

# **Building Tennessee's Tomorrow: Anticipating the State's Infrastructure Needs**

July 2021 through June 2026

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## INTRODUCTION

Why do we rely on the public sector for roads, bridges, water lines, and schoolhouses? Certain goods and services—such as clean drinking water, education, commerce, and roads—must be provided in the interest of general health and safety. Public infrastructure is the answer when the service supported is essential to the common good and the private sector cannot profitably provide it at a price that makes it accessible to all. Therefore, we look to those who represent us in our public institutions to set priorities and find ways to fund them.

### Why inventory public infrastructure needs?

In 1996, the Tennessee General Assembly enacted legislation that affirmed the value of public infrastructure. An inventory of necessary infrastructure was laid out “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.”<sup>1</sup> 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;<sup>2</sup> the capital budget requests submitted to the governor by state officials as part of the annual budget process; needed capital projects from the Tennessee Board of Regents (TBR), and bridge and road needs from project listings provided by state transportation officials. The Commission relies entirely on state and local officials to evaluate the infrastructure needs of Tennessee’s citizens as envisioned by the enabling legislation.

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<sup>1</sup> Public Chapter 817, Acts of 1996. For more information about the enabling legislation, see appendix A.

<sup>2</sup> For more information on the importance of the inventory to the development districts and local officials, see appendix B.

## What infrastructure is included in the inventory?

For the purposes of this report, and based 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. 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.<sup>3</sup>

Local officials were asked to describe anticipated needs for the period of July 1, 2021, through June 30, 2041, classifying those needs by type of project. State-level needs were derived from capital budget requests. Both state and local officials were also asked to identify the stage of development—conceptual, planning, and design, or under construction—as of July 1, 2021. Because of legislation requiring the inventory's use by the Commission to monitor the implementation of Tennessee's Growth Policy Act, in 2000, the period covered by each inventory was expanded from 5 years to 20 years.<sup>4</sup> Plans developed pursuant to that act established growth boundaries for annexation by the state's municipalities. This report focuses on the first five years of the period covered by the inventory and the following types of public infrastructure (see the glossary for definitions of project types):

- Transportation and Utilities
  - Transportation
  - Other Utilities
  - Broadband
- Education
  - Post-secondary Education
  - School Renovations
  - New Public Schools and Additions
  - Other Education
  - School System-wide
- Health, Safety, and Welfare
  - Water and Wastewater
  - Law Enforcement
  - Public Health Facilities
  - Housing
  - Fire Protection

<sup>3</sup> School technology infrastructure is included for existing schools regardless of cost in order to provide information related to the technology component of the state's education funding formula.

<sup>4</sup> Public Chapter 672, Acts of 2000.

- Storm Water
- Solid Waste
- Recreation and Culture
  - Recreation
  - Libraries, Museums, and Historic Sites
  - Community Development
- General Government
  - Public Buildings
  - Other Facilities
- Economic Development
  - Industrial Sites and Parks
  - Business District Development

Within these parameters, local officials are asked to report their needs as they relate to developing goals, strategies, and programs to improve their communities. They are limited by only the very broad purposes for public infrastructure as prescribed by law. No independent assessment of need constrains their reporting. In addition, the inventory includes bridge and road needs from project listings provided by the Tennessee Department of Transportation (TDOT), capital projects from TBR, and capital needs identified by state officials and submitted to the governor as part of the annual budget process.

### **How is the inventory accomplished?**

The Public Infrastructure Needs Inventory is developed using two separate, but related, inventory forms<sup>5</sup> to gather information from local officials about necessary infrastructure improvements. The Existing School Facility Needs Inventory Form is used to gather information about the condition of existing public school buildings, as well as the cost to meet all facilities mandates at the schools, put them in good condition, and provide adequate technology infrastructure. The General Public Infrastructure Needs Inventory Form is used to gather information about all other types of infrastructure including the need for new public school buildings and school system-wide infrastructure improvements not gathered on the school inventory form. TACIR staff provide local officials with supplemental information from the state highway department about transportation needs, many of which originate from local officials. This information helps ensure that all known needs are captured in the inventory.

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<sup>5</sup> Both forms are included in appendix C.

In addition to gathering information from local officials, TACIR staff incorporates capital improvement requests submitted by state officials to the governor's budget office, bridge and road needs from project listings provided by TDOT, and needed capital projects from TBR. While TACIR staff spends considerable time reviewing all the information in the inventory to ensure accuracy and consistency, it is based on the judgment of state and local officials. In many cases, information about local needs is limited to those included in the capital improvements programs of local governments, which means the inventory may not fully capture all local requirements.

As discussed above, projects included in the report are only those in the conceptual, planning and design, or construction stage at some point during the five-year period of July 2021 through June 2026. For projects started before the five-year period, estimated costs for the projects may include amounts spent before July 2021; for projects that won't be completed during the five-year period, amounts must be spent after June 2026. All those projects are initially recorded as conceptual because capital budget requests generally serve as the source of information from state agencies (TDOT and TBR, excepted).

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.*<sup>6</sup> The mandates most commonly reported are the Americans with Disabilities Act (ADA), asbestos, lead, underground storage tanks, and the Education Improvement Act (EIA). The EIA mandate reduced the target number of students in each K-12 public school classroom by fall 2001. Tennessee public schools began working toward that goal after the passage of the EIA in 1992, which was met by adding classroom space and hiring a sufficient number of teachers.<sup>7</sup> However, some schools continue to use portable classrooms because they still do not have sufficient traditional classroom space to accommodate both teachers and students.

Except in the case of existing public schools, the inventory does not include estimates of the cost to comply with mandates. Even in the case of public schools, with the exception of the EIA, the cost reported to the Commission as part of the Public Infrastructure Needs Inventory is relatively small—accounting for less than 1% of the total reported Public School Infrastructure Needs. See appendix E-9.

### How is the inventory used?

The Public Infrastructure Needs Inventory is both a product and a continuous process, one that has been useful in

<sup>6</sup> See the Glossary of Terms at the end of the report.

<sup>7</sup> Tennessee Comptroller of the Treasury 2004. "The Education Improvement Act: A Progress Report." <http://comptroller.tn.gov/repository/RE/educimproveact.pdf>



- planning short-term and long-range goals,
- providing a framework for funding decisions,
- increasing public awareness of infrastructure needs, and
- fostering better communication and collaboration among agencies and decision-makers.

***The inventory promotes planning and setting priorities.***

The Public Infrastructure Needs Inventory has become a tool for setting priorities and making informed decisions that is used by all stakeholders. Many decision-makers have noted that in a time of tight budgets and crisis-based, reactive decisions, the annual inventory process offers the one opportunity they have to set funding issues aside for a moment and think proactively and broadly about real infrastructure needs. For most officials in rural areas and in smaller cities, the inventory is the closest thing they have to a Capital Improvements Program (CIP). Without the inventory, they would have little opportunity or incentive to consider their infrastructure needs. Because the inventory is not limited to needs that can be funded in the short term, it may be the only formal opportunity officials have to consider the long-range benefits of infrastructure.

***The inventory helps match critical needs to limited funding opportunities.***

In the absence of a formal CIP, the Public Infrastructure Needs Inventory provides basic information to state and local officials to match needs with funding. At the same time, the inventory provides information needed by the development districts to update their respective *Comprehensive Economic Development Strategy Reports* required annually by the US Economic Development Administration.<sup>8</sup> Projects are not considered for funding by that agency unless they are listed in one of these reports. Information from the inventory has been used to develop lists of projects suitable for other types of state and federal grants as well. For example, many projects that have received Community Development Block Grants were originally discovered in discussions of infrastructure needs with local government officials. The inventory has also helped state decision-makers identify gaps between critical needs and available state, local, and federal funding, including an assessment of whether various communities can afford to meet their infrastructure needs, or whether some additional planning needs to be done at the state level.

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<sup>8</sup> US Economic Development Administration. "CEDs Content Guidelines." <https://www.eda.gov/ceds/>

***The inventory provides an annual review of conditions and needs of public school facilities.***

Local officials are asked to report the condition of all schools on the Existing School Facility Needs Inventory Form, not just those in need of repair or replacement. Data can be retrieved from the database and analyzed to identify particular needs, such as technology. This information is useful in pinpointing pressing needs for particular schools and school systems, as well as providing an overview of patterns and trends across the state. This unique statewide database provides information about the condition and needs of Tennessee's public school facilities.

***The inventory increases public awareness, communication, and collaboration among decision-makers.***

As a result of the inventory, the state's infrastructure needs have been reported to a broader public audience, and the process has fostered better communication between the development districts, local and state officials, and decision-makers. The resulting report has become a working document used at the local, regional, and state levels. It gives voice to small towns and rural communities with limited planning resources. Each update of the report provides an opportunity for re-evaluation and re-examination of projects and for improvements in the quality of the inventory and the report itself. This report is unique regarding its broad scope and comprehensive nature. Through the inventory process, development districts have expanded their contact, communication, and collaboration across agencies (e.g., local boards of education, utility districts, and TDOT) and strengthened personal relationships and trust among their more traditional local and state contacts. Infrastructure needs are being identified, assessed, and addressed locally, and documented for the Tennessee General Assembly, various state agencies, and decision-makers for further assessment and consideration.

**What else needs to be done?**

The data collection process continues to improve, and the current inventory is more complete and accurate than ever. The Commission has tried to strike a balance between requiring sufficient information to satisfy the intent of the law and creating a burden on local officials reporting their needs. By law, the inventory is required of the Commission, but it is not required of state or local officials; they may decline to participate without penalty. Similarly, they may provide only partial information. This can make comparisons across jurisdictions and across time difficult. But with each annual inventory, participants have become more familiar with the process and more supportive of the program. Improvements in the technological infrastructure of the inventory itself have set the stage for future efforts to make the inventory more accessible and useful to state and local policymakers and researchers.

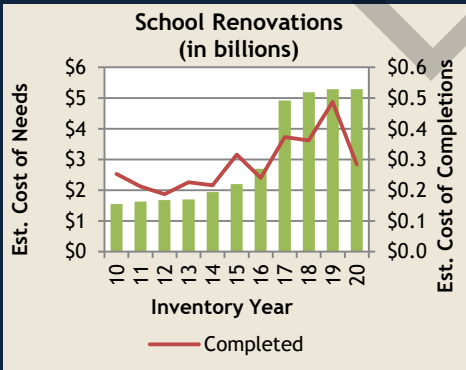
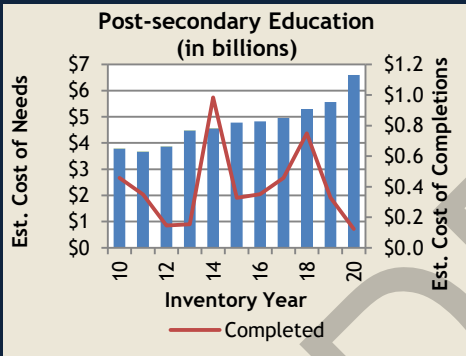
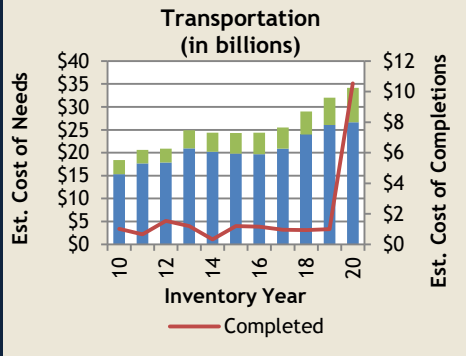
As stated in the previous infrastructure report, TACIR was conducting an analysis to compare and contrast the effects of COVID-19-induced disruptions by using historical trends to determine their effects on public infrastructure development or priorities. The second phase, which is focused on the effects of social disruptions and economic downturns from the global pandemic on public infrastructure needs, has been postponed so staff can respond to legislatively requested projects.

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## State Total

Total Estimated Cost\* for Infrastructure Improvements  
**\$62,862,308,693**

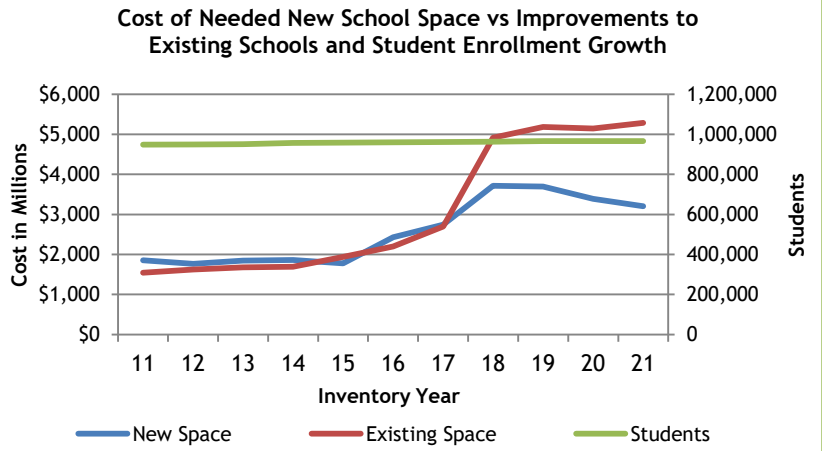
## TOP 3



■ = Local  
■ = Regional (Serves Multiple Counties)

### Estimated Cost of Needed Infrastructure for State Total Five-year period July 2021 through June 2026

Project Type	Conceptual	Planning & Design + Construction
Transportation	\$ 10,192,547,262	\$ 24,533,806,950
Post-secondary Education	2,704,040,645	2,865,215,875
School Renovations	4,632,337,813	823,552,729
Water and Wastewater	1,141,886,938	4,089,777,190
New Public Schools & Additions	2,143,465,454	1,464,989,066
Law Enforcement	1,213,249,274	880,774,278
Recreation	730,219,290	1,055,706,083
Public Buildings	726,012,000	356,790,857
Public Health Facilities	544,070,000	240,225,092
Other Utilities	106,150,000	399,660,000
Fire Protection	234,701,574	122,155,739
Community Development	80,050,000	200,644,697
Housing	14,007,000	242,977,080
Other Facilities	67,996,000	177,942,052
Libraries, Museums, & Historic Sites	124,507,000	84,401,188
Industrial Sites and Parks	49,763,000	152,358,608
Solid Waste	89,060,000	27,066,293
Storm Water	85,979,000	23,558,474
School-System-wide	17,642,000	74,742,786
Other Education	35,580,000	54,590,000
Business District Development	32,600,000	11,019,406
Broadband	6,000,000	8,490,000
<b>Total</b>	<b>\$ 24,971,864,250</b>	<b>\$ 37,890,444,443</b>



\*Total Estimated Cost = Conceptual + Planning & Design + Construction

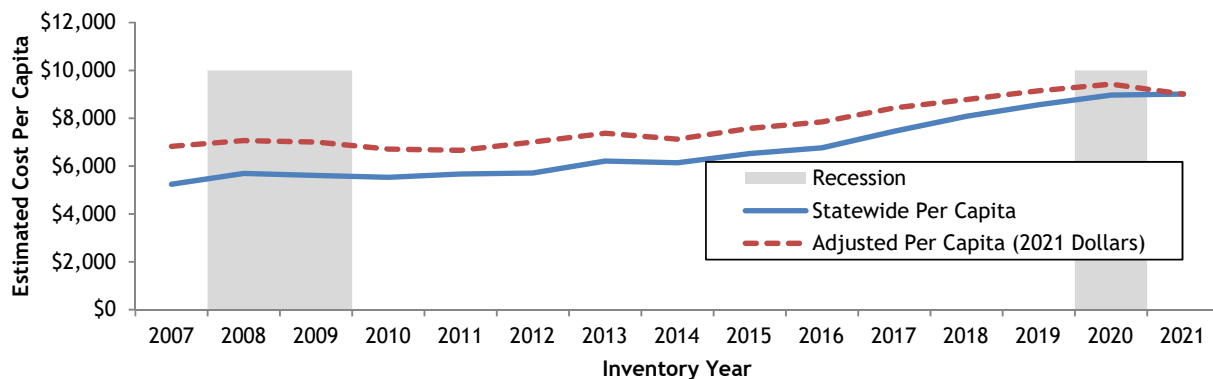
# Building Tennessee’s Tomorrow: Anticipating the State’s Infrastructure Needs

July 2021 through June 2026

## INFRASTRUCTURE NEEDS OVERVIEW

The estimated cost of all needed public infrastructure improvements in Tennessee increased for the seventh straight reporting period but decreased when adjusted for inflation<sup>9</sup> and population (see figure 1). State and local officials report an increase of approximately \$1.1 billion (1.8%) in this year’s inventory (see table 1), which brings the estimated cost of public infrastructure improvements that need to be in some stage of development (see figure 2) between July 1, 2021, and June 30, 2026, to \$62.9 billion.<sup>10</sup> Improvements needed for the following categories continue to account for most of the total estimated cost of the inventory: Transportation and Utilities; Education; and Health, Safety, and Welfare. This year, the categories most responsible for the reported increase in total estimated cost are Transportation and Utilities followed by Health, Safety, and Welfare. The percentage of unfunded infrastructure needs reported at the time the inventory was conducted increased from 67.5% in 2020 to 70.9% in 2021.

Figure 1. Total Estimated Cost of Needed Infrastructure Improvements Per Capita July 2007 to July 2021



<sup>9</sup> Federal Reserve Bank of St. Louis, State and Local Government Consumption Price Index.

<sup>10</sup> For complete listings of all needs reported in the July 2021 inventory by county and by public school system, see appendixes D and E.

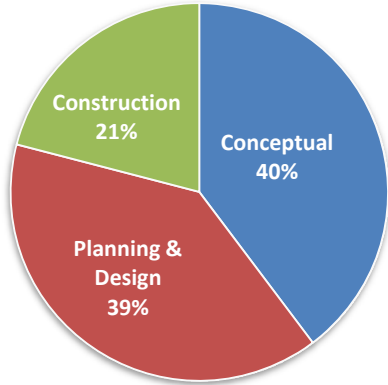
**Table 1. Comparison of Estimated Cost of Needed Infrastructure Improvements**  
*July 2020 Inventory vs. July 2021 Inventory*

Category and Type of Infrastructure	July 2020 Inventory	July 2021 Inventory	Difference	Percent Change
<b>Transportation and Utilities</b>	<b>\$ 34,496,628,397</b>	<b>\$ 35,246,654,212</b>	<b>\$ 750,025,815</b>	<b>2.2%</b>
Transportation	33,963,284,778	34,726,354,212	763,069,434	2.2%
Other Utilities	519,843,619	505,810,000	(14,033,619)	-2.7%
Broadband	13,500,000	14,490,000	990,000	7.3%
<b>Education</b>	<b>\$ 15,195,602,748</b>	<b>\$ 14,816,156,368</b>	<b>\$ (379,446,380)</b>	<b>-2.5%</b>
Post-secondary Education	6,595,216,982	5,569,256,520	(1,025,960,462)	-15.6%
School Renovations*	5,285,907,591	5,455,890,542	169,982,951	3.2%
New Public Schools & Additions	3,204,935,139	3,608,454,520	403,519,381	12.6%
Other Education**	71,650,000	90,170,000	18,520,000	25.8%
School-System-wide	37,893,036	92,384,786	54,491,750	143.8%
<b>Health, Safety, and Welfare</b>	<b>\$ 8,280,659,712</b>	<b>\$ 8,949,487,932</b>	<b>\$ 668,828,220</b>	<b>8.1%</b>
Water and Wastewater	4,927,108,676	5,231,664,128	304,555,452	6.2%
Law Enforcement	2,029,492,792	2,094,023,552	64,530,760	3.2%
Public Health Facilities	618,321,687	784,295,092	165,973,405	26.8%
Housing	257,289,080	256,984,080	(305,000)	-0.1%
Fire Protection	315,756,003	356,857,313	41,101,310	13.0%
Storm Water	97,164,474	109,537,474	12,373,000	12.7%
Solid Waste	35,527,000	116,126,293	80,599,293	226.9%
<b>Recreation and Culture</b>	<b>\$ 2,260,164,529</b>	<b>\$ 2,275,528,258</b>	<b>\$ 15,363,729</b>	<b>0.7%</b>
Recreation	1,634,978,982	1,785,925,373	150,946,391	9.2%
Libraries, Museums, and Historic Sites	354,433,447	208,908,188	(145,525,259)	-41.1%
Community Development	270,752,100	280,694,697	9,942,597	3.7%
<b>General Government</b>	<b>\$ 1,245,895,507</b>	<b>\$ 1,328,740,909</b>	<b>\$ 82,845,402</b>	<b>6.6%</b>
Public Buildings	1,109,097,057	1,082,802,857	(26,294,200)	-2.4%
Other Facilities	136,798,450	245,938,052	109,139,602	79.8%
<b>Economic Development</b>	<b>\$ 282,370,794</b>	<b>\$ 245,741,014</b>	<b>\$ (36,629,780)</b>	<b>-13.0%</b>
Industrial Sites and Parks	224,809,788	202,121,608	(22,688,180)	-10.1%
Business District Development	57,561,006	43,619,406	(13,941,600)	-24.2%
<b>Grand Total</b>	<b>\$ 61,761,321,687</b>	<b>\$ 62,862,308,693</b>	<b>\$ 1,100,987,006</b>	<b>1.8%</b>

\*School Renovations include school technology projects with estimated costs below the \$50,000 threshold used for other types of infrastructure included in the inventory. Individual technology projects under the threshold totaled \$4,204,829 in 2021 and \$4,749,126 in 2020.

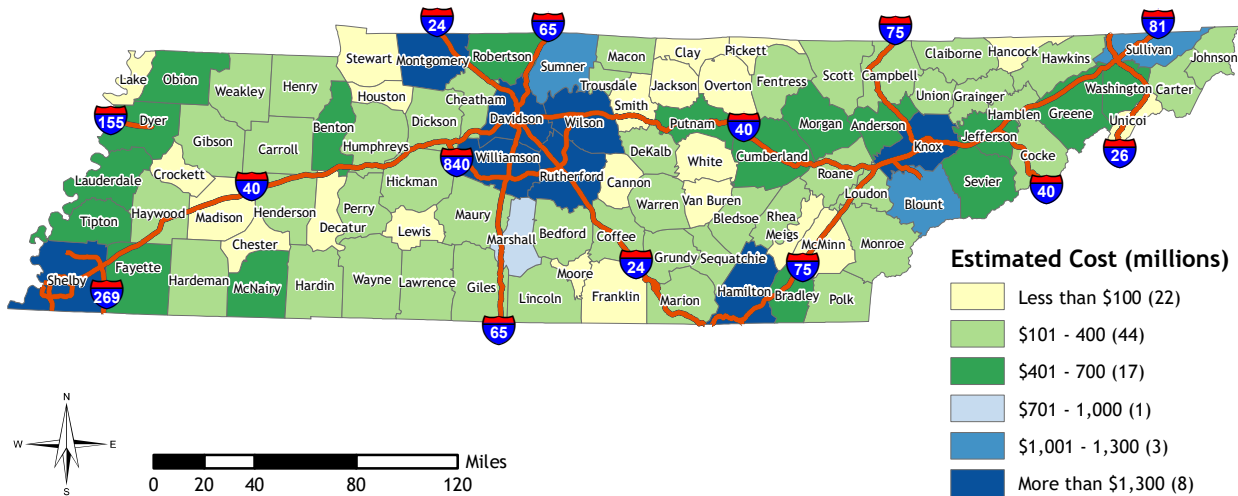
\*\*Other Education includes infrastructure improvements reported at state educational institutions not associated with institutes of higher education or at the county, city, or special school systems level. Examples include the Tennessee School for the Deaf and Alvin C. York Institute.

**Figure 2. Percent of Total Reported Cost of Infrastructure Improvements by Stage of Development**  
*Five-year Period July 2021 through June 2026*



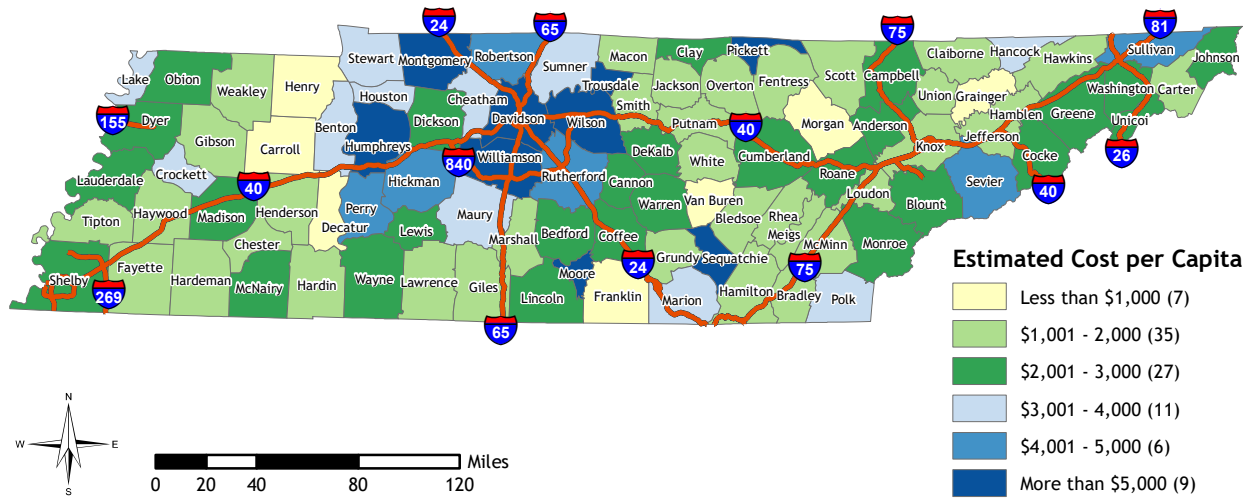
Public infrastructure is needed in every corner of the state, from highly populated counties like Shelby and Davidson to rural counties like Humphreys and Pickett. In general, it has been the case throughout the history of this inventory that the more people living in a county and the more that population grows, the more infrastructure the county will need (see map 1). However, relative to their populations, counties with small populations need just as much or more infrastructure than counties with large populations (see map 2). Individual county summaries, starting on page 19, offer a breakdown of infrastructure needs by county.

**Map 1. Total Estimated Cost of Needed Infrastructure Improvements**  
*Five-year Period July 2021 through June 2026*



Note: County totals include the total estimated cost of both regional and local infrastructure needs but do not include the \$4,979,012,532 for infrastructure improvements that cross county lines.

**Map 2. Estimated Cost of Needed Local Infrastructure Improvements per Capita**  
*Five-year Period July 2021 through June 2026*



**Public infrastructure needed for transportation drove the increase in this year's inventory.**

Infrastructure needs for Transportation and Utilities increased for the seventh year in a row (\$750 million) and continues to be the largest category in the inventory, with \$35.2 billion in total needs (56.1% of the inventory). Increases in the cost of existing road projects (\$1.1 billion) and the cost of new road projects (\$405 million) was offset by \$752 million in completed road projects. Nashville International Airport's reported needs for Concourse A represent the largest increase (\$155 million), and its needs for Concourse D represent the largest new project (\$245 million). Needs reported for other utilities, including projects such as installation of gas lines and electrical cables, decreased by \$14 million (2.7%) in this year's inventory and now total \$506 million.

Local officials report an increase of \$990 thousand in broadband infrastructure, in just the sixth year of reporting this category. Broadband needs in the inventory include only projects owned by government entities. As a result, the inventory doesn't fully capture the need for expanded access to broadband in many communities, because broadband deployment in many areas relies less on municipal utilities, which are sub-entities of municipal governments, and more on privately owned entities.

**The need for new water and wastewater infrastructure to protect water quality accounted for almost half of the increase in Health, Safety, and Welfare needs.**

The \$669 million increase in needed improvements for Health, Safety, and Welfare infrastructure also contributed to the overall increase in the total



estimated cost of the inventory. Most of this increase is from the \$305 million rise in needed improvements for water and wastewater, which included \$373 million in new projects alone. Of these new projects, just four make up \$189 million and include the construction of filters at the Mark B. Whitaker water treatment plant (\$77 million), a water treatment plant in Robertson County (\$47 million), projects responding to the Water and Wastewater Treatment Authority Consent Decree in Hamilton County (\$40 million), and a wet weather equalization facility in Hamilton County (\$25 million). Existing project cost increases account for \$250 million with the largest increase (\$35 million) attributable to building reservoirs in Davidson County. Two other projects also experienced large increases, including the construction of a wastewater treatment plant in Sevierville (\$25 million) and the K.R. Harrington Water Treatment Plant in Nashville (\$17 million). These increases were offset by \$156 million in completed and \$145 million in canceled projects.

With funds made available by the passage of the federal American Rescue Plan Act of 2021, the Tennessee Department of Environment and Conservation has been administering \$1.4 billion in non-competitive and competitive grants targeting water, wastewater, and storm water infrastructure needs.<sup>11</sup> With these grants, previously unfunded projects have finally progressed, and previously underreported projects are being captured. As of October 2022, \$72 million dollars have been awarded through 18 grants to local governments.<sup>12</sup>

The need for public health facilities also increased by \$166 million (26.8%) and now totals \$784 million. Hamilton county needs \$277 million for a new replacement facility for Moccasin Bend Mental Health Institute, and Davidson County needs \$11 million to upgrade the mechanical systems in the Middle Tennessee Mental Health Institute. The rest of the new needs reported are smaller and scattered across the state.

### **Decreases in needed infrastructure on college campuses drove the decrease in education infrastructure in this year's report—partially offset by an increase in needs for new and existing public schools.**

In this year's inventory, a decrease of \$379 million (2.5%) in Education, compared to last year's reported needs, is the result of offsetting changes in the estimated costs of different types of education. Post-secondary education costs decreased by \$1 billion (15.6%). Driving the decrease was \$801 million in completed projects—including \$92.9 million and \$99.5

<sup>11</sup> Tennessee Department of Environment and Conservation. 2021. "TDEC Announces Water Infrastructure Investment Plan with Funding from American Rescue Plan Act" <https://www.tn.gov/environment/news/2021/12/17/tdec-announces-water-infrastructure-investment-plan-with-funding-from-american-rescue-plan-act.html>.

<sup>12</sup> Tennessee Department of Environment and Conservation. 2022. "TDEC Announces Additional \$34.5 Million in Water Infrastructure Investments" <https://www.tn.gov/environment/news/2022/10/11/announcement-34-5-million-water-infrastructure.html>.

million for new science laboratories at Tennessee Technological University-Cookeville and the University of Tennessee-Knoxville, respectively—and \$918 million in projects where the start date was pushed back beyond the scope of the report. This decrease was offset by a \$404 million (12.6%) increase in the total estimated cost for new public schools and additions, which totals \$3.6 billion. Local officials reported an increase of \$118 million in the need for additions to existing schools, along with a \$286 million (10.7%) increase in reported needs for new schools. See table 2.

**Table 2. Estimated Cost of School Infrastructure Improvements by Type of Need**  
*July 2020 Inventory vs. July 2021 Inventory*

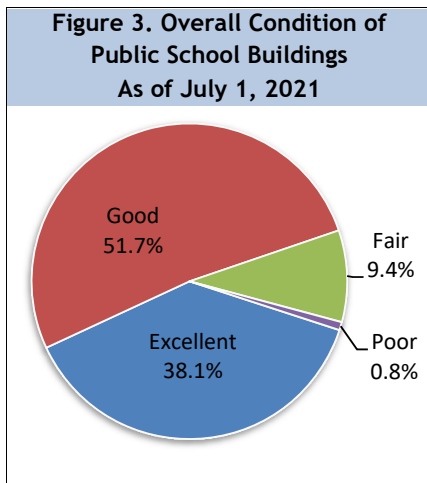
Type of Infrastructure	July 2020 Inventory	July 2021 Inventory	Difference	Percent Change
<b>Post-secondary Education</b>	\$ 6,595,216,982	\$ 5,569,256,520	\$ (1,025,960,462)	-15.6%
<b>New Public Schools &amp; Additions</b>	\$ 3,204,935,139	\$ 3,608,454,520	\$ 403,519,381	12.6%
New Schools	2,665,643,679	2,951,435,000	285,791,321	10.7%
Additions	539,291,460	657,019,520	117,728,060	21.8%
<b>School Renovations</b>	5,165,226,814	5,455,890,542	290,663,728	5.6%
Renovations	\$ 4,859,126,614	\$ 5,210,539,984	\$ 351,413,370	7.2%
Technology	212,327,293	147,911,369	(64,415,924)	-30.3%
Mandates	93,772,907	97,439,189	3,666,282	3.9%
<b>Other Education</b>	\$ 75,815,000	\$ 71,650,000	\$ (4,165,000)	-5.5%
<b>System-wide Needs</b>	\$ 37,393,036	\$ 92,384,786	\$ 54,991,750	147.1%
<b>Statewide Total</b>	\$ 8,407,554,989	\$ 9,156,729,848	\$ 749,174,859	8.9%

School systems must comply with the Tennessee Constitution’s guarantee of the right of access to public education,<sup>13</sup> as well as with the Tennessee Education Improvement Act of 1992,<sup>14</sup> which places limits on the number of students in classrooms. School systems with growing enrollment face the challenge of providing enough space for students, while other school systems need to renovate or replace their schools because of age, condition, or issues concerning school restructuring or consolidation, all while costs increase. Similar issues face Tennessee’s public institutions of higher education—dormitories need to be replaced because of their age, and classrooms and labs need to be added or upgraded to meet typical market demands.

Because of the condition of many Tennessee schools, improvements to existing space are necessary. Although 173 public schools (10.2%) in Tennessee were rated by their local school officials as being in fair or poor condition (see figure 3), 159 of those schools need improvements to existing space, which accounts for 42.8% of total estimated existing space needs. See figure 3, table 3, and appendix E.

<sup>13</sup> Article XI, Section 12, Constitution of the State of Tennessee.

<sup>14</sup> State of Tennessee Comptroller of the Treasury. 2004. “The Education Improvement Act: A Progress Report.” [https://comptroller.tn.gov/content/dam/cot/orea/advanced-search/orea-reports-2004/2004\\_OREA\\_EdImpAct.pdf](https://comptroller.tn.gov/content/dam/cot/orea/advanced-search/orea-reports-2004/2004_OREA_EdImpAct.pdf).



**Table 3. Renovations Costs by School Condition**  
Five-year Period July 2021 through June 2026

School Condition	Number of Schools	Estimated Cost to Renovate	Average Cost Per School
Good or Excellent	976	\$ 2,982,494,638	\$ 3,055,835
Fair or Poor	159	2,227,882,204	14,011,838
<b>Total</b>	<b>1,135</b>	<b>\$ 5,210,376,842</b>	<b>\$ 4,590,640</b>

Note: This does not include facility upgrade costs captured in the school system-wide category used for the total renovation cost in table 2.

The cost of needed education infrastructure has increased over the years mainly because of the rising cost of construction materials and labor. The US Bureau of Labor Statistics’ New School Construction Price Index rose almost 45 points (24.8%) from July 2011 to July 2021.<sup>15</sup> In 2011, the average cost of a completed new school in Tennessee was \$18 million. Seven schools—ranging from a new \$75 million high school in Sullivan County to a \$17 million school for pre-k through 8<sup>th</sup> grade in Lincoln County—were completed since last year’s report for a total cost of \$258 million, averaging \$37 million per school. Local officials report needing 70 more schools over the next five years at an average of \$42 million each.

**The need for projects that support Recreation and Culture increased slightly.**

The estimated cost of infrastructure needs for Recreation and Culture increased by \$15 million (0.7%) to a total of \$2.3 billion. The needs for recreation infrastructure improvements show an increase of \$151 million (9.2%). New recreation projects (\$279 million), including \$115 million for the relocation of a highway and building of a greenway in Blount County, was offset by completed (\$106 million) and cancelled (\$70 million) projects. The need for infrastructure improvements that support community development also increased \$10 million (3.7%)—including a \$6 million cost increase in a community center renovation in Sevierville. Increases in recreation and community development were offset by a \$146 million (41.1%) decrease in libraries, museums, and historic sites—almost entirely because of the completion of the Tennessee State Library and Archives building in Nashville (\$122 million).

<sup>15</sup> US Bureau of Labor Statistics. 2021. PPI industry data for New school building construction, not seasonally adjusted. Data.bls.gov.

**Within General Government, other facilities needs increased substantially and were slightly offset by a decrease in public buildings.**

The cost for infrastructure needed for other facilities—structures that are publicly owned but not typically open to the public, like maintenance facilities and salt bins—increased \$109 million (79.8%) to a total of \$246 million. New projects (\$84 million) and increased costs for existing projects (\$26 million) accounted for most of the increase. Among needs reported for public buildings, the estimated cost of needed infrastructure decreased \$26 million (2.4%) and now totals \$1.1 billion, mainly because of completed projects (\$27 million). The decrease is partially offset by new projects (\$223 million). For instance, the Rachel Jackson State Office Building is undergoing a \$37 million renovation.

**Economic Development needs decreased for both industrial sites and parks and business district development.**

The estimated cost for needed infrastructure at industrial sites and parks decreased by \$23 million (10.1%) to a new total of \$202 million, while the estimated cost of infrastructure supporting business districts decreased by \$14 million (24.2%) and now totals \$44 million. Most of the decrease in industrial sites and parks comes from the completion of two industrial site park projects in two counties—Roane County (\$9 million) and Sevier County (\$10 million). Changes in two projects were responsible for the decrease in needs for business district development—esthetic improvements to Rivergate Mall and Parkway decreased by \$10 million from \$12 million to \$2 million, and phase 2 of an Uptown redevelopment project in Memphis was completed for \$6 million. These decreases were partially offset by \$7 million in new projects.

**In this year's inventory, funding has not been identified for nearly two-thirds of the estimated cost of needed improvements.**

Information about funding for public infrastructure needs reported by officials indicates that 70.9% of the funds required to meet those needs was not available at the time the inventory was conducted—this was an increase from last year's 67.5%. Excluding improvements needed at existing schools and those drawn from capital budget requests submitted by state agencies—neither of which includes funding information—only \$14.6 billion in funding is available for the remaining \$50.2 billion in needs (see table 4). Typically, as a project evolves, funding sources are identified and pursued. Regarding the infrastructure inventory process, planning and design cannot take place without acquiring some funds. Of course, a lack of funding will prevent certain projects from ever being completed. In fact, most of the infrastructure needs reported in the July 2016 inventory that were not already fully funded were still needed five years later. As

in prior years, funding for needs reported in the inventory comes from federal, state, and local sources.

**Table 4. Public Infrastructure Needs Summary of Funding Availability\***  
*Five-year Period July 2021 through June 2026*

	Funding Available [in billions]	Funding Needed [in billions]	Total Needed [in billions]
Fully Funded Improvements	\$ 14.6	\$ 0.0	\$ 14.6
Partially Funded Improvements	0.0	3.4	3.4
Unfunded Improvements	0.0	32.3	32.3
<b>Total</b>	<b>\$ 14.6</b>	<b>\$ 35.6</b>	<b>\$ 50.2</b>

\*Excludes infrastructure improvements for which funding availability is not known.

Note: Totals may not equal 100% because of rounding.

The government that owns the infrastructure typically funds the bulk of its cost, and a variety of revenue sources are used. For example, the state collects taxes and appropriates funds to its own projects but also provides grants to local governments through programs in various state agencies. Even so, cities and counties fund most of their infrastructure improvements with their own property and sales tax revenues, while utility districts fund their improvements primarily with dedicated revenue sources in the form of user fees.

Because most of the state's infrastructure needs are not included in this analysis, local government sources—mainly counties and cities—provide most of the capital for all the fully-funded needs presented here. Exceptions include transportation, which is funded primarily by the federal and state governments. Industrial sites and parks also receive a substantial portion of funding from federal and state government. Broadband, recreation, storm water, housing, libraries, museums, and historic sites also rely on the federal government for significant portions of their reported funding (see table 5). It may appear that the state does not help pay for school buildings even though it does—although counties report funding 75.8% of new public-school construction, the state provides an equivalent amount through its Basic Education Program (BEP) funding formula. The formula includes funds for capital outlay, an amount that topped \$789 million for fiscal year 2021-22.<sup>16</sup> The state's share accounts for half of that amount, but those funds are not earmarked for that specific purpose; therefore, school systems have the flexibility to use those funds to meet various school needs,<sup>17</sup> and some systems use them for operating costs rather than capital outlay. The BEP will be replaced by Tennessee Investment in Student Achievement in the 2023-24 school year.

<sup>16</sup> Copy of the Basic Education Program Funding Formula provided to TACIR Staff by the Department of Education on September 8, 2022.

<sup>17</sup> Tennessee Comptroller of the Treasury. 2017. "Basic Education Program: A Funding Formula, Not A Spending Plan." <https://comptroller.tn.gov/content/dam/cot/orea/documents/bep/BEPFundingInfographic.pdf>.

Table 5. Funding Source by Category and Type of Infrastructure for Fully Funded Improvement Needs [in millions]  
Five-year Period July 2021 through June 2026

Category and Project Type	State		Federal		Other		City		County		Special District		Total	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Transportation and Utilities	\$ 1,376.0	15.0%	\$ 4,822.1	52.6%	\$ 40.6	0.4%	\$ 879.6	9.6%	\$ 2,010.6	21.9%	\$ 31.7	0.3%	\$ 9,160.6	
Transportation	1,376.0	15.7%	4,816.7	54.8%	34.0	0.4%	544.8	6.2%	2,010.6	22.9%	0.8	0.0%	8,783.0	
Other Utilities	0.0	0.0%	4.5	1.2%	6.4	1.7%	333.8	88.9%	0.0	0.0%	30.9	8.2%	375.6	
Broadband	0.0	0.0%	0.9	45.2%	0.2	9.0%	0.9	45.7%	0.0	0.0%	0.0	0.0%	2.0	
<b>Health, Safety, and Welfare</b>	<b>\$ 32.0</b>	<b>0.8%</b>	<b>\$ 90.5</b>	<b>2.2%</b>	<b>\$ 110.3</b>	<b>2.7%</b>	<b>\$ 2,260.7</b>	<b>55.8%</b>	<b>\$ 1,289.3</b>	<b>31.8%</b>	<b>\$ 272.3</b>	<b>6.7%</b>	<b>\$ 4,055.0</b>	
Water and Wastewater	17.4	0.5%	71.1	2.1%	88.3	2.6%	1,900.9	55.8%	1,072.0	31.5%	254.4	7.5%	3,404.1	
Law Enforcement	5.2	1.8%	0.0	0.0%	0.0	0.0%	141.8	48.5%	145.6	49.8%	0.0	0.0%	292.6	
Housing	0.0	0.0%	1.2	0.6%	20.9	10.1%	166.1	79.8%	4.0	1.9%	16.0	7.7%	208.2	
Fire Protection	0.0	0.0%	0.4	0.7%	0.0	0.0%	42.3	71.0%	16.9	28.4%	0.0	0.0%	59.6	
Public Health Facilities	7.2	11.8%	8.7	14.1%	0.0	0.0%	0.0	0.0%	45.5	74.1%	0.0	0.0%	61.4	
Storm Water	0.4	3.0%	4.6	38.2%	0.0	0.0%	5.9	49.6%	1.1	9.2%	0.0	0.0%	12.0	
Solid Waste	1.9	10.8%	4.6	26.9%	1.0	5.8%	3.6	21.0%	4.1	24.1%	1.9	11.3%	17.1	
<b>Education</b>	<b>\$ 2.5</b>	<b>0.5%</b>	<b>\$ 40.4</b>	<b>8.0%</b>	<b>\$ 20.3</b>	<b>4.0%</b>	<b>\$ 83.0</b>	<b>16.5%</b>	<b>\$ 336.5</b>	<b>66.9%</b>	<b>\$ 20.5</b>	<b>4.1%</b>	<b>\$ 503.2</b>	
Post-secondary Education	0.1	20.0%	0.4	80.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.5	
New Public Schools	0.0	0.0%	32.7	7.5%	0.0	0.0%	73.0	16.7%	331.0	75.8%	0.0	0.0%	436.7	
School-System-wide	2.5	3.8%	7.7	11.6%	20.3	30.5%	10.0	15.0%	5.5	8.3%	20.5	30.8%	66.5	
<b>Recreation and Culture</b>	<b>\$ 15.8</b>	<b>3.4%</b>	<b>\$ 97.5</b>	<b>21.1%</b>	<b>\$ 16.1</b>	<b>3.5%</b>	<b>\$ 196.1</b>	<b>42.5%</b>	<b>\$ 135.6</b>	<b>29.4%</b>	<b>\$ 0.0</b>	<b>0.0%</b>	<b>\$ 461.1</b>	
Recreation	14.0	3.8%	80.4	22.0%	11.6	3.2%	149.7	41.1%	109.0	29.9%	0.0	0.0%	364.7	
Libraries, Museums, and Historic Sites	0.6	1.7%	10.4	31.4%	2.0	6.0%	5.0	15.1%	15.1	45.7%	0.0	0.0%	33.1	
Community Development	1.3	2.0%	6.8	10.7%	2.5	3.9%	41.4	65.4%	11.4	18.0%	0.0	0.0%	63.4	
<b>Economic Development</b>	<b>\$ 40.3</b>	<b>35.2%</b>	<b>\$ 10.0</b>	<b>8.8%</b>	<b>\$ 4.2</b>	<b>3.7%</b>	<b>\$ 10.5</b>	<b>9.1%</b>	<b>\$ 48.1</b>	<b>42.0%</b>	<b>\$ 1.4</b>	<b>1.2%</b>	<b>\$ 114.4</b>	
Industrial Sites and Parks	40.3	37.1%	9.0	8.3%	4.2	3.9%	5.4	5.0%	48.1	44.4%	1.4	1.3%	108.4	
Business District Development	0.0	0.0%	1.0	16.5%	0.0	0.0%	5.1	83.5%	0.0	0.0%	0.0	0.0%	6.0	
<b>General Government</b>	<b>\$ 1.0</b>	<b>0.3%</b>	<b>\$ 8.7</b>	<b>2.9%</b>	<b>\$ 20.4</b>	<b>6.8%</b>	<b>\$ 100.0</b>	<b>33.4%</b>	<b>\$ 169.3</b>	<b>56.5%</b>	<b>\$ 0.4</b>	<b>0.1%</b>	<b>\$ 299.7</b>	
Public Buildings	0.8	0.4%	4.7	2.3%	1.0	0.5%	50.9	25.1%	145.0	71.7%	0.0	0.0%	202.2	
Other Facilities	0.2	0.3%	4.0	4.1%	19.4	19.9%	49.1	50.4%	24.3	24.9%	0.4	0.4%	97.5	
<b>Grand Total</b>	<b>\$ 1,467.6</b>	<b>10.1%</b>	<b>\$ 5,069.2</b>	<b>34.7%</b>	<b>\$ 211.8</b>	<b>1.5%</b>	<b>\$ 3,529.8</b>	<b>24.2%</b>	<b>\$ 3,989.3</b>	<b>27.3%</b>	<b>\$ 326.3</b>	<b>2.2%</b>	<b>\$ 14,594.1</b>	