

THE BROOKINGS INSTITUTION METROPOLITAN POLICY PROGRAM

Foundation Matters: Building the Infrastructure for a Global Economy

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Basic tenets:

1. We are a metropolitan nation
2. How you grow physically affects how you grow economically
3. In an era of fiscal austerity we need to **prioritize** infrastructure investments

When it comes to infrastructure it matters very much:

WHERE you build
WHAT you build and
HOW you build it





Foundation Matters: Building the Infrastructure for a Global Economy

I

The context for the discussion about infrastructure

II

Current thinking about economic growth and quality of place

III

Link between infrastructure savings and growth patterns

IV

Relationship between transportation and the economy

V

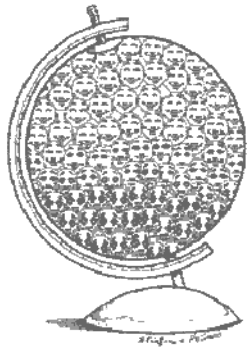
Where, what, and how to prioritize infrastructure investments

Profound demographic, economic, social, and cultural forces are reshaping the nation



Demographically, the country is growing, aging, and diversifying.

Economically, the nation is being transformed by globalization, deindustrialization, and technological innovation.



Culturally, the nation is changing its attitude towards cities and suburban living.



These changes are presenting new opportunities to attract new kinds of households.

Household sizes are smaller

More childless couples, immigrants, empty nesters, elderly

More and smaller housing units

Greater relevance than ever is being put on attracting highly educated and skilled workers

Place matters!





Single family



Apartments for rent



Assisted living



Big box

This growing and diverse population demands a range of *choices* in housing, neighborhoods, shopping, and transportation

Town centers



Automobile



Non-motorized



Rail



The problem is that most places are not equipped to provide those choices



Lack of housing types



Separated land use



Uneven metro growth



Automobile dominated



Declining commercial corridors

Metropolitan areas with a range of options have an opportunity to attract and retain young professionals, childless couples, baby boomers, new immigrants and the assets of the knowledge economy.





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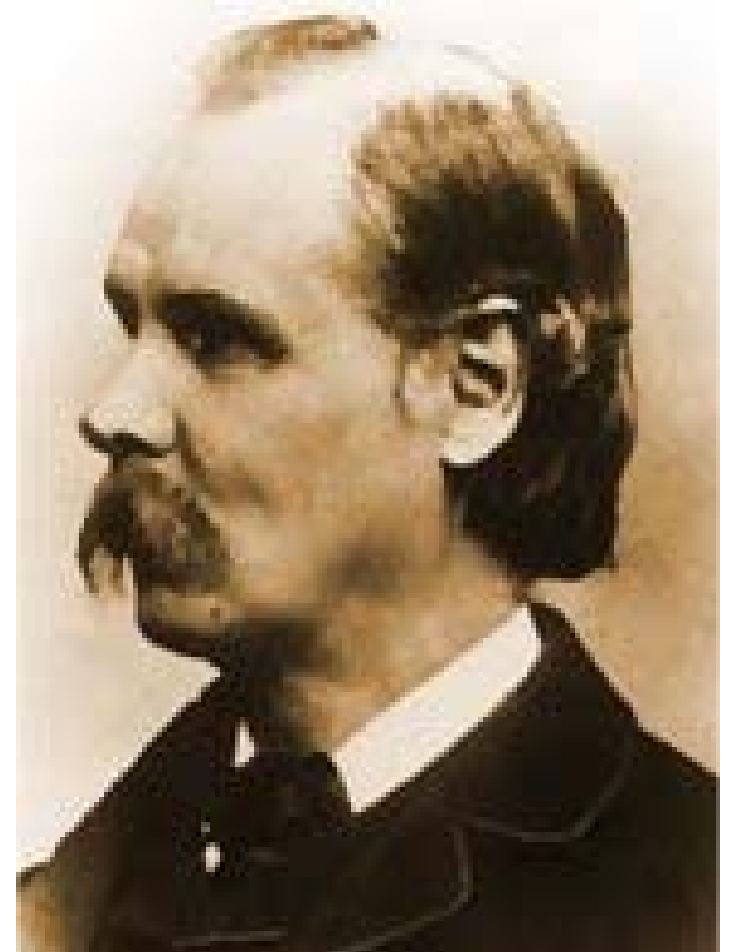
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Where, what, and how to prioritize infrastructure investments



Adam Smith, "The Wealth of Nations," 1776



Alfred Marshall, "Principles of Economics," 1890



Adam Smith discusses the connection between division of labor and place in his seminal work, “The Wealth of Nations”

Smith observed “that the division of labor is limited by the extent of the market”

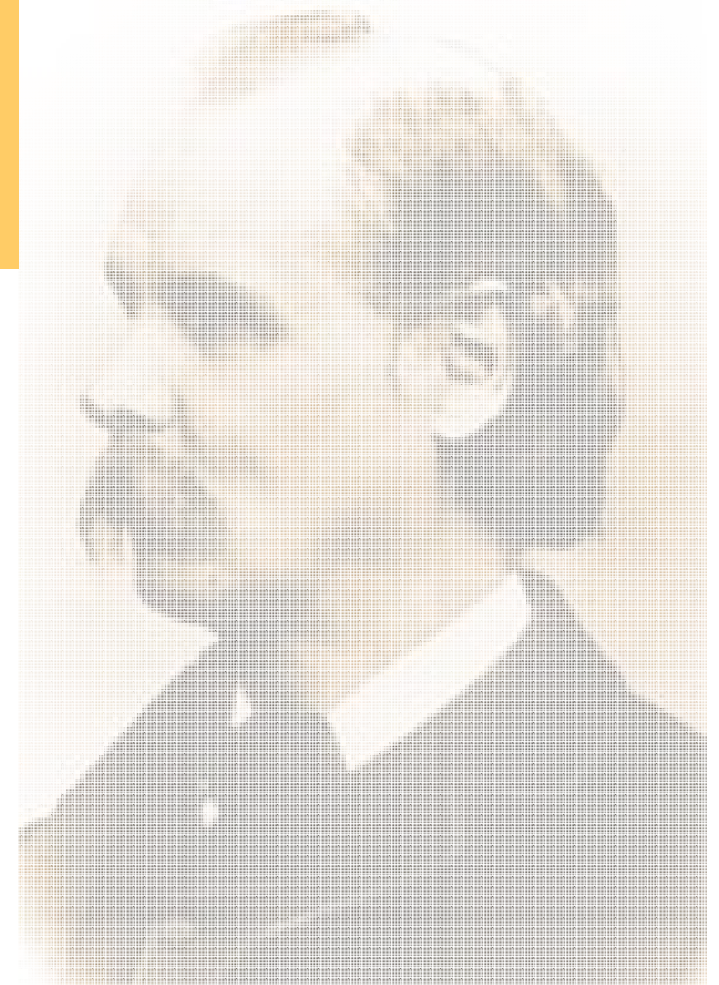
Sparsely populated towns in the countryside required more tasks done by a smaller number of generalists

More densely populated towns and cities, however, could take advantage of the many workers’ specializations, leading to an efficient division of labor

In his foundational “Principles of Economics,” Alfred Marshall discussed the “agglomeration benefits” workers and firms achieve through spatial concentration

Agglomeration benefits—later dubbed “Marshallian externalities”—occurred for three reasons:

1. A large grouping of workers with similar knowledge and skills
2. The development of specialized local goods and services suppliers
3. Knowledge “spillovers” that occur when information flows freely between people and firms



In light of these theories, economists today see the attraction of workers as a sound economic development strategy

Joseph Cortright notes: “Places that consciously seek to attract firms can do so by establishing conditions that attract and retain workers.”

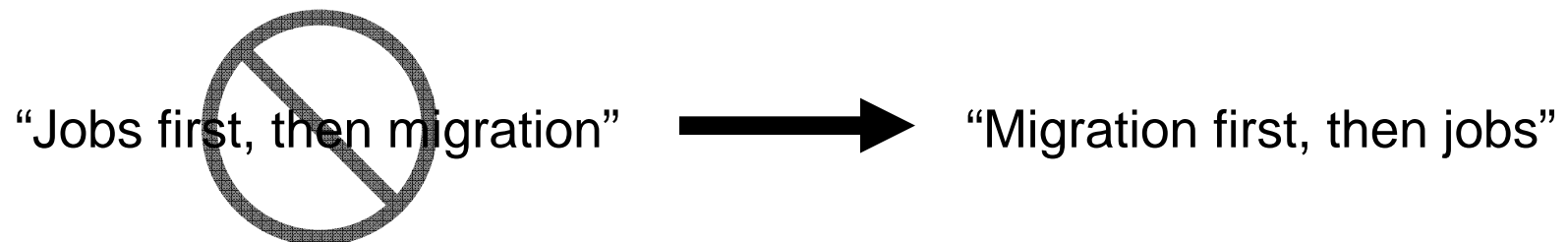


Michael Porter states “each region must craft a *distinctive* approach based on its unique assets and relative strengths.” An attractive and vivid quality of place can make a place distinctive.



This thinking implies a new theory of economic development:

This theory says that people first seek places with a high quality of life, then take their jobs with them or create them in the new location. Local businesses then start up to cater to new demands



“The influx of new people with ideas, experience, and investment income into high-amenity areas stimulates new growth that goes beyond lower-wage, economically vulnerable tourism jobs.”

But more than a nice idea, empirical evidence backs up the importance of quality of place

Richard Florida found a close connection between quality of place, population growth, and high-value job creation

He discounts traditional infrastructure and amenities like stadiums, malls, and freeways

Edward Glaeser, Jed Kolko, and Albert Saiz find that high amenity places grow faster

Amenities (climate, proximity to an ocean, restaurants per capita) are significant predictors of population growth

David McGranahan, shows that places with natural amenities grew faster than those without

Population growth of 120% between 1970 and 1996 vs. 1% for those without



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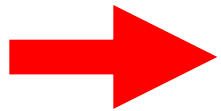
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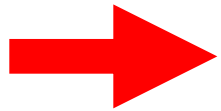
Where, what, and how to prioritize infrastructure investments

For 50 years economists have shown that compact development reduces the cost of providing infrastructure and delivering services

The logic is straightforward:

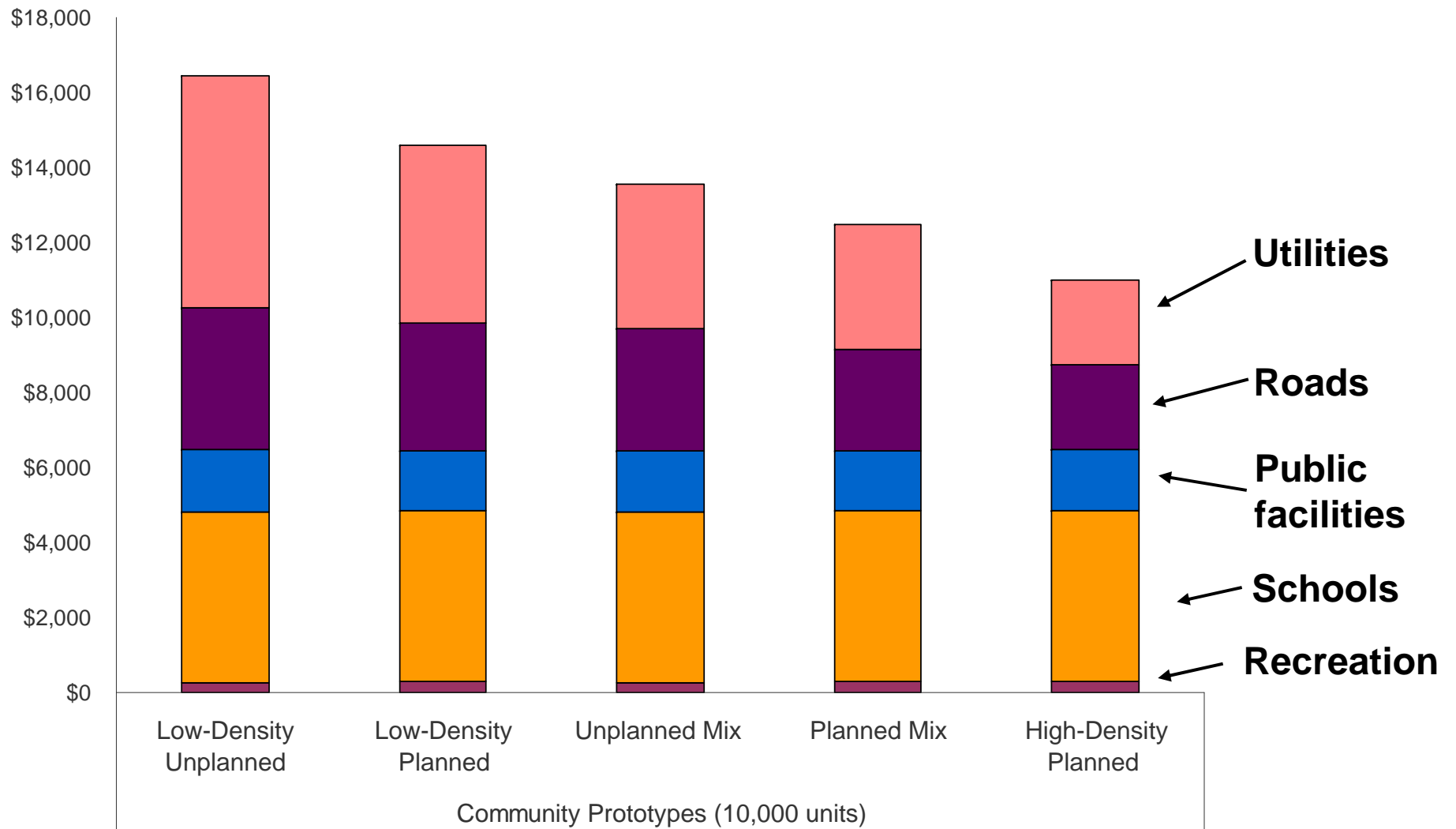


lower marginal costs for serving each additional person as each person locates at higher densities
(economies of scale)



lower marginal cost for serving each additional person as each person locates more closely to existing major public facilities
(economies of geographic scope)

RERC's pioneering study (1974) showed the public savings in infrastructure for high density development



Duncan (1989) -- showed that the costs for providing infrastructure per dwelling unit is lowest and most efficient for more compact developments

Efficiency Rank	Study Area	Urban Form	Cost
1	Downtown Orlando	Compact	\$9,252
2	Southpoint	Contiguous	\$9,767
3	Countryside	Contiguous	\$12,693
4	Cantonment	Scattered	\$15,316
5	Tampa Palms	Satellite	\$15,447
6	University	Linear	\$16,260
7	Kendall	Linear	\$16,514
8	Wellington	Scattered	\$23,960
Average			\$14,901

Burchell et al (2000) – Infrastructure costs of trend versus planned development in New Jersey, 2000-2025 (*in millions*)

	Trend	Planned	Diff.
Roads	\$3,720	\$2,860	23.4%
Water and Sewer	\$11,190	\$9,730	13.0%
Total	\$14,910	\$12,590	15.6%

Burchell et al (2002) – Infrastructure costs of uncontrolled versus controlled growth nationwide, 2000-2025 (*in millions*)

	Uncontrolled	Controlled	Diff.
Local Road Infrastructure	\$927,010	\$817,310	11.8%
Water / Sewer	\$189,767	\$177,160	6,6%
Total	\$1,116,777	\$994,470	10.9%

Bollinger, Berger and Thompson (2001) - The cost of delivering new services for every 1,000 residents in Kentucky is lower in more compact places.


*Services include Police, Fire, Highway, Schools, Sewer, and Solid Waste

	Development Pattern	Cost
Central city counties		
Fayette	(more concentrated)	(\$1.08)
Jefferson	(more spread out)	\$37.55
Suburban counties		
Shelby	(more concentrated)	\$88.27
Pendelton	(more spread out)	\$1,222.39
Counties with small towns		
Warren	(more concentrated)	\$53.89
Pulaski	(more spread out)	\$239.93
Outer ring and rural		
Garrard	(more concentrated)	\$454.51
McCracken	(more spread out)	\$618.90

Pulling it together

For a discussion of infrastructure during a time of tight budgets, more efficient and beneficial growth strategies make more sense than ever.

Experts agree:



More compact, dense communities reduces costs of infrastructure, saves taxpayers' money and improves economic productivity

The costs of low density, unplanned growth outweighs its benefits



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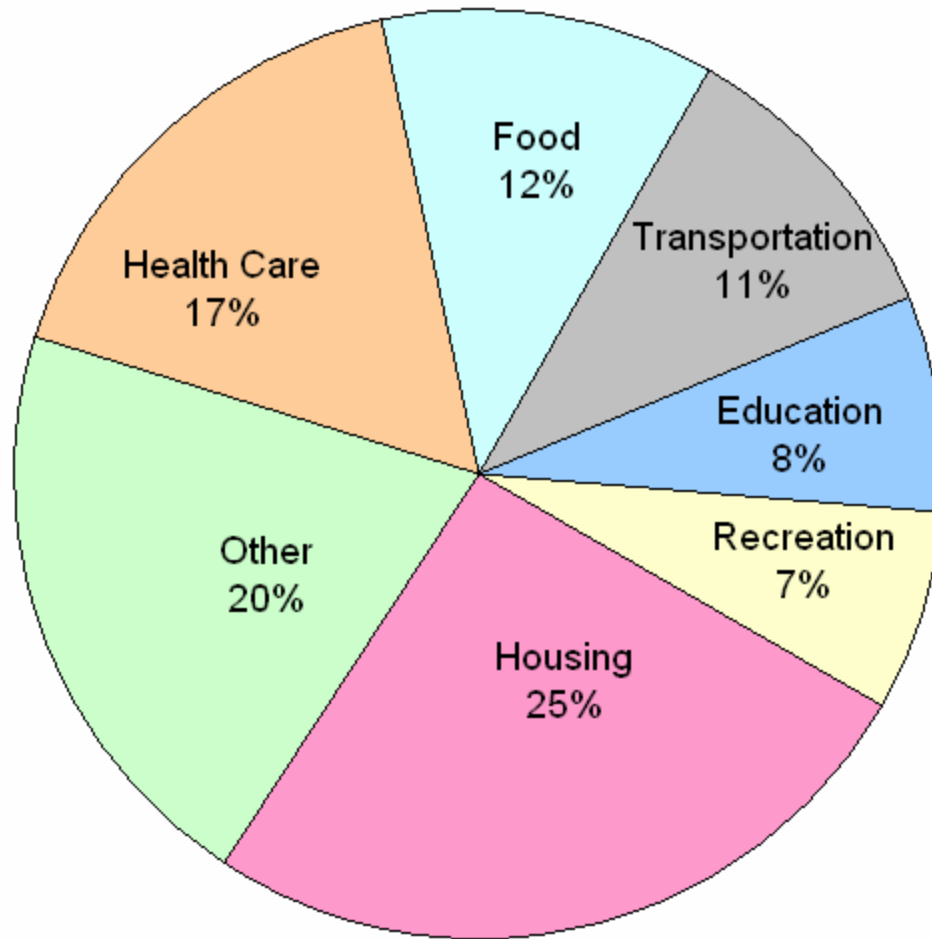
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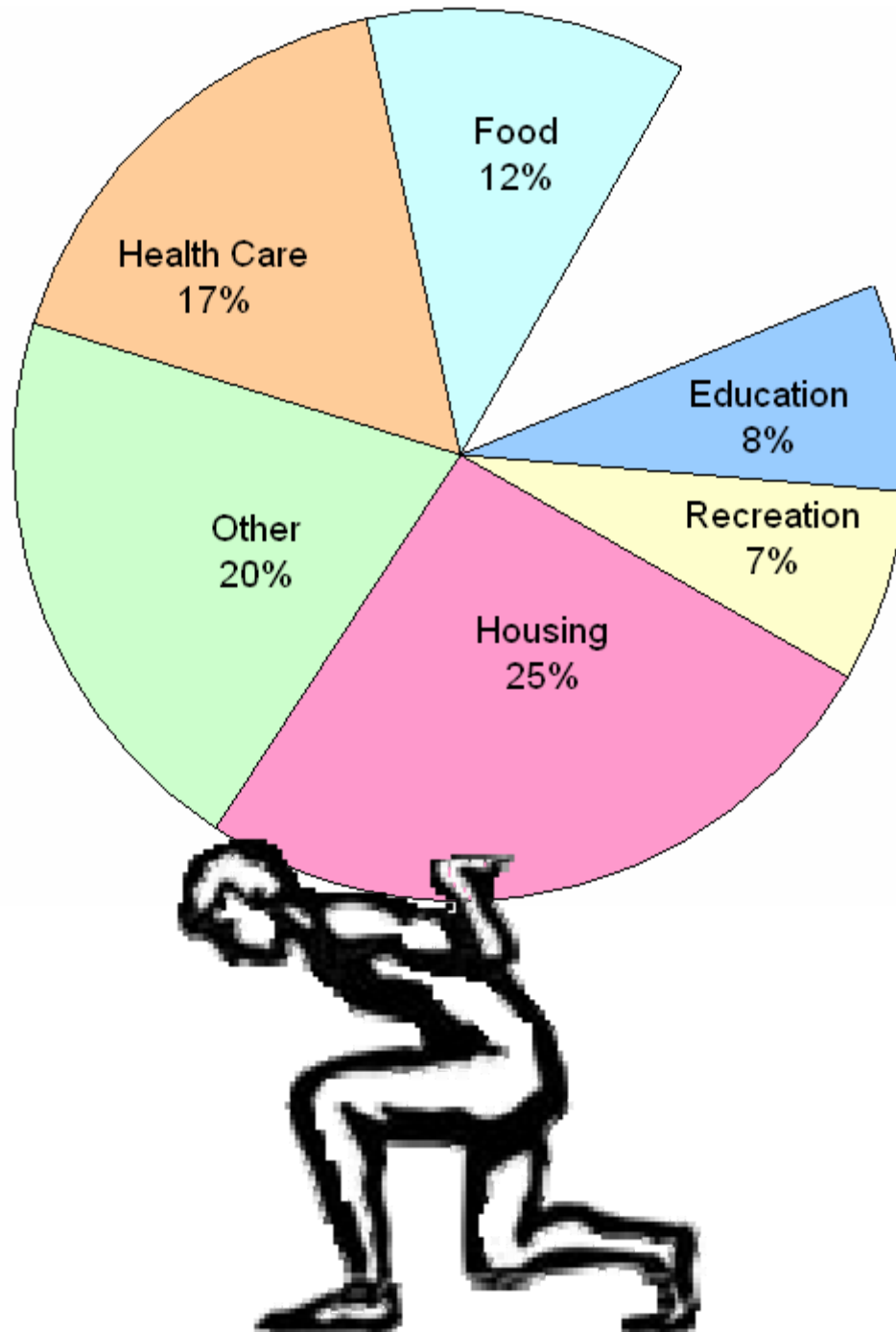
Where, what, and how to prioritize infrastructure investments



Components of U.S. Gross Domestic Product

Transportation holds up the national economy and enables the other sectors to function

Components of U.S. Gross Domestic Product





Congestion in ports



Household spending

When ignored, transportation can have broad negative economic impacts

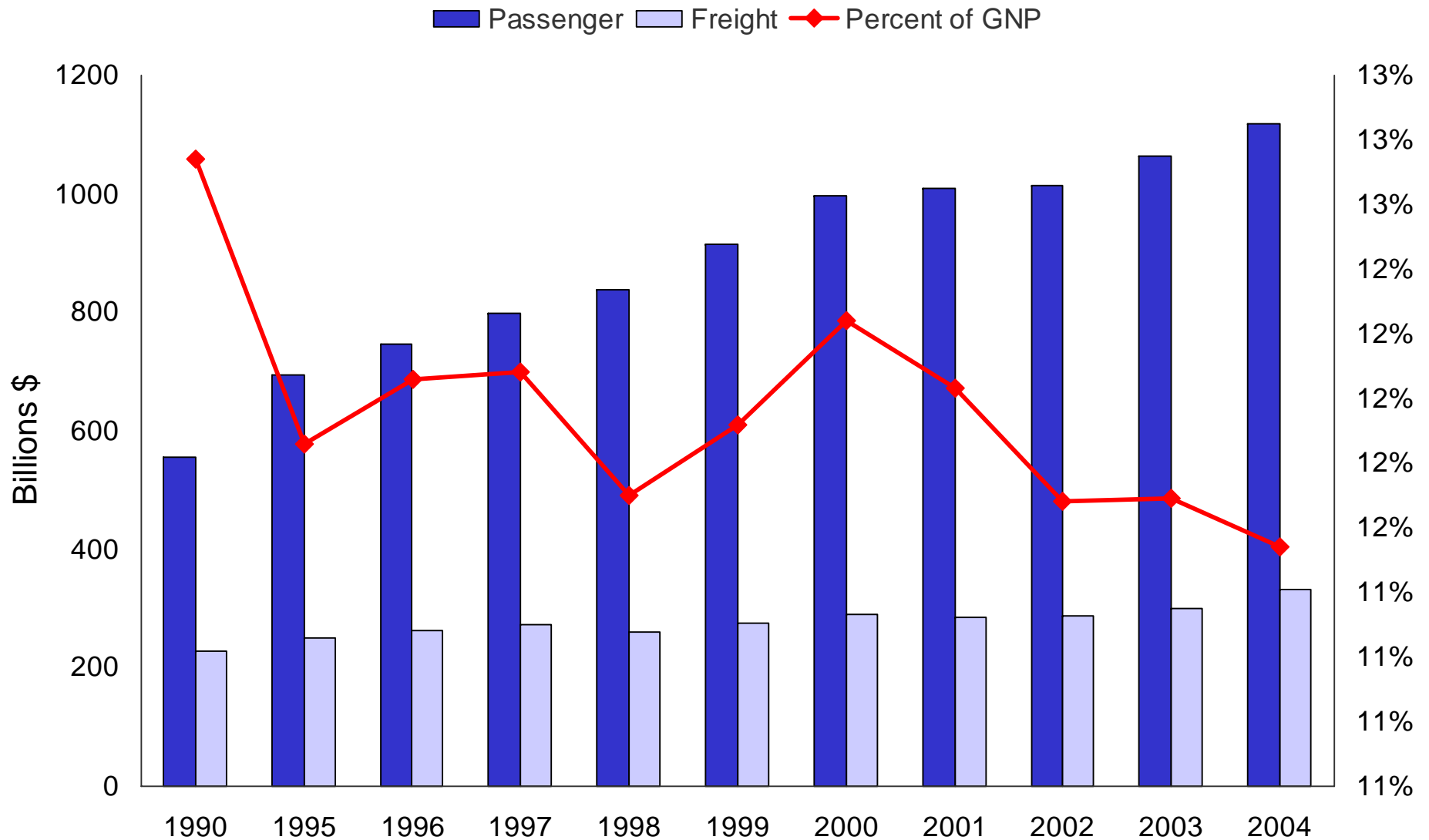
Greenhouse gases



Automobile dependency



Although the research on causality is unclear there is no doubt that the transportation sector is quite large (\$1.5 trillion)



Source: Eno Transportation Foundation, 2007

To a large degree the national investment in transportation has paid off



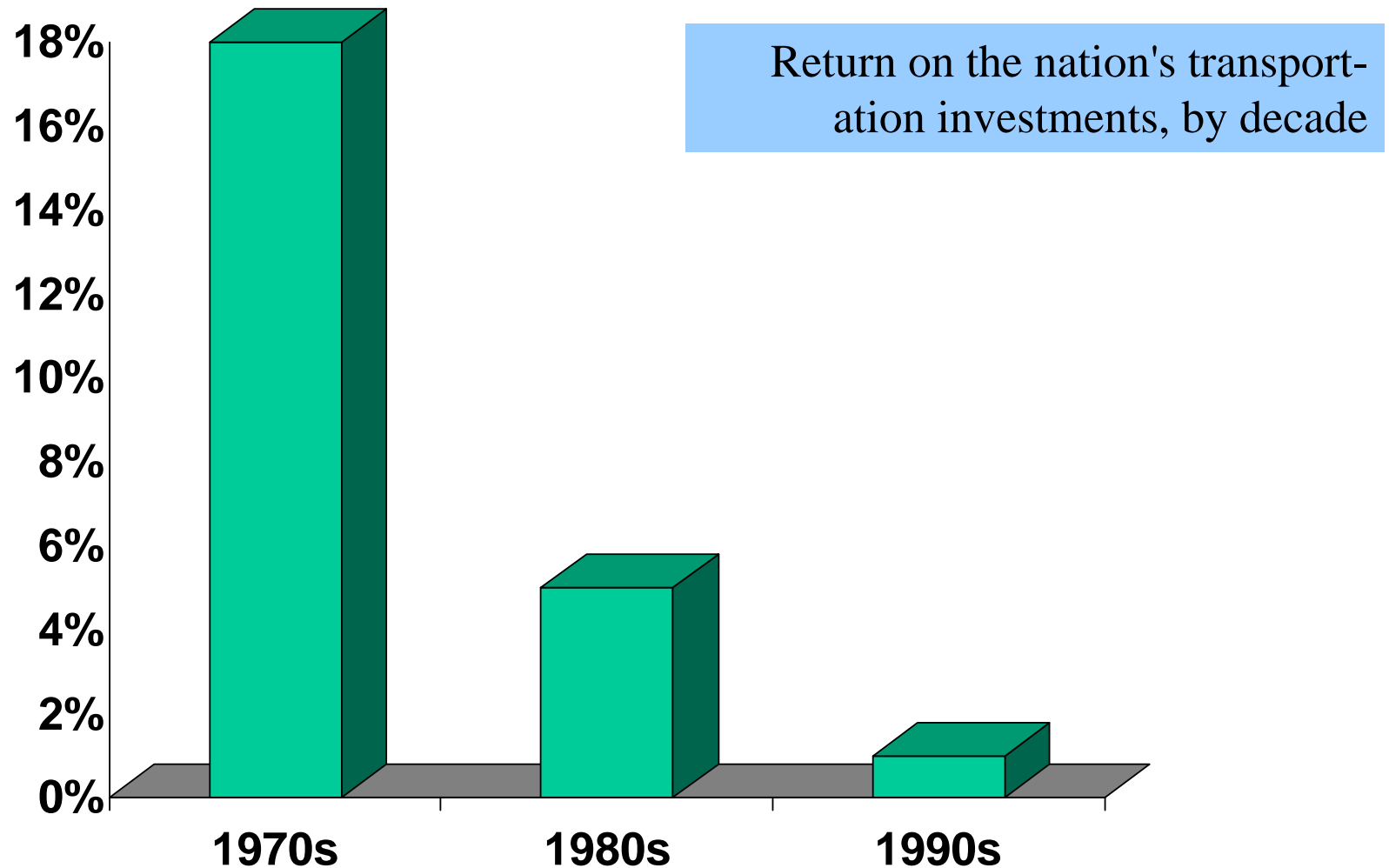
The costs of moving goods plummeted due to technological advances, containerization, and other investments

There are positive relationships between public infrastructure investments and economic productivity – especially in freight and industrial sector



Benefits for trucking alone justify one-third to one-half of the federal highway investments between 1950 and 1973

But because investments are no longer prioritized, this exceptional productivity has not continued in recent decades



Recently, the principal federal program focus is on short term employment growth, rather than long term productivity growth

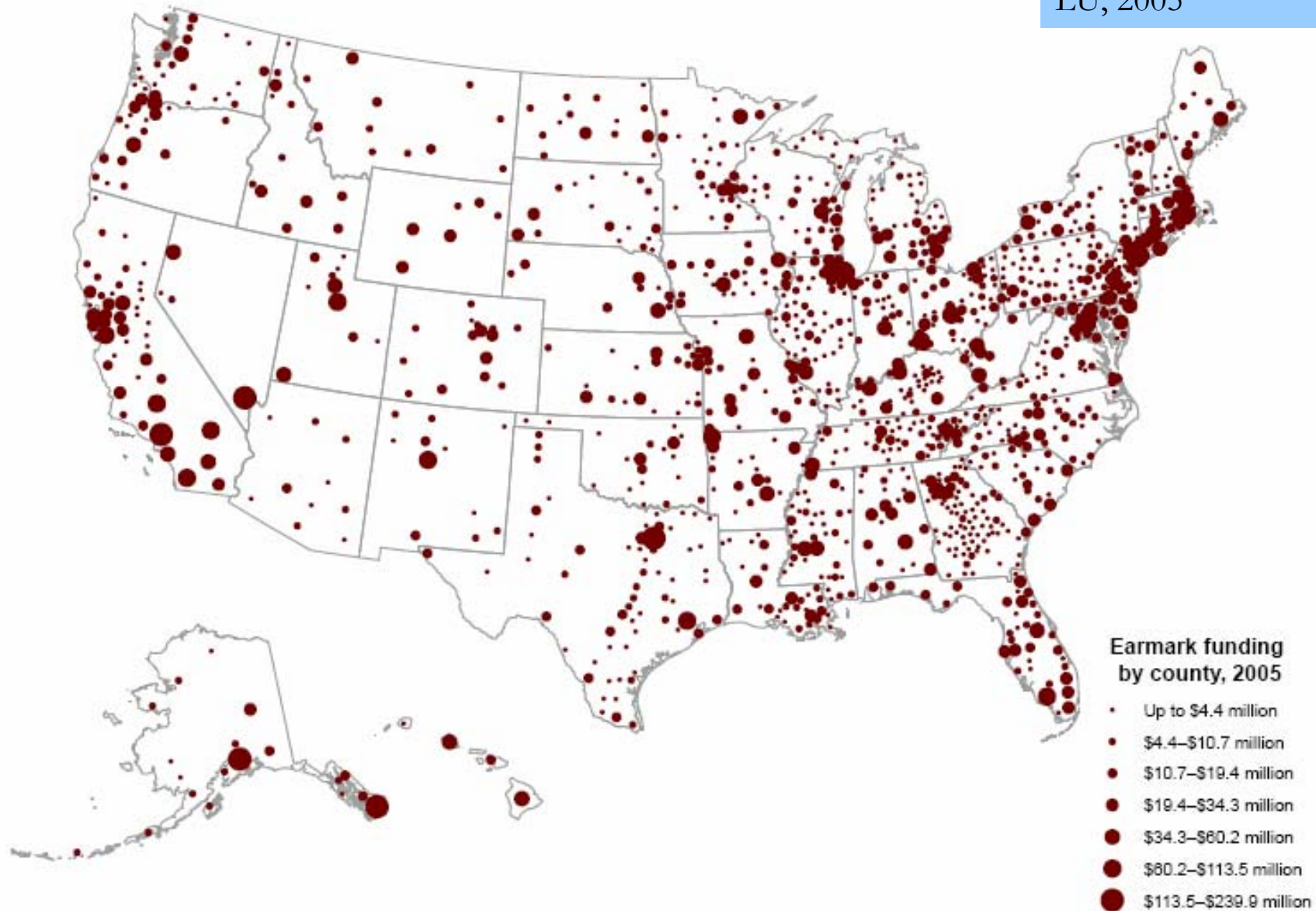


**Many politicians sum up increases in transportation spending in three words:
jobs, jobs, jobs**

For transportation investments to have maximum benefits to the national economy, there is little justification for the nation to make broad improvements in all places

On the federal level, pork and politics have taken over

Location of transportation earmarks from SAFETEA-LU, 2005





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Where, what, and how to prioritize infrastructure investments

The nation should prioritize spending in the leading nodes of American global competitiveness: its largest metropolitan areas

WHERE?

The nation's 100 largest metro areas contain:

Recent immigrants—84%

Total patents—77%

Knowledge Jobs—77%

Residential real estate value—75%

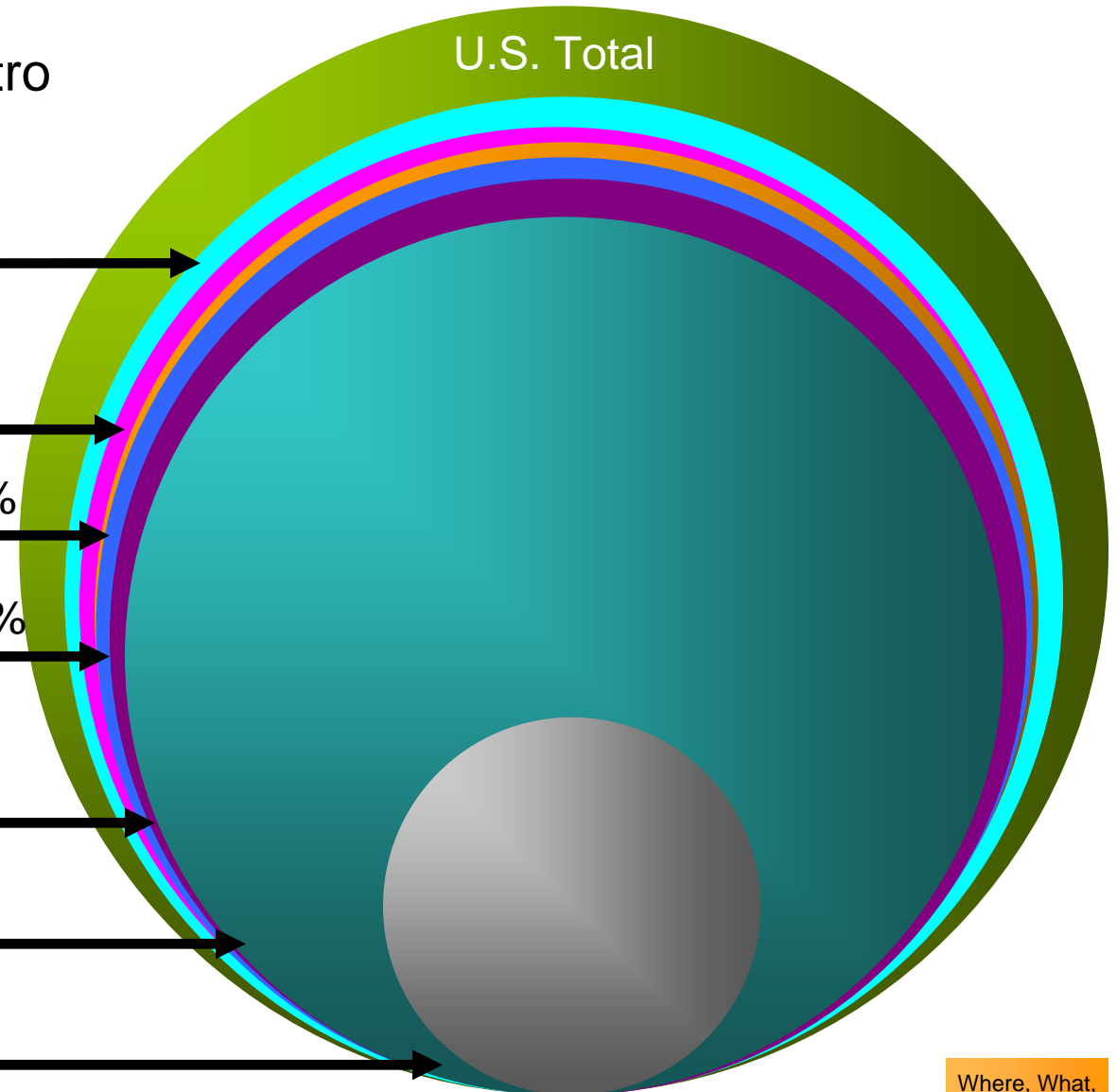
College-educated individuals—74%

Gross Domestic Product—71%

Research institutions—71%

Total population—65%

Land area—12%



Source: Brookings analysis of U.S. Census Bureau, BLS, and BEA data

Where, What,
and How

But it matters where *within* metros those investments are made

Investments in metropolitan highways have positive economic impacts on land prices, population, and employment changes near the project.

However, those changes generally come at the expense of losses elsewhere in the metropolitan area.

It is, in other words, largely a zero-sum game within metropolitan areas.

WHAT?

Targeted investments need to be made. Infrastructure dollars cannot be spent indiscriminately anymore

**What should the national priorities be?
What should the state priorities be?
What should the metropolitan priorities be?**

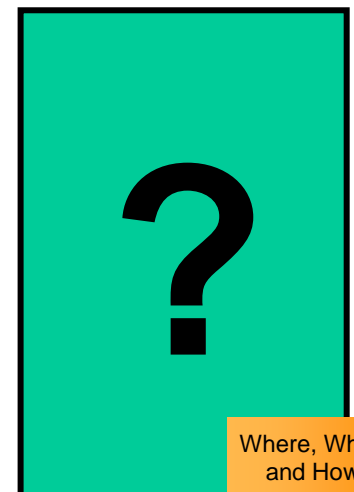
1956



1991



2007



WHAT?

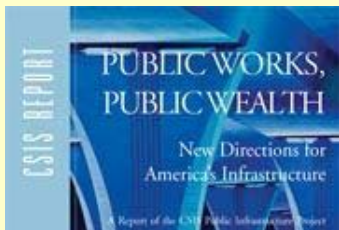


Focus could be on:
Congested areas like intermodal ports
Reducing greenhouse gases
Improving suburban corridors
Intermetropolitan freight and passenger rail



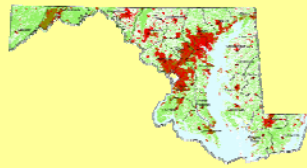
HOW?

1



National

2



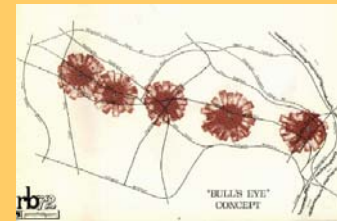
State

3



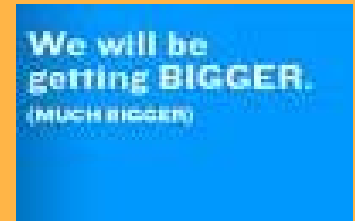
Metropolitan

4



County

5



Locality

National

HOW?

The federal government could help states and metropolitan areas fund nationally significant projects

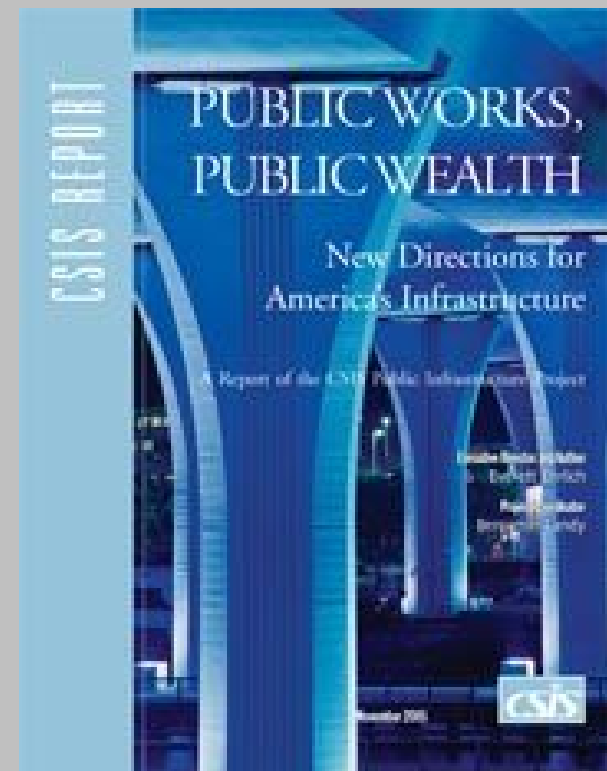
A National Investment Corporation could finance a range of infrastructure projects from road and rails to ports and pipes

Could, over time, replace the existing dedicated transportation trust funds

Would prioritize projects that are critical to the nation's competitiveness

Similar to the European Investment Bank for the European Union

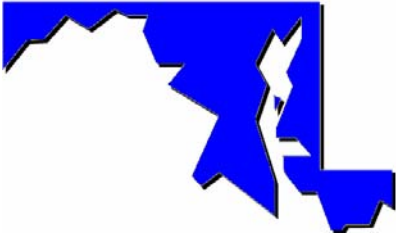
Provocative idea that deserves to be discussed



State

HOW?

Several states are targeting infrastructure and economic development subsidies to prioritized places



Maryland denies the state's entire menu of infrastructure and economic development incentives areas beyond existing water and sewer lines

Illinois is the first state to intentionally link economic development subsidies to jobs close to affordable housing or transit in order to avoid costly new infrastructure expenses



California's Infrastructure State Revolving Fund gives priority to projects that are in existing underserved areas, have a housing plan, revitalize downtowns, and stimulate job growth

Metropolitan

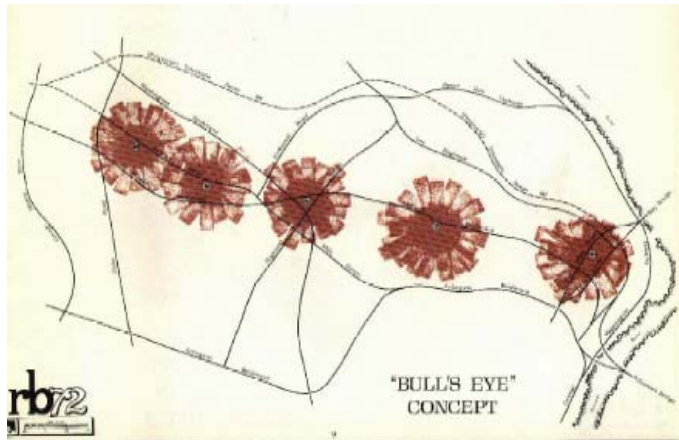
HOW?

Denver is expanding its transit network to accommodate new growth

- FasTracks is the Denver region's plan to build over 100 miles of rail service, 18 miles of bus rapid transit, and accommodate massive increases in density around the stations.
- Expansion will allow 91 percent of households in the region to be within five miles of a transit park and ride



Virginia's Arlington County fundamentally remade a troubled suburban corridor



The vision and investment:

- In 1972, sector plans were created around each metro station to establish land use and development guidelines and ensure a mix of commercial residential and office uses



The outcomes:

- The Rosslyn-Ballston corridor now contains 18,000 housing units and 14 million square feet of office space
- 73,000 jobs are located within a third of a mile from the corridor

Locality

HOW?

New York has an ambitious plan to reinvent itself – *again!*

Mayor Bloomberg's plaNYC 2030 is a far-reaching strategy to:

- Institute congestion pricing in Manhattan
- Reduce the city's carbon emissions by 30 percent
- Create homes for one million more residents
- Ensure that all New Yorkers live within a 10-minute walk of a park

Congestion Pricing Zone





visit metro:

www.brookings.edu/metro

rpuentes@brookings.edu