The Brookings Institution

Metropolitan Policy Program
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Down By The Station:

Exploring the benefits of rail transit in the 21st century

Transportation Forum
Bethlehem, PA
January 16, 2007

Down By The Station:

Potential benefits of rail transit for the 21st century

I What is the context for the discussion about rail transit?

II What are the potential benefits of transit?

III What are the potential barriers and pitfalls?

IV What are some case studies?

V How does this conversation play out in the Lehigh Valley?

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.

Context

Changes in households are presenting new opportunities for cities and first suburbs

- Young professionals
- Childless couples
- New immigrants
- Empty nesters
- Elderly individuals
- Families with children

Context

This growing and diverse population demands a range of choices in housing…

Single family

Apartments for rent

Townhomes

Assisted living

Context

…a range of choices in neighborhoods…

Urban

Mixed use

Single family

Town centers

Context

…a range of choices for shopping…

Downtown

Main street

Shopping mall

Big box

Context

…and a range of choices in transportation.

Non-motor

Automobile

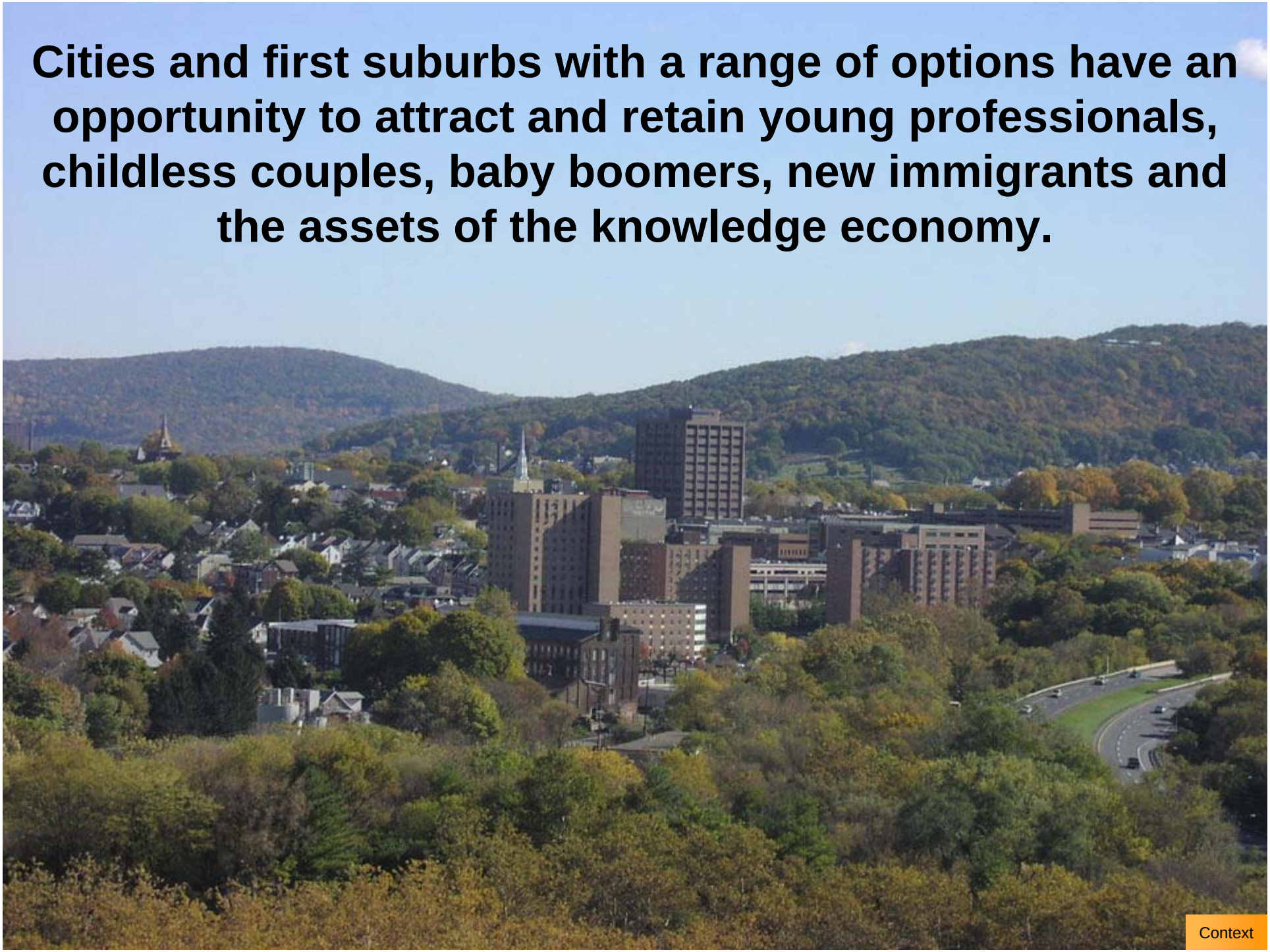
Bus

Paratransit

Rail

Context

Cities and first suburbs 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.



Context

The problem is that many places are not equipped to respond to these changes

Lack of housing choice

Separated land use

Uneven metro growth

Automobile dominated

Declining commercial corridors

Context

Cities and first suburbs need to plan for change and rethink their attitudes toward several key issues:

DENSITY Today's demographic and market changes favor more housing choices and quality development

DESIGN More and more emphasis is being put on the value of place. The built environment is the connective tissue.

DIVERSITY Tolerant, inclusive places are highly sought-after and are able to respond more quickly to pressing challenges

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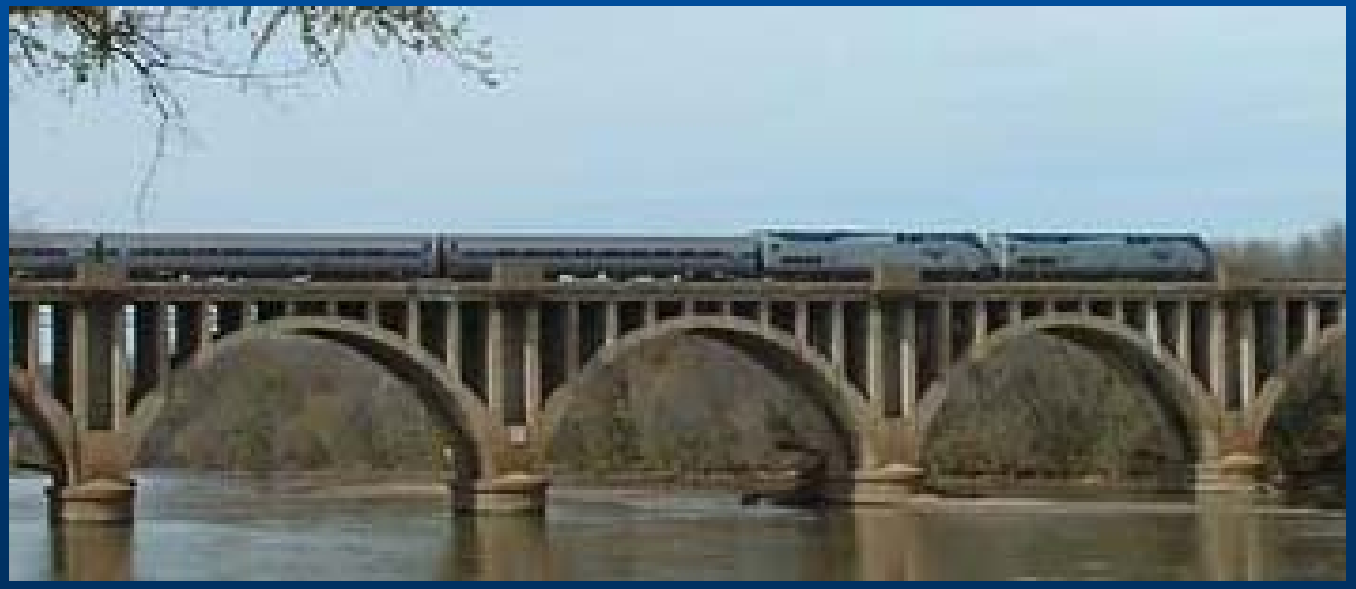
Passenger rail transit in America: a refresher

Commuter rail

Heavy rail (subway)



Intermetropolitan (Amtrak)

Benefits

Passenger rail transit in America: a refresher

Streetcar

Trolley

Monorail

Light rail

Benefits

Potential benefits of transit

Impacts on the transportation network

Energy and environment

Household savings

Development opportunities

Public transportation takes drivers off the road

According to the Texas Transportation Institute (in the 85 urban areas studied) there were approximately 43 billion passenger-miles of travel on public transportation systems in 2003:

If these riders were not handled on public transportation systems they would contribute an additional roadway delay of over one billion hours - or 29% of total delay.

Population Group & Number of Areas	Population Group Average Annual Passenger-Miles of Travel (million)	Delay Reduction Due to Public Transportation	
		Hours of Delay (million)	Percent of Base Delay
Very Large (13)	2,718	919.2	36.4%
Large (26)	233	148.3	17.0%
Medium (30)	58	26.5	9.2%
Small (16)	17	1.5	4.4%
85 Area Total	43,403	1,095.5	29.4%

SOURCE: Shrank and Lomax, 2005; Litman, 2004

Each transit passenger-mile represents a reduction of 3 to 6 automobile vehicle-miles

Indirect Travel Impacts: VMT Reductions Due to Transit

Study	Cities	Vehicle Mile Reduction Per Transit Passenger Mile	
		Older Systems	Newer Systems
Pushkarev-Zupan	New York, Chicago, Philadelphia, San Francisco, Boston, Cleveland	4	
Newman-Kenworthy	Boston, Chicago, New York, San Francisco, Washington, DC	2.9	
Newman-Kenworthy	23 developed/country cities	3.6	
Holtzclaw, 1991	San Francisco and Walnut Creek	8	4
Holtzclaw, 1994	San Francisco and Walnut Creek	9	1.4
MTC/Raft 2010			4.4
Littman, 2004	50 largest U.S. cities.	4.4	

SOURCE: Holtzclaw, 2000 in Littman, 2006

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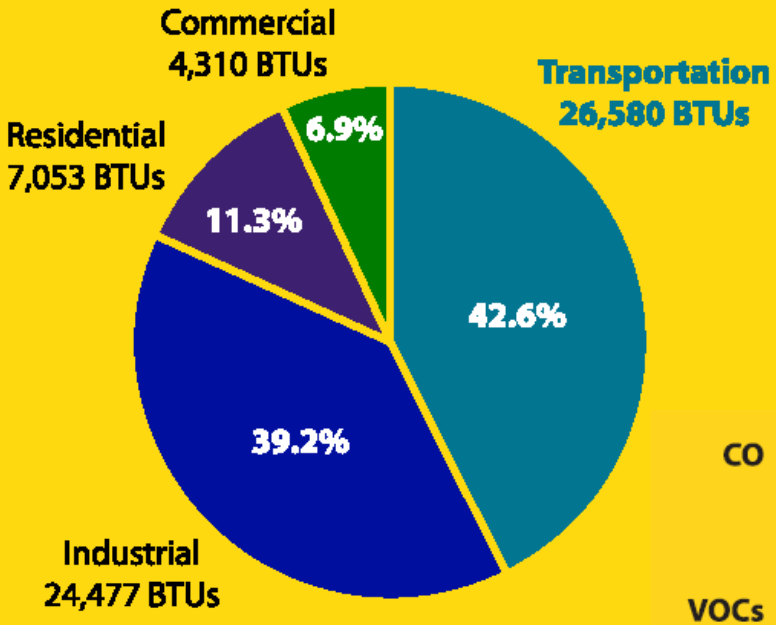
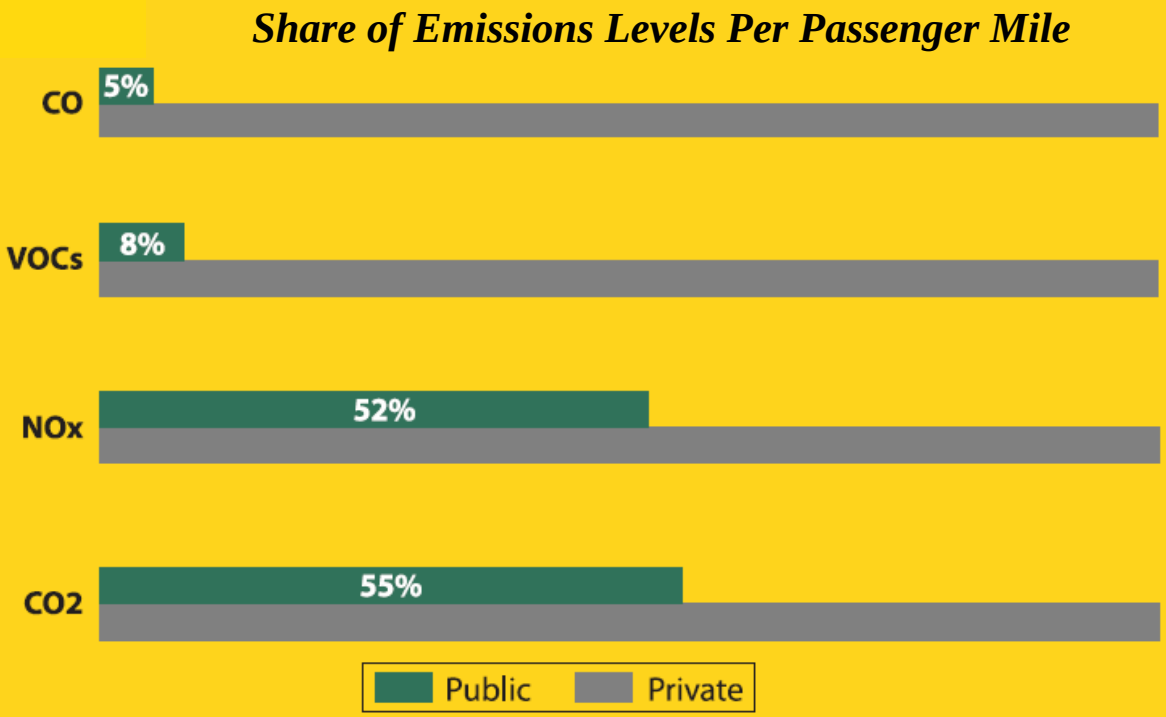
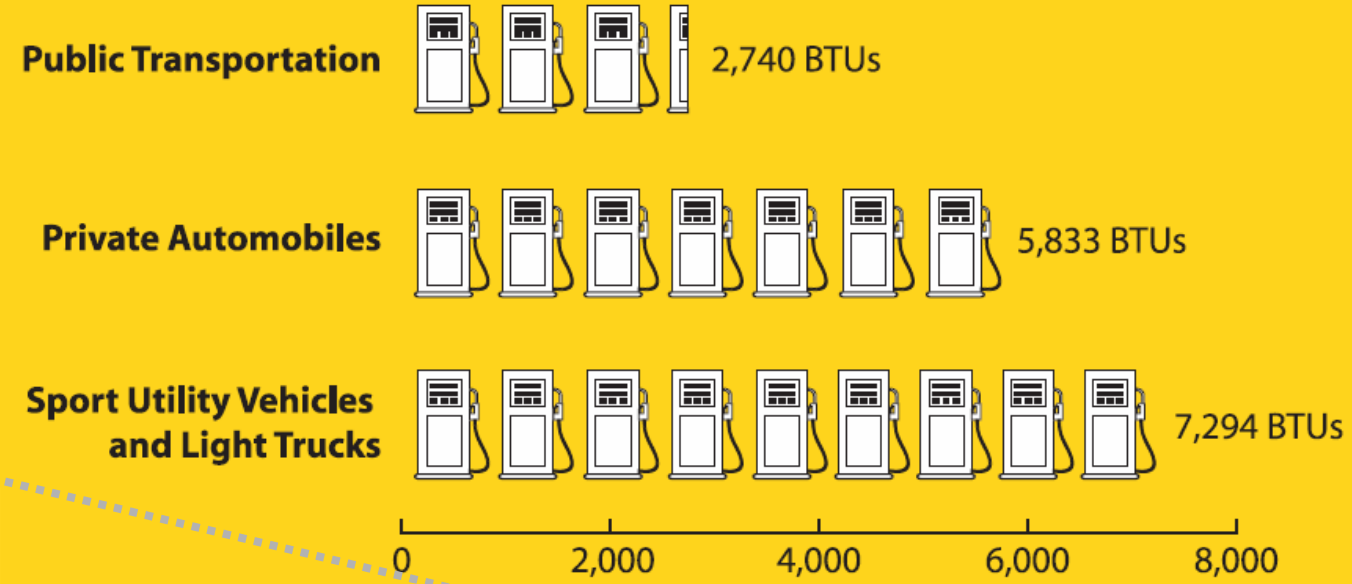
Americans use more energy for transportation than any other activity – but public transport is cleaner





SOURCE: Shapiro Hassett Arnold 2004

Public transportation uses one-half the fuel of private cars - about one month's oil imports from Saudi Arabia



If This Portion of the U.S. Population Used Public Transportation on a Regular Basis:	Approximate Monthly Equivalent Savings in Saudia Arabian Oil Imports
Current Levels: 1-2%	One Month
7%	Six Months
10%	One Year

SOURCE: Shapiro Hassett Arnold 2004

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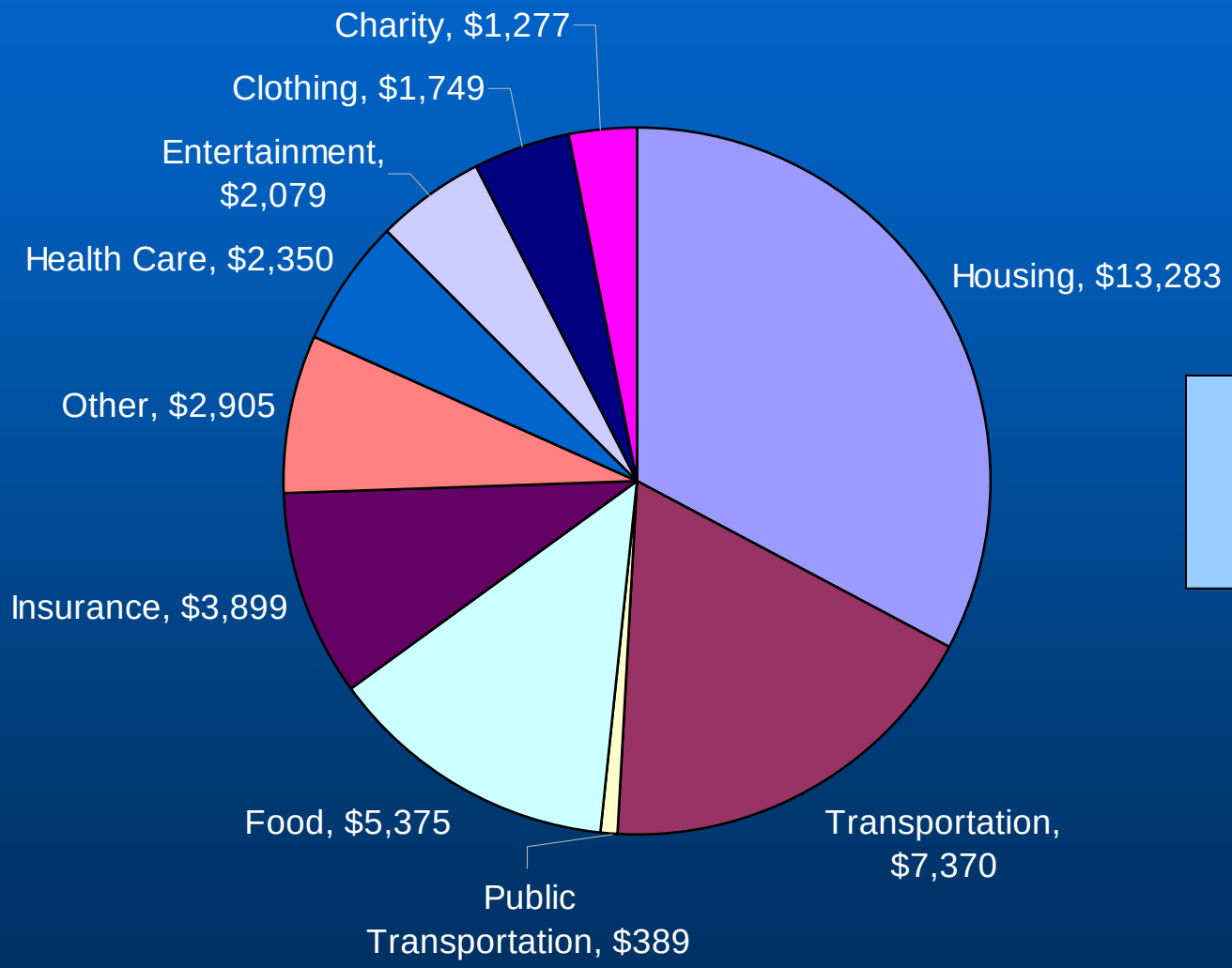
Transportation costs are the second largest household expense, after housing

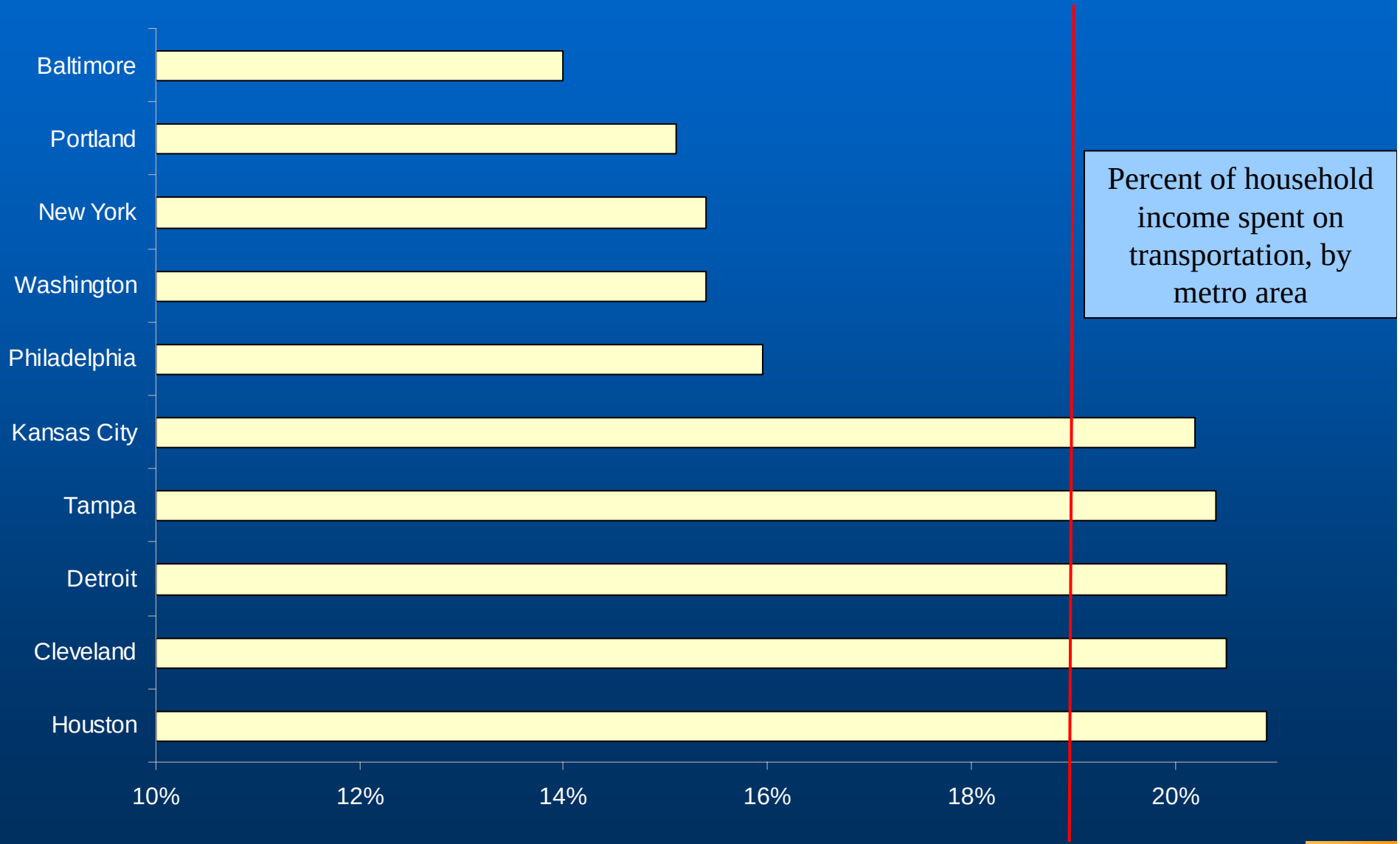


Average annual household expenditures, 2002–2004

SOURCE: BLS, Consumer Expenditure Survey, 2006

Benefits

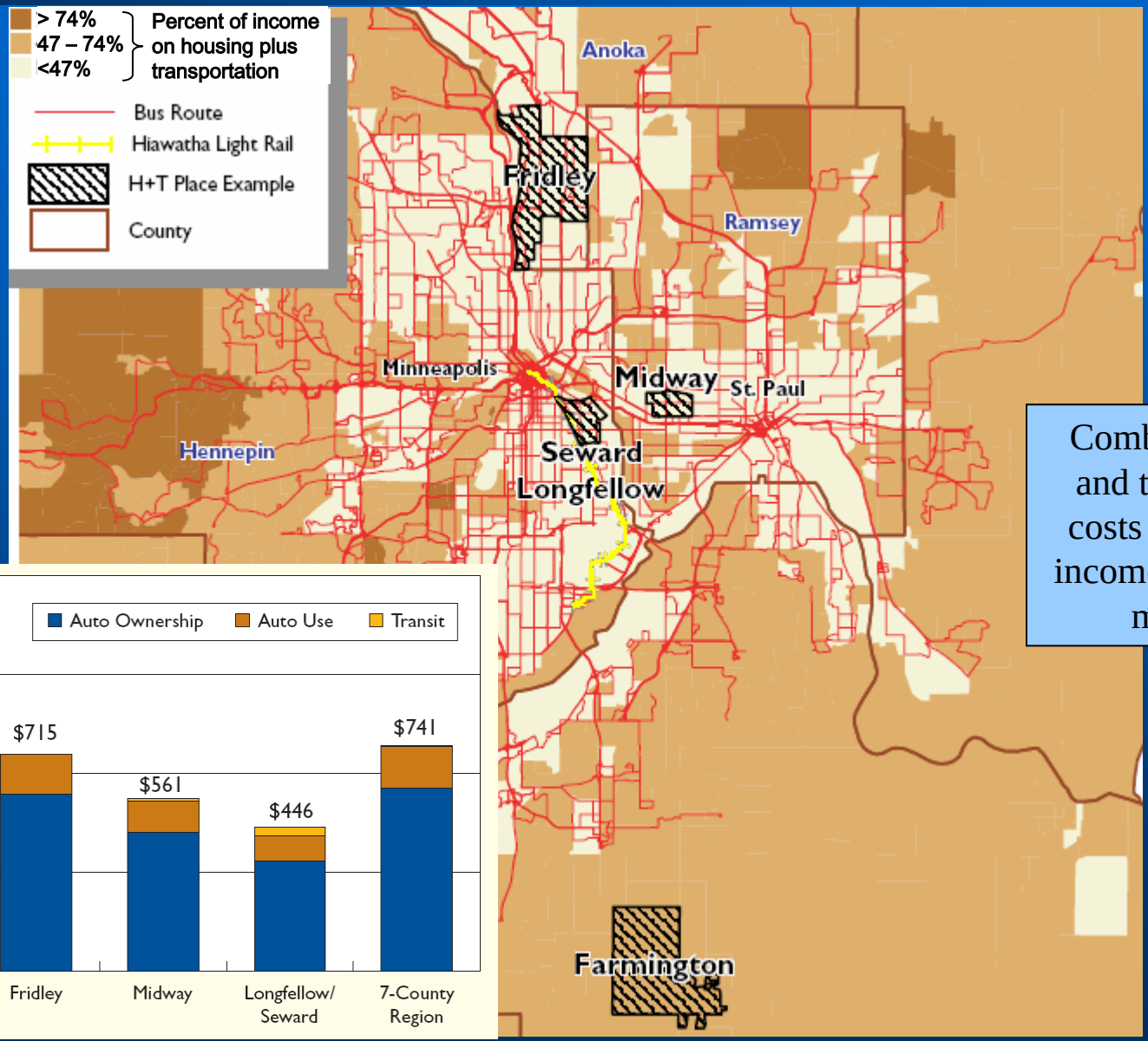
Americans living in transit-intensive metropolitan areas save $22 billion annually in transportation costs

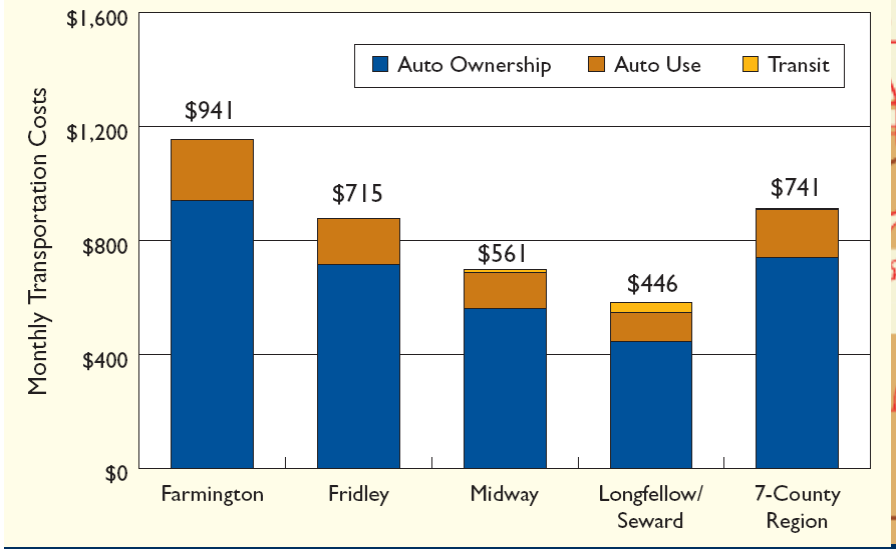


SOURCE: CNT and STPP, 2005; and cited in NCTR, 2004

Benefits

The combined costs of housing and transportation are most affordable in areas well served by public transit





Combined housing and transportation costs a a percent of income, Minneapolis metro area

SOURCE: CTOD & CNT, 2006

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A primary benefit of rail transit is that it facilitates transit oriented development

Transit Oriented Development (TOD) is:

Neighborhood or community centered around a transit station

An area that has enough people and activities to use a transit station as a community hub

A community with a mix of uses; including residential, retail, and commercial, within easy walking distance of the transit station

A transit station with easy access, including viable connections with other transportation such as neighborhood buses and bicycle trails

SOURCE: Federal Transit Administration, 2005

The benefits of TOD are being realized by many communities:

- **Better integration of transit service to the neighborhood**
- **Greater use of the transit system for everyday activities**
- **More pedestrian-friendly, human scale communities**
- **Healthier, cleaner environments as more people realize the benefits of rail transit**
- ***Stronger cities, first suburbs, and entire metropolitan areas***

SOURCE: Litman, 2006

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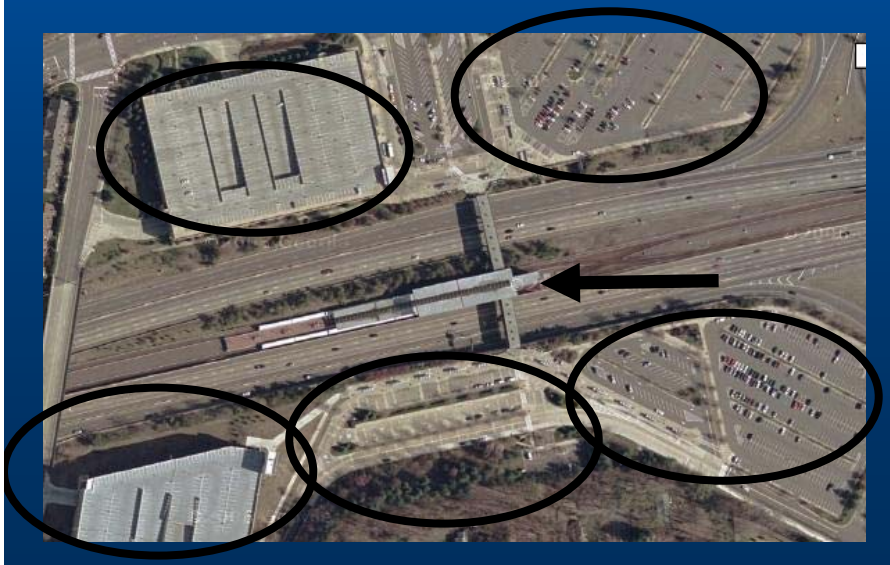
While the potential benefits are clear, serious concerns about rail transit do exist:



Competition for federal and state transit dollars is intense

Impact on congestion is dubious

Rail transit is often expensive and potentially shifts priorities from other modes, especially bus

Low density environments are extremely difficult to serve by rail transit

Locals are often reluctant to increase densities – yet fundamental land use reform is essential

And although TOD can transform neighborhoods, there are related concerns:

- **Few firms that finance development are familiar with TOD**
- **TOD is design intensive**
- **Required parking ratios need to be in balance with TOD**
- **TOD often takes longer than conventional development to realize a profit**
- **Requires rather extensive transit network**
- **Demands innovative partnerships**
- **May not generate new development**

SOURCE: Federal Transit Administration, 2005

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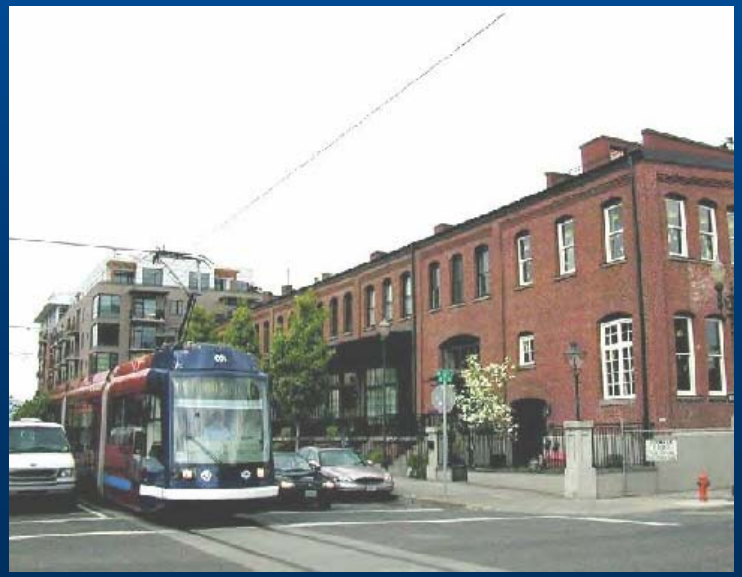
Portland, Oregon (Pearl District)



Attracted $2.3 billion in less than 5 years - all within 2 blocks of the line: 7,500 housing units, 4.6 million sq feet of office and retail.

Proximity to transit allowed developers to build less parking spaces.

Ridership is triple projections.

Largely financed through local sources (revenue bonds on a public parking garage rate increase, TIF from the urban renewal areas and property assessment through a local improvement district), allowed more local control and flexibility.

SOURCE: El Nasser, 2007; and Reconnecting America, 2006

Some older cities with rail connections are getting a second look

Kenosha, Wisconsin (population: 93,000) revived its 2 mile vintage streetcar system in 2000 at a cost of just $4,000,000.

Kenosha and Lowell are attracting residents escaping high housing costs in Chicago and Boston.

Lowell, Massachusetts (population: 103,000) is overhauling local zoning and land use codes to build on its existing rail connection and plan for economic development.

SOURCE: GAO, 2006; and Brookings, *forthcoming*

Commuter rail is stimulating TOD in Minneapolis

Pursued TOD projects concurrent with rail planning.

$4 billion in TOD springing up in corridor.

City of Elk River adopted a resolution committing to TOD, and incorporated related principles into the comprehensive planning and zoning ordinances.

Elk River Station Development includes:
– commercial, retail and rental office space
– 475 residential units
– 2 spaces per dwelling unit rather than 2.5

SOURCE: Yantos, 2005

Light rail turns Dallas residents into transit lovers

Between 1996 and 2002, rail spurred $1 billion in investment in Dallas area TOD's.

Office properties in Dallas TOD's have a 53% higher value appreciation than similar office developments not located in TOD's.

Twelve Metroplex communities are currently planning or constructing TOD's to be serviced by rail.

In 2000 77% of area voters approved a bond measure to expand the system.

SOURCE: Dittmar and Ohland, 2006

Arlington accommodates a lot of development in order to protect neighborhoods

Arlington's Rossyln-Ballston Corridor is probably the best example of using rail to support a suburban community.

Over 30 million square feet of new development has located around Arlington's TOD's.

Arlington had no downtown at all in the early 1980's; it now has one of the nation's five densest downtowns.

Arlington now has the lowest tax rate in the DC metro area.

And Arlington accomplished this while still protecting the character of its single family neighborhoods.

SOURCE: Dittmar and Ohland, 2006

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Concluding thoughts for the Lehigh Valley

- Be realistic about the benefits of rail and plan carefully.
- Think about the purpose of this potentially huge public investment.
- Commit to fundamentally overhauling local land use.

- Like other cities around the nation, the Lehigh Valley is serving as an escape valve for high housing prices in New York and New Jersey.
- At the same time, there is a clear need for reinvestment and redevelopment.
- Rail should be considered as a transformative investment for revitalizing the Lehigh Valley's cities and first suburbs, rather than a congestion-reliever.

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REFERENCES:

Bureau of Labor Statistics, 2006, "Consumer Expenditure Survey," U.S. Department of Labor.

Center for Neighborhood Technology and Surface Transportation Policy Partnership, 2005, "Driven to Spend: Pumping Dollars out of Our Households and Communities."

Center for Transit-Oriented Development and the Center for Neighborhood Technology, "The Affordability Index: A New Tool for Measuring the True Affordability of a Housing Choice," Brookings Institution.

David Schrank and Tim Lomax, 2005, "The 2005 Urban Mobility Report," Texas Transportation Institute.

Federal Transit Administration, 2005, "TOD Lessons Learned," U.S. Department of Transportation.

Government Accountability Office, 2006, "Rail Transit: Additional Federal Leadership Would Enhance FTA's State Safety Oversight Program."

Hank Dittmar, Gloria Ohland, 2003, The New Transit Town: Best Practices in Transit-Oriented Development Island Press.

Haya El Nasser, 2007, "Cities Rediscover Allure of Streetcars," USA Today, January 10.

John Holtzclaw, 2000, "Does A Mile In A Car Equal A Mile On A Train? Exploring Public Transit's Effectiveness In Reducing Driving," The Sierra Club.

National Center For Transit Research, 2004, "Relationships Between Business and Public Transportation."

Reconnecting America, 2006, "Portland's Streetcar Corridor, from the Pearl District to South Waterfront," in Transit Oriented Development and Housing.

Robert J. Shapiro, Kevin A. Hassett and Frank S. Arnold, 2002, "Conserving Energy and Preserving the Environment: The Role of Public Transportation," American Public Transportation Association.

Tim Yantos, 2005, "Northstar Commuter Rail: A Story of Partnerships, Public Involvement and Persistence."

Todd Litman, 2006, "Evaluating Public Transit Benefits and Costs," Victoria Transport Policy Institute.