

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

July 2016 through June 2021

INTRODUCTION

One of the greatest fiscal challenges facing our elected officials is dealing with aging infrastructure. As the population grows and shifts, new classrooms must be built and equipped to meet our children's needs. As roads and bridges wear out, they must be repaired or replaced to ensure our safety. And as outdated water lines begin to crack and fail, they must be upgraded to carry clean drinking water safely and efficiently. These examples are just a few of the demands confronting government officials as they struggle with the daunting task of matching limited funds to seemingly unlimited needs.

Why do we rely on the public sector for roads, bridges, water lines, and schoolhouses? Certain goods and services—such as roads to access employment, education, and commerce; and clean drinking water—must be provided in the interest of general health and safety. Excluding users from roads and clean water is not desirable, and profit may not always be possible. Public infrastructure is the answer when the service supported is essential to the common good and the private sector cannot profitably provide it at a price that makes it accessible to all. 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?

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

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

through the provision of adequate and essential public infrastructure.”¹ The public infrastructure needs inventory on which this report is based

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

The condition of roads, bridges, schools, water treatment plants, and other physical assets greatly influences the economy's ability to function and grow.

Elizabeth McNichol, Center on Budget and Policy Priorities, *It's Time for States to Invest in Infrastructure*, August 10, 2017

was derived from surveys of local officials by staff of the state's nine development districts,² 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.

What infrastructure is included in the inventory?

For 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 \$50,000.³

Local officials were asked to describe anticipated needs for the period July 1, 2016, through June 30, 2036, 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, 2016. The period covered by each inventory was expanded to 20 years in 2000 because of legislation requiring its use by the Commission to monitor implementation of Tennessee's Growth Policy Act.⁴ 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
 - Broadband
 - Other Utilities
- Education
 - Post-secondary Education
 - School Renovations
 - New Public Schools and Additions

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

³ 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.

⁴ Public Chapter 672, Acts of 2000.

- School System-wide
- Other Education
- Health, Safety, and Welfare
 - Water and Wastewater
 - Law Enforcement
 - Public Health
 - Storm Water
 - Fire Protection
 - Solid Waste
 - Housing
- 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 forms⁵ to gather information from local officials about needed 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

⁵ Both forms are included in appendix C.

Although there is a lot of focus on what's happening at the federal level, it is important to keep in mind the role local and state governments play in not only financing transportation projects, but also operating expenses.

Ryan McCauley,
FutureStructure, *Infrastructure Week: Should Cities be at the Center of Infrastructure Discourse?* May 19, 2017

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 for 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 with local officials. This information helps ensure that all known needs are captured in the inventory.

In addition to gathering information from local officials, TACIR staff incorporate 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 spend considerable time reviewing all the information in the inventory to ensure accuracy and consistency, the information reported in the inventory 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 needs.

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 July 2016 through June 2021. Estimated costs for the projects may include amounts spent before July 2016 for projects started before the five-year period or amounts after June 2021 for projects that won't be completed during the five-year period. Because the source of information from state agencies is their capital budget requests, all of those projects are initially recorded as conceptual.

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.*⁶ 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 was to reduce the 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 and met it by hiring a sufficient number of teachers and adding classroom space.⁷ However, some schools continue to use portable classrooms because they still do not have sufficient traditional classroom space to accommodate the classes and teachers required.

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

⁶ See the Glossary of Terms at the end of the report.

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

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

- short-term and long-range planning,
- 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 by all stakeholders. Many decision makers have noted that in a time of tight budgets and crisis-based, reactive decisions, the annual inventory process is the one opportunity they have to set funding issues aside for a moment and think proactively and broadly about their very 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 they have to consider the long-range benefits of infrastructure.

The inventory helps match critical needs to limited funding opportunities.

The Public Infrastructure Needs Inventory provides the basic information that helps state and local officials match needs with funding, especially in the absence of a formal CIP. 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.⁸ Unless a project is listed in that document, it will not be considered for funding by that agency. 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

“Water is the biggest hidden challenge we have now. I can tell you, nine times out of 10, when people are talking about infrastructure, they’re talking about roads and bridges. But water is literally hidden—it’s underground, in most cases—and we don’t think about it until something happens. We expect water to come out of the tap.”

Andrew Soergel’s interview of Robert Puentes, Director of Metropolitan Infrastructure Initiative at the Brookings Institution, U.S. News, *Is Infrastructure Destined to Crumble?*, March 15, 2016

⁸ US Economic Development Administration. “CEDS Content Guidelines.” <https://www.eda.gov/ceds/>.

government officials. And it 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 about how to help them.

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, not just those in need of repair or replacement, on the Existing School Facility Needs Inventory Form. 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.

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 the 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 with agencies not traditionally sought after (e.g., local boards of education, utility districts, and TDOT) and strengthened personal relationships and trust with 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 improvements have been made to the inventory?

As each inventory cycle comes to a close, TACIR staff review the collection and analysis process to identify ways to improve efficiency and accuracy. Staff continually work to improve methods for project tracking and quality control. Infrastructure related to broadband internet access is reported as a separate project type in this year's report. Staff continue to analyze the relationship between school-level enrollment and the need for improvements at individual schools, augmenting analyses using system-

level enrollment. Staff also continued to improve and enhance the online inventory application.

Staff also routinely evaluate methods to improve how the information collected in the surveys is shared with state and local officials and communicated to the general public. Toward those ends, one-page summaries for each county were introduced to the report last year. See page 8 for the statewide summary. The county summaries may be found beginning on page 23. The summaries highlight the top three types of infrastructure based on total estimated cost needed in the county broken down by whether it's needed locally or at the regional level. The estimated costs for all types of infrastructure are divided between conceptual projects and those that have moved into the planning and design stage or have started construction. The infrastructure needed at public school systems is also compared to student enrollment.

What else needs to be done?

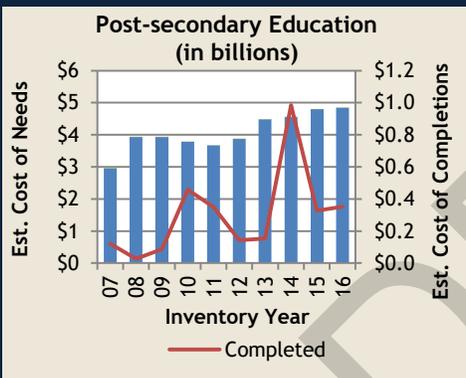
The data collection process continues to improve, and the current inventory is more complete and accurate than ever. The Commission has tried to strike a balance between requiring sufficient information to satisfy the intent of the law and not creating a burden on local officials reporting their needs. 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 policy makers and to researchers. Geographic coordinates are now required for every project in the inventory so staff and public officials can better analyze infrastructure needs using Geographic Information System (GIS) analysis. This information may be used by TACIR staff in the future to provide more detailed information to officials and the public.

State Total

Total Estimated Cost* for Infrastructure Improvements
\$45,021,441,887

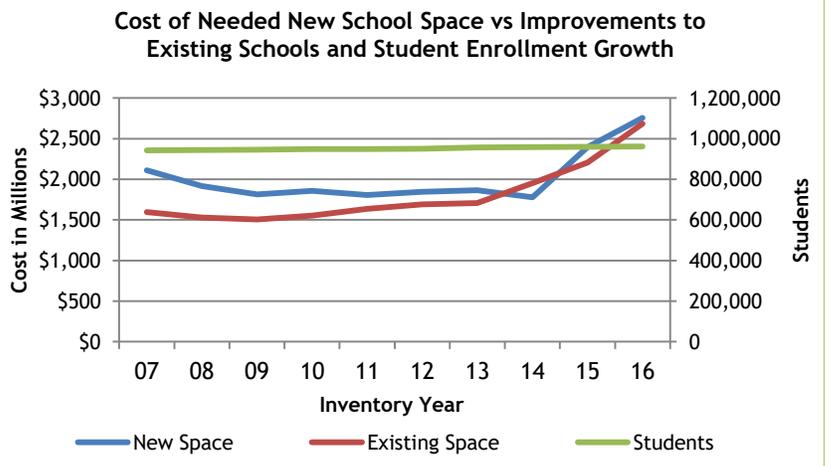
TOP 3



■ = Local
■ = Regional (Serves Multiple Counties)

Estimated Cost of Needed Infrastructure for State Total Five-year period July 2016 through June 2021

Project Type	Conceptual	Planning & Design + Construction
Transportation	\$ 10,459,365,064	\$ 13,769,918,421
Post-secondary Education	1,547,269,000	3,303,879,419
Water and Wastewater	1,205,237,510	3,487,288,455
New Public Schools & Additions	1,935,659,634	820,255,612
School Renovations	1,894,779,648	790,413,283
Recreation	488,116,944	665,388,453
Law Enforcement	558,075,800	571,744,226
Public Buildings	335,167,841	313,288,308
Other Utilities	144,945,000	359,154,949
Libraries, Museums, & Historic Sites	63,728,760	343,928,249
Housing	201,355,000	172,994,195
Public Health Facilities	287,661,700	61,596,698
Industrial Sites and Parks	146,287,000	99,922,236
Community Development	91,000,426	114,457,621
Fire Protection	120,091,789	74,379,646
Storm Water	52,742,500	120,479,908
Other Facilities	48,886,300	70,055,800
Business District Development	26,550,000	87,253,192
Other Education	55,050,000	32,370,000
School-System-wide	11,302,000	48,439,000
Solid Waste	18,115,300	5,547,000
Broadband	8,295,000	9,005,000
Total	\$ 19,699,682,216	\$ 25,321,759,671



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