

**Does the neighborhood environment influence transportation or recreational physical activity? An analysis of perceived and objective measures**

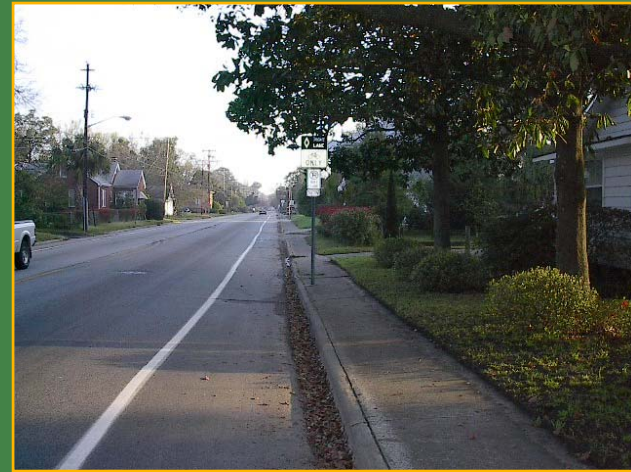


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January 31, 2004**

# Acknowledgments

## RWJF-SLU Team

- ❑ Ross Brownson
- ❑ Christine Hoehner
- ❑ Rebeka Cook
- ❑ Montenia Anderson
- ❑ Brandi Meriwether
- ❑ Michael Elliott
- ❑ Tracy Orleans



## Core Expert Panel:

- ❑ Dianne Barker
- ❑ Phil Bors
- ❑ Reid Ewing
- ❑ Marla Hollander
- ❑ Rich Killingsworth
- ❑ Karen Petersmarck
- ❑ Jim Sallis
- ❑ Tom Schmid
- ❑ Bill Wilkinson

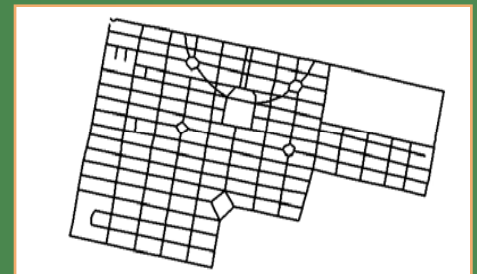
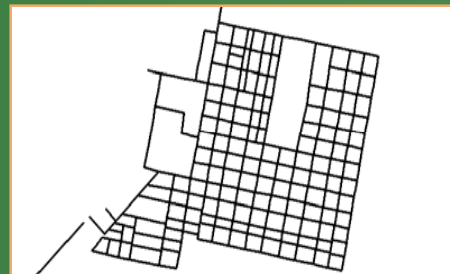
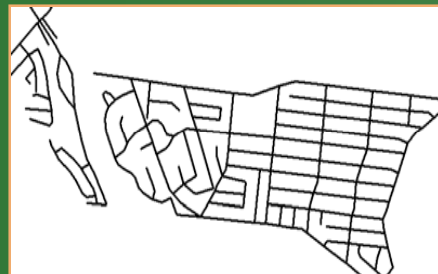
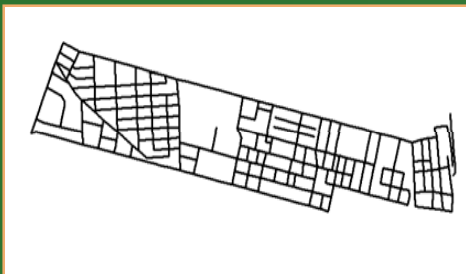
# Indicators of Activity-Friendly Communities

- ❑ **Land use:** Integration of residential and commercial land uses
- ❑ **Recreational facilities:** Availability and accessibility of facilities or natural features for activity
- ❑ **Transportation environment:** Availability and accessibility of transit, sidewalks, and bike lanes
- ❑ **Aesthetics:** Attractions and comforts; absence of physical disorder
- ❑ **Social environment:** Presence of protective social factors and absence of social disorder
- ❑ **Others:** travel patterns, land use and economics, transport and economics, organizational policy, promotion

# Methods: Study Areas

	St. Louis		Savannah	
	Lower Income	Higher Income	Lower Income	Higher Income
# census tracts	3	1	5	2
# households	2,565	2,981	2,550	2,409
Area (sq mi)	1.3	1.0	1.1	1.1
% below poverty	56.5	4.5	51.3	7.8

(U.S. Census 2000)



# Methods: Data Collection

**Telephone Survey**

- Perceived indicators
- Physical activity behavior



**Existing Data Sources**



**Audit Instrument**

- “Objective” indicators

# Methods: Telephone Survey

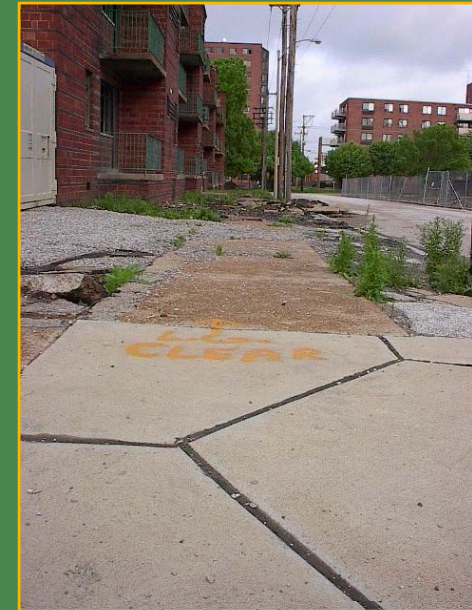
- ❑ Conducted between February - June 2003
- ❑ Targeted sample of residents in the study areas (N=1,073 respondents)
- ❑ Instrument included:
  - International Physical Activity Questionnaire (IPAQ)
    - ✓ 7-day period
    - ✓ Leisure-time, transportation, work, and household/garden
  - Items assessing perceptions of the environment, interpersonal, and individual factors
  - Demographics



# Methods: Data Collection

## Telephone Survey

- Perceived indicators
- Physical activity behavior



Existing  
Data Sources



## Audit Instrument

- “Objective” indicators

# Methods: Audit

- ❑ Conducted between April - June 2003
- ❑ 3 pairs of auditors, 2 community members
- ❑ All of the street segments in the study areas (N=1,156 segments)
- ❑ Handheld computer devices for data collection (2 had GPS capabilities)
- ❑ Training protocol
- ❑ Tested inter-rater reliability





# Methods: Analysis

## Dependent Variables:

- ❑ Recommended activity (leisure & transport)
  - ✓ At least 5 times / week of moderate activity for 30 minutes
  - ✓ At least 3 times / week of vigorous activity for 20 minutes
- ❑ Any transportation activity



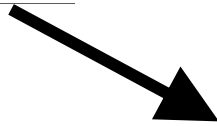
# Methods: Analysis


Perceived indicators  
(telephone survey)

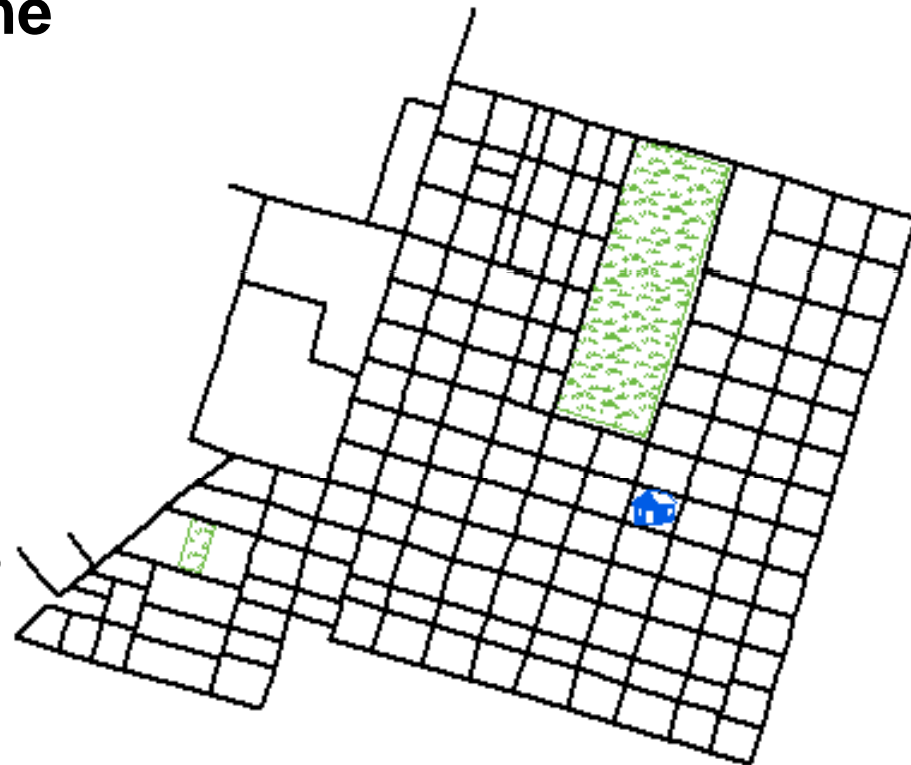


Leisure time /  
transportation activity

Savannah lower income  
study area



 = park



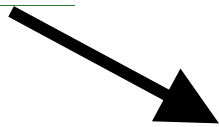
# Methods: Analysis




“Objective” indicators from street segments within 400 meters of respondent (audit)

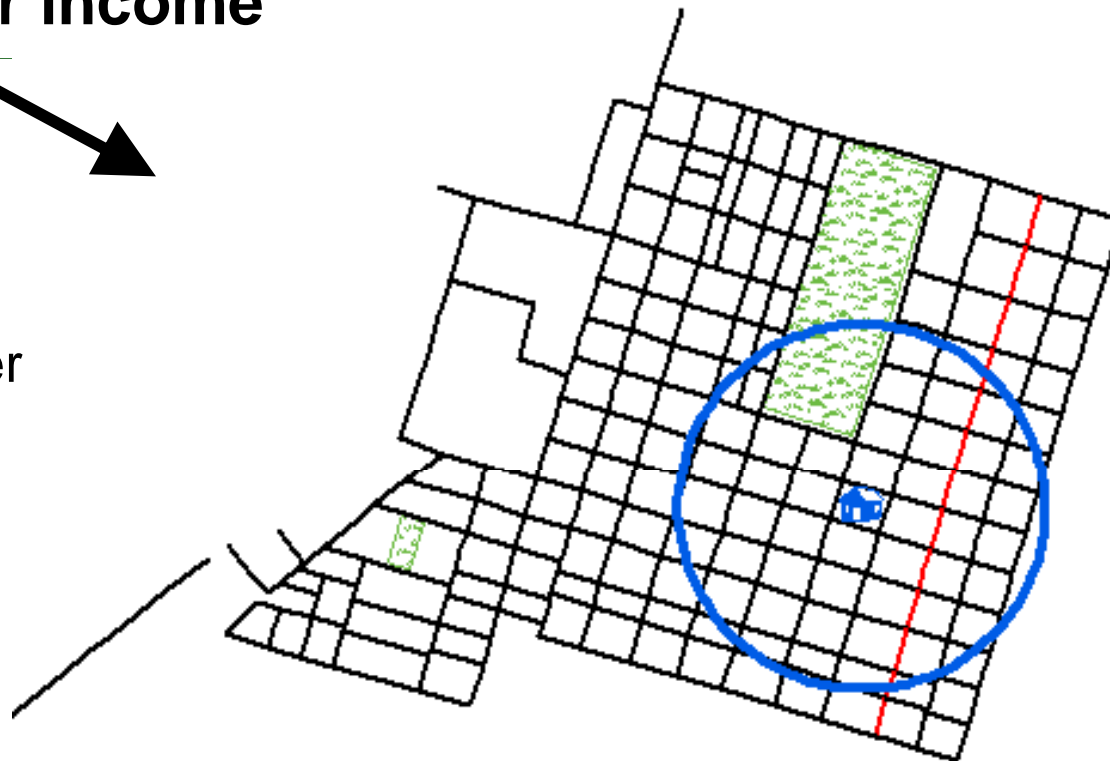


Leisure time / transportation activity

**Savannah lower income study area**



-  = 400 m buffer
-  = bike lane
-  = park





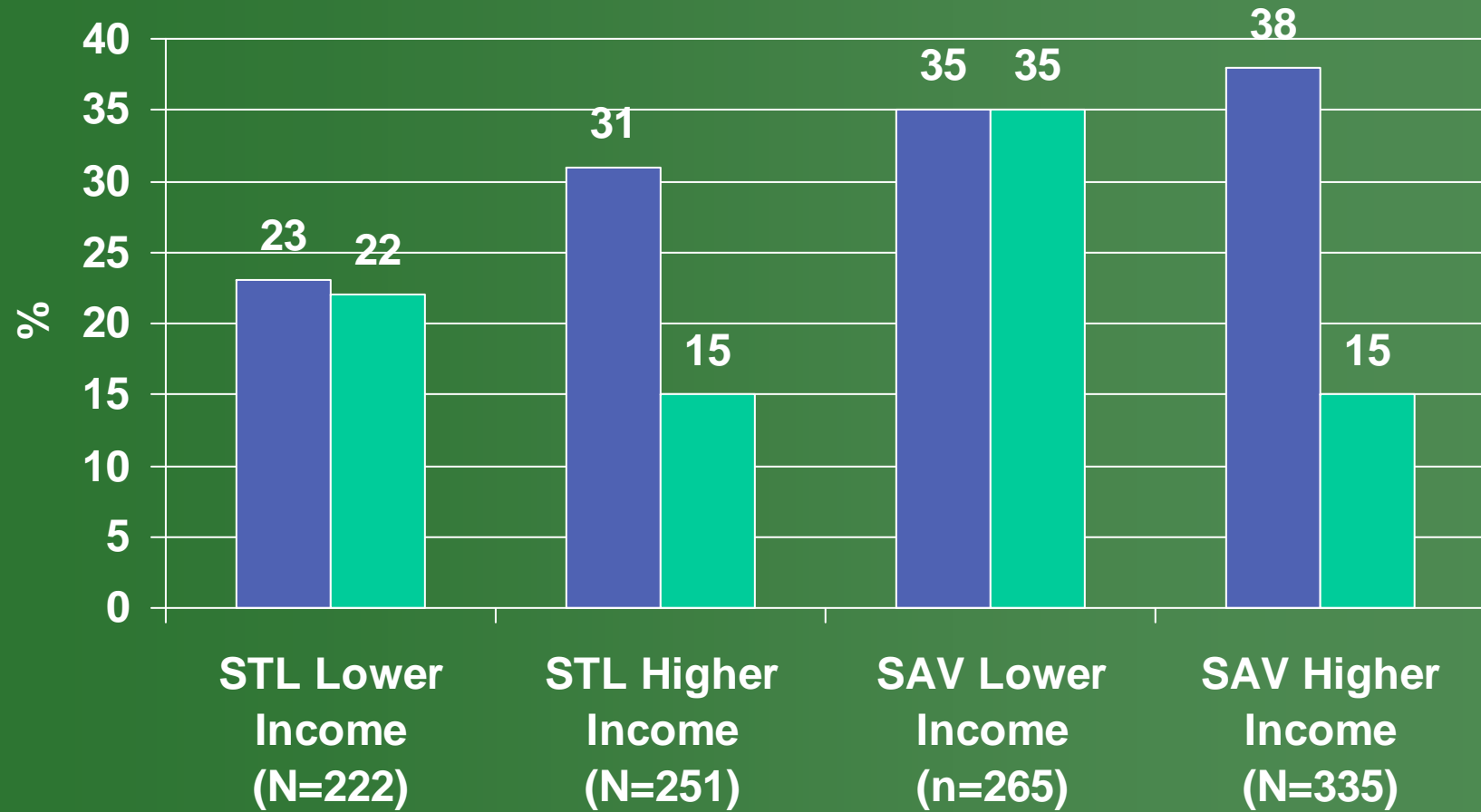
# Results



# Results: Demographics

Characteristic	% Total Sample	% STL Lower Income	% STL Higher Income	% SAV Lower Income	% SAV Higher Income
Male	34	22	35	37	40
Age (years)					
18-24	12	7	3	30	7
25-44	38	38	41	35	36
45-64	32	36	30	23	37
≥65	19	19	26	12	20
African American	33	96	<1	48	4
Income					
<\$10,000	13	31	1	23	2
\$10-19,000	19	38	9	28	6
\$20-34,000	23	19	26	25	21
≥\$35,000	46	13	64	24	71
Less than high school education	13	34	5	16	2
	N=1,073	N=222	N=251	N=265	N=335

# Results: Physical Activity



■ Leisure -- meets recommendations

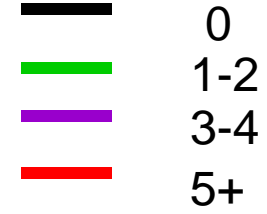
■ Transportation -- meets recommendations

# Results: Land Use



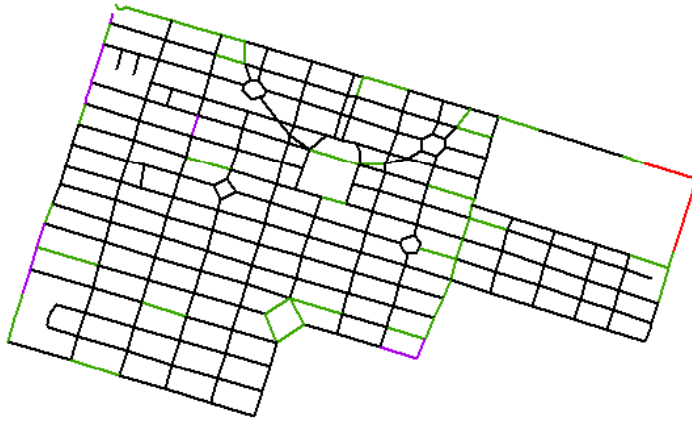
# Results: Land Use

# of nonresidential destinations

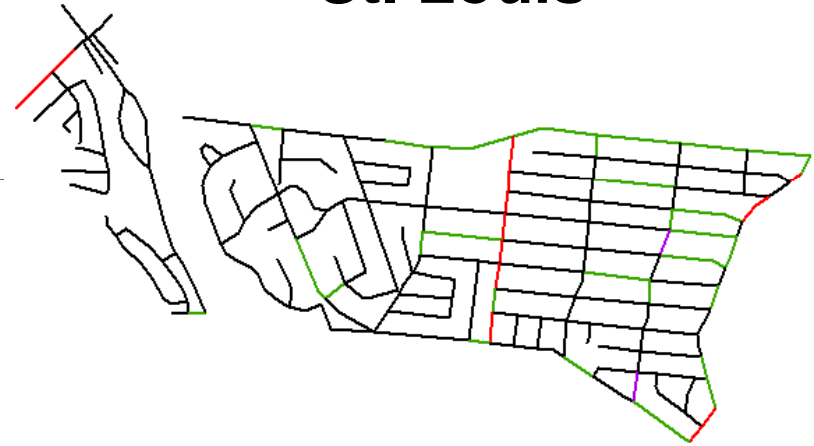


Higher Income

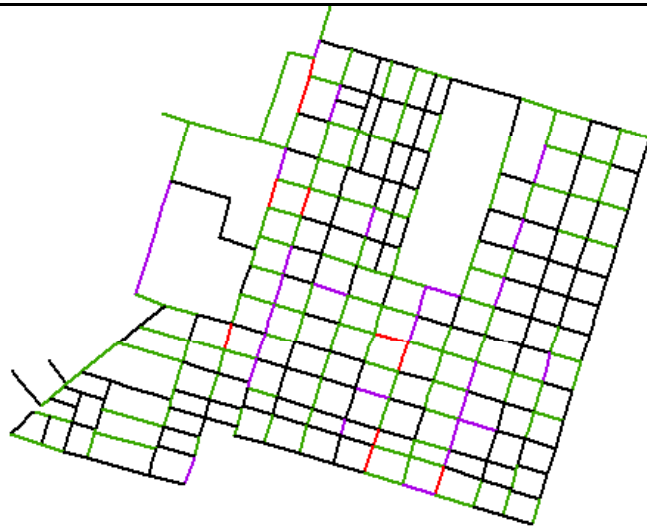
Savannah



St. Louis

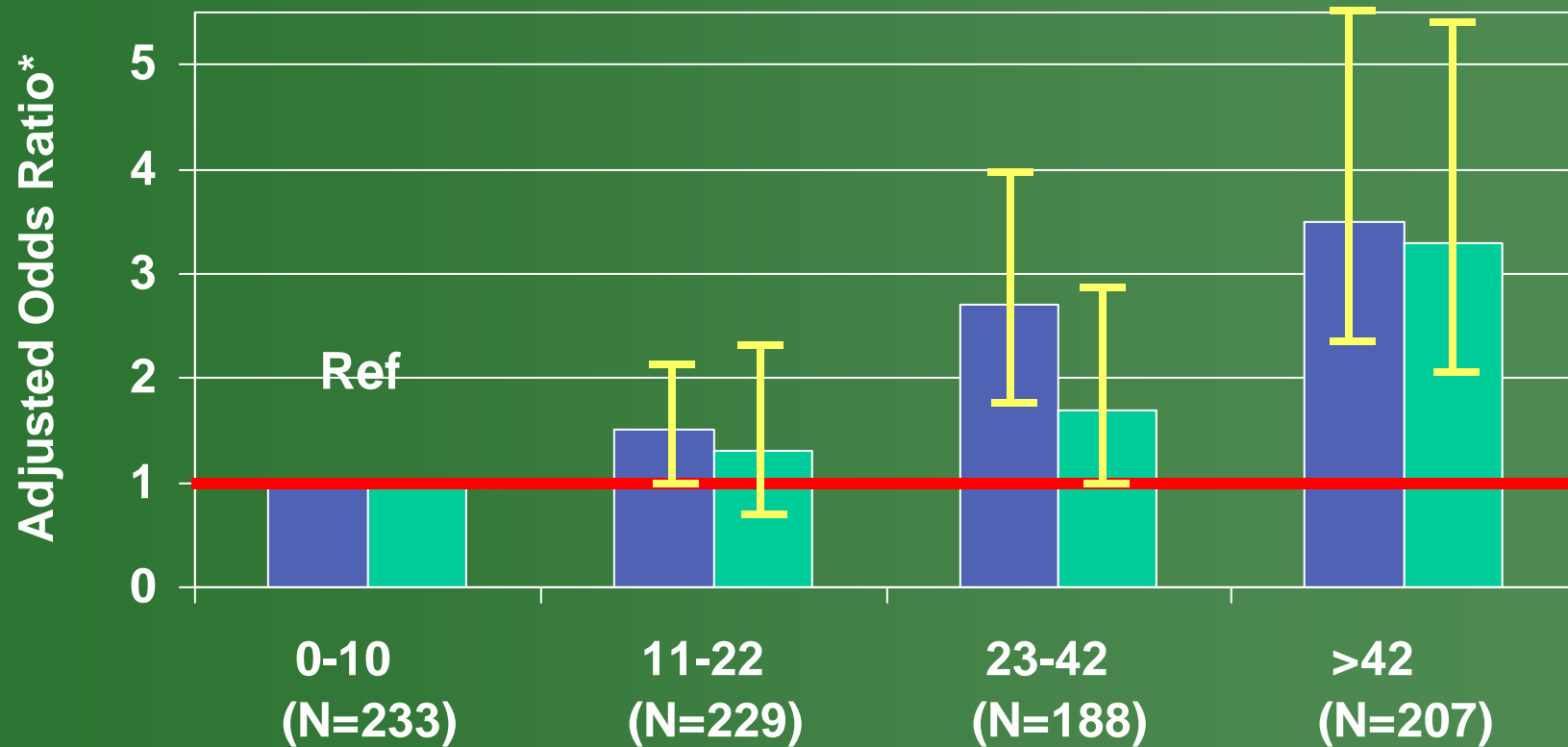


Lower Income





# AUDIT Results: Land Use



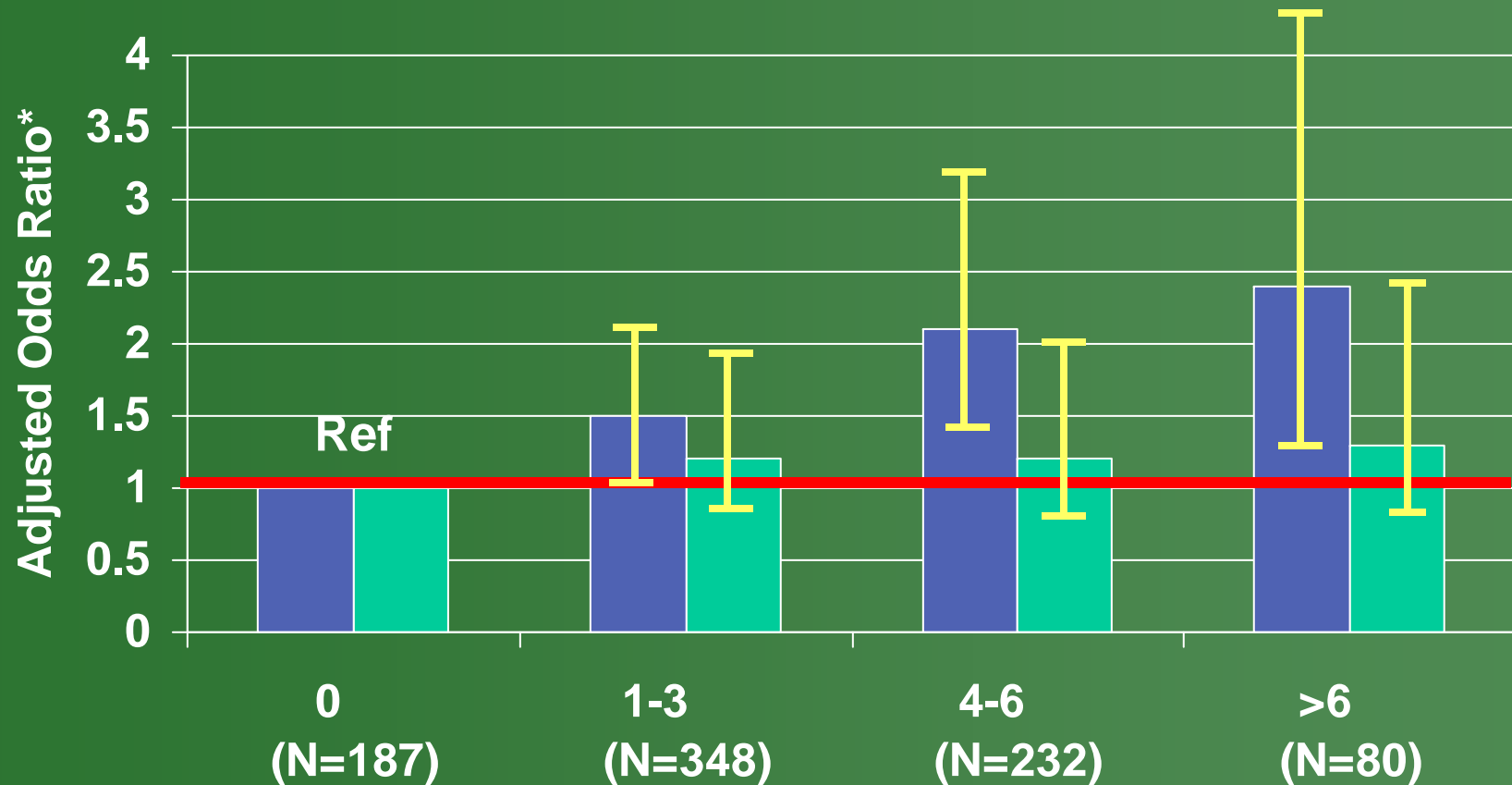
# of Non-Residential Destinations within 400 m of Home  
(Quartiles)

\* Adjusted for age,  
sex, income

■ Any transportation activity

■ Transportation -- meets recommendations

# SURVEY Results: Land Use



# of Destinations within a 5-min Walk

\* Adjusted for age, sex, income

■ Any transportation activity

■ Transportation -- meets recommendations

# Results: Land Use (continued)

Any transportation activity?

Destination ≤ 5 minutes	Survey OR (CI)*	Audit OR (CI)*
Restaurants (fast food, bar)	1.9 (1.4, 2.7)	2.2 (1.6, 3.0)
Grocery stores (any size)	1.6 (1.2, 2.1)	1.6 (1.2, 2.1)
Schools (day care to college)	1.6 (1.2, 2.1)	1.3 (0.9, 1.8)

\* Adjusted for age, sex, income

# Results: Land Use (continued)

Meets recommendations?



Destination ≤ 5 minutes	Survey OR (CI)*	Audit OR (CI)*
Restaurants (fast food, bar)	1.1 (0.8, 1.5)	2.0 (1.4, 3.0)
Grocery stores (any size)	1.1 (0.8, 1.5)	1.8 (1.2, 2.5)
Schools (day care to college)	1.0 (0.7, 1.4)	1.7 (1.0, 2.8)

\* Adjusted for age, sex, income

# Results: Recreational Facilities



# Results: Recreational Facilities

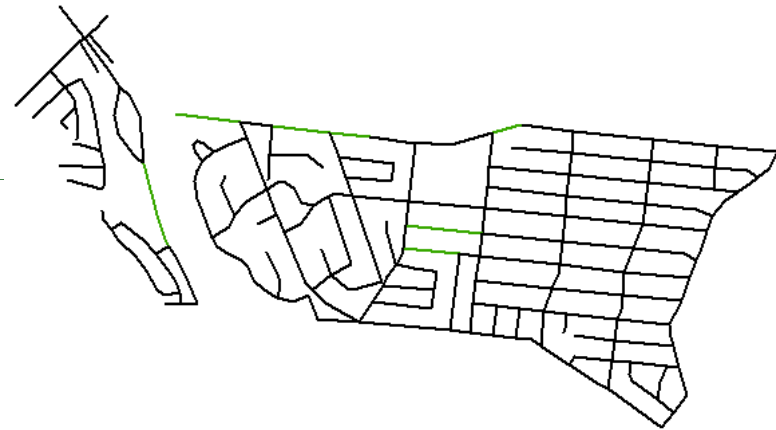
-  Park present
-  Walking trail present

Higher Income

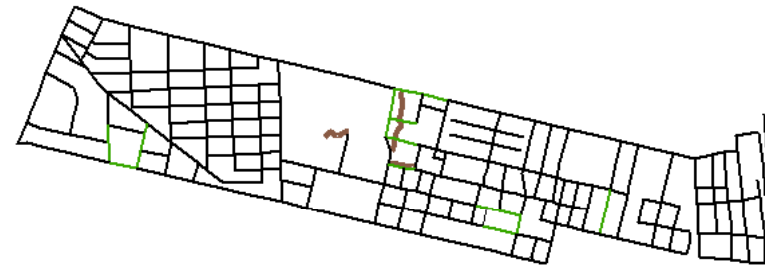
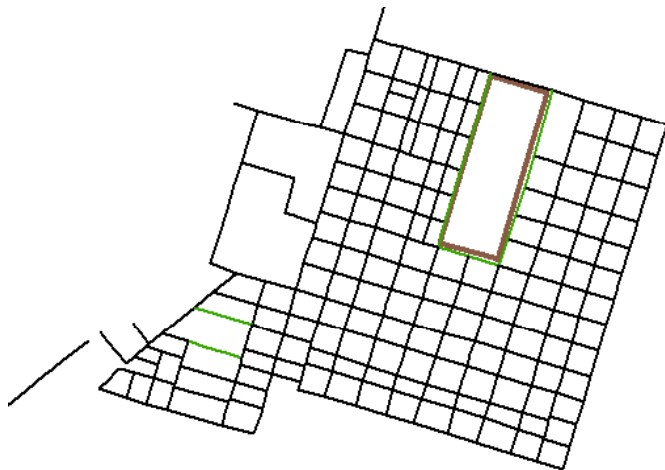
Savannah



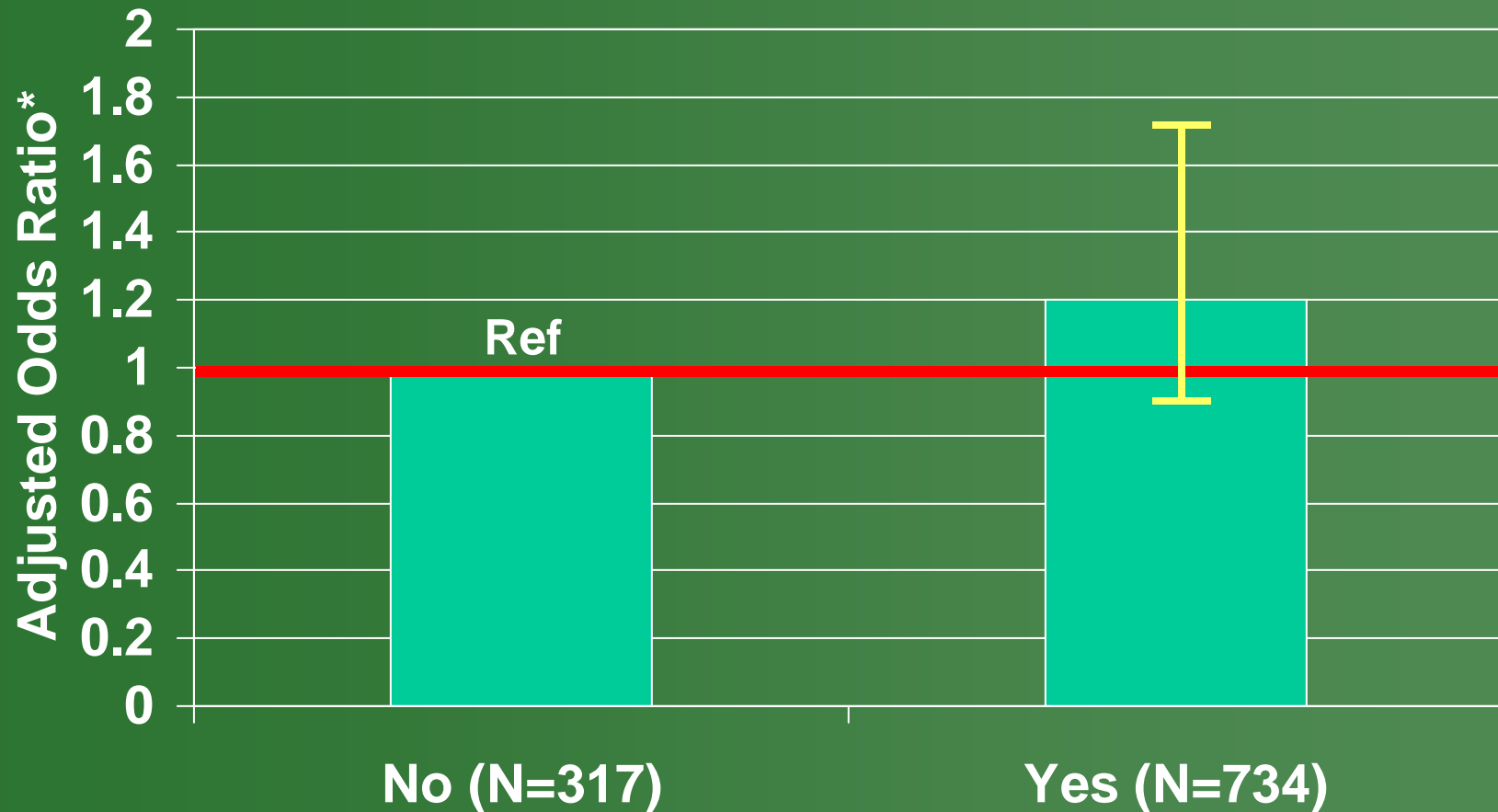
St. Louis



Lower Income



# AUDIT Results: Rec Facilities

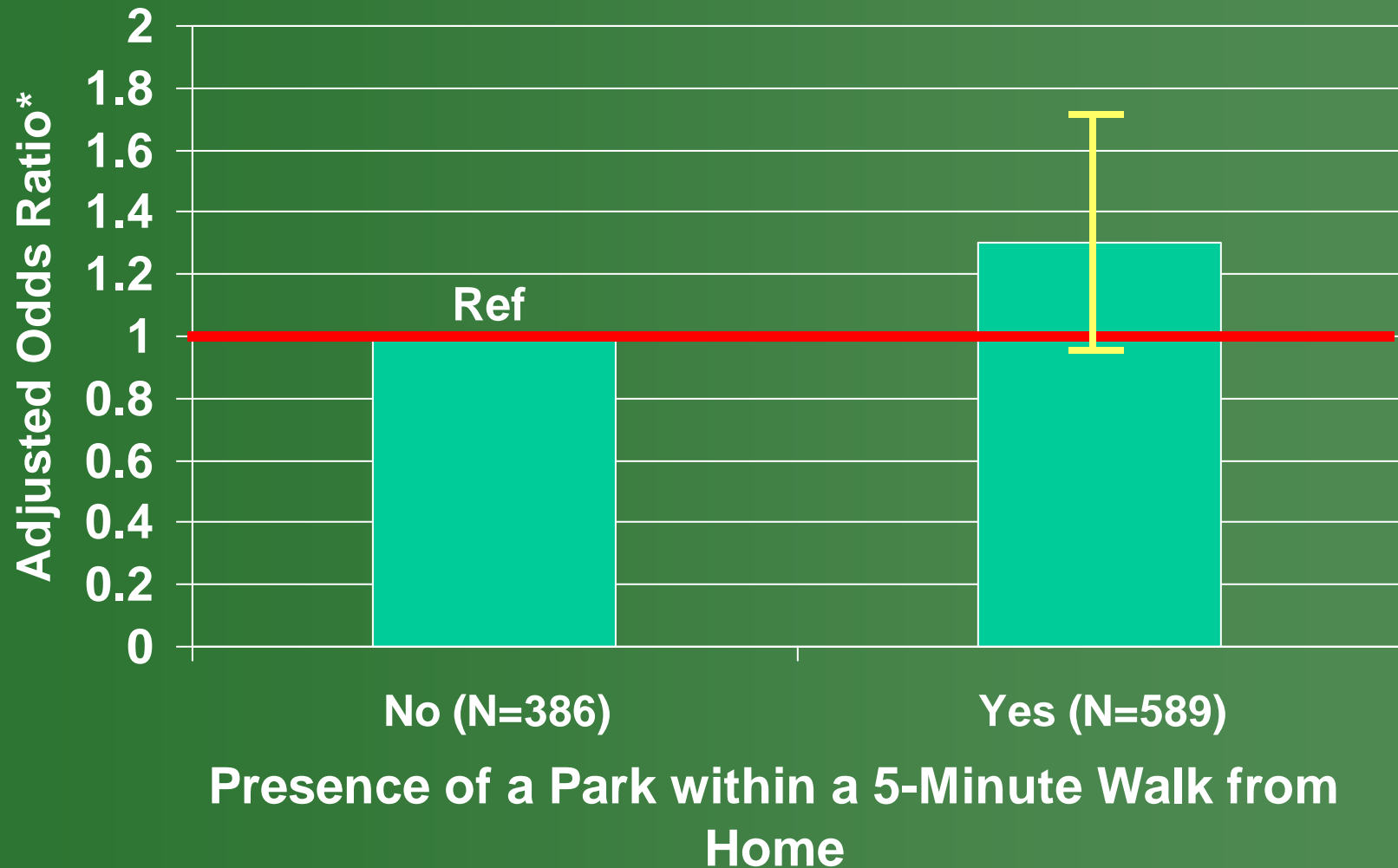


Presence of a Park within 400 m from Home

\* Adjusted for age, sex, income

Leisure -- meets recommendations

# SURVEY Results: Rec Facilities

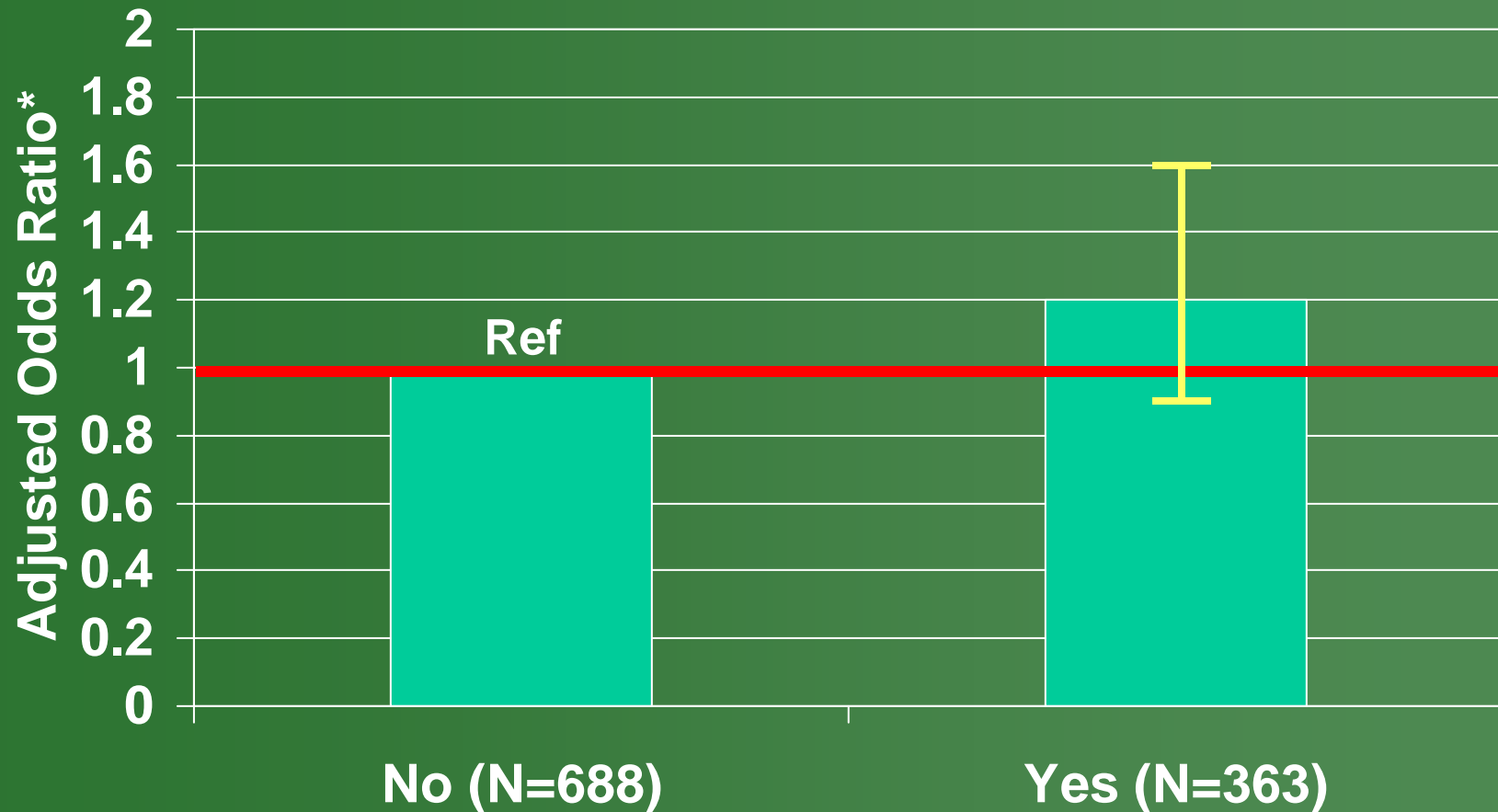


\* Adjusted for age, sex, income

Leisure -- meets recommendations



# AUDIT Results: Rec Facilities

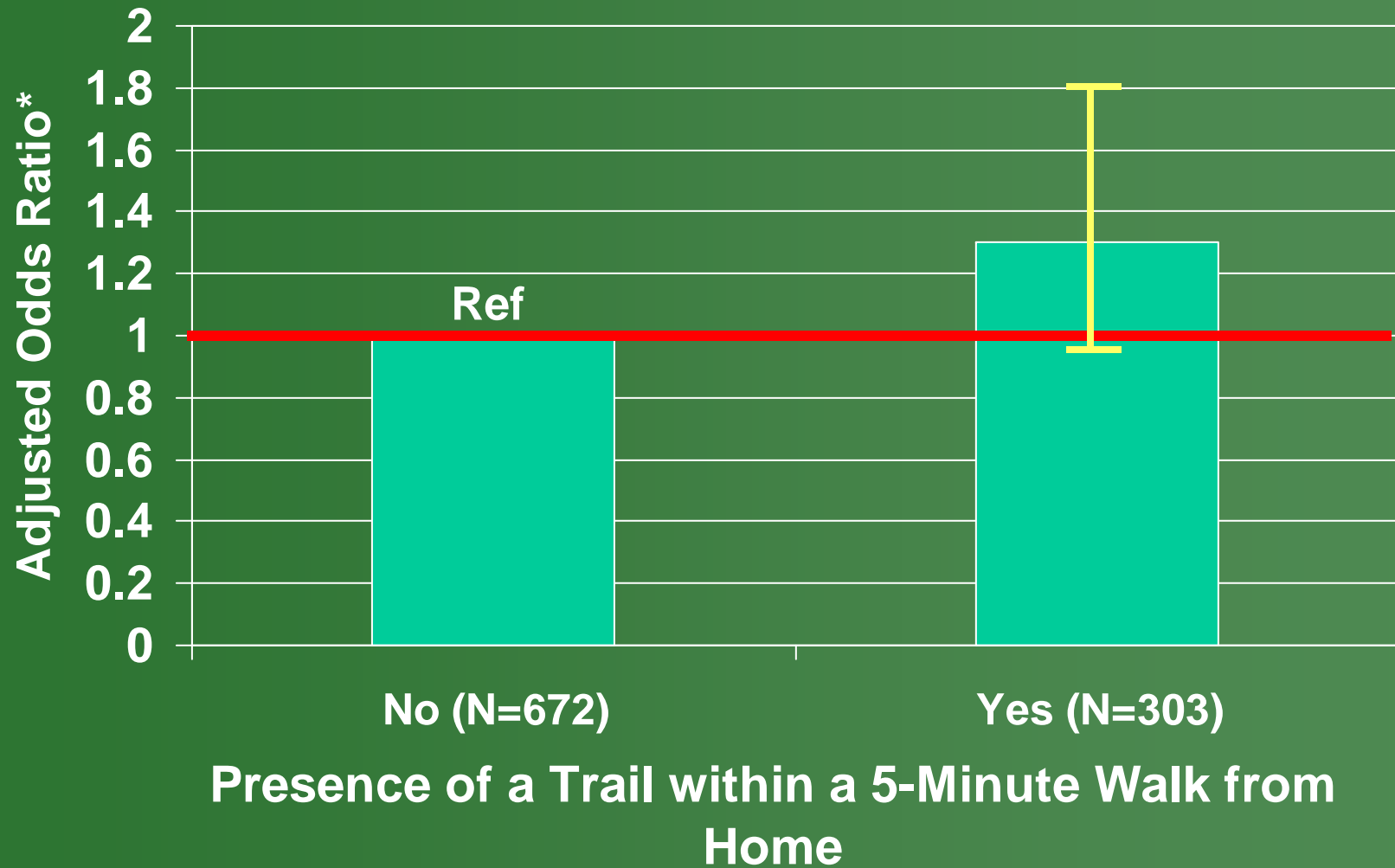


Presence of a Trail within 400 m from Home

\* Adjusted for age, sex, income

Leisure -- meets recommendations

# SURVEY Results: Rec Facilities



\* Adjusted for age, sex, income




Leisure -- meets recommendations

# Results: Transportation



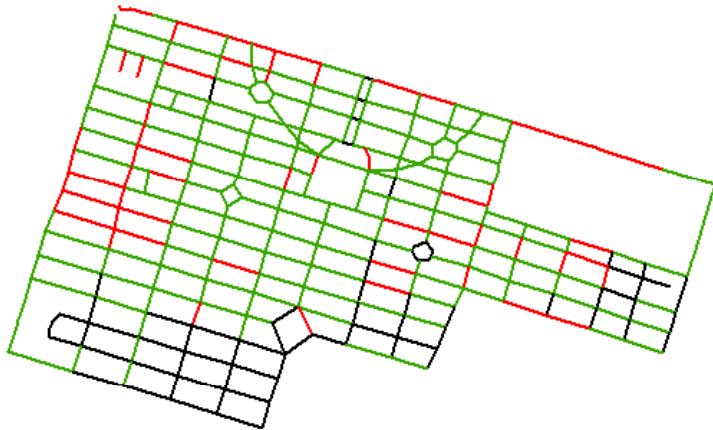
# Results: Transportation

## Sidewalk cracks & heaves

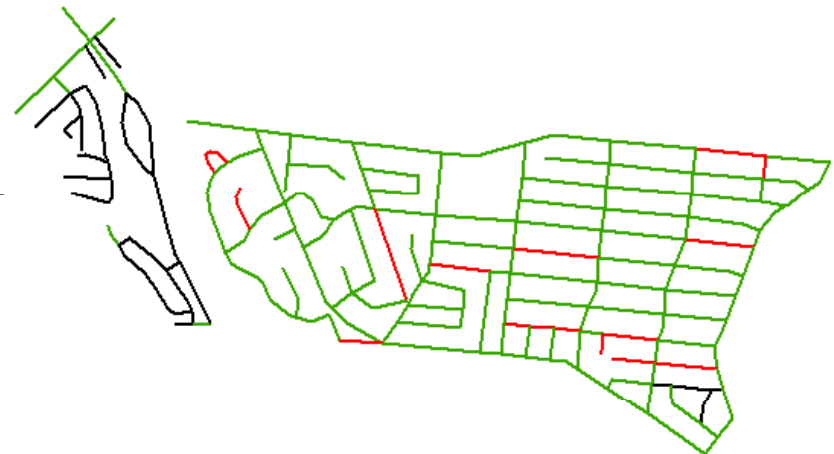
-  A little or no
-  Some or a lot
-  No sidewalks

Higher Income

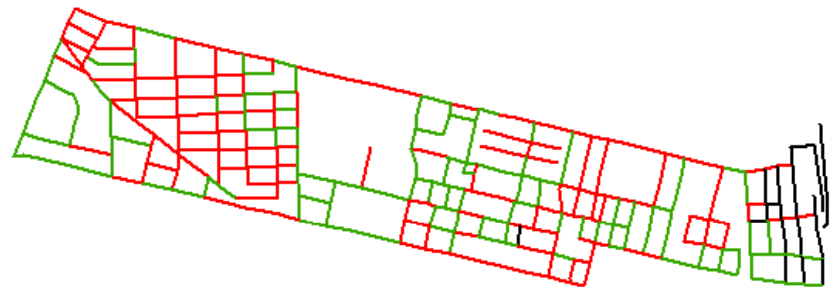
Savannah



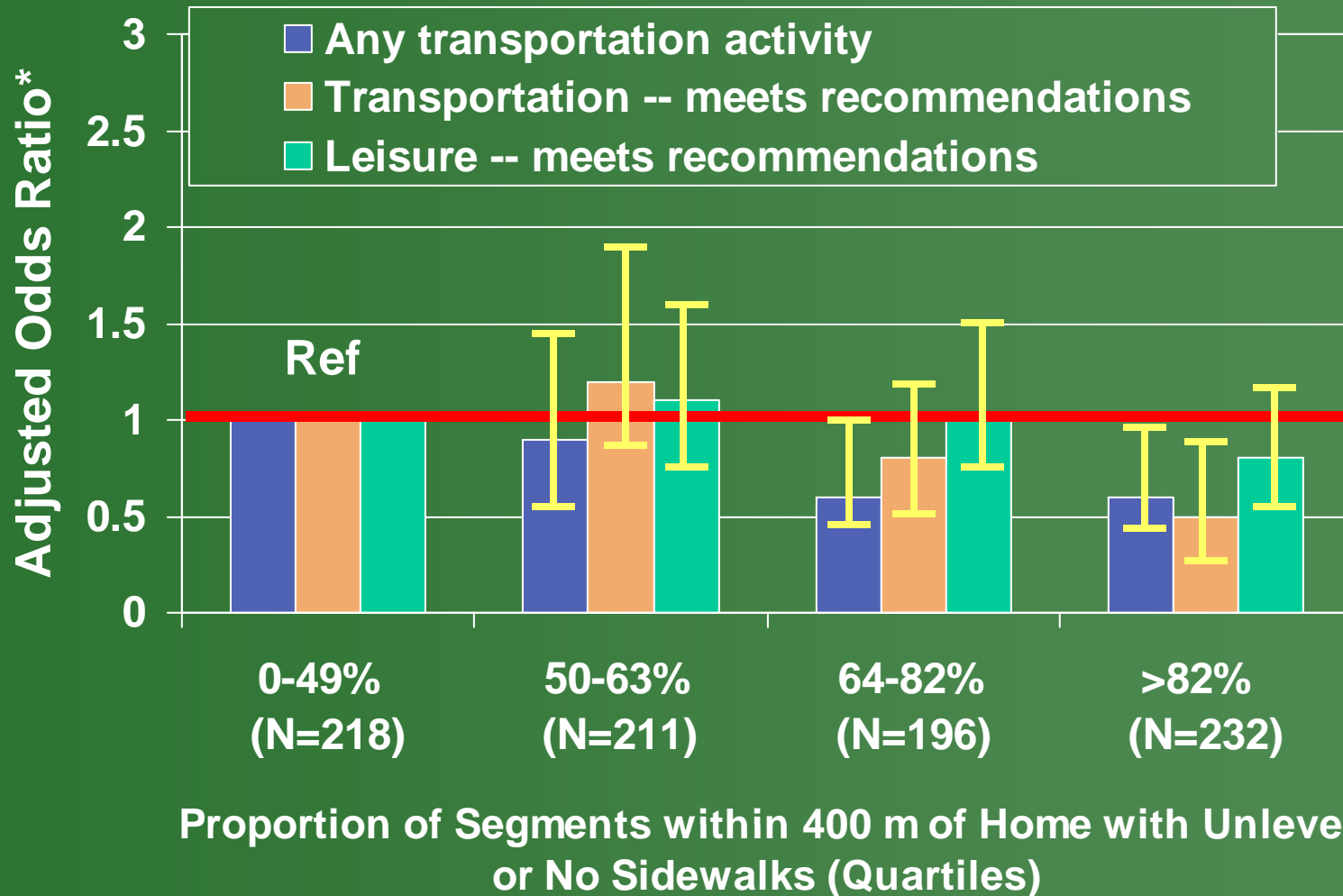
St. Louis



Lower Income



# AUDIT Results: Transportation

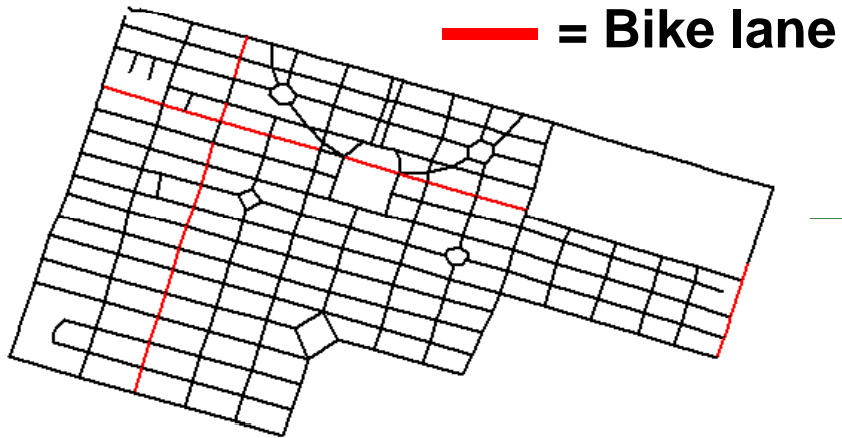


\* Adjusted for age, sex, income

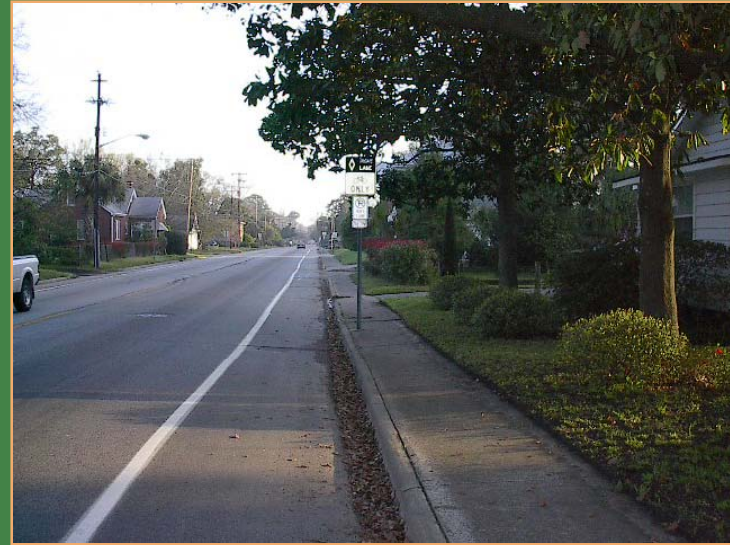
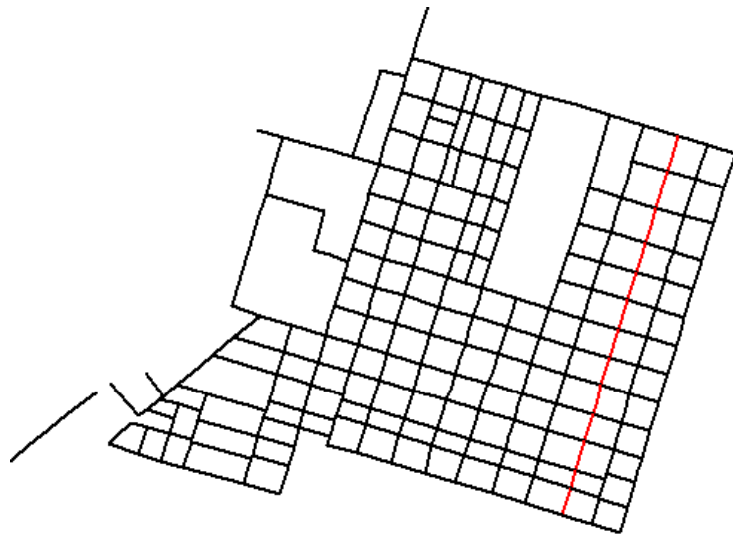
# Results: Transportation

## Savannah

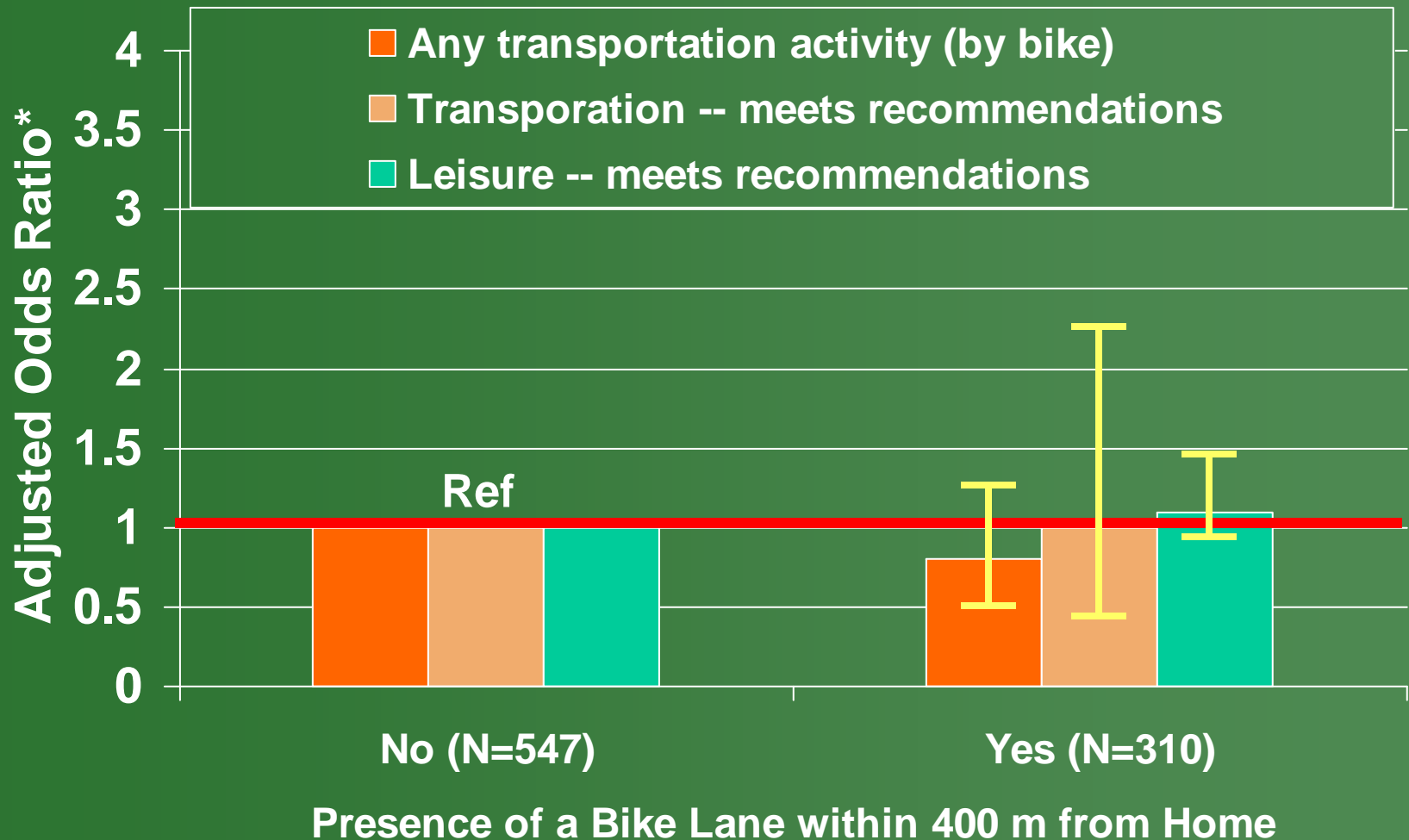
Higher Income



Lower Income

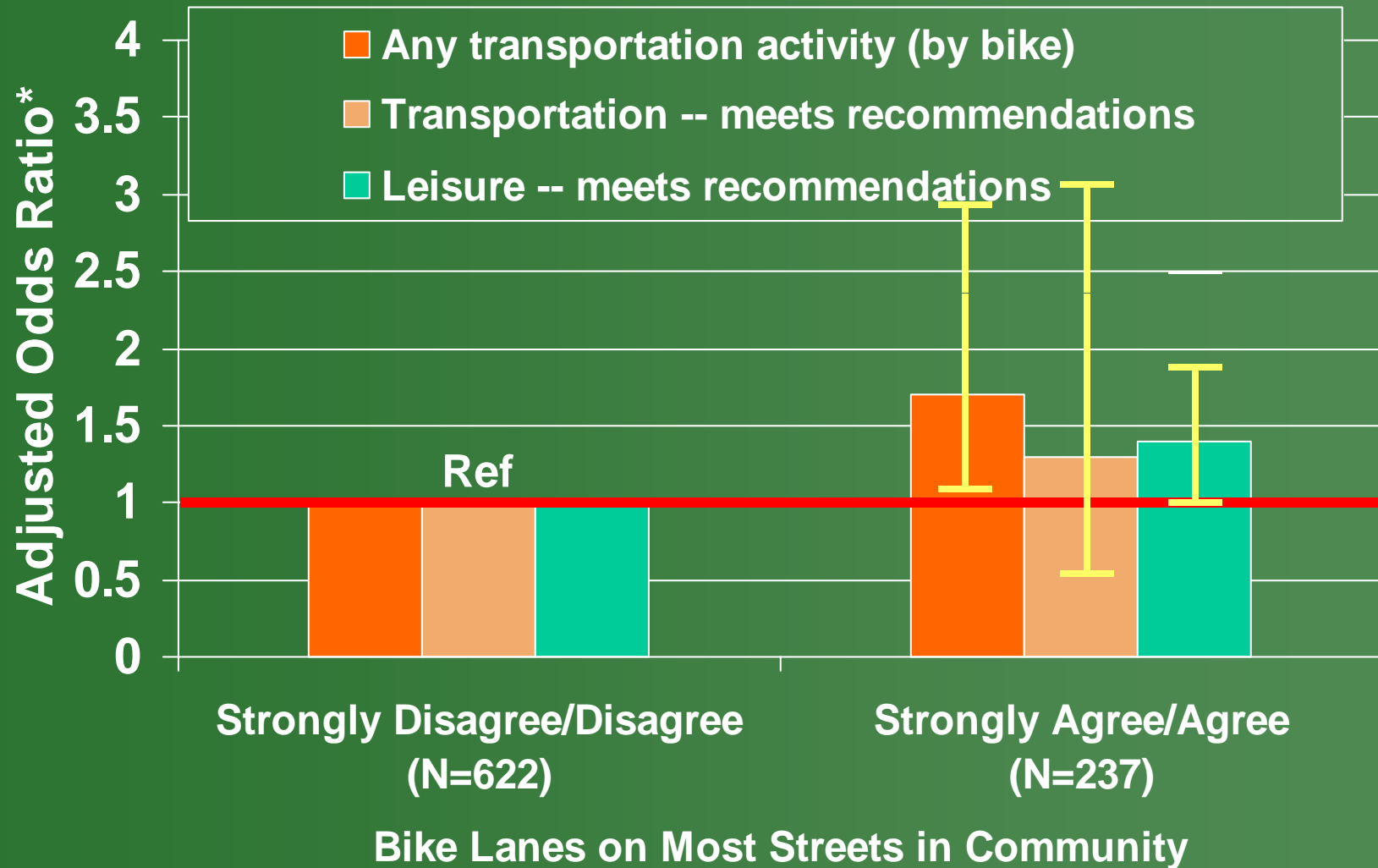


# AUDIT Results: Transportation



\* Adjusted for age, sex, income

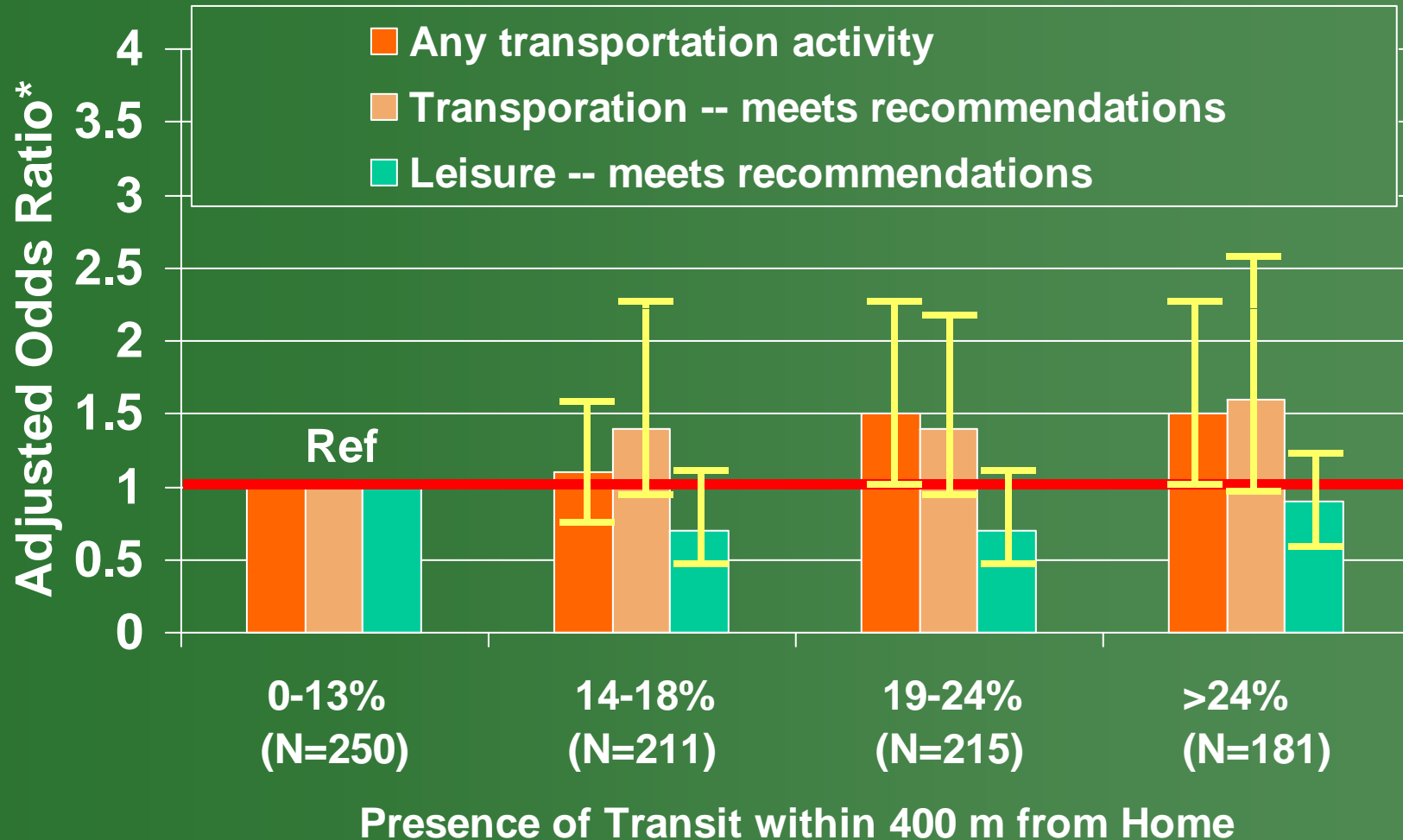
# SURVEY Results: Transportation



\* Adjusted for age, sex, income

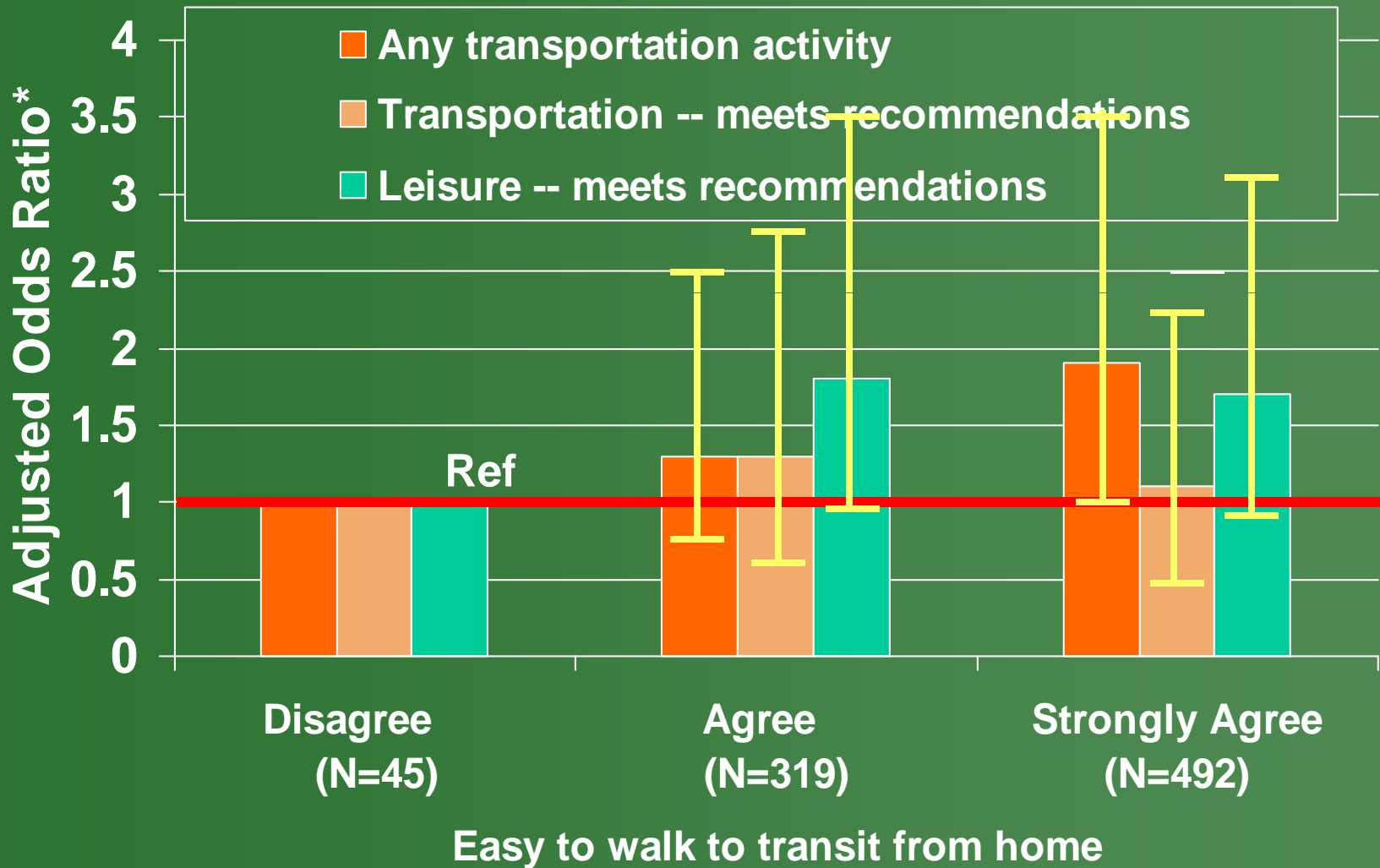


# AUDIT Results: Transportation



\* Adjusted for age, sex, income

# SURVEY Results: Transportation



\* Adjusted for age, sex, income

# Results: Aesthetics



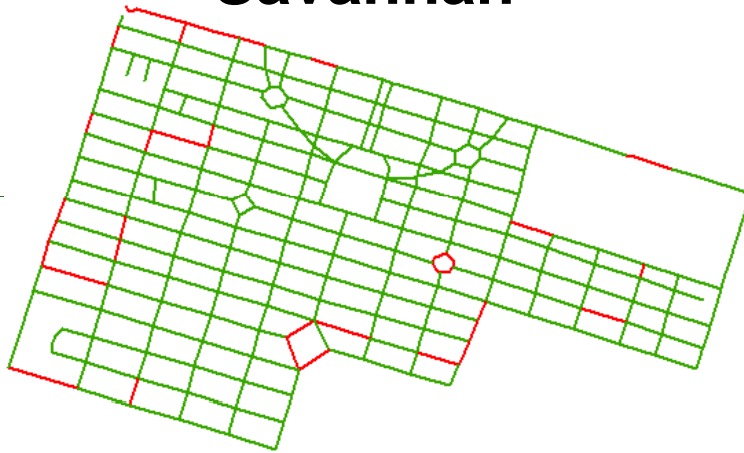
# Results: Aesthetics

## Amount of Litter / Broken Glass

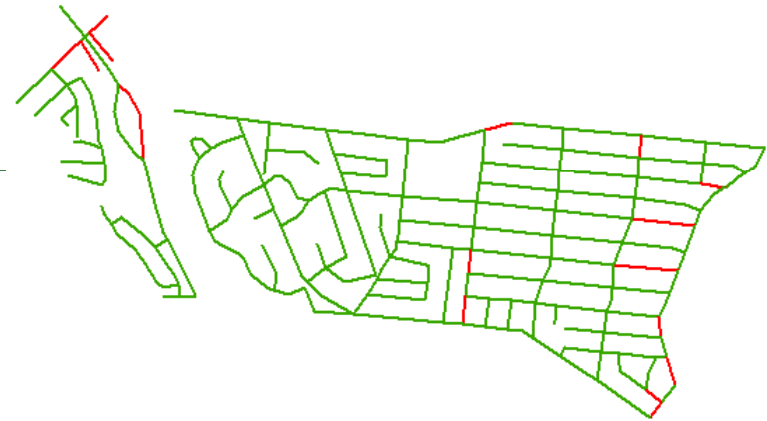
-  = None or a little
-  = Some or a lot

Higher Income

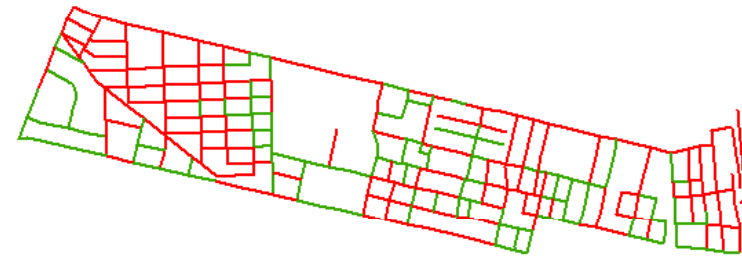
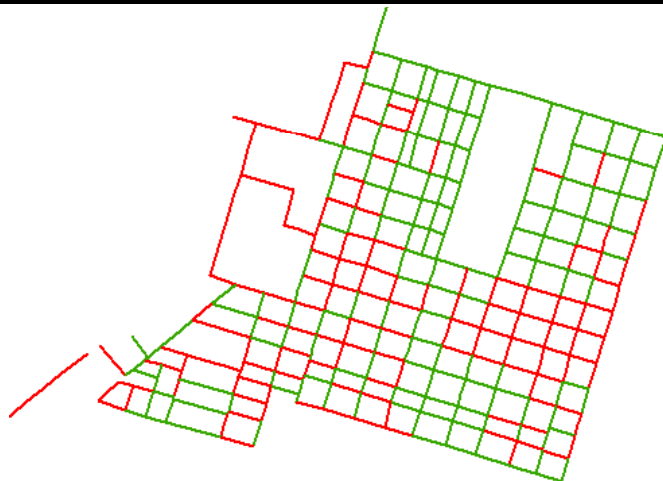
Savannah



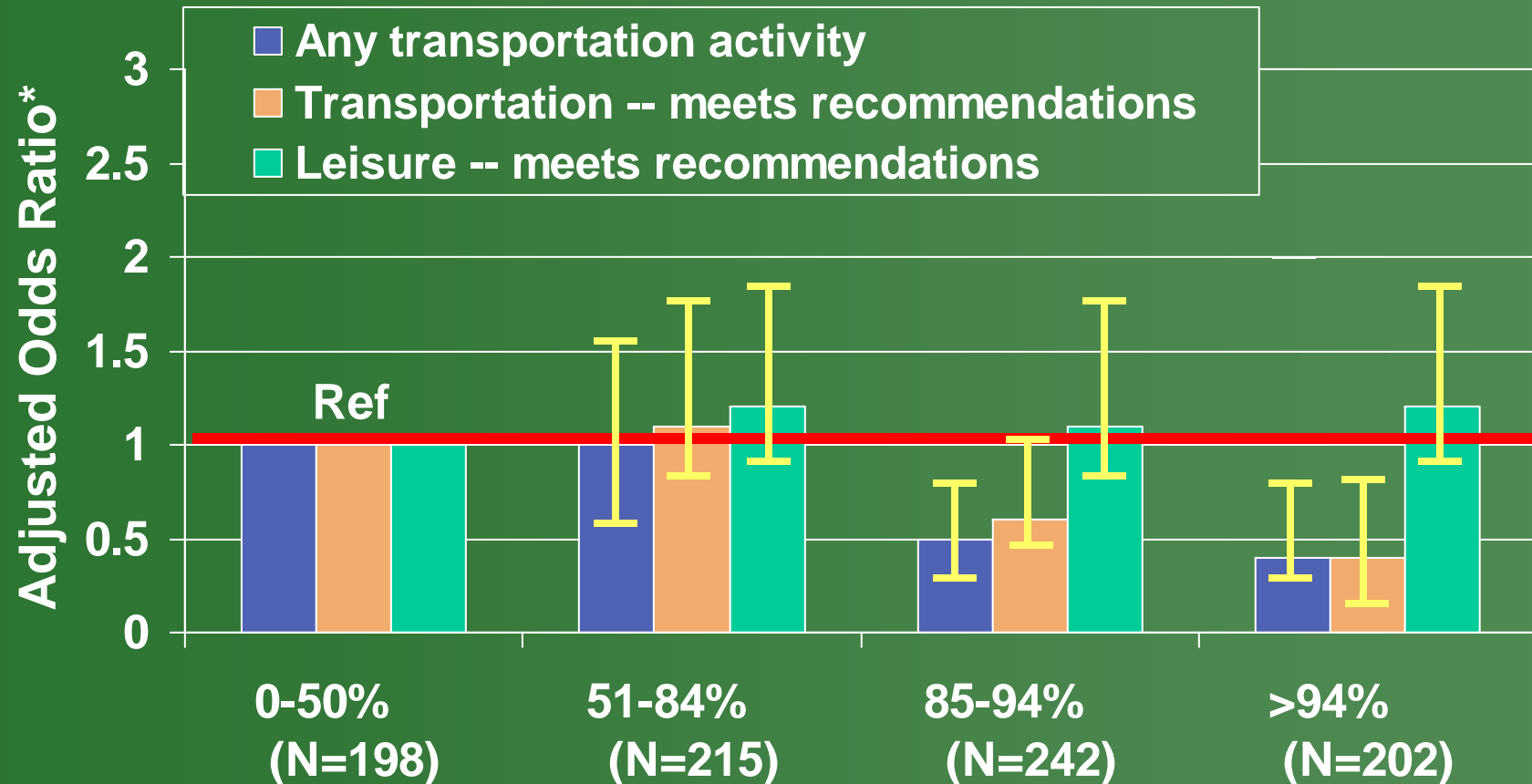
St. Louis



Lower Income



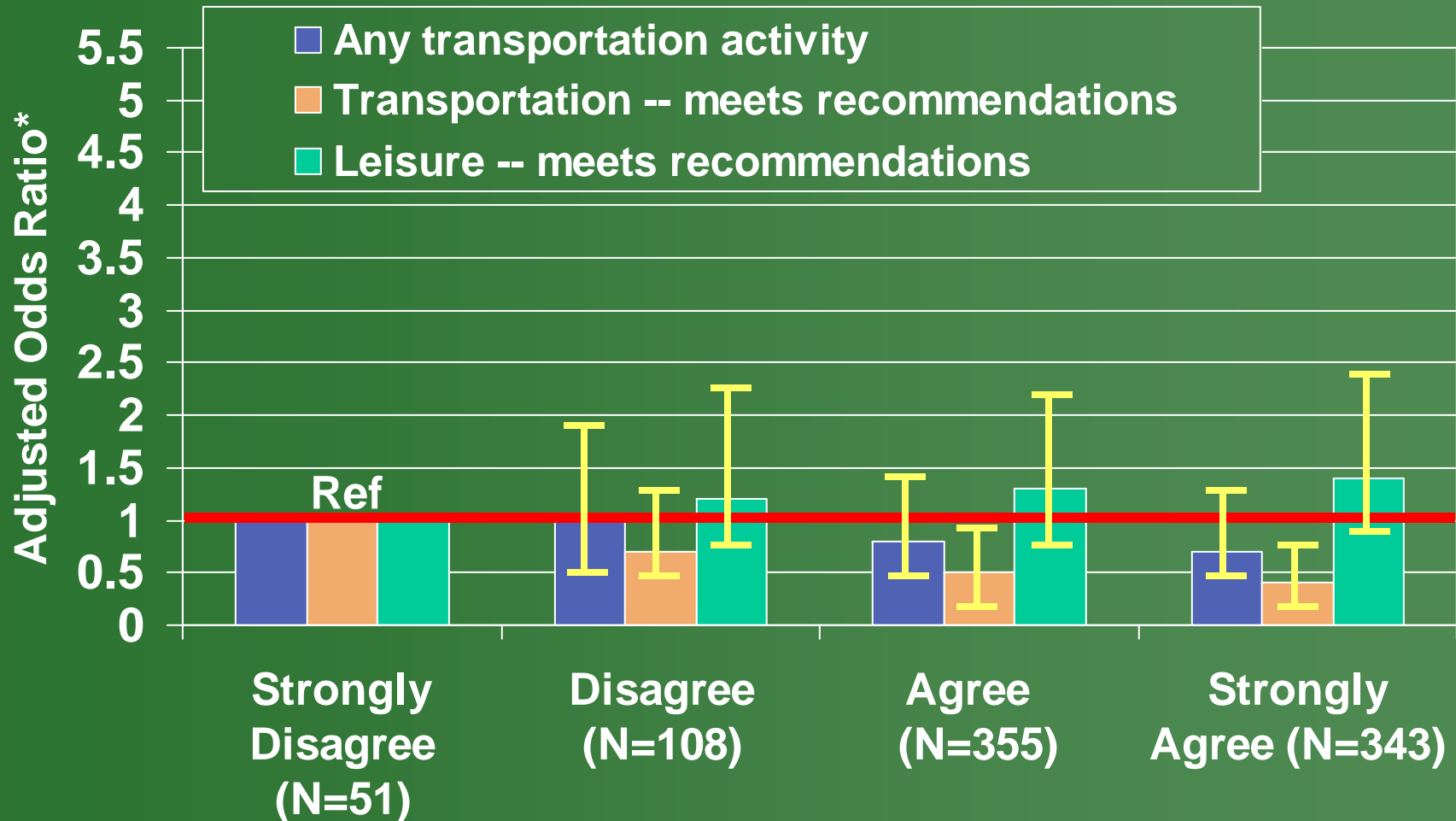
# AUDIT Results: Aesthetics



Proportion of Segments within 400 m of Home with Some or A Lot of Litter/Broken Glass (Quartiles)

\* Adjusted for age, sex, income

# SURVEY Results: Aesthetics



My Neighborhood is Generally Free from Garbage,  
Litter, or Broken Glass

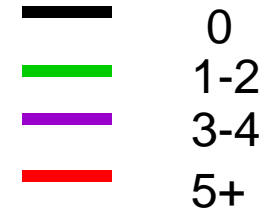
\* Adjusted for age, sex, income

# Results: Social Environment



# Results: Social Env

# of people engaging in active behaviors

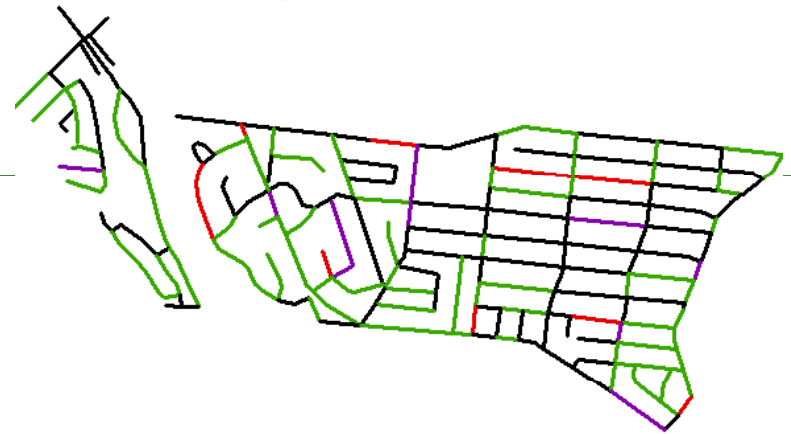


Higher Income

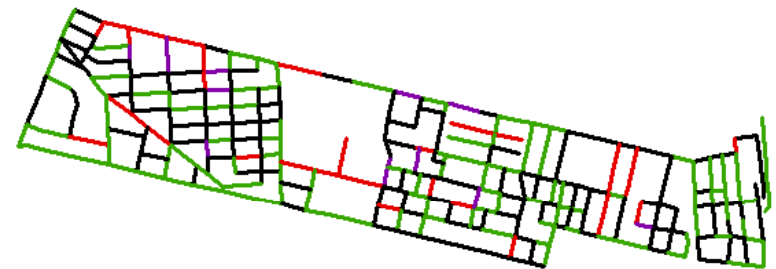
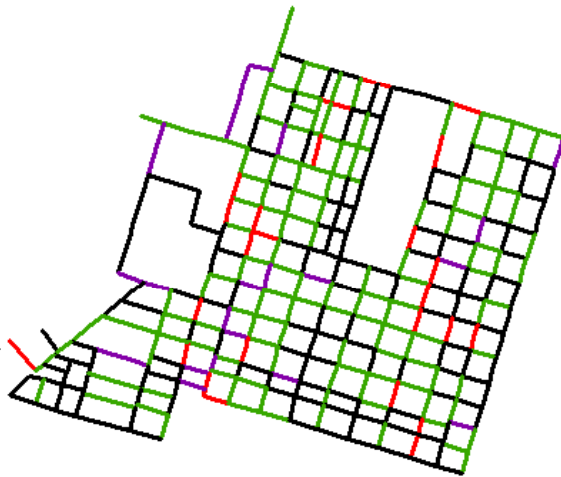
Savannah



St. Louis

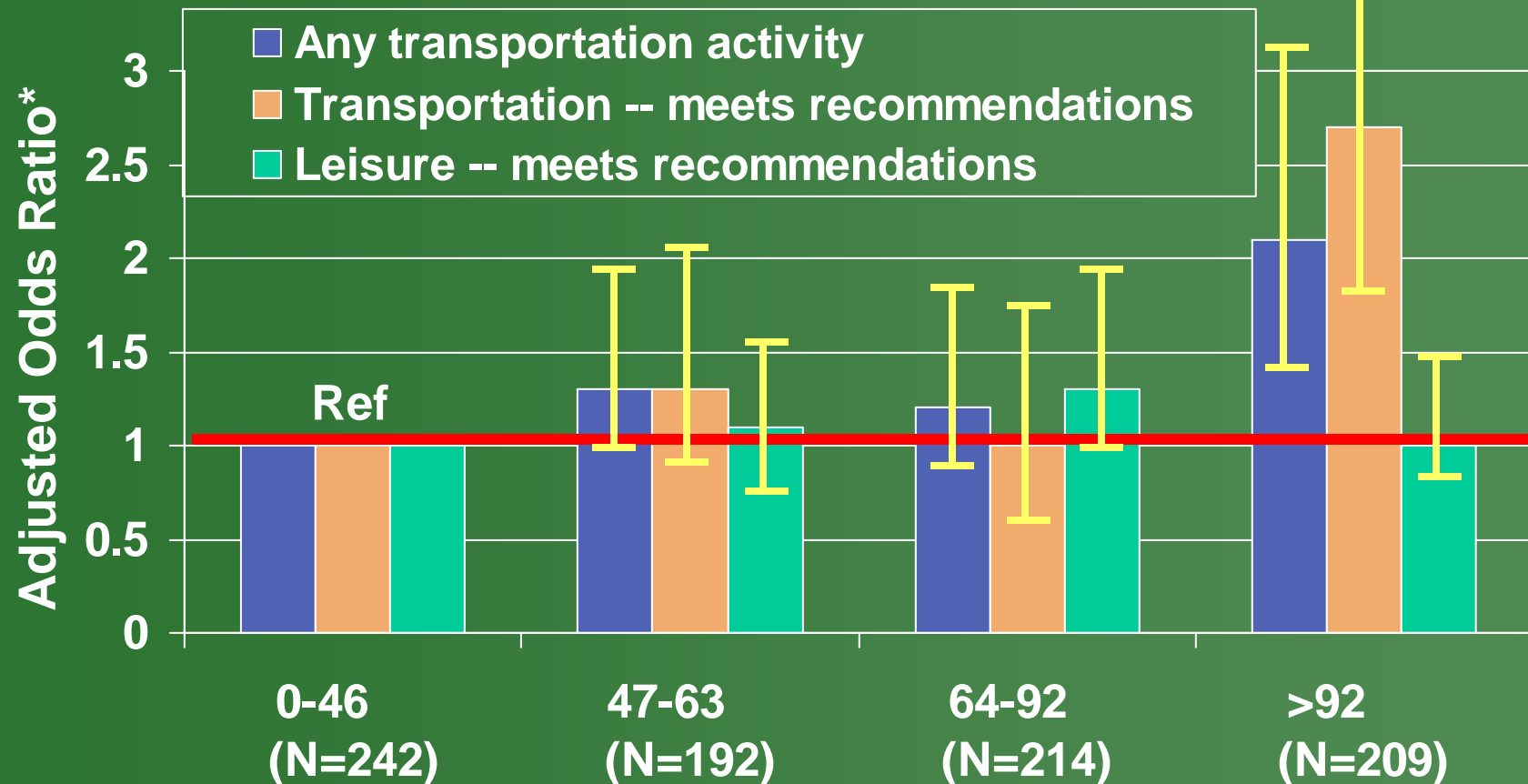


Lower Income





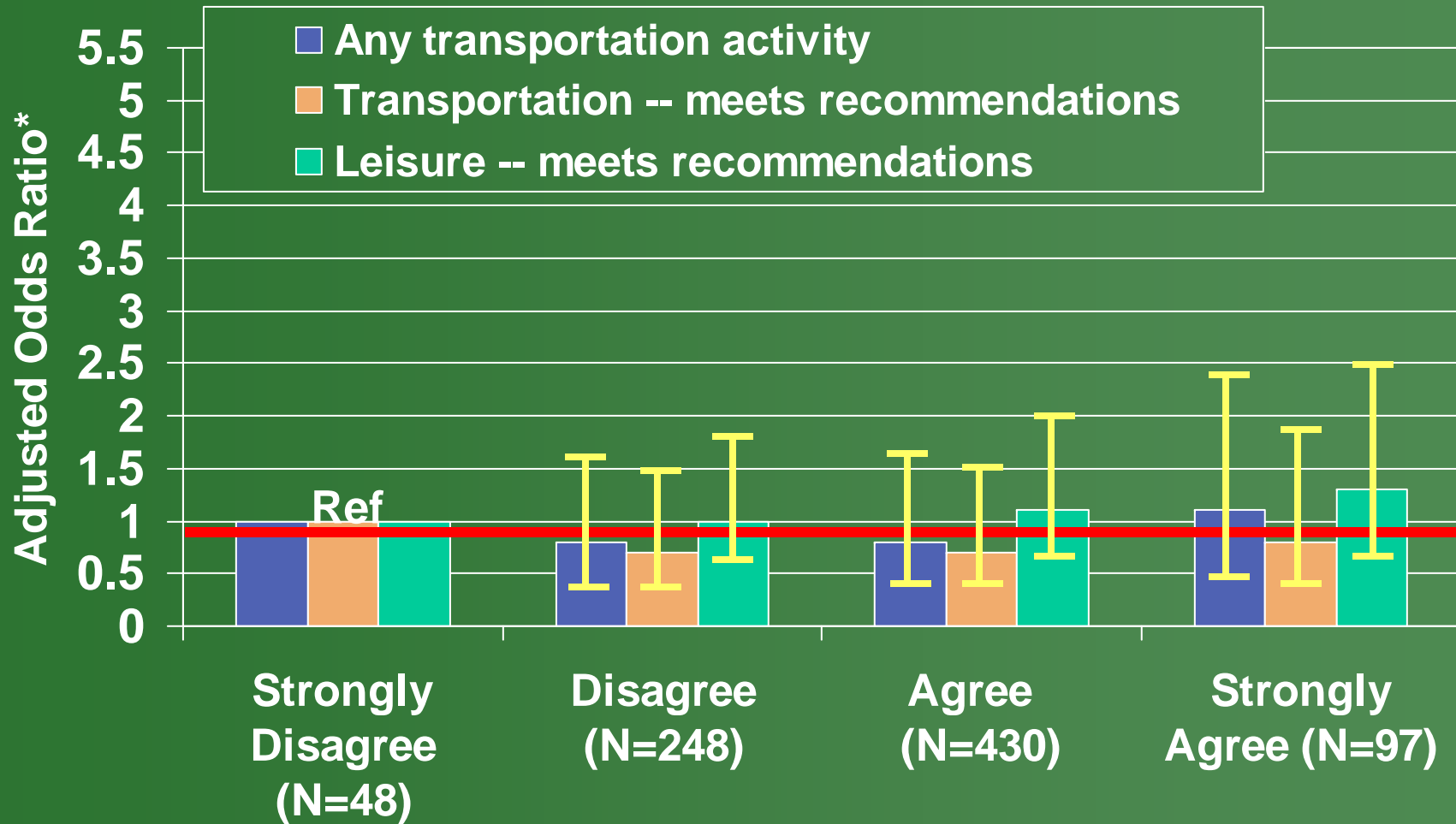
# AUDIT Results: Social Environment



Proportion of Segments within 400 m of Home with  
Teens, Adults or Seniors Engaging in PA (Quartiles)

\* Adjusted for age, sex, income

# SURVEY Results: Social Env.



My Neighborhood is Generally Free from Garbage, Litter, or Broken Glass

\* Adjusted for age, sex, income

# Limitations & Considerations

- ❑ Cross-sectional study
- ❑ No objective measures of physical activity
- ❑ Generalizability
- ❑ Unknown – meaningful buffer size
- ❑ Objective measures and quality
- ❑ Tools, training – dynamic environments

# Strengths

- ❑ Comprehensive audit instrument
- ❑ Reliability testing of audit instrument
- ❑ Transportation & recreational activity
- ❑ Perceived & objective environment measures
- ❑ “More to come”

# Next Steps

- ❑ Assess the feasibility of community member use of the audit tool and consistency with trained research assistants
- ❑ Examine associations between “objective” and “perceived” measures
- ❑ Look for patterns in the influence of neighborhood characteristics by higher and lower income neighborhoods
- ❑ Analyze relationships between psychosocial and neighborhood characteristics and their influence on physical activity
- ❑ Compare the “checklist” and “analytic” versions of the audit tool
- ❑ Determine at which geographic scale(s) the neighborhood environment is most strongly correlated with physical activity

# Contact Information

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