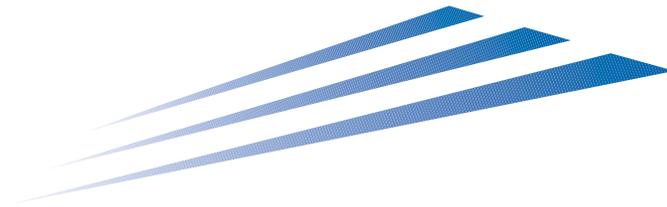


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**DEBT CAPACITY AND DEBT LIMITS:
A STATE ROAD FUND PERSPECTIVE**



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Research Report
KTC 04-16/TA5-03-1F

**Debt Capacity and Debt Limits: A
State Road Fund Perspective**

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And

Federal Highway Administration
U.S. Department of Transportation

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16. Abstract State governments are facing major transportation infrastructure financing challenges as highway or Road Fund revenue growth has slowed and resistance to tax increases has strengthened. As a result, state transportation officials have turned to other financing methods to maintain momentum in meeting highway construction and maintenance needs. Among the financing methods being considered is the expansion of bond or debt financing. Changes in federal legislation that permits states to "pre-obligate" future federal funds, among other considerations, has made debt financing an attractive alternative for the states. As states consider the expanded use of this financing strategy, several financial management questions arise including the appropriate role of debt financing, debt capacity and whether to establish limits on their use of debt financing. Unfortunately, limited research has been carried out to address these issues as the state debt financing literature has focused on state General Fund debt management issues. This study focused on the debt management issues associated with the use of state highway or Road Fund revenues as the source of debt service support for new bond issues. Among the issues assessed (through a national survey) were whether states have developed separate debt policies or limits for highway or Road Funds, the ratios of debt service payments to total state Road Fund revenues and other debt management issues. The study results suggest that the states have begun to focus on these issues and are actively setting and managing debt policies for their Road Funds and are including debt financing as part of their overall state highway financing strategies.			
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Executive Summary

State governments are facing major transportation infrastructure financing challenges as highway or Road Fund revenue growth has slowed and resistance to tax increases has strengthened. As a result, state transportation officials have turned to new and innovative methods to maintain momentum in meeting highway construction and maintenance needs. Among the financing methods that state transportation officials have turned to is the use of bond or debt financing. The attractiveness of debt financing is attributable to several factors including the theoretical justification of debt financing (the benefits received principle which suggests that it is appropriate policy to match the benefits of public expenditures to the cost of public programs and investments), the ability to speed up the highway construction and maintenance process and recent federal legislation (TEA 21) that permits the states to use future federal funds to meet debt service obligations.

As states consider the expanded use of bond financing, data indicating national norms regarding the use of Road Fund revenues for bond debt service is useful policy analysis information. Likewise, information regarding limits that “peer” states have established for this form of transportation financing can be useful in establishing state transportation debt use policy. Discussions regarding the appropriate debt limits have included questions regarding Road Fund affordability or “debt capacity.” Such questions focus on determining the “sustainable limits” to the use of Road Fund revenues to meet debt service obligations. By implication, sustainable debt limits are levels of debt or Road Fund debt service expenditures that can be incurred without negatively impacting the ability of a state to meet other high priority highway investments.

With a clearer picture of national norms or benchmarks regarding the use of Road Fund revenues to meet debt service obligations, state transportation officials are in a better position to formulate debt policies, to set debt appropriate limits and to assess the role of debt financing in their overall highway financing plan. This study considers the conceptual issues surrounding state debt management policy and reports on a state survey regarding debt financing policies and debt limits. The results of this inquiry can provide guidance to the states regarding these important transportation financing policy issues.

Previous studies indicate that states tend to emulate other states in setting debt limits and debt management policies. Debt limits have included limits on debt per capita, limits on the ratio of debt service expenditures relative to total revenues and the like. Most state debt policy research has focused on state General Fund (the fund used to support general state expenditures) debt limits. Limited research has been carried out regarding debt management policies for restricted funds such as state highway or Road Funds. Such funds, because of their less competitive nature (less competitive because the expenditure of Road Funds are generally limited to highway and road construction and maintenance), may justify different debt policies and debt limits than their more competitive General Fund (General Funds are more competitive as these funds support multiple government activities and programs and are subject to priority adjustments) counterparts. Moreover, General Fund monies are principally used to finance current state operations while Road Funds tend to finance highway construction and maintenance investments which are considered

capital expenditures. Also, as the “conventional wisdom” or “golden rule” of public finance suggests that debt financing is appropriate for capital expenditures while current operations should be supported by current revenues, a greater commitment of Road Fund monies to debt financing may be appropriate.

To obtain information regarding current state debt management and debt limit policies, two surveys were administered. One focused on state policies and debt limits associated with the use of restricted highway or Road Fund revenues to support bond issues. The other survey obtained information regarding General Fund and overall state debt management and debt limit policies. The two surveys permitted comparisons of state debt policies for state General Funds and Road Funds. Thirty-seven states responded to the Road Fund survey and twenty states provided information regarding statewide debt policies.

The survey results indicated that states have a variety of debt limits. The limits include state constitutional limits (which principally set limits on General Obligation debt which is debt supported by the full taxing and revenue generating authority of a state), state statute based limits and limits established by state policy. In some states, debt limits are overlapping suggesting that the legally established debt constraints are reinforced by state policies which may be more restrictive. States also tend to modify or adjust debt limits in reaction to changing state fiscal and economic conditions. Survey results also suggest that states tend to commit greater percentages of Road Fund revenues to debt service than they commit to debt service from state General Funds. Mean ratios of current debt service expenditures to total revenues ranged 3 to 4 percent for state General Funds to 7 to 11 percent for state Road Fund debt service expenditure payments for the 1980 to 2000 study period. Debt service expenditures to total Road Fund revenues also varied among the reporting states. The highest third of the reporting states had debt commitment ratios of 15 to 25 percent; the middle third had ratios of 6 to 7 percent while the lowest third of the states had debt service expenditure to total Road Fund revenue ratios of 1.9 to 3.7 percent.

An unanticipated study result was that states which indicated that they had established debt limits had higher debt service expenditure to total revenues ratios than states without such limits (both for state Road Fund and General Funds). While the reason for this result is not clear, it may indicate that the states that use debt financing for capital expenditures more aggressively may feel it is important that they have debt limits if they are to maintain favorable credit ratings. Likewise, the states with low debt service to total revenue ratios may not feel the need to aggressively manage their debt situation as, compared to their peers, they are, apparently, managing their debt well within their perceived debt capacity.

This study focused on emerging concerns of states regarding state debt management policy. It extends previous research by focusing on a comparison of state limits on debt supported by General Fund revenues to debt limits on a special fund – the state highway or Road Fund. The debt limit policies and actions revealed by this study may serve as a source of comparison information for states interested in setting debt limits

or modifying their debt policy for state Road Funds. As peer standards tend to be the major source of information used by the states to set debt management policies, the results of this study may provide data and information for such state policy establishment or modification.

Debt Capacity and Debt Limits: A State Road Fund Perspective

Introduction:

A variety of “earmarked” user fees provide the major share of the funds needed to finance the construction and maintenance of the nation’s highway system. The earmarked funds are typically accounted for separately in a special fund often referred to as a “Road Fund.” In 2000, the Federal Highway Administration indicated that federal and state highway system user fee revenues (principally motor fuels taxes and registration fees) provided approximately \$72 billion or 76 percent of the \$92 billion that states had to finance their highway and road system construction and maintenance¹. Of the \$72 billion, \$4.7 billion was derived from tolls while federal user fees provided \$23 billion and state receipts from motor fuels and registration fees accounted for \$44.2 billion. Meanwhile, approximately \$8.2 billion (or 9 percent of the \$92 billion) were acquired from bond or debt financing.

While bond financing has accounted for a relatively small portion of total state highway expenditures in the past, this financing technique is being considered more frequently as states face slow growth of earmarked revenue sources and escalating needs for transportation infrastructure investment. Increased state interest in the use of bond financing has also resulted from changes in federal policy which permits the use of “pre-obligated” Federal Highway Trust Fund monies as a debt service source for state bond financing. Those policy changes regarding the use of federal funds resulted from

¹ See detailed state revenue data in the Federal Highway Administration’s report *Highway Statistics 2000* www.fhwa.dot.gov/ohim/hs00. Table SF-1 (Revenues Used by States for Highways) is found in Section IV: Highway Finance.

innovative financing provisions of Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the National Highway System Act of 1995 (NHS), and Transportation Equity Act for the 21st Century (TEA21)² passed in 1998.³ While the two federal transportation authorization laws (ISTEA and TEA21) provided greater flexibility in the use of each state's share of federal highway trust fund monies, the NHS Act removed the barrier for the states to "pre-obligate" anticipated federal funds. As a result, the states were permitted to commit federal funds for bond debt service beyond the current authorization period—a major change in highway finance.

This policy change ushered in the possible use of state shares of Federal Highway Trust Fund monies for debt service on state highway related bond issues. The 1995 NHS legislation also established a 10-state pilot program which permitted the pilot states to utilize federal highway and transit grants to assist the states in capitalizing State Infrastructure Banks (SIBs). SIBs are typically empowered to issue bonds to raise capital and loan funds. The 1995 legislation (which applied to fiscal years 1996 and 1997) imposed a 20 percent minimum state match for participation in the new SIB support initiative and limited the use of federal funds for the capitalization of a SIB to 10 percent of a state's federal fund allocation. Legislation in 1997 expanded the SIB initiative and provided \$150 million to assist state SIB efforts. As a result of the 1995 and 1997 legislation, 38 states and Puerto Rico established SIBs by calendar 2000.

The 1998 TEA-21 legislation limited federal government support for the establishment and capitalization of SIBs. In that legislation, only four states were permitted

² www.fhwa.dot.gov/tea21

³ Mitchell, Glen & Hackbart, Merl, Innovative Financing Options for Kentucky's Transportation Infrastructure, (Kentucky Transportation Center, University of Kentucky, 2001)

to use federal funds for SIB support. However, SIBs that were created earlier and capitalized with federal funds were allowed to continue to operate.⁴

In response to state fiscal pressures and new financing options provided by federal legislation, states have actively pursued bond financing to supplement current resources to finance state transportation expenditures. The National Association of State Budget Officers (NASBO) reported that 29 states issued bonds to finance transportation investments in fiscal year 2000 (FY00), 30 states issued bonds in FY01, and 32 states utilized debt financing for transportation projects in FY02. The value of transportation related bond sales increased from \$5.2 billion in FY00 to \$6.3 billion in FY01 and \$7.5 billion in FY02. The bond proceeds, as a percent of total state transportation expenditures, ranged from 6.2 percent in FY00 to about 8 percent in FY02.⁵

Outstanding state highway debt obligations totaled \$61.4 billion in 2000 (on a net basis after accounting for new issues and maturing or retiring issues)⁶, which represented an increase of over \$5.1 billion over the previous year. To meet the debt service payments on outstanding bond issues, the states draw on a variety of revenue sources. In 2000, for example, 11 states issued new bonds supported by highway user revenue; 3 states issued bonds backed by sales tax revenues, 3 states issued bonds with General Fund support; 5 states sold bonds supported by tolls; 7 states reported the use of special or motor fuels taxes as their source of debt service support while 1 state used parking fees as its source of debt service support.⁷

⁴ Mitchell, Glen & Hackbart, Merl, Innovative Financing Options for Kentucky's Transportation Infrastructure, (Kentucky Transportation Center, University of Kentucky, 2001)

⁵ National Association of State Budget Officers, 2001 State Expenditure Report, (NASBO, Washington, D.C., Summer, 2002), p. 66.

⁶ www.fhwa.dot.gov/ohim/hs00 , Table-SB2 in Section IV: Highway Finance.

⁷ www.fhwa.dot.gov/ohim/hs00 , Table-SB1 in Section IV: Highway Finance.

Highway user tax revenue provided 61 percent of state transportation bond debt service receipts in 2000 while approximately 20 percent came from toll receipts. Bond sale receipts provided 18 percent of debt service receipts while the other bond debt service revenue came from investment earnings and miscellaneous sources.⁸

U.S. Census of Governments data indicate that for the 1996-97 fiscal year, state governments had total outstanding debt of \$456.7 billion of which \$454.52 billion was long-term and \$2.14 billion was short-term debt (debt issues with less than one year maturity). Of the \$454.52 billion long-term debt, \$119.5 was General Obligation (GO) or Full Faith and Credit debt and \$335 was non-guaranteed obligations (also typically referred to as revenue bond debt). In perspective, while the time periods are not exactly comparable (exact time period comparisons are difficult due to the fact that Census of Governments data are only provided at five year intervals), approximately thirteen percent of the state's total long term outstanding debt is for transportation infrastructure (\$61 billion of transportation debt outstanding in 2000 of \$454 billion of total state long term debt in the 1996-97 Census year) and approximately eighteen percent of revenue or non-guaranteed debt (\$61 billion of \$335 billion) is state transportation based debt. State and local government debt outstanding increased by \$246 billion between FY91-92 and FY96-97 or from \$975 billion to \$1.222 trillion (about 25 percent in a five year period).⁹

⁸ Calculated from data displayed in Table SB-3, in Section IV: Highway Finance, of FHWA website www.fhwa.dot.gov/ohim/hs00

⁹ www.census.gov/govs/www (The general link for Federal, State, and Local government census information). The relevant data is found under the Finance heading by clicking on the State and Local Government Finances link (<http://www.census.gov/govs/www/estimate.html>).

Debt Policy Issues

The increased use of debt financing by the states, coupled with concerns about attaining and maintaining strong credit ratings to minimize the cost of debt financed capital, have raised a number of policy issues for state financial managers and policy makers. These policy issues are more pressing in light of the current revenue constraints that make debt financing an increasingly important component and attractive infrastructure financing option. As state officials consider the use of the debt financing option, several finance related policy issues and concerns arise. Among those concerns and issues are the following:

- What is the appropriate use of state transportation related debt financing?
- Are there standards that states can use as “benchmarks” for setting their policy regarding debt financing?
- Should states set limits on debt financing?
- Are there state “industry standards” for setting debt limits?
- Should states set government wide (or “umbrella type”) debt limits or should debt limits be set for each individual fund or debt service sources?
- What are current state debt limit standards?

These issues have emerged as policy concerns of state finance officials. Nevertheless, only minimal research has been carried out to provide guidance regarding these state debt policy concerns. A number of authors have provided theoretical guidance regarding the appropriate use of debt financing. The so-called “golden rule” or “conventional wisdom” of government finance suggests that governments should “match

current revenue to spending on current services, but borrow to support capital spending and thereby maintain the net worth of the public sector.”¹⁰

While the “golden rule” of public finance tells us when debt can properly be used, it does not provide guidance regarding appropriate debt levels and/or debt limits. Research regarding appropriate debt levels and related issues such as debt capacity and setting debt limits is limited. Such research has tended to focus on the capacity of the states to debt finance the states portion of public infrastructure which has traditionally been defined as investment in transportation, water and wastewater facilities.¹¹

More recently, the definition of public infrastructure has been expanded to include public investment in education, hospital, corrections and other public facilities.¹² As a result, the state policy issues of debt management, debt capacity, and the appropriateness of debt limits has been broadened to focus on these forms of public infrastructure as well. While the state debt limit or debt capacity issue has increased in importance, research focusing on national standards or benchmarks for sustainable debt levels remains limited. At the same time, an increasing number of states have established debt management and debt limit policies in order to maintain acceptable credit ratings and minimize the cost of capital.

¹⁰ Mikesell, John, *Fiscal Administration: Analysis and Applications for the Public Sector*, (Orlando, FL: Harcourt Brace, 1999), pg. 224. See also, Matson, Morris, “Government Budgeting—Fiscal and Physical Planning,” *Government Finance*, 5 (August, 1976): 42.

¹¹ U.S. Congressional Budget Office, How Federal Spending for Infrastructure and Other Public Investments Affects the Economy, (Washington, D.C.: July 1991).

¹² Mikesell, John, *Fiscal Administration: Analysis and Applications for the Public Sector*, (Orlando, FL: Harcourt Brace, 1999), pg. 223.

Study Focus

This study reports on research regarding state transportation infrastructure bond financing and debt limitation policies. Specifically, this study focuses on state policies regarding the use of highway revenues (hereinafter referred to as Road Fund revenues) to fund debt service on highway and road system bonds. In the study, various aspects of state highway debt issuance and management policies are explored. Included are research results regarding state highway bond financing policy, the implementation of those state policies, and comparisons of state policies regarding Road Fund supported debt financing vs. state General Fund debt financing policies.

A special focus of the current study was the determination of whether states have included “debt limits” in their debt management policies. As noted, debt limits and debt capacity management have emerged as important state transportation finance issues in the last decade. State interest in these topics has accelerated as states contemplate expanding their use of debt financing and the use of federal funds for financing debt obligations.

State debt management processes and practices are critical factors in the determination of bond ratings and the ultimate cost of debt financed capital. Consequently, policy makers are increasingly interested in debt management issues such as debt capacity and the setting of debt limits as well as the appropriate procedures for analyzing debt capacity and setting debt limits.

State debt limits can be broad-based and restrict the issuance of bonds, regardless of debt service fund source, or can be set by type of fund such as a state’s General Fund, Road Fund or Agency Funds. The type and nature of a state’s debt limit policies and

practices can determine the extent to which bond financing can be used as an integral component of a states overall transportation financing plan.

In the next section, the public debt management literature is reviewed to highlight established debt management guidelines and principles. It is followed by sections that describe the methodology utilized in this study and the results of the study of state debt management policies and practices.

The survey result analysis includes an assessment of state debt policies and procedures and the expenditure of current revenues for debt service payments over time. Data regarding the ratio of debt service expenditures to current revenues provides insights into the application of state debt financing policies. Such data may also provide guidelines or benchmarks regarding national debt issuance and management standards that states can utilize in establishing or modifying debt management and limitation policies.

Literature Review

The conventional wisdom of state public finance is that current expenditures should be financed by current revenues while capital expenditures may be financed by borrowing funds. The golden rule or conventional wisdom that the use of debt financing is justified for capital or infrastructure projects is theoretically based on the “benefits received” principle. That is, capital expenditures such as roads and highways will benefit future taxpayers and, therefore, the cost of such public investments should be borne by them as well as current taxpayers. One way to insure that future taxpayers bear their “fair share” of the cost of public facilities is to use a portion of their taxes to amortize the debt needed to finance capital projects such as public roads and highways.¹³ Therefore, states utilize bonds

¹³ Oats, W. E., *Fiscal Federalism*, (Harcourt, Brace and Jovanovich: New York, 1972).

to finance highway projects because their “benefit stream” typically exceeds 20 to 30 years which is often used as the time period of a state bond issue so there is a match between the amortization period and the expected lifespan of the highway “capital” project.¹⁴

While it has been established that debt financing is an acceptable option for financing capital projects such as highways and roads, the determination of an appropriate balance between “pay-as-you-go” financing vs. debt financing continues to be debated by state policy officials and fiscal policy analysts. As noted by Larkin and Joseph, “greater dependence on borrowed funds can have a significant negative impact on a government’s credit quality.”¹⁵ They further note that “while the issuance of debt is frequently an appropriate method of financing capital projects at the state and local level, it also entails careful monitoring of such issuances to ensure that an erosion of the governments’ credit quality does not result.”¹⁶

While sound financial management principles suggest that only current revenues should be used for operating budgets, capital budgets have two appropriate funding sources: 1) current revenues (current taxes, fees and other source revenues allocated to capital projects) and 2) funds acquired from bond sales. Furthermore, revenues that fund the current operating budget and the “pay as you go” portion of the capital budget are limited to the revenues produced by the state’s tax and fee system and other currently produced revenues. Meanwhile, the limit on bond issue resources used for capital projects

¹⁴ Ramsey, James & Hackbart, Merl, “State and Local Debt Policy and Management,” in Gerald Miller, ed., *Handbook of Debt Management*, (Marcel Dekker Inc.: New York, 1996).

¹⁵ Larkin, Richard & Joseph, James, C., “Developing Formal Debt Policies,” in Gerald Mill, ed., *Handbook of Debt Management*, (Marcel Dekker, Inc.: New York, 1996), pg. 277.

¹⁶ Ibid, Larkin & Joseph, pg. 277.

is limited by the financial ability or capacity of the state to meet future debt service obligations incurred as a result of issuing bonds.

The ability of a state to meet debt service obligations is, in the strictest sense, limited by the availability of future resources to meet debt service payments. The future availability of funds for such payments will, in part, be determined by the willingness of future state officials to “trade off” current (current in a future time period) discretionary expenditures to meet previous bond issue debt service commitments. So while, conceptually, there are restrictions on the use of bond financing, states tend to be less restricted and possibly less disciplined in the use of debt-financing for capital projects and programs.

The lack of discipline is exacerbated by the attractiveness of the enhanced current spending power that can be created by this financing method.¹⁷ As a result, the major factor imposing discipline on a state’s use of debt financing is a state’s desire to maintain its credit position. Larkin and Joseph¹⁸ suggest that bond ratings serve as proxies for the financial market’s perception of a state’s credit worthiness. Among the factors considered by the bond rating agencies in establishing ratings are a state’s debt capacity (or its ability to meet its debt obligations including debt service payments) and the debt management practices of the state. The challenge to states, therefore, is to focus their debt management policies and bond financing decisions on their capacity to meet debt service obligations or the “affordability” of additional debt service commitments. While an admirable goal, the determination of debt capacity or affordability presents a challenge to states and to the rating agencies as well.

¹⁷ Government Finance Officers Association, *Benchmarking and Measuring Debt Capacity*, (GFOA: Chicago, IL, 2000), pg. 2.

¹⁸ *Ibid*, Larkin & Joseph, pg. 277.

If a state's debt policy and bond financing record indicates prudent judgment regarding debt affordability and the use of debt financing (and does not depart from industry standards), it is likely that a state's bond rating will be sustained. The challenge for the states, then, is to establish debt and bond financing policies and procedures that insure that current and future debt issues are financially affordable and are "perceived" to be affordable by the bond rating agencies and the financial markets.

The issue of state government debt affordability has been studied by many authors [Robbins and Dungan; Pogue; Nice; and Hackbart and Leigland].¹⁹ The key consideration of those and other studies [Larkin & Joseph; Simonson, Robbins, and Brown; Smith; Capital Affordability Committee and ACIR]²⁰ has been on assessing the ability of the states to make required debt service payments and to limit debt issuance to a state's "debt capacity." Debt capacity can be conceived of as the level of debt and/or debt service relative to current revenues (or debt ceiling) that an issuing entity could support without creating undue budgetary constraints that might impair the ability of the issuer to repay bonds outstanding or make timely debt service payments.²¹

¹⁹ Robbins, Mark D., & Dungan, Casey, "Debt Diligence: How States Manage the Borrowing Function," *Public Budgeting & Finance*, Vol. 21, No. 2, Summer, 2001; Pogue, Thomas F., "The Effect of Debt Limits: Some New Evidence," *National Tax Journal*, Vol. XXIII, March, 1970; Nice, David C., "The Impact of State Policies to Limit Debt Financing," *Publius: The Journal of Federalism*, Vol. 21, 1991; and Hackbart, Merl & Leigland, James, "State Debt Management Policy: A National Survey," *Public Budgeting & Finance*, Vol. 10, No. 1, 1990.

²⁰ Larkin Richard & Joseph, James C., "Developing Formal Debt Policies," in Gerald Miller, ed, *Handbook of Debt Management*, (Marcel Dekker, Inc.: New York, 1996); Simonson, Bill, Robbins, Mark D., and Brown, Raymond, "Debt Affordability," in *Encyclopedia of Public Administration and Public Policy*, (Marcel Dekker: New York, New York, 2002; Smith, Charles, "Measuring and Forecasting Debt Capacity: The State of Oregon Experience," *Government Finance Review*, December, 1998; Capital Debt Affordability Committee, State of Maryland, "Understanding and Forecasting Condition or Ability to Repay Debt: Report of the Capital Debt Affordability Committee on Recommended Debt Authorizations for Fiscal Year 1993," in Gerald Miller, ed., *Handbook of Debt Management*, (Marcel Dekker Inc.: New York, New York, 1996) and The Advisory Commission on Intergovernmental Relations, *Measures of State and Local Tax Capacity*, Report M-16, (U.S. Government Printing Office: Washington, D.C. 1962).

²¹ Ramsey, James, R. & Hackbart, Merl, "State and Local Debt Management," in Gerald Miller, ed., *Handbook of Debt Management*, (Marcel Dekker, Inc.: New York, New York, 1996)

Most of the debt affordability literature has focused on identifying income and wealth variables that are reasonable proxy measures of the fiscal capacity of a state and, consequently, can be used to predict debt capacity or debt affordability levels for states. In some of the studies, it is assumed that as a state's income and wealth increases, its capacity to meet debt service or its "debt affordability" will proportionately increase. Therefore as long as debt outstanding or debt service payment commitments expand in proportion to a state's economy and wealth, the rating agencies' concerns about the exhaustion or impending exhaustion of an issuing entities debt capacity should be mitigated and the state's debt rating (*ceteris paribus*) should be maintained.²²

An alternative, more practical, approach to analyzing and managing affordable state debt levels is the use of debt capacity "rules of thumb." These approaches are often based on observations of "industry standards" of appropriate debt ceilings (derived from observations of other state policies) and may or may not be statistically based.²³ Representative rules of thumb include setting ceilings on debt service payments as a percentage of state government expenditures, total debt per capita or other level of debt or debt service ratios.

Oregon introduced the practice of setting ranges (represented by "traffic light" signals) of debt affordability or debt capacity utilization.²⁴ After a review of "best practices," the Oregon State Debt Policy Advisory Commission, established by the 1997 session of the Oregon Legislative Assembly, used the ratio of debt service on net tax-supported debt to General Fund revenues to establish a range of debt capacity utilization

²² Hackbart, Merl and Ramsey, James R., "State Debt Level Management: A Stable Credit Rating Model," *Municipal Finance Journal*, Vol. 11, No. 1, Spring, 1990.

²³ Ramsey, James R., Gritz, Tanya, and Hackbart, Merl, "State Approaches to Debt Capacity Assessment: A Further Evaluation," *International Journal of Public Administration*, Vol. 11, No. 2, April, 1988.

²⁴ Douglas, Jennifer Ritter, "Best Practices in Debt Management," *Government Finance Review*, April, 2000.

categories. The debt service to total General Fund revenues ranged from zero to 10 percent. A range of green (0 to 5%) indicates that Oregon has ample debt capacity while a debt service to General Fund ratio placing the state's debt capacity in the yellow zone (6 to 7%) suggests that the state is beginning to exceed "prudent" capacity limits. If Oregon's ratio moved in the red zone (8 to 10%), it is assumed that Oregon's debt capacity limit has been reached.

By implication, if Oregon's ratio reaches the yellow stage, the state is nearing its' debt capacity and a review of Oregon's debt issuance policy is in order. It follows that a ratio denoted by red suggests that the state is about to incur the consequences of excessive debt financing. The implication is that if its' debt financing position is not modified, the state might realize reduced bond ratings, increased interest costs and, possibly, limited access to financial markets.²⁵

The state of Florida undertook a debt affordability study in 1999.²⁶ In evaluating its relative debt position, it relied on Moody's Investors Services 1999 report regarding the relative debt position of the 10 most populous states. Florida ranked second or third in three comparison categories including net tax supported debt relative to revenues, tax supported per capita debt and tax supported debt as a percent of personal income. The peer group median tax supported debt as a percent of revenues was 3.3 percent and the mean was 3.5 percent while the ratios varied from 1.3 percent for Texas to 7.4 percent for New York.

²⁵ Smith, Charles, "Measuring and Forecasting Debt Capacity: The State of Oregon Experience," *Government Finance Review*, December, 1998.

²⁶ Douglas, Jennifer Ritter, "Best Practices in Debt Management," *Government Finance Review*, April, 2000.

After evaluating Moody's comparison data, Florida decided that state debt policy guidelines and estimates of debt capacity were needed. Following Oregon, they based their debt capacity estimates on a ratio of debt service to revenues. They set a target ratio of 6 percent with a cap of 8 percent. The 8 percent cap was selected because a rating agency indicator stated that a 10 percent ratio was excessive and, therefore, it was assumed that the 8 percent cap provided a "margin of safety." When debt limit or debt capacity "rules of thumb" like those used by Oregon and Florida are employed, the targets or caps provide evidence of state intentions to keep debt levels manageable.²⁷

To manage bond issuance and debt outstanding, states have established a variety of limits and policies. A recent study by Robbins and Dungan found that 24 states have constitutional debt limitations; 5 states have statutory debt limitations, 3 states have debt limit rules of thumb, 3 states have informal limitations and 3 states have other formal limitations.²⁸ As their study focused on analyzing general state debt limit policies, it did not clarify how the various debt limits applied to different categories of state bond issues. For example, many state constitutions establish debt limitations for state General Obligation or GO debt (bond issues backed by the full taxing powers of a state) while the same constitutions are silent regarding revenue or non-guaranteed debt. Some states have established state-wide or "umbrella type" debt limitations by policy or statute for all state debt regardless of the source of debt service. Meanwhile, other states have established debt limits which cap debt outstanding or new debt issuance by source of debt service such as General Fund, Road Fund or Agency Funds.

²⁷ Larkin, Richard, & Joseph, James, "Developing Formal Debt Policies," *Handbook of Debt Management*, Gerald Miller ed., (Marcel Dekker Inc.: New York, New York, 1996), pg. 279.

²⁸ Robbins, Mark, & Dungan, Casey, "Debt Diligence: How States Manage the Borrowing Function," *Public Budgeting & Finance*, Vol. 21, No.2, Summer, 2001.

As observed by Miranda and Picur,²⁹ the primary approach used by states to assess debt affordability and to set debt limits involves reviewing debt ratios, debt limits and debt burdens of similar governments. By setting state debt policies which reflect national norms or benchmarks, the states apparently feel that their policy reflects national debt capacity or debt affordability standards. It is interesting to note, however, that Bahl and Duncombe found that the interstate variation of debt burden is driven by the demand for government services and institutional constraints, rather than the capacity to finance.³⁰

Research Design and Methodology

As indicated, the main objective of this study was to analyze current state policies limiting the use of highway or Road Fund revenues as a debt service source for highway construction and maintenance bond issues. As discussed, the literature indicates that many states have begun to establish debt limits, particularly on General Fund supported bond issues, as part of their debt management policies. However, limited research has focused on state highway debt financing debt limits. If such debt limits exist, they may restrict the ability of state transportation officials to consider the expanded use of debt financing as part of their longer-term financing plan.

While debt limit research has indicated that many states have established debt limits, previous research failed to clarify the application of those limits. For example, limits could include 1) state wide or “umbrella type” debt limits that apply to all state bond issues regardless of the source of debt service support (General Funds, all Special Revenue Funds including highway or Road Fund supported debt issues and Federal

²⁹ Miranda, Richard, & Picur, Ronald, *Benchmarking and Measuring Debt Capacity*, (Government Finance Officers Association: Chicago, 2000).

³⁰ Bahl, R., & Duncombe, W., “State and Local Debt Burdens in the 1980s: A Study in Contrast,” *Public Administration Review*, 53(1): 31-40, 1993

Funds), 2) debt limitations which only apply to General Fund supported debt issues (whether General Obligation debt or revenue supported debt), 3) limits that only apply to General Obligation debt, or 4) specific debt limits by source of debt service support (General Fund, Special Revenue Funds, or Road Funds and the like).

In addition to the nature and application of debt limits, observations regarding how states estimate and adjust debt limits are important debt limit management information. Therefore, the current research included an analysis of these issues as well. Knowledge of probable future debt limits is particularly important for transportation financial planning as the design and construction of new highway and road systems require extended time periods. Therefore, state infrastructure investment and financial planning requires perspectives of future debt issuance limitations as well as future highway or Road Fund revenues. With such information, state transportation system financial planners are much better equipped to develop financing scenarios with various combinations of pay-as-you go vs. debt financing strategies.

To gather more information on the current state debt policies and their applications, two surveys were prepared (See Appendices A and B). The first survey focused on determining whether states have established unique debt policies or debt limits for highway or Road Fund supported bond issues. The second survey was directed to central state government finance offices to assess state wide debt limit and debt management policies. The two surveys were used to determine if Road Fund related debt limitations and debt policies differed from General Fund or state wide limitations and policies.

The possibility that states might set different debt limits for General Fund debt than for Road Fund supported debt issues was based on two considerations. First, state Road

Fund revenues are typically earmarked by state constitutions or state statutes for transportation related expenditures. As a consequence, state officials might conclude that it would be safe or financially prudent to commit a greater portion of “protected” Road Fund revenues to debt service than for the more competitive and unrestricted General Fund. Second, the majority of highway and road expenditures are capital expenditures that provide public benefits over an extended period of time. Therefore, such expenditures meet the “conventional wisdom” or “golden rule” criterion for the use of public debt financing. By contrast, General Fund revenues are principally used for operating programs rather than for capital investments.

As a result, again, state financial managers may feel justified in setting less restrictive debt limits for Road Fund bond issues than for General Fund supported issues. Also, the earmark restrictions applied to most state Road Fund revenue sources could make rating agencies more comfortable with less restrictive debt limits for Road Fund issues.

The surveys also acquired data on the nature and source of Road and General Fund debt limits. Historical data on the actual commitment of General Fund and Road Fund revenues to debt service on outstanding bond issues was also requested. These data were used to analyze state “industry standard” debt service expenditure limits.

The respondents for the first survey were state highway agency officials. Names and addresses of these officials (which tended to be the chief financial officer of a state’s Transportation Cabinet or Department) were obtained from the Kentucky Transportation Cabinet or from state Transportation Cabinet or Department web sites. The initial surveys were mailed in August, 2003 with follow-up phone calls, e-mails, and faxes. The survey process was completed in January, 2004.

Appropriate respondents for the second survey were obtained from the National Association of State Treasurers (Debt Policy Network) and the National Association of State Budget Officers. The NAST and NASBO information identified the state offices involved in establishing and managing state debt policy. The surveys were initially mailed in July, 2003 with subsequent follow-ups by phone and e-mail communications. The second survey process was ended in January, 2004.

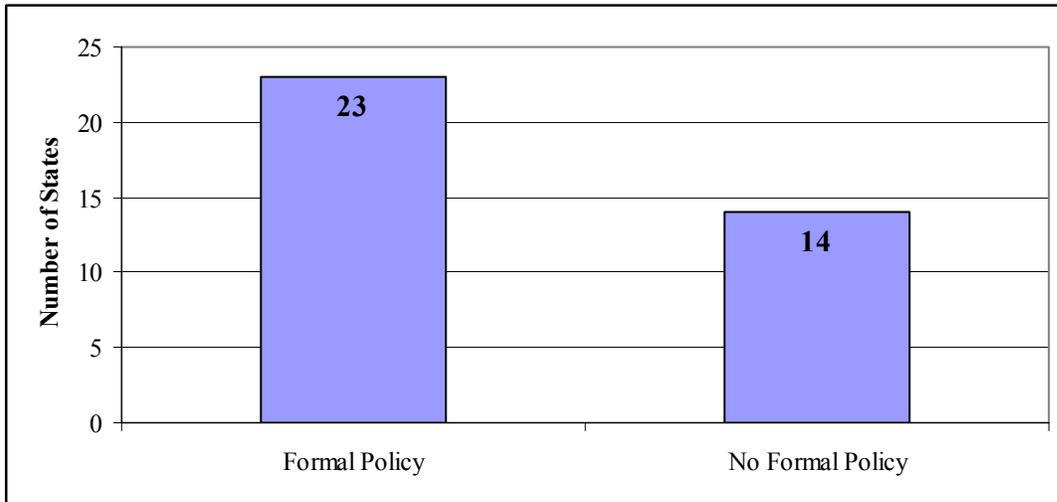
Research Results

Thirty-seven states (74% of all states) responded to the Road Fund survey. Twenty states (40% of all states) responded to the second survey (See Appendix C for list of responding states). The results of each survey and comparisons of state General Fund and Road Fund debt limitation policies are reported in separate sections which follow.

Road Fund Debt Policy and Limits

Twenty-three of the thirty-seven reporting states (62%) indicated that their state had formal debt policies that guide their Road Fund supported debt issuance processes (Figure 1).

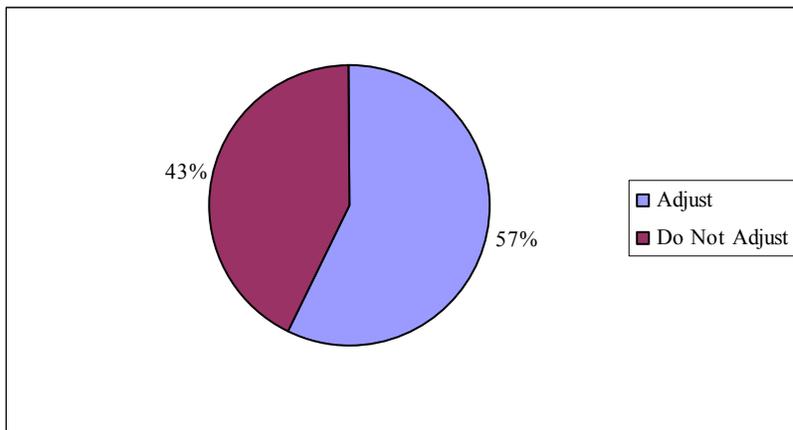
Figure 1: States Reporting Formal Road Fund Debt Policies



Source: University of Kentucky Transportation Center Survey – 2003, 37 states reporting

While state debt limits are frequently established, they are not static metrics and most states update or adjust such limits over time. As shown in Figure 2, 57 % of the states that indicated that they had formal debt limits also indicated that they periodically adjust established limits.

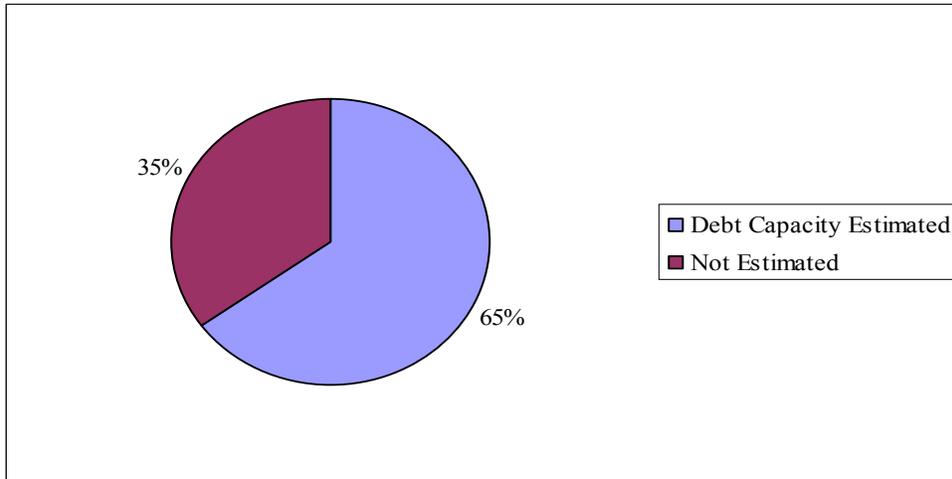
Figure 2: Percent of States that Periodically Adjust Road Fund Debt Limits



Source: University of Kentucky Transportation Center Survey – 2003, 23 states responding

The estimation of debt capacity has emerged as an important component of Road Fund debt management policies. Sixty-five percent of the states (15 of 23 responding states) that responded to the debt capacity section of the survey indicated that they estimate debt capacity (Figure 3).

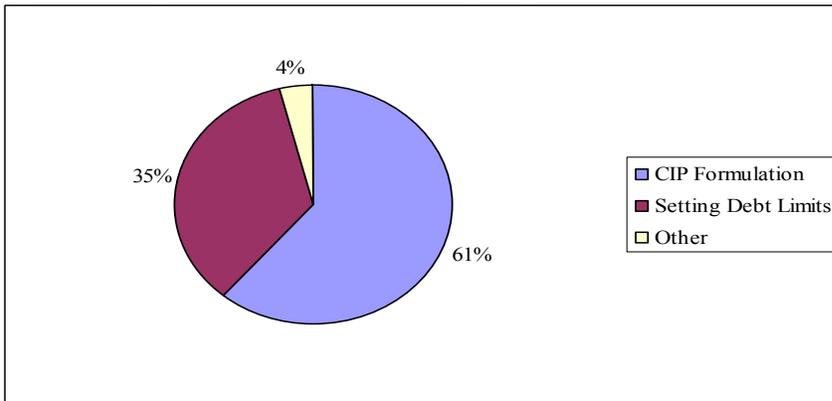
Figure 3: Percent of States that Estimate Road Fund Debt Capacity



Source: University of Kentucky Transportation Center Survey – 2003, 23 states reporting

The responding states indicated that the major reason for estimating debt capacity was to provide information for the preparation of the Capital Improvement Plan (CIP) with 61% or 14 of 23 states (Figure 4) suggesting that the CIP was the main reason for estimating debt capacity. Meanwhile, 8 states (35%) reported that “setting debt limits” was the primary reason for estimating their states debt capacity or debt affordability.

Figure 4: Purpose of Road Fund Debt Capacity Estimation

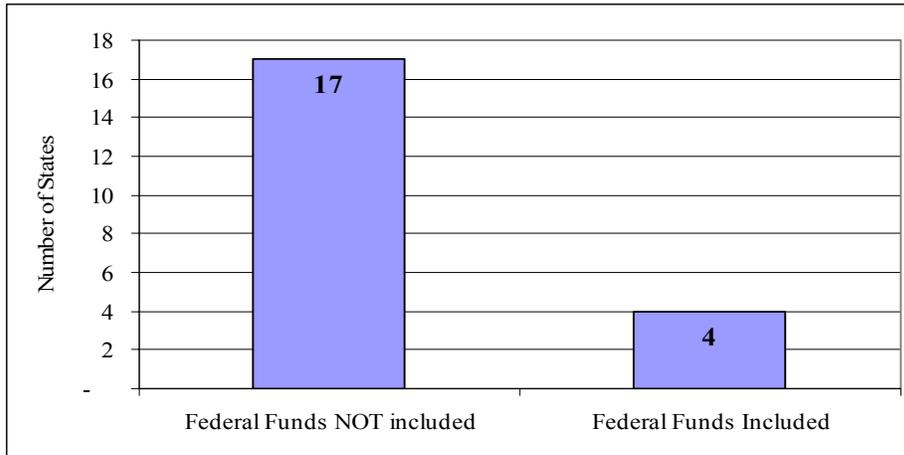


Source: University of Kentucky Transportation Center Survey – 2003, 23 states responding.

As noted earlier, changes in federal legislation (particularly the National Highway System Act of 1995 and TEA-21 of 1998) removed restrictions regarding the use of federal funds as a bond issue debt service source. As states add federal funds to the revenue base that can be used for debt service support, federal funds are being included, by some states,

in the calculation of their debt limit policies. In this survey, 4 states or 19% of the responding states indicated that they include their share (or anticipated share) of future federal funds in the calculation of their state’s debt limit (Figure 5).

Figure 5: Inclusion of Federal Funds in Road Fund Debt Capacity Estimation



Source: University of Kentucky Transportation Center Survey – 2003, 21 states reporting

As revealed by the Road Fund debt survey results, state debt limits and related debt management policies and activities that impact state transportation financial planning are broad based and focus on a number of important debt financing issues. Interesting questions associated with the emergence of state debt limits include “what was the origin of state debt limits” and “what is actually limited by state debt limitation actions?” The origin of state Road Fund related debt limitation policies is quite diverse among the states. Actual debt limits include a variety of metrics such as the absolute level of debt outstanding, a relative limit of debt outstanding (for example, a limit on per capita debt) or by the percent of Road Fund revenues that can be committed to debt service payments. The survey included sections designed to determine the types of limits used by the states and their origins.

As shown in Table 1, formal debt limits (constitutional or statutory) are the predominate source of Road Fund related debt limits. Fifteen states reported that Road

Fund debt issues are limited by constitutional provisions (including specific references to Road Fund debt outstanding, all state debt outstanding and the like) while statutory debt limits of some form were reported by fifteen states as well. Apparently, in some states, both constitutional and statutory limits may apply to bond issuance. Meanwhile, a smaller number of states (10) indicated that their states have “policy” based limitations. The survey results indicate a possible duplication of operative limits (for example, debt policy limits may be established even though “overriding” constitutional limits exist). Such duplicative limits may reflect conscious decisions to establish more rigorous limits for debt management reasons in some states.

Table 1: Origin of Road Fund Debt Limitations

DEBT LIMIT CATEGORY	ORIGIN OF ROAD FUND DEBT LIMITS			
	Constitutional	Statutory	Policy Based	Total
Road Fund Non-Guaranteed/Revenue Debt Outstanding	4	4	3	11
All State Non-Guaranteed/Revenue Debt Outstanding	2	2	0	4
All State Debt Outstanding	3	2	1	6
Road Fund Debt Payment Per Fiscal Year	3	4	5	12
All State Debt Payment Per Fiscal Year	3	3	1	7
Total	15	15	10	40

Source: University of Kentucky Transportation Center Survey – 2003

Also, as shown in Table 1, eleven states indicated that their limitations (regardless of the origin of the limit) are based on total Road Fund debt outstanding while four states

responded that debt limitations were the result of state constitutions and statutes that limited all non-guaranteed revenue bond issuance. Meanwhile, six states indicated that their states limited “all debt outstanding” by either constitutional, statutory or policy measures or provisions. Also, as shown, twelve reporting states indicated their limits were based on Road Fund debt service payments per year and seven states indicated that their states limited aggregate debt service payments per year (regardless of debt payment source). Again, in the latter set of debt limits, the source of the debt service payments were the result of constitutional, statutory or policy provisions and procedures.

The second part of the state Road Fund debt and debt policy survey focused on determining the ratio of debt service to total Road Fund revenues for the responding states for the period 1980 to 2000. Table 2 indicates the number of states that supplied these data, the calculated mean debt service expenditures to total Road Fund revenue ratios per year for the responding states and the range of debt service expenditures relative to total Road Fund revenue provided by the reporting states for the period.

The number of states providing debt service and total Road Fund revenue data varied from 9 states (in 1980) to 23 states in the more recent period due to data availability. The mean “ratio” for the reporting states ranged from 6.89 percent in 1992 to 11.2 percent in 1983. The range of debt service to total Road Fund revenue ratios varied from zero for states that did not issue bonds to support the construction and maintenance of their roads and highways to more than 54 percent for one state in the late 1990s.

Table 2: Debt Service as a percent of Road Fund Revenue from 1980-2000

	Observations	Mean	Min.	Max.
1980	9	9.57	0	25.04
1981	10	10.3	0	27.37
1982	11	9.16	1.35	27.13
1983	12	11.2	3.12	36.58
1984	14	9.49	1.32	28.69
1985	15	9.09	1.43	26.94
1986	16	9.22	1.16	29.41
1987	16	8.14	0.53	23.06
1988	16	9.46	1.77	22.07
1989	17	9.32	1.38	19.85
1990	19	9	1.17	21.71
1991	20	8.31	0.22	27.69
1992	20	6.89	0.28	19.75
1993	20	8.87	0.58	35.3
1994	22	7.67	0.46	35.25
1995	22	9.45	0	34.9
1996	23	10.09	0	52.99
1997	23	9.96	0	54.05
1998	23	9.54	0	54.22
1999	23	9.27	0	37.35
2000	22	9.47	0	38.03

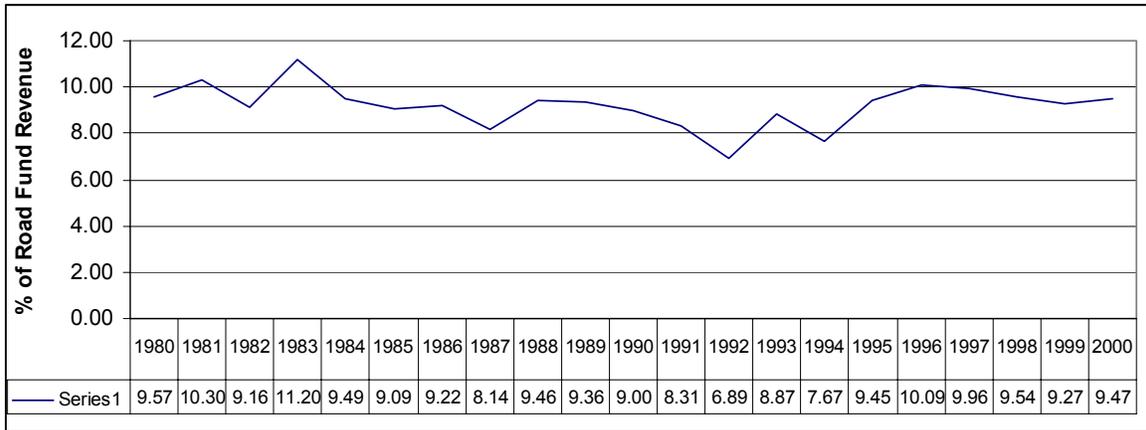
Source: Calculated from data provided by respondents to University of Kentucky Transportation Center Survey- 2003

Note: 37 states responded to the Road Fund survey. However, the number of states providing debt service to total Road Fund expenditure ratios varied for the 20 year period as indicated in column 1 of this table.

Figure 6 provides a graphical picture of the mean debt service to total Road Fund revenues for the reporting states for the various years in the study period. While the mean ratios of debt service as a percent of total Road Fund revenues varied for the period, it is not clear why these ratios varied. While the economic downturn of the early 1980s might explain the tendency of states to increase their use of debt financing in that period, a

similar pattern is not observed for the 1991-92 recession. Other possible explanations for the variations over time include a reduction in debt service costs in the early 1990s due to refinancing of bonds issued in the high interest period of the early 1980s, a decline in the demand for infrastructure investment in the early 1990s due to the recession, and an increase in the demand for highway construction and maintenance expenditures in the last half of the 1990s due to the strong economy of that period. This current study was not designed to explore the reason for these observed trends.

Figure 6: Mean Debt Service as a Percent of Road Fund Revenues: 1980-2000



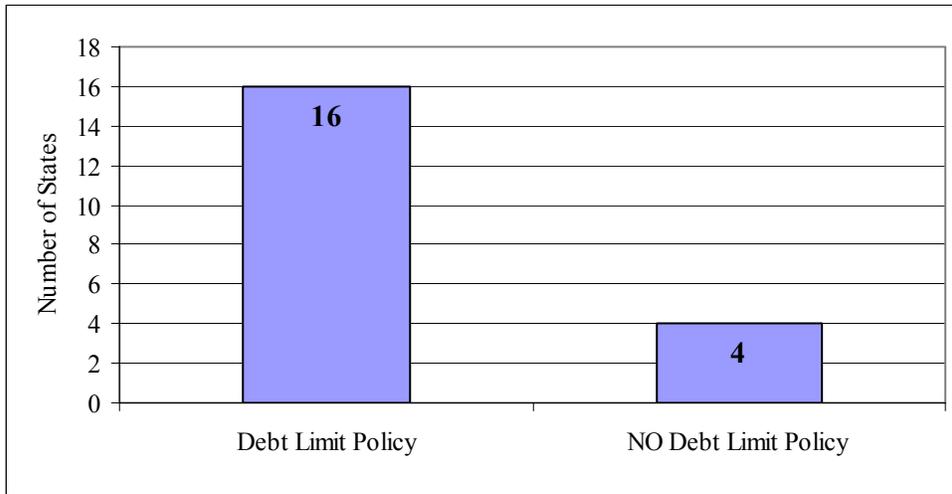
Source: Calculated from University of Kentucky Transportation Center Survey-2003

Note: As indicated in Table 2, the number of responses per year varied over the 20 year period and mean values should be considered in that light.

General Fund/State-Wide Debt Policy and Limits

The second survey sought similar data for overall state debt policies including debt capacity, debt limitations and the like to provide a basis for comparing Road Fund debt management policies with those that apply to all state funds, particularly state General Funds. As noted, the survey response rate for the second survey was 40 percent which was less than the response rate for the state Road Fund debt policy survey.

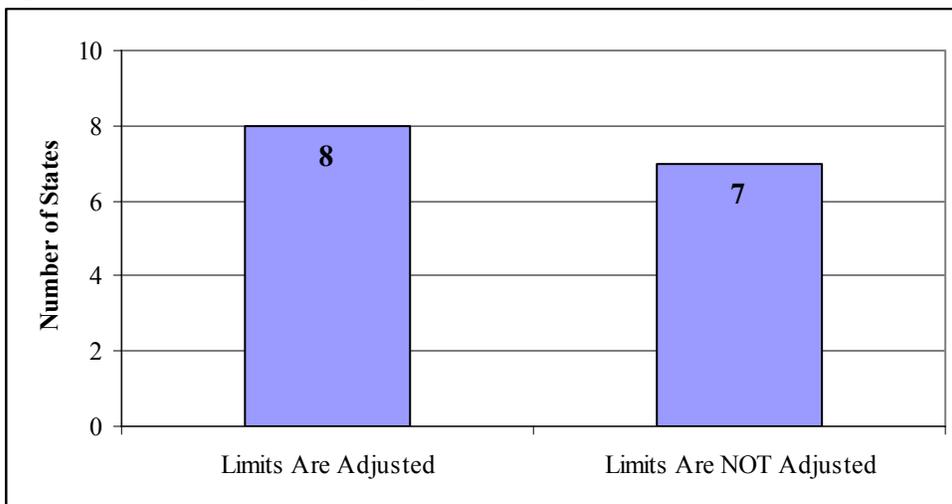
Figure 7: Number of States Reporting Formal Statewide Debt Limit Policies



Source: University of Kentucky Transportation Center Survey – 2003, 20 States Responding

Of the 20 states responding, 16 states or 80% of the reporting states indicated that they have established debt limits as guides for managing debt levels and bond issuance (Figure 7). Of the 16 states that indicated they had debt limits, 8 states reported that they periodically adjusted the debt limits while 7 states reported that debt limit were not periodically adjusted (one state of the 16 states with formal debt limit policies did not respond to this question, Figure 8).

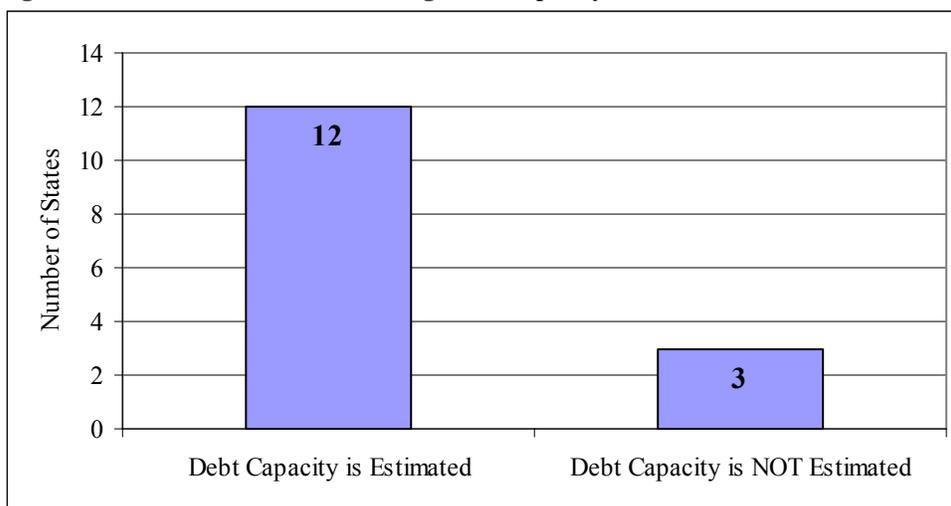
Figure 8: States that Periodically Adjust General Fund/State-Wide Debt Limits



Source: University of Kentucky Transportation Center Survey – 2003, 15 states responding

A majority of the 20 responding states indicated that they estimate debt capacity as part of their debt management activities. The estimation of debt capacity (given a state's definition or measure of debt capacity) is, apparently, an increasingly important component of state bond issuance and debt management processes (Figure 9). Meanwhile, only one state (Alabama) indicated that their state includes federal funds in debt limitation calculations.

Figure 9: Number of States Estimating Debt Capacity



Source: University of Kentucky Transportation Center Survey – 2003, 15 States Responding.

Table 3 summarizes the types and sources of General Fund/State-Wide debt limits. The survey data suggest that the states have several types of debt limitation limits and the limits have several sources including constitutional, statutory, policy and other origins. The most common type of state debt limit is the limit on general obligation (GO) debt with 8 of the 20 responding states indicating constitutional limits on GO debt, 6 states reporting statutory GO debt limits and 3 states indicated that they had policy based limits on GO debt. Apparently, some states impose duplicate limits on GO debt. For example, a state might have both a statutory as well as a policy limit on GO debt issuance. Meanwhile, 11 states have limits on revenue or non-guaranteed debt issuance of statutory and policy

origins. Five states reported having a comprehensive debt limit on all types of debt issued (types defined as debt service source such as General Fund, Agency Fund or Road Fund). Also, 4 states reported debt limits that focused on debt service payments from all funds and 5 states responded that their limits were on debt service by type of fund.

Table 3: Origin of General Fund/State-Wide Debt Limits

DEBT LIMIT CATEGORY	ORIGIN OF DEBT LIMITS			
	Constitutional	Statutory	Policy Based	Total
General Obligation Debt	8	6	3	17
Revenue/Non-Guaranteed Debt	0	6	5	11
All Debt Outstanding	1	1	3	5
Debt Limit by Debt Service on All Funds	1	1	2	4
Debt Limit by Debt Service by Fund Type	2	2	1	5
Total	12	16	14	

Source: University of Kentucky Transportation Center Survey-2003.

Note: Twenty states responded and reporting states indicated multiple debt limit types.

Six states indicated “other” types of debt limits including Maine’s limit on tax-supported debt service payments by fiscal year on General Fund and highway (Road) fund revenues, Texas’s limit on state debt payable from general revenue, or Washington’s limit on issuance of new debt if that debt were to raise the maximum annual debt service over a specified percentage based on a three-year mean as examples. The responding states reported that the debt limits imposed on issuing entities involved 12 constitutional limits, 16 statutory limits and 14 policy limits. In some cases, revenue debt and non-guaranteed debt may overlap as these terms are often used interchangeably. For example, non-

guaranteed debt might imply revenue type bonds that are backed by General Fund debt services, while revenue bonds (in their purest form) would be bonds that are supported by a specific cash flow sources (such as toll roads, parking garages, and the like).

As noted, the second survey also requested data on state expenditures of General Fund revenues on debt service for the period 1980 through 2000. Table 4 provides a summary of the ratio of General Fund debt service payments to total General Fund revenues for the period.

Table 4: Debt Service as a Percent of General Fund Revenue: 1980-2000

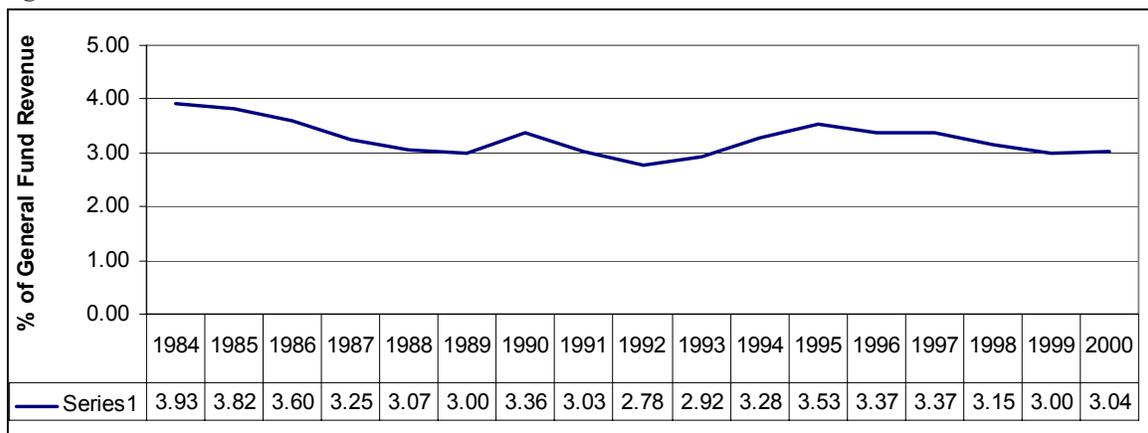
	Observations	Mean	Minimum	Maximum
1980	0	n/a	n/a	n/a
1981	0	n/a	n/a	n/a
1982	0	n/a	n/a	n/a
1983	0	n/a	n/a	n/a
1984	4	3.93	0.75	11.
1985	4	3.82	0.66	10.3
1986	4	3.6	0.61	9.79
1987	4	3.25	0.4	8.74
1988	4	3.07	0.5	7.83
1989	4	3.	0.5	7.34
1990	6	3.36	0.4	7.
1991	7	3.03	0.4	6.53
1992	8	2.78	0.4	5.67
1993	9	2.92	0.5	5.01
1994	9	3.28	0.5	4.91
1995	10	3.53	0.5	5.29
1996	10	3.37	0.6	5.31
1997	10	3.37	0.7	5.31
1998	11	3.15	0.7	5.2
1999	12	3.	0.87	4.9
2000	12	3.04	0.9	5.25

Source: University of Kentucky Transportation Center Survey- 2003.

In Table 4, the first column indicates the number of reporting states (as indicated, no data were reported until 1984), the second column indicates the mean ratios for the reporting states and the final two columns report the minimum and maximum debt service to total General Fund revenues for the states reporting for the various years in the period. Beginning in 1984, the lowest calculated mean ratio value was in 1992 (2.78) while the highest mean debt service as a percent of General Fund revenues, 3.93, was indicated for 1984. The minimum and maximum ratios, reported by individual states included a low ratio of .4 percent for several years of the period studied to a high of 11 percent reported by one state in 1984.

The data displayed in Table 4 were used to generate the graph in Figure 10. As shown, the debt service expenditures relative to total General Fund revenues tended to stay in the 3 to 4 percent range for the period. The higher ratios were realized in the mid-1980s when interest rates were higher while the lower ratios tended to occur during lower interest rate periods. However, additional data regarding debt outstanding and other factors would be required to explain the ratio variances for the study period.

Figure 10: Mean Debt Service as a Percent of General Fund Revenues: 1980-2000

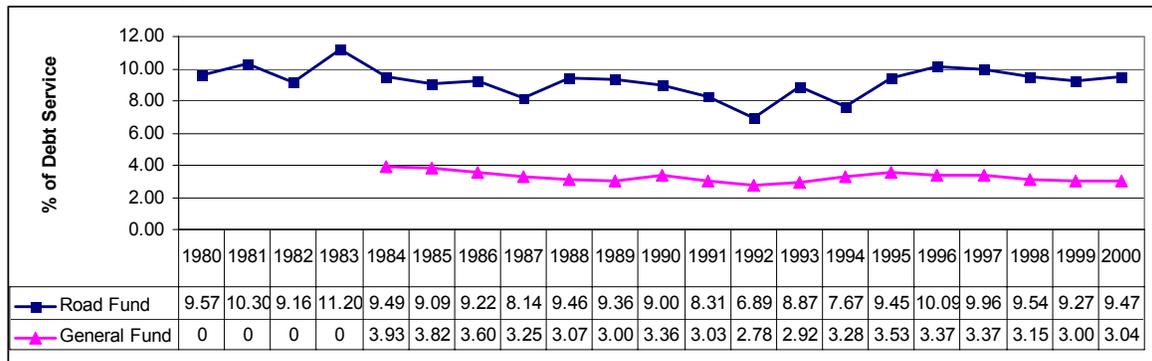


Source: Calculated from 2003 University of Kentucky Transportation Center survey data

Comparison of State-wide vs. Road Fund Specific Debt Management Policies

Road Fund resources are primarily used for the construction and maintenance of a state’s highway and road system and these expenditures are classified as capital expenditures because their benefit stream exceeds one budget period. As noted earlier, the conventional wisdom of public finance suggests that the cost of those expenditures could “justifiably” be spread over a future time period to coincide with the benefits that will be enjoyed in future time periods. Therefore, if a state uses debt financing as part of its transportation capital financing plan, it is likely that debt service payments would constitute a higher percent of that states Road Fund expenditures than they would for that states General Fund expenditures as the General Fund expenditures are primarily applied to operating programs and activities. The current survey results indicate a pattern of debt service to total expenditure ratios for the Road and General Funds that is consistent with that assumption (see Figure 11).

Figure 11: Comparison of Debt Service as a Percent of Road and General Fund Revenues: 1980-2000

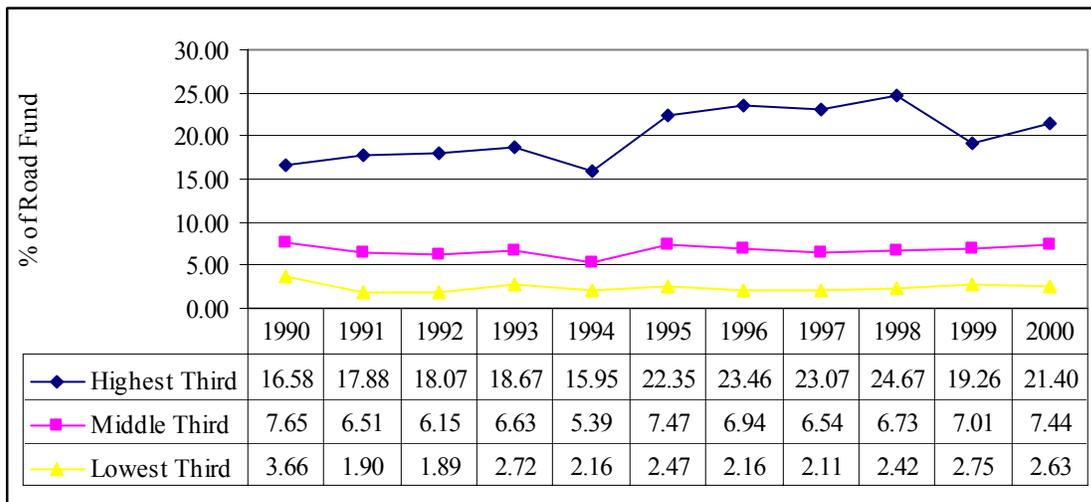


Source: Calculated from 2003 University of Kentucky Transportation Center survey data

As indicated, the General Fund debt service to total revenue ratios were reported to be in the 3 to 4 percent range and the Road Fund debt service to total revenue ratios varied from 7 to 11 percent for the same period. While the Road Fund ratios were higher, they also displayed greater variability for the period. Furthermore, the survey results indicate that state debt financing policies, as revealed by the commitment of Road Fund revenues

for debt service varies among the states. In Figure 12, the 23 responding states debt service to Road Fund revenue ratios were graphed for the lowest, middle and highest ratio states. The mean ratios of debt service to total Road Fund revenue for the period 1990 to 2000 varied from the 1.9 to 3.6% range for the lowest third of the reporting states to approximately 5.4 to 7.6% range for the mid-level states. The highest third of the survey states indicated mean debt service to Road Fund revenue ratios in, approximately, the 16 to 25% range.

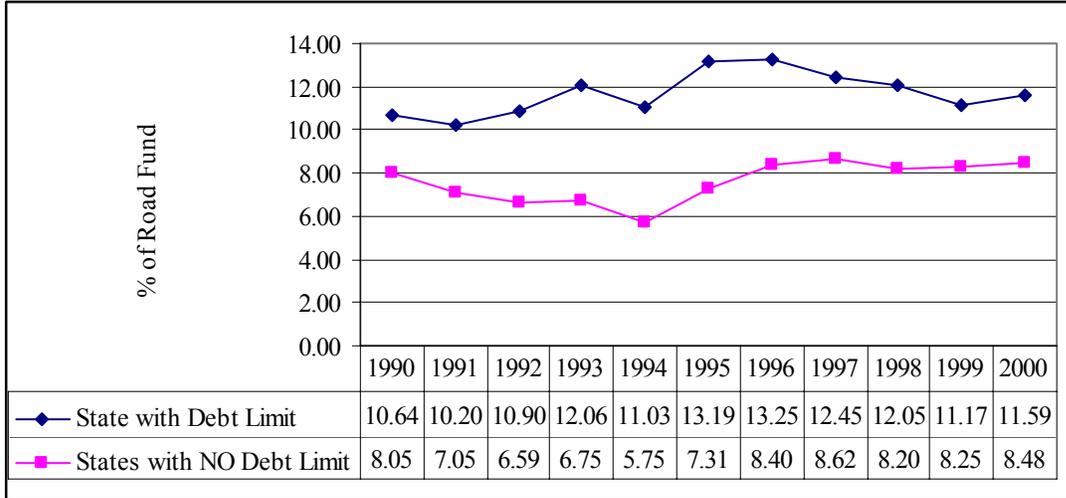
Figure 12: State Road Fund Debt Service as a Percent of Road Fund Revenues by Sub-Group: 1990-2000



Source: Calculated from 2003 University of Kentucky Transportation Center Survey Data

An additional comparison of Road Fund and General Fund debt service to total revenue ratios was undertaken for the states indicating that they had debt limits relative to those states that indicated no debt limits for the 1990 to 2000 period. The results provide an interesting and unexpected result. As shown in Figure 13, the states with debt limits reported higher debt service to total Road Fund revenues for the 10 year period. The reason for the ratio spread is not immediately obvious.

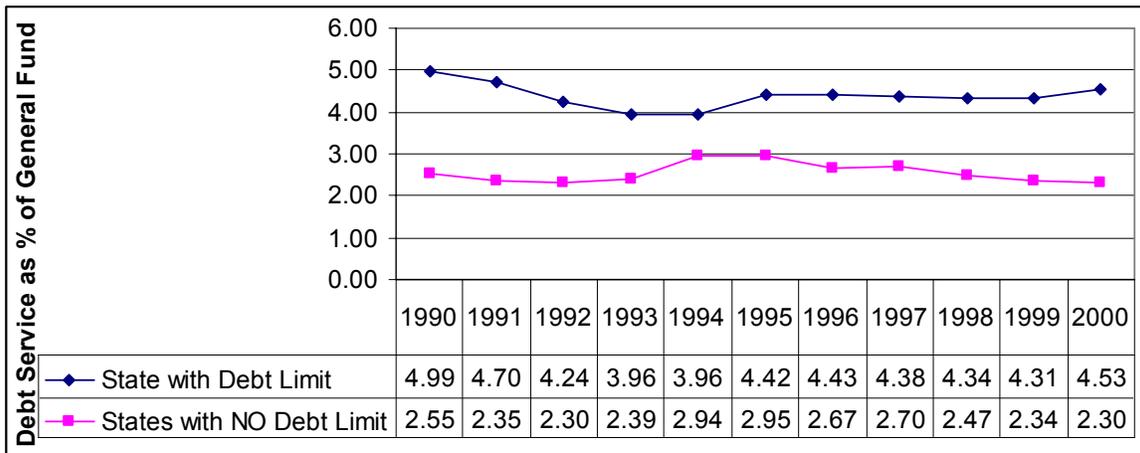
Figure 13: Comparison of Debt Service as a Percent of Road Fund Revenues for States With and Without Debt Limits: 1990-2000



Source: Calculated from 2003 University of Kentucky Transportation Center survey data. For this period, eight states with debt limits responded to the survey while fifteen states without debt limits responded.

The pattern of higher debt service to total revenue ratios for debt limit states, observed for the Road Fund, was also observed for the General Fund as displayed in Figure 14. The debt limit state ratios tended to vary from 2 to 3 percent while the non-debt limit states had ratios in the 4 to 5 percent range. Again, the reason or reasons for this pattern is not obvious. However, the establishment and use of debt limits by the higher ratio states might reflect concern about the potential bond rating impact that could occur if they did not effectively indicate to the bond rating agencies and others that they were managing their debt position by establishing debt limits or other measures. Alternatively, it might indicate that the states that are more aggressively using debt financing are also devoting more attention to the management of their debt issuance and debt outstanding.

Figure 14: Comparison of Debt Service as a Percent of General Fund Revenues for States With and Without Debt Limits: 1990-2000



Source: Calculated from 2003 University of Kentucky Transportation Center survey data. For this period, seven states with debt limits responded to the survey while eight states without debt limits responded.

Conversely, the lower ratio states might observe that their debt position, relative to their peers, is low and, therefore, the establishment of debt limit policies is not as critical for them as it is for the states that are using debt financing for their highway construction and maintenance in a more aggressive manner.

Summary and Conclusions

This study has focused on an issue that is gaining greater prominence as states use or consider the use of debt or bond financing as a key component of their transportation infrastructure financing strategy. The use of debt financing has become more attractive as the states face greater infrastructure investment demand during a period of constrained resources. Also, as suggested, the use of bond financing has become more viable for some states as a result of changes in federal policy that permit the use of “pre-obligated” funds to bond debt service. As a result of the increased emphasis on the debt financing option, the states are facing new policy issues such as debt capacity and establishing acceptable levels of commitment of Road Fund revenues to debt service. In response to these financial

policy issues, many states have established or are establishing debt limits. Such limits, in a variety of forms, are designed to manage debt issuance and debt outstanding.

The current study investigated, through a survey, the origin and use of debt limit policies and procedures. The study indicated that debt limits have multiple origins and that states can have duplicate debt limits. The duplicate limits may reflect a hierarchy of limits or may suggest that the states are defining policy limits that are based on constitutional or statutory provisions. In other words, policy limits may act to clarify more ambiguous constitutional or statutory language. In any case, it appears that states are actively involved in managing their debt position.

The empirical portion of the present study provided two major results. First, the data reported by the participating states suggest that there is a difference between debt service as a percent of total revenue ratios for state Road Funds as compared to General Funds. This may reflect the fact that Road Fund revenues are principally used for capital budget financing and the General Fund principally funds operating budgets. Therefore, the greater use of debt financing for the Road Fund is justified, theoretically, and expected.

Secondly, the study revealed an unexpected result when the reported data indicated that the states with debt limits (both for the Road Fund as well as for the General Fund) had higher debt service to total revenue ratios than the states that did not report debt limits (of any type). While the reason for this result is not clear, it may indicate that the states that use debt financing for their capital budgets may feel it is important that they, simultaneously, possess effective debt management policies if they are to maintain favorable bond ratings. In the same vein, the states with low debt service to total expenditures ratios may not feel the need to aggressively manage their debt situation as,

compared to their peers, they are managing their debt position well within their debt capacity.

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Appendix A: Road Fund Debt Policy Questionnaire

State Road Fund Debt Policy Survey

July, 2003

Responding State Information:

State: _____

**Department or
Cabinet Name:** _____

**Person Responding
to Survey:** _____

Position: _____

Telephone No.: _____

Email Address: _____

Address: _____

Survey Questions:

Q1. Does your state have a Road Fund debt limit policy or policies?

_____ Yes, we have a Road Fund debt limit policy or policies.

_____ No, we do not have a Road Fund debt limit policy. (If you check 'no', please

proceed to **Q8**)

Note: If your state has a written Road Fund debt limit policy, please provide a copy of the policy statement. Thank you.

Q2. Please indicate the origin of your state’s Road Fund debt limit for each of the following debt limit categories. (Check all applicable)

	<i>ORIGIN OF ROAD FUND DEBT LIMIT</i>			
<i>DEBT LIMIT CATEGORY</i>	Constitutional	Statutory	Policy Based	Other*
Road Fund Non-Guaranteed/Revenue Debt Outstanding				
All State Non-Guaranteed/Revenue Debt Outstanding				
All State Debt Outstanding				
Road Fund Debt Payment Per Fiscal Year				
All State Debt Payment Per Fiscal Year				
Other**				

* If Other, Please explain here _____

** If Other, Please explain here _____

Q3. Please indicate your state’s current Road Fund debt limits (for example, there could be a \$3 billion debt limit on outstanding Road Fund supported bond, or a state might have a Road Fund debt service payment limit of 20% of Road Fund revenue per fiscal year) for applicable debt limit categories:

	<i>CURRENT ROAD FUND DEBT LIMIT</i>				
<i>DEBT LIMIT CATEGORY</i>	Total Debt Outstanding	Debt Per Capita	Debt Service as % of Revenues	Debt Service Per Capita	Other*
Road Fund Non-Guaranteed/Revenue Debt Outstanding					
All State Non-Guaranteed/Revenue Debt Outstanding					
All State Debt Outstanding					
Road Fund Debt Payment Per Fiscal Year					
All State Debt Payment Per Fiscal Year					
Other**					

*If other, please explain briefly: _____

** If other please explain briefly: _____

Q4. Are Road Fund debt limits periodically adjusted?

_____ No

_____ Yes (Please explain purpose and process)

Q5. Are Federal Funds included in Road Fund debt limitation calculation?

_____ Yes, they are.

_____ No, they are not.

If yes, please briefly describe how:

Q6. Does your state estimate Road Fund debt capacity*?

_____ Yes, we estimate debt capacity

_____ No, we do not estimate debt capacity.

*Recall for this study, debt capacity is defined as the allowable level of debt or bonds outstanding according to current state policy (whether formal or informal). Refer to the attached Appendix for a more technical definition.

Q7. Please indicate the purpose of Road Fund debt capacity estimating process.

_____ Debt capacity analysis is a part of cabinet/department's long-term financial planning process (multi-year road construction and maintenance plan or capital improvement plan (CIP)).

_____ Debt capacity analysis is used to set debt issuing limits for use in the capital budgeting process (multi-year road construction and maintenance plan or capital improvement plan (CIP)).

_____ Other, please explain briefly:

Q8. If you have historical data regarding your state’s Road Fund revenue and Road Fund revenue utilized to meet debt service obligation, please provide this information on the table below or attach or e-mail the appropriate spreadsheet with such data.

Year	Total Road Fund Revenue	Road Fund Revenue Used For Debt Service
1980		
1981		
1982		
1983		
1984		
1985		
1986		
1987		
1988		
1989		
1990		
1991		
1992		
1993		
1994		
1995		
1996		
1997		
1998		
1999		
2000		

If there is another person or electronic source that we should contact for such information, please provide alternate contact here:

Name: _____

Telephone: _____

Email Address: _____

Data Source: _____

Appendix B: State-wide Debt Policy Questionnaire

State and Department Name: _____

Person Surveyed: _____

Position: _____

Telephone No.: _____

Email Address: _____

Address: _____

Q1. Does your state have a debt limit policy or policies?

- _____ Yes, we have a debt limit policy or policies.
- _____ No, we do not have a debt limit policy. (If you check ‘no’, please proceed to **Q9**)

Q2. Please indicate you state’s debt limit policy or policies. Check all applicable scenarios.

- _____ Limit on All Debt Outstanding
- _____ Limit on General Obligation (GO) Debt Outstanding
- _____ Limit on Revenue Debt Outstanding
- _____ Limit on Non-guaranteed Debt Outstanding (Such as Lease-back Debt)
- _____ Limit on Debt Service Payments by Fiscal Year on All Funds.
- _____ Limit on Debt Service Payments by Fiscal Year by Fund source
- _____ Other, please explain _____
- _____
- _____
- _____

Q3. Please indicate the origin of your state’s debt limit for each of the following debt limit categories. (Check all applicable.)

	<i>ORIGIN OF DEBT LIMIT</i>			
<i>DEBT LIMIT CATEGORY</i>	Constitutional	Statutory	Policy Based	Other*
GO Debt				
Revenue / Non-Guaranteed Debt				
All Debt				
Debt Limit by Debt Service on All Funds				
Debt Limit by Debt Service by Fund Type				
Other**				

*If Other, Please explain here _____

** If Other, Please explain here _____

Q4. Please indicate your state’s current debt limits (for example, there could be a \$3 billion debt limit on All Funds, or a state might have an agency fund debt service payment limitation of 6% of Agency Funds per fiscal year) for applicable debt limit categories:

		<i>CURRENT DEBT LIMIT</i>				
<i>DEBT LIMIT CATEGORY</i>		Total Debt Outstanding	Debt Per Capita	Debt Service as % of Revenues	Debt Service Per Capita	Other*
G.O. Debt						
Revenue / Non-Guaranteed Debt						
All Funds:						
By Fund Type:	General:					
	Road:					
	Agency:					
	Other**					

*If other, please explain briefly: _____

** If other, please explain briefly: _____

Q5. Are debt limits periodically adjusted?

No
 Yes (Please explain) _____

Q6. Are Federal Funds included in debt limitation calculation?

Yes, they are.
 No, they are not.
If yes, please describe how briefly: _____

Q7. Does your state estimate debt capacity*?

Yes, we estimate debt capacity
 No, we do not estimate debt capacity.

*Recall for this study, debt capacity is defined as the allowable level of debt or bonds outstanding according to current state policy. Refer to the attached Appendix for a more technical definition.

Q8. Please indicate the purpose of debt capacity estimating process.

Debt capacity analysis is a part of long-term financial planning process or capital improvement plan (CIP).
 Debt capacity analysis is used to set debt issuing limits for use in capital budgeting process.
 Other, please explain briefly: _____

Q9. If you have 20-year (or less) data for General fund or Road fund revenue and percentage of those funds utilized to meet debt service obligation, please provide this information on the form or e-mail the appropriate spreadsheet.

Year	Total General Fund Revenue	% of General Fund Revenue to Debt Service	Total Road Fund Revenue	% of Road Fund Revenue to Debt Service	Total Agency Fund Revenue	% of Agency Fund Revenue to Debt Service
1980						
1981						
1982						
1983						
1984						
1985						
1986						
1987						
1988						
1989						
1990						
1991						
1992						
1993						
1994						
1995						
1996						
1997						
1998						
1999						
2000						

If there is another person or electronic source that we should contact for such information, please provide alternate contact here:

Name: _____ Telephone: _____
 Email: _____ Data Source: _____

Appendix C: List of Survey Questionnaire Respondents

States Responding to University of Kentucky Transportation Center Road Fund Debt Policy Survey, 2003:

Arizona, Arkansas, California, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, West Virginia, Wisconsin, and Wyoming.

States Responding to University of Kentucky Transportation Center General Fund Debt Policy Survey, 2003:

Alabama, California, Georgia, Kentucky, Maine, Maryland, Michigan, Mississippi, Montana, Nebraska, Ohio, Oklahoma, Oregon, Rhode Island, South Dakota, Tennessee, Texas, Virginia, Washington, and Wisconsin.