Building Tennessee's Tomorrow:

Anticipating the State's Infrastructure Needs

July 2003 through June 2008

Overview

Government's role in providing infrastructure has been well established since ancient times. The Roman Empire is remembered in part for the massive road system it built to tie its vast landholdings together. Remnants of these roads still remain and many are still in use. In fact, public infrastructure is such an essential part of our lives that we rarely consider why government provides it. Would we have today's extensive road systems if they were not publicly funded? Would we have access to clean water and reliable power without public agencies to ensure their availability? Why do we rely on the public sector for these things instead of the private sector? The private sector does a fine job of providing goods and services when it is possible to monitor and control usage and to exclude users that cannot or will not pay an amount sufficient to generate profit. In the interest of general health and safety, excluding users is not always desirable and profit may not be possible. Public infrastructure is the answer when the service supported is essential to the common good and the private sector cannot profitably provide it at a price that makes it accessible to all.

This report is the fifth in a series that presents Tennessee's public infrastructure needs. It covers the five-year period of July 2003 through June 2008 and provides two basic types of information as reported by local and state officials: (1) needed infrastructure improvements and (2) the condition of existing elementary and secondary (K-12) public schools. The needs reported by state and local officials fall into six broad categories:

Table 1. Summary of Reported Needed Infrastructure Improvements
Five-year Period July 2003 through June 2008 [1]

Category[2]	Number of Projects or Schools Reported		Five-year Reported Estimated Cost	
Transportation and Utilities	2,325	28.3%	$ 10,402,687,670	42.6%
Health, Safety and Welfare	2,632	32.1%	5,366,483,107	22.0%
Education[3]	1,704	20.8%	5,257,982,121	21.5%
Recreation and Culture	1,059	12.9%	1,773,571,228	7.3%
Economic Development	248	3.0%	1,220,996,092	5.0%
General Government	236	2.9%	411,100,654	1.7%
Grand Total	**8,204**	**100.00%**	**$ 24,432,820,872**	**100.00%**

These needs are based on the full cost of projects that should be in any stage of development during the five-year period of July 2003 through June 2008. Projects included are those that need to be either started or completed during that period. Estimated costs for the projects may include

[1] For a complete listing of all reported needs by county and by public school system, see Appendices D and E.

[2] A list of the types of projects included in the six general categories is shown in Table 3. Descriptions of the project types are included in the Glossary of Terms at the end of this report.

[3] Includes improvement needs at existing schools. Number of projects includes the 1,237 schools for which needs were reported.

Characteristics of Infrastructure

- ✓ It serves an essential public purpose.
- ✓ It has a long useful life.
- ✓ It is infrequent and expensive.
- ✓ It is fixed in place or stationary.
- ✓ It is related to other government functions and expenditures.
- ✓ It is usually the responsibility of local government.

Joint Task Force of the National Association of Home Builders and the National Association of Counties

amounts spent before July 2003 to start a project that needs to be completed during the five-year period or amounts to be spent after June 2008 to complete a project that needs to be started during the five-year period. Officials reporting these needs are not asked to break out the costs by year. These needs represent the best estimates that state and local officials could provide and do not represent only what they anticipate being able to afford.

Why inventory public infrastructure needs?

The General Assembly proclaimed the value of public infrastructure in legislation enacted in 1996, when it deemed an inventory of those needs necessary "in order for the state, municipal and county governments of Tennessee to develop goals, strategies, and programs which would

- improve the quality of life of its citizens,
- support livable communities, and
- enhance and encourage the overall economic development of the state

through the provision of adequate and essential public infrastructure."[4] The public infrastructure needs inventory on which this report is based was derived from surveys of local officials by staff of the state's nine development districts[5] and the capital budget requests submitted to the Governor by state officials as part of the annual budget process. The Commission relies entirely on state and local officials to evaluate the infrastructure needs of Tennessee's citizens as envisioned by the enabling legislation.

What infrastructure is included in the inventory?

For purposes of this report, based both on the direction provided in the public act and common usage, public infrastructure is defined as

capital facilities and land assets under public ownership or operated or maintained for public benefit.

Further, to be included in the inventory, infrastructure projects must not be considered normal or routine maintenance and must involve a capital cost of at least $50,000. This approach, dictated by the public

[4] Chapter 817, Public Acts of 1996. For more information about the enabling legislation, see Appendix A.

[5] For more information on the importance of the inventory to the development districts and local officials, see Appendix B.

act, is consistent with the characterization of capital projects adopted by the General Assembly for its annual budget.

Local officials were asked to describe the needs they anticipated during the period of July 1, 2003, through June 30, 2022, classifying those needs by type of project and by stage of development. The period covered by each inventory was expanded to twenty years in 2000 because of legislation requiring its use by TACIR to monitor implementation of Tennessee's Growth Policy Act.[6] Growth plans developed pursuant to that act are effective for a twenty-year period. This report focuses on the first five years of the period covered by the inventory.

Within these parameters, local officials are encouraged to report their needs as they relate to developing goals, strategies and programs to improve their communities. They are limited only by the very broad purposes for public infrastructure listed in the law. No independent assessment of need constrains their reporting. In addition, the inventory includes capital needs identified by state officials and submitted to the Governor as part of the annual budget process, and for the second time, bridge and road project listings provided by state transportation officials.

What have we learned about public infrastructure needs?

State and local officials report a total need for public infrastructure improvements estimated at $24.4 billion for 2003 through 2008—an increase of $2.9 billion from the previous inventory—including the cost of upgrading existing public schools to good condition. The $10.8 billion since the 1999 report represents both increased need for infrastructure and increased coverage by the inventory. Some of the larger increases between inventories resulted from improvements such as the inclusion of state agency projects (added for the 2002 report) and supplementary projects from state highway officials (added for the 2004 report). (See Table 2.)

Table 2. Comparison of Needed Infrastructure Improvements Reported for All Inventories

Report Year	Five-year Reported Estimated Cost [in billions]	Change from Previous Report [in billions]
1999	$13.7	
2001	$18.2	$4.5
2002	$20.5	$2.3
2004	$21.6	$1.1
2005	$24.4	$2.9

Transportation and utilities needs represent nearly half of the one-year increase in infrastructure needs and nearly half of the total increase since the first report. Transportation needs alone increased

[6] Chapter 1101, Public Acts of 1998.

$1.3 billion since the last inventory and $4.9 billion since the first. Transportation represents almost 39% of the total infrastructure need. Most of the rest of the increase from the previous inventory was in business district development with an increase of $447 million; water and wastewater, an increase of $349 million; recreation, an increase of $346 million; and law enforcement, an increase of $221 million.

32% of Tennessee's major urban roads are congested.

21% of Tennessee's bridges are structurally deficient or functionally obsolete.

American Society of Civil Engineers *2005 Report Card for America's Infrastructure*

The category with the largest percentage increase (70%) was economic development. This category fluctuates the most of any category, partly because it is relatively small. Business district development needs, which grew 111%, accounted for most of this increase. The economic development category declined 18% in the last report, mainly because of the downsizing of a single business district development project in Knoxville. This year, the economic development category increased $501 million (70%). More than half of that increase can be attributed to the expansion of a business district development project in Nashville, and another $110 million to the addition of a single large business district development project in Memphis.

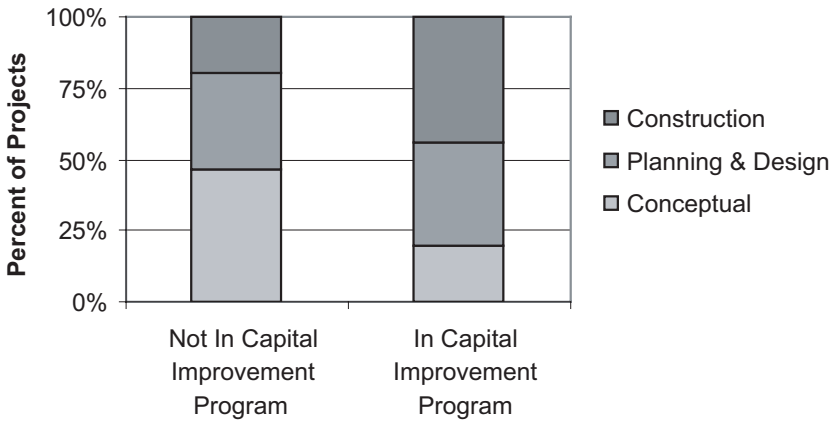
Less than half of all infrastructure needs reported by local officials are expected to be funded. Information about the availability of funding to meet Tennessee's public infrastructure needs indicates that more than half in dollar terms may go unmet. The inventory does not include funding information for needs at existing schools or for needs drawn from the capital budget requests submitted by state agencies. Excluding those needs from the total of $24.4 billion reported for the period covered by the inventory leaves $20.3 billion in needs. Only $10.1 billion of that amount is expected to be available according to the local officials that provided the information. Most of that amount, $9.5 billion, is for needs that are fully funded, another $600 million is for needs that are partially funded, and the remaining $10.2 billion is for needs that have no funding at all.

Of the total $10.1 billion of funding expected to be available, 60% was expected to come from local sources, about 25% from state sources, about 14% from federal agencies, and about 1% from donations or public-private partnerships. Local officials expected to raise more than 90% of the revenue needed for nine of the twenty-two types of infrastructure needs for which this information is collected and more than 60% of the funding for eight of the remaining thirteen. The state provides less than half the funding for each of the twenty-two types of need. Housing is the only type of need for which the federal government is expected to provide more than half the funding.

The overall condition of Tennessee's public school buildings has improved dramatically since the first inventory, but appears to have leveled out. According to local officials, 86% of schools were in good or excellent condition—about the same as last year, which is considerably better than the 59% reported in 1999. Infrastructure improvements, including new schools as well as improvements and additions to existing schools are estimated to cost slightly more than $3.7 billion. This total is $112 million more than the estimate in last year's report—a 3% increase—and $1.2 billion more than the estimate reported in 1999. This year's increase is considerably larger than the one-year increase reported last year. Last year's increase, at $55 million, was less than a 2% increase.

Projects included in capital improvements programs are far more likely to be in the construction stage than projects not included in capital improvements programs. One of the questions asked for the inventory is whether the need reported is in a capital improvements program (CIP).[7] As shown in Figure 1, the difference is dramatic. Almost 44% of projects included in a CIP were in the construction phase, whereas only 20% of projects not included in a CIP were in the construction phase. These percentages were nearly the reverse for projects in the conceptual phase. Only 20% of projects in a CIP were in the conceptual phase, but 46% of projects not in a CIP were. Five and a half billion dollars of needs included in CIPs were in the construction stage whereas $1.5 billion of needs not included in CIPs were in the construction stage, a difference of just under $4 billion (see Figure 4, page 19). The relationship between inclusion in a CIP and being in the construction stage has been consistent through all five inventories. It suggests that inclusion in a CIP is an indication of whether a project can and will be funded.

Figure 1. Percent of Projects by Project Stage and Inclusion in Capital Improvements Program



State or federal mandates affect about 6% of all projects in the current inventory, down from 8% last year. The inventory of needs does not require separate estimates of the cost of federal and state

[7] A copy of the form is included in Appendix C.

mandates except for those affecting existing public school buildings, so it is not possible to determine how much of the total estimated costs of other needs are attributable to mandates. About 78% of all projects affected by mandates are needed for new and existing public schools and are estimated to cost $542 million. About 6% of this amount is related to federal requirements, and 94% is related to state requirements. About 88% of mandate-related education needs is related to providing additional classrooms to meet the lower class sizes required by the Education Improvement Act.

What else needs to be done?

The data collection process continues to improve, and the current inventory is more complete and accurate than ever. TACIR has tried to strike a balance between requiring sufficient information to satisfy the intent of the law and creating an impediment to local officials reporting their needs. By law, the inventory is required of TACIR, but it is not required of local officials. Local officials may decline to participate without penalty; similarly, they may provide only partial information, making comparisons across jurisdictions difficult. But with each annual inventory, participants have become more familiar with the process, and more supportive of the program.

For the third year in a row, local officials were provided an opportunity to report whether projects were funded, and if so, from what source. This report is the first to contain a full section on funding. Response to this question has improved, but despite continued efforts to ensure that availability of funds played no role in whether needs were reported, it again appears that some local officials are understating their true needs and reporting instead the infrastructure they plan to build or believe their tax base can support. Future work should include a closer look at variations across the state, such as how urban and rural areas vary in their ability to meet—and perhaps even assess—their infrastructure needs.

Public Chapter 672, Acts of 2000, formally linked Tennessee's public infrastructure inventory and its growth policy act (Public Chapter 1101, Acts of 1998), requiring that the inventory be used to help monitor implementation of the growth policy act. One such project is currently underway. Also currently underway is a project to improve the technological infrastructure of the inventory itself. This project is setting the stage for future efforts to make the inventory more accessible and useful to state and local policy makers and to other researchers. Plans include making it possible for anyone with an interest to easily access information about and compare the infrastructure needs of cities, counties, and regions.