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America's Trillion-Dollar Repair Bill: Capital Budgeting & the Disclosure of State Infrastructure Needs

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Outline

- Background of the research
- Literature review and methods
- Findings about state capital budgeting practices
 - State capital budgeting processes
 - State capital budgeting documentation
 - State capital needs disclosure
- Call to action:
 - Ten steps toward better disclosure
- Conclusion



Key questions about infrastructure investment

- Revenues: infrastructure funding & financing
 - Funding: general revenues, special revenues
 - Financing: debt; public-private partnerships
- Expenditures: capital budgeting and infrastructure outlays
 - Capital budgeting system
 - The structure of capital outlays
 - Allocation of infrastructure spending
- Outcome: the impact of infrastructure investment
 - Economic impact
 - Equity impacts
 - Democratic values





America's Trillion-Dollar Repair Bill:

CAPITAL BUDGETING AND THE DISCLOSURE OF
STATE INFRASTRUCTURE NEEDS

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November 2019
WORKING PAPER

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WORKING PAPERS

America's Trillion Dollar Repair Bill

Capital Budgeting and the Disclosure of State Infrastructure Needs

Wednesday, November 20, 2019

Jerry Zhirong Zhao, Camila Fonseca-Sarmiento, and Jie Tan

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Literature on state capital budgeting

- Capital budgeting system
 - “Central state capital budgeting” (Hillhouse & Howard 1963)
 - A 50-states survey of capital budgeting (Lawrence & Peroff 1988)
 - Economic decline and capital budgeting (Ermasova 2013)
- Processes and documentation
 - Good practices of capital budget processes (NASBO series)
 - Capital budgeting documents (GFOA 2016, 2018)
- State infrastructure needs
 - A Report on America’s Public Works (NCPWI 1988)
 - Infrastructure Report Card (ASCE 2017)
 - The quality of management (Barrett & Greene 2008)



TABLE 3: The Cost of US Infrastructure Improvement

YEAR	US GRADE	TOTAL INVESTMENT NEEDS	TOTAL FUNDING GAP	ANNUAL INVESTMENT NEEDS	ANNUAL FUNDING GAP
1988	C	N/A	N/A	N/A	N/A
1998	D	N/A	N/A	N/A	N/A
2001	D+	\$1.74 trillion	N/A	\$0.35 trillion	N/A
2005	D	\$1.94 trillion	N/A	\$0.39 trillion	N/A
2009	D	\$2.32 trillion	\$1.33 trillion	\$0.46 trillion	\$0.27 trillion
2013	D+	\$3.91 trillion	\$1.74 trillion	\$0.49 trillion	\$0.22 trillion
2017	D+	\$4.6 trillion	\$2.1 trillion	\$0.46 trillion	\$0.21 trillion

SOURCE National Council on Public Works Improvement (1998), American Society of Civil Engineers infrastructure report cards (1998–2017).

NOTES N/A: Not available. Values adjusted by authors to constant 2015 dollars.

TABLE 4: ASCE Infrastructure Grading Scale

GRADE	DEFINITION
A	EXCEPTIONAL, FIT FOR THE FUTURE: The infrastructure is generally in excellent condition, typically new or recently rehabilitated, and meets capacity needs for the future. A few elements have signs of deterioration that require attention. Facilities meet modern standards for functionality and are resilient to withstand most disasters and severe weather events.
B	GOOD, ADEQUATE FOR NOW: The infrastructure is in good to excellent condition, some elements show signs of general deterioration that require attention. A few elements exhibit significant deficiencies. Safe and reliable, with minimal capacity issues and minimal risk.
C	MEDIOCRE, REQUIRES ATTENTION: The infrastructure is in fair to good condition, it shows general signs of deterioration and requires attention. Some elements exhibit significant deficiencies in conditions and functionality, with increasing vulnerability to risk.
D	POOR, AT RISK: The infrastructure is in poor to fair condition and mostly below standard, with many elements approaching the end of their service life. A large portion of it exhibits significant deterioration. Condition and capacity are of serious concern with strong risk to failure.
F	FAILING/CRITICAL, UNFIT FOR PURPOSE: The infrastructure is in unacceptable condition with widespread advanced signs of deterioration. Many of the components exhibit signs of imminent failure.

SOURCE American Society of Civil Engineers, 2017 *Infrastructure Report Card*.

A document analysis of state capital budgeting

- Capital budgeting processes
 - Budget instructions
 - Governmental websites
- Capital budgeting documentation
 - Adopted bills containing capital improvement projects
 - Capital Improvement Plans (CIPs)
- Disclosure of infrastructure needs
 - Infrastructure needs reports
 - Deferred maintenance
- Best-practices recommendations
 - Processes, documentation, and disclosure



Findings: State capital budgeting processes

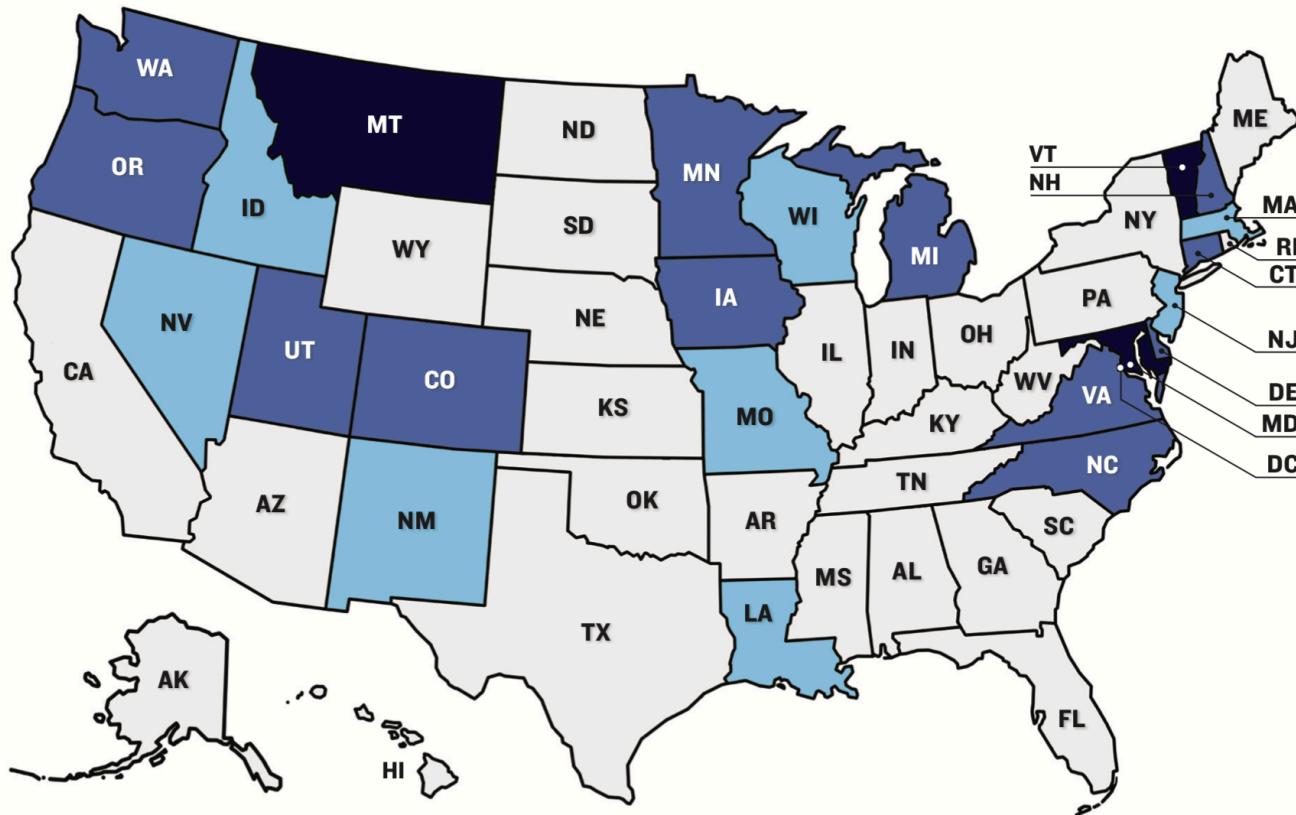
- The level of separation in the budget cycle
 - Most states treat the two budgets simultaneously
 - Only MN and OH have totally separate CB processes
- Office or division for capital budget preparation
 - Different levels of separation in about 20 states
 - Dedicated committee for CB preparation in 11 states
 - Dedicated committee for CB adoption in 15 states



Findings: State capital budgeting processes

FIGURE I: Capital Budgeting Processes

Capital Budget Separation ■ Preparation and Consideration ■ Preparation ■ Consideration ■ Neither



SOURCE Authors' research.

Findings: State capital budgeting processes

TABLE 5: Office or Division for Capital Budget Preparation

STATE	OFFICE OR DIVISION FOR CAPITAL BUDGET PREPARATION
Idaho	Permanent Building Fund Advisory Council, Division of Financial Management, and Legislative Services Office
Louisiana	Facility Planning and Control in the Division of Administration
Maryland	Office of Capital Budgeting in the Department of Budget and Management
Massachusetts	Division of Capital Asset Management and Maintenance in the Executive Office for Administration and Finance
Missouri	Division of Facilities Management, Design, and Construction in the Office of Administration
Montana	Architecture & Engineering Division of the Department of Administration
Nevada	State Public Works Division in the Department of Administration
New Jersey	New Jersey Commission on Capital Budgeting and Planning in the Office of Management and Budget
New Mexico	Capital Outlay Bureau in the Department of Finance and Administration
Vermont	Department of General Services
Wisconsin	Secretary of the State Building Commission

SOURCE Authors' research.



TABLE 6: Committees for Legislative Consideration of Capital Budget

STATE	COMMITTEE FOR LEGISLATIVE CONSIDERATION OF CAPITAL BUDGET
Colorado	Capital Development Committee (joint committee); forwards recommendations to Joint Budget Committee
Connecticut	Finance, Revenue, and Bonding Committee (joint committee)
Delaware	Joint Committee on Capital Improvement (Bond Committee)
Iowa	Senate Appropriation Committee, Transportation, Infrastructure, and Capital Appropriations Subcommittee House Appropriation Committee, Transportation, Infrastructure, and Capital Appropriations Subcommittee
Maryland	Senate Budget and Taxation Committee, Capital Budget Subcommittee House Appropriation Committee, Capital Budget Subcommittee
Michigan	Senate Appropriation Committee, Capital Outlay Subcommittee House Appropriation Committee, Capital Outlay Subcommittee
Minnesota	Senate Capital Investment Committee House Capital Investment Committee
Montana	Senate Finance and Claims, Long-Range Planning Subcommittee ¹ House Appropriation Committee, Long-Range Planning Subcommittee ¹
New Hampshire	Senate Capital Budget Standing Committee House Public Works and Highways Standing Committee
North Carolina	House Appropriation Committee on Capital ²
Oregon	Joint Committee on Ways and Means, Subcommittee on Capital Construction
Utah	Senate Appropriations Committee, Infrastructure and General Appropriations Subcommittee House Appropriations Committee, Infrastructure and General Appropriations Subcommittee
Vermont	Senate Committee on Institutions House Committee on Corrections and Institutions
Virginia	Senate Finance Committee, Capital Outlay and General Government Subcommittee House Appropriation Committee, General Government and Capital Outlay Subcommittee
Washington	House Capital Budget Committee ³ Senate Ways and Means Committee ³

SOURCE Authors' research.

1) Joint subcommittee. 2) The Senate Appropriations/Base Budget Committee. 3) The Senate Ways and Means Committee consider both operating and capital budget bills.



Findings: State capital budgeting documentation

- Capital budget document
 - As an individual document in 30 states
 - As an individual (sub)section in 13 states
 - As individual line items in 7 states
- Capital Improvement Plans
 - Available in 36 states + DC
 - About half of them use centralized CIP
 - Others with only individual agency plans
 - Some more details about CIP coverage



TABLE 7: Capital Budget Document

CAPITAL BUDGET DOCUMENT	STATES
Individual capital budget	Alaska ¹ , Arkansas ¹ , Colorado ¹ , Delaware ¹ , District of Columbia ¹ , Illinois ¹ , Iowa ¹ , Kansas ¹ , Kentucky ¹ , Louisiana, Maryland, Massachusetts ¹ , Minnesota ¹ , Missouri, Montana, Nebraska, Nevada, New Hampshire ¹ , New Mexico ¹ , New York ¹ , Ohio, Oklahoma, Oregon, Pennsylvania ¹ , Rhode Island ¹ , South Carolina, Tennessee, Vermont, Washington, Wisconsin, Wyoming
Capital budget in the operating budget with some separation	<p>Separate section: Arizona, Connecticut¹, Idaho, Indiana, Michigan, Mississippi, North Carolina, North Dakota, Virginia</p> <p>Separate section under agency request: Hawaii, New Jersey, Texas, Utah</p>
Capital budget as an operating budget line item	Alabama, California, Florida, Georgia, Maine, South Dakota, West Virginia

SOURCE Authors' research.

TABLE 8: Where Centralized Capital Improvement Plans Are Used

STATE	CENTRALIZED CAPITAL IMPROVEMENT PLAN	NO CAPITAL IMPROVEMENT PLAN CONSOLIDATING INDIVIDUAL AGENCY PLANS	NEITHER
Alabama			✓
Alaska			✓
Arizona	✓		
Arkansas			✓
California	✓		
Colorado		✓	
Connecticut	✓		
Delaware		✓	
District of Columbia	✓		
Florida		✓	
Georgia			✓
Hawaii			✓
Idaho		✓	
Illinois			✓
Indiana			✓
Iowa	✓		
Kansas		✓	
Kentucky	✓		
Louisiana		✓	
Maine			✓
Maryland	✓		
Massachusetts			✓
Michigan		✓	
Minnesota		✓	
Mississippi		✓	
Missouri		✓	
Montana			✓
Nebraska	✓		
Nevada		✓	



TABLE 9: Centralized Capital Improvement Plan Details

STATE	PERIOD	CONNECTION WITH CAPITAL BUDGET	COVERAGE	PRIORITIZATION SCHEMES	DISPLAYS FUNDS	DISPLAYS FINANCING SOURCES	FUNDING GAP
Arizona	2 years		Buildings only	✓	✓		✓
California ¹	5 years		Comprehensive		✓	✓	
Connecticut	5 years		Buildings only				
District of Columbia ¹	6 years	✓	Comprehensive		✓	✓	
Iowa	5 years		Limited				
Kentucky ¹	6 years		Limited		✓	✓	
Maryland	5 years	✓	Comprehensive		✓	✓	
Nebraska	6 years		Buildings only	✓	✓		
New Jersey	7 years	✓	Comprehensive		✓		✓
New Mexico	5 years		Limited				
New York ¹	5 years	✓	Comprehensive		✓	✓	
Oklahoma	8 years	✓	Limited	✓	✓	✓	
Rhode Island	5 years	✓	Comprehensive		✓	✓	
South Carolina	5 years		Limited		✓	✓	
South Dakota	5 years		Limited		✓		
Texas	5 years		Comprehensive		✓	✓	
Utah	5 years		Buildings only	✓	✓		
Vermont	10 years	✓	Limited		✓		✓
Virginia	6 years		Limited		✓	✓	✓

SOURCE Authors' research.

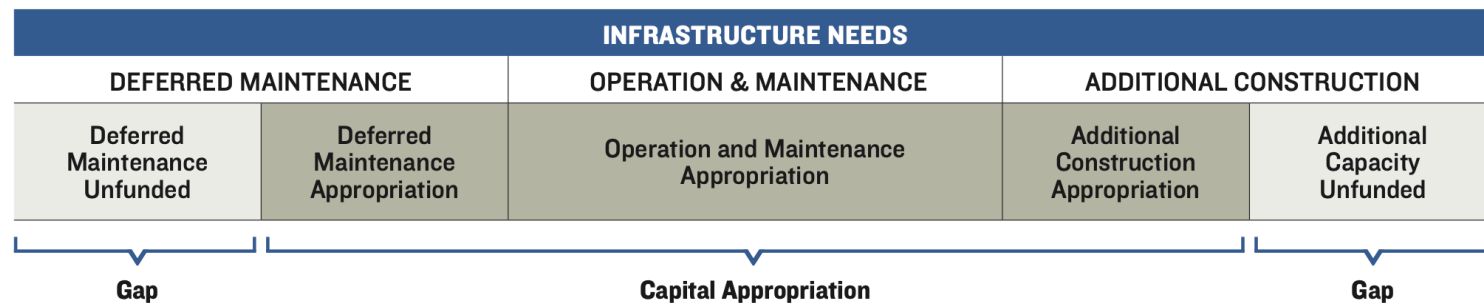
¹) Financing sources include bond history.



Findings: State infrastructure needs disclosure

- To distinguish the key concepts

FIGURE 2: Components of Infrastructure Needs



SOURCE Authors' research.

- Reports on infrastructure needs
 - Only in six states and DC
- The disclosure on deferred maintenance
 - Inconsistent, incomprehensive, and unsystematic



Findings: State infrastructure needs disclosure

TABLE 10: Reports on Infrastructure Needs

STATE	ISSUED BY	PERIOD	COVERAGE	ANNUAL AVERAGE TOTAL NEEDS (BILLIONS)	ANNUAL AVERAGE TOTAL GAP (BILLIONS)
Tennessee	State	5-year (2016–21)	6 sectors	\$9.0	\$6.0
District of Columbia	DC government	6-year (2018–23)	5 sectors	\$1.1	\$0.8
New Jersey	State	20-year (2000–20)	3 sectors	\$4.9	N/A
Michigan	State	20-year (2016–36)	4 sectors	N/A	\$3.0
Hawaii	University	5-year (2010–15)	5 sectors	\$2.9	N/A
Kentucky	NGO	20-year (2017–37)	12 sectors	N/A	N/A
Washington	NGO	20-year (2017–37)	11 sectors	\$9.5	N/A

SOURCE Authors' research.

NOTES N/A: Not available. NGO: Nongovernmental organization. Figures in 2018 dollars.



TABLE 12: Deferred Maintenance as a Percentage of Annual Expenditures

STATE	PERIOD	TOTAL MAINTENANCE GAP ¹	TOTAL MAINTENANCE APPROPRIATION ¹
Alaska ²	2018	18.24%	0.19%
Arizona	2017	0.31%	0.34%
Arkansas	2017-19	N/A	0.20%
California	2016-17	43.87%	0.46%
Delaware	2018	N/A	0.21%
District of Columbia	2017	3.62%	N/A
Hawaii	2018-19	N/A	9.95%
Illinois	2019	8.22%	0.53%
Indiana	2018-19	N/A	2.31%
Iowa	2019	N/A	0.04%
Kentucky	2019	N/A	0.04%
Louisiana ³	2018	N/A	0.10%
Maryland ³	2019	2.33%	N/A
Massachusetts	2018	N/A	0.09%
Minnesota	2018	2.11%	N/A
Montana	2018-19	N/A	0.15%
Nebraska	2017-18	N/A	0.28%
Nevada	2018	N/A	0.02%
New Jersey ³	2018	0.34%	0.13%
North Dakota ³	2018-19	0.25%	N/A
Oregon	2017	N/A	0.05%
Pennsylvania ³	2018	N/A	0.38%
South Carolina	2018	N/A	0.00%
Texas	2018-19	N/A	0.21%

SOURCE Authors' research.

1) Deferred maintenance gaps and appropriations as percentages of combined operating budget and capital budgets.

2) Excluding transportation assets.

3) Includes only universities and colleges.

NOTE N/A: Not available.

CA's deferred maintenance is about 44% of its annual budget.

Assuming the share is similar across all states, the total state maintenance gap is about \$870 billion.

Combining with a federal maintenance gap of \$170 billion, the total is well above \$1 trillion.



Call to action: Steps toward better disclosure

TABLE 13: Implementing Best Practices

CAPITAL BUDGETING	PROCEDURE	FEASIBILITY	PRIORITY
Capital Budgeting Processes	Display the processes for the capital budget	High	High
	Designate an agency in charge of preparing the capital budget	Medium	Medium
	Designate a committee in the legislature to oversee the capital budget	High	Medium
Capital Budgeting Documentation	Separate the capital budget from the operating budget	High	Medium
	Describe asset coverage and display capital budget–related documents in one place online	High	High
	Standardize the capital improvement plan	Low	Medium
	Connect the capital budget and the capital improvement plan	Medium	Medium
Disclosing Infrastructure Needs	Develop a statewide asset inventory	Low	High
	Develop a statewide report on infrastructure needs	Low	Medium
	Create an agency or commission to address infrastructure needs	Low	Medium

SOURCE Authors' research.



Conclusion

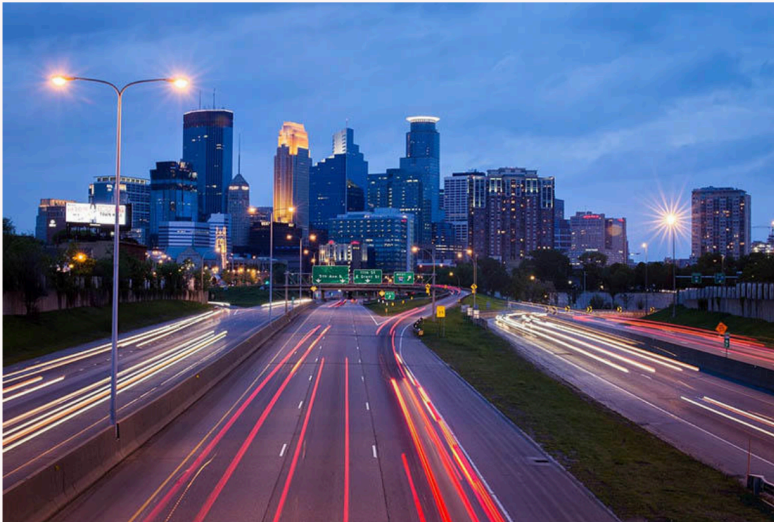
- Capital budgeting system matters
- Findings about current practices:
 - State capital budgeting processes
 - State capital budgeting documentation
 - State capital needs disclosure
- Recommendations
 - More separation in processes and offices
 - Standardizing capital budget documentation
 - Improving disclosure on infrastructure needs and gaps



For future discussion and comments

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