

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

July 2011 through June 2016

FUNDING THE STATE'S INFRASTRUCTURE NEEDS

Nearly two-thirds of the funding needed for infrastructure in the current inventory is not yet available.

Only 37% of the funds needed to pay for public infrastructure are currently available. The inventory does not include information about whether funding is available for the estimated \$7 billion worth of improvements at existing schools or for those drawn from the capital budget requests submitted by state agencies. Excluding the cost of that infrastructure from the \$37 billion total reported for the period covered by the inventory leaves \$30 billion in needs. Of that \$30 billion, only \$10.8 billion is fully funded. No funding is available for \$18.8 billion of that amount, but \$415 million is available for the \$4.5 billion worth of improvements that are partially funded. See tables 16 and 17.

Local officials report that \$11.2 billion is available to fund public infrastructure; of that amount \$10.8 billion is for infrastructure that is fully funded.

Table 16. Summary of Funding Availability*
Five-year Period July 2011 through June 2016

	Funding Available [in billions]	Funding Needed [in billions]	Total Needs [in billions]
Fully Funded Needs	\$ 10.8	\$ 0	\$ 10.8
Partially Funded Needs	0.4	4.0	4.5
Unfunded Needs	0	14.8	14.8
Total	\$ 11.2	\$ 18.8	\$ 30.0

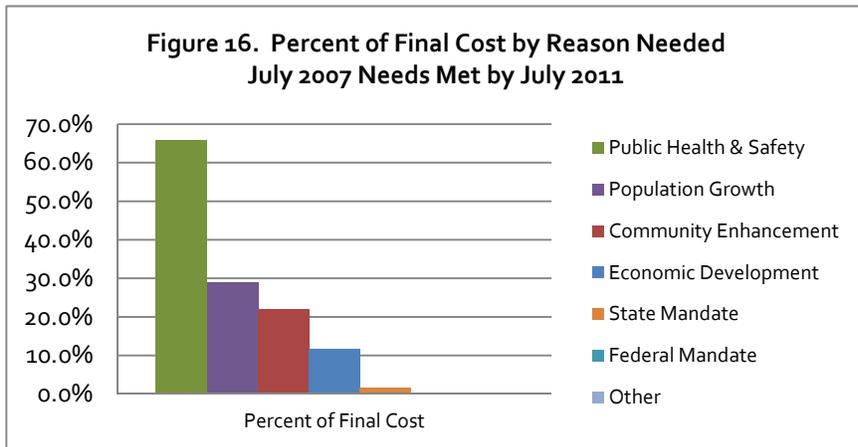
*Excludes infrastructure improvements for which funding availability is not known.

The government that owns infrastructure typically funds the bulk of its cost. For example, local officials report that 91% of the funding for county-owned projects will come from county sources. The same is true of improvements reported in the 2007 inventory that have since been completed—counties paid 88% of the cost of meeting their infrastructure needs. Likewise, cities provided 67% of the funds necessary for improvements they needed in 2007 and have completed since then and expect to provide 76% of the funds for current and future improvements. Special districts paid 83% of the cost of meeting their 2007 infrastructure needs and expect to fund 64% of their current and future costs.

**Table 17. Percent of Needs Fully Funded by Type of Need
Five-year Period July 2011 through June 2016**

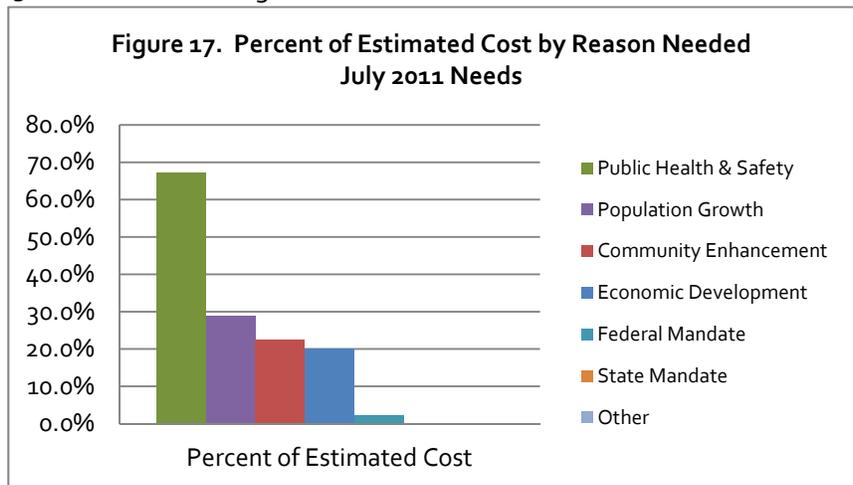
Category and Project Type	Total Needs [in millions]	Fully Funded Needs [in millions]	Percent of Total Needs Fully Funded
Transportation & Utilities	\$ 20,168.7	\$ 6,464.3	32.1%
Transportation	19,977.3	6,403.8	32.1%
Other Utilities	172.1	53.3	31.0%
Telecommunications	19.3	7.1	36.8%
Health, Safety & Welfare	\$ 5,189.9	\$ 2,375.5	45.8%
Water and Wastewater	4,110.5	1,957.0	47.6%
Law Enforcement	529.8	126.6	23.9%
Storm Water	286.0	215.0	75.2%
Fire Protection	170.4	35.6	20.9%
Solid Waste	33.5	10.8	32.1%
Public Health Facilities	44.8	15.8	35.2%
Housing	14.8	14.8	100.0%
Education	\$ 1,627.5	\$ 443.6	27.3%
New Public Schools	1,604.1	440.8	27.5%
School System-wide	17.7	2.5	14.0%
Post-secondary Education & Preschools	5.7	0.3	5.7%
Recreation & Culture	\$ 1,431.1	\$ 422.5	29.5%
Recreation	807.2	279.6	34.6%
Community Development	455.1	120.2	26.4%
Libraries, Museums, and Historic Sites	168.8	22.8	13.5%
Economic Development	\$ 1,218.5	\$ 948.4	77.8%
Business District Development	971.3	918.3	94.5%
Industrial Sites and Parks	247.2	30.1	12.2%
General Government	\$ 387.9	\$ 140.4	36.2%
Public Buildings	294.0	116.0	39.4%
Other Facilities	93.8	24.4	26.0%
Grand Total	\$ 30,023.6	\$ 10,794.7	36.0%

Infrastructure is built for many reasons, including community enhancement, population growth, public health and safety, economic development, and government mandates. Around two-thirds (67%) of improvements in this inventory are needed for public health and safety, 29% is needed for population growth, and 22% is needed for community enhancement. These figures add to more than 100% because there may be more than one reason for any particular project. These percentages are comparable to those for projects completed since 2007: public health and safety (66%), population growth (29%), and community enhancement (22%). See figures 16 and 17.



In some cases, government mandates ensure that necessary infrastructure is funded and completed. As noted in the first chapter, few projects are affected by mandates, but one type of infrastructure—public school buildings—is needed to meet Tennessee’s constitutional requirement to provide a system of free public schools to all students.¹ That mandate places a

requirement on the state to fund schools, which it does through the Basic Education Program (BEP) formula. That formula includes money for capital outlay—an amount that tops \$600 million each year, of which the state pays around \$300 million. Although the state makes a substantial contribution to funding public schools, they are owned by local governments. Nearly half (47%) of the need reported in 2007 for new school buildings has already been met (see table 18). Schools completed between 2008 and 2011 were mainly funded by counties, which own 86.5% of this new public school infrastructure. Cities are the second largest owners of new public schools at 9.8%, and special school districts are third at 3.7%. Currently, local officials report that \$1.6 billion is needed for new public school infrastructure, of which \$440.8 million is fully funded. Although the state provides considerable funding for school capital outlay, it does not earmark those funds for that specific purpose. School systems have the flexibility to use those funds to meet various school needs and generally report using them for operating costs.



The Congressional Budget Office reported in April 2013 that the federal highway trust fund is unsustainable with its current funding, and the Tennessee Department of Revenue reported in July 2013 that the state’s motor fuel tax collections were down \$3.7 million over fiscal year 2012.

Population growth is the main reason given for new public school infrastructure, accounting for 96% of fully funded projects reported in the 2011 inventory, and is the reason behind 81% of new school infrastructure costs completed between 2008 and 2011. Public health and safety is the main reason given for transportation

¹Article 11, Section 12 of the Tennessee State Constitution, recognizing the inherent value of education and encouraging its support, directs the General Assembly to provide for the maintenance, support and eligibility standards of a system of free public schools.

infrastructure, accounting for 75% of improvements in the 2011 inventory and for 76% of improvements made since 2007 (again, see table 18). Consequently, there are several dedicated funding mechanisms, including federal and state fuel tax and local wheel taxes, to help ensure that transportation infrastructure needs are met. These dedicated sources are under increased pressure, in part because rates have not been raised in several years—the federal gas tax rate has been set at 18.4 cents since 1993, and the Tennessee motor fuel tax on gasoline has been set at 21.4 cents since 1990—and in part because of increased fuel efficiency and changing driving habits. Transportation accounts for 67% (\$20 billion) of the infrastructure costs and 32.1% of the improvements that are fully funded. Transportation also accounted for 41% of the total dollars spent on infrastructure needs reported in 2007 and since completed, even though only 14.8% of the transportation improvements needed in 2007 were completed by 2011. The majority of transportation infrastructure needs completed between the 2008 and 2011 inventories were state owned (68%), and of those state-owned projects, 68.6% of the funding came from their own sources and 25.6% of the funding was from federal sources. Local governments owned the remainder of the projects. Of the 18% reported as city owned, just 14.3% of the funding came from state sources while 30% came from federal sources. A similar ratio is seen at the county level.

**Table 18. Percent of July 2007 Needs Completed by Type of Need
Completed between July 2007 and July 2011**

Category and Type of Infrastructure	July 2007 Inventory	Total Completions	Completion Rate	Percent of Total
Transportation & Utilities	\$17,592,831,367	\$2,957,602,311	16.8%	48.6%
Transportation	16,998,484,901	2,523,130,708	14.8%	41.5%
Other Utilities	579,337,566	426,512,703	73.6%	7.0%
Telecommunications	15,008,900	7,958,900	53.0%	0.1%
Education	\$1,943,468,489	\$886,209,468	45.6%	14.6%
New Public Schools	1,873,370,189	880,629,168	47.0%	14.5%
Post-secondary Education & Preschools	40,668,300	5,580,300	13.7%	0.1%
School System-wide	29,430,000	0	0.0%	0.0%
Health, Safety and Welfare	\$5,456,628,317	\$1,631,987,886	29.9%	26.8%
Water and Wastewater	3,939,756,978	1,108,626,880	28.1%	18.2%
Law Enforcement	771,416,847	337,152,300	43.7%	5.5%
Storm Water	362,544,347	60,959,577	16.8%	1.0%
Fire Protection	210,027,645	49,228,549	23.4%	0.8%
Housing	65,388,740	41,199,740	63.0%	0.7%
Public Health Facilities	57,253,836	17,964,916	31.4%	0.3%
Solid Waste	50,239,924	16,855,924	33.6%	0.3%
Recreation and Culture	\$1,470,144,954	\$319,599,316	21.7%	5.3%
Recreation	892,091,929	238,163,230	26.7%	3.9%
Community Development	420,308,235	25,349,580	6.0%	0.4%
Libraries, Museums, and Historic Sites	157,744,790	56,086,506	35.6%	0.9%
Economic Development	\$544,667,051	\$101,805,931	18.7%	1.7%
Business District Development	341,186,111	60,977,991	17.9%	1.0%
Industrial Sites and Parks	203,480,940	40,827,940	20.1%	0.7%
General Government	\$522,118,350	\$188,958,512	36.2%	3.1%
Public Buildings	461,573,990	150,946,152	32.7%	2.5%
Other Facilities	60,544,360	38,012,360	62.8%	0.6%
Grand Total	\$27,529,858,528	\$6,086,163,424	22.1%	100.0%

Water and wastewater infrastructure is needed to ensure clean drinking water and protect water supply sources. Consequently, public health and safety issues are the main reason given for 87% of the estimated cost of improvements reported in the 2011 inventory, as well as 88% of improvements completed between 2008 and 2011. The utilities that provide these services are required to be self-sustaining, funded mainly by user fees rather than through taxes, so that the amount each customer pays is in proportion to the amount that customer uses. Water and wastewater projects made up 18.2% (\$1.1 billion) of the total dollars needed for all 2007 projects completed since then and had a completion rate of 28.1%. Half of the water and wastewater infrastructure improvements completed since 2007 belong to cities, which paid for 72% of the cost of their improvements, and 17% of the improvements are owned by counties, which paid 90% of their costs. The remaining 32% is owned by utility districts, which paid 80% of the cost of their infrastructure improvements. Although they don't own any of this infrastructure, the state and federal governments contributed 19% of the funding necessary to complete it.

Storm water infrastructure is also necessary to protect our drinking water, as well as to control flooding, and the reason given most often for needing it is public health and safety (97%). Although the need for it grows as the amount of land covered by impervious surfaces (e.g., buildings, roads and streets, and parking lots) increases, population growth is rarely mentioned as a reason for needing it (0.2% of all

storm water improvements in the current inventory and 3.9% of the 2007 improvements that have been completed). Counties provide some storm water infrastructure, but all of the fully funded improvements in the current inventory are owned by cities, and 94% of the cost is paid by cities. A total of \$286 million is needed for storm water infrastructure in the current inventory, of which \$215 million is available. Only 17% (\$61 million) of the storm water improvements needed in 2007 have been completed. Storm water infrastructure is primarily funded with general tax revenue and, to a lesser extent, with user fees.

Population growth is given as a reason for most (63%) other utility infrastructure—infrastructure owned by public gas and electric utilities—in the current inventory, but for only 3% of the improvements completed since 2007. Similarly, community enhancement and economic development were each given as reasons for 44% of the improvements in the current inventory, but only tiny percentages (0.5% and 1.5%) of improvements completed since 2007. Public health is given as a reason for around half (51%) of the improvements in the current inventory and nearly all (96%) of the improvements completed since 2007. Of the \$579 million worth of other utility infrastructure needs reported in 2007, 74% has been completed. A single project in Nashville, owned by the metropolitan government, accounts for around two-thirds of the 2007 total, and 95% of the cost of improvements completed since then. All of the county costs, including those, were paid for by the counties themselves, mainly from user fees. Cities own just 5% of other utility infrastructure and paid 97% of their cost.

Public health and safety is the main reason given for all fire protection infrastructure, but population growth is also given as a reason for 27% of it. Although community enhancement is given as a reason for only 4.6% of the fire protection improvements in the current inventory, it is given as a reason for nearly 20% of improvements completed since 2007. Local officials report that \$170.4 million is needed for the fire protection infrastructure in the current inventory and that around one-fifth of that cost (\$35.6 million) is funded. Only 23% (\$49 million) of the fire protection infrastructure needed in 2007 has been completed. Over half (58%) of fire protection infrastructure improvements completed since 2007 belong to cities, which paid 89% of the cost of their improvements, and 42% of the improvements are owned by counties, which paid 96% of their costs.

As with fire protection, public health and safety is the main reason given for all law enforcement infrastructure. Population growth is also given as a reason for 32% of law enforcement infrastructure. Community enhancement is given as a reason for about a quarter of the law enforcement improvements in the current inventory and about 14% of improvements completed since 2007. Local officials report that \$530 million is needed for the law enforcement infrastructure in the current inventory and that \$127 million of this cost is funded. Approximately 44% (\$337 million) of the law enforcement infrastructure needed in 2007 has been completed. Counties own 86% of the law enforcement infrastructure improvements made since 2007 and paid nearly all the cost of that infrastructure; 14% is owned by cities, which paid 100% of their costs. Like fire protection infrastructure, law enforcement infrastructure is funded with general tax revenue.

Public buildings, including mainly county courthouses, county offices, city halls, and public works offices, serve a variety of purposes and are needed for many reasons. The public building improvements in the current inventory are needed largely for community enhancement (52%) and public health and safety (45%) but also for population growth (37%). A very small percentage (7%) is needed for economic development. Improvements that have been completed since 2007 were needed mainly for public health and safety (49%), but also for community enhancement (32%) and economic development (30%), and to a lesser extent for population growth (21%). About \$294 million is needed for public building infrastructure in the current inventory, and \$116 million of this cost is funded, mostly

with general tax revenue. One-third (\$151 million) of the public building improvements needed in 2007 have been completed. Approximately 70% of those belong to counties, which paid nearly their entire cost, and 28% of them are owned by cities, which paid 86% of their cost.

Community enhancement is the reason given most often (95%) for business district development infrastructure in the current inventory, but only for 36% of the improvements completed since 2007. Not surprisingly, economic development is often the reason for needing this type of infrastructure (82% in the current inventory and 65% for those improvements completed since 2007). While population growth is listed as a reason for only 1% of the business district improvements in the current inventory, it is listed as a reason for over half (56%) of those completed since 2007. Of the \$971 million needed for business district infrastructure in the current inventory, \$918 million (95%) is funded and nearly all of it belongs to counties. Most of this is for the new convention center and the adjacent art district redevelopment area in Nashville, which together cost an estimated \$854 million, and are included as county infrastructure because they are owned by a metropolitan government. Almost 18% (\$61 million) of the business district infrastructure needed in 2007 has been completed. Nearly all (96%) of the \$61 million worth of business district infrastructure improvements completed since 2007 belong to counties, which paid 63% of the cost of their improvements. More than half of this belongs to Metropolitan Nashville and Davidson County. Most of the remainder of county costs (33%) was funded by the federal government.

Economic development is the main reason for nearly all industrial site and park infrastructure (97% of improvements in the current inventory and 98% of those completed). Community enhancement and population growth are reasons given for 16% and 14% of industrial sites and parks in the current inventory. Community enhancement was given as a reason for only 7% of industrial site and park improvements completed since 2007; population growth was not given as a reason for any of this new infrastructure. These projects can be complex with multiple components, such as roads, rail spurs, ports, and utilities that are classified as other types of infrastructure (e.g., transportation, water and wastewater) and have different funding sources. Rail spurs and ports are typically funded with state or federal grants; utilities are typically funded with user fees. Only 12% (\$30 million) of the \$248 million needed for industrial site and park infrastructure in the current inventory is fully funded. Slightly over 20% (\$41 million) of the industrial site and park improvements needed in 2007 have been completed. Approximately 64% of industrial site and park improvements completed since 2007 belong to counties, which paid 54% of the cost of their improvements. Federal and state sources, such as the state departments of transportation and of economic and community development, paid 42% of the cost of counties' improvements. About 25% of the improvements are owned by cities, which paid 54% of their costs. The state paid about a quarter of the costs of these, and special districts paid 15% of their cost, mainly for water or wastewater infrastructure.

Table 19. Reason Given for Needing Infrastructure Improvements in the Current Inventory
Five-year Period July 2011 through June 2016

Category and Type of Infrastructure	July 2011 Estimated Cost	Reason for Infrastructure Need					
		Public Health & Safety	Population Growth	Community Enhancement	Economic Development	Federal & State Mandates	Other Reasons
Transportation & Utilities	\$ 20,168,721,127	75.2%	26.0%	14.1%	21.3%	0.2%	0.0%
Transportation	19,977,290,418	75.4%	25.7%	13.9%	21.1%	0.2%	0.0%
Other Utilities	172,130,709	51.4%	62.9%	44.2%	43.5%	0.0%	0.0%
Telecommunications	19,300,000	74.1%	2.1%	2.1%	29.5%	0.0%	0.0%
Education	\$ 1,627,521,073	4.6%	94.8%	6.0%	1.9%	2.0%	0.0%
Post-secondary Education & Preschools	5,701,750	5.3%	27.9%	14.1%	61.0%	0.0%	0.0%
New Public Schools	1,604,136,323	4.3%	96.0%	5.2%	1.7%	2.0%	0.0%
School System-wide	17,683,000	35.4%	5.3%	73.9%	0.0%	0.0%	0.0%
Health, Safety and Welfare	\$ 5,189,865,435	88.8%	31.4%	23.6%	8.4%	11.6%	0.6%
Water and Wastewater	4,110,530,025	86.5%	34.4%	24.9%	9.7%	14.5%	0.7%
Law Enforcement	529,822,655	100.0%	28.9%	24.5%	0.1%	0.0%	0.0%
Public Health Facilities	44,829,800	100.0%	1.9%	7.0%	2.2%	0.6%	0.0%
Storm Water	285,963,178	97.1%	0.2%	12.9%	7.0%	0.0%	0.0%
Fire Protection	170,401,678	100.0%	27.0%	4.6%	0.9%	0.0%	0.0%
Solid Waste	33,518,099	81.6%	41.1%	25.2%	5.9%	11.9%	0.0%
Housing	14,800,000	0.0%	0.0%	100.0%	94.6%	0.0%	0.0%
Recreation and Culture	\$ 1,431,064,719	13.5%	7.1%	95.3%	16.7%	2.7%	0.0%
Recreation	807,196,069	18.7%	6.5%	96.7%	6.3%	4.6%	0.0%
Community Development	455,078,856	8.7%	6.4%	93.0%	35.9%	0.2%	0.0%
Libraries, Museums, and Historic Sites	168,789,794	1.7%	11.6%	94.7%	14.7%	0.1%	0.0%
Economic Development	\$ 1,218,490,633	0.4%	3.4%	79.5%	85.8%	0.0%	0.0%
Business District Development	971,260,620	0.0%	0.9%	95.6%	82.3%	0.0%	0.0%
Industrial Sites and Parks	247,230,013	1.9%	13.5%	16.3%	99.6%	0.0%	0.0%
General Government	\$ 387,888,785	40.5%	29.5%	58.4%	5.4%	2.9%	0.0%
Public Buildings	294,042,785	45.0%	37.4%	52.4%	7.2%	3.9%	0.0%
Other Facilities	93,846,000	26.6%	5.0%	77.0%	0.0%	0.0%	0.1%
Grand Total	\$ 30,023,551,772	67.3%	28.9%	22.4%	20.2%	2.4%	0.1%

**Table 20. Reason Given for Needing Infrastructure Improvements Completed Since 2007
Infrastructure Needs Reported July 1, 2007 and Completed by July 1, 2011**

Category and Type of Infrastructure	July 2007 Completions 2008-11	Reason for Infrastructure Need					
		Public Health & Safety	Population Growth	Community Enhancement	Economic Development	Federal & State Mandates	Other Reasons
Transportation & Utilities	\$ 2,957,602,311	78.9%	15.5%	17.0%	15.9%	0.1%	0.0%
Transportation	2,523,130,708	75.9%	17.7%	19.8%	18.3%	0.1%	0.0%
Other Utilities	426,512,703	96.3%	3.3%	0.4%	1.5%	0.0%	0.0%
Telecommunications	7,958,900	88.7%	0.0%	0.0%	11.3%	0.0%	0.0%
Education	\$ 886,209,468	10.0%	81.1%	28.2%	2.3%	5.9%	0.8%
Post-secondary Education & Preschools	5,580,300	5.0%	52.0%	69.9%	52.0%	0.0%	0.0%
New Public Schools	880,629,168	10.0%	81.3%	27.9%	2.0%	5.9%	0.9%
School System-wide	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Health, Safety and Welfare	\$ 1,631,987,886	88.9%	27.5%	13.9%	4.5%	3.4%	0.2%
Water and Wastewater	1,108,626,880	87.7%	28.6%	10.9%	6.1%	2.6%	0.1%
Law Enforcement	337,152,300	100.0%	32.1%	14.2%	0.0%	7.1%	0.0%
Public Health Facilities	17,964,916	100.0%	1.9%	0.0%	0.0%	0.0%	0.0%
Storm Water	60,959,577	96.9%	3.9%	6.4%	3.1%	0.4%	3.1%
Fire Protection	49,228,549	100.0%	26.6%	19.6%	0.2%	4.3%	0.0%
Solid Waste	16,855,924	63.3%	15.2%	25.5%	3.7%	0.0%	0.0%
Housing	41,199,740	10.9%	12.6%	98.8%	9.7%	0.0%	0.0%
Recreation and Culture	\$ 319,599,316	15.6%	11.4%	91.1%	6.4%	0.7%	0.0%
Recreation	238,163,230	19.4%	11.0%	91.7%	2.2%	0.9%	0.0%
Community Development	25,349,580	15.2%	0.8%	90.7%	48.5%	0.0%	0.0%
Libraries, Museums, and Historic Sites	56,086,506	0.0%	18.0%	88.9%	4.8%	0.0%	0.0%
Economic Development	\$ 101,805,931	2.9%	33.5%	24.3%	78.2%	0.0%	0.0%
Business District Development	60,977,991	0.0%	55.9%	35.7%	64.9%	0.0%	0.0%
Industrial Sites and Parks	40,827,940	7.3%	0.0%	7.2%	98.0%	0.0%	0.0%
General Government	\$ 188,958,512	41.1%	35.5%	26.4%	23.9%	5.3%	0.0%
Public Buildings	150,946,152	49.4%	21.4%	31.9%	30.0%	6.6%	0.0%
Other Facilities	38,012,360	8.1%	91.5%	4.7%	0.0%	0.0%	0.0%
Grand Total	\$ 6,086,163,424	65.8%	29.0%	22.1%	11.6%	2.0%	0.2%

Community enhancement is the reason given for nearly all (97%) new recreation infrastructure in the current inventory and for most (92%) improvements completed since 2007. About \$280 million (35%) of the \$807 million worth of recreation infrastructure is fully funded, mainly by general tax revenue. About 27% (\$238 million) of the recreation improvements needed in 2007 have been completed. When looking at the 2007 completions, 57% were owned by cities and 37% were county owned. The bulk of the cost of recreation infrastructure is paid for by the government that owns it. Cities paid 66% of their costs and counties paid 77% of theirs. The rest of the funding came from state and federal agencies, with federal agencies paying 21% of the cost of city-owned improvements and 14% of the cost of county-owned improvements. The state paid the other 10% for cities and 7% for counties.

The current inventory includes only three housing projects, all of which are under construction and fully funded. Community enhancement is given as a reason for all three of these projects, and economic development is given for the one in Memphis, which accounts for close to 95% of the total cost of all housing in the current inventory. Community enhancement was the main reason for nearly all (99%) of the housing project improvements made since 2007. Population growth, public health and safety, and economic development were reasons for 13%, 11%, and 10% of those improvements. Of the \$63 million housing improvement needs reported in 2007, 63% has been completed. Cities own 62% of this housing and paid 47% of their cost; federal and private grants shared the rest of the cost about equally. Counties paid nearly all (99%) of the cost of their housing improvements, which accounted for the remaining 38% of this public infrastructure.