

*Transit Oriented Development:  
What Does the Research Tell Us?*

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## About the Voorhees Transportation Center (VTC)

- Established in 1998 to honor the legacy of Alan M. Voorhees, a leading 20<sup>th</sup> Century transportation planner with ties to Rutgers University
- Created to conduct research that explores transportation linkages to other public policy areas and provide a forum for informed public discussion of transportation policy issues facing the state and nation

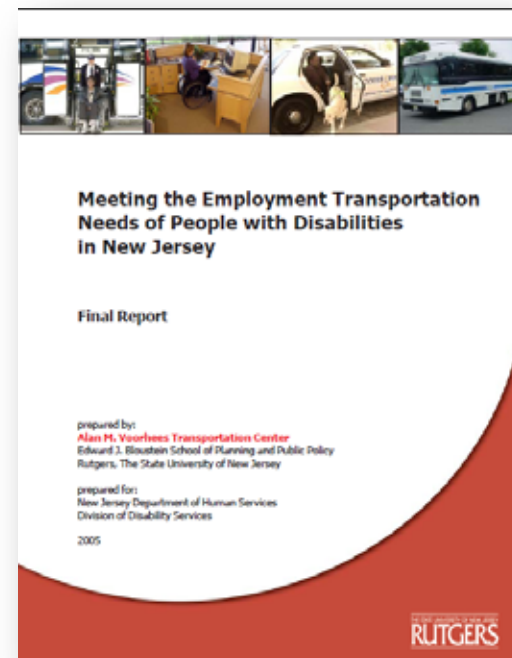


**RUTGERS**

Edward J. Bloustein School  
of Planning and Public Policy

## Primary Activities

- Policy-oriented Research
  - Statistical analysis of data
  - Program evaluation
  - Applied planning studies
- Education and Training
  - Continuing education for career professionals
  - Student involvement in research studies
- Service
  - Dissemination of research to transportation experts & policy makers
  - Annual distinguished lecture on current policy topic
  - Media outreach



## TOD Research at VTC

- Transit Village Program Monitoring & Evaluation
- Transit Friendly Development Newsletter
- Eliminating Barriers to Transit-Oriented Development
- Benefits of Transit-Oriented Development
- Economic Impacts of the RiverLine
- An Evaluation of Property Values in New Jersey Transit Villages
- Land Development at Selected Hudson-Bergen Light Rail Stations



## Presentation Outline

- What is TOD?
- What trends are influencing demand for TOD?
- What does research tell us about TOD impacts?
  - Household Characteristics
  - Transit Use
  - Auto Ownership





Transit-Oriented Development

# BACKGROUND AND CONTEXT

## What is TOD?



New Brunswick, NJ

- Mixed land use
- Compact
- Pedestrian and bicycle friendly
- Oriented to a public transit facility



Cranford, NJ



Jersey City, NJ

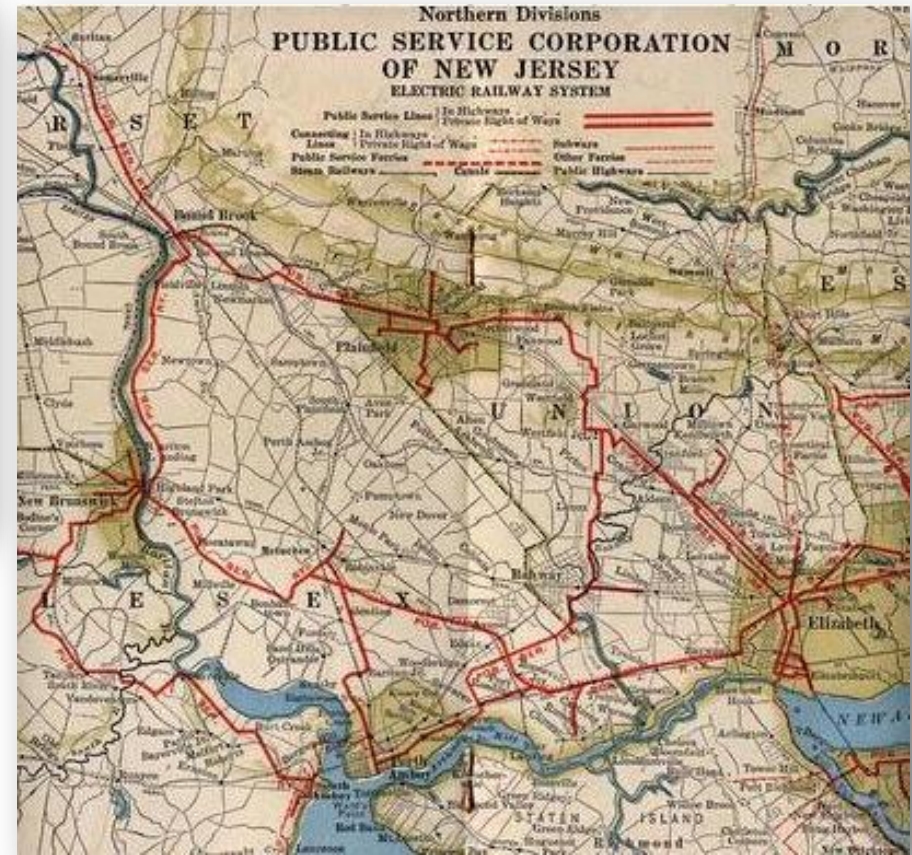


Metuchen, NJ

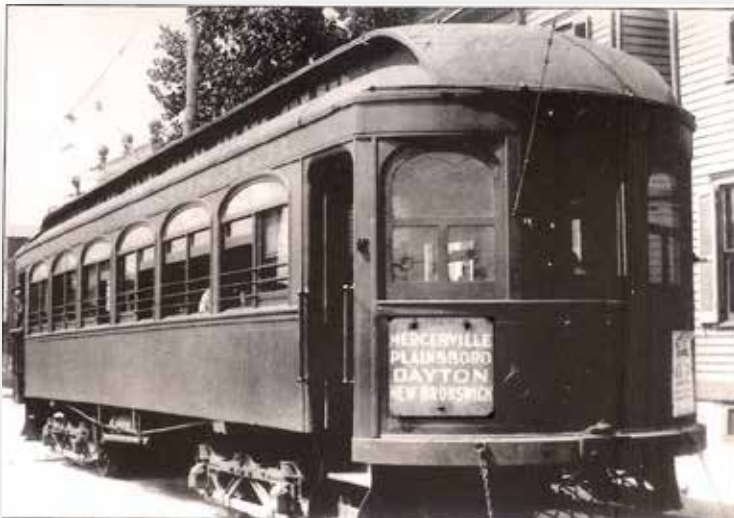
# The concept of TOD is not new



Montclair, NJ



Electric railways in Union County, NJ



Trenton to New Brunswick Fast-line

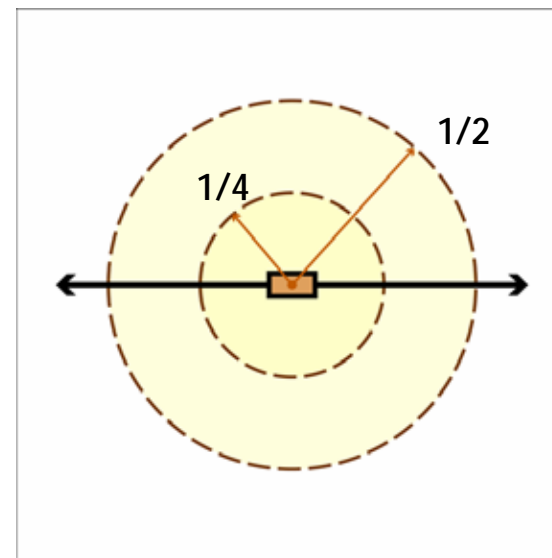


# Basic TOD Site Design



TAD (Transit-Adjacent Development)

- Geographic scale:
  - ¼ to ½ mile of station
  - Corresponding to a transit access “walk shed”



# Factors Encouraging Dispersed Development

- Ubiquity of automobiles and highway investment
- Land use regulations
- Tax policies
- Amenities of low-density neighborhoods
- Land costs
- Travel factors
  - e.g., growth in two-earner households



# Factors Encouraging Compact Development

- Demographics
  - Aging population
  - Decreasing household size
- Traffic congestion
- Immigration and internationalization
- Positive examples of more dense development
- Changing preferences and tastes





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# HOUSEHOLD CHARACTERISTICS

## TOD Resident/Tenant Characteristics

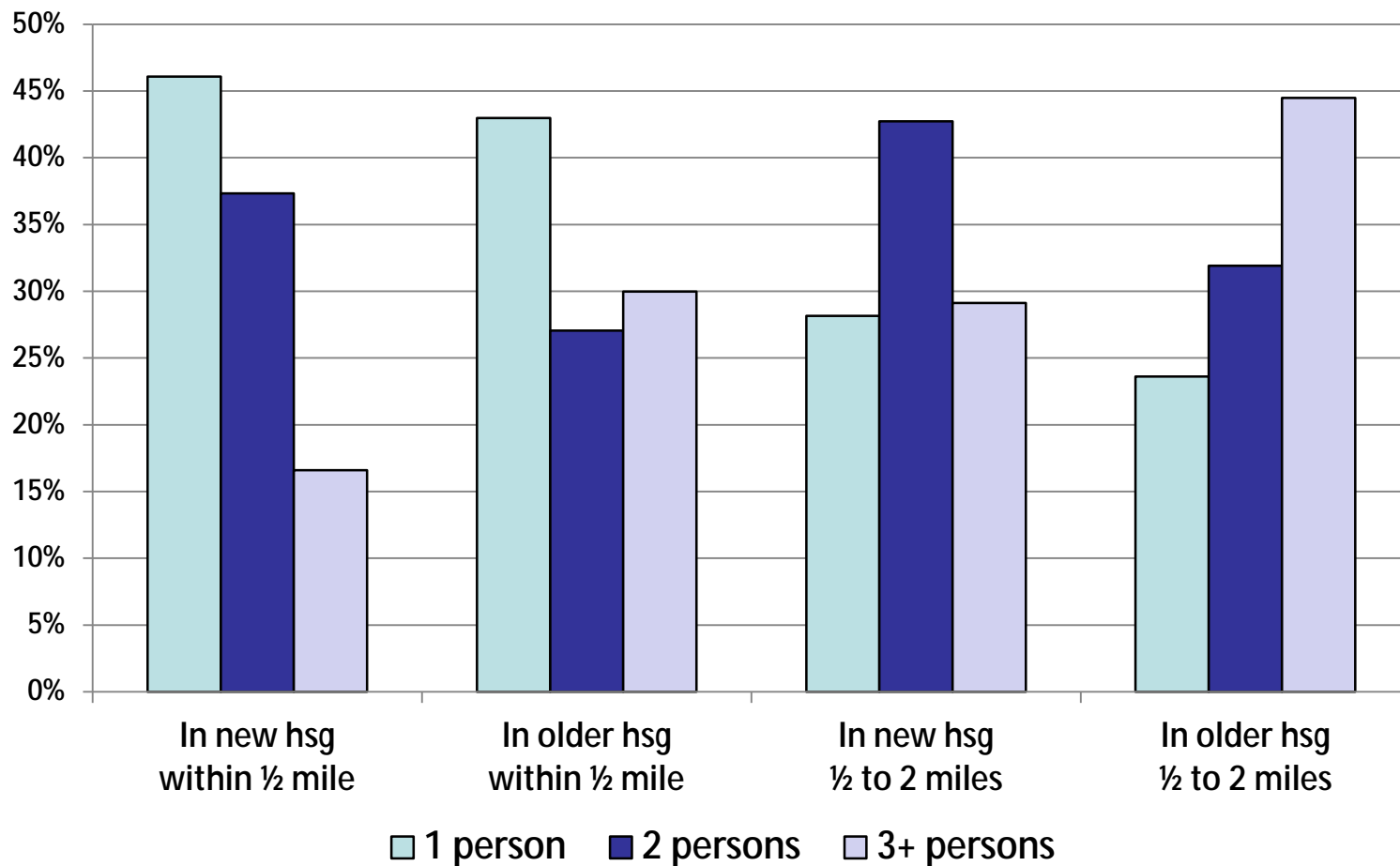
- Majority of TOD residents in new transit systems are smaller, childless households

**Table 1.13. Household size by transit system size, 2000.**

System Size	One Person Households		Families of Three or More People	
	Transit Zones	Metro Area	Transit Zones	Metro Area
Small	51%	27%	19%	40%
Medium	38%	26%	31%	41%
Large	38%	24%	34%	45%
Extensive	34%	27%	36%	42%

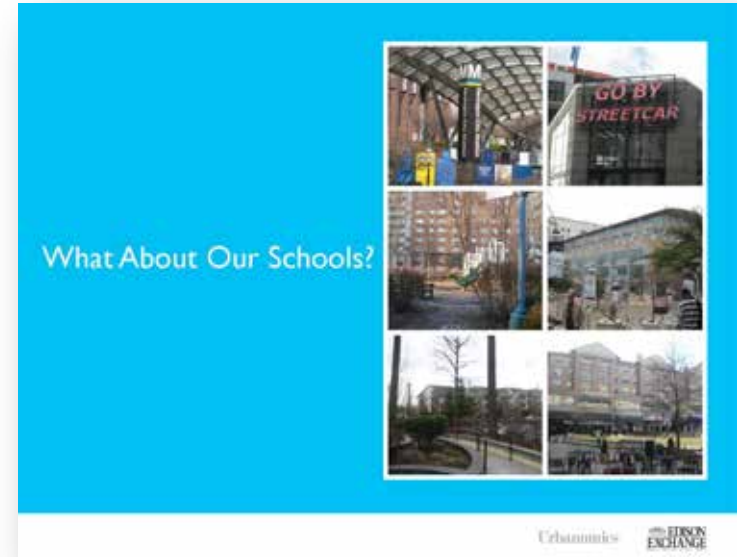
- TOD residents typically own fewer cars
  - Twice as likely to not own any car and own half as many cars as their metro region counterparts

# Household Size in New Jersey TODs



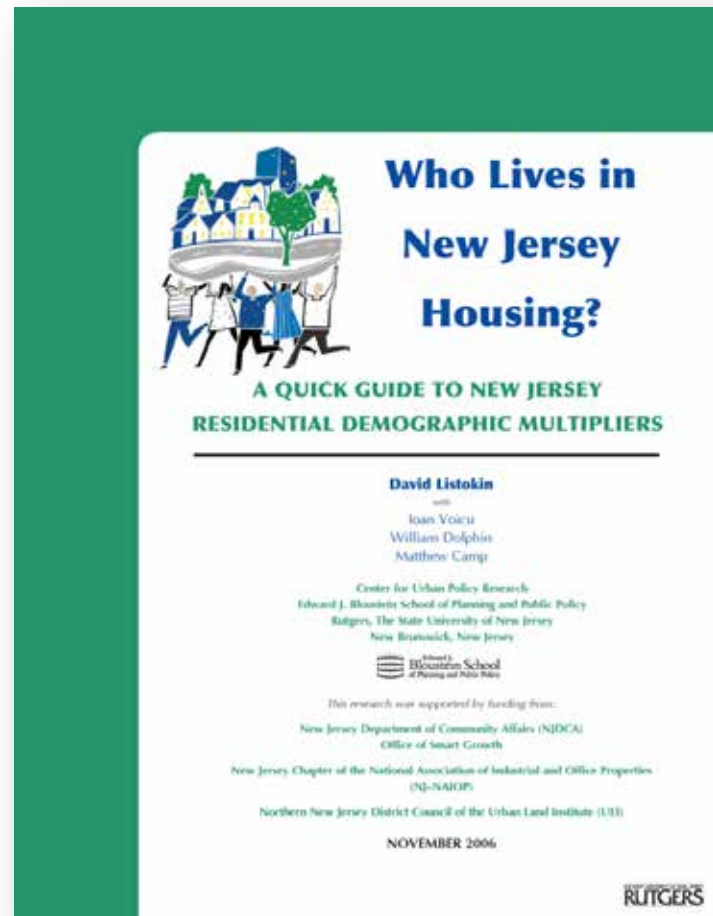
## School Enrollment Impact of TOD

- TODs house more single person and smaller households than other types of housing
  - Fewer school-age children
  - Less financial burden on local schools
- Analysis of 32 TOD projects in 5 states:
  - Average generation rate of 0.03 per unit or 3 school aged children per 100 units
  - Range of generation rates 0.00 to 0.12 or 0 to 12 school aged children per 100 units



## School Enrollment Impacts in NJ

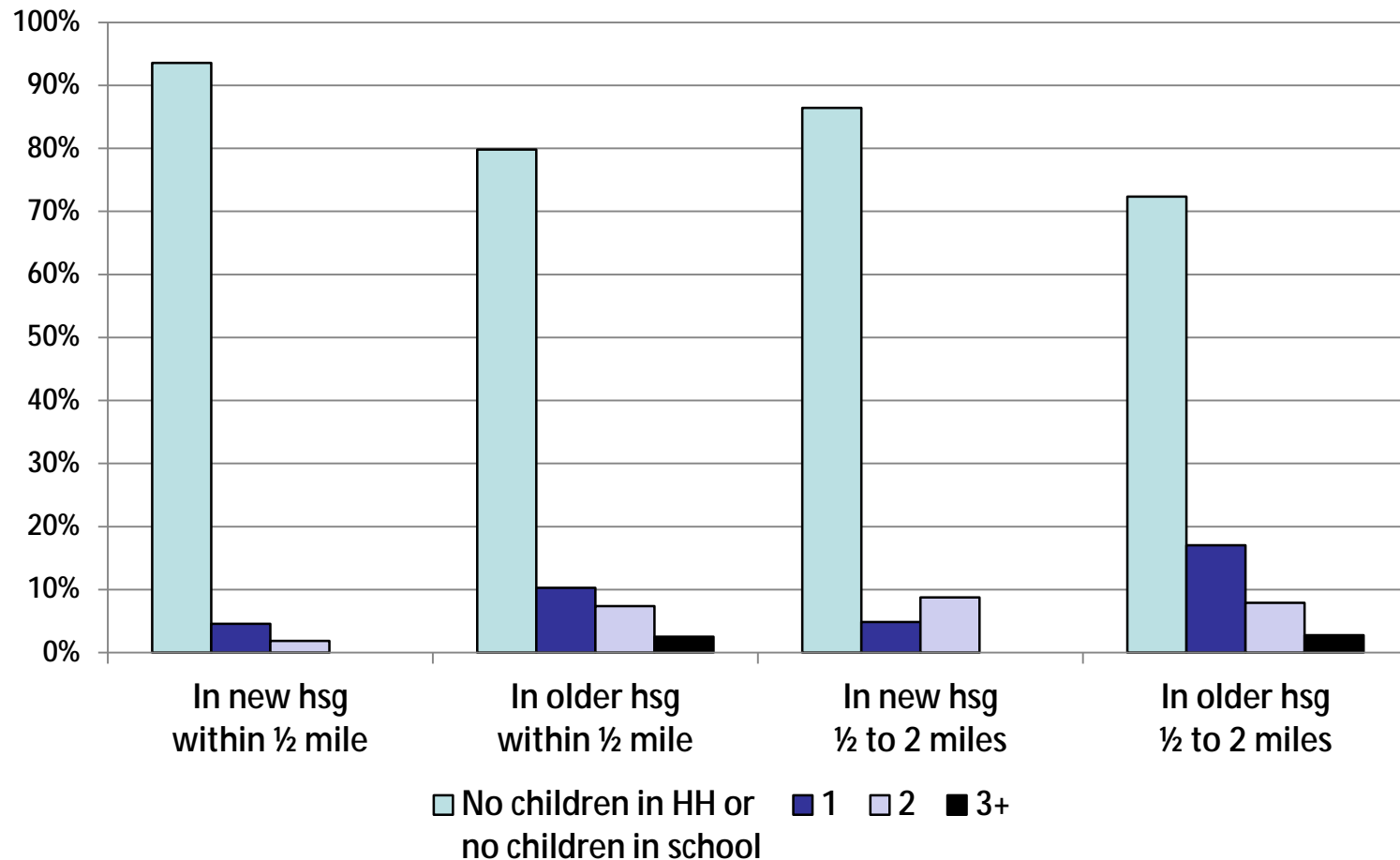
- National trends hold true in NJ
- More single person & smaller HHs
- Fewer kids than other types of housing
- 10 NJ TODs
  - Total of 2,183 units – all rental
  - 47 school aged children
  - Generation factor of 0.02



Source: Listokin, D. (2006) Who Lives in New Jersey Housing?



# School Enrollment in NJ TODs



## School Enrollment Impacts in NJ

- 94% of households in new TODs have no children in NJ public schools
- Number of public school children in new housing near stations ( $\frac{1}{2}$  mile) is about 60% lower than new housing  $\frac{1}{2}$  to 2 miles away – 50% lower when controlling for local school quality



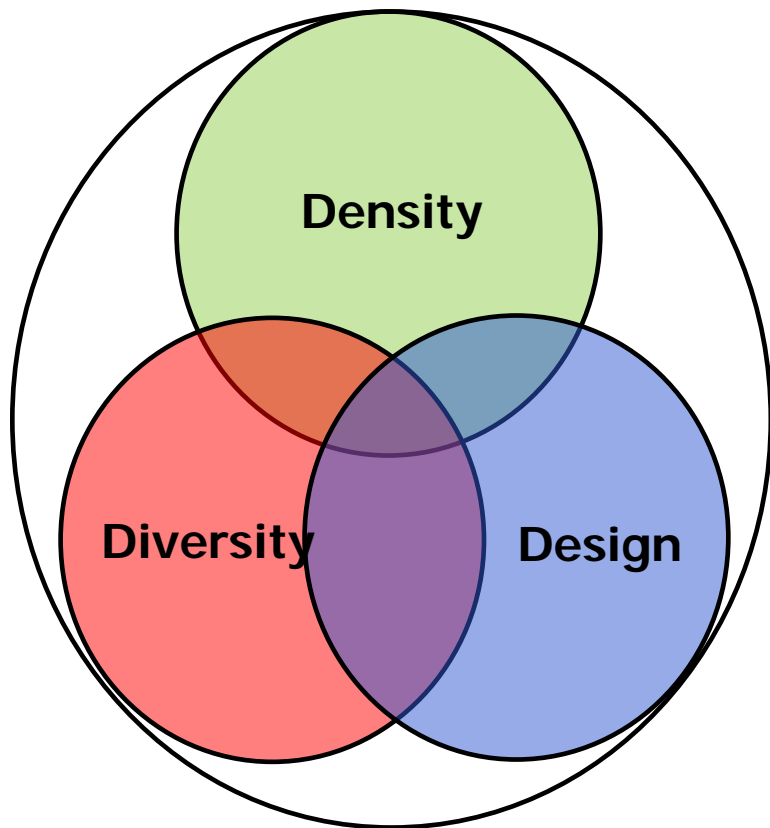


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# AUTO OWNERSHIP AND TRAVEL CHARACTERISTICS

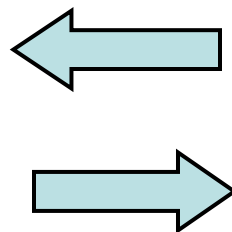
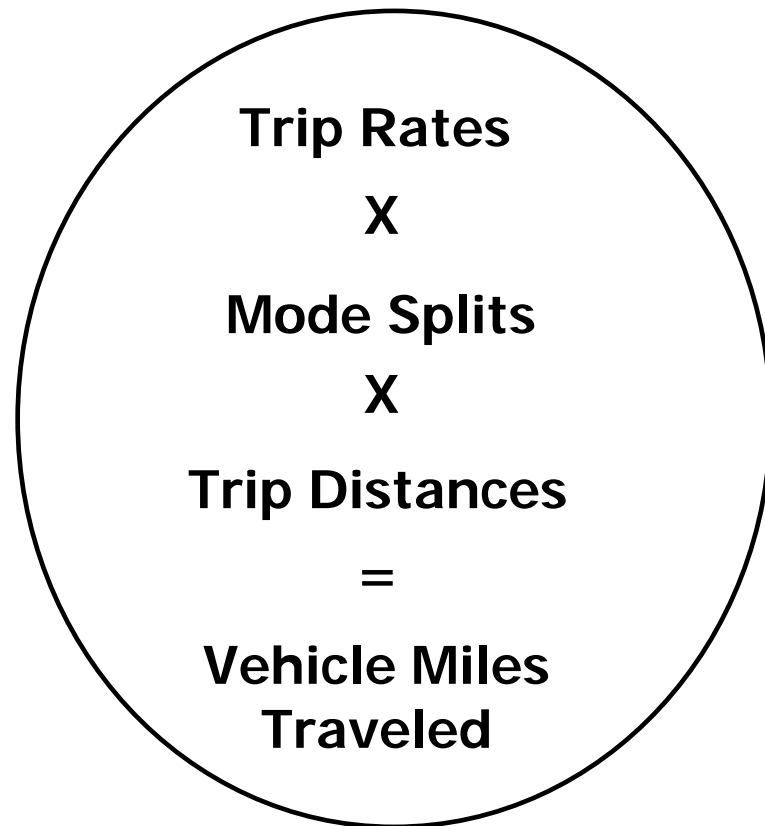
# Land Use Influences Travel Demand

## Built Environment



4<sup>th</sup> D – Destination Accessibility

## Travel Demand



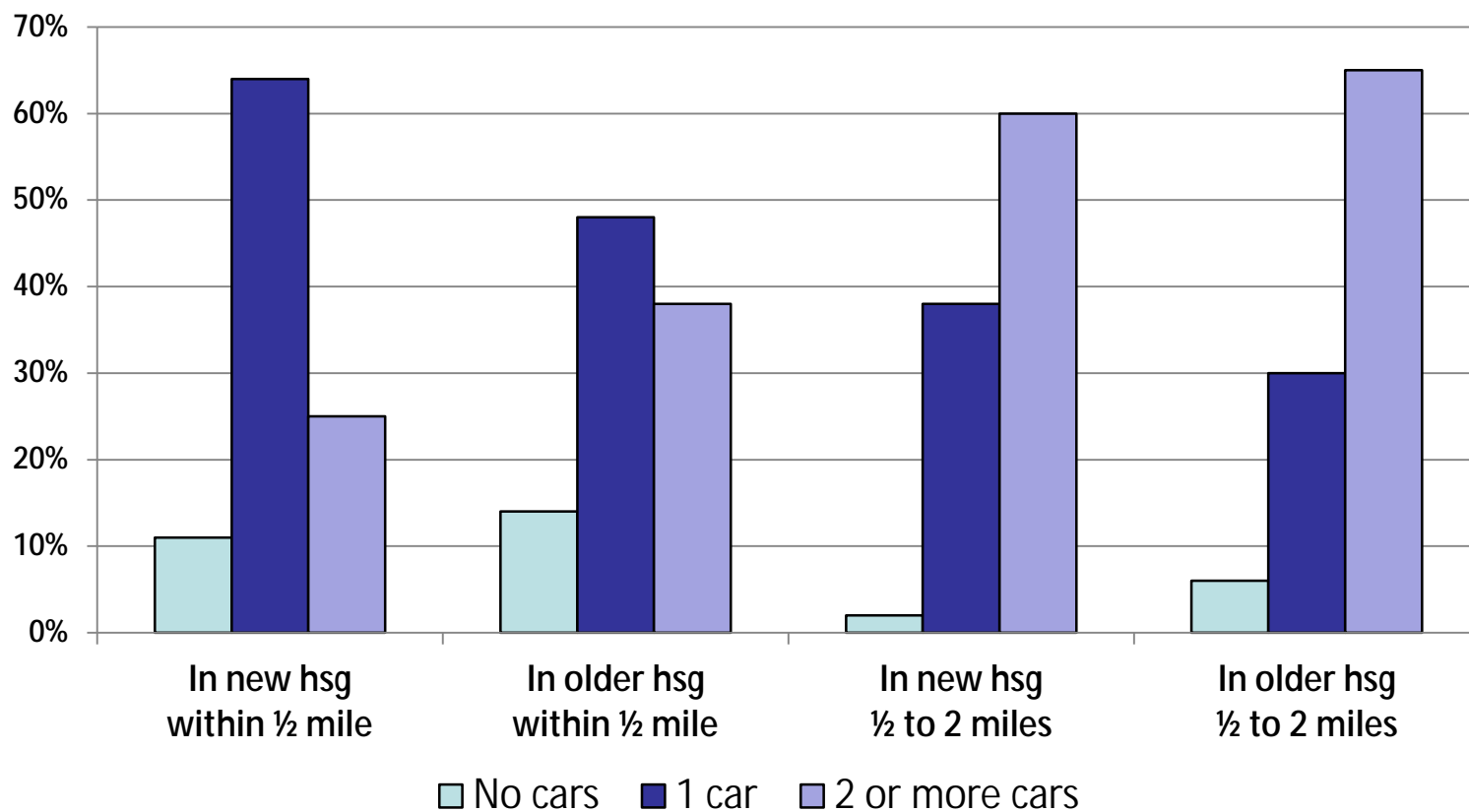
**Table 1.18. 2000 auto ownership for selected TODs.**

Community	Cars/ Household	TOD Type
<b>Arlington County, VA</b>	<b>1.4</b>	<b>County</b>
Court House	1.1	Suburban Center
Clarendon	1.3	Suburban Center
Rosslyn	1.1	Suburban Center
Ballston	1.2	Suburban Center
<b>San Francisco, CA</b>	<b>1.1</b>	<b>County</b>
Church/24th	1.1	Urban Neighborhood
Embarcadero	0.5	Urban Neighborhood
<b>Cook County, IL</b>	<b>1.4</b>	<b>County</b>
LaSalle	0.7	Urban Downtown
Chicago/Fullerton	1.1	Urban Neighborhood
Chicago/Berwyn	0.7	Urban Neighborhood
Evanston/Davis	1	Suburban Center
Evanston/Dempster	1.2	Suburban Neighborhood
Evanston/Main	1.3	Suburban Neighborhood

Source: Dittmar and Ohland, 2004

# Auto Ownership in NJ TODs

## Vehicles Available per Household



## TOD Housing and Transportation Performance

- Residential TOD trip generation rates are significantly lower than non-TOD development ( based on ITE manual)
  - 44 percent lower overall
  - 49 percent lower in AM peak period
  - 48 percent lower in PM peak period
- Trip reduction effects of TOD housing derive from:
  - Residential self-selection
  - Presence of in-neighborhood retail located between residences and stations that facilitate transit-pedestrian trip-chaining
  - “Car-shedding”

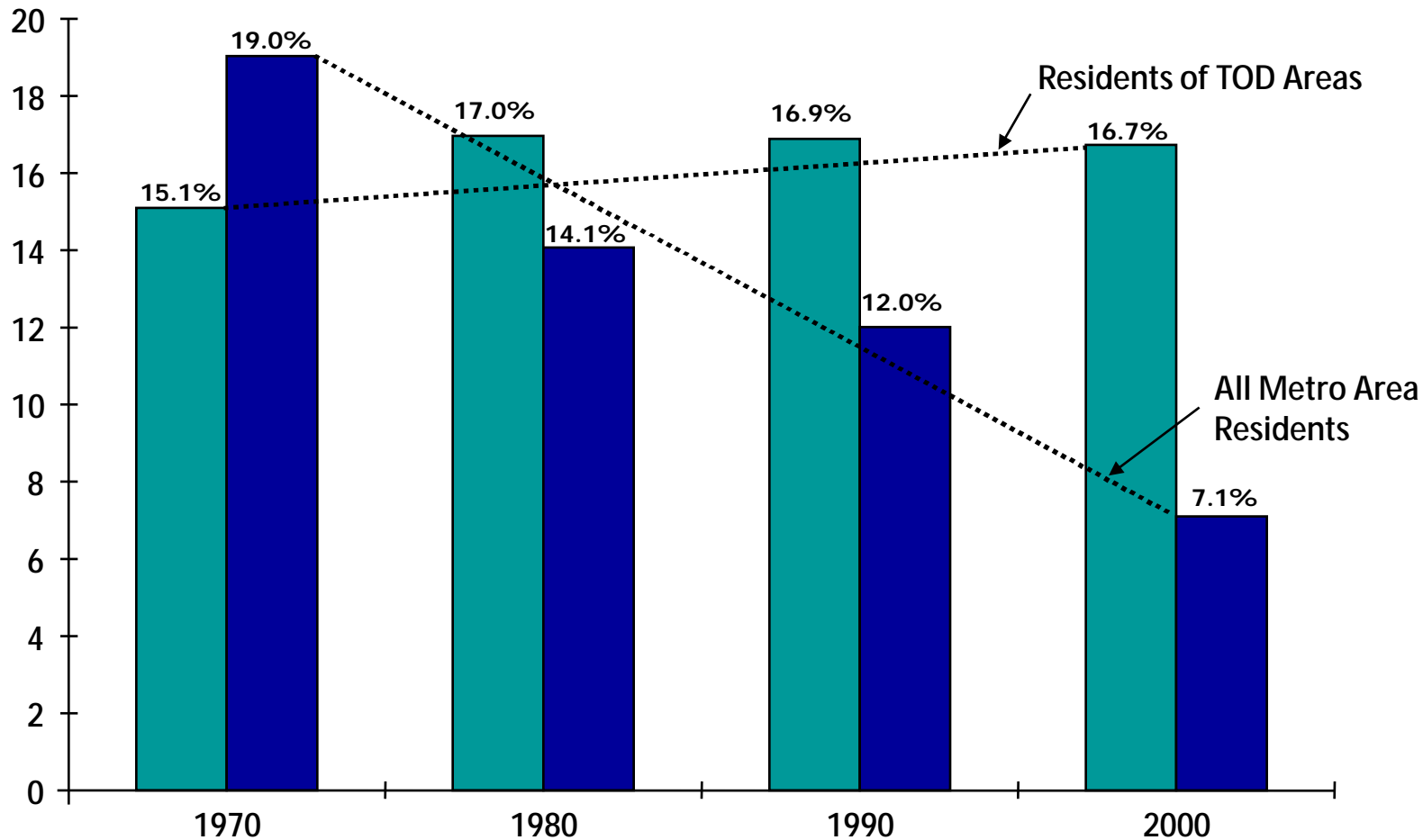
## TOD & Travel Characteristics

- TOD commuters are 2-5 times more likely to use transit for both commute and non-work trips than non-TOD residents in the same region
  - Mode shares range from 5-50 percent or more for work trips and 2-20 percent for other trip purposes
  - Transit connectivity and destination accessibility increase transit share
- TODs have about 3.5 times more walking and cycling than MSAs
  - Walk/bike mode share for work trips 11.2% in TODs versus 3.2% in regions

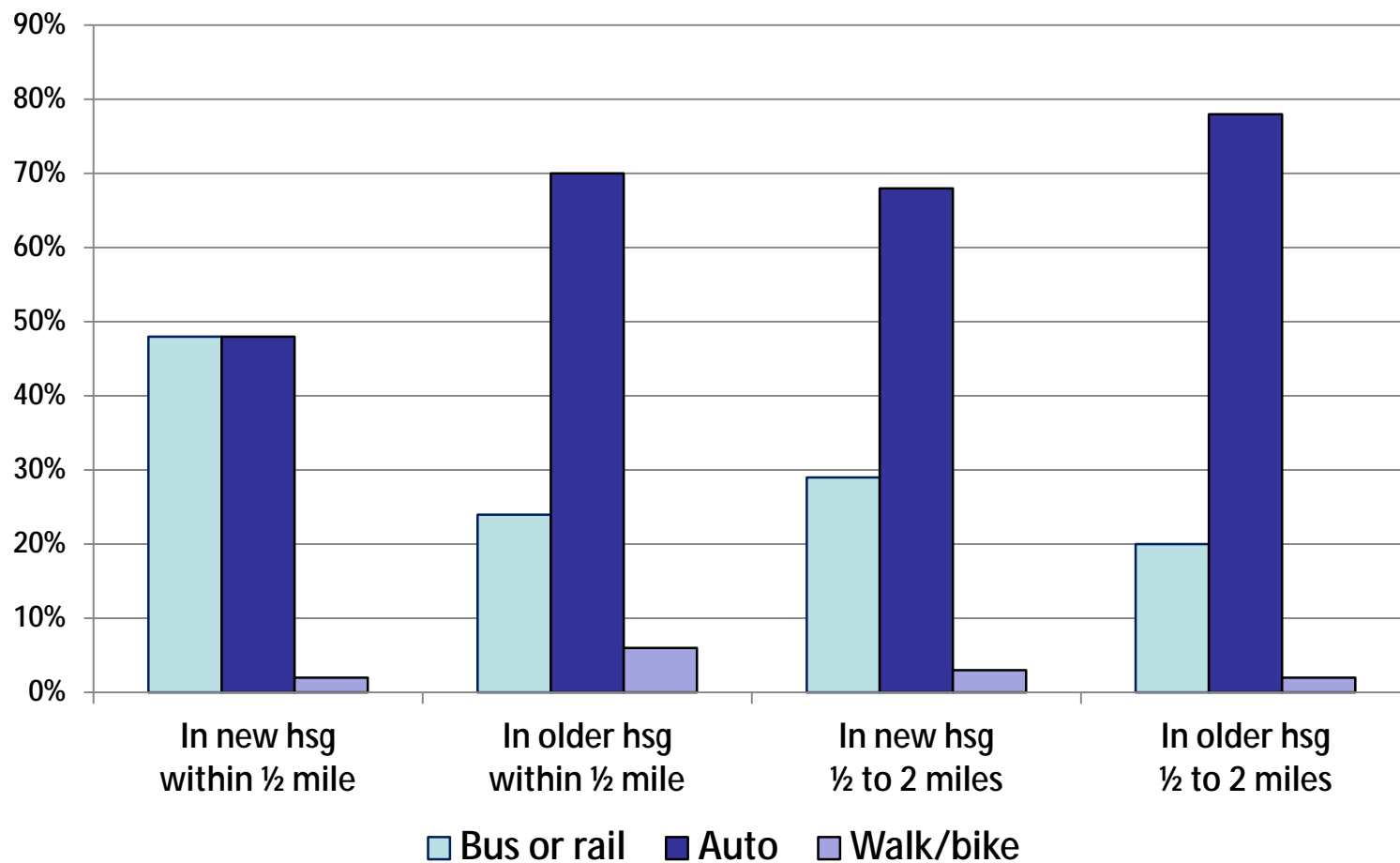


# Trends in Transit Commuting in TODs

Transit Commute Mode Share (% of Trips)



# Transit Commute Mode Share in NJ TODs



## Concluding thoughts

- Forces beyond Somerville and NJ are likely to shape future demand for housing and commercial development in our State
  - Singles will soon be the new majority
  - Older people will outnumber young people by mid-century
  - Generation X and Y value sustainability and community living
  - Foreign-born population is growing
  - All of these groups value walk-ability and use transit more
- Places that are prepared to harness these shifting trends will likely perform best as the economy recovers
- Research indicates that the benefits of TOD outweigh the costs
- Change is difficult especially in uncertain times
- Somerville appears poised for success

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