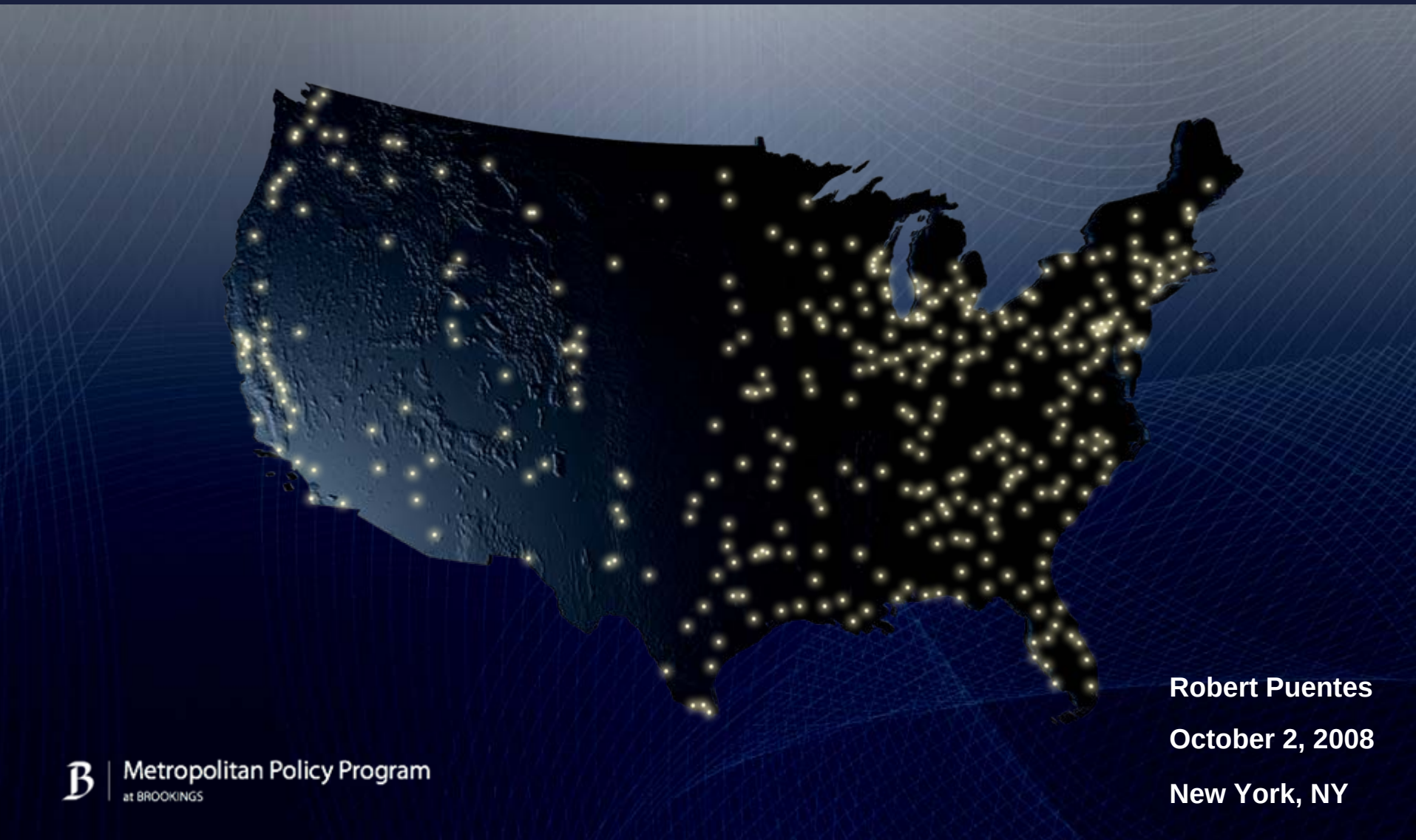
Assessing America's Infrastructure Challenges

Blueprint for American Prosperity
Unleashing the Potential of a Metropolitan Nation



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New York, NY

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at BROOKINGS

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1 Dynamic Forces pose stark challenges for the U.S.

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2 ‘Pressing’ Infrastructure Questions

3 Infrastructure Profiles

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4 Current Political Environment

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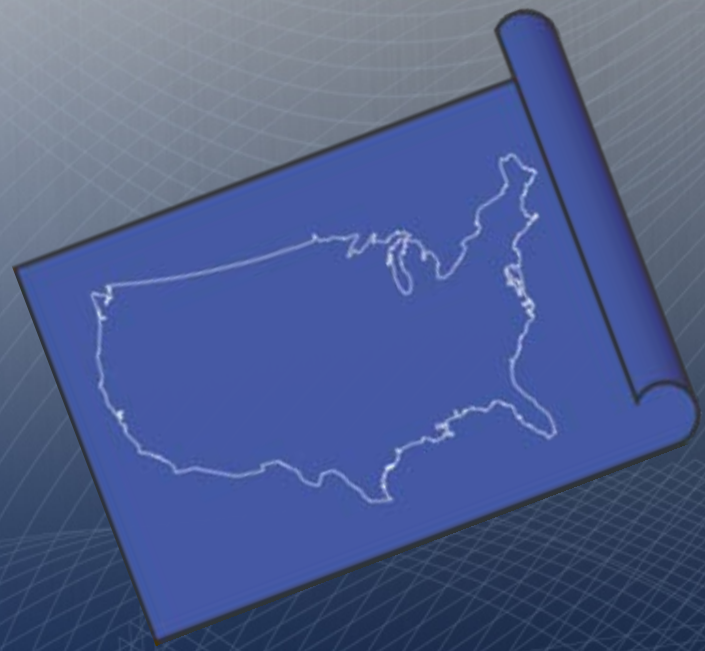
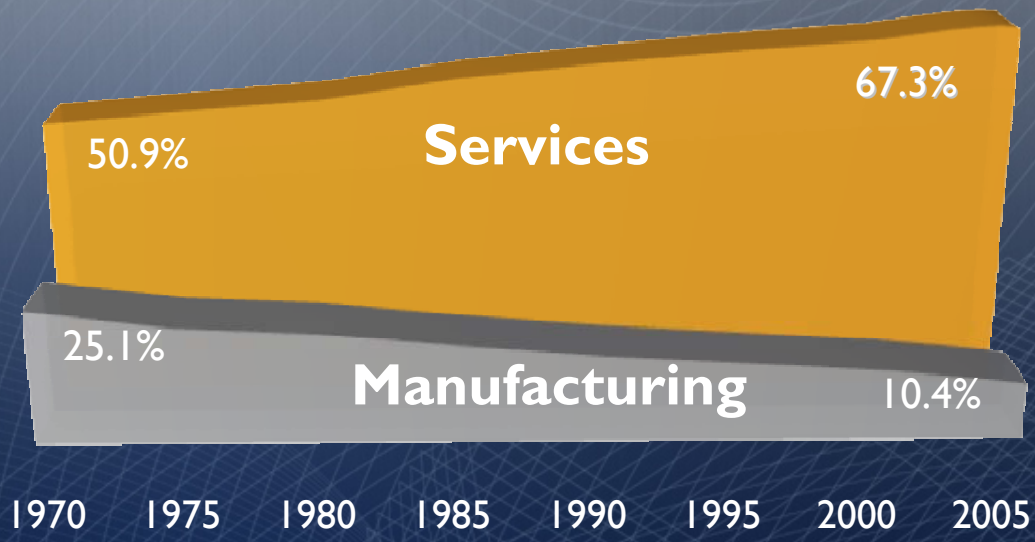
5 Solutions – A 21st Century Infrastructure Agenda



Economic Challenges

Global economic and technological revolution is altering *what* Americans do



Services include professional/business, education/health, and leasure/hospitality

Source: WTO; BLS

Social Challenges

By 2030

51,000,000

baby-boomers will have left the workforce

Source: Brookings analysis of data from U.S. Census; 2006 American Community Survey

Social Challenges

Who will take their place?

Environmental Challenges

213 Billion More Square Feet by 2030

Source: Arthur C. Nelson, Brookings 2004

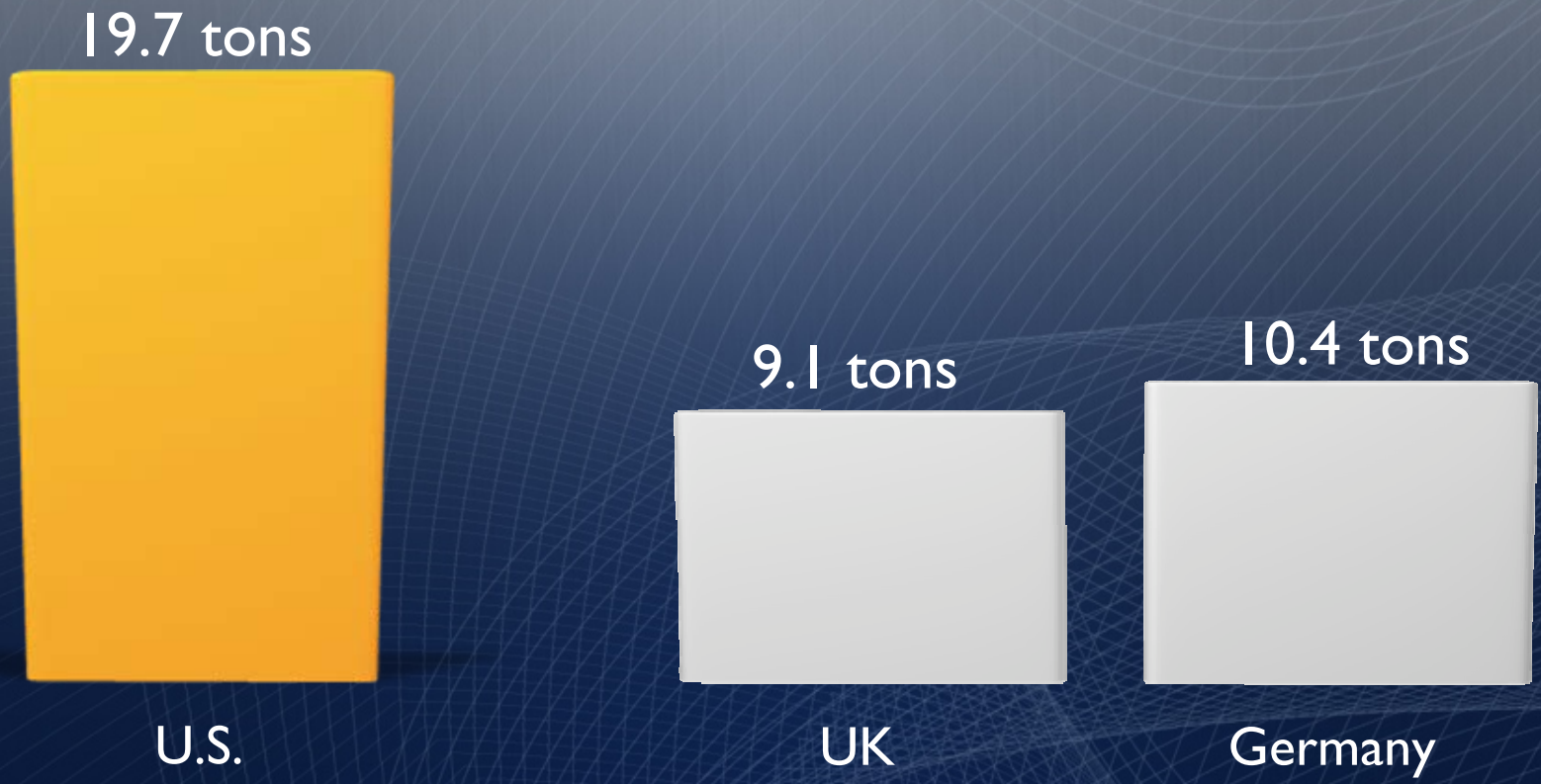
Environmental Challenges

120 million more people
by 2050

Source: U.S. Census Bureau

Environmental Challenges

CO_2 Emissions Per Capita



Source: International Energy Agency

We must leverage four key assets for our nation to prosper …

Innovation

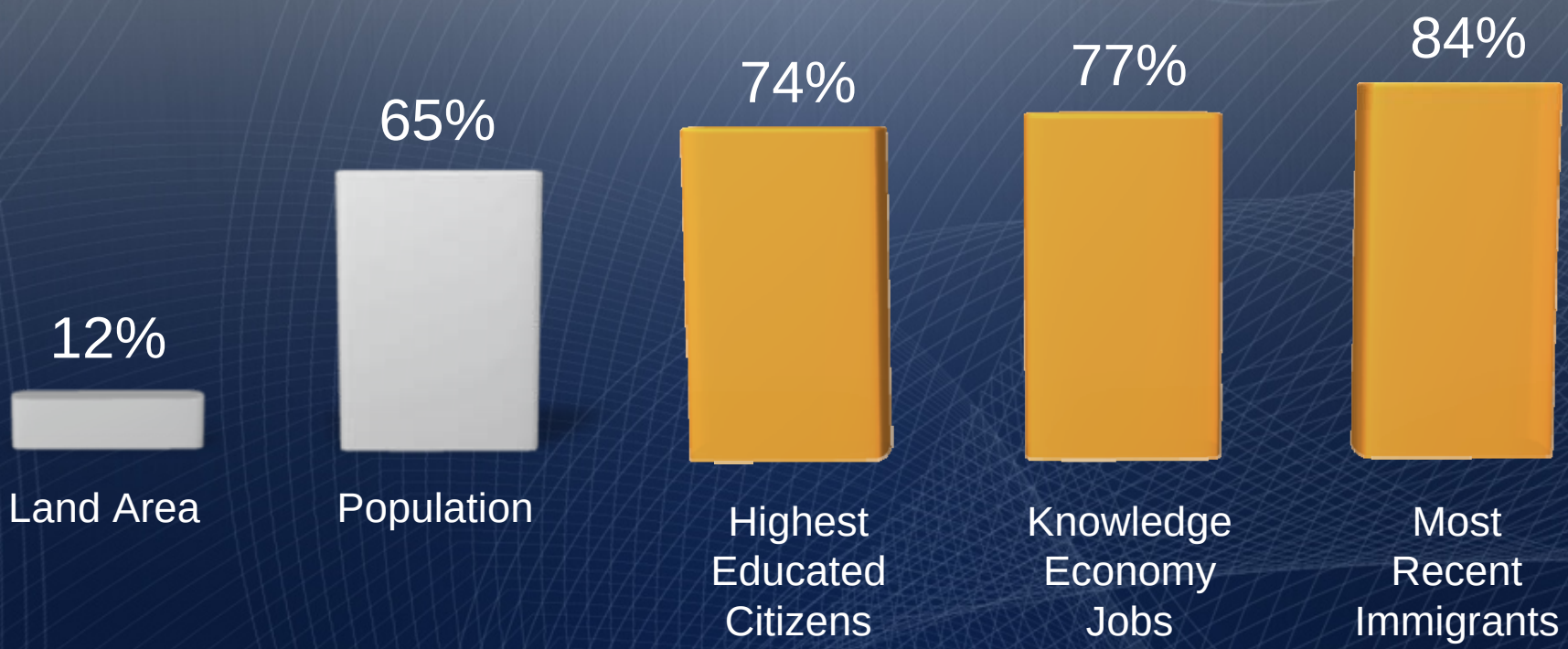
Human Capital

Quality Places

Infrastructure

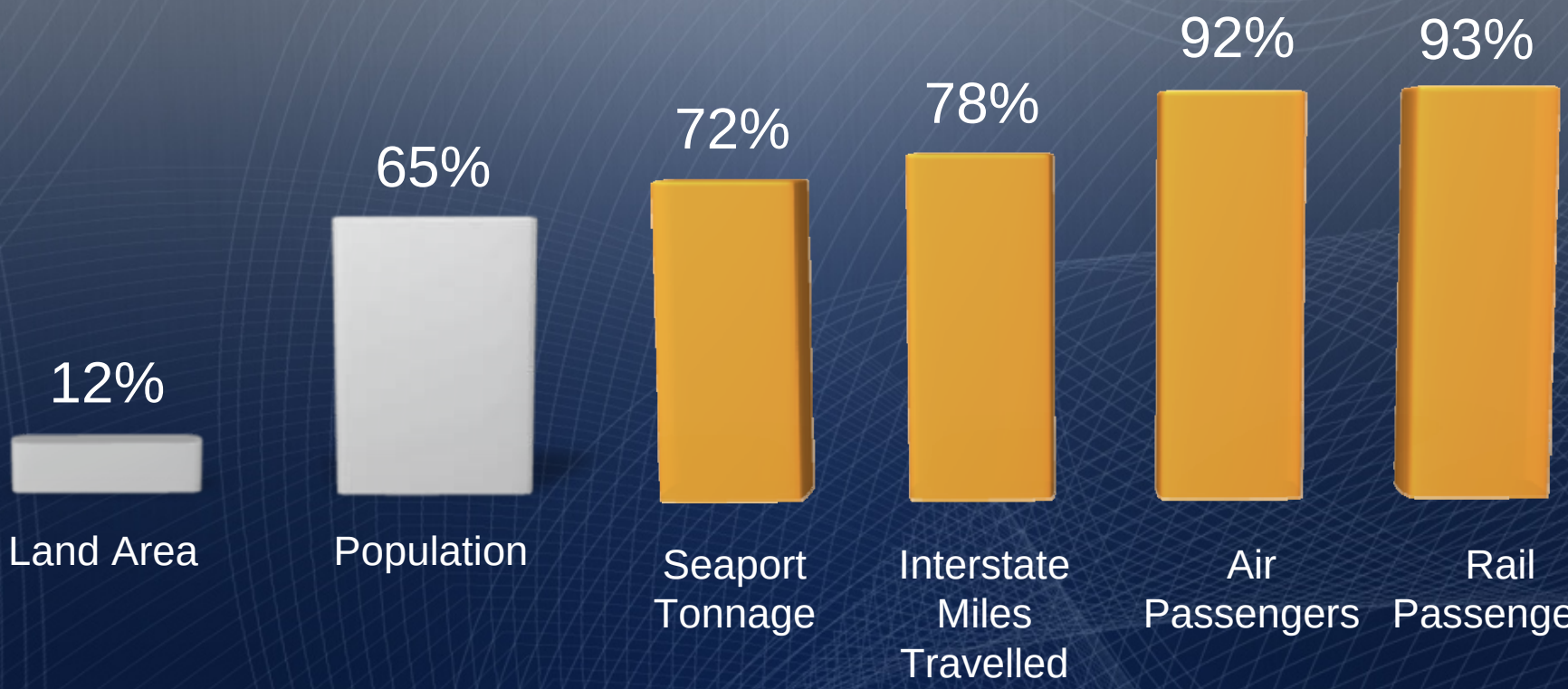
Where do we find these central assets?

Our Country's Top 100 Metros



Source: Brookings Analysis

Our Country's Top 100 Metros



Source: Brookings Analysis

‘Pressing’ Infrastructure Questions

1. Crumbling Transportation Infrastructure

- Latest data shows 12 percent of U.S. bridges (over 72,000) are “structurally deficient.” Only one-third of urban roadways are in good condition, a number that’s been declining since 1995. How should federal policies address the current state of transportation infrastructure?

‘Pressing’ Infrastructure Questions

2. Inadequate Capacity

- Who will take the lead in expanding outdated and outmoded infrastructure to meet current demands in key sectors such as freight rail, wastewater systems, and air traffic control systems?
- Similarly, who will take the lead in building new infrastructure? The current hot-button issues are intermetro passenger rail service and domestic energy production.

‘Pressing’ Infrastructure Questions

3. The Kind of Infrastructure in Place Today

- Do we have the right kind of infrastructure to position the U.S. to compete globally in the 21st century?

- Does our infrastructure support or hinder efforts to combat global warming and climate change?

- Does our infrastructure exacerbate social inequities?

‘Pressing’ Infrastructure Questions

4. General Lack of Performance Metrics

- Can we fully determine the performance of every transportation sub-sector?
- What is the actual performance difference between residential and commercial consumers of broadband service?

‘Pressing’ Infrastructure Questions

5. Funding and Financial Resources

- How will the federal government find funding to support additional spending on infrastructure?
- What is the role of the private sector in funding U.S. infrastructure?
- What are the long-term impacts of a potential move to a national capital budget?
- Where will municipal governments locate more funding for expanded transit service?

Infrastructure Profiles

We've divided the profiles into two categories

Transportation

- Highways
- Mass Transit *(Bus Service and Intrametro Rail)*
- Freight Rail
- Passenger Rail *(Intermetro and National)*
- Aviation
- Water Transportation

Other Utilities

- Drinking Water and Wastewater
- Energy
- Telecommunications
- Other Natural Resources *(Conservation, Dams, and Flood Control)*

Transportation: Highways

Nature of the Challenge

Capacity; Adequacy; Condition; Long-term Fiscal Solvency; Accountability; State Distribution Formulae

Ownership

Primarily states and municipalities, but also private companies and toll authorities.

Capital Investment

In the case of public highways, split fairly evenly between the federal government and state governments. In 2004, each level of government invested over $30 billion.

Regulation

Federal government has almost no say; however, all new construction requires environmental standards compliance to receive federal funds. In addition, states and localities are limited in their operational alternatives, such as levying tolls.

Transportation: Mass Transit *(Bus Service and Intrametro Rail)*

Nature of the Challenge

Local Financial Capital Resources; Operating Capacity and Funding Constraints; Supportive Physical Development; Energy Costs

Ownership

Primarily municipal governments and metropolitan agencies, along with some states.

Capital Investment

About half from the federal government ($7.6 billion), with the other half split between states and municipalities ($8.0 billion).

Regulation

While planning and decision-making are typically municipally-based, excluding standard environmental regulations, the competitive process for federal transit dollars enables the federal government to carry significant sway over systemic plans. This includes the New Starts program and other federal investments.

Transportation: Freight Rail

Nature of the Challenge

Expanding Capacity (the entire system is essentially at capacity); Accommodating Passenger Rail

Ownership

Private Sector Only

Capital Investment

Over 99 percent private sector ($6.4 billion), with the federal government rarely funding single projects. Federal government and states are debating whether to provide support for capital investments.

Regulation

Minimal, although market share is monitored closely. The deregulation of the sector between 1976 and 1980 significantly minimized the federal role.

Transportation: Passenger Rail *(Intermetro and National)*

Nature of the Challenge

Federal Financial Support; Obtaining Right-of-Way from Freight Firms; Local Support for Changing Commuting Patterns, especially away from Air Service

Ownership

Federal Only

Capital Investment

Federal Only ($700 million)

Regulation

Amtrak is officially a private firm, but the federal government has expansive oversight, including annual budgetary issues.

Transportation: Aviation

Nature of the Challenge

Update Antiquated Air Traffic Control System; Oil Prices; Congestion

Ownership

Airports are municipal or state properties, but the air traffic control facilities are federally owned.

Capital Investment

Similar investments between the federal government ($5.6 billion) and state/local governments ($6.8 billion). The private sector also makes investments at select facilities ($2.0 billion).

Regulation

Considerable, specifically to maintain impressive safety standards. In addition, increasing delays and insufficient capacity are leading to new federal investments, which in turn will lead to new sets of regulations.

Transportation: Water Transportation

Nature of the Challenge

Port-Related Pollution; Port-Area Congestion

Ownership

Port facilities are either owned by states, local governments/authorities, or private firms. A significant number of public ports are privately operated.

Capital Investment

States and localities invest the greatest amount ($1.7 billion), followed by the federal government ($700 million). The private sector makes minimal annual investments.

Regulation

Mostly security related, especially following the 2006 SAFE Port Act. The realities of port-related pollution may lead to expanded environmental regulations as well.

Other Utilities: Drinking Water and Wastewater

Nature of the Challenge

Aging Systems (NE and MW); Drinking Water Availability (S and W); Federal-State-Local Financial Flows

Ownership

Local governments own half of the drinking water systems and 80 percent of the wastewater systems. The remainder are privately-owned.

Capital Investment

Private sector numbers are unavailable, but over ninety percent of public investment is from state or local governments ($25.4 billion). The federal government invests another $2.6 billion.

Regulation

Significant environmental regulations, which were expanded in 2007 under the Safe Drinking Water Act.

Other Utilities: Energy

Nature of the Challenge

Input Costs; Public Attitudes towards Pollution; Public Support for Nuclear Investments

Ownership

Almost Entirely Private Sector

Capital Investment

Nearly 90 percent private sector ($69.0 billion). The remainder is primarily state and local investments ($7.7 billion).

Regulation

Considerable, especially regarding pricing practices due to the sector's natural monopoly structure.

Other Utilities: Telecommunications

Nature of the Challenge

Broadband Speeds; Spectrum Ownership; Rural Broadband Availability

Ownership

Almost entirely private sector. The remaining networks are primarily public universities' networks and the few municipal Wi-Fi systems.

Capital Investment

Again, almost entirely private sector ($68.6 billion). The remaining investments are mostly federal grants to rural areas.

Regulation

Heavy, including constant monitoring of market share and pricing due to market structure.

Other Utilities: Other Natural Resources *(Conservation, Dams, and Flood Control)*

Nature of the Challenge

Inadequate Levees (Especially in the Midwest); Oversupply of Dams; Ecological Realities

Ownership

Just over fifty percent of all dams are owned by private entities, with local governments owning another twenty percent. Conversely, most large dams are owned by the federal government, while levee ownership is split between all levels of government.

Capital Investment

Almost two-thirds federal ($7.1 billion), with the remainder all state or local governments ($4.3 billion).

Regulation

Following the hurricane catastrophes associated with Katrina and Ike, plus the recent floods in the Midwest, federal lawmakers and bureaucrats have begun to consider expanded regulations.

Current Political Environment: U.S. Congress

What They've Done

- Railroad Safety
- Amtrak Funding
- Shored up the Trust Fund Imbalance

What They're Proposing

- Infrastructure Bank
- Plan for Rebuilding and Renewing America
- Infrastructure as Economic Stimulus

What They're Not Proposing

Accountability, Performance, and Funding. Outside of the Infrastructure Bank it is not clear how the nation will fund needed infrastructure investments, nor specifically institute accountability standards.

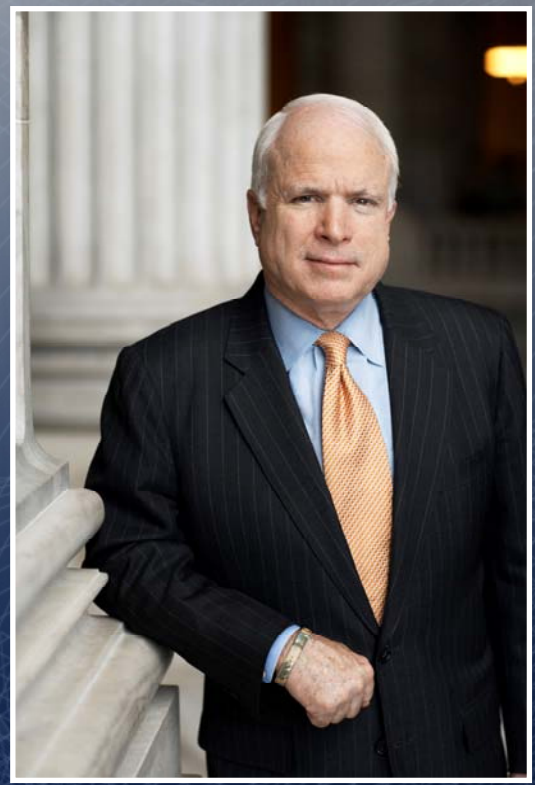
Current Political Environment: John McCain

What He's Proposing

- Eliminating Transportation Pork
- Diversified Energy Portfolio
- Fuel Efficiency Investments

What He's Not

- Supporting Amtrak
- Upgrading Rural Telecommunications or Water Resources



Source: Brookings 'Opportunity 08' Candidate Issue Index

Current Political Environment: Barack Obama

What He's Proposing

- Infrastructure Bank
- Energy Independence
- Broad Rail Support
- Upgrading Rural Telecommunications and Air-Traffic Control Systems

What He's Not

- Highway Trust Fund Solvency
- Specific Proposals for Water Shortages and Port Upgrades

Source: Brookings 'Opportunity 08' Candidate Issue Index

Solutions – A 21st Century Infrastructure Agenda

1. Appoint an Infrastructure Czar

2. Establish a Standing Commission on Infrastructure

3. Reform surface transportation

4. Employ federalist perspective to fix funding challenges

5. Augment metrics and performance measures

Solutions – Five Big Ideas: Infrastructure Czar

Appoint an Infrastructure Czar

- Consider this role as a Cabinet-level position

- Provide the first infrastructure-specific coordinator between the myriad of federal agencies that construct, operate, maintenance, and utilize infrastructure

- Generate reports that solidify and memorialize the executive branch's stance on infrastructure-related issues

Solutions – Five Big Ideas: Standing Commission on Infrastructure

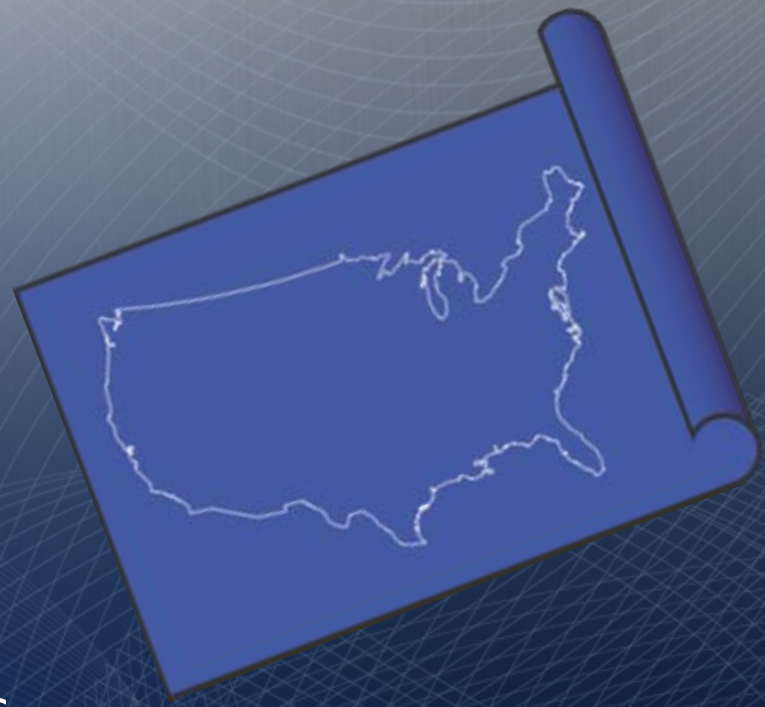
Create a Formal Structure for Federalist Interaction

- Commissioners appointed by all levels of government
- Primary venue for developing shared interests
- Meets three times a year with an annual budget appropriated by Congress
- Official Tasks include overseeing the federalist relationship, assess infrastructure sectors' health, and proposing biennial reforms

Solutions – Five Big Ideas: Reform Infrastructure Policies

Fundamentally Rethink the Nation's Infrastructure Policies

- **LEAD**: Establish a National Vision
- **EMPOWER**: Support the plan through targeted funding and modally neutral policies
- **MAXIMIZE**: Improve performance through better metrics, dissemination of best practices, and incentives for strong performance



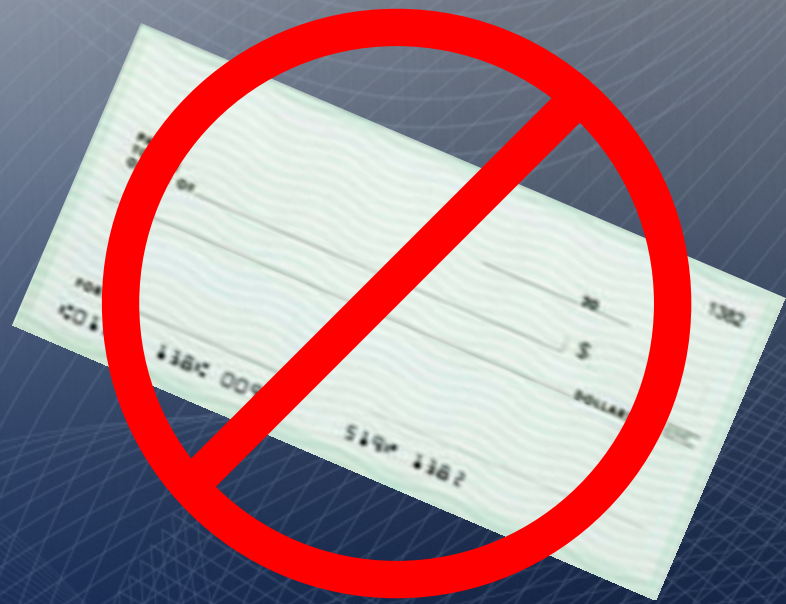
Solutions – Five Big Ideas: Fix Funding through Federalism

Establish a Plan to Reform Public Funding

- **LEAD**: Create a National Infrastructure Corporation/Bank; consider federal capital budgeting

- **EMPOWER**: Revise antiquated formulae and restrictions, while adding rewards for state-generated funding

- **MAXIMIZE**: Provide strong incentives for the adoption of market mechanisms



Solutions – Five Big Ideas: Metrics and Performance

Enhance Government Assessment of Infrastructure Performance

- Utilize the national vision's goals to determine what metrics to record

- Build a national foundation of basic data and information

- Embrace public and private partnerships and market mechanisms to achieve scale and systemic impact

visit metro:

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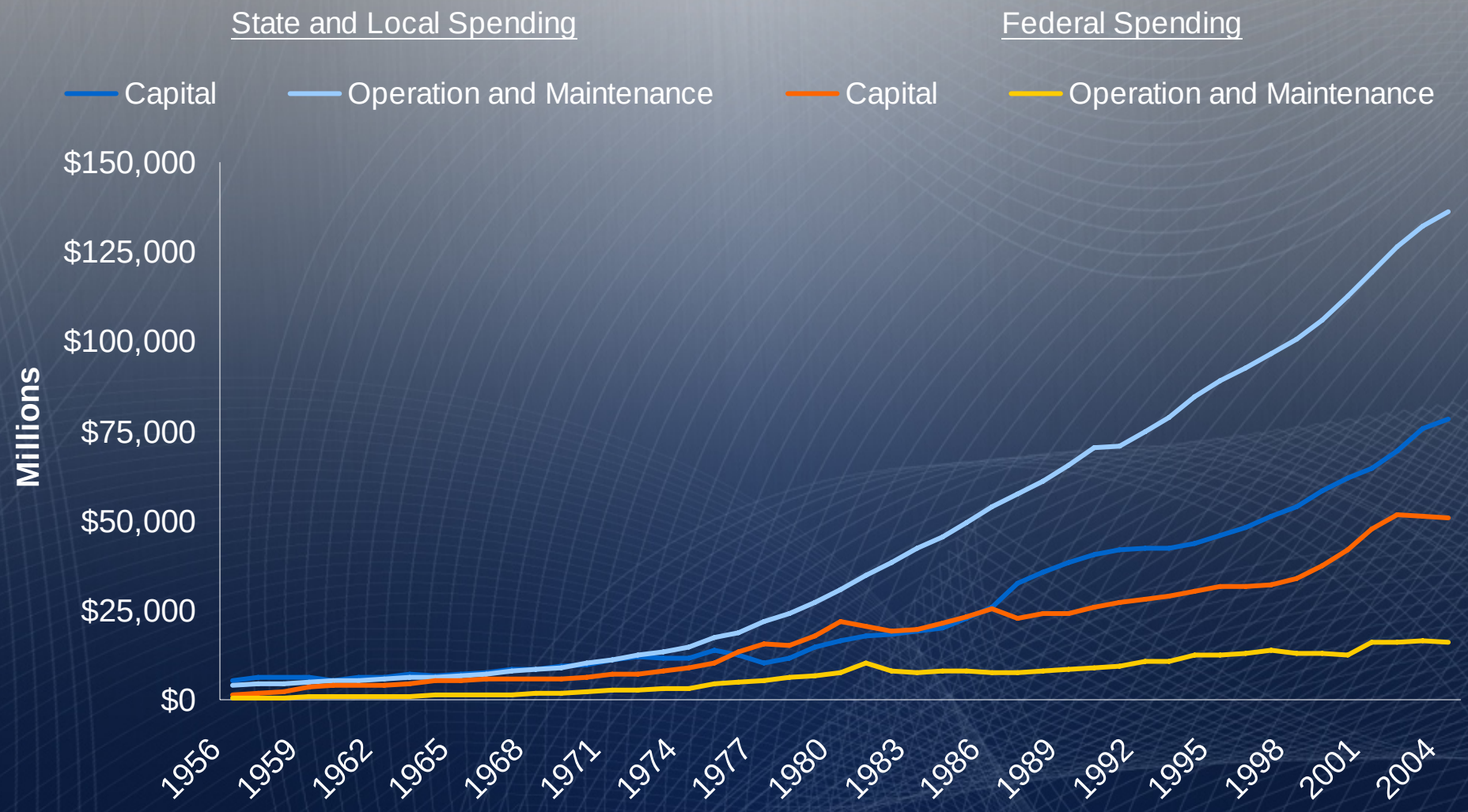
Appendix: Public Infrastructure Spending: 1956 - 2004



Source: Congressional Budget Office

Capital Spending on Infrastructure in 2004 (Billions of 2004 Dollars)	Public Sector		Private Sector	Total
	Federal	State and Local		
Highways	30.2	36.5	-	66.7
Mass Transit	7.6	8.0	0.0	15.5
Freight Railroads	0.0	0.0	6.4	6.4
Passenger Railroads	0.7	0.0	0.0	0.7
Aviation	5.6	6.8	2.0	14.4
Water Transportation	0.7	1.7	0.1	2.5
Total Transportation	*44.7*	*53.0*	*8.5*	*106.2*
Drinking Water and Wastewater	2.6	25.4	-	28.0
Energy	1.7	7.7	69.0	78.4
Telecommunications	3.9	-	68.6	72.5
Water and Other Natural Resources	7.1	4.3	-	11.3
Other Utilities	2.4	79.9	27.4	109.7
Total Utilities and Other	*17.6*	*117.2*	*165.0*	*299.9*
Total	**62.4**	**170.2**	**173.5**	**406.1**

Capital Spending on Infrastructure in 2004 (Percent of Infrastructure Type)	Public Sector		Private Sector	Total
	Federal	State and Local		
Highways	45%	55%	0%	100%
Mass Transit	49%	52%	0%	100%
Freight Railroads	0%	0%	100%	100%
Passenger Railroads	100%	0%	0%	100%
Aviation	39%	47%	14%	100%
Water Transportation	28%	68%	4%	100%
Total Transportation	*42%*	*50%*	*8%*	*100%*
Drinking Water and Wastewater	9%	91%	0%	100%
Energy	2%	10%	88%	100%
Telecommunications	5%	0%	95%	100%
Water and Other Natural Resources	63%	38%	0%	100%
Other Utilities	2%	73%	25%	100%
Total Utilities and Other	*6%*	*39%*	*55%*	*100%*
Total	**15%**	**42%**	**43%**	**100%**

Capital Spending on Infrastructure in 2004 (Percent of Sector)	Public Sector		Private Sector	Total
	Federal	State and Local		
Highways	48%	21%	0%	16%
Mass Transit	12%	5%	0%	4%
Freight Railroads	0%	0%	4%	2%
Passenger Railroads	1%	0%	0%	0%
Aviation	9%	4%	1%	4%
Water Transportation	1%	1%	0%	1%
Total Transportation	*72%*	*31%*	*5%*	*26%*
Drinking Water and Wastewater	4%	15%	0%	7%
Energy	3%	5%	40%	19%
Telecommunications	6%	0%	40%	18%
Water and Other Natural Resources	11%	3%	0%	3%
Other Utilities	4%	47%	16%	27%
Total Utilities and Other	*28%*	*69%*	*95%*	*74%*
Total	**100%**	**100%**	**100%**	**100%**