Building Tennessee's Tomorrow:

Anticipating the State's Infrastructure Needs

July 2003 through June 2008

Reported Infrastructure Needs Statewide

Total Needs Grow 13% Since Last Report—Transportation Leads, But Economic Development Category Increases 70%

State and local officials reported a total need for public infrastructure improvements to be in some stage of development during fiscal years 2003 through 2008 of more than $24.4 billion, including the estimated cost of upgrading existing public school facilities to good condition. This represents an increase of about $2.9 billion, or 13%, since last year's report. This is a much larger increase than was seen the prior year, but it is within the range of earlier increases. The increase between the first two reports was the largest, at $4.5 bilion. This increase was driven in part by improvements in the coverage of the inventory, the inclusion of state agency projects, and the two-year span between the inventories. Transportation project listings provided by state highway officials were added the following year, but the effect was small because most of those projects originated from requests from local officials and were already included in the inventory.

Transportation and utilities continues to be the single largest category with 43% of all infrastructure needs, and represents nearly half of the one-year increase in infrastructure needs and nearly half of the total increase since the first report. Transportation needs alone increased $1.3 billion since the last inventory and $4.9 billion since the first. Transportation represents almost 39% of the total need. Most of the rest of the increase from the previous inventory was in business district development with an increase of $447 million, water and wastewater with an increase of $349 million, recreation with an increase of $346 million, and law enforcement with an increase of $221 million. These five types of needs account for almost $2.7 billion of the $2.9 billion increase. (See Tables 3 and 4.)

The largest percentage increase was in the economic development category. This category fluctuates the most of any category, partly because it is relatively small. The economic development category declined 18% in the last report, mainly because of the downsizing of a single business district development project in Knoxville. This year, the economic development category increased $501 million (70%). More than half of that increase is attributable to the expansion of a business district development project in Nashville, and another $110

Top Concerns of Tennessee's Civil Engineers, January 2001

Water Infrastructure

Roads & Bridges

Schools

American Society of Civil Engineers
www.asce.org/

Table 3. Total Number and Estimated Cost of Needed Infrastructure Improvements
Five-year Period July 2003 through June 2008 [10]

Category and Project Type[11]	Number of Projects or Schools Reported		Five-year Reported Estimated Cost	
Transportation and Utilities	**2,325**	**28.3%**	**$ 10,402,687,670**	**42.6%**
Transportation	2,184	26.6%	9,405,427,930	38.5%
Other Utilities	99	1.2%	604,097,088	2.5%
Navigation	5	0.1%	357,329,977	1.5%
Telecommunications	37	0.5%	35,832,675	0.1%
Health, Safety and Welfare	**2,632**	**32.1%**	**$ 5,366,483,107**	**22.0%**
Water and Wastewater	1,773	21.6%	3,333,945,186	13.6%
Law Enforcement	240	2.9%	946,792,714	3.9%
Stormwater	153	1.9%	429,254,807	1.8%
Public Health Facilities	147	1.8%	256,620,827	1.1%
Fire Protection	198	2.4%	172,727,866	0.7%
Solid Waste	91	1.1%	163,703,707	0.7%
Housing	30	0.4%	63,438,000	0.3%
Education	**1,704**	**20.8%**	**$ 5,257,982,121**	**21.5%**
Existing School Improvements	1,237	15.1%	2,014,779,791	8.2%
K-12 New School Construction	202	2.5%	1,690,459,100	6.9%
Non-K-12 Education[12]	236	2.9%	1,517,532,863	6.2%
LEA System-wide Need	29	0.4%	35,210,367	0.1%
Recreation and Culture	**1,059**	**12.9%**	**$ 1,773,571,228**	**7.3%**
Recreation	781	9.5%	1,179,119,855	4.8%
Libraries and Museums	131	1.6%	353,698,007	1.4%
Community Development	147	1.8%	240,753,366	1.0%
Economic Development	**248**	**3.0%**	**$ 1,220,996,092**	**5.0%**
Business District Development	51	0.6%	849,723,769	3.5%
Industrial Sites and Parks	197	2.4%	371,272,323	1.5%
General Government	**236**	**2.9%**	**$ 411,100,654**	**1.7%**
Public Buildings	209	2.5%	381,123,314	1.6%
Other Facilities	21	0.3%	21,164,140	0.1%
Property Acquisition	6	0.1%	8,813,200	0.0%
Grand Total	**8,204**	**100.0%**	**$ 24,432,820,872**	**100.0%**

million of it resulted from the addition of a single large business district development project in Memphis. These changes illustrate the effect of large projects in a relatively small category. Economic development has always been either the smallest or the second smallest of the six categories into which needs are grouped for reporting purposes.

Education needs increased the least in percentage terms and fell slightly behind health, safety and welfare in total estimated cost. Based on a closer look at needs reported for public schools (see chapter on public

[10] For complete listings of all needs reported in the July 2003 inventory by county and by public school system, see Appendices D and E.

[11] Descriptions of project types are included in the Glossary of Terms at the end of the report.

[12] K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. 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 the report.

schools), the cost of adding classrooms to accommodate the additional teachers mandated by the Education Improvement Act of 1992 peaked during the early years of the inventory and have now declined. The one-year changes for each category of needs and type of project are shown in Table 4.

Table 4. Comparison of Estimated Cost of Needed Infrastructure Improvements
July 2003 vs. July 2002 Inventory [13]

Category and Project Type[14]	2004 Report	2005 Report	Difference	Percent Change
Transportation and Utilities	**$ 9,073,361,524**	**$ 10,402,687,670**	**$ 1,329,326,146**	14.7%
Transportation	8,091,867,520	9,405,427,930	1,313,560,410	16.2%
Other Utilities	619,049,352	604,097,088	(14,952,264)	-2.4%
Navigation	343,104,977	357,329,977	14,225,000	4.1%
Telecommunications	19,339,675	35,832,675	16,493,000	85.3%
Health, Safety and Welfare	**$ 4,689,150,833**	**$ 5,366,483,107**	**$ 677,332,274**	14.4%
Water and Wastewater	2,985,252,392	3,333,945,186	348,692,794	11.7%
Law Enforcement	725,739,479	946,792,714	221,053,235	30.5%
Stormwater	416,121,985	429,254,807	13,132,822	3.2%
Public Health Facilities	135,574,000	256,620,827	121,046,827	89.3%
Fire Protection	137,626,058	172,727,866	35,101,808	25.5%
Solid Waste	209,991,037	163,703,707	(46,287,330)	-22.0%
Housing	78,845,882	63,438,000	(15,407,882)	-19.5%
Education	**$ 5,115,143,336**	**$ 5,257,982,121**	**$ 142,838,785**	2.8%
Existing School Improvements	1,954,708,079	2,014,779,791	60,071,712	3.1%
K-12 New School Construction	1,643,282,594	1,690,459,100	47,176,506	2.9%
Non-K-12 Education[15]	1,486,256,663	1,517,532,863	31,276,200	2.1%
LEA System-wide Need	30,896,000	35,210,367	4,314,367	14.0%
Recreation and Culture	**$ 1,588,175,930**	**$ 1,773,571,228**	**$ 185,395,298**	11.7%
Recreation	833,076,572	1,179,119,855	346,043,283	41.5%
Libraries and Museums[16]	344,616,006	353,698,007	9,082,001	2.6%
Community Development	410,483,352	240,753,366	(169,729,986)	-41.3%
Economic Development	**$ 720,117,715**	**$ 1,220,996,092**	**$ 500,878,377**	69.6%
Business District Development[16]	403,139,260	849,723,769	446,584,509	110.8%
Industrial Sites and Parks	316,978,455	371,272,323	54,293,868	17.1%
General Government	**$ 373,861,963**	**$ 411,100,654**	**$ 37,238,691**	10.0%
Public Buildings	307,371,623	381,123,314	73,751,691	24.0%
Other Facilities	59,247,140	21,164,140	(38,083,000)	-64.3%
Property Acquisition	7,243,200	8,813,200	1,570,000	21.7%
Grand Total	**$ 21,559,811,301**	**$ 24,432,820,872**	**$ 2,873,009,571**	**13.3%**

[13] For complete listings of all needs reported in the July 2003 inventory by county and by public school system, see Appendices D and E.

[14] Descriptions of project types are included in the Glossary of Terms at the end of the report.

[15] K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. 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 the report.

[16] One project estimated to cost $156 million was misclassified in last year's report as a library and museum need and has been reclassified as a business district development need in this table.

It is difficult to compare recent inventories to the first one, which was published in 1999, because of improvements in coverage, but the changes are interesting to note. Four categories of need doubled or nearly doubled: transportation and utilities, which is dominated by transportation needs; education, to which higher education needs were first added with the March 2002 report; recreation and culture; and economic development (see Table 5).

Table 5. Comparison of Estimated Cost of Needed Infrastructure Improvements
July 1997 Inventory vs. July 2002 Inventory [17]

Category[18]	Reported Cost July 1997 through June 2002	Reported Cost July 2003 through June 2008	Difference
Transportation and Utilities	$5,266,418,254	$10,402,687,670	97.5%
Health, Safety and Welfare	3,669,316,318	5,366,483,107	46.2%
Education[19]	2,652,181,076	5,257,982,121	98.3%
Recreation and Culture	885,965,741	1,773,571,228	100.2%
Economic Development	620,462,264	1,220,996,092	96.8%
General Government	580,851,556	411,100,654	-29.2%
Grand Total	**$13,675,195,209**	**$24,432,820,872**	**78.7%**

The smallest increase (46%) since the first published inventory was in the health, safety, and welfare category, and one category, general government, actually declined 29% since the first report. Most of the change occurred during the second and third inventories as considerable effort was being made to ensure that needs were properly categorized. In the past, a larger number of projects were classified as public buildings, other facilities and property acquisition. In many cases, more specific categories were available. Descriptions of project types were made more explicit, and any recorded as one of these three generic types were closely scrutinized to determine whether they belonged in a more specific category. As a result, the general government category, which includes these three types of projects, declined by about 60% between the second and third reports.

[17] For complete listings of all needs reported in the July 2003 inventory by county and by public school system, see Appendices D and E.

[18] For more detail on the categories, see Table 3 on page 10.

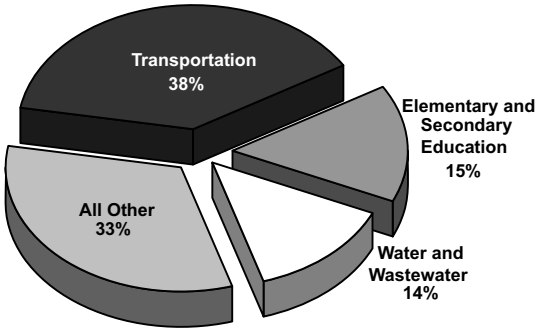
[19] Includes improvements needed at existing public schools. Number of projects includes the 1,237 schools for which needs were reported.

Transportation, Education, and Water and Wastewater Continue to Dominate Statewide Needs

As shown in Table 3 and Figure 2, three types of projects dominate reported needs. Transportation needs alone represent almost 39% of the total at more than $9 billion. Transportation has always been 35% to 40% of total needs. Needs reported for Tennessee's public school systems are a distant second at 15% of total needs reported. Water and wastewater needs follow closely behind school needs at 14% of the total. Those three types of projects combined represent more than two-thirds of the total reported needs.

Figure 2. Percent of Total Reported Cost of Infrastructure Needs by Type of Project

Five-year Period July 2003 through June 2008



The figures for transportation and for water and wastewater needs are even more impressive considering that they do not include the cost of those types of projects if they are needed to support other projects. For example, if a rail spur is needed to create a new industrial site, then the rail spur is recorded in the inventory as an industrial site project with transportation as its secondary project type. Similarly, if a sewer line is needed for a new school, then the sewer line is recorded as new school construction with water and wastewater as its secondary type. This two-dimensional classification facilitates more flexibility in analyzing the costs of different types of infrastructure improvements. The effect of including infrastructure needed to support other public infrastructure needs in the totals for selected types of projects is shown in Table 6. Not surprisingly, transportation, and water and wastewater projects are the types most likely to be needed for direct support to the private

Table 6. Comparison of Needs That Support Direct Service to Private Sector and Needs that Support Other Public Infrastructure

Five-year Period July 2003 through June 2008

	Needs That Support Direct Service to Private Sector		Needs That Support Other Public Infrastructure		
Category	Estimated Cost [in millions]	Percent of Total Need for Infrastructure Type	Estimated Cost [in millions]	Percent of Total Need for Infrastructure Type	Total Estimated Cost [in millions]
Transportation	$ 9,405	100%	$ 31	0%	$ 9,437
Water and Wastewater	3,334	98%	77	2%	3,411
Property Acquisition	9	3%	343	97%	352
Telecommunications	36	49%	38	51%	74
Grand Total	**$ 12,784**	**96%**	**$ 489**	**4%**	**$ 13,273**

sector, and property acquisition is the type least likely to be needed for private sector services.

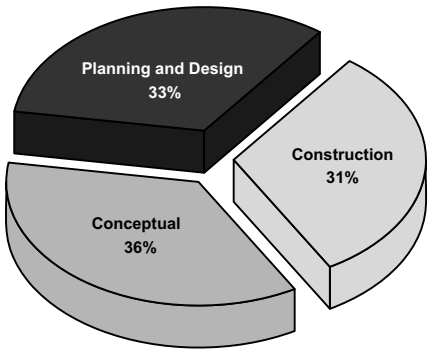
City Ownership Dominates Four of the Six Major Categories of Need

Although most of 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 state or federal governments or utility districts. Not surprisingly, cities own or control more than 60% of the infrastructure needs reported in four of the six major categories: health, safety and welfare; recreation and culture; economic development and general government needs. Only three types of infrastructure needs within these categories were not dominated by cities: Nearly half of law enforcement needs and more than half of industrial sites and parks infrastructure belonged to counties, and just over two-thirds of public health facilities needs belonged to the state. (See Table 7.)

The two broad categories that are not dominated by cities are education, slightly more than half of which is primarily the responsibility of counties, and the transportation and utilities category, which is dominated by state highway projects. Just over half of all education needs belong to counties, and 28% belong to the state. State costs primarily involve public higher education institutions. The only significant type of need that falls into the other ownership category is water and wastewater, which is mainly water supply needs provided by utility districts. The only significant need that belongs to the federal government is navigation infrastructure.

Figure 3. Percent of Total Reported Cost of Infrastructure Needs* by Stage of Development

Five-year Period July 2003 through June 2008



*Excludes needs reported for existing schools.

Stage of Development Varies With Type of Project

As shown in Figure 3, general infrastructure needs are fairly evenly split among the three stages of development, with the largest percentage (36%) of estimated costs in the conceptual stage and the smallest (31%) in the construction stage. The breakdown by stage of development has been fairly consistent across time, but as shown in Table 8, the distribution varies considerably by type of infrastructure need. Even the six broad categories of need vary greatly. Fully two-thirds of education needs are classified as conceptual, while less than 30% of transportation and utilities needs are still in that phase. The education figure is strongly influenced by needs at the state's higher education campuses, which

Table 7. Total Estimated Cost [in millions] of Needed Infrastructure Improvements by Project Type and Level of Government
Five-year Period July 2003 through June 2008

Category and Project Type[20]	City		County		State		Federal		Joint		Other		Total
Transportation and Utilities	**$ 3,510.9**	**33.7%**	**$ 992.6**	**9.5%**	**$ 5,408.0**	**52.0%**	**$ 300.0**	**2.9%**	**$ 88.9**	**0.9%**	**$ 102.3**	**1.0%**	**$ 10,402.7**
Transportation	2,880.9	30.6%	934.3	9.9%	5,408.0	57.5%	0.0	0.0%	87.6	0.9%	94.6	1.0%	9,405.4
Other Utilities	565.3	93.6%	31.1	5.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	7.7	1.3%	604.1
Navigation	38.9	10.9%	18.4	5.1%	0.0	0.0%	300.0	84.0%	0.0	0.0%	0.0	0.0%	357.3
Telecommunications	25.7	71.7%	8.8	24.6%	0.0	0.0%	0.0	0.0%	1.3	3.6%	0.0	0.0%	35.8
Health, Safety and Welfare	**$ 3,407.0**	**63.5%**	**$ 813.0**	**15.1%**	**$ 386.4**	**7.2%**	**$ 0.5**	**0.0%**	**$ 128.6**	**2.4%**	**$ 631.0**	**11.8%**	**$ 5,366.5**
Water and Wastewater	2,344.1	70.3%	231.5	6.9%	2.0	0.1%	0.0	0.0%	125.8	3.8%	630.5	18.9%	3,333.9
Law Enforcement	294.0	31.1%	443.3	46.8%	209.5	22.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	946.8
Stormwater	403.2	93.9%	22.8	5.3%	0.0	0.0%	0.5	0.1%	2.8	0.6%	0.0	0.0%	429.3
Public Health Facilities	25.0	9.8%	57.1	22.2%	174.5	68.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	256.6
Fire Protection	157.5	91.2%	14.9	8.6%	0.4	0.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	172.7
Solid Waste	128.6	78.5%	35.1	21.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	163.7
Housing	54.7	86.2%	8.3	13.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.5	0.8%	63.4
Education	**$ 1,008.3**	**19.2%**	**$ 2,747.7**	**52.3%**	**$ 1,489.6**	**28.3%**	**$ 0.0**	**0.0%**	**$ 0.0**	**0.0%**	**$ 12.4**	**0.2%**	**$ 5,258.0**
Existing School Improvements	706.8	35.1%	1,298.3	64.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	9.7	0.5%	2,014.8
K-12 New School Construction	283.0	16.7%	1,405.5	83.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	2.0	0.1%	1,690.5
Non-K-12 Education[21]	3.1	0.2%	33.2	2.2%	1,481.2	97.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	1,517.5
LEA System-wide Need	15.4	43.8%	10.7	30.4%	8.4	23.9%	0.0	0.0%	0.0	0.0%	0.7	1.9%	35.2
Recreation and Culture	**$ 1,274.0**	**71.8%**	**$ 264.4**	**14.9%**	**$ 200.9**	**11.3%**	**$ 3.0**	**0.2%**	**$ 31.2**	**1.8%**	**$ 0.0**	**0.0%**	**$ 1,773.6**
Recreation	923.5	78.3%	138.1	11.7%	101.3	8.6%	2.9	0.2%	13.3	1.1%	0.0	0.0%	1,179.1
Libraries and Museums	183.2	51.8%	58.4	16.5%	98.7	27.9%	0.1	0.0%	13.4	3.8%	0.0	0.0%	353.7
Community Development	167.4	69.5%	67.9	28.2%	1.0	0.4%	0.0	0.0%	4.5	1.9%	0.0	0.0%	240.8
Economic Development	**$ 942.6**	**77.2%**	**$ 217.6**	**17.8%**	**$ 2.1**	**0.2%**	**$ 0.0**	**0.0%**	**$ 47.5**	**3.9%**	**$ 11.2**	**0.9%**	**$ 1,221.0**
Business District Development	811.0	95.4%	27.2	3.2%	0.0	0.0%	0.0	0.0%	11.5	1.3%	0.0	0.0%	849.7
Industrial Sites and Parks	131.5	35.4%	190.4	51.3%	2.1	0.6%	0.0	0.0%	36.0	9.7%	11.2	3.0%	371.3
General Government	**$ 318.3**	**77.4%**	**$ 77.8**	**18.9%**	**$ 5.7**	**1.4%**	**$ 3.0**	**0.7%**	**$ 6.2**	**1.5%**	**$ 0.1**	**0.0%**	**$ 411.1**
Public Buildings	294.2	77.2%	72.0	18.9%	5.7	1.5%	3.0	0.8%	6.2	1.6%	0.1	0.0%	381.1
Other Facilities	17.3	81.7%	3.9	18.3%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	21.2
Property Acquisition	6.8	77.3%	2.0	22.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	8.8
	$ 10,461.1	**42.8%**	**$ 5,113.1**	**20.9%**	**$ 7,492.7**	**30.7%**	**$ 306.5**	**1.3%**	**$ 302.4**	**1.2%**	**$ 756.9**	**3.1%**	**$ 24,432.8**

[20] Descriptions of the project types are included in the Glossary of Terms at the end of the report.

[21] K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. 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 the report.

Table 8. Needed Infrastructure Improvements by Project Type and Stage of Development

Five-year Period July 2003 through June 2008 [22]

	Conceptual				Planning & Design				Construction			
Category and Project Type[23]	Number		Cost [in millions]		Number		Cost [in millions]		Number		Cost [in millions]	
Transportation and Utilities	**667**	**28.7%**	**$ 3,011.9**	**29.0%**	**1,009**	**43.4%**	**$ 4,336.3**	**41.7%**	**649**	**27.9%**	**$ 3,054.5**	**29.4%**
Transportation	624	28.6%	2,936.0	31.2%	968	44.3%	3,957.8	42.1%	592	27.1%	2,511.6	26.7%
Other Utilities	30	30.3%	49.4	8.2%	24	24.2%	63.2	10.5%	45	45.5%	491.4	81.3%
Navigation	3	60.0%	18.4	5.1%	1	20.0%	300.0	84.0%	1	20.0%	38.9	10.9%
Telecommunications	10	27.0%	8.1	22.5%	16	43.2%	15.3	42.7%	11	29.7%	12.5	34.8%
Education	**309**	**66.2%**	**$ 2,188.8**	**67.5%**	**55**	**11.8%**	**$ 344.5**	**10.6%**	**103**	**22.1%**	**$ 710.0**	**21.9%**
K-12 New School Construction	81	40.1%	746.8	44.2%	34	16.8%	255.1	15.1%	87	43.1%	688.6	40.7%
Non-K-12 Education[24]	210	89.0%	1,415.4	93.3%	17	7.2%	87.5	5.8%	9	3.8%	14.7	1.0%
LEA System-wide Need	18	62.1%	26.6	75.6%	4	13.8%	1.9	5.4%	7	24.1%	6.7	19.0%
Health, Safety and Welfare	**1,038**	**39.4%**	**$ 1,784.5**	**33.3%**	**783**	**29.7%**	**$ 1,422.3**	**26.5%**	**811**	**30.8%**	**$ 2,159.7**	**40.2%**
Water and Wastewater	648	36.5%	1,087.7	32.6%	534	30.1%	841.3	25.2%	591	33.3%	1,405.0	42.1%
Law Enforcement	128	53.3%	364.4	38.5%	68	28.3%	327.2	34.6%	44	18.3%	255.2	27.0%
Stormwater	38	24.8%	93.1	21.7%	52	34.0%	91.6	21.3%	63	41.2%	244.6	57.0%
Solid Waste	25	27.5%	22.1	13.5%	33	36.3%	38.6	23.6%	33	36.3%	103.0	62.9%
Fire Protection	99	50.0%	67.4	39.0%	53	26.8%	58.8	34.1%	46	23.2%	46.5	26.9%
Public Health Facilities	88	59.9%	141.1	55.0%	34	23.1%	58.4	22.8%	25	17.0%	57.0	22.2%
Housing	12	40.0%	8.7	13.8%	9	30.0%	6.4	10.1%	9	30.0%	48.3	76.2%
Recreation and Culture	**404**	**38.1%**	**$ 644.5**	**36.3%**	**353**	**33.3%**	**$ 500.4**	**28.2%**	**302**	**28.5%**	**$ 628.7**	**35.4%**
Recreation	288	36.9%	388.7	33.0%	260	33.3%	371.8	31.5%	233	29.8%	418.6	35.5%
Libraries and Museums	56	42.7%	140.9	39.8%	43	32.8%	67.5	19.1%	32	24.4%	145.3	41.1%
Community Development	60	40.8%	115.0	47.8%	50	34.0%	61.0	25.3%	37	25.2%	64.8	26.9%
Economic Development	**119**	**48.0%**	**$ 314.7**	**25.8%**	**72**	**29.0%**	**$ 575.6**	**47.1%**	**57**	**23.0%**	**$ 330.7**	**27.1%**
Industrial Sites and Parks	99	50.3%	157.5	42.4%	55	27.9%	82.6	22.2%	43	21.8%	131.2	35.3%
Business District Development	20	39.2%	157.2	18.5%	17	33.3%	493.0	58.0%	14	27.5%	199.5	23.5%
General Government	**95**	**40.3%**	**$ 65.5**	**15.9%**	**70**	**29.7%**	**$ 164.6**	**40.0%**	**71**	**30.1%**	**$ 181.1**	**44.0%**
Public Buildings	85	40.7%	60.8	15.9%	61	29.2%	146.7	38.5%	63	30.1%	173.6	45.6%
Other Facilities	7	33.3%	2.2	10.4%	7	33.3%	14.6	68.8%	7	33.3%	4.4	20.9%
Property Acquisition	3	50.0%	2.5	28.4%	2	33.3%	3.3	37.6%	1	16.7%	3.0	34.0%
Grand Total	**2,632**	**37.8%**	**$ 8,009.9**	**35.7%**	**2,342**	**33.6%**	**$ 7,343.6**	**32.8%**	**1,993**	**28.6%**	**$ 7,064.5**	**31.5%**

[22] For complete listings of costs by project type, stage of development, and county, see Appendix D.

[23] Descriptions of the project types are included in the Glossary of Terms at the end of the report. This table does not include existing public schools.

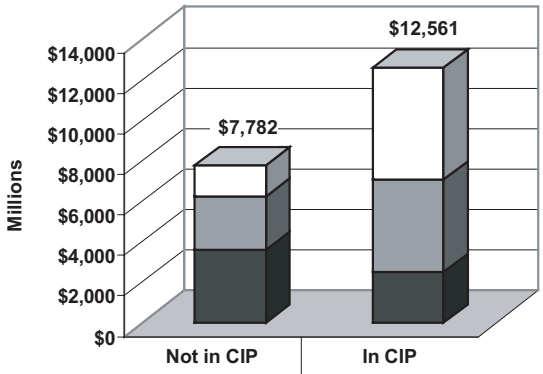
[24] K-12 (kindergarten through 12th grade) education includes public elementary and secondary schools. Non K-12 projects include facilities for post-secondary programs, pre-school programs, etc., as described in the Glossary of Terms at the end of the report.

account for most of the estimated costs classified as "Non-K-12", which fall more heavily into the conceptual category because they are derived from capital budget requests to the Governor. Needs reported for existing schools are not included in this analysis because they often have numerous small projects in varying stages of development, which makes it impossible to apply a single stage to an entire school.

Projects Included in Capital Improvements Programs Are Far More Likely to Be Under Construction Than Projects That Are Not in Those Planning Documents.

Excluding state facilities and improvements needed at existing schools, about 62% of all infrastructure needs in the current inventory were included in the capital improvement programs (CIP) of some local governments.[25] Inclusion in a CIP indicates a high probability that a project will proceed to construction. About 44% of project costs in a CIP were in the construction phase, compared with only about 20% of the projects not in a CIP (see Figure 1 on page 5). This phenomenon is consistent across all five TACIR reports. A look at the dollar amounts involved makes the point even more starkly: $5.5 billion dollars of needs included in CIPs are in the construction stage whereas $1.5 billion of needs not included in CIPs are in the construction stage, a difference of just under $4 billion (Figure 4).

Figure 4. Estimated Cost of Infrastructure Needs by Stage of Development and Inclusion in Capital Improvements Programs
Five-year Period July 2003 through June 2008



	Not in CIP	In CIP
Construction	$1,554	$5,508
Planning & Design	2,628	4,535
Conceptual	3,601	2,517

The Infrastructure needs most and least likely to be included in a capital improvements program are shown in Table 9. The percentage of estimated cost included in CIPs varied from a low of 32% for industrial sites and parks to a high of 95% for navigation needs. Given that inclusion in a CIP is an indication of whether a project can and will be funded, types of needs with higher percentages of costs included in CIPs are more likely to have projects make it to the construction phase.

There are 8 state-determined deficient dams in Tennessee.

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

State and Federal Mandates Affect Only 6% of All Projects, but Account for 30% of Elementary and Secondary School Costs

While TACIR does not ask local or state officials to split out the marginal cost of state and federal mandates—except for existing schools—TACIR does ask how many projects are affected by them. Local officials

[25] For information by county on percent of reported costs included in capital improvements programs, see Appendix D.

Problems with Dams May Become a Larger Concern

More than 44% of the lock chambers in the nation's dams are over 50 years of age.

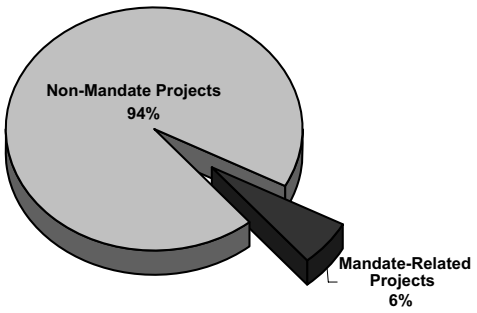
Many locks are undersized for modern commercial barge movements.

American Society of Civil Engineers
www.asce.org/

Table 9. Percent of Estimated Cost of Infrastructure Needs Included in Capital Improvements Programs[26]
July 2003 Inventory vs. July 2002 Inventory

Project Type	Estimated Cost Included In CIPs	Percent of Cost Included In CIPs
Navigation	$ 339,129,977	95%
Business District Development	802,396,769	94%
Other Facilities	19,974,140	94%
Other Utilities	569,622,728	94%
Stormwater	382,462,127	89%
Telecommunications	31,697,675	88%
Libraries and Museums	216,275,338	84%
Public Buildings	304,307,314	81%
Solid Waste	132,573,707	81%
Recreation	841,797,691	78%
Property Acquisition	6,813,200	77%
Housing	48,045,000	76%
Fire Protection	121,825,379	71%
Law Enforcement	517,635,807	70%
Public Health Facilities	56,918,000	69%
Water and Wastewater	1,960,585,621	59%
K-12 New School Construction	929,515,785	55%
Transportation	5,024,820,645	53%
Community Development	120,538,018	50%
LEA System-wide Need	10,020,855	37%
Industrial Sites and Parks	119,452,468	32%
Grand Total	**$ 12,556,408,244**	**62%**

Figure 5. Percent of Infrastructure Projects Involving Mandates
Five-year Period July 2003 through June 2008



often do not have the information necessary to split out marginal costs. It is impossible to determine from the annual inventory how much of the estimated total costs are attributable to state and federal mandates. The overall number of projects affected by mandates such as the Americans with Disabilities Act is a relatively small portion; slightly more than 6% of the total number of projects in the inventory (see Figure 5).

The number of projects affected by mandates continues to decline. About 15% of projects reported in 2001 were mandate related. The percentage fell to 9% the following year, and the percentage affected by mandates now stands at 6%. Collectively, schools account for more than 78% of the total number of projects affected by facilities mandates

[26] Excludes state facilities and improvements at needed schools.

and were far more likely to be associated with mandates than any other type of project.[27] As shown in Table 10, public school projects are far more likely than other types of projects to be affected by mandates; solid waste needs are the next most likely to be affected by mandates, but rank well behind school needs.

TACIR staff estimate that 14.5% of all improvement costs reported for schools were the result of a state or federal mandate,[28] with nearly all of that cost attributable to the Education Improvement Act of 1992.[29] (See Table 11.) That act required a substantial reduction in class sizes

TACIR staff estimate that 14.5% of all improvement costs reported for schools were the result of a state or federal mandate, with nearly all of that cost attributable to the Education Improvement Act of 1992.

Table 10. Percent of Projects Reported to Involve Facilities Mandates by Type of Project
Five-year Period July 2003 through June 2008

Type of Project	Number of Projects or Schools Reported	Projects or Schools Affected by Mandates	
		Number	Percent
Existing School Improvements	1,237	362	29.3%
K-12 New School Construction	202	15	7.4%
LEA System-wide Need	29	2	6.9%
Solid Waste	91	5	5.5%
Water and Wastewater	1,773	73	4.1%
Stormwater	153	4	2.6%
Other Utilities	99	2	2.0%
Business District Development	51	1	2.0%
Public Buildings	209	4	1.9%
Law Enforcement	240	3	1.3%
Fire Protection	198	2	1.0%
Libraries and Museums	131	1	0.8%
Community Development	147	1	0.7%
Transportation	2,184	12	0.5%
Recreation	781	2	0.3%
Non-K-12 Education	236	0	0.0%
Industrial Sites and Parks	197	0	0.0%
Public Health Facilities	147	0	0.0%
Telecommunications	37	0	0.0%
Housing	30	0	0.0%
Other Facilities	21	0	0.0%
Property Acquisition	6	0	0.0%
Navigation	5	0	0.0%
Grand Total	**8,204**	**489**	**6.0%**

[27] Projects reported for existing schools were aggregated so that each school is counted only once in this percentage figure.

[28] Projects reported for existing schools were aggregated so that each school is counted only once in this percentage figure.

[29] Chapter 535, Public Acts of 1992.

throughout all grades in Tennessee public schools by the fall of 2001.[30] All schools met this requirement, but many continue to need facilities improvements to house the additional teachers and classes.

Table 11. Estimated Cost of Facilities Mandates Reported for Local Public Schools
Five-year Period July 2003 through June 2008

Type of Need	Estimated Cost [in millions]	Percent of Total
State & Federal Mandates	**$ 542.1**	**14.5%**
EIA Costs at New and Existing Schools	479.3	12.8%
Other State Mandates	28.3	0.7%
Federal Mandates	34.5	0.9%
Non-mandated Needs	**$ 3,189.9**	**85.5%**
Statewide Total	**$ 3,732.0**	**100.0%**

[30] Tennessee Code Annotated, §49-3-353.