

# Does Retrofitting the Built Environment with a Greenway Impact Physical Activity?

Supported by Southeast Transportation  
Center Grant

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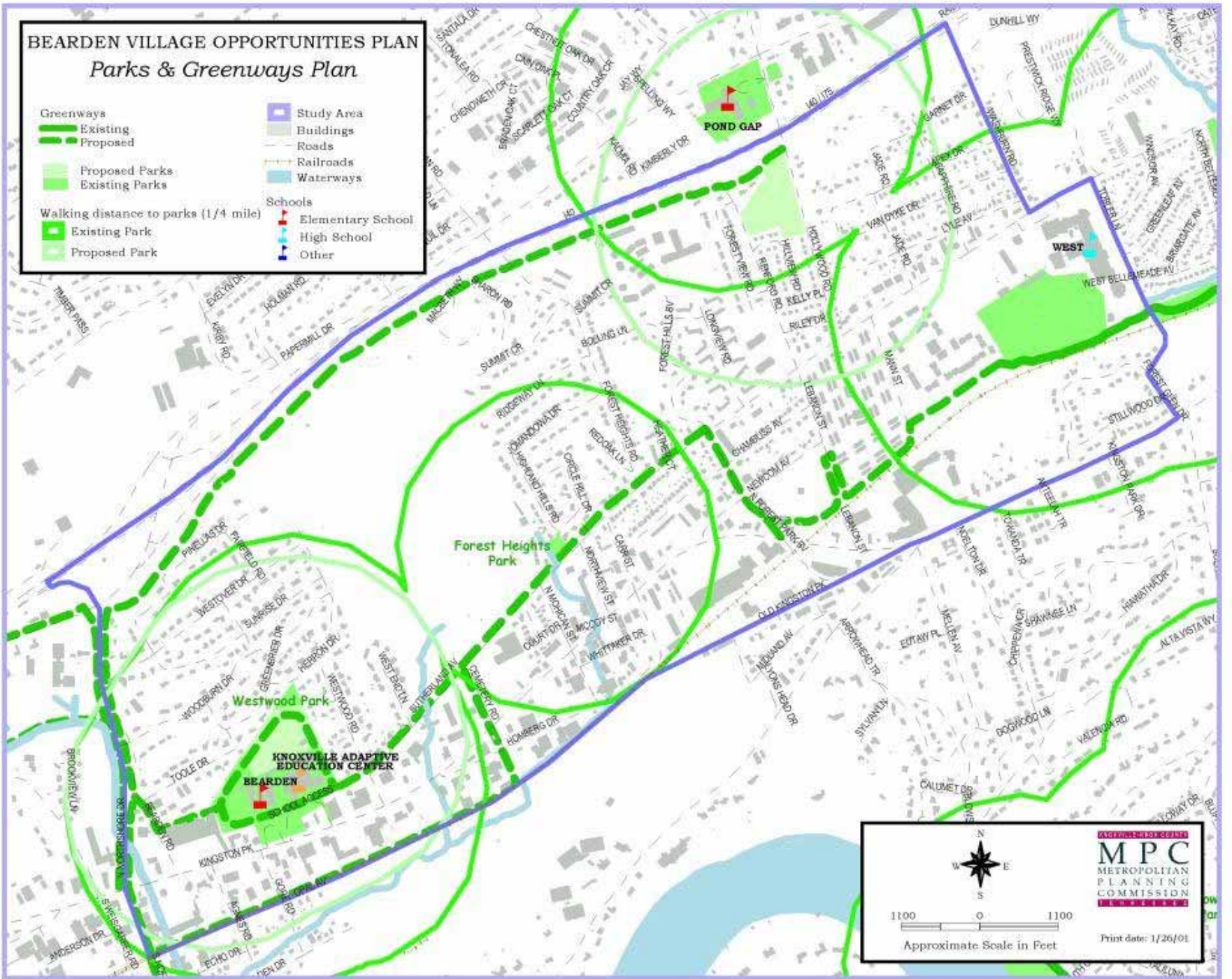


## What we know...

- The built environment is thought to be related to physical activity, especially walking
  - Mixed land use
  - Resident proximity to nonresidential destinations
  - Neighborhood density
- However, this is largely based upon cross-sectional studies
- To date, no longitudinal studies have been conducted that looked at improvements of the pedestrian infrastructure

**BEARDEN VILLAGE OPPORTUNITIES PLAN**  
*Parks & Greenways Plan*

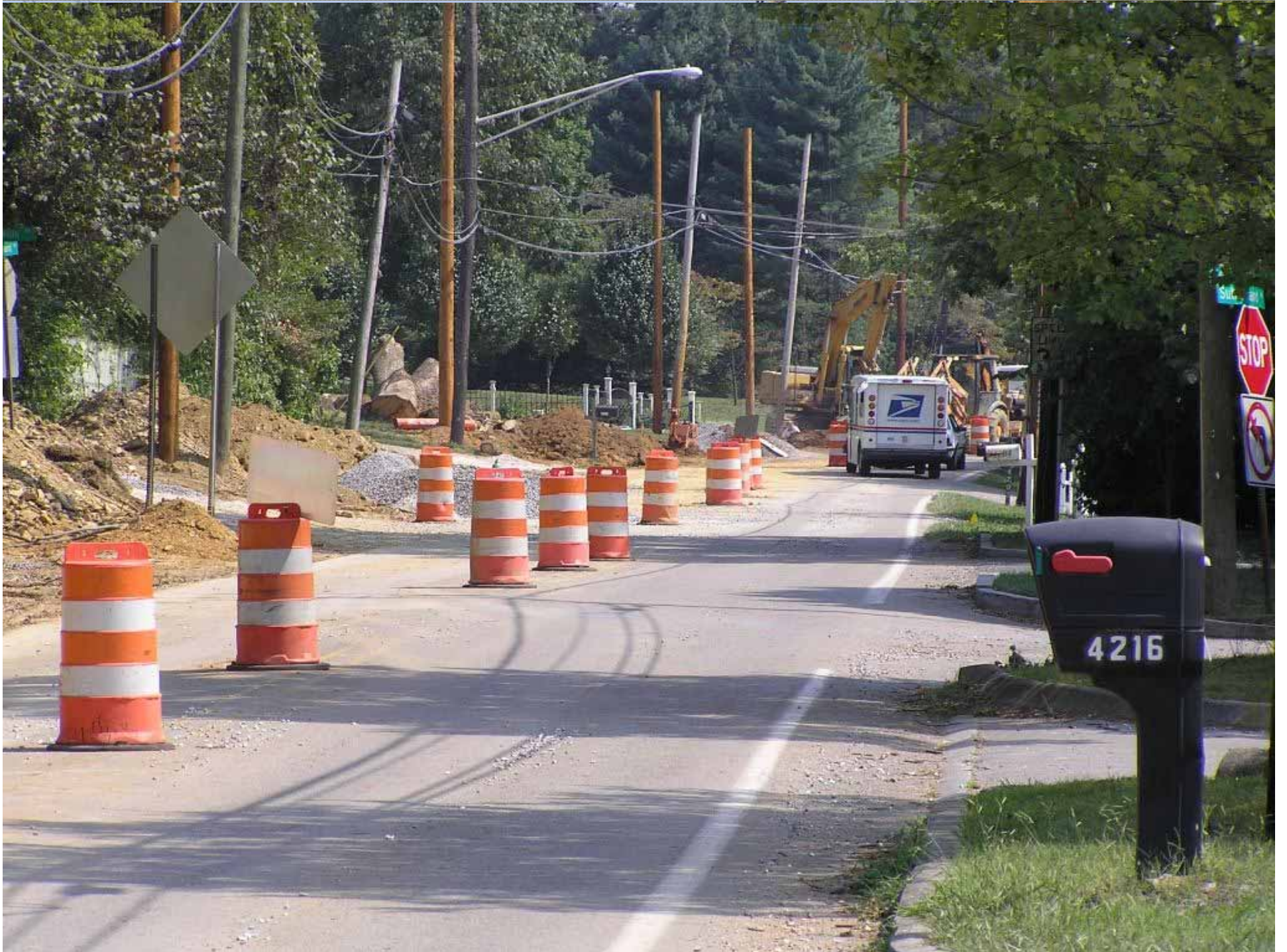
- |                    |                    |                   |                |            |           |
|--------------------|--------------------|-------------------|----------------|------------|-----------|
| Existing Greenways | Proposed Greenways | Existing Parks    | Proposed Parks | Study Area | Buildings |
| Existing Park      | Proposed Park      | Elementary School | High School    | Roads      | Railroads |
|                    |                    | Waterways         | Other          |            |           |



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 Approximate Scale in Feet

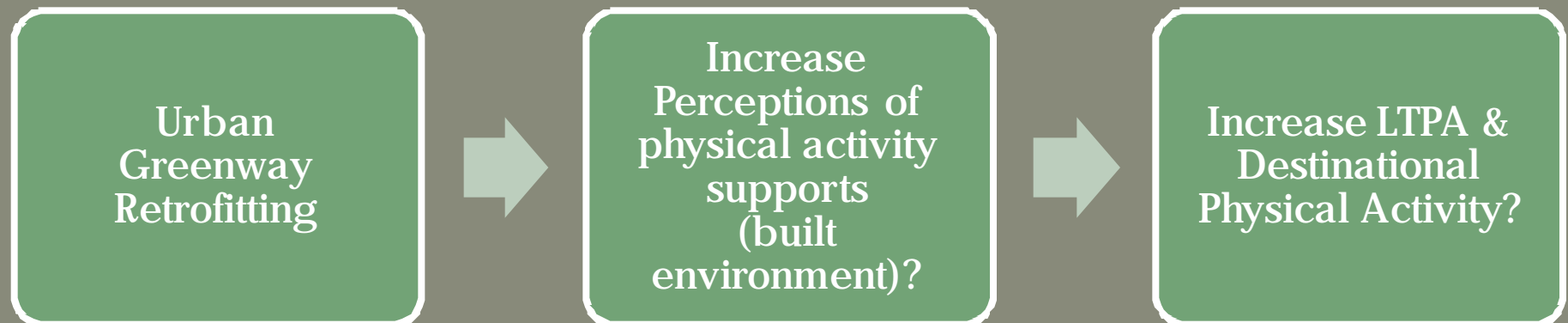
**MPC**  
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 Print date: 1/26/01





# Purpose

To examine if retro-fitting an existing neighborhood with an urban greenway, making it more conducive to walking/cycling, will...



# Study Design

- Quasi-Experimental Pre-Post Design
  - 1 experimental – 2 control neighborhoods
  - Matched on demographics & built environment
- Baseline Assessment (April-June 2005)
  - Urban Greenway construction July 2005
- Post-Assessment (April-June 2007)

# Data Collection Methods

## ● Telephone Survey

- Targeted sample of residents with addresses in the study areas
- 2005: N=1,059 respondents
- 2007: N=562 respondents (52.7% retained)
- Measured :
  1. Physical Activity (International Physical Activity Questionnaire – Met-min/wk)
  2. Perceptions of Supports in the Built Environment (Univ. of South Carolina)
  3. Demographics (Behavior Risk Factor Survey)

## ● Direct Observation of Physical Activity

- 2 days of community observation (3 2-hour observations)
- 2 days of school (morning & afternoon school-day observations)

# Results

# Changes in Perceived Environmental Supports for PA

	<i><u>Experimental</u></i>	<i><u>Controls</u></i>
• PA among neighbors	22.6%	18.9%
• <b>Neighborhood as a place to walk*</b>	<b>23.6%</b>	<b>14.7%</b>
• Level of traffic	22.6%	18.9%
• <b>Presence of sidewalks**</b>	<b>19.3%</b>	<b>5.4%</b>
• Level of street lighting	27.5%	23.4%
• Walking & unattended dog problem	23.4%	28.2%
• Level of trust among neighbors	0.8%	3.2%
• Presence of public rec. facilities • (e.g., walking trails, bike paths, etc)	10.7%	15.3%
• <b>Local funding for public rec. facilities*</b>	<b>18.4%</b>	<b>29.6%</b>
• Safety from crime	22.1%	20.1%

\*p < 0.05

\*\*p < 0.001

# Changes in Self-Reported Trail Use

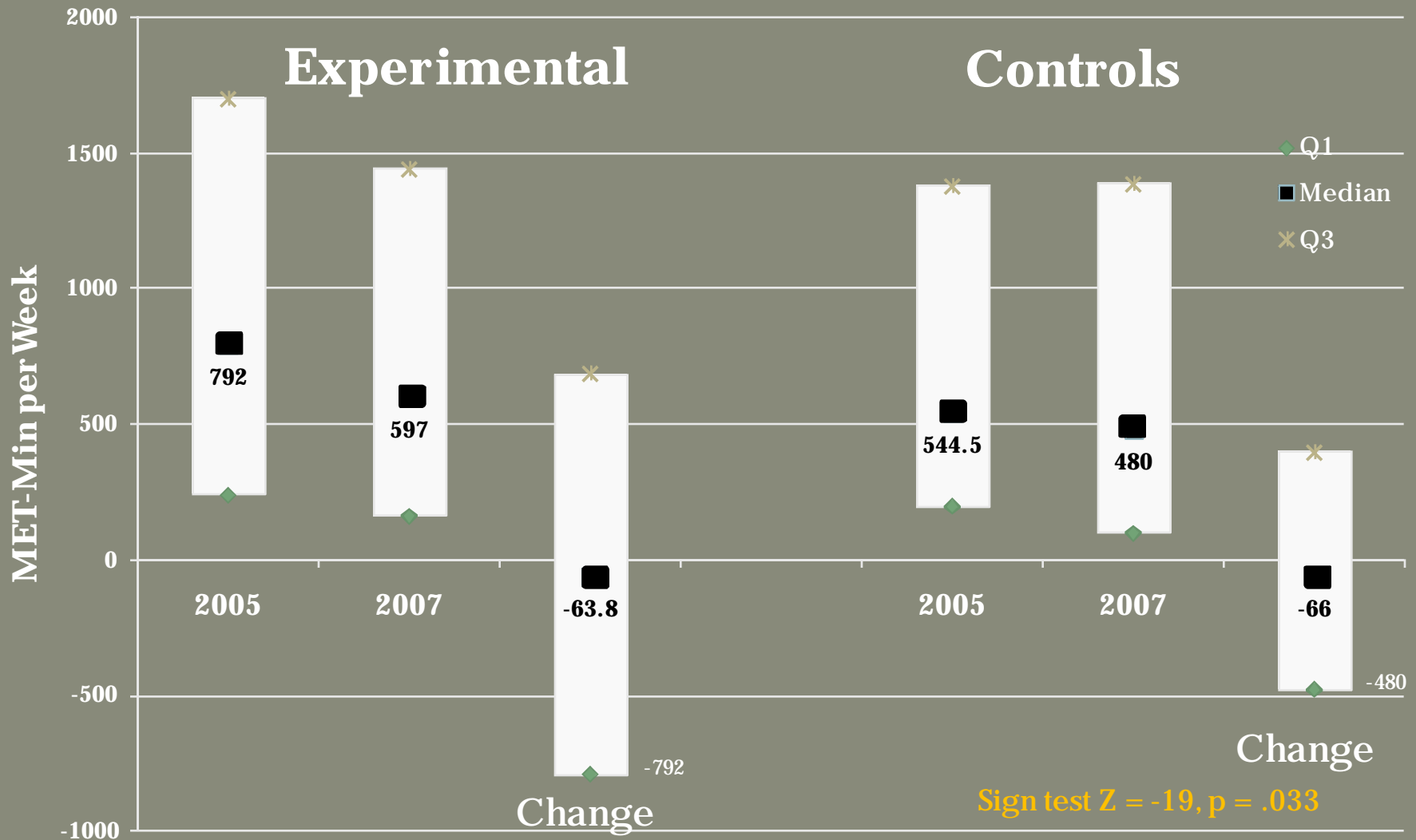
	<u>Experimental</u>	<u>Controls</u>
● New User of Trail	21.4%	20.7%

$X^2=0.031; df=1; p=0.86$

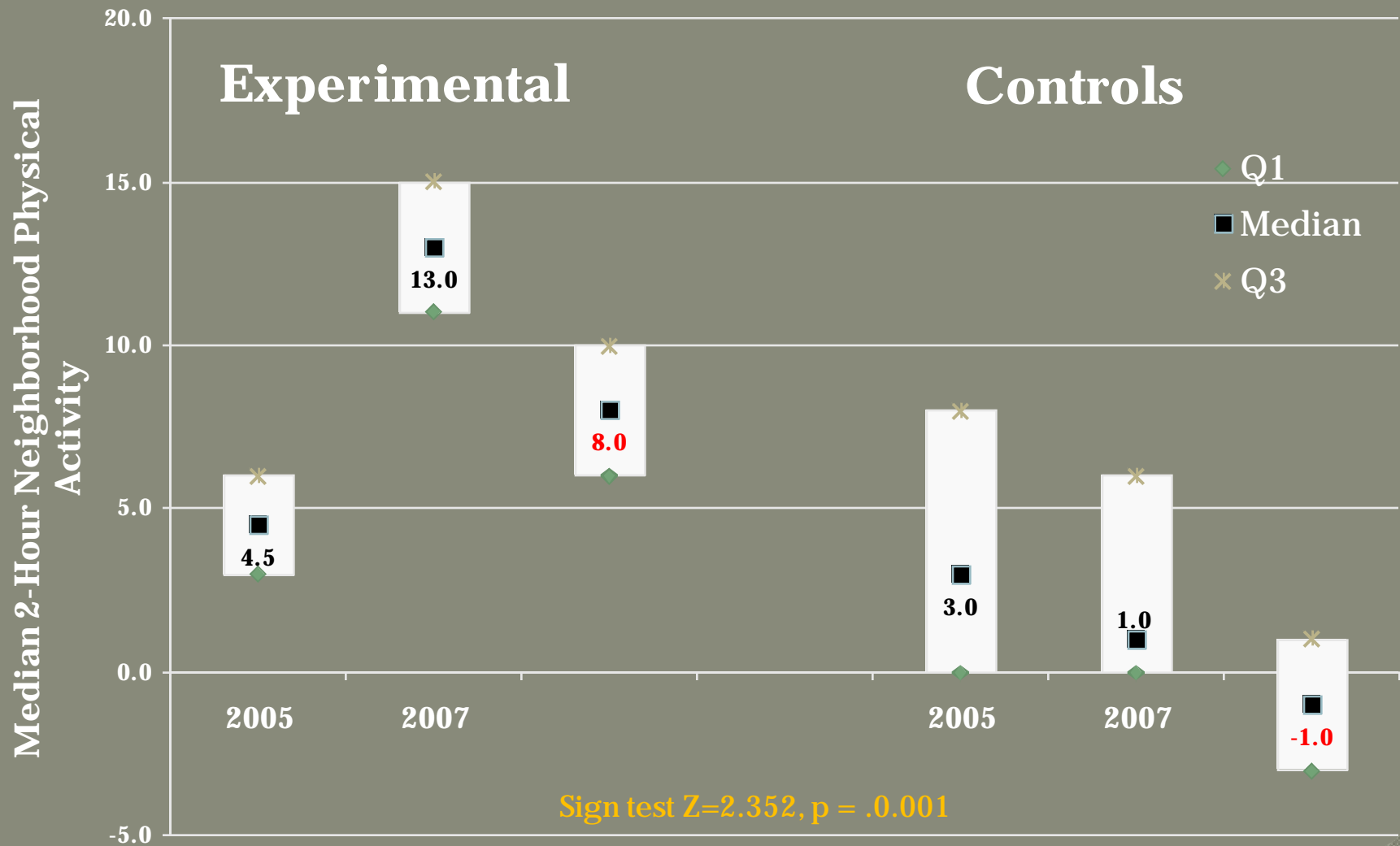
● Ever Used a Trail (yes)	80.7%	64.4%
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$X^2=12.2; df=1; p<0.0005$

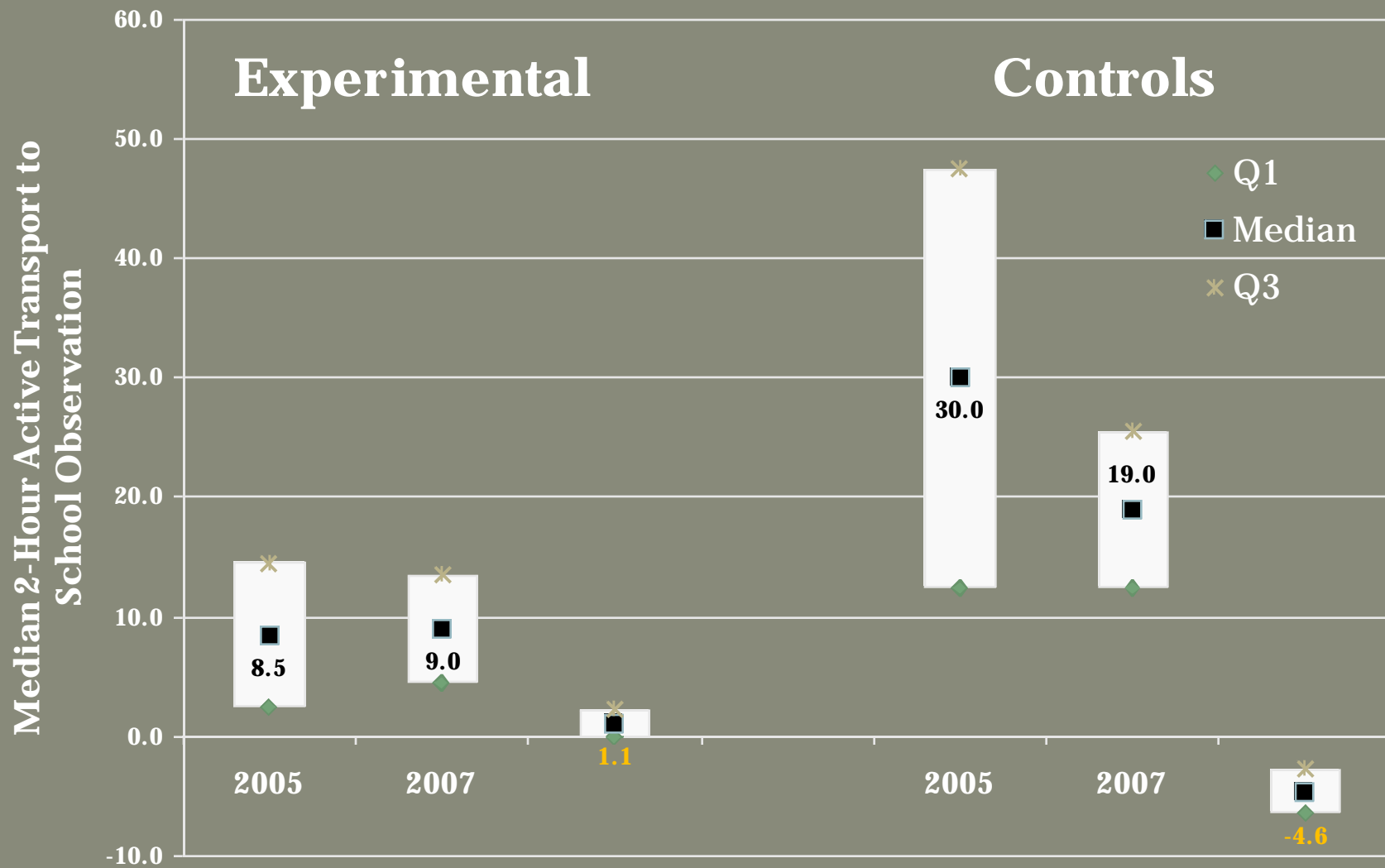
# Changes in Self-Reported Physical Activity (Met-min/Wk)



# Changes in Observed Neighborhood Physical Activity



# Changes in Observed Active Transport to School (ATS)



# Discussion

- This study confirms prior cross-sectional studies
  - Enhancing a neighborhood's pedestrian infrastructure does increase outdoor physical activity (PA) <sup>1,2</sup>
- Study also confirms that enhanced pedestrian infrastructure connectivity does not increase ATS
  - To impact ATS, changes in the built environment also need to be reinforced with parental education to address safety concerns & perceived ATS barriers <sup>3-8</sup>
- To achieve maximum change in PA, perhaps social marketing campaigns should be conducted in association with changes in the built environment?

# Current Work

- Trail Intercept Surveys (Fall 2010)
- Infrared Trail Counters (2005-present)



# References

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