Building Tennessee's Tomorrow:

Anticipating the State's Infrastructure Needs

July 2017 through June 2022

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 public 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 And as outdated water lines begin to crack and fail, they must be upgraded to carry clean drinking water safely and efficiently.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 clean drinking water, and roads to access employment, education, and commerce—must be provided in the interest of general health and safety. Public infrastructure is the answer when the service support 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."[1] The "Public Infrastructure Needs Inventory" on which this report is based was derived from surveys of local officials by staff of the state's

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

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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 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.[3]

Local officials were asked to describe anticipated needs for the period of July 1, 2017, through June 30, 2037, 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, 2017. Because of legislation requiring the inventory's use by the Commission to monitor implementation of Tennessee's Growth Policy Act, in 2000, the period covered by each inventory was expanded to 20 years.[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
  - School System-wide

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[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.

    - 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 forms[5] 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 facility mandates at the schools, put them in good condition, and provide adequate technology infrastructure. The General Public

[5] Both forms are included in appendix C.

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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 from 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 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, 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 2017 through June 2022. Estimated costs for the projects may include amounts spent before July 2017 for projects started before the five-year period, or amounts after June 2022 for projects that won't be completed during the five-year period. All of 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*.[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 adding classroom space and hiring a sufficient number of teachers.[7] 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

[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." https://www.comptroller.tn.gov/content/dam/cot/orea/documents/orea-reports-2004/2004_OREA_EdImpAct.pdf.

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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 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.[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

[8] US Economic Development Administration. "CEDS Content Guidelines." https://www.eda.gov/ceds/.

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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.

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.

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 with agencies not traditionally sought after (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 improvements have been made to the inventory?

As each inventory cycle comes to a close, TACIR staff members review the collection and analysis process to identify ways to improve efficiency and accuracy. Staff members continually work to improve methods for project tracking and quality control by improving and enhancing the online inventory application. 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 members in the

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future to provide more detailed information to officials and the public. Staff members also continue to analyze the relationship between school-level enrollment and the need for improvements at individual schools, augmenting analyses using system-level enrollment. And staff members 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.

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.

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State Total

Total Estimated Cost* for Infrastructure Improvements

$49,836,976,983

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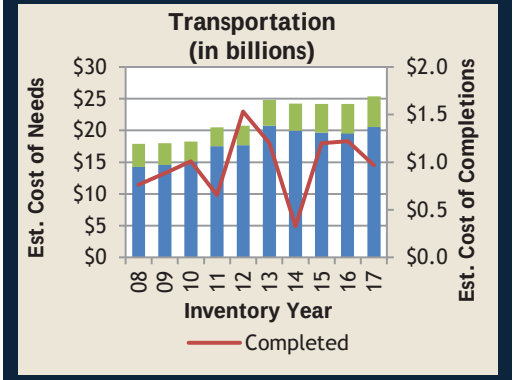
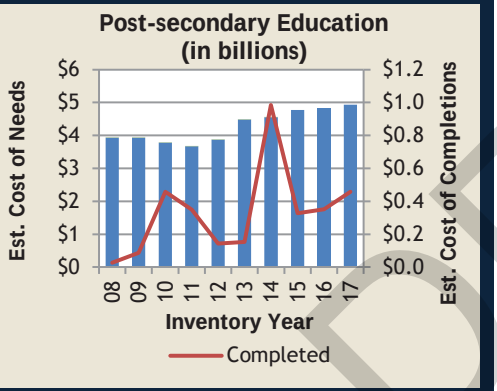
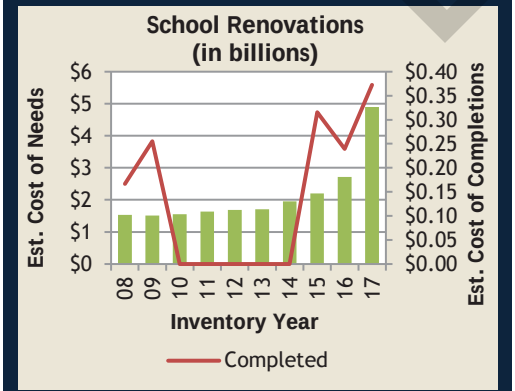


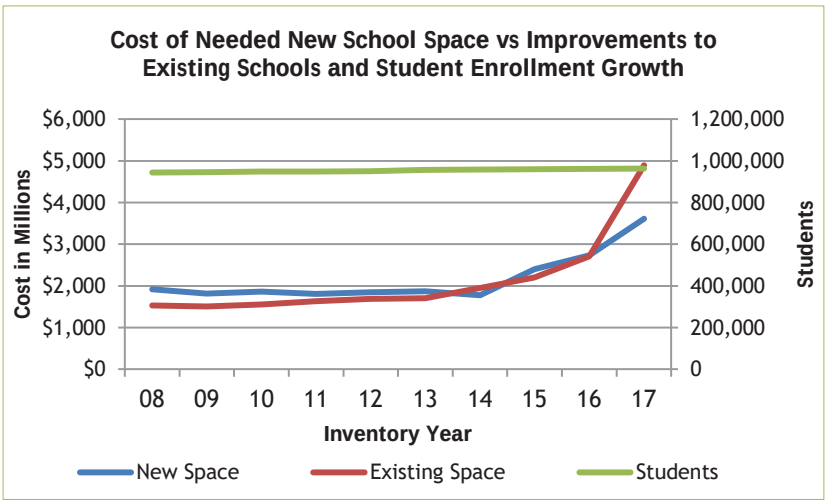




= Local
= Regional (Serves Multiple Counties)

Estimated Cost of Needed Infrastructure for State Total
Five-year period July 2017 through June 2022

Project Type	Conceptual	Planning & Design + Construction
Transportation	$ 9,690,325,537	$ 15,690,040,019
Post-secondary Education	1,626,770,000	3,308,169,501
School Renovations	4,177,415,332	719,368,840
Water and Wastewater	1,141,933,518	3,455,130,391
New Public Schools & Additions	2,474,932,272	1,139,884,626
Law Enforcement	736,720,800	779,503,131
Recreation	557,040,641	695,274,283
Public Buildings	210,091,841	371,363,837
Other Utilities	116,695,000	372,363,284
Public Health Facilities	389,810,000	76,563,203
Libraries, Museums, & Historic Sites	94,316,760	356,077,499
Housing	203,875,000	199,402,878
Industrial Sites and Parks	121,831,900	129,603,050
Fire Protection	123,679,144	78,309,937
Community Development	93,530,426	90,282,870
Storm Water	56,661,500	118,110,985
Other Facilities	67,386,300	49,536,795
Business District Development	27,350,000	87,547,866
Other Education	49,620,000	60,710,000
School-System-wide	8,952,000	40,985,717
Solid Waste	12,260,000	18,757,300
Broadband	8,600,000	10,193,000
Total	$21,989,797,971	$ 27,847,179,012



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

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