews with highway officials in Kentucky, New Jersey, Ohio, and Texas because of their familiarity with the development, management, and operation of toll roads. Our discussion is also based on an extensive toll financing study recently published by the Congressional Budget Office and general knowledge of the subject matter developed during our review efforts.

To provide observations concerning toll policy issues that the Congress may wish to consider during its deliberations, we reviewed the major toll proposals currently being considered in both branches of the Congress. We supplemented this effort through discussions with appropriate FHWA officials and by reviewing various documents which outline key provisions of the pending legislation, including recent testimony, the Congressional Record, and a toll road study recently prepared by AASHTO. Similar to our approach in identifying issues for state consideration, we drew upon information contained in CBO's toll financing study and our general knowledge of the subject matter.

Our review was conducted in accordance with generally accepted government auditing standards. We performed our review between July 1985 and December 1985.

Toll Roads in Florida

The state of Florida has 13 toll roads extending 552 miles—about 4.8 percent of its state highway miles. Vehicles travel about 3.6 million miles daily on these toll roads, or about 5.5 percent of Florida's daily vehicle miles. The Florida Turnpike, the longest state toll road, extends 321 miles from Wildwood in central Florida, south through the Miami area. The Everglades Parkway, also known as Alligator Alley, runs 78 miles east and west across the southern part of Florida. Additionally, the Beeline Expressway stretches 43 miles between the Orlando and Cape Canaveral areas.

Florida's other toll roads generally serve local needs in metropolitan areas experiencing population growth. Miami's Dade County, for example, has an airport expressway, an east-west expressway, and a south Dade expressway. In addition to the Beeline Expressway, the Orlando area has an east-west toll road. Similarly, the Tampa and Jacksonville areas have toll roads. The 23-mile Sawgrass Expressway, under construction in the Ft. Lauderdale area, will serve as a local connector route between the Florida Turnpike and Interstate-95.

Toll Road Managers

Several different management structures have been used to develop and manage Florida's toll roads. For example, the Florida Department of Transportation (FDOT) manages the Florida Turnpike; the Dade County government manages the three separate toll roads in the Miami area; and the Broward County Expressway Authority is managing the construction of the new Sawgrass Expressway. Jacksonville, Orlando, and Tampa also use expressway authorities to manage toll road development. Table II.1 describes Florida's toll roads and identifies their managing units.

**Appendix II
Toll Roads in Florida**

Table II.1: Florida Toll Roads and Managing Units

Toll road manager	Tollroad^a	Toll length (miles)
Florida Department of Transportation	Florida Turnpike	321.5
	Buccaneer Trail	15.9
Orlando-Orange County Expressway Authority	Beeline Expressway ^b	20.7
	East-West Expressway	13.8
Jacksonville Transportation Authority	Jacksonville Expressway System	7.3
Tampa-Hillsborough County Expressway Authority	Tampa Crosstown Expressway	14.0
Dade County	Miami Airport Expressway	4.4
	East-West Expressway	12.0
	South Dade Expressway	9.5
Broward and Collier Counties	Alligator Alley	78.0
Pinellas County	Pinellas Bayway	15.2
Brevard County	Bennett Causeway	13.6
	Pineda Causeway	4.0
	Beeline Expressway ^b	22.1
		552.0

^aFlorida also has nine bridge and bridge approach toll facilities which are not listed here.

^bOrlando-Orange Authority manages a portion of the Beeline Expressway and Brevard County manages another portion.

FDOT

FDOT manages the Florida Turnpike, which runs north and south over much of Florida's length. The turnpike was managed by the Florida State Turnpike Authority until a state government reorganization disbanded the authority and transferred its powers and responsibilities to FDOT in 1969. As specified in the turnpike's bond indentures, the revenues from the turnpike can only be used for turnpike business. Conversely, FDOT funds are not to be used for the turnpike. In addition to stating the terms and conditions under which the bonds were sold, the bond indentures also specify the roles and responsibilities of FDOT and other state agencies.

County Governments

County governments also manage some of Florida's toll roads. The county managers work through memorandums of agreement with FDOT and other state agencies. The roles and responsibilities of the counties which manage toll roads are specified in the agreements and in bond indentures. According to FDOT's bond development coordinator, county government roles and responsibilities are similar to those of the expressway authorities.

Authorities

There are seven active expressway authorities in Florida, including three that were created by Florida legislation in 1983. These expressway authorities are neither part of FDOT nor part of a county government. They are independent state agencies individually created by state legislation.

- Orlando-Orange County, Jacksonville,¹ and Tampa-Hillsborough County Authorities are active, ongoing authorities that have developed toll roads.
- Broward County Expressway Authority, created in 1983, is constructing the 23-mile Sawgrass Expressway.
- Palm Beach County and St. Lucie County Expressway Authorities, both created in 1983, and the Seminole County Expressway Authority, created in 1974, are studying the feasibility of toll roads locally.

The Executive Director of the Broward County Expressway Authority, the Executive Director of the Florida Association of Transportation and Expressway Authorities, and FDOT's Policy and Planning Economist stated that an advantage of the authority approach is that an authority can concentrate its efforts on the development and operation of the toll road. Conversely, under the county government structure, toll roads must compete for attention with other county priorities such as schools and water.

To establish an expressway authority in Florida, a locality—usually a county—petitions the Florida legislature. Once authorized, enabling legislation specifies the authority's composition, purpose, and powers. For example, legislation creating the Broward County Expressway Authority specifies that the governing body shall consist of five members, each a resident of Broward County. Two members shall be appointed by the Governor and confirmed by the Senate. Three members shall be appointed by the Board of County Commissioners of Broward County. The term is 4 years, and each member may be reappointed.

According to its legislation, the authority's purpose is to acquire, hold, construct, improve, maintain, operate, own, and lease the Broward County Expressway System. Three roadways make up the system. To add any other roadways to the system requires the consent of the Broward County Board of County Commissioners.

¹Jacksonville is actually designated a Transportation Authority because it manages a transit system in addition to toll roads and bridges.

To manage the Broward County Expressway System, the authority is empowered to

- purchase property necessary for carrying out the purposes of the authority;
- exercise the power of eminent domain;
- enter into and make lease-purchase agreements with FDOT until bonds are fully paid as to both principal and interest;
- handle all aspects of establishing and collecting tolls;
- make contracts, as necessary, for carrying out its business; and
- borrow money, accept grants from, and enter into contracts with any federal agency, the state, any agency of the state or Broward County, or any other public body of the state.

The composition of governing entities varies among authorities. While legislation for the Broward County Expressway Authority specifies five members, the Tampa-Hillsborough County Expressway Authority legislation specifies seven members, and the St. Lucie County Expressway Authority legislation specifies nine members. Although their compositions differ, FDOT's Bond Development Coordinator stated that the authorities' purposes and powers are essentially the same.

Financial Overview

Florida toll roads are financed through the sale of bonds. The proceeds from the bond sale have been used to construct toll highways, with the toll revenues being applied towards the repayment of the bonds and interest debts. Table II.2 shows that Florida has issued bonds totalling more than \$1 billion to finance the construction of toll roads.

**Appendix II
Toll Roads in Florida**

Table II.2: Florida's Bonds Finance the Construction of Toll Roads

Dollars in millions					
Toll road manager	Tollroad ^a	Bond Issues			
		Amount	Date(s)		
Florida Department of Transportation	Florida Turnpike	\$ 387.6	1955 1972	1961 1973	1970
	Buccaneer Trail	4.6	1951		
Orlando-Orange County Expressway Authority	Beeline Expressway	7.0	1965		
	East-West Expressway	70.5	1970		
Jacksonville Transportation Authority	Jacksonville Expressway System	30.0	1977		
Tampa-Hillsborough County Expressway Authority	Tampa Crosstown Expressway	171.5	1971	1978	
Broward County Expressway Authority	Sawgrass Expressway (under construction)	172.5	1984		
Dade County	Miami Airport Expressway	25.0	1959		
	East-West Expressway	19.4	1965		
	South Dade Expressway	37.0	1970		
Broward and Collier Counties	Alligator Alley	17.0	1963		
Pinellas County	Pinellas Bayway	37.9	1960	1965	
Brevard County	Bennett and Pineda Causeways	23.0	1968		
	Beeline Expressway	10.0	1968		
Total		\$1,013.1			

^aFlorida also has nine bridge and bridge approach toll facilities which were constructed from bond proceeds totalling \$472 million.

State and County Pledges

To increase the marketability of toll road bonds, bond indenture documents include a covenant to complete. It provides legislative approval to complete construction of a toll road with state transportation funds if bond proceeds are insufficient to cover construction costs. In effect, the covenant to complete guarantees that a toll road will be built. Florida bond indenture documents also include a pledge by the state of its full faith and credit to satisfy the bond and interest debt. This provision guarantees that the bonds will be paid.

To pledge its full faith and credit, Florida's constitution requires that estimated toll revenues must be at least 133 percent of anticipated debt service. To compute the coverage test, officials consider two estimated revenue sources. The first source is the average toll revenues projected over the first 5 years of operation. If this is inadequate to meet the percentage requirement, the second revenue source considered is the county's portion of the state gasoline tax. Two cents of the state's six cents per gallon gasoline tax is dedicated to and allocated among the counties. With the estimated toll revenues and, if needed, the county gasoline tax pledge, the state gives its full faith and credit to repay the bonds.

According to FDOT's Bond Development Coordinator, revenues generated by a toll road tend to increase over the years because traffic growth occurs as a road matures. Thus, a toll road that does not generate excess revenues in its early years could do so in later years, with the excess revenues possibly being used to repay any county gasoline tax funds or state funds used. For example, Broward County estimated that the Sawgrass Expressway will generate \$18 million in its first year of operation and that toll revenues will steadily increase to \$46 million by its twentieth year of operation.

Financial Conditions of Toll Roads

The financial conditions and arrangements of Florida's toll roads vary considerably. Although some toll roads, such as the Florida Turnpike, generate revenues in excess of bond, interest, and other costs, other toll roads do not. As a result, their managers (which include the various organizations listed on p. 15) owe payments to the county because pledged county gasoline tax funds have been used to supplement toll revenues in paying bond and interest costs. Some toll road managers owe payments to FDOT because, under the covenant to complete, state transportation funds were used to complete construction of the toll roads when bond proceeds were insufficient to do so. Also, some toll road managers owe FDOT for the deferred costs of collecting the tolls and operating and maintaining the toll roads.

According to a Florida State Board of Administration official and FDOT's Bond Development Coordinator, past bond indentures generally specified that toll revenues in excess of each year's bond and interest debt should be used to buy up outstanding bonds. As a result, the operation and maintenance costs to FDOT would be deferred until all bonds had been paid for. More recent bond indentures, such as the Sawgrass Expressway bond issue, permit the use of (1) excess toll revenues to pay

current operations and maintenance costs and (2) the county gasoline tax to pay for toll revenue shortfalls.

The financial arrangements for the Florida Turnpike are different since no county gasoline taxes are pledged and FDOT costs are not deferred. The bond indentures require that the turnpike's bonds, interest, operations, maintenance, improvements, and even law enforcement costs be paid entirely from the turnpike's revenues—essentially tolls and concession revenues. Finance reports show that for 1984, the turnpike generated revenues totalling about \$80 million and incurred costs of \$65 million. As specified in the bond indenture, FDOT deposited the nearly \$15 million in excess revenues into a turnpike maintenance and improvement account.

We did not obtain similar revenue and cost data for other toll roads because the data was not readily comparable. The different toll road managers used different types of accounting systems. For example, some managers combined the revenue and costs of all toll bridges and roads in their areas, while others did not.

We did obtain data on the funds owed FDOT and the counties. As of June 30, 1985, toll road managers owed FDOT and their respective counties approximately \$175 million for (1) deferred operations and maintenance, (2) funds expended under FDOT's covenant to complete, and (3) county gasoline tax funds used to redeem the bonds and interest costs. Toll road managers owed the following:

- Two owed FDOT \$17 million for deferred toll collection operation costs, an increase of \$3 million over the past year.
- Seven owed FDOT \$37 million for deferred maintenance, an increase of about \$2 million over the past year.
- Seven owed FDOT \$71 million for funds used under the covenant to complete the construction of the toll roads, the same amount as in the previous year.
- Four owed their respective county governments \$50 million for the use of county gasoline tax funds to cover toll revenue shortfalls, a \$6 million increase over the previous year.

While the amounts owed FDOT and the county governments are sizeable and have increased over the past year, FDOT policy and planning officials provided the following observations.

- The approximately \$175 million owed is not large compared to the \$2 billion FDOT estimates that it would require to purchase the rights-of-way and construct the toll roads today.
- The amount owed will be repaid over time, as future traffic increases will result in excess revenues which can be used to repay FDOT and the counties.
- Five hundred miles of Florida highways would not likely have been built without the bond sale/toll road relationship, and these highways are addressing traffic congestion needs in growing metropolitan areas.
- Deferred costs and pledge of the county gasoline tax funds appear preferable to establishing excessively high toll rates, which can result in decreased traffic volume.
- Concerning the deferred maintenance, if FDOT had built the highways with state transportation funds, FDOT would have been absorbing the maintenance costs anyway.

Flow of Revenues

The bond indenture documents detail how toll revenues and, when needed, county gasoline tax revenues are to be applied towards the payment of bonds, interest, and other costs. For example, Sawgrass Expressway's 1984 bond issue specifies that revenues must be used to satisfy debts or costs in the following order:

- the annual debt service requirement, which is the amount of principal and interest accruing on the bonds in each fiscal year,
- the reserve account to maintain or restore, if needed, an amount equal to the maximum annual debt service,
- the annual budgeted amount of the cost of operating the toll road, including the cost of collecting tolls, and
- the annual budgeted amount of the cost of maintaining the toll roads.

Broward County has pledged its gasoline tax revenues to cover any shortfalls of toll revenue for the above requirements and costs. The gasoline tax is not to be used for other toll road costs. If toll revenues exceed expenses in the above categories, the revenues are applied against the following accounts, as required:

- reimbursing Broward County for gasoline tax funds used in previous years,
- a special project account for major and nonordinary replacement and renewal construction; the acquisition and construction of any roads or bridges; purchasing additional rights-of-way; conducting engineering

and design studies as required or convenient for further expansion, additions, and improvements as needed, and

- a redemption account to buy up outstanding bonds if such purchases are practicable.

Developing a Toll Road

Planning, financing, and construction are integral parts of toll road development. In addition to FDOT, various other government entities can be involved in the development process, including counties, expressway authorities, and other state agencies. FDOT is involved in toll road development since it approves all state transportation projects and collects the tolls. The Division of Bond Finance of the Department of General Services is the issuing agency for state bonds and becomes a partner with the expressway authority when bonds are sold. The State Board of Administration receives the toll revenues and pays the bond and interest debt. The State Treasurer administers the construction fund that is used to pay for building the toll road.

Planning

Planning the development of a toll road can evolve over a period of years. In determining whether a road should be built as a toll facility, local decisionmakers balance the availability of limited federal, state, and local funds against the need for the road to prevent or at least help mitigate traffic congestion.

The need for the Sawgrass Expressway, for example, was first identified between 1960-1961. In 1974, the road was incorporated in Broward County's land use plan. The Executive Director of the Broward County Expressway Authority stated that, although the need for the road was recognized, the funds to build it were not available. Subsequently, in 1982 the Broward County Expressway Implementation Committee determined that it was feasible to develop the Sawgrass Expressway as a toll road. Also in 1982, the Broward County Commission drafted legislation to form an expressway authority with FDOT providing funds for planning and designing the expressway. The following year, the state legislature created the expressway authority with FDOT providing funds for planning and designing the expressway.

Another step in the project development process involves using FDOT funds to generally plan and study the feasibility of establishing toll roads. In addition, FDOT funds are used by toll authorities to plan and design specific toll roads. The feasibility funds are used by authorities to

hire consultants to make preliminary reports on traffic and revenue projections, roadway design and construction cost estimates, and any required environmental assessments. For the three Florida expressway authorities currently studying toll road feasibility, FDOT provided about \$109,000 to the Seminole County Expressway Authority in December 1982; \$197,000 to the St. Lucie Expressway Authority in January 1984; and \$200,000 to the Palm Beach Expressway Authority in August 1984.

Responsible FDOT staff offices review these preliminary reports and provide their evaluations to the Bond Development Coordinator. For example, FDOT's Bureau of Estimates reviews the consultant's construction cost estimate and the Bureau of Multi-Modal System Plans assesses the traffic projections. In addition, the Bond Development Coordinator uses the revenue projections to compute the value of bonds that can be supported by the revenues and to determine the financial reasonableness of the road. According to the Bond Development Coordinator, as a rule of thumb, \$1 of annual revenue supports between \$7 to \$10 in bonds, depending on the bond's term and interest rate.

If bond financing appears feasible, FDOT informs the Division of Bond Finance, and the expressway authority contracts for final design, specifications, cost estimates, and traffic and revenue studies for the project. If a toll road is built using bond sale proceeds, the FDOT funds advanced for the feasibility studies are repaid from the proceeds of the bond sale. If the toll road is not considered feasible, recoupment is not sought and FDOT considers the money to be an investment in transportation planning.

FDOT staff offices review the final consultant reports, and the Division of Bond Finance develops the financing plan to include the amount and term of bonds to be sold. The Bond Development Coordinator prepares the bond indenture and a lease-purchase agreement. The indenture contains the assurances and certifications of the state. The 3-way lease-purchase agreement between the authority and FDOT's Division of Bond Finance describes how the bonds are repaid and who is responsible for operating and maintaining the toll road.

Financing

At this point in the development process, the authority needs to sell bonds to finance the planned toll road. The Division of Bond Finance is responsible for preparing a prospectus on the bonds which includes

- a statement of authority to issue the bonds;

- Florida's pledge of the full faith and credit of the state for payment of the bonds;
- Florida's covenant to complete construction of the toll road if bond proceeds are inadequate;
- a statement that the bonds are exempt from taxation;
- a description of the toll road;
- the traffic and toll revenue study;
- the flow of funds from revenue;
- the lease-purchase agreement which explains that the toll road is leased to FDOR until all bond and interest debts are satisfied, at which time the toll road becomes a state-owned road; and
- a statement describing the responsibilities for operation and maintenance of the toll road.

The Division of Bond Finance advertises the bonds, receives sealed bids, and selects the purchaser whose offer results in the lowest net interest cost to the state. When the bonds are sold, the Division of Bond Finance deducts its expenses and allocates the proceeds as dictated by law and the bond indenture.

In the case of Broward County's \$172.5 million bond sale in 1984, nearly 1 percent of the proceeds were allocated to FDOR's Division of Bond Finance for its expenses and for a bond insurance premium. About 21 percent was allocated to the State Board of Administration for deposit into the Debt Retirement Account. The State Board of Administration administers all debt service funds for Florida state bonds. The lease-purchase agreement in the bond indenture requires an amount equal to the first 24 months of interest be funded from bond proceeds before construction is funded. The other 78 percent (\$134 million) of the bond proceeds was allocated to the Project Construction Trust Fund, which is administered by the State Treasurer. With this fund, the authority is ready to construct the toll road.

Construction

A Florida toll road manager decides whether to contract for construction of the toll road or to delegate the contracting to FDOR. According to FDOR's Bond Development Coordinator, toll road managers usually decide to perform the contracting procedures themselves and solicit bids to build a toll road using the technical design and specifications data contained in the project's feasibility study. Also, the manager begins obtaining properties along the right-of-way of the toll road. Once construction bids are received, the manager selects the winning bid and awards a construction contract.

FDOT engineers review the toll road design and specifications and oversee the contracting and right-of-way acquisitions to ensure that the manager is operating appropriately. Also, the FDOT engineers are available for advice, but their oversight is informal.

For the Sawgrass Expressway, the Broward County Expressway Authority elected to perform its own contracting. According to the Executive Director, the authority followed county contracting procedures, which generally follow state contracting procedures, including the use of competitive bidding. The local FDOT assistant district engineer stated that FDOT monitored the authority's contracting procedures for the Sawgrass Expressway.

The authority divided construction of the Sawgrass Expressway into six segments and awarded a separate contract for each segment. The authority hired consultants to oversee construction and ensure that the contractors were building the toll road according to the contract and design specifications. According to the bond indenture, the designed highway meets all standards established by FDOT, the Federal Highway Administration, and the American Association of State Highway and Transportation Officials.

For the rights-of-way, the authority acquired 166 parcels of land. According to the Executive Director, the land acquisition process went very smoothly, facilitated in part by the fact that a single property owner held the majority of the land and was willing to sell. Additionally, there were no environmental problems associated with the largely undeveloped rights-of-way. The original environmental impact statement, prepared by FDOT in 1979, was updated and approved by FDOT in 1984. As of August 1985, construction of the Sawgrass Expressway was about one-third complete, with a target completion date of June 1986.

Operating a Toll Road

Operating toll roads requires the establishment of toll rates, the collection of toll revenues, and the investment of the proceeds. In addition, toll roads and facilities must be maintained and repaired. In Florida, toll road managers establish toll rates based on recommendations contained in consultant studies. FDOT's Bureau of Toll Facilities actually collects and deposits the toll revenues in banks. The bond trustee, frequently the State Board of Administration, invests the toll revenues. FDOT is active in maintaining and repairing toll roads, both in terms of identifying needed work and in seeing that the work is done. Consultants for the managers also identify needed work.

Establishing Toll Rates, Collecting and Investing Toll Revenues

Bond indenture documents are prepared by toll road managers and outline the generation, collection, and use of toll road revenues. These documents can include various statements including the following:

- that as long as any bonds and interest are outstanding, the manager shall establish tolls;
- in fixing and determining the rates of tolls, the manager will take into consideration the amounts needed for the payment of the principal and interest on the bonds; and
- any revision of the toll rates shall be based on a survey and recommendation of consultant traffic engineers.

As discussed earlier, FDOT's operating costs for collecting tolls may be paid out of toll revenues or deferred for payment at some future time. The toll revenues are deposited, usually daily, into specified bank accounts and transferred monthly to the State Board of Administration to cover upcoming bond and interest payments. Investment of the toll revenues by the State Board of Administration is limited to United States Treasury obligations.

Toll Road Maintenance and Repair

FDOT engineers help identify maintenance and repair needs on toll roads. Typical maintenance activities include patching pot holes, cutting the grass, or painting toll facilities, while repairs generally involve resurfacing or reconstructing the toll roads. These needs are identified through the local FDOT engineers' assessments of conditions of all roads within a specific geographical area and through daily observations. For the Florida Turnpike, FDOT's Bureau of Turnpike Management is responsible for identifying maintenance and repair needs, receiving input from local FDOT engineers. Because of staff limitations, FDOT's Bureau of Turnpike Management has contracted for almost all of the repair work and for some of the maintenance work. Regardless of who performs the work, the associated costs are applied against toll road revenues with the revenues being used to repay the costs.

Florida Turnpike bond indentures, as well as indentures for other toll roads, require that the responsible authority retain consultants to perform periodic inspections of the toll road's condition and to make ongoing traffic and revenue projections. The inspection reports and traffic and revenue projections are used to identify needed repairs, as well as major improvements such as adding lanes to meet projected traffic requirements. The 1984 inspection report on the condition of the

Florida Turnpike, for example, included narratives and photographs describing the physical condition of

- roadways, including the pavement, shoulders, turf, drainage structures, guardrails, fence signs, and landscaping;
- interchanges and service plaza roadways;
- bridges; and
- other facilities such as restaurants, service stations, administration and maintenance facilities, water and sewer facilities, communications facilities, and Florida highway patrol facilities.

The 1984 inspection report included information on the turnpike's highway patrol facilities. All safety and law enforcement costs, which totalled nearly \$5 million in 1984, are reimbursed from the turnpike toll revenues. For other toll roads, these functions are provided by the police in local jurisdictions on a nonreimbursable basis.

The aforementioned traffic and revenue studies use sampling techniques to project traffic levels and project toll revenues. The studies take into account outside influences such as the existence of a major reconstruction project on nearby highways, which may stimulate additional toll road traffic. The traffic studies can also project future increases in toll road capacity required to meet anticipated growth in traffic.

1985 Legislative Changes Affecting Florida Toll Roads

In 1985 the Florida legislature made changes affecting toll authorities and FDOT's management of toll roads. The changes had a notable effect on FDOT's management of the turnpike, providing greater flexibility in the use of excess turnpike toll revenues. The changes provided

- that tolls may be continued on toll roads even after all indebtedness has been satisfied,
- the Division of Bond Finance may refinance any outstanding bond indebtedness of the Florida Turnpike, and
- that FDOT shall begin the process for expeditiously repurchasing outstanding Florida Turnpike bonds prior to the bonds' maturity.

If toll road managers decide to continue charging tolls once the bond indebtedness is repaid, the resulting excess revenues could be used to build additional toll facilities in their geographical areas. If the turnpike's outstanding indebtedness is refinanced, FDOT can design a more flexible bond issue. Under a new bond issue, excess revenues could be

used to help finance additional toll roads along the turnpike. If, in addition, FDOT repurchased outstanding bonds prior to maturity or set aside sufficient funds to do so, it could gain added flexibility in the use of the maintenance and improvement account.

Toll Roads in Illinois

The Illinois toll highway system consists of 256 miles of roadway.¹ Construction of the toll system commenced in 1955 and when it opened to traffic in 1958, it totalled 181 miles. In 1974, an additional 74 miles known as the East-West Extension were completed. Table III.1 depicts the current toll system.

Table III.1: Current Illinois Toll System

Toll road	Route number	Length (miles)	Location Description
Tri-State	Interstate 294/94/80	83	Extending from a connection west of Lansing, Illinois, to a terminal point near the Illinois-Wisconsin state line.
Northwest	Interstate 90	77	Extending from a connection east of Chicago-O'Hare International Airport to a terminal point south of South Beloit, Illinois.
East-West	Illinois Route 5	96	Extending from a connection with the Tri-State west to a terminal point near Rock Falls, Illinois

In 1984 passenger cars and commercial vehicles traveled more than 13.5 billion vehicle miles over Illinois toll roads. According to the Illinois State Toll Highway Authority², the system has a number of features that make it unique among most toll facilities in the country. The system serves

- urban-type commuter traffic,
- urban commercial traffic, and
- commercial and recreational interstate and intrastate traffic.

According to the authority, the combination of traffic types allows for a stable system whose operations and revenue do not fluctuate with economic conditions, as would those of a system serving only one of these traffic groups.

The authority is planning to construct a new 17.5 mile toll road. The new facility, which will be designated the North-South route, will serve as a connecting corridor for the northwest and southwest communities of suburban Chicago. Toll authority officials anticipate that construction will start in 1986 and that the road will open in 1988 or 1989.

¹The City of Chicago operates and maintains a 7.8 mile toll road which is not under the jurisdiction of the authority. We did not review the operation of this facility because of its small size and traffic load compared to that of the authority's system.

²Formerly the Illinois State Toll Highway Commission.

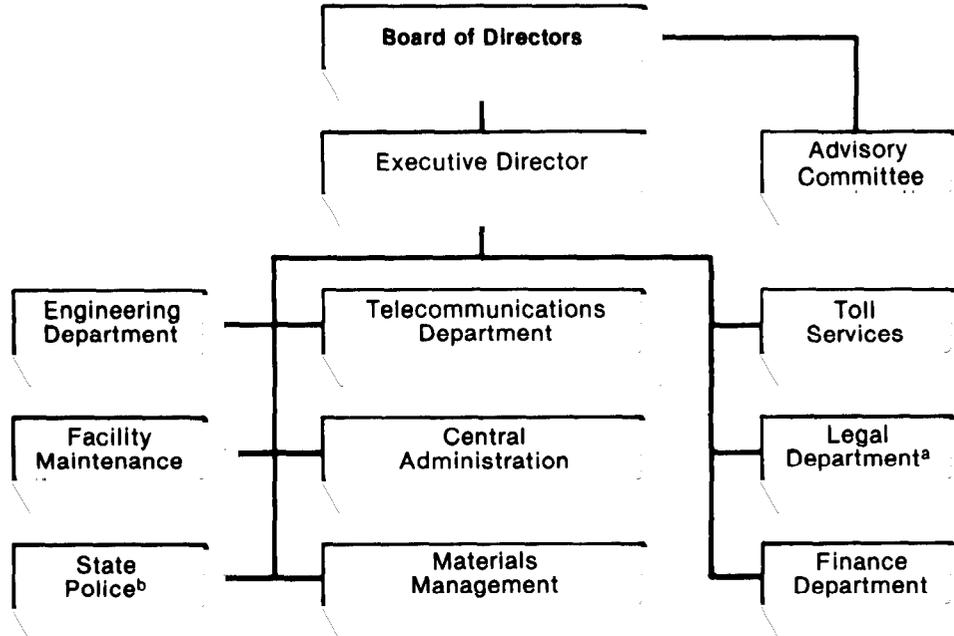
Illinois Toll Roads Operated by a Single Authority

The Illinois State Toll Highway Authority was created by a special act of the state legislature in 1953. The act mandated the authority to promote the public welfare and facilitate vehicular traffic by providing a convenient, safe, and modern highway to accommodate the needs of the traveling public in Illinois. The authority promotes the public interest by constructing, operating, regulating, and maintaining a toll highway system.

A nine-member board of directors governs the authority, which constitutes an instrumentality and an administrative agency of the state of Illinois. The Governor and the Secretary of the Illinois Department of Transportation (IDOT) are ex officio members; the Governor appoints the remaining seven directors to staggered terms, with the advice and consent of the state senate. The act provides that, when making appointments, the Governor should consider the location of the toll highway routes so that the board's membership represents the geographic areas served by the system to the maximum extent possible.

The board of directors is responsible for fulfilling the authority's legal obligations and for providing general policy guidance. The actual day-to-day operations of the authority are managed by the executive director, whom the board appoints. The executive director oversees the operations of the authority's nine operating departments and is responsible for appointing all other staff. The organizational structure of the Illinois Toll Highway Authority is depicted in Figure III.1.

Figure III.1: Illinois State Toll Highway Authority



^aUnder the jurisdiction of the Illinois Attorney General

^bUnder the jurisdiction of the Illinois Department of Law Enforcement

In addition to establishing the board, the act created an advisory committee to work with the authority on policy and administration matters. The committee, however, neither sets nor implements policy. It is composed of five members of the House of Representatives appointed by the Speaker; five members of the Senate appointed by the President, Pro Tempore; and 15 members appointed by the Governor. Each member is appointed to a 2-year term.

The authority is independent of both the federal and state departments of transportation. However, it has entered into agreements and coordinated activities with the state transportation department. The authority has also used staff and facilities of the department. Furthermore, the authority is empowered to accept grants and enter into contracts or other transactions with the federal government. However, according to the authority's chief engineer, contacts with the federal government have been minimal: the authority has never accepted federal highway grants or entered into contracts with the federal government.

Legal Powers

Under Illinois state law, the authority is mandated to build and operate toll highways in the state. The Illinois Revised Statutes³ empower the authority to

- acquire, construct, operate, regulate, and maintain a system of toll highways;
- issue and sell bonds to finance the cost of purchase, construction, improvements, or relocation of any tollway;
- set toll rates, based on semiannual estimates of tollway use and revenues;
- collect tolls;
- prepare plans, specifications, and estimates for tollroads;
- acquire property as provided by the law of eminent domain;
- condemn necessary property when an agreement to acquire it cannot be reached with a municipality or political subdivision;
- establish reasonable regulations for the installation, maintenance, and removal of public utilities;
- pass rules and regulations for the management of the authority's affairs, and the construction, operation, and management of its tollways;
- grant concessions and leases to utilities, service stations, garages, stores, and restaurants;
- accept grants from and enter into contracts with the federal government;
- employ and discharge personnel without regard to any civil service or personnel act, and establish and administer job classification standards; and
- make determinations in exercising its discretionary powers that are conclusive and not subject to review by state courts or state administrative agencies.

Financial Overview

In late 1955, the authority initiated financing for construction of the toll system through the sale of \$415 million in revenue bonds. Subsequent issues of \$64 million, \$14 million, and \$135 million were marketed in 1958, 1966, and 1970, respectively. As of December 31, 1984, of the \$628,450,000 in bonds issued, the authority has retired \$364,999,000 from both revenues and monies held in construction fund accounts.

The authority has been financially solvent since its inception, as mandated by statute and by the bond resolution governing the issuance of

³Illinois Revised Statutes, Chapter 121, Section 100.

the revenue bonds. The state is not liable for the principal and/or interest due on the bonds issued by the authority. Table III.2 is an excerpt of the authority's "Statements of Net Operating Revenues" for the two most recent years.

Table III.2: Authority's "Statements of Net Operating Revenues" Ending on December 31 for the Years 1983-1984

	<u>Year ended December 31,</u>	
	1984	1983
Toll revenues	\$157,327,494	\$117,227,599
Other revenues ^a	4,780,891	5,056,130
Total operating revenues	\$162,108,385	\$122,283,729
Total maintenance and operating expenditures	56,639,136	51,558,146
Net operating revenues	\$105,469,249	\$ 70,725,583

^aIncludes revenues from concessions, interest, overweight tickets, and miscellaneous sources.

The allocation of the net operating revenues to the various revenue fund accounts is prescribed in the bond resolution. The resolution provides that the system's net operating revenues, to the extent monies are available, are to be credited to each account in each fiscal year in the following order of priority:

- maintenance and operation account—in an amount sufficient to maintain the account balance at 30 percent of the total amount budgeted for maintenance and operation expenditures in such fiscal year;
- interest account—in an amount sufficient to pay interest for such fiscal year on all bonds outstanding;
- interest reserve account—in an amount sufficient to maintain 2 years' interest on the aggregate amount of all bonds outstanding with excess amounts transferred to the sinking fund account;
- sinking fund account—in an amount sufficient to retire the prescribed principal amount of bonds by the first of January of the succeeding fiscal year;
- general reserve account—all amounts remaining after crediting the above accounts, with the amounts required in an amount not less than 20 percent of the amounts required to be credited in such fiscal year to the interest account and the sinking fund account. This latter account is used to fund the authority's annual general reserve plan for rehabilitating the system.

The authority's funding and expenditures for each account, as of December 31, for the past 2 fiscal years is shown in Table III.3.

Table III.3: The Authority's Funding and Expenditures, as of December 31, for Fiscal Years 1983-1984

Dollars in thousands

Account	For year ending December 31,				Ending balance
	1983		1984		
	Funding	Expenditures	Funding	Expenditures	
Maintenance and operating	\$ 1,555	\$(0)	\$ 1,330	\$(0)	\$17,852
Interest	15,025	(15,025)	13,368	(13,368)	0
Interest reserve	(1,216)	(0)	(4,571)	(0)	25,022
Sinking fund	13,531	(13,531)	50,897	(50,897)	0
General reserve	48,590	(76,454)	88,020	(58,671)	46,971

According to the enabling legislation, the toll highway system will become part of the state system of free roads when all bonds and interest have been paid, or when a sufficient amount has been set aside in trust to cover the system's obligations. Operation and maintenance of the roads would then revert to the IDOT, the authority would dissolve, and any excess funds would be paid to the State Treasurer. According to the authority's financial manager, this situation would probably not occur before the year 2008—the redemption date for the authority's outstanding and proposed bond issues.

Operating the Illinois Toll Road System

In operating the Illinois tollway system, the authority must establish, collect, and invest toll revenues and must assure that the roads are safe, well-maintained, and rehabilitated when necessary. The authority believes in preventive road maintenance with required rehabilitation performed with the help of contractors adhering to construction and design standards developed by the authority. In its construction and rehabilitation efforts, the authority has held cost overruns to a minimum and has introduced innovative road safety features to Illinois highways.

Establishing Toll Rates, Collecting and Investing Toll Revenues

The statute creating the authority and the resolution governing the issuance of revenue bonds both require that toll rates and revenues be sufficient to cover the system's current and projected outstanding obligations. The authority establishes toll rates based on its annual rehabilitation plan as well as the semiannual estimates and recommendations of traffic engineering consultants.

In 1983, the authority initiated its first toll rate increase in 20 years. Passenger automobile rates increased to 40 cents (33.3 percent increase), and truck and commercial vehicle rates rose to 25 cents per axle (66.7 percent increase). The rate increases were needed to cover projected shortfalls in the General Reserve account. The new rate structure had a positive impact upon the finances of the authority since toll revenues rose approximately 45 percent for the first 3 months after the rate increase.

The toll service department is responsible for toll collections. It is the largest department within the authority, employing 40 percent of the work force at 25 staffed locations throughout the system. In addition to staffed toll collection points, the authority uses automated toll collection equipment. Data recording equipment is used at staffed toll collection lanes.

Revenue generated from tolls and other sources, including concessions and overweight tickets, must be transferred within 3 days of receipt to the Illinois State Treasurer for deposit in "The Illinois State Toll Highway Fund." The State Treasurer invests monies in this fund in United States Treasury obligations.

Maintaining the Tollway

The authority's engineering department performs roadway maintenance functions. In terms of workload, the major roadway maintenance activities are removing snow and cutting grass. Other maintenance activities the staff perform include sealing cracks, filling potholes, patching pavement, marking pavement, and repairing or replacing fences and lights. Maintenance-type repairs are typically spot improvements. More extensive work, such as resurfacing the roadway, replacing fencing or light structures along a segment of road, fall under the authority's "General Reserve Program," a rehabilitation function.

The facility maintenance department maintains the authority's 62 buildings, including toll plazas, rest areas, salt storage domes, maintenance garages, and other structures. It also operates and maintains the authority's helicopter.

Planning Rehabilitation and Improvements to the System

Toll authority officials describe their philosophy of road rehabilitation as "fixing it before it's broken"—that is, rehabilitating a road before it falls into a deteriorated state. Two planning reports, written by consulting engineers, reflect the authority's rehabilitation philosophy. The

first report is the 1980 to 1989 Ten-Year Plan, which ranks 430 alternative improvement projects according to various priority analysis procedures. This plan, the only document of its kind the authority has produced so far, is a long-term guide for the selection and implementation of improvements. The annual General Reserve Plan is the actual construction plan for tollway improvements. It contains a description of projects, their status, estimated costs, and implementation schedules.

Authority staff and consulting engineers consider several factors in devising the General Reserve Plan, including

- public safety,
- preservation of the physical facility,
- traffic capacity, and
- patron service.

The plan draws on a number of information sources, including

- annual inspection reports,
- studies of travel patterns and characteristics,
- accident data,
- repair histories,
- requests from other government agencies, and
- cost-benefit studies of proposed improvements and rehabilitations.

For example, maintenance staff perform an annual inspection of the roadway for a detailed system-wide roadway inventory. These inventories are necessary to identify needed rehabilitation work. Additionally, a private engineering consultant performs a less detailed system-wide roadway inventory, as required under the 1955 bond resolution.

Design Standards

Design standards for constructing and rehabilitating the system generally meet or exceed the American Association of State Highway and Transportation Officials (AASHTO) standards. Illinois tollway standards that are exceptions to AASHTO criteria are as follows:

- The authority requires wider traffic lanes. 12 1/2-foot widths for the first two right lanes and 12-foot widths for the left lane.
- The typical tollway section has a free draining sub-based material under the pavement slab to extend the tollway's life expectancy under heavy traffic.

- The tollway does not have continuous steel-reinforced pavement. All the pavement on the existing system is standard reinforced concrete (10 inches thick with mesh only) or plain pavement (14 inches thick and no steel). According to the chief engineer, roads constructed in these ways are cheaper to build and repair than reinforced pavement roads, and in the authority's experience have had an equivalent service life.
- Toll road alignment (rate of curvature) and profile (grade) criteria are more stringent than AASHTO's, yielding gentler curves and grades.
- The authority is refitting bridge parapets (walls and curbs) in a configuration which directs vehicles back onto the road.

Rehabilitation Activities

Road rehabilitation projects included in the General Reserve Plan and expenditures totaled over \$58 million in 1984. The authority contracts to private firms most of its rehabilitation design and construction activities.

Engineering consulting firms design tollway modifications, and prepare plans and contract documents in conformity with authority criteria for rehabilitation work. Design work for road rehabilitation or toll plaza widening is routine. Past costs form the basis for determining current design fees. The authority assigns to each project a coordinator, who reviews plans, documents, and invoices. The coordinator also monitors the design work timetable and handles the budget from project inception to construction bidding.

Bid Procedures

The authority solicits construction bids through local newspapers. Bidders acquire from the authority the project's construction plans, consisting of detailed project drawings and the contract book. The contract book describes the project and materials required and includes questions about the contractor's equipment, subcontractors, and current contractual obligations. Bidders complete and submit the contract book to the authority, which then holds a bid opening and awards the contract to the lowest responsible bidder. After signing the contract, the authority and contractor hold a pre-construction meeting at which the contractor submits a proposed progress schedule for the authority's and consultant engineer's review and approval. The authority issues a written notice to proceed after (1) the contract documents are fully executed, and (2) the progress schedule is approved.

Construction Inspection

The authority hires engineering consulting firms to inspect construction work for contract compliance. The firms are responsible and liable for seeing that design and specification requirements are met. The engineering firms provide a field organization of engineers and inspectors who monitor materials, workmanship, and contract requirements.

The authority assigns a field project coordinator from its engineering department to each project. The coordinator monitors the procedures and progress of the construction contractor and consulting firm. The coordinator communicates with the construction firm through the consulting firm.

Cost Containment

Historically, the authority has been successful in limiting cost overruns. Between 1979 and 1984, the authority paid \$211,233,000 on \$209,316,000 in contracts for a total cost overrun of less than 1 percent. The authority's chief engineer identified three factors that contributed to this cost containment: (1) extensive experience with the roadway, which resulted in the development of accurate, specific designs; (2) close monitoring of the construction work, including close review of work changes; and (3) monetary incentives and damage provisions for contractor performance.

Since the authority has performed rehabilitation and reconstruction work on the system for 25 years, it can base future contract plans and estimates on actual experience.

In addition, the authority requires pre-approval of any change orders or extra work orders from the original agreement. Change orders change the quantity of an existing item of work and may be issued by the engineering consultants. Extra work orders establish a new price for an item of work which has no established unit cost. An extra work order must be approved by the construction contractor, the engineering consultant, the toll authority general consultant, the chief engineer, and the board of directors.

Since 1982, the authority has used bonus incentives for early work completion and liquidated damage contract clauses for late completion. For example, according to the chief engineer, the contract for current work on the Tri-State Tollway includes an early completion bonus of \$5,000 a day, for up to 20 days, and \$15,000 a day in liquidated damages for late completion.

Innovative Approaches and Construction

Although the authority does not have an extensive research and development program, the authority's chief engineer pointed out that it has been quick to adopt proven innovative designs enabling the authority to stay up-to-date without incurring development costs. For example, the authority introduced in Illinois the pre-stressed concrete bridge girder, which has proven to be virtually maintenance free. The authority also introduced the "New Jersey" configuration barrier wall. When a vehicle hits the wall, it directs the vehicle back toward the roadway, preventing the vehicle from jumping the wall. In addition, the tollway was the first in Illinois to use rigid latex admixture overlays on bridges. These overlays on the bridge deck surface protect the deck from water intrusion, thus protecting the steel support structure. Another innovation is the use of high skid resistance surfaces derived from steel slag on road surfaces. These surfaces have an open texture that inhibits vehicle hydroplaning.

The authority's chief engineer said the tollway's control over its own budget and the absence of bureaucratic barriers contributed to its ability to experiment with new and innovative procedures and materials.

Toll Highway Safety

In 1984 the Illinois toll road system accommodated over 3.5 billion vehicle miles, with 5,053 accidents and 22 fatalities. The authority's chief engineer believes that the system is one of the safest major toll road facilities in the nation, and statistics presented by the International Bridge, Tunnel, and Turnpike Association confirm this. For toll roads with comparable vehicle miles, the Illinois system had one of the lowest fatality rates in 1984: 0.6 fatalities per 100 million vehicular miles traveled.

The authority has a complement of 152 state troopers responsible for policing the tollway system. The authority reimburses the state police for all costs incurred in providing police services on the system. For fiscal year 1984, these costs amounted to \$6,371,415.

Building a New Toll Road

In addition to operating existing toll roads, the authority is responsible for building new tollways when they are needed. To build a new road, the authority must arrange to finance it and must work with contractors to design and build the addition. The authority is currently planning to add a new road to the system. The North-South route, scheduled for completion in the late 1980's, is the first new toll road constructed since

1974. Our discussion of how the authority builds a new toll road will focus on the development of this new route.

The Decision to Build

According to the authority's chief engineer, the Northeastern Illinois Planning Commission (NIPC) identified the need for a major highway along the North-South route in the early 1960's. NIPC's 1961 Chicago Transportation Study called for the eventual construction of this highway. IDOT identified the route and received a federal road designation but never built the project due to lack of funds.

In 1983, the authority responded to a request by the state legislature to study eight roadway segments in northeastern Illinois to determine whether they would be viable as tollways. The segments included the proposed North-South route. The authority, IDOT, and an outside consultant jointly studied the routes and found that none of them would be self-supporting as tollways. Of the eight segments, the North-South route had the best revenue projections, but the authority and the others believed it would still not be self-supporting. No formal reports were issued.

Subsequently, the Governor and the Illinois General Assembly acted to establish a North-South Tollway. After the Governor's determination that a toll road was necessary, the Illinois General Assembly passed Joint Resolution 122 in 1984 authorizing the building of the North-South Tollway.

According to authority officials, the North-South Tollway is feasible because the authority requires only financial viability for the entire tollway system. It does not expect each segment of roadway to be self-supporting.

Toll Road Financing

The original financing mechanism for the Illinois Toll Highway system was specified in the act establishing the system and in the 1955 bond resolution. The resolution and subsequent amendments empowered the authority to market its four existing revenue bond issues for construction purposes, pledging toll revenues as collateral for principal and interest payments. The resolution's covenants do not allow the authority to expand the system beyond the current three routes nor to pledge toll revenues as collateral for subsequent bond issues, as long as the four authorized issues remain unsecured and outstanding.

Because of these stipulations, financing for the proposed North-South Tollway required special legislation to free the authority from the restrictive terms of the outdated bond resolution. The General Assembly passed Public Act 83-1258, which modified the authority's bonding powers, without requiring the approval of the existing bondholders. The legislation allows the authority to market new revenue bond issues; the authority plans to market two bond issues for construction of the North-South tollway. The proceeds from the first issue, according to the financial manager, will be used to secure the four outstanding revenue bond issues, thus freeing the toll revenues as collateral for other purposes. The sale proceeds will be invested in government securities, the principal and interest of which will be sufficient to cover the redemption costs and interest due on the old bonds. This new issue will be secured by the system's toll revenue.

The second proposed bond issue will be used to finance the construction of the North-South route. The bond sale proceeds will be invested until needed to meet outstanding construction obligations. This issue will be secured, like the first, by the toll revenues of the entire tollway system.

Marketing Toll Road Revenue Bonds

The entire bond marketing process is relatively new to the authority since it has not marketed any bonds since 1972. To date the authority has acquired the services of an underwriter—a brokerage house—with extensive experience in marketing bonds similar to those the authority plans to sell. An important consideration in choosing a brokerage house is its network for selling a large dollar value of bonds with minimal commission expense. The authority has not decided upon the exact dollar amounts to be marketed for each issue nor on the interest rate to be paid. The stated interest rate will not be determined until a few days prior to the actual sale date and will be influenced by current market rates and yields for similar issues.

Project Design and Planning

Design Process

The North-South Tollway is currently in the preliminary design phase. The project schedule calls for one year of design and two years of construction. Since the authority has not yet sold bonds to finance the tollway and is restricted in the use of its General Reserve funds, IDOT is financing the preliminary design work through a loan to the authority.

The authority has also established a formal coordinating committee with IDOT for design and construction of the road.

The authority's general consultant is preparing environmental studies, traffic projections, and preliminary intersection layouts. An authority engineer monitors the general consultant's work hours and the project's milestones. The authority's chief engineer heads a steering committee which reviews state-of-the-art construction materials and techniques and submits the information to the general consultant for incorporation into the design. As required by the authority's enabling legislation, the governor must approve all preliminary plans. To handle the workload for the final design, the authority will hire additional consulting firms.

The authority has established standards and procedures for construction under its road rehabilitation program and will apply these standards to the North-South Tollway. Contracting, constructing, and monitoring procedures for the tollway will be the same as those for road rehabilitation projects. These procedures were discussed earlier in this chapter.

Right-Of-Way and Environmental Studies

Under an agreement with IDOT, the authority will receive, free of charge, parcels of right-of-way IDOT acquired under the FAP-431 designation. These parcels represent approximately 30 percent of the right-of-way acreage which the authority needs for the road. IDOT officials stated that no federal funds were used to acquire this right-of-way. Formal transfer has not taken place.

The authority will acquire the additional right-of-ways in the following manner. Engineering consultants will perform a right-of-way survey of the route, after which the authority will develop land plats and legal descriptions of the affected parcels, and an appraiser will value the property. Based on the appraisals, the authority will make offers to the property owners and enter into price negotiations. According to the authority's chief engineer, the authority prefers to negotiate for purchase of right-of-ways rather than use its condemnation power.

Since the North-South Tollway route crosses two waterways under the jurisdiction of the U.S. Army Corps of Engineers, the Corps must approve the project. The Corps is preparing an environmental impact statement for the entire 17.5 mile route. The statement will address the benefits to be accrued versus the environmental costs incurred from the project. The Corps chose to conduct the study since the potential costs

and benefits will impact upon the entire system and not just that small segment under the Corps jurisdiction. The authority is cooperating with the Corps and anticipates that it will approve the project.

Construction Costs

The authority anticipates that constructing the proposed North-South route will cost approximately \$20 million per mile, or \$350 million for the entire 17.5 mile route. This estimate represents a 900 percent increase over the construction costs for the existing system, approximately \$2.1 million per mile. According to the authority's chief engineer, the significant rise in construction costs can be attributed to increased cost of labor and of raw and finished materials.

Congressional Budget Office Toll Financing of U.S. Highways Report Summary¹

In a time of financial pressure on the Highway Trust Fund, the demand for new highway capacity has led to Congressional reconsideration of the legislative limits on federal support for toll roads. Although tolls are generally a costlier way to raise funds than are tax instruments, supplementing federal and state support with tolls could allow some valuable projects to be completed more quickly than could otherwise be achieved. Furthermore, a lower federal share of highway costs than under current practice would be possible. Toll financing also offers stronger incentives for cost-effective projects. This study analyzes the costs and benefits of toll financing as a supplement to tax support of U.S. highways and compares the effects of alternative federal policies for toll road financing.

The Current Status of Highway Financing

Allowing only a few exceptions, federal law has prohibited the levying of tolls on roads built with federal aid since 1916. As a result, the 5,000 miles of toll roads in the United States have been financed without federal support. Instead, funding has come from borrowing in the tax-exempt bond market. Particularly in recent years, very few new toll roads have been built. Inhibiting factors have been competition from tax-supported highways (especially the 42,500-mile Interstate Highway System) and record high construction costs and interest rates. Indeed, new debt issued for toll roads has almost come to a halt, dropping to only about 6 percent of what it was before the start of the interstate system in 1956. In the present economic climate, even the most financially promising toll road projects typically require some form of public assistance.

Meanwhile, the emphasis of federal highway spending has shifted from construction of new roads to repair of the existing highway network. Furthermore, even without undertaking major new construction efforts, the Highway Trust Fund is spending money faster than it is collecting revenues from the highway users' taxes that support it. The Trust Fund used more than half of its 1985 spending of \$13 billion to maintain and repair existing roads and bridges, and put \$4 billion toward completing the remaining 1,200 miles of the interstate system. This leaves only limited amounts of federal aid for construction of the new highway capacity that will be needed to accommodate the estimated 50 percent increase in vehicular traffic expected by the year 2000.

¹Congressional Budget Office, Toll Financing of U.S. Highways, 1985, pp. XIII-XVI.

Together, these factors motivate an increased interest in modifying or repealing the federal government's present no-toll policy.

Costs and Benefits of Toll Financing

Because toll collection requires the construction and operation of toll barriers, toll roads incur extra capital costs and have higher operating expenses than do comparable nontoll routes. To collect tolls costs about twice what it does to collect state highway taxes—14 percent of receipts versus 7 percent for the typical state combination of highway users' taxes. In addition, debt financing through the municipal bond market can increase capital costs by as much as 5 percent to 30 percent. And for users, tolling can cause delays as well as more circuitous travel for drivers choosing to avoid paying tolls.

Certain benefits can outweigh these costs, however. Most important, given present constraints on public money available for new highway construction, toll financing can speed the completion of a new road by as much as several years. As a result, the economic benefits of new highways may be realized sooner than under tax-supported financing. Further, by providing a source of dedicated revenues over the life of a facility, tolls afford a better guarantee of upkeep. Indeed, tollways tend to be kept in somewhat better condition than comparable tax-supported roads, offering users faster travel and less wear on their vehicles. On heavily traveled routes, tolls have the potential to help relieve traffic congestion by rationing limited highway capacity during peak periods, which can avoid or at least postpone the need for additional highway capacity.

The need to compete for funds in the municipal bond market subjects toll projects to a stiff cost-effectiveness test that only those with the best prospects for financial self-sufficiency pass. Toll-financed road projects have the clearest prospects for financial success in urban areas and high growth regions that can expect heavy traffic volumes. Such areas are not numerous, however. Today, less than 10 percent of existing urban mileage on the interstate system carries sufficient traffic to pass the feasibility test for a new self-supporting tollway. (In CBO's analysis, these existing roads serve as rough proxies for the pool of potentially successful new toll roads.) Thus, greater use of tolling is likely only if there is a substantial drop in costs—whether through a further decline in real interest rates or the availability of public funds to help subsidize construction. By contrast, the conversion of many

existing nontoll routes to tollways appears feasible without public financial support, although a change in federal law would be required to permit such conversions.

Alternative Federal Approaches

Changing the federal law that prohibits tolls on federally supported routes could make toll financing a more viable alternative for building new highway capacity than it is at present. The Congress may therefore wish to consider altering current federal policy in one of two ways:

- modification, to allow federal aid for new toll projects only, and
- repeal, to allow tolls to be levied on both existing and new federally supported highways.

Modification

Allowing toll financing for new roads could expedite the construction of new highway capacity that otherwise might well be delayed several years or longer. Federal aid could be provided on a much more limited basis than for nontoll routes—for example, a 25 percent federal matching share for new toll highways, instead of the present 75-to-25 federal-to-local matching ratio for non-interstate construction. Even this relatively small federal share would significantly improve the feasibility of new toll road projects. Using CBO's proxy to give a measure of the stimulus such a modification would provide, for a "typical" urban toll road, a 25 percent federal matching share would double the fraction of existing urban interstate mileage with traffic sufficient for a financially viable toll road. If this approach were combined with reduced highway authorizations, it could also provide some—albeit limited—relief for the Highway Trust Fund, by lowering the level of federal spending on certain projects that would otherwise be built with a high federal share of costs.

On the other hand, because the stiff selection test that new tollway projects must pass would be weakened, access to federal funds would reduce the potential for improved project selection that is one of the advantages of toll financing. In addition, the proliferation of financially independent toll facilities could reduce governmental control of highway spending and pricing.

Repeal

Besides permitting toll revenues to match federal funds in constructing new highways, the Congress could also allow tolls to be introduced on existing toll-free federal routes. Because conversion entails much lower

capital costs and because traffic is already established, no additional federal financial help would apparently be needed to support the conversion of nontoll routes to toll facilities. Indeed, eliminating the eligibility of such roads for federal repair funds would appear practicable.

The conversion of toll-free roads to tollways would be controversial, however, with the resulting net benefits unclear. Proponents of such a change in federal policy could point to three justifications. First, it could permit states that have recently experienced rapid growth to add capacity to existing interstate and primary routes sooner than they otherwise could. Second, it could provide an alternative to federal financing for major repairs—less important, however, since the Surface Transportation Assistance Act of 1982 authorized a major increase in federal funds for interstate repair. Third, tolls can provide a means to help control congestion on heavily traveled urban routes.

On the other hand, toll financing appears less suitable for improving existing roads than for constructing brand new ones. If imposing tolls were to speed highway improvements by only a few years, the capital costs of converting and the greater operating expenses associated with tolling could well swamp the economic gains stemming from more rapid completion of a needed project, except perhaps on some heavily congested routes.



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