HEALTH, TRANSPORTATION & BUILT ENVIRONMENT

Building a Roadmap for Change with Smaller Cities

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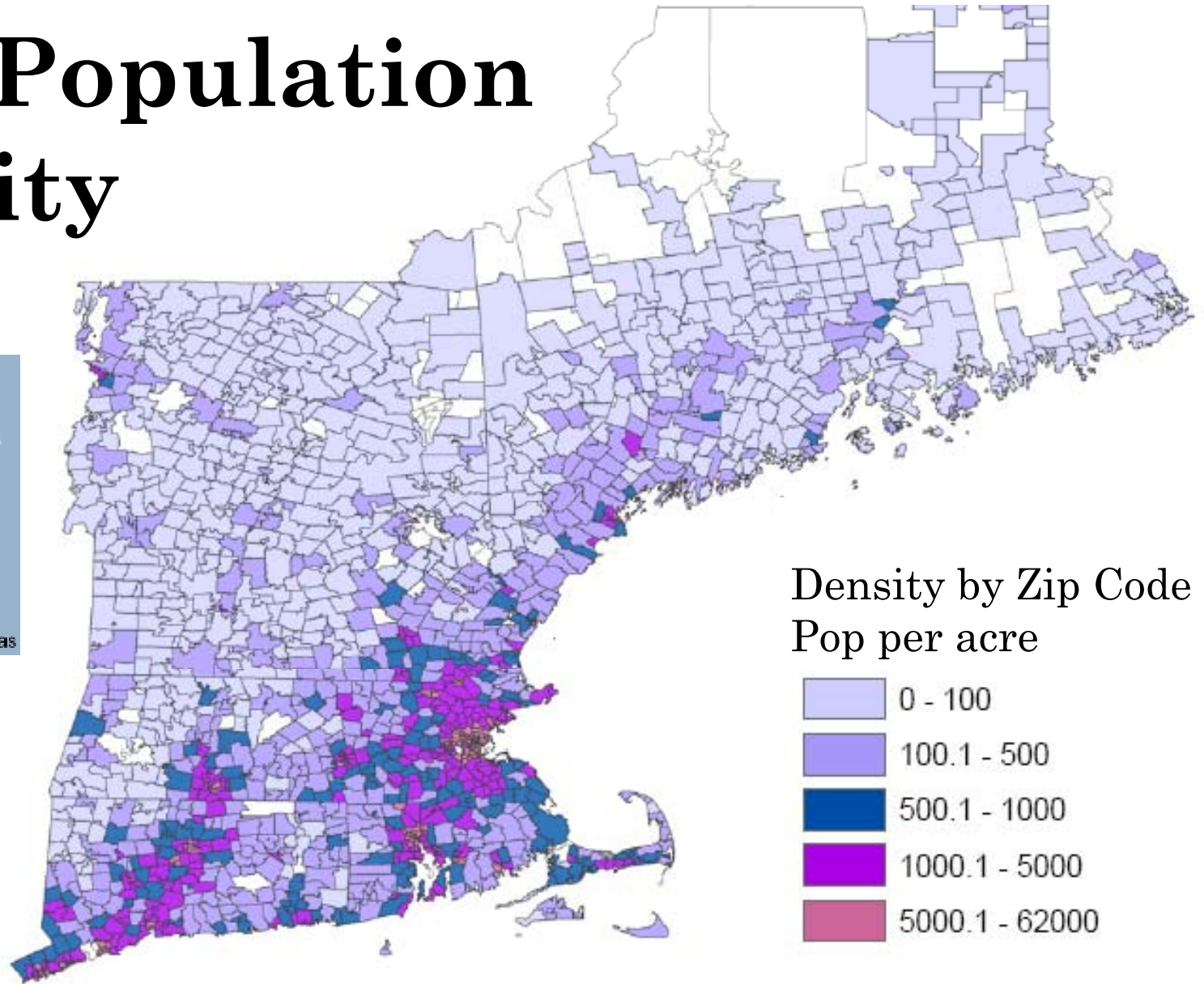University of New Hampshire, Durham, NH

WALKING IN SMALL CITIES AND TOWNS?

- Important culture (i.e. New England).

- Often originally designed to be walkable – before cars

- May provide services to region.
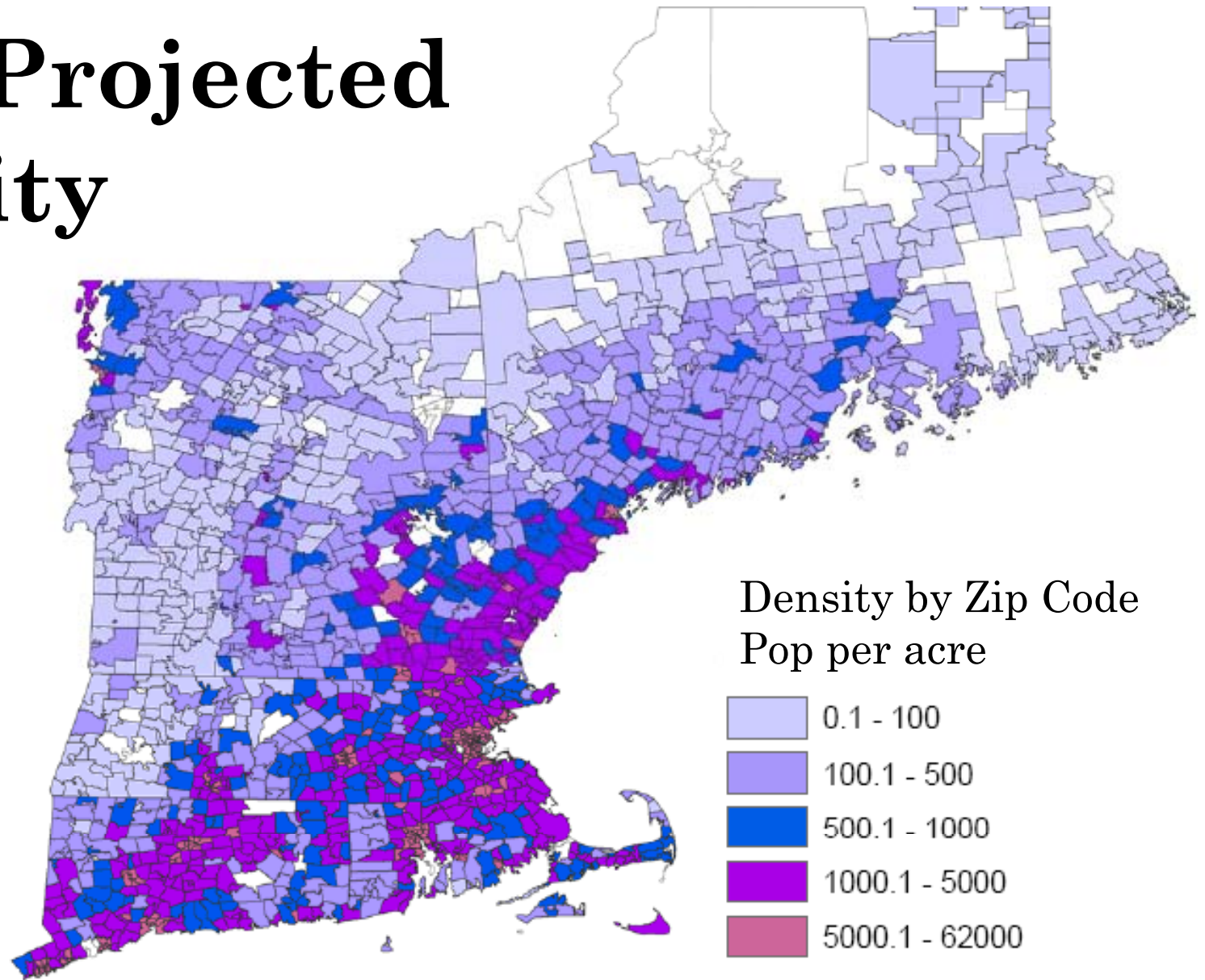
- Lots of us live there & like it!

SPRAWL IN SMALL AND LARGE CITIES

2000 Population Density

Density by Zip Code
Pop per acre

0 - 100
100.1 - 500
500.1 - 1000
1000.1 - 5000
5000.1 - 62000

Sprawl in Small and Large Cities

2050 Projected Density

Density by Zip Code
Pop per acre

- 0.1 - 100
- 100.1 - 500
- 500.1 - 1000
- 1000.1 - 5000
- 5000.1 - 62000

- Managing growth…
- Encouraging walkability…
- Controlling sprawl…
- Preserving communities…

…. Requires working with smaller cities and towns.

OBJECTIVES

☐ Examine associations between built environment and personal transportation decisions on a ***neighborhood-scale***;

☐ Examine whether ***socio-demographic factors*** (i.e. age, income) influence decision to walk in different neighborhood contexts;

☐ Examine how the built environment might be manipulated to remove ***real or perceived barriers*** to walking within neighborhoods.
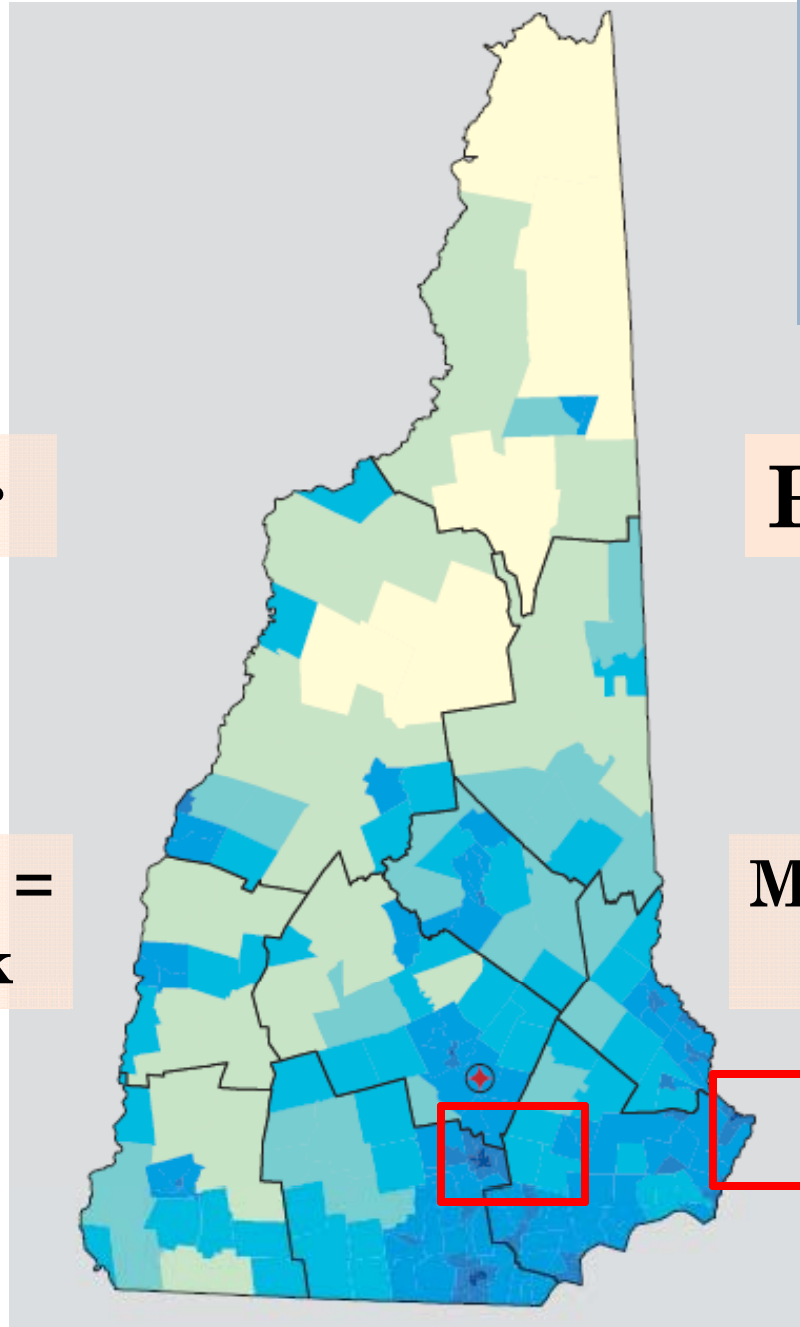
STUDY AREA

Manchester

Population = 107k

Median Income = $41k

Portsmouth

Population = 21k

Median Income = $45k

METHODS

1. Interdisciplinary team,
2. Community-based research (collaborative)
3. Paper/internet survey of residents and observation,
4. Multi-level modeling.

INTERDISCIPLINARY & COLLABORATIVE

- University -
  - Civil Engineers
  - Transportation Planners
  - Public Health Specialists
- State - Dept of Environmental Services
- Regional -
  - Planning agencies: transport, economic development
- Municipal -
  - Health Dept, Planning Dept, Parks & Rec
  - Economic Development
- Local – Neighborhood watch, N'hood activists
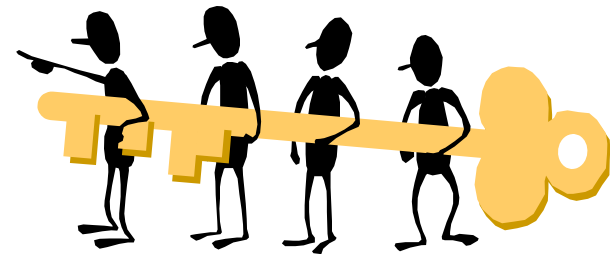
SURVEY IN 22 NEIGHBORHOODS
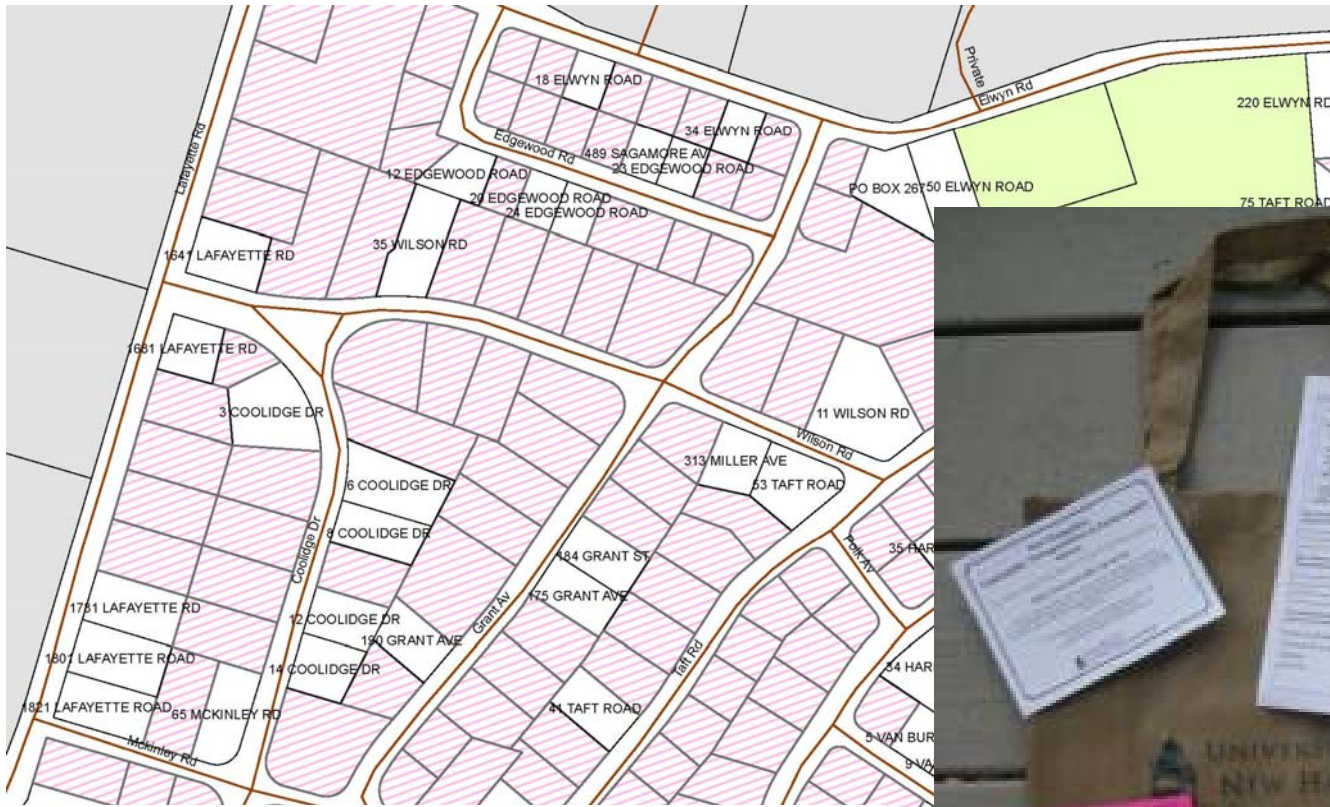
2004 surveys distributed
Overall net response rate
= 33.9%

TRANSPORT DECISIONS METRICS

- Frequency of walking to destinations
- Sum of places respondents "can" and "do" walk

Post Office	Home of a Friend
Restaurant	Grocery Store
Coffee Shop/Café	Bar/Pub
Shopping Center	Community/Rec Center
Church	Convenience Store
School	Natural Space, Park
Library/Bookstore	Other

Built Upon Method of: Leyden (2003), AJPH 93(9):1546-1551.
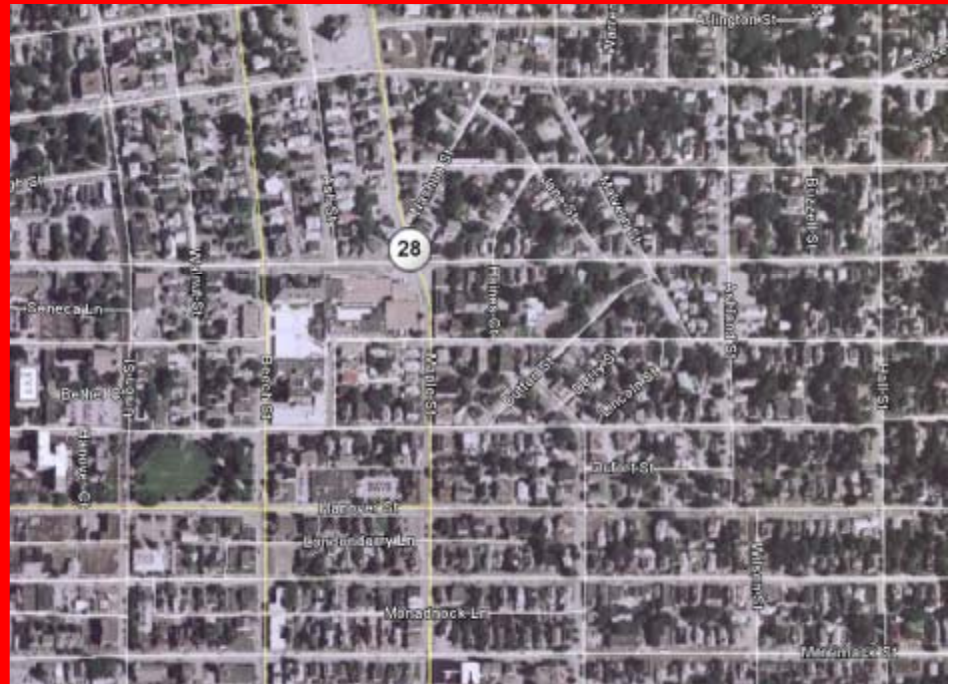
OUTCOMES AND ANALYSIS

COLLABORATION OUTCOMES::

- City depts discussed coalescing around one issue (walkability or sustainability) - to avoid duplication and silos.

- There has been a lot of focus on downtown – pleased this study looks more broadly.

- Not all neighborhoods want a sidewalk – requires maintenance & cost.

COLLABORATION OUTCOMES::

- Want to let residents "age in place" rather than moving to Florida.

- Incentives to read with children >> why not also to WALK with children – how to build walking as a social norm.

- Want to find the best pay off for efficiency, health, etc. – not just the squeaky wheel.

Cluster Modeling, Bi-Level Modeling
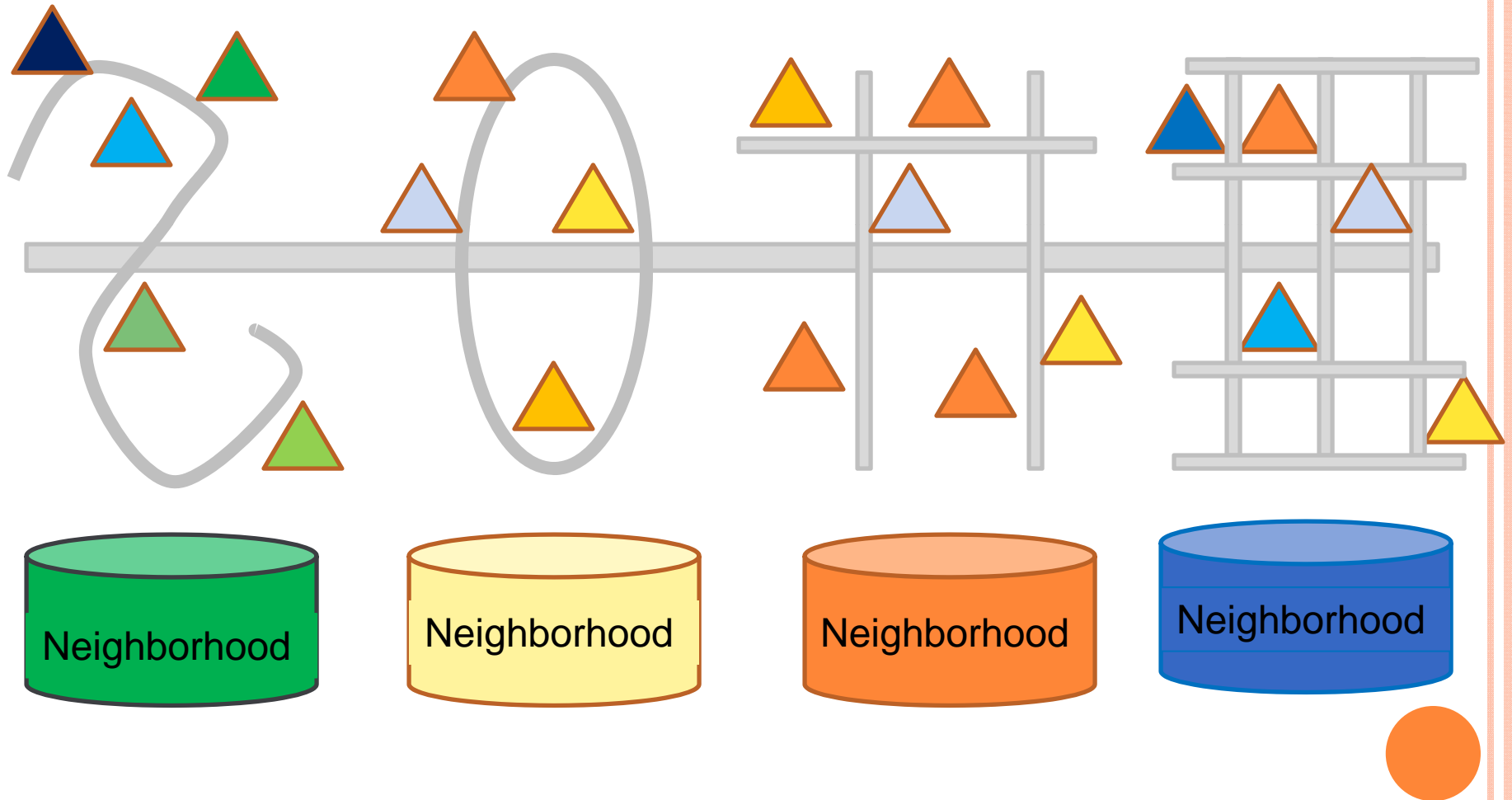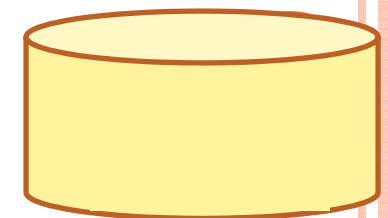
CLUSTER MODELING, BI-LEVEL MODELING
<<HOW MANY PLACES "DO" YOU WALK?>>

» EXPLANATORY VARIABLES ($p<0.05$)

- Age
- Body Mass Index
- Mentions distance to services
- Maximum time willing to walk
- Household Income
- Frequency you exercise for 15 min

- Sidewalks in the neighborhood
- Intersections

CLUSTER MODELING, STRATIFIED
<<HOW MANY PLACES "DO" YOU WALK?>>

	Low Income	High Income
Age	**Neg**	**Neg**
BMI	**Neg**	**Neg**
Mention dist to services	**Neg**	**Neg**
Max time to walk	-	**Pos**
Household Income	-	**Pos**
Exercise 15 min	-	-
Sidewalks	-	**Pos**
Intersections	**Pos**	**Pos**

SUMMARY

- Small cities & towns have unique transportation and planning needs.

- Bringing decision makers together to discuss walkability was valuable for everyone.

- 'Walkable' looks different for different people and places >> no blanket solutions.
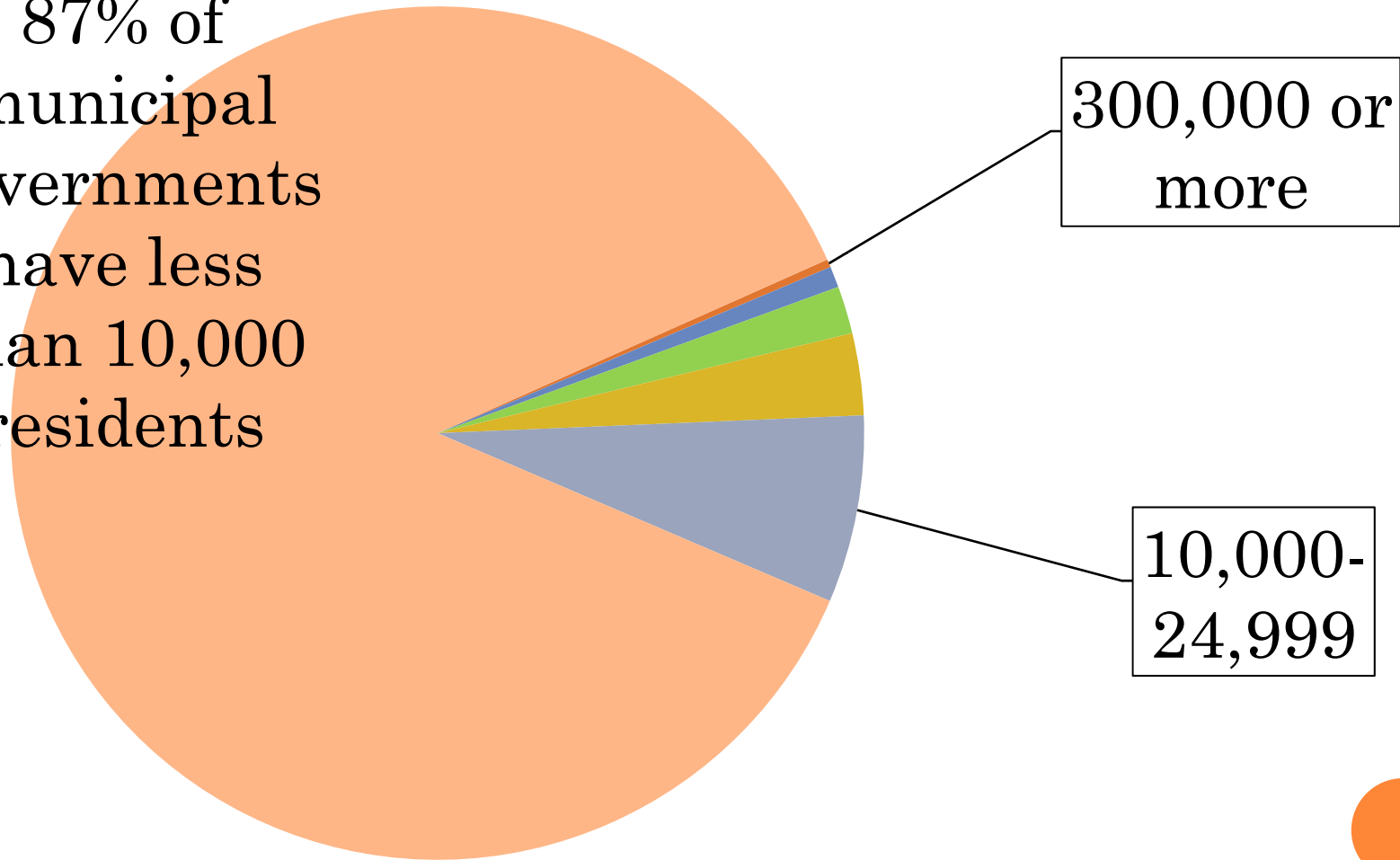
Thank you

QUESTIONS?

NUMBER OF MUNICIPAL GOVERNMENTS IN US

87% of municipal governments have less than 10,000 residents

300,000 or more

10,000-24,999

Brennan & Hoene – For National League of Cities, Research Brief 2003; 1997 Data

US Municipal Governments by Population

Towns with less than 10,000 people — **16% of US pop** — 16%

10,000 to 24,999 — 16%

25,000 to 49,999 — 14%

50,000 to 99,000 — 14%

100,000 to 299,999 — 14%

300,000 or more — 27%

Brennan & Hoene – For National League of Cities, Research Brief 2003; 1997 Data
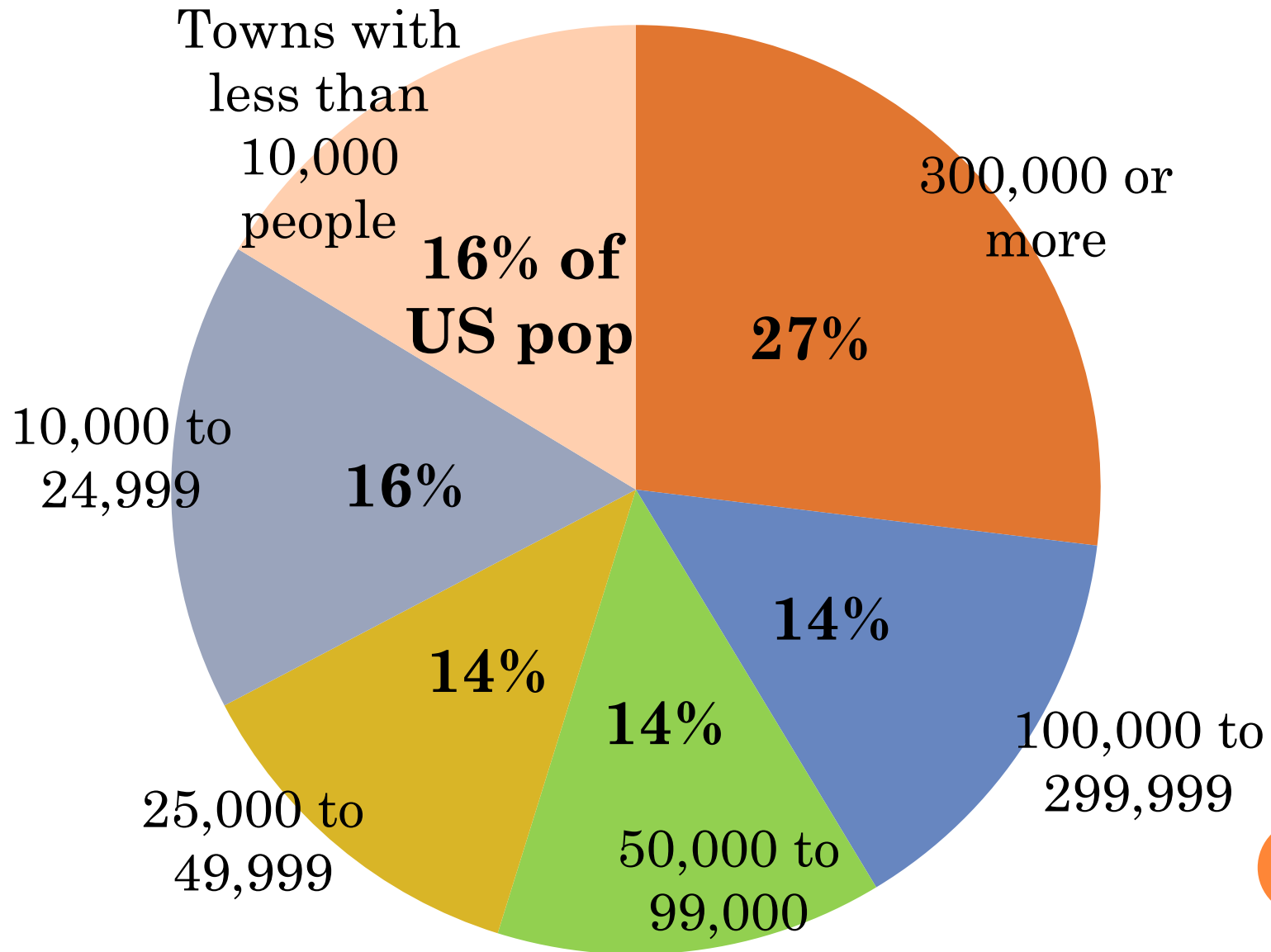
WALKING AND SIDEWALKS – AVE BY NHOOD

$y = 5.66x + 0.63$

$R^2 = 0.68$

Ave Types Places "do" Walk

Presence of Sidewalks
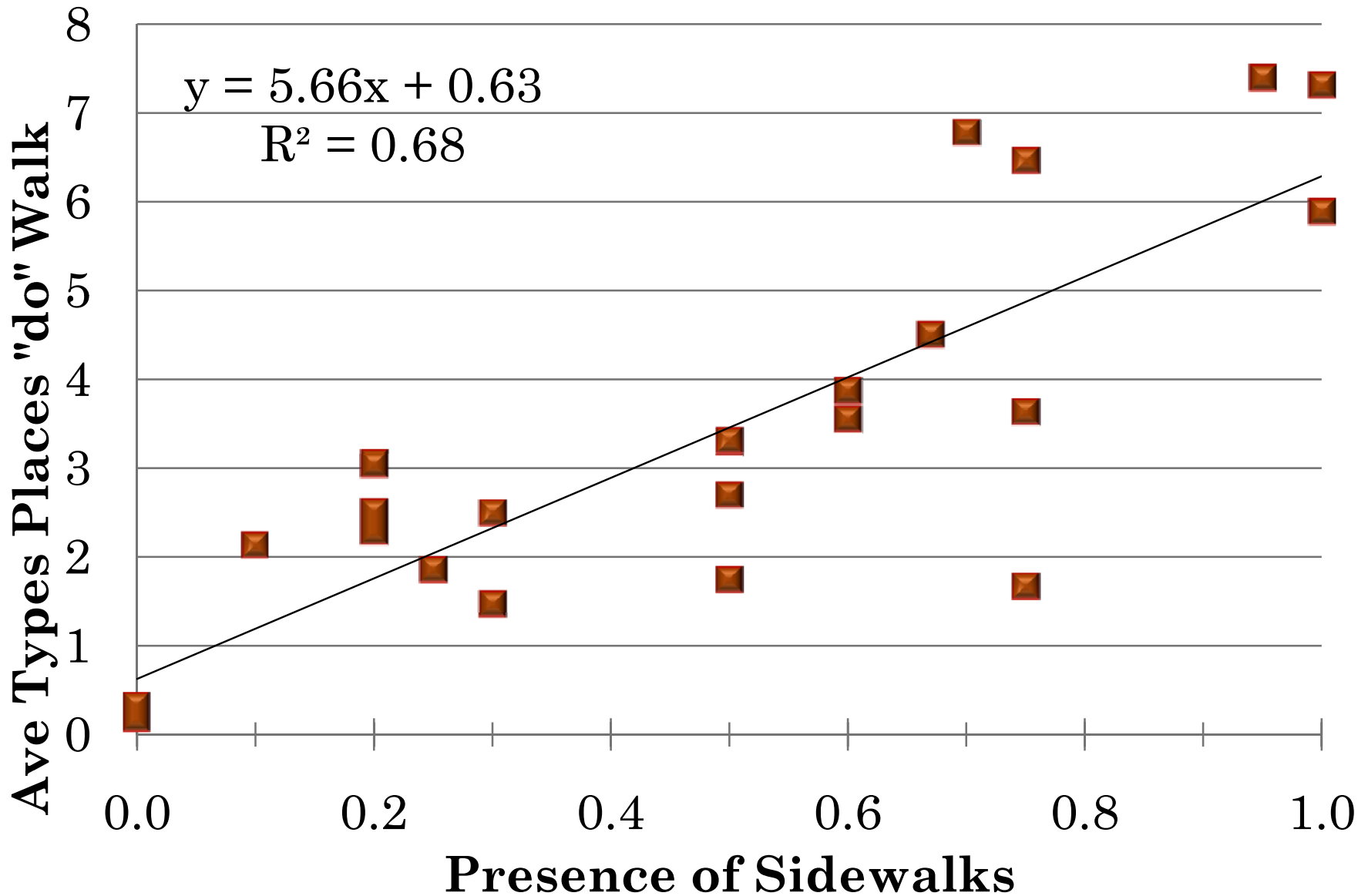
WALKING, SIDEWALKS, & INCOME

Average Types Places "do" Walk

Lower income

$y = 1.23x + 2.11$
$R^2 = 0.090$

Higher income

$y = 6.25x + 0.64$
$R^2 = 0.81$

Presence of Sidewalks
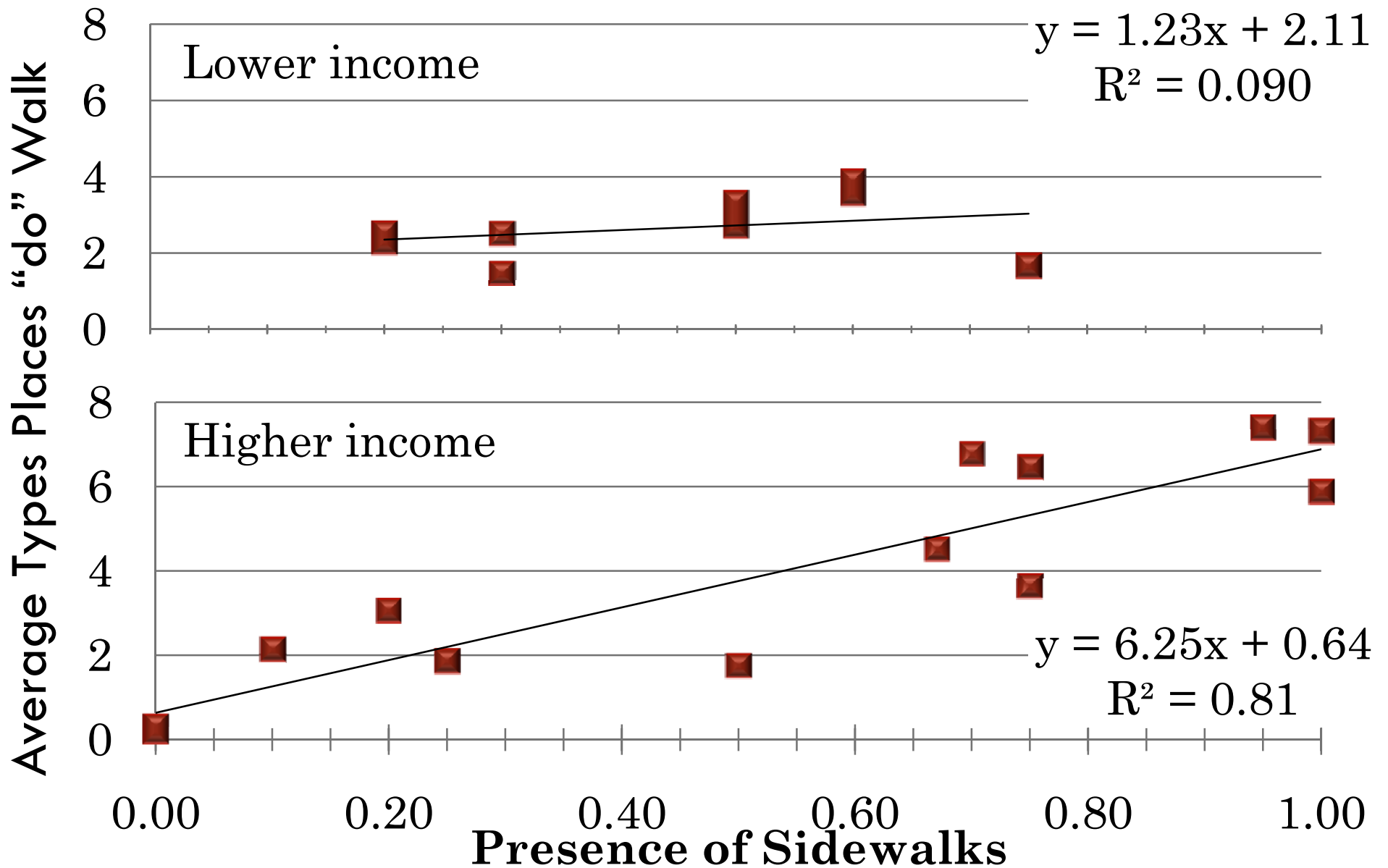
CLUSTER MODELING, STRATIFIED
<<HOW MANY PLACES "DO" YOU WALK?>>

	Portsmouth		Manchester	
	Low In.	High In.	Low In.	High In.
Age	Neg	Neg	Neg	
BMI		Neg	Neg	
Mention dist to services	Neg	Neg		Neg
Max time to walk				Pos
Household Income				Pos
Exercise 15 min		Pos		Neg
Sidewalks		Pos		Pos
Intersections		Pos		

CLUSTER MODELING, STRATIFIED
<<HOW MANY PLACES "DO" YOU WALK?>>

	Portsmouth		Manchester	
	Low In.	High In.	Low In.	High In.
Observations	103	272	141	184
Mean	2.27	**5.34**	3.41	**2.95**
Std Deviation	2.62	3.77	2.98	2.95

CLUSTER MODELING, STRATIFIED
<<HOW MANY PLACES "DO" YOU WALK?>>

	Portsmouth		Manchester	
	Younger	Older	Younger	Older
Observations	127	248	103	222
Mean	5.82	**3.82**	2.79	**3.32**
Std Deviation	3.80	3.54	2.90	2.99