

A Commission Report to the 102nd General Assembly



BUILDING TENNESSEE'S TOMORROW



*A Survey
of
Infrastructure
Needs*



**The Tennessee Advisory Commission
on Intergovernmental Relations**

February 2001



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TACIR:

Harry A. Green
Executive Director

Address:

226 Capitol Blvd., Suite 508
Nashville, TN 37243
615-532-2443 (FAX)
615-741-3012

February 2001

The Honorable John S. Wilder
Speaker of the Senate

The Honorable Jimmy Naifeh
Speaker, House of Representatives

Members of the General Assembly

State Capitol
Nashville, TN 37243

Ladies and Gentlemen:

Transmitted herewith is the second in a series of reports on Tennessee's infrastructure needs as identified by local officials. The Tennessee Advisory Commission on Intergovernmental Relations (TACIR) was directed by Public Chapter 817, Acts of 1996, to compile and maintain an inventory of infrastructure needed in Tennessee and present these needs and associated costs to the General Assembly during its regular legislative session.

As you know, this is a monumental task, and the TACIR is making every effort to ensure that the results meet your expectation, as stated in the Act, that it support the development of goals, strategies and programs that improve the quality of life of all Tennesseans, support livable communities, and enhance and encourage the overall economic development of the state through the provision of adequate and essential public infrastructure.

With the enactment of Public Chapter 672 during the 2000 legislative session, you added the additional requirement that the inventory assist in monitoring the implementation of growth plans adopted pursuant to Public Chapter 1101, Acts of 1998. You will find in this report comparisons for all counties between population and the infrastructure needs reported by local officials. Much more work needs to be done in that regard. Nevertheless, the report at hand represents a massive step forward in our effort to provide sound information for decision makers.

Sincerely,

Senator Robert Rochelle
Chairman

Harry A. Green, Ph.D.
Executive Director

Acknowledgements

Report and Project Oversight by TACIR Staff:

Harry A. Green, Ph.D.
Executive Director

L. Mark McAdoo, M.S.
Senior Research Associate

Lynnise Roehrich-Patrick, J.D.
Director of Special Projects

T. Alan Waddell, M.S.
Research Associate

Survey Implementation by Development District Staff:

Susan Reid, Executive Director
Beulah Ferguson, Director of Special Projects
First Tennessee Development District

Joe Max Williams, Executive Director
David Fulkerson, Rural Development Specialist
South Central Tennessee Development District

Robert Freeman, Executive Director
Ekem Lartson, M.S.P., Regional Planner
East Tennessee Development District

John Bucy, Executive Director
Glenn Gallien, Planner
Ken Steele, Planner
Northwest Tennessee Development District

Joe Guthrie, Executive Director
Joe Cate, Planning Director
Mark Cranford, M.P.A., Regional Planner
Southeast Tennessee Development District

Eveyln Robertson, Jr., Executive Director
John Austin, Planner
Angela Reid, Planner
Southwest Tennessee Development District

Wendy Askins, Executive Director
Jason Thompson, Planner
Upper Cumberland Development District

John Sicola, Executive Director
Carol Adams, Planner
Memphis Area Association of Governments

Maynard Pate, Executive Director
Phil Armor, Director of Regional Planning
Tonya Blades, Regional Planner
Annie Trauernicht, Chief Research Analyst
Greater Nashville Regional Council

Technical Support by:

Griff Akins, M.S.

Justin Petraitis

Brian Avent

Paul David

Publication Layout and Technical Writing Support by:

Kim Robertson

Beth Swartz, Ph.D.

Building Tennessee's Tomorrow:

A Survey of Infrastructure Needs
July 1999 through June 2004



EXECUTIVE SUMMARY

Tennesseans expect clean water, safe roads, and well-constructed, well-equipped schools. These things are part of the core infrastructure we consider essential to our daily lives. In fact, they have become so essential that we frequently notice them only when they are inadequate. The General Assembly proclaimed the value of public infrastructure in legislation passed 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." [Public Chapter 817, Acts of 1996.]

Reported Infrastructure Needs

Transportation & Utilities
\$7.4 billion

Health, Safety & Welfare
\$4.3 billion

Education **\$3.8 billion**

Recreation & Culture
\$1.2 billion

General Government
\$890 million

Economic Development
\$538 million

Grand Total **\$18.2 billion**

This report is the second in a series that analyzes Tennessee's public infrastructure needs as reported by local officials. It covers the five-year period of July 1999 through June 2004 and provides two basic types of information as reported by local officials: (1) needed infrastructure improvements and (2) the condition of existing elementary and secondary (K-12) public schools. The Commission has relied entirely on local officials to determine the infrastructure needs of their constituents as envisioned by

Local officials were asked to describe the needs they anticipated for the five-year period of July 1999 through June 2004, categorizing those needs by type of project and by stage of development.

the public act.

The projects reported by local officials fall into the six broad categories shown in the sidebar at left. A number of conclusions may be drawn from the information included in the inventory.

➤ Local officials report a total need for public infrastructure improvements for 1999 through 2004 of more than \$18 billion, including upgrading existing public schools to good condition, an increase in reported need of \$4.5 billion (up 33 percent) since the first inventory was published two years ago.

➤ Transportation and utilities represents the single largest category and the largest increase in estimated cost (from \$5.3 billion to \$7.4 billion). The category called economic development, which includes both industrial site and park projects and business district development projects,

declined more than 13 percent or \$82 million.

➤ The second largest increase was in the education category (from \$2.7 billion to \$3.8 billion). Most of that increase came from

TACIR has been directed by Public Chapter 672, Acts of 2000, to use the public infrastructure needs inventory as one element in monitoring implementation of the growth policy act.

improvements in reporting needs for new school construction, which the TACIR attributes primarily to the concerted effort by TACIR staff, development district staff and school personnel across the state to ensure that the needs of Tennessee's public school systems were fully and consistently reported.

➤ About 47 percent of Tennessee's 138 public school systems would not have met the new class-size standard had it been in effect for the 1999-2000 school year. If they fail to meet the standard by fall 2001, the Commissioner of Education is authorized to withhold state funds, which is such a significant penalty it could make it difficult for schools in the poorer areas of the state to open.

➤ According to local government officials, the average condition of Tennessee schools is good; however, they report that the total



need for infrastructure projects between the year 1999 and 2004 is estimated to cost \$3.7 billion. This includes new

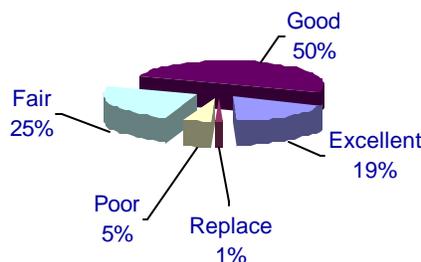
school construction, system-wide needs, mandate compliance, facility upgrades and technology infrastructure needs for grades kindergarten through high school.

➤ Infrastructure needs reported by local officials vary widely across counties, and population differences may account for much of that variation.

Counties in the top ten for infrastructure needs are also likely to be in the top ten for population, population density and population growth. Counties in the bottom ten are harder to explain using those factors. Based on statistical analyses by TACIR staff, low reported

infrastructure costs may be related to relatively low property tax bases. In other words, some local officials may be reporting not their need, but what they believe they can realistically afford.

Condition of Schools, School Year 2000
as Reported by Local Officials



➤ Because some local officials may have limited their reported needs to the infrastructure they believe their tax base can support, and because of the variation among development districts in the amount of infrastructure included in the inventory, it is possible that the current inventory may have captured less than 90 percent of the infrastructure needs in the state. If the total cost by county were based on the greater of the reported cost or the cost produced by the statistical analyses performed by TACIR staff, the statewide total could be as much as \$21 billion.

➤ State or federal mandates affect about 16 percent of all projects in the current inventory. Specific cost information on

existing public schools gathered as part of the inventory and estimates by TACIR staff of the proportion of new school construction costs attributable to the Education Improvement Act of 1992 indicate that the lower class sizes required by that act may

be responsible for more than 43 percent of the infrastructure improvement costs reported by all local officials. Federal mandates account for about five percent of the total reported.

The Public Infrastructure Needs Inventory Act (Public Chapter 817, Acts of 1996), which became effective July 1, 1996, directs TACIR to compile and maintain an inventory of needed infrastructure within this state. TACIR staff manages the implementation of the inventory and staffs from each of Tennessee's nine development districts conduct the survey of public officials within their jurisdiction under the direction of TACIR.

The first survey was conducted in 1997 through 1998. The first report was published in January 1999. This infrastructure inventory is a dynamic and progressive program that has evolved since its inception. This is the second report in the on-going inventory of Tennessee's infrastructure needs. This report reflects several improvements over the first inventory:

- Communication and partnership among stakeholders has been improved.
- Standardized procedures have been clarified to enhance reporting consistency.
- Quality control has been implemented through statistical analysis and cross-referencing data.
- A dedicated effort was made to better capture new school construction needs.
- The survey forms have been redesigned to capture new data to facilitate more meaningful analysis in future reports on funding and growth planning.
- The database has been redesigned to facilitate more efficient data management.
- The format of the report has been updated to include a more analytical perspective by standardized cost estimates on a per capita basis and investigating the relationship between reported need and funding-based variables as well as need-based variables.

The Public Infrastructure Needs Inventory is a dynamic program that will continue to evolve to keep pace with changing policy initiatives and planning concerns. The next inventory will include

- information collected from state agencies,
- reasons driving the need for additional public infrastructure;
- data on funding availability and sources of funding;
- location of projects relative to P.C. 1101 Growth Boundaries; and
- a time period expanded to twenty years of needs.

Building Tennessee's Tomorrow:

A Survey of Infrastructure Needs

July 1999 through June 2004

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Building Tennessee's Tomorrow:

The Public Infrastructure Needs Inventory

July 1999 through June 2004

OVERVIEW

Tennesseans expect clean water, safe roads, and well-constructed, well-equipped schools. These things are part of the core infrastructure considered essential to daily life. In fact, they have become so essential we frequently notice them only when they are inadequate. At the same time, they are not something the private sector is usually willing to provide. The private sector generally produces goods and services only when it is profitable to identify and charge those who use or acquire them. In addition, providing certain types of services, like a sewer system, makes economic sense only when a single entity does so, which creates the risks associated with monopolies. Yet roads and safe water clearly support the public good, and for this reason, providing them or regulating them has become a well-established role of government. Because nothing is free, government's role extends further to allocating the cost of public infrastructure fairly among its citizens.

This report is the second in a series that analyzes Tennessee's public infrastructure needs to support both of these government roles. It covers the five-year period of July 1999 through June 2004 and provides two basic types of information as reported by local officials: (1) needed infrastructure improvements and (2) the condition of existing elementary and secondary (K-12) public schools. The projects reported by local officials fall into six broad categories:

Table 1: Summary of Reported Needed Infrastructure Improvements
Five-year Period July 1999 Through June 2004¹

Category ²	Number of Projects or Schools Reported		Five-year Reported Estimated Cost	
Transportation & Utilities	1,443	21.7%	\$ 7,383,696,611	40.6%
Health, Safety & Welfare	2,275	34.2%	4,316,452,624	23.7%
Education ³	1,550	23.3%	3,843,431,049	21.1%
Recreation & Culture	756	11.4%	1,213,471,993	6.7%
General Government	396	6.0%	889,576,036	4.9%
Economic Development	224	3.4%	538,342,542	3.0%
Grand Total	6,644	100.0%	\$ 18,187,970,855	100.0%

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 improvements needed at existing schools. Number of projects includes the 1,330 schools for which needs were reported. Includes only those higher education projects reported by local officials.

Why inventory public infrastructure needs?

The General Assembly proclaimed the value of public infrastructure in legislation passed 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. Local officials were asked to describe the needs they anticipated for the five-year period of July 1999 through June 2004, categorizing those needs by type of project and by stage of development. The Commission has relied entirely on local officials to determine the infrastructure needs of their constituents as envisioned by the public act.

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 Public Chapter 817, Acts of 1996, is consistent with the characterization of capital projects adopted by the General Assembly for its annual budget.

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. Nevertheless, it appears that in some cases local officials may be understating their true needs and reporting instead the infrastructure they plan to build or believe their tax base can support. As a result, it may be useful to treat the inventory as a sample of statewide needs and use it to develop estimates for counties whose needs appear to be underreported. Some discussion of this type of analysis is included in this report; however, given the extensive amount of information gathered for the inventory, much more work could be done.

What have we learned about public infrastructure needs?

Local officials report a total need for public infrastructure improvements for 1999 through 2004 of more than \$18 billion, including upgrading existing public schools to good condition. This represents an increase of \$4.5 billion or 33 percent since the first inventory was published two years ago. Transportation and utilities represents the single largest category and the largest increase in estimated cost (from \$5.3 billion to \$7.4 billion). The second largest increase, however, was in the education category, which is attributable in

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

part to the support of the Board and the Department of Education and a concerted effort on the part of TACIR staff, development district staff and school personnel across the state to ensure that the needs of public schools were fully and consistently reported. The estimated cost for the education category, including non-K-12 education projects, increased 45 percent (from \$2.7 billion to \$3.8 billion).

Counties in the top ten for infrastructure needs are also likely to be in the top ten for population, population density and population growth. Counties in the bottom ten are harder to explain using those factors. Rural counties dominate both the top and the bottom ten for reported costs per capita. That phenomenon appears to be caused primarily by the infrequency with which large state transportation projects occur in rural areas and the fact that those projects are generally rather costly. The large costs relative to low populations necessarily cause high costs per capita when those projects occur in rural areas.

Statistical analyses by TACIR staff indicate that the total statewide need could be as much as \$21 billion rather than the \$18.2 billion actually reported. That estimate is based on the greater of the amount actually reported for each county or the amount projected for the county if its costs were more in line with costs reported by all counties considering population, population growth, the proportion of the population considered urban, property tax base, sales tax base, per capita income, and the development district for each county. All data was divided by the geographic area within each county so that counties of different sizes could be fairly compared. Based on the statistical analyses by TACIR staff, low reported infrastructure costs may be related to relatively low property tax bases. In other words, some local officials may be reporting not their need, but what they believe they can realistically afford. Variations in costs among counties also appear to be related to the development district in which they fall.

State or federal mandates affect about 16 percent of all projects in the current inventory. Specific cost information on existing public schools gathered as part of the inventory and estimates by TACIR staff of the proportion of new school construction costs attributable to the Education Improvement Act of 1992 (EIA) indicate that the lower class sizes required by that act may be responsible for more than 43 percent of the infrastructure improvement costs reported by all local officials. Federal mandates account for about five percent of the total reported.

Most of the public school systems with the highest reported costs also report that at least some of their schools do not yet have enough classrooms to house the teachers necessary to meet the EIA class size requirements. Most also report higher than average costs per student to meet their infrastructure needs. Half of the systems in the bottom ten for total infrastructure needs report that they can meet the EIA class-size requirement. The EIA set a deadline of fall 2001 for the new standards to be met, and school systems across the state have been striving to meet it since 1992. About 47 percent of Tennessee's 138 public school systems would not have met the new standard had it been in effect for the 1999-2000 school year. If they fail to meet the standard by fall 2001, the Commissioner of Education is authorized to withhold state funds, which is such a significant penalty it could make it difficult for schools in the poorer areas of the state to open.

Projects in capital improvement plans are far more likely to be under construction than are projects not included in those plans, possibly indicating that a larger percentage of projects not included in plans may not be funded. One of the questions asked on the general survey form is whether the project reported is included in a capital improvement plan.⁵ More than half of the projects not included in plans were in the conceptual stage; about one third were in planning and design. In contrast, more than 40 percent of projects reportedly in

⁵ A copy of the form is included in Appendix C.

capital improvement plans were under construction at the time of the survey; less than 20 percent were still in the conceptual stage.

The current survey form does not ask whether projects are funded, so it cannot be said with certainty whether funding is available for the projects not included in official planning documents; however, the fact that they are more than twice as likely to be in the conceptual stage than projects included in plans may indicate that they are not yet funded. The availability of funds for public infrastructure is such a key issue for decision makers that the next survey form will include questions designed to gather that information.

What else needs to be done?

Great strides have been made since the inception of the inventory to improve its coverage and quality. 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. Time has been extended to ensure the quality of the data reported, and the TACIR and development district staffs have worked more closely to ensure consistency in reporting. Nevertheless, some gaps remain and are identified in this report.⁶

Since the passage of Public Chapter 817, the General Assembly has adopted a new growth policy act (Chapter No. 1101, Public Acts of 1998) and, further, has formally linked the two (Chapter No. 672, Public Acts 2000). TACIR is now directed to use the public infrastructure needs inventory as one element in monitoring implementation of the growth policy act. This linkage requires two significant changes in the survey used to gather information for the inventory: asking local officials to project their infrastructure needs over a twenty-year period and asking them to identify the locations of the projects they report in terms of the boundaries established pursuant to the growth policy act.⁷ Estimating infrastructure needs over a twenty-year period will be a challenge for local officials, and the information that can be derived from those projections will be inherently less reliable than the information derived from the five-year reporting period of the current inventory. With staff support, the Commission will review progress toward implementing this aspect of Public Chapter 672 and recommend any changes that may be needed to meet the goals of the infrastructure inventory and the growth policy act.

In addition to the growth boundary information, the survey forms developed for the next inventory have been redesigned to gather information about project funding. TACIR also contemplates gathering information on infrastructure needs from state agencies to compliment the data reported by local officials. The act establishing the inventory requires that this be done in a way that builds on and does not duplicate data already maintained by other state agencies. In order to achieve these goals, it will be necessary to extend the reporting cycle from one year to two. In addition, TACIR staff believe a periodic conference on infrastructure concerns would offer opportunities to improve the overall quality and usefulness of the inventory to stakeholders.

⁶ For a brief summary of the history of the public infrastructure needs inventory project, see Appendix B.

⁷ Appendix A includes the relevant legislation.

Introduction: Basics of the Infrastructure Needs Inventory

The public infrastructure needs inventory is developed using two separate, but related survey forms.⁸ The first form is used to gather information about new infrastructure needs, and the second is used to gather information about the condition of existing public school buildings along with the cost to meet all facilities mandates at the schools, put them in good condition and provide adequate technology infrastructure. Information about the need for new public school buildings and for school system-wide infrastructure improvements is gathered in the first form. This report begins with a statewide look at the information from both survey forms and continues with a closer look at the county and school system levels.

Information reported in the inventory is based on the judgment of local officials. In many cases, information is found in the capital improvement plans of local governments. In order to be included in the inventory, projects must be reported on the survey forms provided by TACIR. Both survey forms—the general form and the form for existing schools—include questions about the status of the projects reported and their relationship to state and federal mandates. Project status may be

- conceptual—an infrastructure need with an estimated cost, but not yet in the process of being planned or designed,
- planning and design—development of a set of specific drawings or activities necessary to complete a project identified as an infrastructure need, or
- construction—actual execution of a plan or design developed to complete or acquire a project identified as an infrastructure need.

Every project included in the inventory for this report was in one of these three phases during the five-year period of July 1999 through June 2004. Each project was required to have either a beginning or an ending date within that period and an estimated capital cost of at least \$50,000.

In the context of the public infrastructure needs inventory, the term mandate is defined as *any rule, regulation, or law originating from the federal or state government that affects the cost of a project*.⁹ The most commonly reported mandates relate to the Americans with Disabilities Act (ADA), asbestos, lead, radon, underground storage tanks and the Education Improvement Act (EIA). The EIA mandate is to reduce the number of students in each public school classroom by an overall average of about 4½. That mandate becomes effective for school years beginning on or after July 1, 2001, and Tennessee public schools have been working toward it since the passage of the EIA in 1992.

Except in the case of existing public schools, the inventory does not include estimates of the cost to comply with mandates, only whether the need was the result of a mandate; therefore, mandates themselves are not analyzed here except to report the number of projects with aspects related to mandates. Even in the case of public schools, aside from the EIA, the cost reported to TACIR as part of the public infrastructure needs inventory is relatively small, representing only 5.5 percent of the total.

⁸ Both forms are included in Appendix C.

⁹ See the Glossary of Terms at the end of this report.

Reported Infrastructure Needs Statewide

Reported Infrastructure Needs Have Grown 33 Percent Since the 1998 Inventory

Local officials report a total need for public infrastructure improvements for 1999 through 2004 of more than \$18 billion, including the estimated cost of upgrading existing public schools to good condition. This represents an increase of \$4.5 billion since the first inventory was published two years ago. Transportation and utilities represents the single largest category and the largest increase in estimated cost (from \$5.3 billion to \$7.4 billion). The economic development category declined, which may indicate a change in emphasis at the local level or a change in the way projects are categorized.¹⁰

**Table 2: Comparison of Estimated Cost of Needed Infrastructure Improvements
1998 Inventory vs. 2000 Inventory¹¹**

Category ¹²	Reported Cost		
	July 1997 through June 2002	July 1999 through June 2004	Difference
Transportation & Utilities	\$ 5,266,418,254	\$ 7,383,696,611	40.2%
Health, Safety & Welfare	3,669,316,318	4,316,452,624	17.6%
Education ¹³	2,652,181,076	3,843,431,049	45.0%
Recreation & Culture	885,965,741	1,213,471,993	37.0%
General Government	580,851,556	889,576,036	53.2%
Economic Development	620,462,264	538,342,542	-13.2%
Grand Total	\$ 13,675,195,209	\$ 18,187,970,855	33.0%

The second largest increase was in the education category (from \$2.7 billion to \$3.8 billion), which resulted from a dramatic increase in the need reported by local officials for new public elementary and secondary schools and system-wide needs (from \$784 million to more than \$1.8 billion). The TACIR attributes this increase primarily to the support of the Board and the Department of Education and a concerted effort by TACIR staff, development district staff and

¹⁰ Over the past year, TACIR has shifted more resources to the infrastructure inventory making it possible to improve oversight and quality control. As a result, a great deal more attention was given to reviewing the projects included in the inventory to ensure complete and accurate reporting. One result was the re-categorization of a number of projects, such as moving rail spurs for industrial sites into the transportation category. This effort may explain a small part of the differences in categories between the two survey years, but the difference between the overall increase in the transportation and utilities category and the decrease in the economic development category is far too large for the effect of a small number of re-categorizations to be considered significant.

¹¹ For complete listings of all reported needs by county and by public school system, see Appendices D and E.

¹² For more detail on the categories, see Table 3 on page 11.

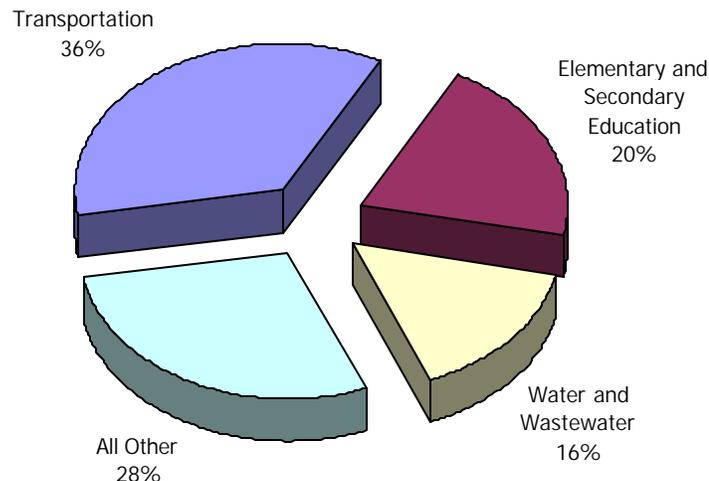
¹³ Includes primarily elementary and secondary education infrastructure needs plus only those other education needs reported by local officials. See Table 3 for a breakdown by type of education project.

school personnel across the state to ensure that the needs of public schools were fully and consistently reported.

Transportation, Education, and Water and Wastewater Dominate Statewide Needs

As shown in Figure 1 below and in Table 3 opposite, three types of projects within the six broad categories presented in Table 2 dominate reported needs: Transportation needs alone represent almost 36 percent of the total at nearly \$6.5 billion. Needs reported for Tennessee's public school systems follow at a total of \$3.7 billion or just over 20 percent of the total. Those two types of projects combined with the water and wastewater projects represent nearly three-fourths of the total reported needs.

Figure 1. Percent of Total Reported Cost of Infrastructure Needs by Type of Project



The total need reported for some of the other types of projects may be somewhat misleading to the extent that projects in the economic development category are not stand alone, self contained projects, but require the support of projects in other categories like water and wastewater, transportation or other utilities. When all support projects are considered, the estimated cost of projects such as industrial sites and parks is greater than that presented in Table 3. In order to more accurately report the cost of the various types of projects included in the inventory, TACIR has revised the survey form to allow cross-categorization of projects as both business district development and storm water, for example. That kind of two-dimensional reporting will facilitate more complete analysis of the costs of different types of infrastructure improvements.

Table 3: Total Number & Estimated Cost of Needed Infrastructure Improvements
Five-year Period July 1999 Through June 2004¹⁴

Category and Project Type¹⁵	Number of Projects or Schools Reported		Five-year Reported Estimated Cost	
Transportation & Utilities	1,443	21.7%	\$ 7,383,696,611	40.6%
<i>Transportation</i>	1,256	18.9%	6,487,720,506	35.7%
<i>Other Utilities</i>	110	1.7%	466,719,785	2.6%
<i>Navigation</i>	4	0.1%	301,550,000	1.7%
<i>Telecommunications</i>	73	1.1%	127,706,320	0.7%
Health, Safety & Welfare	2,275	34.2%	\$ 4,316,452,624	23.7%
<i>Water and Wastewater</i>	1,562	23.5%	2,835,112,761	15.6%
<i>Law Enforcement</i>	127	1.9%	617,255,604	3.4%
<i>Storm Water</i>	129	1.9%	418,692,179	2.3%
<i>Housing</i>	103	1.5%	139,592,882	0.8%
<i>Fire Protection</i>	159	2.4%	116,608,044	0.6%
<i>Solid Waste</i>	125	1.9%	95,539,400	0.5%
<i>Public Health Facilities</i>	70	1.1%	93,651,754	0.5%
Education	1,550	23.3%	\$ 3,846,431,049	21.1%
<i>Existing School Improvements</i>	1,330	20.0%	1,864,901,685	10.3%
<i>New Public School Construction</i>	171	2.6%	1,787,761,489	9.8%
<i>Non K-12 Education¹⁶</i>	14	0.2%	119,425,000	0.7%
<i>School System-wide Needs</i>	35	0.5%	74,342,875	0.4%
Recreation & Culture	756	11.4%	\$ 1,213,471,993	6.7%
<i>Recreation</i>	633	9.5%	746,879,193	4.1%
<i>Libraries and Museums</i>	90	1.4%	312,079,790	1.7%
<i>Community Development</i>	33	0.5%	154,513,010	0.8%
General Government	396	6.0%	\$ 889,576,036	4.9%
<i>Public Buildings</i>	326	4.9%	721,455,104	4.0%
<i>Other Facilities</i>	47	0.7%	84,454,802	0.5%
<i>Property Acquisition</i>	23	0.3%	83,666,130	0.5%
Economic Development	224	3.4%	\$ 538,342,542	3.0%
<i>Industrial Sites and Parks</i>	176	2.6%	372,132,042	2.0%
<i>Business District Development</i>	48	0.7%	166,210,500	0.9%
Grand Total	6,644	100.0%	\$ 18,187,970,855	100.0%

¹⁴ For complete listings of all reported needs by county and by public school system, see Appendices D and E.

¹⁵ Descriptions of the project types are included in the Glossary of Terms at the end of the report.

¹⁶ K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. The small number of non-K-12 projects include facilities for post-secondary programs, pre-school programs, etc., as described in the Glossary of Terms at the end of this report. Only projects reported by local officials are included.

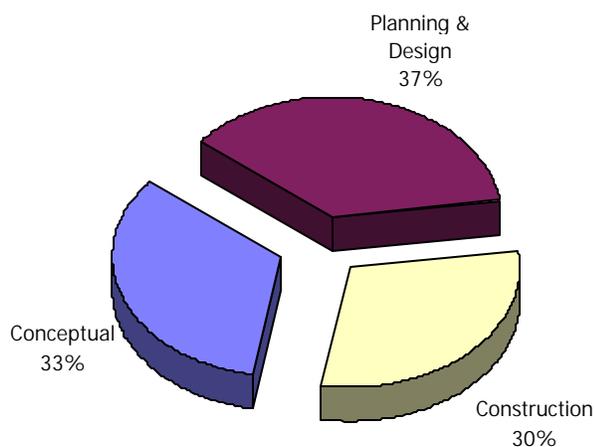
Forty-three Percent of Needed Infrastructure Belongs to Cities

Although the projects in the public infrastructure needs inventory are reported by local officials, they may ultimately be owned or controlled by a variety of entities, including the state or federal governments or utility districts. Not surprisingly, cities will own or control half or more of the infrastructure needs in monetary terms reported in four of the six major categories. The two exceptions are the education category¹⁷, two-thirds of which involves counties, and the transportation and utilities category. As shown in Table 4, more than half of all transportation needs involve state ownership, and more than three-fourths of the utility costs, other than water or wastewater and telecommunications, involve special districts. A single federal dam project reported by Hamilton County accounts for more than 99 percent of the navigation costs.

Stage of Development Varies with Type of Project

As shown in Figure 2, infrastructure needs in terms of estimated costs are distributed almost evenly among the three different stages of development, with only slightly more in the planning and design stage than in the construction stage. However, as Table 5 illustrates, there are notable exceptions to this general rule. Nearly 45 percent of needed education improvements are in the conceptual stage—that figure approaches 50 percent when only new schools are considered. Information about existing schools is not included in this analysis because there are numerous small projects in varying stages of development reported for existing schools, making it impossible to identify a single stage for each school. Transportation improvements are more heavily weighted toward the conceptual and the planning and design stages than most other types of projects with only 17 percent in terms of cost under construction. In contrast, more than 80 percent of reported improvements in utilities other than telecommunications and water or wastewater and in community development projects in terms of cost are under construction.

Figure 2. Percent of Total Reported Cost of Infrastructure Needs by Stage of Development



¹⁷ While this category includes a small number of higher education projects, which are largely state-owned, it does not include the majority of those projects. For purposes of the current inventory, only local government officials were surveyed. As noted in the Overview, the next inventory will include projects reported by state agencies, including the Tennessee Higher Education Commission.

Table 4: Total Estimated Cost [in millions] of Needed Infrastructure Improvements by Project Type and Level of Government
—Five-year Period July 1999 Through June 2004

Category and Project Type ¹⁸	City		County		Federal		Joint		Other		State	
Transportation & Utilities	\$ 1,990.6	27.0%	\$ 916.5	12.4%	\$320.2	4.3%	\$357.9	4.8%	\$ 447.8	6.1%	\$ 3,350.7	45.4%
<i>Transportation</i>	1,819.1	28.0%	888.0	13.7%	20.0	0.3%	346.1	5.3%	86.9	1.3%	3,327.7	51.3%
<i>Other Utilities</i>	100.1	21.5%	5.7	1.2%	0.2	0.0%	1.8	0.4%	358.9	76.9%	-	0.0%
<i>Navigation</i>	1.6	0.5%	-	0.0%	300.0	99.5%	-	0.0%	-	0.0%	-	0.0%
<i>Telecommunications</i>	69.9	54.7%	22.9	17.9%	-	0.0%	10.0	7.8%	2.0	1.6%	23.0	18.0%
Health, Safety & Welfare	\$ 2,884.6	66.8%	\$ 657.6	15.2%	\$ 0.7	0.0%	\$177.8	4.1%	\$ 595.7	13.8%	\$ -	0.0%
<i>Water & Wastewater</i>	1,966.3	69.4%	166.6	5.9%	0.7	0.0%	147.8	5.2%	553.6	19.5%	-	0.0%
<i>Law Enforcement</i>	293.5	47.5%	323.7	52.4%	-	0.0%	0.1	0.0%	-	0.0%	-	0.0%
<i>Storm Water</i>	326.6	78.0%	80.6	19.3%	-	0.0%	11.5	2.7%	-	0.0%	-	0.0%
<i>Housing</i>	76.7	54.9%	16.3	11.7%	-	0.0%	6.5	4.7%	40.1	28.7%	-	0.0%
<i>Fire Protection</i>	104.3	89.4%	11.3	9.7%	-	0.0%	0.9	0.7%	0.2	0.2%	-	0.0%
<i>Solid Waste</i>	68.5	71.7%	24.7	25.8%	-	0.0%	0.5	0.5%	1.8	1.9%	-	0.0%
<i>Public Health Facilities</i>	48.8	52.1%	34.4	36.7%	-	0.0%	10.5	11.2%	-	0.0%	-	0.0%
Education	\$ 1,017.9	26.4%	\$2,593.7	67.5%	\$ -	0.0%	\$ 13.3	0.3%	\$ 114.6	3.0%	\$ 103.9	2.7%
<i>Existing School Improvements</i>	545.0	29.2%	1,282.3	68.8%	-	0.0%	-	0.0%	37.6	2.0%	-	0.0%
<i>New Public School Construction</i>	409.2	22.9%	1,299.1	72.7%	-	0.0%	6.0	0.3%	73.5	4.1%	-	0.0%
<i>Non K-12 Education</i> ¹⁹	4.8	4.0%	4.0	4.1%	-	0.0%	6.8	5.7%	-	0.0%	103.9	87.0%
<i>School System-wide Needs</i>	59.0	79.3%	11.4	15.3%	-	0.0%	0.5	0.7%	3.5	4.7%	-	0.0%
Recreation & Culture	\$ 929.3	76.6%	\$ 171.4	14.1%	\$ 2.8	0.2%	\$ 98.4	8.1%	\$ 5.4	0.4%	\$ 6.2	0.5%
<i>Recreation</i>	567.5	76.0%	121.7	16.3%	2.8	0.4%	43.3	5.8%	5.4	0.7%	6.2	0.8%
<i>Libraries & Museums</i>	215.1	68.9%	49.1	15.7%	-	0.0%	47.9	15.3%	-	0.0%	-	0.0%
<i>Community Development</i>	146.7	95.0%	0.6	0.4%	-	0.0%	7.2	4.7%	-	0.0%	-	0.0%
General Government	\$ 662.3	74.5%	\$ 142.1	16.0%	\$ 1.0	0.1%	\$ 77.8	8.7%	\$ 5.7	0.6%	\$ 0.8	0.1%
<i>Public Buildings</i>	544.3	75.4%	124.4	17.2%	1.0	0.1%	45.4	6.3%	5.7	0.8%	0.8	0.1%
<i>Other Facilities</i>	66.0	78.2%	17.4	20.6%	-	0.0%	1.1	1.2%	-	0.0%	-	0.0%
<i>Property Acquisition</i>	52.0	62.1%	0.3	0.4%	-	0.0%	31.4	37.5%	-	0.0%	-	0.0%
Economic Development	\$ 268.1	49.8%	\$ 132.6	24.6%	\$ -	0.0%	\$ 97.5	18.1%	\$ 40.1	7.5%	\$ -	0.0%
<i>Industrial Sites & Parks</i>	113.2	30.4%	132.6	35.6%	-	0.0%	86.7	23.3%	39.6	10.6%	-	0.0%
<i>Business District Development</i>	154.9	93.2%	-	0.0%	-	0.0%	10.8	6.5%	0.6	0.3%	-	0.0%
Grand Total	\$7,752.9	42.6%	\$4,616.8	25.4%	\$324.7	1.8%	\$822.7	4.5%	\$1,209.3	6.6%	\$3,461.5	19.0%

¹⁸ Descriptions of the project types are included in the Glossary of Terms at the end of this report.

¹⁹ K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. The small number of non-K-12 projects include facilities for post-secondary programs, pre-school programs, etc., as described in the Glossary of Terms at the end of this report.

Table 5: Needed Infrastructure Improvements by Project Type and Stage of Development
Five-year Period July 1999 Through June 2004²⁰

Category and Project Type ²¹	Conceptual				Planning & Design				Construction			
	Number		Cost [in millions]		Number		Cost [in millions]		Number		Cost [in millions]	
Transportation & Utilities	484	33.5%	\$ 2,692	36.5%	620	43.0%	\$ 3,139	42.5%	339	23.5%	\$ 1,552	21.0%
<i>Transportation</i>	413	32.9%	2,616	40.3%	561	44.7%	2,791	43.0%	282	22.5%	1,081	16.7%
<i>Other Utilities</i>	34	30.9%	38	8.1%	41	37.3%	36	7.8%	35	31.8%	393	84.1%
<i>Navigation</i>	2	50.0%	1	0.2%	1	25.0%	300	99.5%	1	25.0%	1	0.3%
<i>Telecommunications</i>	35	47.9%	38	29.9%	17	23.3%	12	9.3%	21	28.8%	78	60.9%
Health, Safety & Welfare	918	40.4%	\$ 1,252	29.0%	818	36.0%	\$ 1,490	34.5%	539	23.7%	\$ 1,574	36.5%
<i>Water & Wastewater</i>	604	38.7%	908	32.0%	602	38.5%	903	31.9%	356	22.8%	1,024	36.1%
<i>Law Enforcement</i>	48	37.8%	123	20.0%	46	36.2%	349	56.6%	33	26.0%	144	23.4%
<i>Storm Water</i>	33	25.6%	41	9.7%	46	35.7%	121	28.9%	50	38.8%	257	61.4%
<i>Housing</i>	51	49.5%	75	53.4%	29	28.2%	30	21.6%	23	22.3%	35	25.1%
<i>Fire Protection</i>	78	49.1%	37	31.4%	54	34.0%	50	43.3%	27	17.0%	30	25.3%
<i>Solid Waste</i>	61	48.8%	22	22.5%	28	22.4%	25	26.1%	36	28.8%	49	51.4%
<i>Public Health Facilities</i>	43	61.4%	47	50.7%	13	18.6%	11	11.6%	14	20.0%	35	37.7%
Education	93	42.3%	\$ 886	44.7%	69	31.4%	\$ 580	29.3%	58	26.4%	\$ 516	26.0%
<i>New Public School Construction</i>	78	45.6%	876	49.0%	51	39.8%	462	25.8%	42	24.6%	450	25.2%
<i>Non K-12 Education²²</i>	5	45.7%	6	4.9%	7	50.0%	110	91.7%	2	14.3%	4	3.5%
<i>School System-wide Needs</i>	10	28.6%	4	5.7%	11	31.4%	8	11.3%	14	40.0%	62	83.0%
Recreation & Culture	253	33.5%	\$ 253	20.8%	281	37.2%	\$ 368	30.3%	222	29.4%	\$ 593	48.8%
<i>Recreation</i>	209	33.0%	214	28.7%	244	38.5%	298	39.9%	180	28.4%	235	31.5%
<i>Libraries & Museums</i>	36	40.0%	32	10.2%	28	31.1%	57	18.3%	26	28.9%	223	71.5%
<i>Community Development</i>	8	24.2%	7	4.5%	9	27.3%	13	8.5%	16	48.5%	134	87.0%
General Government	149	37.6%	\$ 158	17.7%	133	33.6%	\$ 298	33.5%	114	28.8%	\$ 434	48.8%
<i>Public Buildings</i>	131	40.2%	137	19.0%	109	33.4%	256	35.5%	86	26.4%	328	45.5%
<i>Other Facilities</i>	12	25.5%	13	15.6%	17	36.2%	21	24.7%	18	38.3%	50	59.7%
<i>Property Acquisition</i>	6	26.1%	7	8.8%	7	30.4%	21	25.0%	10	43.5%	55	66.2%
Economic Development	94	42.0%	\$ 156	28.9%	79	35.3%	\$ 165	30.6%	51	22.8%	\$ 218	40.5%
<i>Industrial Sites & Parks</i>	77	43.8%	130	35.0%	64	36.4%	116	31.3%	35	19.9%	125	33.7%
<i>Business District Development</i>	17	35.4%	26	15.4%	15	31.3%	48	29.0%	16	33.3%	92	55.6%
Grand Total	1,991	37.5%	\$ 5,397	33.1%	2,000	37.6%	\$ 6,039	37.0%	1,323	24.9%	\$ 4,887	29.9%

²⁰ For complete listings of costs by project type, stage of development and county, see Appendix D-2a through D-24a and D-2b through D-24b.

²¹ Descriptions of the project types are included in the Glossary of Terms at the end of this report. Does not include existing public schools.

²² K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. The small number of non-K-12 projects include facilities for post-secondary programs, pre-school programs, etc., as described in the Glossary of Terms at the end of this report.

Projects in Capital Improvement Plans are Far More Likely to be Under Construction

Excluding improvements needed at existing schools, more than half of the infrastructure needs reported for July 1999 through June 2004 were included in some governmental entity's capital improvement plan. As shown in Table 6, more than half of the projects not included in plans were in the conceptual stage; about one third were in planning and design. In contrast, more than 40 percent of projects reported as being in capital improvement plans were under construction at the time of the survey, and less than 20 percent were still in the conceptual stage.

Table 6: Estimated Cost [in millions] of Needed Infrastructure Improvements* by Project Stage and Inclusion in Capital Improvement Plans²³

Project Stage	Project Included in Capital Improvement Plan?						Grand Total
	Unknown		No		Yes		
Conceptual	\$ 216.9	56.2%	\$ 3,394.9	51.6%	\$ 1,785.4	19.1%	\$ 5,397.3
Planning & Design	119.6	31.0%	2,344.1	35.6%	3,575.6	38.2%	6,039.2
Construction	49.6	12.8%	843.3	12.8%	3,993.6	42.7%	4,886.5
Grand Total	\$ 386.1	100.0%	\$ 6,582.4	100.0%	\$ 9,354.6	100.0%	\$ 16,323.1

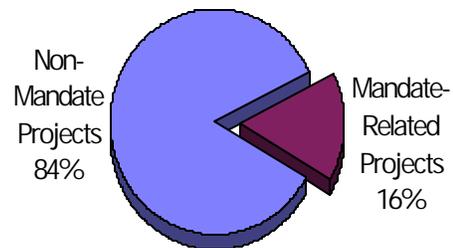
*Does not include improvements at existing schools.

The current survey form does not include a question asking whether projects are funded, so it cannot be said with certainty whether funding is available for the projects not included in official planning documents; however, the fact that they are more than twice as likely to be in the conceptual stage than projects included in plans may indicate that they are not yet funded. The availability of funds for infrastructure is such a key issue for decision makers that the next survey will include questions designed to gather that information.

Mandates Affect 16 Percent of All Projects and Account for Nearly Half of Elementary and Secondary School Costs

It is not clear from the data gathered in the current inventory how much of the total estimated costs reported is attributable to state or federal mandates; however, the overall number of projects affected by mandates, such as the Americans with Disabilities Act, is a relatively small portion, 16 percent, of the total number of

Figure 3. Percent of Infrastructure Projects Involving Facilities Mandates



²³ For information by county on percent of reported costs included in capital improvement plans, see Appendix D-2a through D-24a.

projects in the inventory. Collectively, schools account for nearly eighty percent of the total number of projects affected by facilities mandates²⁴ and were far more likely to be associated with mandates than any other type of project.

As shown in Table 7, schools represent the top two types of projects with mandates. Solid waste and storm water projects ranked third and fourth.

Table 7: Percent of Projects²⁵ Reported to Involve Facilities Mandates by Type of Project
Five-year Period July 1999 Through June 2004

Type of Project ²⁶	Number of Projects or Schools Reported	Projects or Schools Affected by Mandates	
		Number	Percent
Existing School Improvements	1,330	765	57.5%
New Public School Construction	171	52	30.4%
Solid Waste	125	21	16.8%
Storm Water	129	16	12.4%
Other Facilities	47	4	8.5%
Water and Wastewater	1,562	116	7.4%
Law Enforcement	127	9	7.1%
Other Utilities	110	4	3.6%
Public Buildings	326	6	1.8%
Transportation	1,256	23	1.8%
Telecommunications	73	1	1.4%
Libraries and Museums	90	1	1.1%
Housing	103	1	1.0%
Recreation	633	2	0.3%
Community Development	33	0	0.0%
Industrial Sites and Parks	176	0	0.0%
Fire Protection	159	0	0.0%
LEA System-wide Need	35	0	0.0%
Business District Development	48	0	0.0%
Non K-12 Education	14	0	0.0%
Property Acquisition	23	0	0.0%
Public Health Facilities	70	0	0.0%
Navigation	4	0	0.0%
Grand Total	6,644	1,021	15.4%

TACIR staff estimate²⁷ that nearly half of all improvement costs reported for schools were the result of state or federal mandates, primarily the Education Improvement Act of 1992.²⁸ (See Table 8.)

²⁴ Projects reported for existing schools were aggregated so that each school is counted only once in this figure.

²⁵ Each public school campus is counted as one project.

²⁶ Descriptions of the project types are included in the Glossary of Terms at the end of the report.

²⁷ See Appendix F for more detail.

²⁸ Public Chapter 535, Acts of 1992.

This act was passed by the General Assembly in 1992 and requires a substantial reduction in the class sizes throughout all grades in Tennessee public schools. Smaller classes must be in place when schools open in fall 2001. If schools do not meet this requirement, the Commissioner of Education may withhold state funds from local school systems.²⁹

Table 8: Estimated Cost of Facilities Mandates Reported for Elementary and Secondary Schools – Five-year Period July 1999 Through June 2004

Type of Need	Estimated Cost [in millions]	Percent of Total
State & Federal Mandates	\$ 1,833.4	49.2%
<i>EIA Costs at New and Existing Schools</i>	<i>1,627.2</i>	<i>43.7%</i>
<i>Other State Mandates</i>	<i>9.3</i>	<i>0.3%</i>
<i>Federal Mandates</i>	<i>197.0</i>	<i>5.3%</i>
Non-mandated Needs	\$ 1,893.6	50.8%
Statewide Total	\$ 3,728.1	100.0%

²⁹ Tennessee Code Annotated, § 49-3-353.

Reported Infrastructure Needs by County³⁰

Population Factors Explain Some Differences in Infrastructure Costs

There are few surprises in the list of counties reporting the largest and smallest project costs over the period covered by the current infrastructure inventory (see Table 9). Most of the top ten counties are explained by their population, population density or population growth (see Tables 10 through 13). The exception seems to be Dickson County, which included in its reported needs a near 25-mile section of the proposed north loop of state route 840. That one project, which is regional in nature, accounts for about 30 percent of Dickson County's reported infrastructure needs. Even without it, Dickson County's reported cost per capita would be about \$6,300, a figure that is nearly double the statewide cost per capita.

Table 9: Largest and Smallest Reported Infrastructure Improvement Needs by County
Five-year Period July 1999 Through June 2004

Rank	County	Total Estimated Cost	Percent of Total	1999* Population	Percent of Total	Cost Per Capita
1	Davidson	\$ 2,796,962,180	15.4%	530,050	9.7%	\$ 5,277
2	Shelby	2,012,586,556	11.1%	873,000	15.9%	\$ 2,305
3	Knox	1,256,809,470	6.9%	376,039	6.9%	\$ 3,342
4	Hamilton	1,161,602,688	6.4%	294,720	5.4%	\$ 3,941
5	Rutherford	673,993,192	3.7%	171,401	3.1%	\$ 3,932
6	Sumner	505,499,915	2.8%	126,009	2.3%	\$ 4,012
7	Wilson	492,844,500	2.7%	86,496	1.6%	\$ 5,698
8	Montgomery	423,561,981	2.3%	129,411	2.4%	\$ 3,273
9	Blount	422,170,400	2.3%	102,785	1.9%	\$ 4,107
10	Dickson	387,237,131	2.1%	43,017	0.8%	\$ 9,002
Top 10 Subtotal		10,133,268,013	55.7%	2,732,928	49.8%	\$ 3,708
All Others³¹		7,963,719,462	43.8%	2,596,747	47.4%	\$ 3,068
86	Pickett	16,210,000	0.1%	4,711	0.1%	\$ 3,441
87	Grundy	14,193,800	0.1%	14,046	0.3%	\$ 1,011
88	Lewis	10,750,000	0.1%	11,127	0.2%	\$ 966
89	Moore	10,120,000	0.1%	5,140	0.1%	\$ 1,969
90	Chester	9,189,000	0.1%	14,859	0.3%	\$ 618
91	Lauderdale	7,975,000	0.0%	24,234	0.4%	\$ 329
92	Benton	6,775,164	0.0%	16,497	0.3%	\$ 411
93	Hancock	6,543,000	0.0%	6,767	0.1%	\$ 967
94	Tipton	6,191,416	0.0%	48,348	0.9%	\$ 128
95	Lake	3,036,000	0.0%	8,131	0.1%	\$ 373
Bottom 10 Subtotal		90,983,380	0.5%	153,860	2.8%	\$ 591
Grand Total		\$ 18,187,970,855	100.0%	5,483,535	100.0%	\$ 3,317

* The 1999 population figures are estimates for July 1 of that year from the U.S. Bureau of the Census.

³⁰ For detailed information on each county, see Appendix D.

³¹ For information about the middle 75 counties, see Appendix D-25a.

The one apparent anomaly in the bottom ten counties for total reported costs is Tipton, which is the eighth fastest growing county in percentage terms and is immediately adjacent to Shelby County, functioning to some extent as a “bedroom” county for the Memphis area.

Population alone seems to explain some but not all of the counties in the top and bottom ten for reported infrastructure needs. As can be seen by comparing Tables 9 and 10, seven of the ten counties reporting the greatest needs are also among the ten most populous counties; however, only four of the ten counties reporting the least needs are among the ten least populous.

Table 10: Infrastructure Improvement Needs Reported by Most and Least Populous Counties – Five-year Period July 1999 Through June 2004

Rank	County	1999* Population	Percent of Total	Total Estimated Cost	Percent of Total	Cost Per Capita
1	Shelby	873,000	15.9%	\$ 2,012,586,556	11.1%	\$ 2,305
2	Davidson	530,050	9.7%	2,796,962,180	15.4%	\$ 5,277
3	Knox	376,039	6.9%	1,256,809,470	6.9%	\$ 3,342
4	Hamilton	294,720	5.4%	1,161,602,688	6.4%	\$ 3,941
5	Rutherford	171,401	3.1%	673,993,192	3.7%	\$ 3,932
6	Sullivan	150,231	2.7%	311,026,315	1.7%	\$ 2,070
7	Montgomery	129,411	2.4%	423,561,981	2.3%	\$ 3,273
8	Sumner	126,009	2.3%	505,499,915	2.8%	\$ 4,012
9	Williamson	123,793	2.3%	366,797,957	2.0%	\$ 2,963
10	Washington	102,814	1.9%	320,530,500	1.8%	\$ 3,118
Top 10 Subtotal		2,877,468	52.6%	9,829,370,754	54.0%	\$ 3,416
All Others³²		2,536,980	46.3%	7,997,947,101	44.0%	\$ 3,153
86	Jackson	9,643	0.2%	22,474,800	0.1%	\$ 2,331
87	Lake	8,131	0.1%	3,036,000	0.0%	\$ 373
88	Houston	7,888	0.1%	125,112,000	0.7%	\$ 15,861
89	Perry	7,560	0.1%	34,881,000	0.2%	\$ 4,614
90	Clay	7,268	0.1%	44,643,000	0.2%	\$ 6,142
91	Trousdale	6,971	0.1%	51,310,000	0.3%	\$ 7,360
92	Hancock	6,767	0.1%	6,543,000	0.0%	\$ 967
93	Moore	5,140	0.1%	10,120,000	0.1%	\$ 1,969
94	Van Buren	5,008	0.1%	46,323,200	0.3%	\$ 9,250
95	Pickett	4,711	0.1%	16,210,000	0.1%	\$ 3,441
Bottom 10 Subtotal		69,087	1.1%	360,653,000	2.0%	\$ 5,220
Grand Total		5,483,535	100.0%	\$ 18,187,970,855	100.0%	\$ 3,317

* The 1999 population figures are estimates for July 1 of that year from the U.S. Bureau of the Census.

As shown in Table 10, Houston County has a high cost per capita in comparison to the state as a whole. Four state transportation projects, all in the conceptual stage, account for almost 80 percent of Houston County’s reported infrastructure needs. Transportation projects are expensive and when located in areas of low population necessarily produce high costs per capita. Without those four projects, Houston County’s cost per capita would be very close to the statewide cost per

³² For information about the middle 75 counties, see Appendix D-25b.

capita. A new high school, also in the conceptual stage, accounts for another eight percent of the total of \$125 million reported for Houston County.

As with population totals, population density seems to be more closely related to infrastructure needs for the top ten counties than for the bottom ten, and density explains slightly fewer of the counties reporting the ten greatest and least needs. Six of the ten counties reporting the greatest needs are among the ten most densely populated counties, but only two of the ten counties reporting the least needs are among the least densely populated counties. Compare Tables 9 and 11.

Table 11: Infrastructure Improvement Needs Reported by the Most and Least Densely Populated Counties—Five-year Period July 1999 Through June 2004

Rank	County	1999* Population	Land Area [sq. mi.]	Population per Square Mile	Total Estimated Cost	Cost Per Capita
1	Shelby	873,000	755	1,156	\$ 2,012,586,556	\$ 2,305
2	Davidson	530,050	502	1,055	2,796,962,180	\$ 5,277
3	Knox	376,039	509	740	1,256,809,470	\$ 3,342
4	Hamilton	294,720	543	543	1,161,602,688	\$ 3,941
5	Sullivan	150,231	413	364	311,026,315	\$ 2,070
6	Hamblen	54,201	161	337	182,558,461	\$ 3,368
7	Washington	102,814	326	315	320,530,500	\$ 3,118
8	Rutherford	171,401	619	277	673,993,192	\$ 3,932
9	Bradley	84,126	329	256	284,172,000	\$ 3,378
10	Montgomery	129,411	539	240	423,561,981	\$ 3,273
Top 10 Subtotal		2,765,993	4,696	589	9,423,803,343	\$ 3,407
All Others³³		2,620,276	32,775	80	8,180,837,480	\$ 3,122
86	Humphreys	17,192	532	32	129,971,100	\$ 7,560
87	Jackson	9,643	309	31	22,474,800	\$ 2,331
88	Clay	7,268	236	31	44,643,000	\$ 6,142
89	Hancock	6,767	222	30	6,543,000	\$ 967
90	Pickett	4,711	163	29	16,210,000	\$ 3,441
91	Bledsoe	10,945	406	27	60,695,000	\$ 5,545
92	Stewart	11,759	458	26	180,854,000	\$15,380
93	Wayne	16,413	734	22	40,734,932	\$ 2,482
94	Van Buren	5,008	274	18	46,323,200	\$ 9,250
95	Perry	7,560	415	18	34,881,000	\$ 4,614
Bottom 10 Subtotal		97,266	3,749	26	583,330,032	\$ 5,997
Grand Total		5,483,535	41,219	133	\$ 18,187,970,855	\$ 3,317

* The 1999 population figures are estimates for July 1 of that year from the U.S. Bureau of the Census.

Stewart County stands out among the bottom ten counties in Table 11 with a cost per capita more than four times the statewide figure. As with Houston County, state transportation projects, all in

³³ For information about the middle 75 counties, see Appendix D-26.

the conceptual stages, account for the bulk of Stewart's reported needs. In this case, five transportation projects represent 65 percent of the county's total needs. Stewart County also reports a need for a new high school, currently under construction, which represents another nine percent of its total. Again, infrastructure projects in rural areas can be just as expensive as they are in more densely populated areas. And while they may occur less frequently in rural areas, when they do occur they necessarily produce relatively high costs per capita.

High Growth Rates Do Not Necessarily Mean High Costs per Capita

Much attention is given to county growth rates, and infrastructure costs are often thought to be higher in areas with high growth rates. However, as a comparison between Tables 9 and 12 shows, only two of the counties reporting the greatest infrastructure needs are among the ten with the highest growth rates.

And surprisingly, the ten counties with the highest growth rates—all more than twice the statewide rate between 1990 and 1999—did not report greater than average infrastructure needs in relation to their 1999 population.³⁴ In fact, as a group, they actually reported less than the total cost per capita statewide and about the same cost per capita as the ten slowest growing counties, but growth rates do not necessarily tell the story.

³⁴ 1999 was the most recent year for which the U.S. Bureau of the Census had provided county-level population estimates at the time of publication for this report.

Table 12: Cost of Needed Infrastructure Improvements Reported by the Ten Counties with the Highest and Lowest Population Growth Rates

Rank	County	1990* Population	1999* Population	Population Growth Rate	Total Estimated Cost	Cost Per Capita
1	Williamson	81,807	123,793	51.3%	\$ 366,797,957	\$ 2,963
2	Rutherford	119,727	171,401	43.2%	673,993,192	\$ 3,932
3	Jefferson	33,123	45,104	36.2%	54,508,000	\$ 1,208
4	Cheatham	27,325	36,128	32.2%	145,301,250	\$ 4,022
5	Robertson	41,692	54,861	31.6%	167,277,000	\$ 3,049
6	Cumberland	34,979	45,326	29.6%	172,701,351	\$ 3,810
7	Sevier	51,381	65,783	28.0%	216,753,338	\$ 3,295
8	Tipton	37,863	48,348	27.7%	6,191,416	\$ 128
9	Maury	55,289	70,440	27.4%	139,550,210	\$ 1,981
10	Montgomery	101,612	129,411	27.4%	423,561,981	\$ 3,273
Top 10 Subtotal		584,798	790,595	35.2%	2,366,635,695	\$ 2,993
All Others³⁵		3,874,893	4,249,904	9.7%	14,403,087,897	\$ 3,389
86	Van Buren	4,852	5,008	3.2%	46,323,200	\$ 9,250
87	Hamilton	285,596	294,720	3.2%	1,161,602,688	\$ 3,941
88	Decatur	10,460	10,788	3.1%	40,952,000	\$ 3,796
89	Lauderdale	23,500	24,234	3.1%	7,975,000	\$ 329
90	Jackson	9,359	9,643	3.0%	22,474,800	\$ 2,331
91	Weakley	32,027	32,952	2.9%	20,323,379	\$ 617
92	Obion	31,758	32,240	1.5%	50,618,042	\$ 1,570
93	Clay	7,228	7,268	0.6%	44,643,000	\$ 6,142
94	Hancock	6,741	6,767	0.4%	6,543,000	\$ 967
95	Haywood	19,414	19,416	0.0%	16,792,154	\$ 865
Bottom 10 Subtotal		430,935	443,036	2.8%	1,418,247,263	\$ 3,201
Grand Total		4,890,626	5,483,535	12.1%	\$ 18,187,970,855	\$ 3,317

* The 1990 and 1999 population figures are estimates for July 1 of each year from the U.S. Bureau of the Census.

Among the high growth counties in Table 12, based on growth rates, Tipton County stands out as the one with the lowest cost per capita. In fact, it has the lowest cost per capita of any county. It is not clear why Tipton County's reported infrastructure needs are low. Population growth rates, while they are given much attention, may not be the best predictor of infrastructure needs. Based on the data in the current infrastructure needs inventory, absolute population increases may be the best predictors of high reported needs.

Higher Costs per Capita Are Associated with Larger Population Influxes

Eight of the ten counties reporting the greatest infrastructure needs are among the top ten for total population change. Four of the ten reporting the least needs are among the bottom ten for total population change. Compare Tables 9 and 13. The cost per capita for the ten counties with the largest population changes exceeds that for the ten with the smallest changes by more than \$1,200 (\$3,571 versus \$2,337) indicating that high growth comes at a price.

³⁵ For information about the middle 75 counties, see Appendix D-27.

Table 13: Cost of Needed Infrastructure Improvements Reported by the Ten Counties with the Largest and Smallest Change in Population

Rank	County	1990* Population	1999* Population	Population Change	Total Estimated Cost	Cost Per Capita
1	Rutherford	119,727	171,401	51,674	\$ 673,993,192	\$ 3,932
2	Shelby	827,912	873,000	45,088	2,012,586,556	\$ 2,305
3	Williamson	81,807	123,793	41,986	366,797,957	\$ 2,963
4	Knox	336,591	376,039	39,448	1,256,809,470	\$ 3,342
5	Montgomery	101,612	129,411	27,799	423,561,981	\$ 3,273
6	Sumner	103,702	126,009	22,307	505,499,915	\$ 4,012
7	Davidson	511,191	530,050	18,859	2,796,962,180	\$ 5,277
8	Wilson	68,002	86,496	18,494	492,844,500	\$ 5,698
9	Blount	86,276	102,785	16,509	422,170,400	\$ 4,107
10	Maury	55,289	70,440	15,151	139,550,210	\$ 1,981
Top 10 Subtotal		2,292,109	2,589,424	297,315	9,090,776,361	\$ 3,511
All Others³⁶		2,486,059	2,779,084	293,025	8,828,324,498	\$ 3,177
86	Grundy	13,396	14,046	650	14,193,800	\$ 1,011
87	Obion	31,758	32,240	482	50,618,042	\$ 1,570
88	Moore	4,688	5,140	452	10,120,000	\$ 1,969
89	Decatur	10,460	10,788	328	40,952,000	\$ 3,796
90	Jackson	9,359	9,643	284	22,474,800	\$ 2,331
91	Van Buren	4,852	5,008	156	46,323,200	\$ 9,250
92	Pickett	4,562	4,711	149	16,210,000	\$ 3,441
93	Clay	7,228	7,268	40	44,643,000	\$ 6,142
94	Hancock	6,741	6,767	26	6,543,000	\$ 967
95	Haywood	19,414	19,416	2	16,792,154	\$ 865
Bottom 10 Subtotal		112,458	115,027	2,569	268,869,996	\$ 2,337
Grand Total		4,890,626	5,483,535	592,909	\$ 18,187,970,855	\$ 3,317

* The 1990 and 1999 population figures are estimates for July 1 of each year from the U.S. Bureau of the Census.

³⁶ For information about the middle 75 counties, see Appendix D-28.

Table 14: Population Factors for the Ten Counties Reporting Highest and Lowest Infrastructure Needs per Capita

Rank	County	Population 1990	Population 1999	Population Change	Growth Rate	Land Area [square miles]	Population Density	Total Reported Cost	Cost Per Capita
1	Polk	13,674	15,094	1,420	10.4%	435	35	\$ 306,784,250	\$ 20,325
2	Houston	7,001	7,888	887	12.7%	200	39	125,112,000	\$ 15,861
3	Stewart	9,489	11,759	2,270	23.9%	458	26	180,854,000	\$ 15,380
4	Van Buren	4,852	5,008	156	3.2%	274	18	46,323,200	\$ 9,250
5	Morgan	17,336	18,689	1,353	7.8%	522	36	168,770,650	\$ 9,030
6	Dickson	35,264	43,017	7,753	22.0%	490	88	387,237,131	\$ 9,002
7	Humphreys	15,798	17,192	1,394	8.8%	532	32	129,971,100	\$ 7,560
8	Trousdale	5,935	6,971	1,036	17.5%	114	61	51,310,000	\$ 7,360
9	Hickman	16,853	21,283	4,430	26.3%	613	35	150,380,000	\$ 7,066
10	Meigs	8,092	10,134	2,042	25.2%	195	52	70,386,000	\$ 6,946
Top 10 Subtotal		134,294	157,035	22,741	16.9%	3,833	41	1,617,128,331	\$ 10,298
All Others³⁷		4,466,180	4,993,744	527,564	11.8%	33,227	150	16,419,386,974	\$ 3,288
86	Hancock	6,741	6,767	26	0.4%	222	30	6,543,000	\$ 967
87	Lewis	9,295	11,127	1,832	19.7%	282	39	10,750,000	\$ 966
88	Haywood	19,414	19,416	2	0.0%	533	36	16,792,154	\$ 865
89	McNairy	22,480	24,312	1,832	8.1%	557	44	20,203,666	\$ 831
90	Chester	12,834	14,859	2,025	15.8%	289	52	9,189,000	\$ 618
91	Weakley	32,027	32,952	925	2.9%	580	57	20,323,379	\$ 617
92	Benton	14,578	16,497	1,919	13.2%	395	42	6,775,164	\$ 411
93	Lake	7,114	8,131	1,017	14.3%	163	50	3,036,000	\$ 373
94	Lauderdale	23,500	24,234	734	3.1%	471	52	7,975,000	\$ 329
95	Tipton	37,863	48,348	10,485	27.7%	459	105	6,191,416	\$ 128
Bottom 10 Subtotal		185,846	206,643	20,797	11.2%	3,951	52	107,778,779	\$ 522
Grand Total		4,890,626	5,483,535	592,909	12.1%	41,219	133	\$18,187,970,855	\$ 3,317

* The 1990 and 1999 population figures are estimates for July 1 of each year from the U.S. Bureau of the Census.

³⁷ For information about the middle 75 counties, see Appendix D-29.

The Nature of State Transportation Projects Accounts for the Fact that Rural Counties Dominate Both the Top and the Bottom Ten Counties for Cost per Capita

When comparing county rankings for various factors related to infrastructure needs, it is hard to ignore the fact that different rural counties report both the very highest and the very lowest costs per capita. No population factor adequately explains that phenomenon. As noted in the previous discussion, Houston, Stewart and Dickson Counties, which rank second, third and sixth for costs per capita, reported unusually large costs attributable to conceptual transportation projects. Similarly, Polk County, which at \$20,325 per capita ranks first, reported one extremely large state transportation project, also in the conceptual stage, without which its cost per capita would be little more than half the statewide cost per capita.

Transportation projects account for 77 percent of the total infrastructure costs reported by the ten counties with the highest costs per capita. In contrast, transportation represents less than 14 percent of the total costs reported by the ten counties with the lowest costs per capita. Moreover, the statewide percentage (36 percent) is less than half the aggregate percentage for the top ten counties. These facts suggest that the presence or absence of transportation projects, particularly the large state projects reported by some rural counties, accounts for the phenomenon of rural counties dominating both the top and the bottom ten counties for cost per capita. This is not surprising given the relatively high cost of state transportation projects coupled with funding limitations and the relative infrequency with which they occur in areas with smaller populations.

When Population Factors Do Not Explain the Relatively Low Costs Reported by Some Counties, Local Tax Base Factors May

Comparisons of the top ten and bottom ten counties don't shed much light on what's happening in the counties that don't show up in the top and bottom ten, yet they represent nearly three-fourths of the total reported outside of the four largest counties in the state. In order to better understand the more general patterns across all counties, TACIR staff applied some relatively straightforward statistical correlation and regression analyses similar to those used to develop the education fiscal capacity indices used to allocate the local share of Tennessee's education funding formula.³⁸ These analyses may also suggest other factors that may account for the presence of some counties in the bottom ten when population factors do not. They certainly suggest areas for more in depth analysis than could be accomplished with the resources currently available for this project.

Both the total number and the total cost reported for infrastructure needs by county are highly correlated (> 0.90)³⁹ with population, increases in population and the population living in urban areas. However, both are equally highly correlated with local tax base variables and per capita income. And of course, there is a high correlation between the population variables and the tax base variables. High correlations mean that patterns of differences (e.g., across counties) for one variable are very similar to patterns of differences for another variable. Multiple linear regression analysis makes it possible to determine which of those variables, when analyzed in

³⁸ The Tennessee Advisory Commission on Intergovernmental Relations, *Local Fiscal Capacity for Funding Education in Tennessee* (July 1994).

³⁹ The highest possible correlation is 1.00.

combination, are more strongly related to the infrastructure needs reported across the state. This statistical process produces measures of both the strength and the size of the relationships between a single item of interest and a set of items thought to influence that single item. The process in this case was used to compare reported infrastructure needs by county to each counties' 1999 population, its population growth between 1990 and 1999, the proportion of its population considered urban, its property tax base, its sales tax base and its per capita income.⁴⁰ All data was divided by the geographic area within each county so that counties of different sizes could be fairly compared. A factor based on ratio between population and the total number and cost of projects reported within each development district was also included.

When all counties and differences in their geographic area are considered, the total estimated cost of infrastructure needed in each county as reported by local officials is more strongly related to the property tax base than to any population factor or either of the other two factors commonly used to measure the ability of Tennessee's cities and counties to raise revenue (the sales tax base and per capita income). In fact, the relationship between population factors and total cost by county was very weak. However, the relationship between total cost and development district was strong. In contrast, the number of projects reported for each county was strongly related to all of the factors except the proportion of the population considered urban.

Another function of multiple linear regression analysis is to make estimates of what a variable might be expected to be based on a set of other variables. This is possible because the analysis produces factors, called coefficients, that can be multiplied by the variables to calculate an expected value for the variable being predicted. Estimates derived by applying the coefficients produced by the cost analysis based on the current inventory and factoring out the influence of development districts, indicate that the current inventory captured around 90 percent of the infrastructure needs in the state. If the total cost by county is based on the greater of the reported cost or the cost produced by the regression analysis, the statewide total could be as much as \$21 billion rather than the \$18.2 billion actually reported. Further analysis is beyond the scope of this report, but this information will assist staff in improving the inventory and may serve as the basis of future staff reports.

⁴⁰ The tax base and per capita income variables are an average of the data available for the most recent three years.

Reported Public School Conditions And Needs

Four major factors contribute to a public school system's need for infrastructure:

- growth in student populations*
- compliance with class size standards*
- natural wear-and-tear or neglect*
- structural age*

In addition, school systems are expected to comply with mandates, upgrade facilities, and add new technology infrastructure to keep up with changing times. According to local officials, most of Tennessee's public school buildings are in good or excellent condition; however, infrastructure improvements, including new schools as well as additions to existing schools that will be in some phase of development during the five-year period of July 1999 through June 2004, are estimated to cost \$3.7 billion.

**Table 15: Total Reported Cost of Public School Infrastructure Needs⁴¹
by Type of Need—Five-year Period July 1999 through June 2004**

Type of Need	Estimated Cost [in millions]	Percent of Total
New School Construction	\$ 1,787.8	48.0%
<i>EIA-related Needs⁴²</i>	1,321.5	35.5%
<i>Enrollment Growth & Other New School Needs</i>	466.3	12.5%
Existing Schools	\$ 1,864.9	50.0%
<i>Facility Component Upgrades</i>	1,133.7	30.4%
<i>EIA Mandate</i>	305.7	8.2%
<i>Other State Mandates</i>	9.3	0.3%
<i>Federal Mandates</i>	197.0	5.3%
<i>Technology</i>	219.2	5.9%
System-wide Needs	\$ 74.3	2.0%
Statewide Total	\$ 3,727.0	100.0%

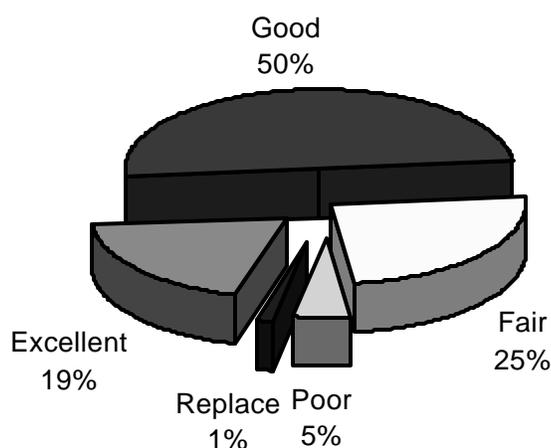
⁴¹ Detailed information for each school system is presented in Appendix E.

⁴² TACIR staff analyzed patterns of growth in student counts to develop estimates of the percentage of new school construction attributable to the lower class sizes required by the Education Improvement Act of 1992 rather than to growth in student enrollment. For a description of the TACIR methodology, see Appendix F.

Sixty-nine Percent of Tennessee's Public Schools are in Good or Excellent Condition, but Upgrades of \$1.1 Billion are Still Needed

Defining what constitutes a high-quality learning environment is subjective in nature and difficult to quantify. While the optimum condition for schools may be a qualitative rating of excellent, as a practical matter, the goal of the inventory is to capture the cost of getting our schools in good condition—both overall and for each facility component.⁴³ As shown in Figure 4, most of Tennessee's public schools are in good or excellent condition. However, even schools in good or excellent condition overall can have components in less than good condition. Local school officials report a need to upgrade one or more facility components at 45% percent of all schools at a total estimated cost of \$1.1 billion as shown in Table 15.

Figure 4. Condition of Schools as Reported by Local Officials



As shown in Table 16, about 88 percent of Tennessee's public school systems rate at least half of their school buildings good to excellent. Only three school systems indicate that none of their buildings are in good or excellent condition. The cost of putting all public schools in good condition varies among the school systems depending on the percentage of schools already in good or excellent condition. The cost per student for the three systems that rate none of their school buildings good or excellent is nearly triple the statewide cost per student.

⁴³ See the FY 1999 Education Survey Form, Section B-6, in Appendix C for more specific information about the facility rating scale.

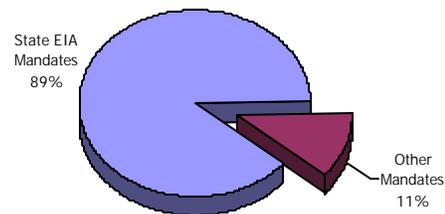
Table 16: Cost per Student to Put All Schools in Good Condition by Percent of Schools Currently in Good or Excellent Condition

Percent of Schools Good or Excellent	Number of School Systems	Percent of School Systems	Cost per Student to Put All Schools in Good Condition
None	3	2.2%	\$ 3,507
Less than 25%	2	1.4%	\$ 1,897
25% to 50%	12	8.7%	\$ 1,898
50% to 75%	22	16.7%	\$ 1,794
75% to 100%	98	71.0%	\$ 783
Total	138	100.0%	\$ 1,268

The EIA Is The Most Significant Mandate For Tennessee Schools

Approximately \$1.8 billion is needed in order for Tennessee’s public schools to comply with state and federal facilities mandates. Eighty-nine percent of that figure is attributable to the Education Improvement Act (EIA) adopted by the Tennessee General Assembly in 1992;⁴⁴ the remainder is attributable primarily to federal mandates. (See Figure 5 and Table 17.) One of the hallmarks of the EIA is the reduction of class size for students in all grades. Smaller classes mean more teachers, and more teachers mean more classrooms. The EIA set a deadline of fall 2001 for the new standards to be met, and school systems across the state have been striving to meet it since 1992. About 47 percent of Tennessee’s 138 public school systems would not have met the new standard had it been in effect for the 1999-2000 school year. If they fail to meet the standard by fall 2001, the Commissioner of Education is authorized to withhold state funds,⁴⁵ which is such a significant penalty it could make it difficult for schools in the poorer areas of the state to open.

Figure 5. Percent of Reported Cost of Facilities Mandates at Public Schools by Type of Mandate



⁴⁴ TACIR staff analyzed patterns of growth in student counts to develop estimates of the percentage of new school construction attributable to the lower class sizes required by the Education Improvement Act of 1992 rather than to growth in student enrollment. For a description of the TACIR methodology, see Appendix F.

⁴⁵ Tennessee Code Annotated, § 49-3-353.

Table 17: Total Reported Cost of Facilities Mandates at Public Schools
Five-year Period July 1999 through June 2004

Mandates	Estimated Cost [in millions]	Percent of Total Mandate Cost
State-Mandate Total	\$ 1,636.5	89.3%
<i>State-EIA (New⁴⁶ & Existing Schools)</i>	1,627.2	88.7%
<i>State-Fire Codes</i>	9.3	0.5%
Federal Mandate Total	\$ 197.0	10.7%
<i>Americans with Disabilities Act</i>	71.2	3.9%
<i>Asbestos</i>	119.9	6.5%
<i>Radon</i>	3.4	0.2%
<i>Underground Storage Tanks</i>	1.4	0.1%
<i>Special Education</i>	0.6	0.0%
<i>Lead</i>	0.4	0.0%
<i>Title I</i>	0.2	0.0%
Mandate Total	\$ 1,833.5	100.0%

Average Cost per Student to Meet Infrastructure Needs Varies Widely

Drawing conclusions about the variation across school systems in reported infrastructure needs is difficult. Based on the information provided by local officials, the EIA is the single largest factor affecting infrastructure costs; however, school systems have been moving at different rates toward meeting that mandate. As shown in Table 18, most of the systems with the highest reported costs also report that at least some of their schools do not yet have enough classrooms to house the teachers necessary to meet the EIA class size requirements. Most also report higher than average costs per student to meet their infrastructure needs. Half of the systems in the bottom ten for total infrastructure needs report that they can meet the EIA class-size requirement.

⁴⁶ TACIR staff analyzed patterns of growth in student counts to develop estimates of the percentage of new school construction attributable to the lower class sizes required by the Education Improvement Act of 1992 rather than to growth in student enrollment. For a description of the TACIR methodology, see Appendix F.

Table 18: Highest and Lowest Grand Total Infrastructure Costs Reported for Schools
Five-year Period July 1999 to June 2004

Rank	School System	EIA ⁴⁷ Met?	Total Reported Cost	Percent of Total	Number of Students	Percent of Total	Cost Per Student
1	Memphis City	No	\$ 530,979,033	14.2%	116,378	13.0%	\$4,563
2	Knox County	No	481,236,429	12.9%	51,708	5.8%	\$9,307
3	Davidson County	No	331,142,180	8.9%	68,345	7.6%	\$4,845
4	Rutherford County	No	241,743,787	6.5%	24,991	2.8%	\$9,673
5	Sumner County	No	102,108,693	2.7%	22,277	2.5%	\$4,584
6	Blount County	No	78,495,000	2.1%	10,627	1.2%	\$7,386
7	Hamilton County	Yes	78,342,016	2.1%	41,453	4.6%	\$1,890
8	Shelby County	No	76,886,060	2.1%	44,189	4.9%	\$1,740
9	Montgomery County	No	66,021,412	1.8%	23,449	2.6%	\$2,816
10	Sevier County	No	63,607,722	1.7%	12,132	1.4%	\$5,243
Top 10 Subtotal			2,050,562,332	55.0%	415,549	46.5%	\$4,935
All Others⁴⁸			1,642,661,159	44.1%	450,856	50.4%	\$3,643
86	Weakley County	Yes	4,000,000	0.1%	4,985	0.6%	\$ 802
87	Sequatchie County	No	3,656,500	0.1%	1,800	0.2%	\$2,031
88	McMinn County	No	3,616,000	0.1%	5,713	0.6%	\$ 633
89	Grainger County	Yes	3,412,000	0.1%	3,205	0.4%	\$1,065
90	Fayetteville City	Yes	3,400,000	0.1%	1,087	0.1%	\$3,129
91	Macon County	No	3,219,058	0.1%	3,495	0.4%	\$ 921
92	Bristol City	No	3,181,500	0.1%	3,615	0.4%	\$ 880
93	Harriman City	Yes	3,115,500	0.1%	1,394	0.2%	\$2,235
94	Meigs County	No	3,099,000	0.1%	1,784	0.2%	\$1,737
95	Lexington City	Yes	3,083,000	0.1%	916	0.1%	\$3,365
Bottom 10 Subtotal			33,782,558	0.9%	27,994	3.1%	\$1,207
Grand Total			\$3,727,006,049	100.0%	894,397	100.0%	\$4,167

Based on the information provided by local officials for their schools and the estimates developed by TACIR staff for new school construction attributable to the EIA, most school systems can provide the classroom space for the teachers required by the new class-size standards for less than \$1,400 per student. However, a few school systems will need as much as \$7,000 per student or more. That large amount is highly significant. In statistical terms, it is more than two standard deviations above the mean for all school systems, and the likelihood of such a large amount being within the normal range of costs is less than one percent.

Without additional information, it is impossible to say that any costs are unreasonable, and it must be noted that a portion of these costs are based on the formula developed by TACIR staff to identify the portion of the reported new school costs that might be attributable to the EIA. Higher current costs may be the result of changes in local priorities, difficulty raising sufficient

⁴⁷ The question asked on the survey form for individual existing schools was whether, if the EIA class-size requirement were in full effect for school year 1999-2000, the school surveyed would be in compliance. A copy of the survey form is included in Appendix C.

⁴⁸ For information about all public school systems, see Appendix E-2.

funds to meet the need, or a strategy of meeting other needs earlier while waiting to meet the EIA requirement until closer to the deadline. Appendix E includes the cost per student for each school system.

Table 19: Number of School Systems by Range of EIA-Related Infrastructure Cost per Student – Five-year Period July 1999 to June 2004

Reported EIA Cost per Student	Number of School Systems*	Percent of School Systems
None	38	27.7%
Less than \$1,400	49	35.8%
\$1,400 to \$2,800	15	10.9%
\$2,800 to \$4,200	10	7.3%
\$4,200 to \$5,600	8	5.8%
\$5,600 to \$7,000	7	5.1%
More than \$7,000	10	7.3%
Total	137	100.0%

* There are 138 public school systems in Tennessee. The Carroll County system was removed from all statistical analyses because it does not serve elementary school students and therefore is not comparable to the other 137 systems.

With one exception local officials assessed the condition of their existing schools and reported a total need of \$1.1 billion (see Table 15) to upgrade them to good condition. The exception, Metropolitan Nashville/Davidson County, was unable to provide condition ratings for their individual schools; however, they reported upgrade costs both by school and system wide. Two other school systems (Cocke County and Scott County) reported additional system-wide projects related to upgrading existing schools. When the additional amounts reported by those three systems are added to the total reported by other school systems for individual schools, the statewide total increases by more than \$21 million, which brings the average cost per student to almost \$1,300.

As shown in Table 20, more than 60 percent of school systems can upgrade their existing schools to good condition at an estimated cost of less than \$1,000 per student. This is no small amount, but eight school systems report a cost of more than five times that amount to put all of their schools in good condition. The likelihood of amounts that high being within the normal range based on the costs reported by all school systems is less than one percent. Determining the reasons for figures that high would require more information than was gathered for the infrastructure inventory. TACIR staff attempted to limit the subjectivity inherent in rating the condition of schools by carefully defining the terms used to do so in the survey itself (see Appendix C). However, with 138 school systems, it is impossible to ensure that the condition of all facilities is rated in a consistent manner. Differences among schools systems in the costs they estimate to put their schools in good condition may relate to the judgment of local officials or, in the case of unusually high costs per student, may reflect either neglect or attempts to set a higher standard.

As shown in Table 15, local officials estimated a total need for \$219 million for technology infrastructure at existing schools. Two school systems (Metropolitan Nashville/Davidson County and Macon County) are not included in those figures, however, because they did not report the information by school. When the lump sums they reported are added to the figures reported by all other school systems by individual school, the statewide total exceeds \$224 million, or an average of just over \$250 per student.

Table 20: Number of School Systems by Range of Upgrade Costs per Student
Five-year Period July 1999 to June 2004

Reported Upgrade Cost per Student	Number of School Systems*	Percent of School Systems
None	23	16.8%
Less than \$1,000	62	45.3%
\$1,000 to \$2,000	23	16.8%
\$2000 to \$3,000	9	6.6%
\$3000 to \$4,000	9	6.6%
\$4,000 to \$5,000	3	2.2%
More than \$5,000	8	5.8%
Total	137	100.0%

* There are 138 public school systems in Tennessee. The Carroll County system was removed from all statistical analyses because it does not serve elementary school students and therefore is not comparable to the other 137 systems.

As shown in Table 21, more than half of all school systems reported technology infrastructure needs totaling less than \$200 per student. Eight systems reported amounts more than double the statewide average of \$250. As with EIA costs that exceeded \$7,000 per student, these technology costs are unlikely to be within the normal range based on the costs reported by all school systems. Nevertheless, it cannot be said without further study whether these costs are unreasonably high or whether other estimates are low. Reasons for variations like these include local priorities; in the case of relatively low costs, earlier efforts to meet technology needs; and in the case of relatively high costs, current or planned efforts to provide more state-of-the-art technology.

Table 21: Number of School Systems by Range of Technology Infrastructure Costs per Student – Five-year Period July 1999 to June 2004

Technology Cost per Student	Number of School Systems*	Percent of School Systems
\$0	15	11.0%
Less than \$100	58	42.3%
\$100 to \$200	32	23.3%
\$200 to \$300	10	7.3%
\$300 to \$400	10	7.3%
\$400 to \$500	4	2.9%
More than \$500	8	5.8%
Totals	137	100.0%

* There are 138 public school systems in Tennessee. The Carroll County system was removed from all statistical analyses because it does not serve elementary school students and therefore is not comparable to the other 137 systems.

Building Tennessee's Tomorrow:

A Survey of Infrastructure Needs

July 1999 through June 2004

APPENDICES

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Appendix A: Enabling Legislation

The original legislation establishing the public infrastructure needs inventory was passed in 1996 as Public Chapter 817. That act gave the Tennessee Advisory Commission on Intergovernmental Relations (TACIR) responsibility for the inventory and directed the Commission to implement the inventory through contracts with the nine development districts across the state. The act also provided a funding mechanism based on Tennessee Valley Authority revenue sharing funds.

The January 1999 report to the 101st General Assembly acknowledged the relationship between Public Chapter 817 and a new law passed in 1998, Public Chapter 1101, which is known as the growth policy act. Public Chapter 1101 directed all local governments with the exception of those in the two metropolitan counties of Davidson and Moore to work together to establish growth boundaries for incorporated areas, planned growth areas outside those boundaries, and rural areas. In order to do so, those local governments were required by Section 7 of that act to “determine and report the current costs and the projected costs of core infrastructure.”

Since that time, the General Assembly has enacted a new law expressly linking the infrastructure and growth policy initiatives. Chapter 672, Public Acts of 2000, specified in Section 3 that implementation of city and county growth plans’ “infrastructure, urban services and public facility elements” were to be monitored by means of the public infrastructure needs inventory of Public Chapter 817.

The full text of Public Chapters 817 and 672 and Section 7 of Public Chapter 1101 are presented in the following pages.

CHAPTER NO. 817

SENATE BILL NO. 2097

By Rochelle

Substituted for: House Bill No. 3257

By Rhinehart

AN ACT To amend Tennessee Code Annotated, Title 4, Chapter 10 and Section 67-9-102(b)(3), relative to a statewide public infrastructure needs inventory.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Title 4, Chapter 10, is amended by adding the following as a new section:

Section ___. (a) In order for the commission to fulfill its obligations to study and report on the existing, necessary and desirable allocation of state and local fiscal resources, the powers and functions of local governments, and relationship between the state and local governments, and its duties to engage in activities for the accomplishment of these various studies and reports, the commission shall annually compile and maintain an inventory of needed infrastructure within this state. The information and data gathered by such an annual inventory is deemed 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. All funds necessary and required for this inventory shall be administered through the commission's annual budget and such funds shall be in addition to the commission's annual operational budget amounts. The inventory shall include, at a minimum, needed public infrastructure facilities which would enhance and encourage economic development, improve the quality of life of the citizens and support livable communities within each municipality, utility district, county and development district region of the state and shall include needs for transportation, water and wastewater, industrial sites, municipal solid waste, recreation, low and moderate income housing, telecommunications, other infrastructure needs such as public buildings (including city halls, courthouses and K-12 educational facilities) and other public facilities needs as deemed necessary by the commission. The data shall be compiled on a county-by-county basis within each development district area. In order to accomplish this inventory, the commission shall annually contract for the services of the state's nine (9) development districts and shall compensate each of the development districts at a rate of five cents (\$.05) per capita or fifty thousand dollars (\$50,000), whichever is greater. The per capita amount shall be based upon the population counts within each development district as determined from the latest county population estimates reported by

the United States Department of Commerce, U.S. Bureau of the Census or its federal functional equivalent. From funds allocated to the commission for the purpose of conducting this annual inventory, the commission shall retain for its necessary administration and coordination costs for this annual inventory one and one-half cents (\$.015) per capita based upon the state total population as determined by the latest county population estimates reported by the United States Department of Commerce, U.S. Bureau of the Census or its federal functional equivalent.

(b) In compiling the public infrastructure needs inventory on a county-by-county basis, at a minimum, the commission shall consult with each county executive, mayor, local planning commission, utility district, county road superintendent and other appropriate local and state officials concerning planned and/or anticipated public infrastructure needs over the next five (5) year period, together with estimated costs and time of need within that time frame.

(c) The public infrastructure needs inventory shall not include projects considered to be normal or routine maintenance. Moreover, infrastructure needs projects included in the inventory should involve a capital cost of not less than fifty thousand dollars (\$50,000). The infrastructure needs inventory shall not duplicate the extensive needs data currently maintained by various state agencies on state facilities which are presently available to the commission. Provided, however, this limitation does not prohibit one (1) or more counties or municipalities from identifying a need for a vocational educational facility or a community college or a new public health building in a particular local area. In addition, the commission may request various state agencies to supply various needs data that may be available in such areas as highway or rail bridges, airports or other areas.

(d) The annual public infrastructure needs inventory by each development district shall be conducted utilizing standard statewide procedures and summary format as determined by the commission to facilitate ease and accuracy in summarizing statewide needs and costs.

(e) The public infrastructure needs inventory shall be completed by the development districts and submitted to the commission no later than June 30 of each year.

(f) The annual inventory of statewide public infrastructure needs and costs for provision of adequate and essential public infrastructure shall be presented by the commission to the Tennessee General Assembly at its next regular annual session following completion of the inventory each year.

SECTION 2. Tennessee Code Annotated, Section 4-10-107, is amended by adding the following as a new subdivision (d):

(d) In addition to any funds appropriated by the General Assembly to the commission, the commission is authorized to receive annual allocations of funds from the Tennessee State Revenue Sharing Act, Tennessee Code Annotated, Section 67-9-102(b)(3), for the purpose of conducting an annual public infrastructure needs inventory to aid in the provision of adequate and essential public infrastructure statewide for the improvement of the quality of life of Tennessee citizens, the support of livable communities and the enhancement and encouragement of the overall economic development of the state.

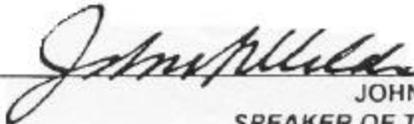
SECTION 3. Tennessee Code Annotated, Section 67-9-102(b)(3), is amended by adding the following immediately before the last sentence in said subdivision:

If, in any year there are funds remaining after the allocation provided for in subdivisions (b)(1) and (2) of this subsection, or there are no impacted areas and after any allocation to the University of Tennessee as provided for in this subdivision, then any remaining

funds, not to exceed twenty percent (20%) of the total of such impact funds per year, shall be allocated by the Comptroller of the Treasury to the Tennessee Advisory Commission on Intergovernmental Relations. The Tennessee Advisory Commission on Intergovernmental Relations shall utilize such funds for an annual inventory of statewide public infrastructure needs. This annual inventory of statewide public infrastructure needs is to be used to support efforts by state, county and municipal governments of Tennessee in developing goals, strategies and programs to provide adequate and essential public infrastructure which is needed to enhance and encourage economic development, support livable communities and improve the quality of life for the citizens of this state.

SECTION 4. This act shall take effect July 1, 1996, the public welfare requiring it.

PASSED: April 11, 1996


 JOHN S. WILDER
 SPEAKER OF THE SENATE


 JIMMY NAIFEH, SPEAKER
 HOUSE OF REPRESENTATIVES

APPROVED this 25th day of April 1996


 DON SUNDQUIST, GOVERNOR

By Rochelle

Substituted for: House Bill No. 3099

By Rinks

AN ACT To amend Tennessee Code Annotated, Section 4-10-109 and Section 67-9-102, relative to the statewide public infrastructure needs inventory.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. Tennessee Code Annotated, Section 67-9-102(b)(3), is amended by deleting the fifth sentence and by substituting instead the following:

In order to accomplish this inventory, the commission shall annually contract for the services of the state's nine (9) development districts or an agency or entity of state or local government or higher education and shall compensate each of the development districts or the agency or entity of state or local government or higher education at the rate of five cents (\$0.05) per capita or fifty thousand dollars (\$50,000), whichever is greater.

SECTION 2. Tennessee Code Annotated, Section 4-10-109(a), is amended by adding the following language immediately after the final sentence:

The commission shall annually contract for the services of the state's nine (9) development districts to accomplish this inventory. However, if the executive director finds that a development district has not adequately fulfilled a prior inventory contract, then instead of the development district which has not fulfilled its contract obligations, the executive director may annually contract with another agency or entity of state or local government or higher education to perform the inventory within that district's area.

SECTION 3. Tennessee Code Annotated, Section 4-10-109(b), is amended by adding the following language immediately after the final sentence:

From those cities and counties with adopted growth plans in accordance with Tennessee Code Annotated, Title 6, Chapter 58, Part 1, the commission shall gather and report the infrastructure, urban services and public facilities needs reported in the growth plans. These infrastructure needs were factors in the determination of urban growth boundaries for cities and the planned growth areas for counties. Implementation of the cities and counties growth plans' infrastructure, urban services and public facility elements are to be monitored by means of the five (5) year inventory of public infrastructure needs.

SECTION 4. Tennessee Code Annotated, Section 4-10-109(d), is amended by adding the following after the word "district":

or an agency or entity of state or local government or higher education

SECTION 5. Tennessee Code Annotated, Section 4-10-109(e), is amended by adding the following after the word "district":

or an agency or entity of state or local government or higher education

SECTION 6. This act shall take effect upon becoming a law, the public welfare requiring it.

PASSED: April 10, 2000


JOHN S. WILDER
SPEAKER OF THE SENATE


JIMMY NAIFEH, SPEAKER
HOUSE OF REPRESENTATIVES

APPROVED this 25th day of April 2000


DON SUNDQUIST, GOVERNOR

CHAPTER NO. 1101

SENATE BILL NO. 3278

By Rochelle

Substituted for: House Bill No. 3295

By Kisber, Walley, Rinks, McDaniel, Curtiss

AN ACT To amend Tennessee Code Annotated, Title 4; Title 5; Title 6; Title 7; Title 13; Title 49; Title 67 and Title 68, relative to growth.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 7.

(a)

(1) The urban growth boundaries of a municipality shall:

(A) Identify territory that is reasonably compact yet sufficiently large to accommodate residential and nonresidential growth projected to occur during the next twenty (20) years;

(B) Identify territory that is contiguous to the existing boundaries of the municipality;

(C) Identify territory that a reasonable and prudent person would project as the likely site of high density commercial, industrial and/or residential growth over the next twenty (20) years based on historical experience, economic trends, population growth patterns and topographical characteristics; (if available, professional planning, engineering and/or economic studies may also be considered);

(D) Identify territory in which the municipality is better able and prepared than other municipalities to efficiently and effectively provide urban services; and

(E) Reflect the municipality's duty to facilitate full development of resources within the current boundaries of the municipality and to manage and control urban expansion outside of such current boundaries, taking into account the impact to agricultural lands, forests, recreational areas and wildlife management areas.

(2) Before formally proposing urban growth boundaries to the coordinating committee, the municipality shall develop and report population growth projections; such projections shall be developed in conjunction with the University of Tennessee. The municipality shall also determine and report the current costs and the projected costs of core infrastructure, urban services and public facilities necessary to facilitate full development of resources within the current boundaries of the municipality and to expand such infrastructure, services and facilities throughout the territory under consideration for inclusion within the urban growth boundaries. The municipality shall also determine and report on the need for additional land suitable for high density, industrial, commercial and residential development, after taking into account all areas within the municipality's current boundaries that can be used, reused or redeveloped to meet such needs. The municipality shall examine and report on agricultural lands, forests, recreational areas and wildlife management areas within the territory under consideration for inclusion within the urban growth boundaries and shall examine and report on the likely long-term effects of urban expansion on such agricultural lands, forests, recreational areas and wildlife management

areas.

(3) Before a municipal legislative body may propose urban growth boundaries to the coordinating committee, the municipality shall conduct at least two (2) public hearings. Notice of the time, place and purpose of the public hearing shall be published in a newspaper of general circulation in the municipality not less than fifteen (15) days before the hearing.

(b)

(1) Each planned growth area of a county shall:

(A) Identify territory that is reasonably compact yet sufficiently large to accommodate residential and nonresidential growth projected to occur during the next twenty (20) years;

(B) Identify territory that is not within the existing boundaries of any municipality;

(C) Identify territory that a reasonable and prudent person would project as the likely site of high or moderate density commercial, industrial and/or residential growth over the next twenty (20) years based on historical experience, economic trends, population growth patterns and topographical characteristics; (if available, professional planning, engineering and/or economic studies may also be considered);

(D) Identify territory that is not contained within urban growth boundaries; and

(E) Reflect the county's duty to manage natural resources and to manage and control urban growth, taking into account the impact to agricultural lands, forests, recreational areas and wildlife management areas.

(2) Before formally proposing any planned growth area to the coordinating committee, the county shall develop and report population growth projections; such projections shall be developed in conjunction with the University of Tennessee. The county shall also determine and report the projected costs of providing urban type core infrastructure, urban services and public facilities throughout the territory under consideration for inclusion within the planned growth area as well as the feasibility of recouping such costs by imposition of fees or taxes within the planned growth area. The county shall also determine and report on the need for additional land suitable for high density industrial, commercial and residential development after taking into account all areas within the current boundaries of municipalities that can be used, reused or redeveloped to meet such needs. The county shall also determine and report on the likelihood that the territory under consideration for inclusion within the planned growth area will eventually incorporate as a new municipality or be annexed. The county shall also examine and report on agricultural lands, forests, recreational areas and wildlife management areas within the territory under consideration for inclusion within the planned growth area and shall examine and report on the likely long-term effects of urban expansion on such agricultural lands, forests, recreational areas and wildlife management areas.

(3) Before a county legislative body may propose planned growth areas to the coordinating committee, the county shall conduct at least two (2) public hearings. Notice of the time, place and purpose of the public hearing shall be published in a newspaper of general circulation in the county not less than fifteen (15) days before the hearing.

(c)

(1) Each rural area shall:

(A) Identify territory that is not within urban growth boundaries;

(B) Identify territory that is not within a planned growth area;

(C) Identify territory that, over the next twenty (20) years, is to be preserved as agricultural lands, forests, recreational areas, wildlife management areas or for uses other than high density commercial, industrial or residential development; and

(D) Reflect the county's duty to manage growth and natural resources in a manner which reasonably minimizes detrimental impact to agricultural lands, forests, recreational areas and wildlife management areas.

(2) Before a county legislative body may propose rural areas to the coordinating committee, the county shall conduct at least two (2) public hearings. Notice of the time, place and purpose of the public hearing shall be published in a newspaper of general circulation in the county not less than fifteen (15) days before the hearing.

(d) Notwithstanding the extraterritorial planning jurisdiction authorized for municipal planning commissions designated as regional planning commissions in Title 13, Chapter 3, nothing in this act shall be construed to authorize municipal planning commission jurisdiction beyond an urban growth boundary; provided, however, in a county without county zoning, a municipality may provide extraterritorial zoning and subdivision regulation beyond its corporate limits with the approval of the county legislative body.

Appendix B: Project History

On April 11, 1996, the General Assembly passed the Public Infrastructure Needs Inventory Act, sponsored by Senator Robert Rochelle (Senate District 17) and Representative Shelby Rhinehart (House District 37). This Act was signed into law by Governor Don Sundquist as Public Chapter 817, on April 25, 1996.

The Rebuild Tennessee Coalition (RTC) and the Tennessee Development District Association (TDDA) advocated the Public Infrastructure Needs Inventory Act. The RTC was established in 1992 as a chapter of the national Rebuild America Coalition. The RTC is an association of public and private organizations along with individuals who are committed to encouraging investment in Tennessee's infrastructure. The TDDA is comprised of the nine development districts that provide economic planning and development assistance to the local governments in their respective regions.

The Public Infrastructure Needs Inventory Act, which became effective July 1, 1996, directs TACIR to compile and maintain an inventory of needed infrastructure within this state. TACIR staff manages the implementation of the inventory and staffs from each of Tennessee's nine development districts conduct the survey of public officials within their jurisdiction under the direction of TACIR.

The first survey was conducted in 1997 through 1998. The first report was published in January 1999. This infrastructure inventory is a dynamic and progressive program that has evolved since its inception. This is the second report in the on-going inventory of Tennessee's infrastructure needs. This report reflects several improvements over the first inventory:

- Communication and partnership among stakeholders has been improved.
- Standardized procedures have been clarified to enhance reporting consistency.
- Quality control has been implemented through statistical analysis and cross-referencing data.
- A dedicated effort was made to better capture new school construction needs.
- The survey forms have been redesigned to capture new data to facilitate more meaningful analysis in future reports on funding and growth planning.
- The database has been redesigned to facilitate more efficient data management.
- The format of the report has been updated to include a more analytical perspective by standardized cost estimates on a per capita basis and investigating the relationship between reported need and funding-based variables as well as need-based variables.

The Public Infrastructure Needs Inventory is a dynamic program that will continue to evolve to keep pace with changing policy initiatives and planning concerns. The next inventory will include

- information collected from state agencies,
- reasons driving the need for additional public infrastructure;
- data on funding availability and sources of funding;
- location of projects relative to P.C. 1101 Growth Boundaries; and
- a time period expanded to twenty years of needs.

Appendix C: Survey Forms

Two separate survey forms were used to collect data for the July 1999 through June 2004 Public Infrastructure Needs Inventory on which this report was based. The General Survey Form is used to record information about the need for new or improved infrastructure, including new schools. The Education Survey Form is used to record additional information about the conditions and facility needs at existing public schools from kindergarten through high school.

Survey forms from the United States General Accounting Office (GAO) provided the original model for the forms used in the first survey of infrastructure needs in Tennessee during 1997. Since that time, the survey form has been further customized to more meet the requirements of Public Chapter 1101, Acts of 1998, and Public Chapter 672, Acts of 2000 (see Appendix A).

Staff from Tennessee's nine development districts use the survey forms to gather information for the inventory from local government officials and agencies in each county. They include at a minimum

- county executives,
- mayors,
- local planning commissions,
- local public building authorities,
- local education agencies,
- utility districts, and
- county road superintendents.

Participation by local officials is voluntary.



State of Tennessee Public Infrastructure Needs Inventory Assessment Project



FY 1999 General Survey Form

Including K-12 New School Construction and LEA System-wide Needs

This survey is designed to capture needs and expenditures over a five-year period. Projects should not include normal or routine maintenance.

1 Project Number: _____

An 8-digit alpha-numeric field that is unique to this project. It is assigned by the development district for entry into the statewide database.

2 Survey Division: Please check one:

_____ Infrastructure

_____ Related Service Provision

Includes "rolling stock" and essential equipment for infrastructure provision.

3 Development District: _____

The regional development district that serves this location.

4 County: _____

The county in which this project is located.

5 City: _____

The city or town in which this project is located.

If outside a municipality, record as "unincorporated".

6 Type of Project:

Please check the best classification for this project:

___ K-12 New School Construction

___ LEA System-wide Need

___ Non K-12 Education

___ Business District Development

___ Community Development

___ Fire Protection

___ Housing

___ Industrial Sites & Parks

___ Law Enforcement

___ Libraries & Museums

___ Navigation

___ Property Acquisition

___ Public Buildings

___ Public Health Facilities

___ Recreation

___ Solid Waste

___ Stormwater

___ Telecommunications

___ Transportation

___ Water & Wastewater

___ Other Utilities
(Electric, Natural Gas, and Multiple Services)

___ Other Facilities

7 Project Title/ Name: _____

Provide a descriptive name by which this project or need may be referenced.

8 Ownership/ Controlling Entity(ies) of Project: _____

Indicate the agency or agencies that will own, operate, or maintain this project.

8b LEA ID # (if applicable): _____ **LEA Name** _____

If owned in part by a LEA, please provide its three-digit system number.

8c Level of Government: Please check the level of government for this project.

_____ City _____ Federal

_____ County _____ Joint (a combination of public entities at multiple levels of government)

_____ State _____ Other (a utility district or a public-private partnership)

Please check the most appropriate level of government for the ownership of this project.

9 Location of Project: _____

Cite a geographic location (be as specific as possible), such as street address, or proximity to a landmark such as a street, intersection, or body of water. If necessary, state a general area served by this project, such as a portion of a city, county, or multiple jurisdictions.

10 Status/ Stage of Project: Check the current stage of development of this project.

_____ **Conceptual:** This project is an idea or concept.

_____ **Planning & Design:** This project is on paper and has received significant analysis.

_____ **Construction:** This project has moved earth, poured concrete, or erected part of the structure.

11 Projected FY Start Date: _____

12 Projected FY Completion Date: _____

13 Is this project listed in a capital improvement plan (CIP)? (Y/N) _____

If your agency or community has a capital improvement plan, is this project included?

14 Estimated Cost of Project: \$ _____

Provide the best estimate available for the total cost of this project.

15 Is this need a result of a mandate?

If applicable, cite the origin of any mandate from which this project resulted:

Level of Government (Check one)	Agency Name	Rule and Regulation
<i>Example:</i> <input type="checkbox"/> Federal <input checked="" type="checkbox"/> State <i>N/A</i>	<i>TN Dept. of Education</i>	<i>Education Improvement Act</i>
<input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> N/A		
<input type="checkbox"/> Federal <input type="checkbox"/> State		
<input type="checkbox"/> Federal <input type="checkbox"/> State		

Check the level of government (Federal or State), and indicate agency name, and its specific program name(s) in the appropriate block. Indicate "N/A" for "not / applicable" in the first blank row under "Level of Government" if this project is not driven by a mandate.

16 Description and significance of infrastructure need: _____

State the purpose and briefly describe this project. Why is this project important? What impact will addressing this need have on the community? If this is a new school construction project, indicate the proportion of the cost that you feel is a direct result of EIA mandates rather than replacement due to deterioration or student population growth alone.

17 Does this need link to other projects in this survey? If yes, cite related project number(s) or name(s) as reported in this survey: _____

18 Information Source(s): _____

Cite person providing the information or documents that were consulted for information during the completion of this survey form.

19 Surveyor: _____

Name of the development district person(s) responsible this survey form.



State of Tennessee Public Infrastructure Needs Inventory Assessment Project



FY 1999 Education Survey Form

This form is divided into three sections: (A) General Information; (B) Current Campus Needs; and (C) Future Campus Needs. This survey is designed to capture needs and expenditures over a five-year period.

Please Note: There is **no minimum** expenditure requirement for inclusion of a project in this survey report.

A. General Information

A1 School Number: _____ -- _____

A two part 7-digit number that is unique to each school. It is the same numbering system used by the TN Dept. of Education to identify each Local Education Agency (L.E.A.) and school facility. It will be used for entry into the statewide database. If you do not know this ID number, your development district can provide it.

A2 Development District: _____

The development district that serves this school.

A3 County: _____

The county in which this school campus is located.

A4 L.E.A.: _____

The name of the school system that operates this school campus.

A5 School:

The legal name of this school.

B. Current Campus Conditions

B1 Construction date of main campus building: _____

Indicate the year of construction for the main building on campus.

B2 If this school was constructed or had any major renovations or additions in the last five years, please describe and provide the year completed, square footage, and the total cost for each project:

Project(s)	Year	Square Footage of Project	Total Cost
<i>Example: 4 classrooms & teacher work area constructed</i>	<i>1998</i>	<i>7,900</i>	<i>\$495,000</i>

Provide the square footage for each construction or renovation project at this school in the last five years, and total cost for the project(s).

B3 Are any of this school's facilities shared with another educational institution? Cite the name of the institution and list the shared facilities: _____

Does this school share any buildings or facilities with another school? For example, a high school may share a classroom(s), auditorium, lunchroom, gymnasium, playground or other area(s) with an elementary school on the same campus or a neighboring one. If yes, please cite the name of that school and list the buildings or other facilities that are shared.

B4 Does this school conduct programs/classes off-campus due to a lack of adequate facilities? Please describe related circumstances/needs: _____

B5 Is there a plan to close or not operate this facility as a school during the next five years? If so, please explain:

Component Facilities Condition

B6 Please indicate the number of component facilities in terms of condition, using the facility rating scale provided below. An example is provided in the first row of the table.

FACILITY RATING SCALE:

- Excellent:** new or easily restorable to "like new" condition; minimal routine maintenance required.
- Good:** some routine and preventive maintenance or minor repair required.
- Fair:** fails to meet building code or functional requirements in some cases (facility problems are inconvenient); extensive corrective maintenance and repair required.
- Poor:** consistent substandard performance (facility problems are disruptive and very costly); fails most building code or functional requirements, requires constant attention, renovation, or replacement; major corrective repair or overhaul required.
- Replace:** significantly substandard performance; replacement required.

Please consider the condition of the following systems in this evaluation: *framing; floors; foundation; exterior walls; windows; roofing; plumbing; electrical wiring/ power supply; HVAC; interior lighting; interior finishes; and corridors.*

COMPONENT FACILITIES	EXCELLENT	GOOD	FAIR	POOR	REPLACE
<i>Example: Classrooms (Permanent)</i>	4	5			5
Classrooms (Permanent)					
Classrooms (Portable)					
Science Labs					
Auditorium					
Cafeteria					
Library/Media Center					
Indoor Physical Ed. Facilities/ Gymnasium					

Rate the Condition of the Entire School Facility

B7 Please mark the *overall condition* of this school's facilities based on the rating scale above.

EXCELLENT	GOOD	FAIR	POOR	REPLACE

Please mark the appropriate box to indicate the overall condition of the entire campus facilities. Use the rating scale provided to determine the classification of this school.

Technology

B12 Describe *current* technology needs and estimated costs:

If this section does not apply, indicate this with "N/A" in the first blank row.

Example: Equipment for networking 30 computers in 10 classrooms \$ 6,000

_____ \$ _____

_____ \$ _____

_____ \$ _____

_____ \$ _____

_____ \$ _____

Please describe current technology needs and estimated costs. In regard to the available resources, what are the current technology needs of this school? Briefly describe and provide a cost estimate for each specific need.

C. Future Campus Needs

Education Improvement Act of 1992 (EIA)

C1 If the EIA class size requirement were in full effect in the 1999-2000 school year, would this school be in compliance? (Y/N) _____ **C2** If no, please explain: _____

Will this school satisfy the EIA (or Basic Education Program (BEP)) requirements for facilities (such as classrooms and teacher-student ratios) for the 1999-2000 school year? If no, please specify the area(s) of non-compliance.

C3 How many *additional* classrooms will this school need to comply with the EIA during the next five years? _____
In reference to the EIA teacher-student ratio requirements, how many **additional** classrooms will this school need to comply?

C4 Estimate the cost for each classroom and facility addition required to comply with the EIA over the next five years. List each component/ need separately, with a project stage, and best cost estimate for each component that your school must construct to comply with the EIA. Please be as specific as possible. For example, if you are building a classroom wing addition with 10 classrooms and 2 restrooms, please enter them as separate components, as shown in the examples below.

Choose from the stages of development listed in Section B8 for each project. If this section does not apply, indicate this with "N/A" under "Component" in the first row.

Do not include any portion of the estimated costs for upgrading existing facilities cited in Sections B8, B10, B11, or B12.

Component	Stage of Project	Cost of Project
<i>Example: 10 Classrooms</i>	<i>Planning & Design</i>	<i>\$800,000</i>
<i>Example: 2 Restrooms</i>	<i>Planning & Design</i>	<i>\$200,000</i>

D Survey Reporting

D1 Surveyor/Title: _____
Signature and title of the person completing this survey form.

D2 Superintendent: _____ **D3 School Board Chair:** _____
Signature of the L.E.A. superintendent for this school. Signature of the school board chair for this school

D4 School/ School District Contact Person for Follow-up: _____

D5 Contact's Title _____ **D6 Telephone Number:** _____ / _____ -- _____

A designated person's name, title, and telephone number for follow-up related to information on this form.

Appendix D: Reported Public Infrastructure Needs by County

- Table D-1a:** *Total Public Infrastructure Needs by County – Number and Estimated Cost*
- Table D-1b:** *Total Public Infrastructure Needs by County and by Stage of Development*
- Table D-2a:** *Transportation Projects by County – Number, Estimated Cost and Percent in Capital Improvement Plans*
- Table D-2b:** *Transportation Projects by County and by Stage of Development – Number and Estimated Cost*
- Table D-3a:** *Other Utility Projects by County - Number, Estimated Cost and Percent in Capital Improvement Plans*
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- Table D-7b:** *Law Enforcement Projects by County and by Stage of Development – Number and Estimated Cost*
- Table D-8a:** *Storm Water Projects by County - Number, Estimated Cost and Percent in Capital Improvement Plans*
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- Table D-16b:** *Public School System-wide Projects by County and by Stage of Development – Number and Estimated Cost*
- Table D-17a:** *Recreation Projects by County – Number, Estimated Cost and Percent in Capital Improvement Plans*
- Table D-17b:** *Recreation Projects by County and by Stage of Development – Number and Estimated Cost*
- Table D-18a:** *Library and Museum Projects by County – Number, Estimated Cost and Percent in Capital Improvement Plans*
- Table D-18b:** *Library and Museum by County and by Stage of Development – Number and Estimated Cost*
- Table D-19a:** *Community Development Projects by County – Number, Estimated Cost and Percent in Capital Improvement Plans*
- Table D-19b:** *Community Development Projects by County and by Stage of Development – Number and Estimated Cost*
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- Table D-20b:** *Public Building Projects by County and by Stage of Development – Number and Estimated Cost*
- Table D-21a:** *Other Facility Projects by County – Number, Estimated Cost and Percent in Capital Improvement Plans*
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Link to [Appendix D](#)

