Blueprint for Active Living Communities: Innovative Solutions

James Sallis

University of California, San Diego

For IOM PA Workshop. April 15, 2015

Outline of Talk

- Do built environments matter?
- Progress in research and policy
  - Designing walkable communities
  - Designing streetscapes for people: details matter
  - Re-engineering active commuting to school
  - Designing active parks
- Disparities in activity-friendly environments
- Co-benefits of activity-friendly communities
- Resources

Land Use and Transport Decisions Are Significant and Affect Health

“Walkable”: Mixed use, connected, dense

Not “walkable”

↓ street connectivity and ↓ mixed land use

Evidence of the link between community design and health

The Neighborhood Quality of Life Study of Adults (NQLS)
Seattle, WA and Baltimore, MD regions

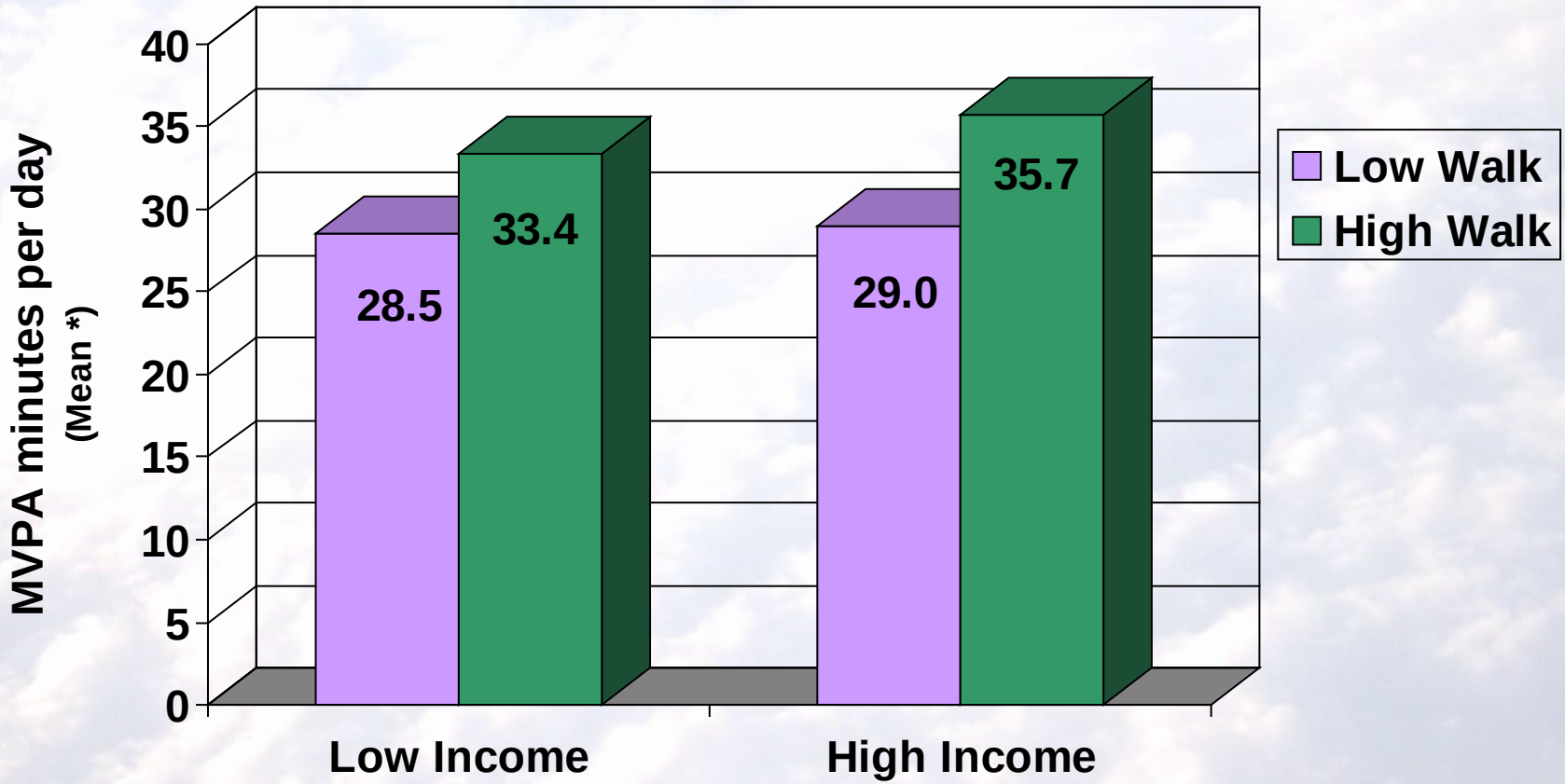
Sallis et al. Social Science & Medicine, 2009

Adults' Objective Physical Activity Min/day in Walkability-by-Income Quadrants

Walkability: *p* =.0002

Income: *p* =.36

Walkability X Income: *p* =.57



* Adjusted for neighborhood clustering, gender, age, education, ethnicity, # motor vehicles/adult in household, site, marital status, number of people in household, and length of time at current address.

Estimated Public Health Impact of Walkability

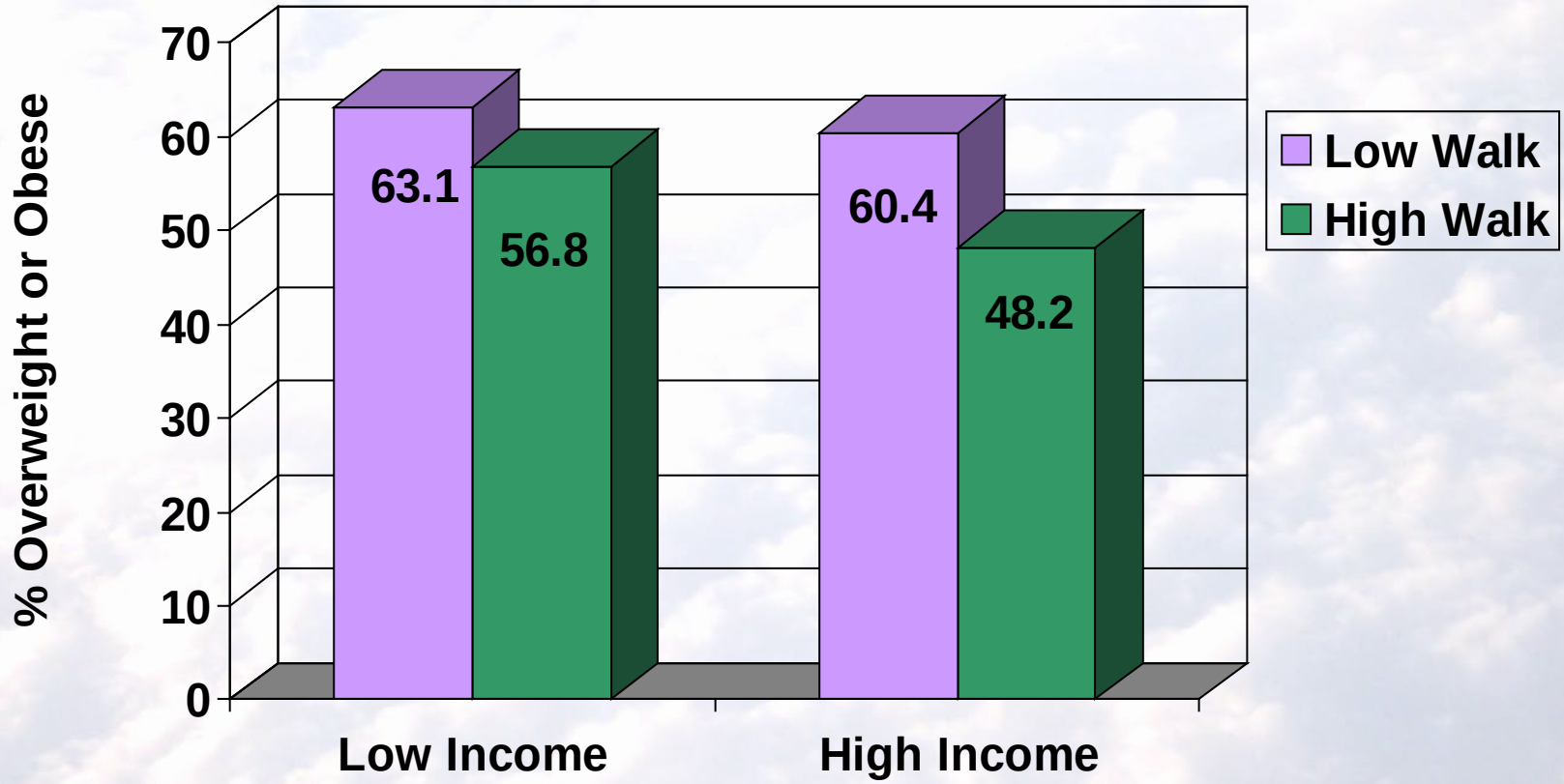
- 50 minutes per week = 2+ miles per week
- 2 miles per week = 100 miles per year
- 100 miles per year X 100 calories per mile = 10,000 kcal per year
- 10,000 kcal per year = 2.9 pounds/1.3 kg
- More than the average adult weight gain per year in the U.S.

Adults' Percent Overweight or Obese (BMI≥25) in Walkability-by-Income Quadrants

Walkability: *p* =.007

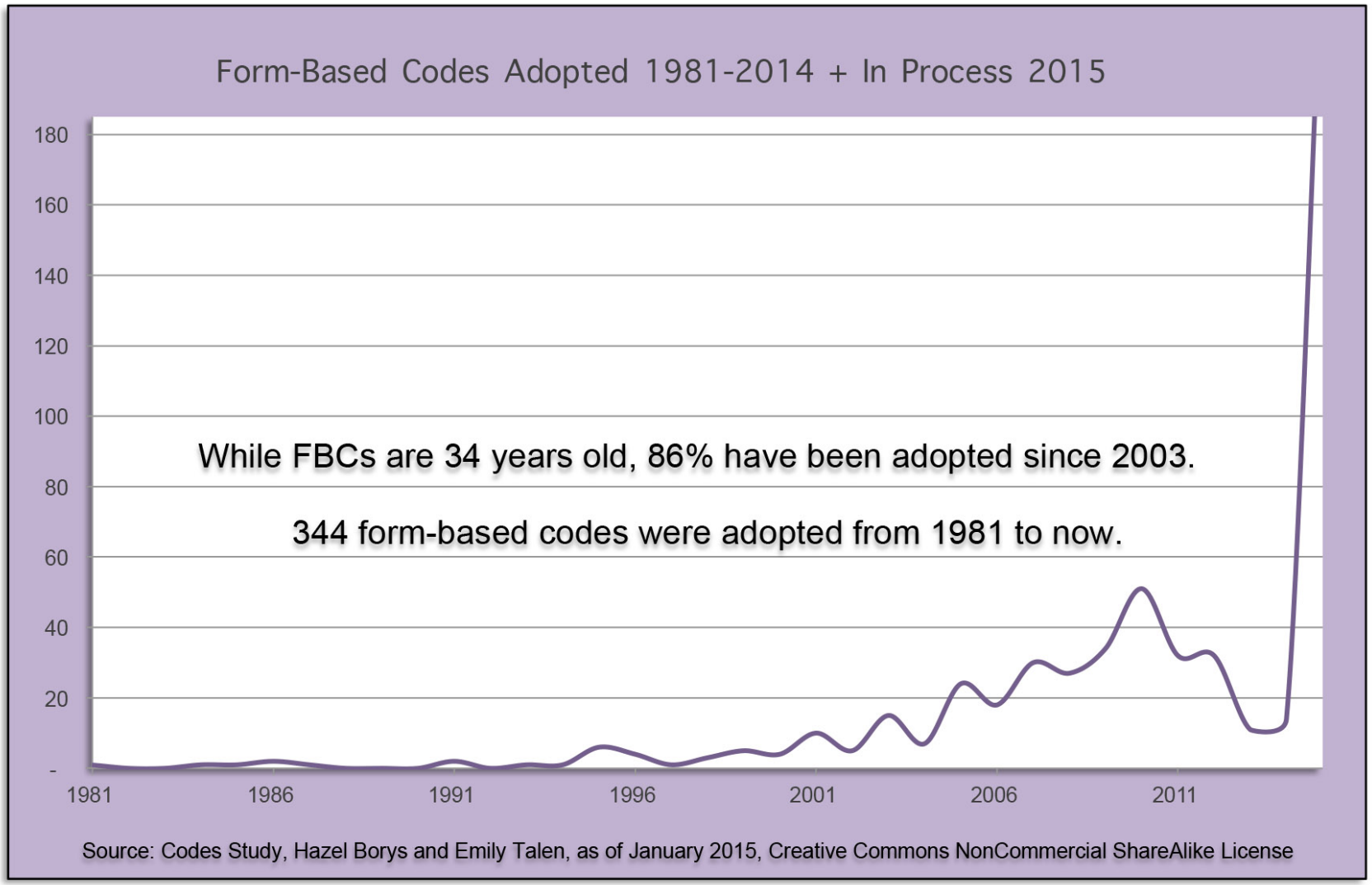
Income: *p* =.081

Walkability X Income: *p* =.26



* Adjusted for neighborhood clustering, gender, age, education, ethnicity, # motor vehicles/adult in household, site, marital status, number of people in household, and length of time at current address.

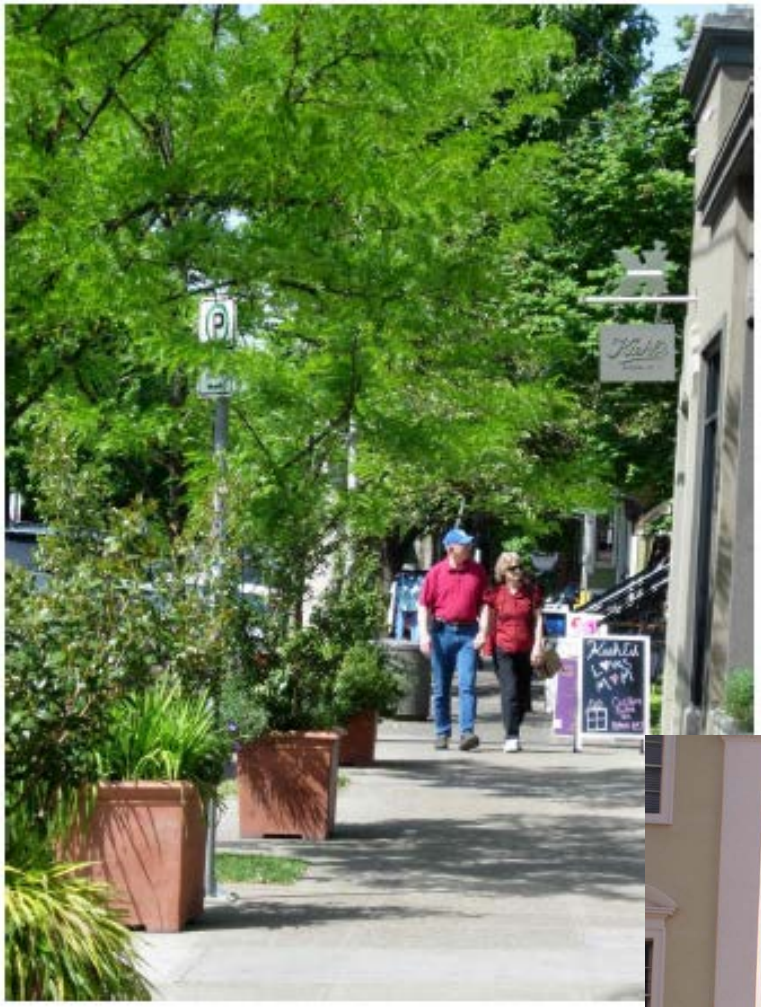
Policy Bright Spot: Form-Based Codes



http://www.placemakers.com/how-we-teach/codes-study/

Activity-Friendly Streetscapes

Not designed for active travel



Getting the Details Right: Micro-Scale Features

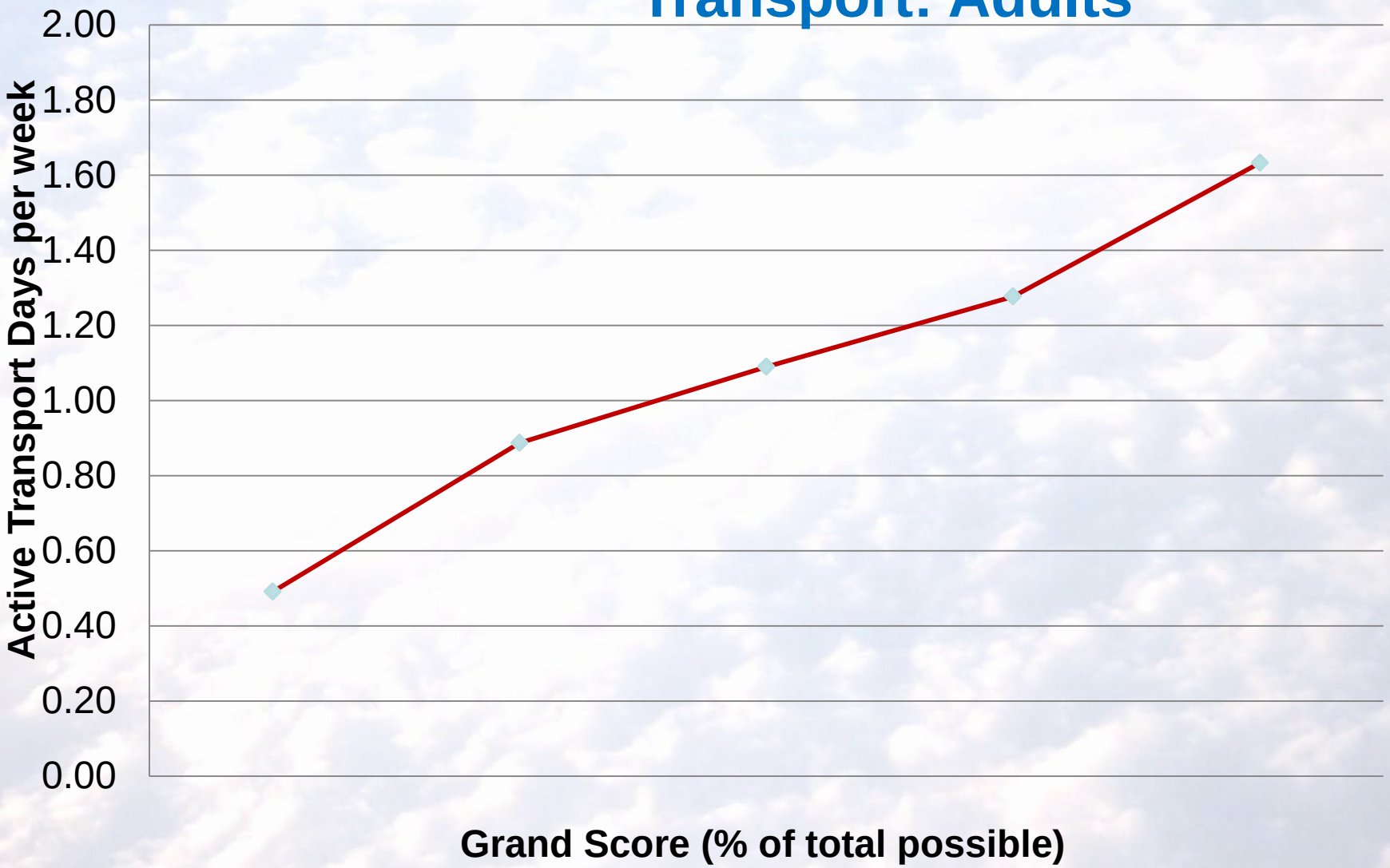
MAPS Mini: Assessing the Details

- **15-item MAPS-Mini was designed for practitioners and advocates**
  - Reduced from 120 items
- Items were selected based on
  - Correlations with physical activity
  - Guidelines and recommendations
  - Modifiability
- Evaluated for validity in 3677 children, teens, adults, older adults
  - 3 regions

How do MAPS-Mini scores relate to active transportation? ADJUSTED

MAPS Mini Score	Children	Adolescents	Adults	Seniors
Commercial Segments				N/A
Public Parks				
Transit Stops				
Street Lights				
Benches				
Building Maintenance				
Absence of Graffiti				
Sidewalk				
Buffer				
Tree, Awning Coverage				
Absence of Trip Hazards				
Marked Crosswalk				
Curb Cuts				
Crossing Signal				
GRAND SCORE				
GRAND SCORE (for Active Transport)				

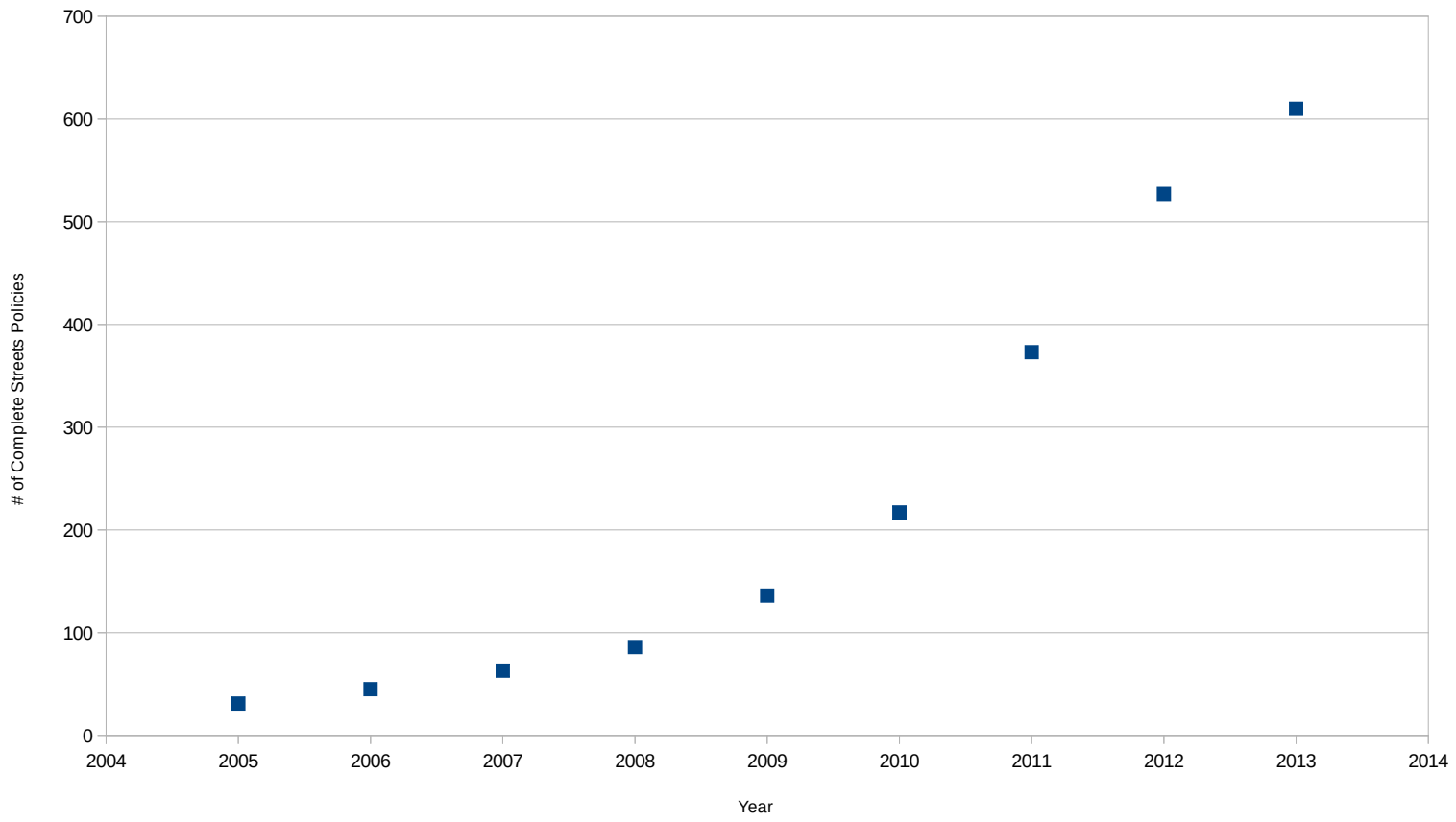
MAPS-Mini Grand Score & Active Transport: Adults



222% difference

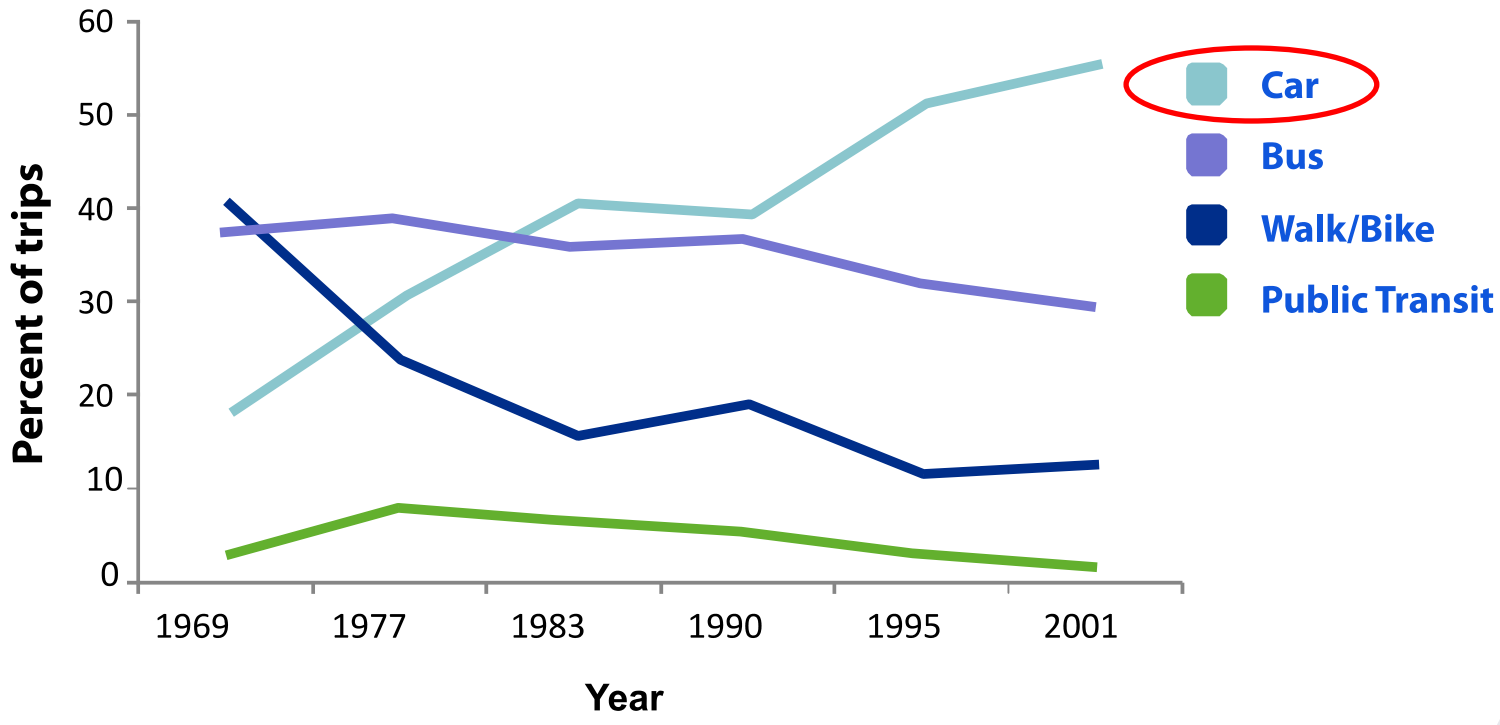
Policy Bright Spot: Complete Street Adoptions (Smart Growth America)

Figure A: Number of Complete Streets Policies by Year (as of 2013)



Active Transportation by Youth has Decreased

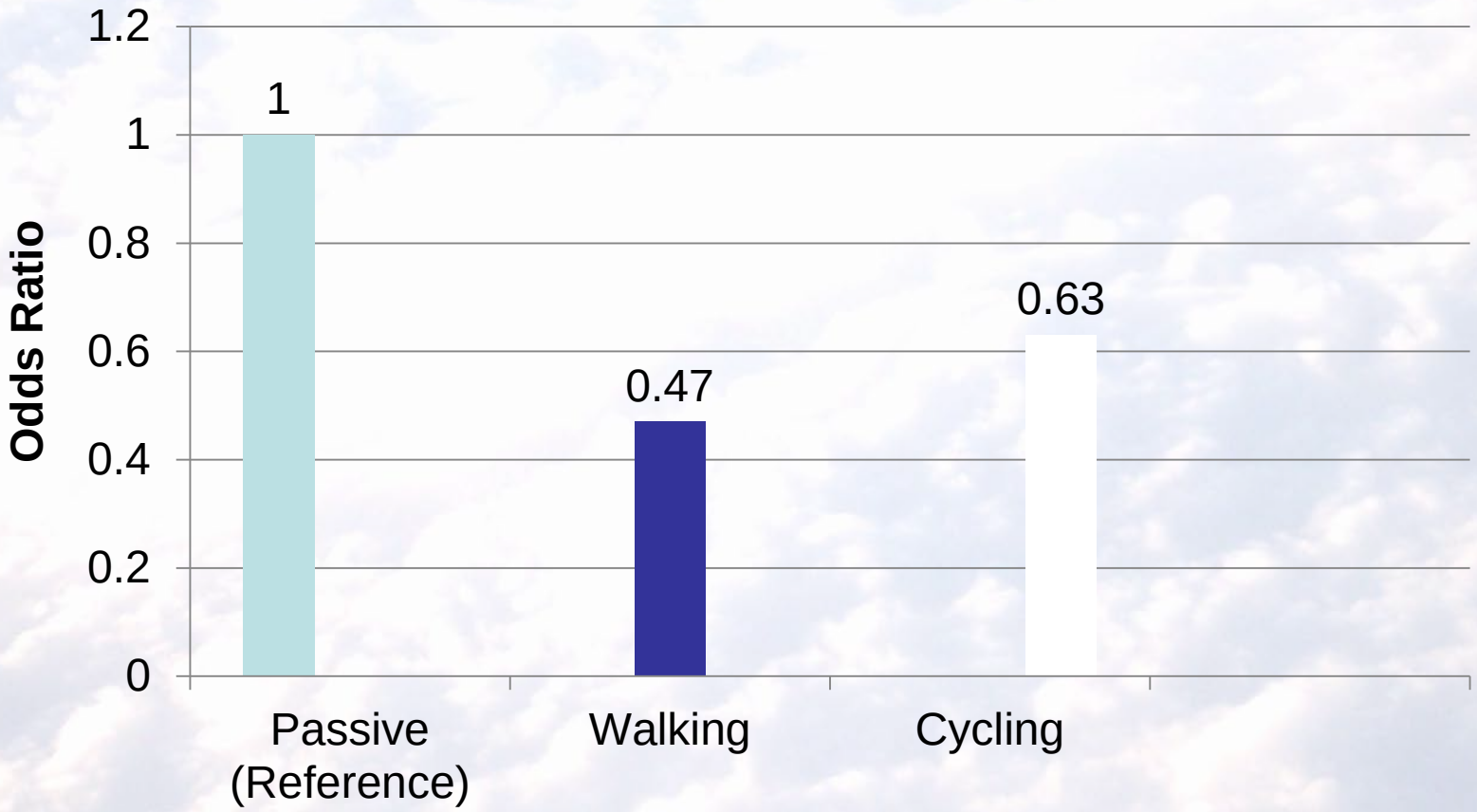
Mode for Trips to School – National Personal Transportation Survey



McDonald NC. Am J Prev Med 2007;32:509.

Walking and Biking to School Reduces Odds of Being Overweight

A Danish study found that adolescents (N=3847) who walked or cycled to school were less likely to be overweight than those who rode to school in motor vehicles (passive transport).



Østergaard L. et al. Cycling to School Is Associated With Lower BMI and Lower Odds of Being Overweight or Obese in a Large Population-Based Study of Danish Adolescents. *Journal of Physical Activity and Health* 2012, 9: 617-625.

Step 1: Site schools where the students are

Step 2: Create Safe Routes to School

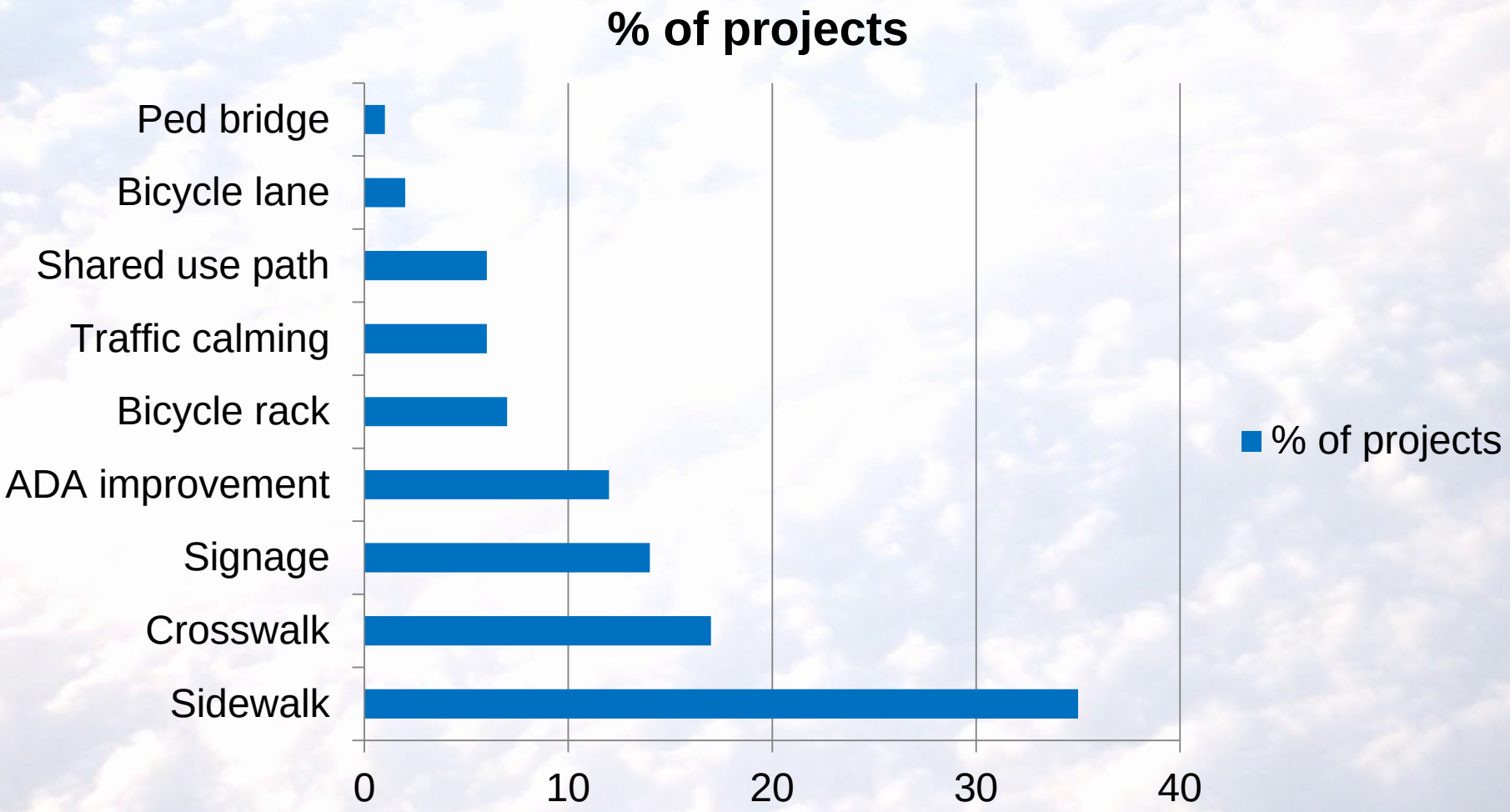
Multistate Evaluation of Safe Routes to School Programs

Orion Stewart, MUP; Anne Vernez Moudon, Dr Es Sc; Charlotte Claybrooke, MS

American Journal of Health Promotion

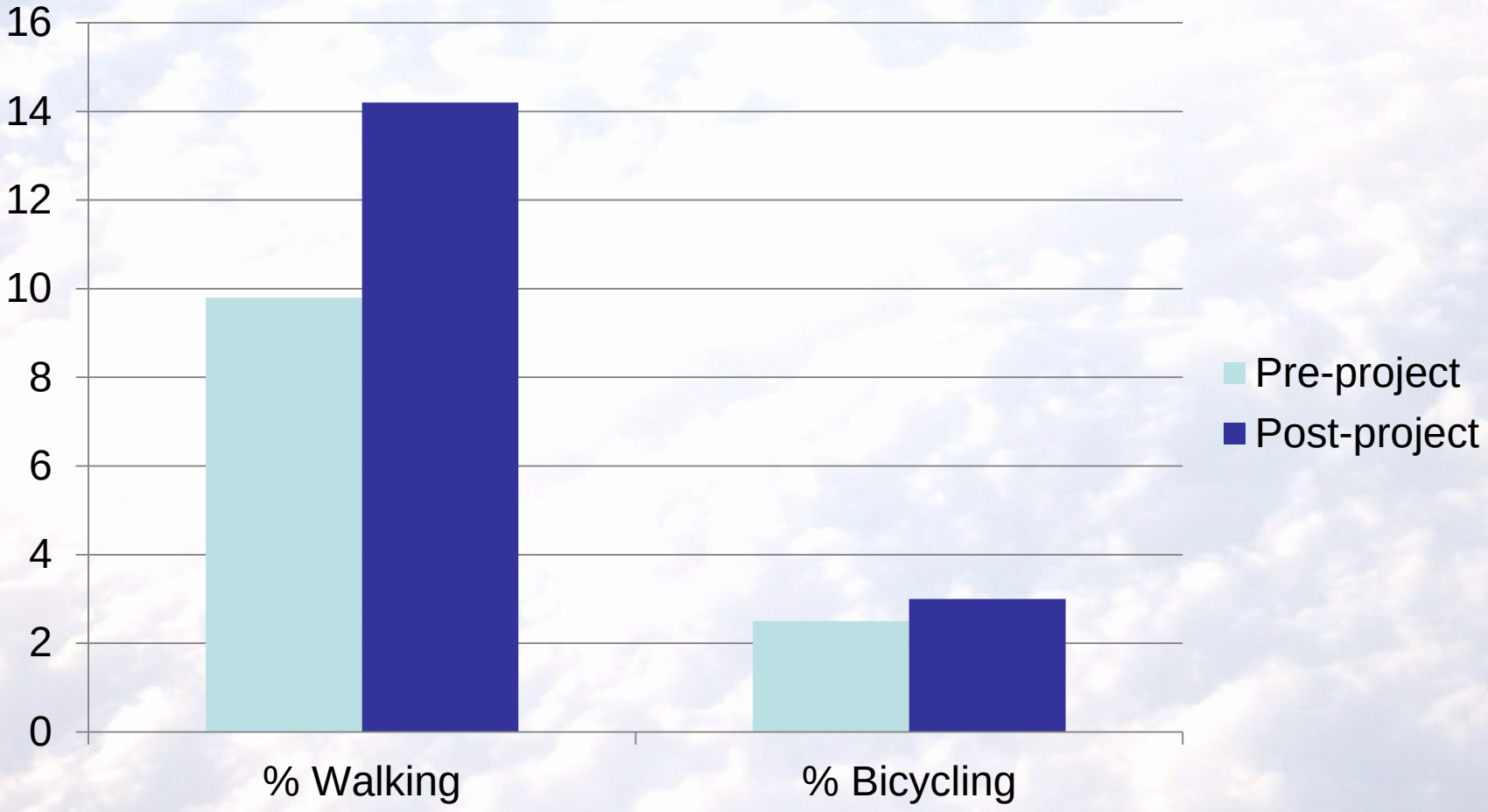
January/February 2014, Vol. 28, No. 3 Supplement S89

% of SRTS Projects, By Type



Moving Forward: WASH DOT.
http://www.wsdot.wa.gov/research/reports/fullreports/743.3.pdf

Walking & Cycling to School Pre & Post SRTS Projects in 5 States



Moving Forward: WASH DOT.

http://www.wsdot.wa.gov/research/reports/fullreports/743.3.pdf

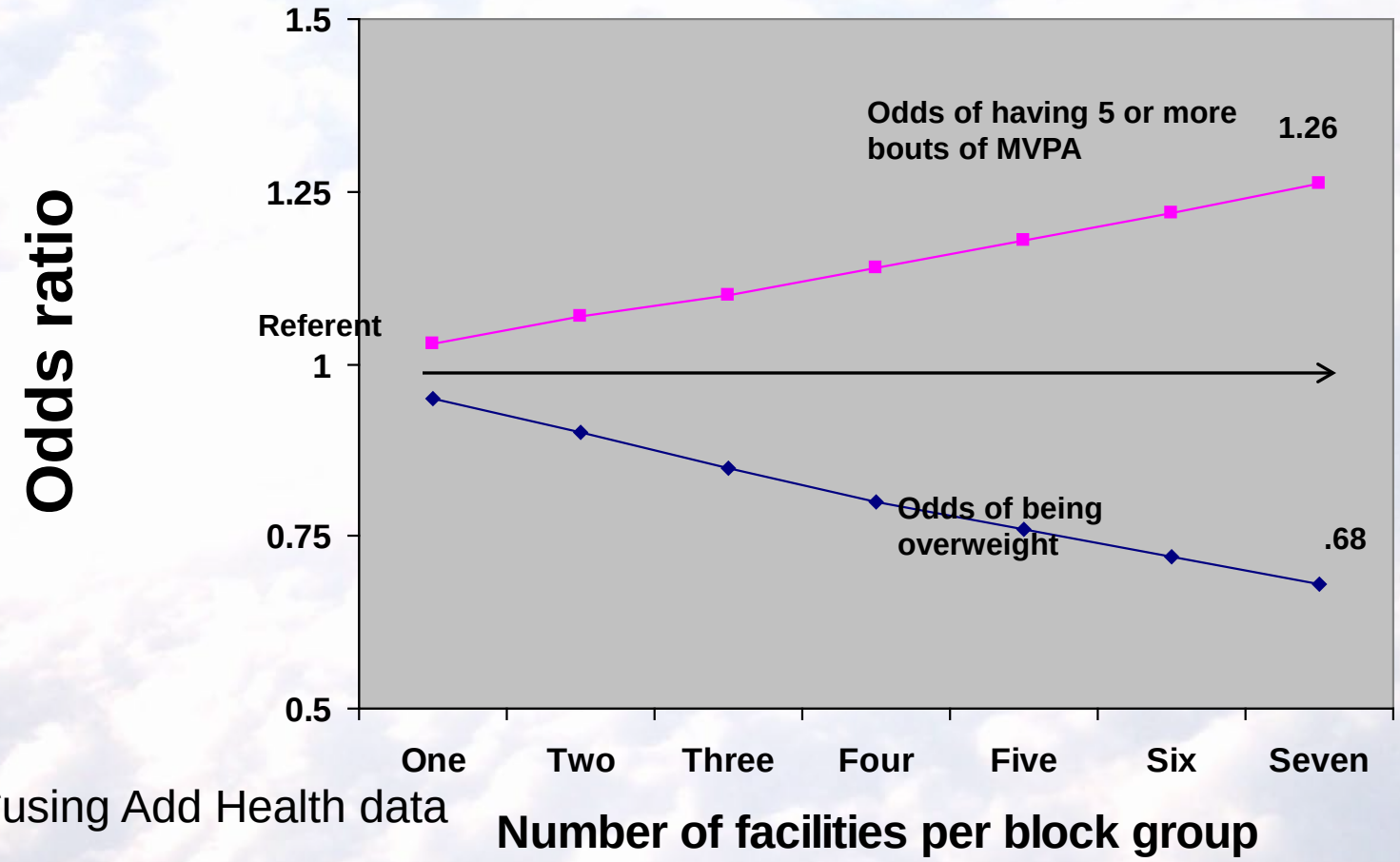
.

Policy Bright Spot? Safe Routes to School

- 2005 SAFETEA-LU Federal transport funding had funding line item for SRTS for the first time
  - From 2005-2012, over $1.2B had been allocated
  - 14,000 schools received funding
  - Many states did not use their allocated funds
- 2012 MAP-21 Federal transport funding deleted the SRTS line item and cut non-highway funds by 30%
- What will happen in 2015????

People with access to parks & recreation Facilities are more likely to be active

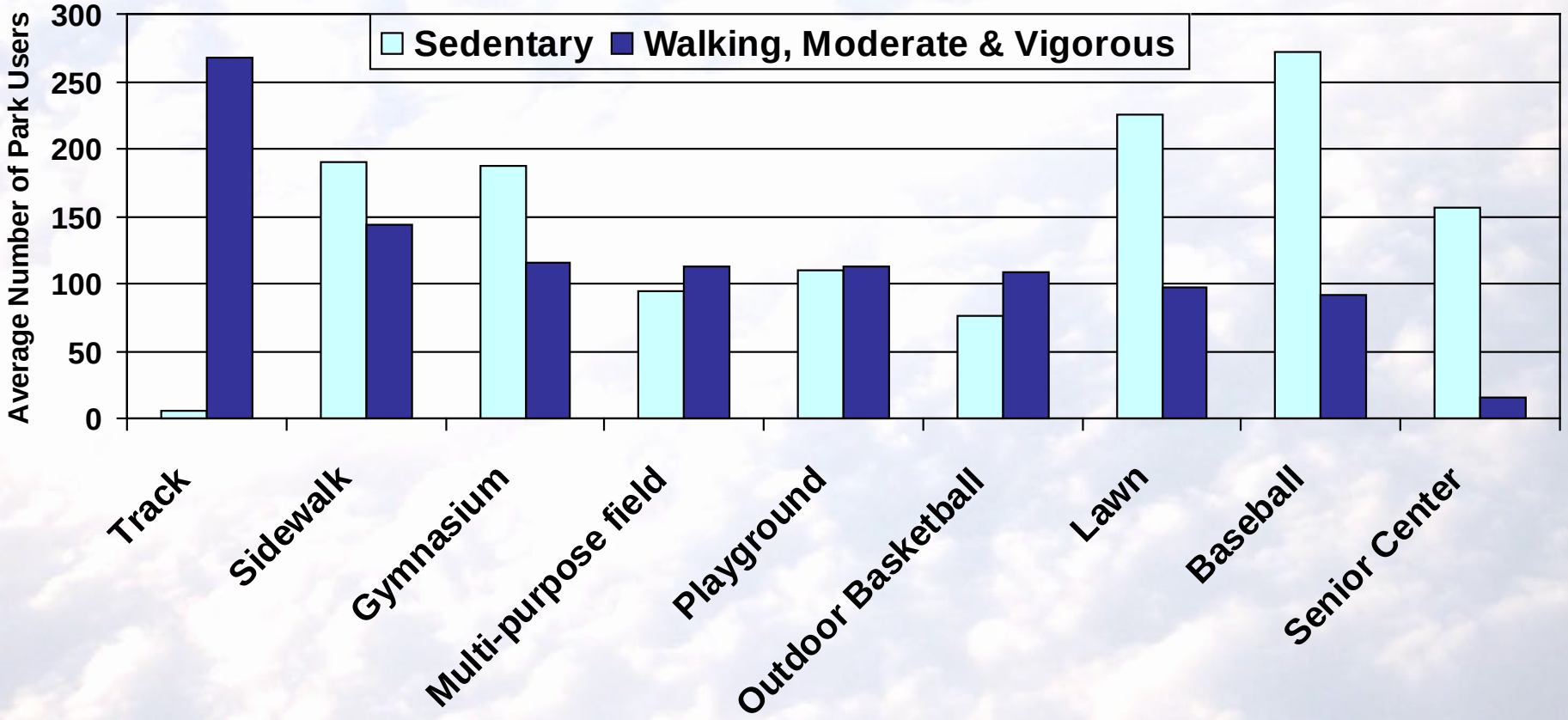
A national study of US adolescents (N=20,745)* found a greater number of physical activity facilities is directly related to physical activity and inversely related to risk of overweight



*using Add Health data

Gordon-Larsen et al, Pediatrics, 2006
http://www.pediatrics.org/cgi/content/full/117/2/417

People are Most Active on Tracks and Walking Paths



D. Cohen. RAND

Policy Bright Spot: Rails to Trails Conservancy

- This group lobbied to use US transportation funds to convert unused rails to trails
- 1991 ISTEA Federal transport law allowed these conversions
- **Rail-trails have increased from 250 miles to 21,000+ miles**

learning landscapes
building community through play

Before and after renovation of Denver schoolyards in low-income neighborhoods. Youth were more active AFTER.

BEFORE

AFTER

Income Disparities in Environments

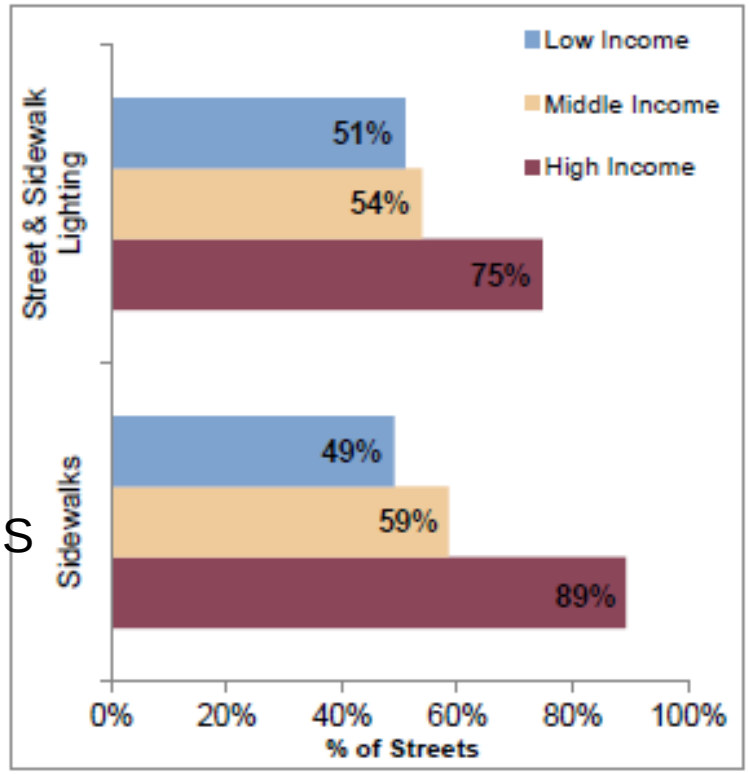
bridging the gap

Research Informing Policies & Practices for Healthy Youth

Research Brief
March 2012

Income Disparities in Street Features that Encourage Walking

Figure 1
Availability of Sidewalks and Street and Sidewalk Lighting in Communities



Note: The following differences were significant at p<=0.001: Low-income vs. High-income; Middle-income vs. High-income.

Based on observations of 10,777 street segments in 154 communities across the US

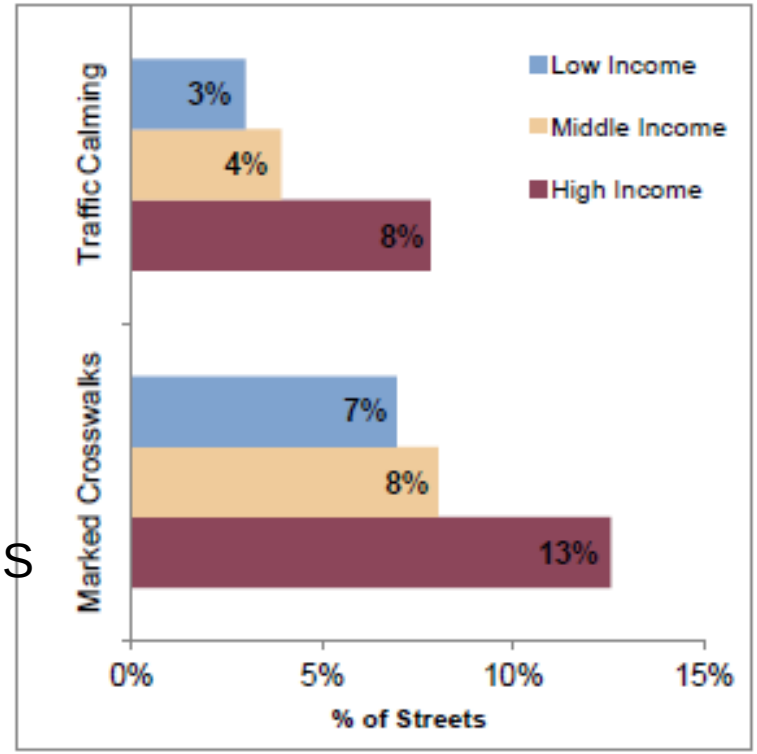
bridging the gap

Research Informing Policies & Practices for Healthy Youth

Research Brief
March 2012

Income Disparities in Street Features that Encourage Walking

Figure 2
Availability of Traffic Calming Devices and Marked Crosswalks in Communities

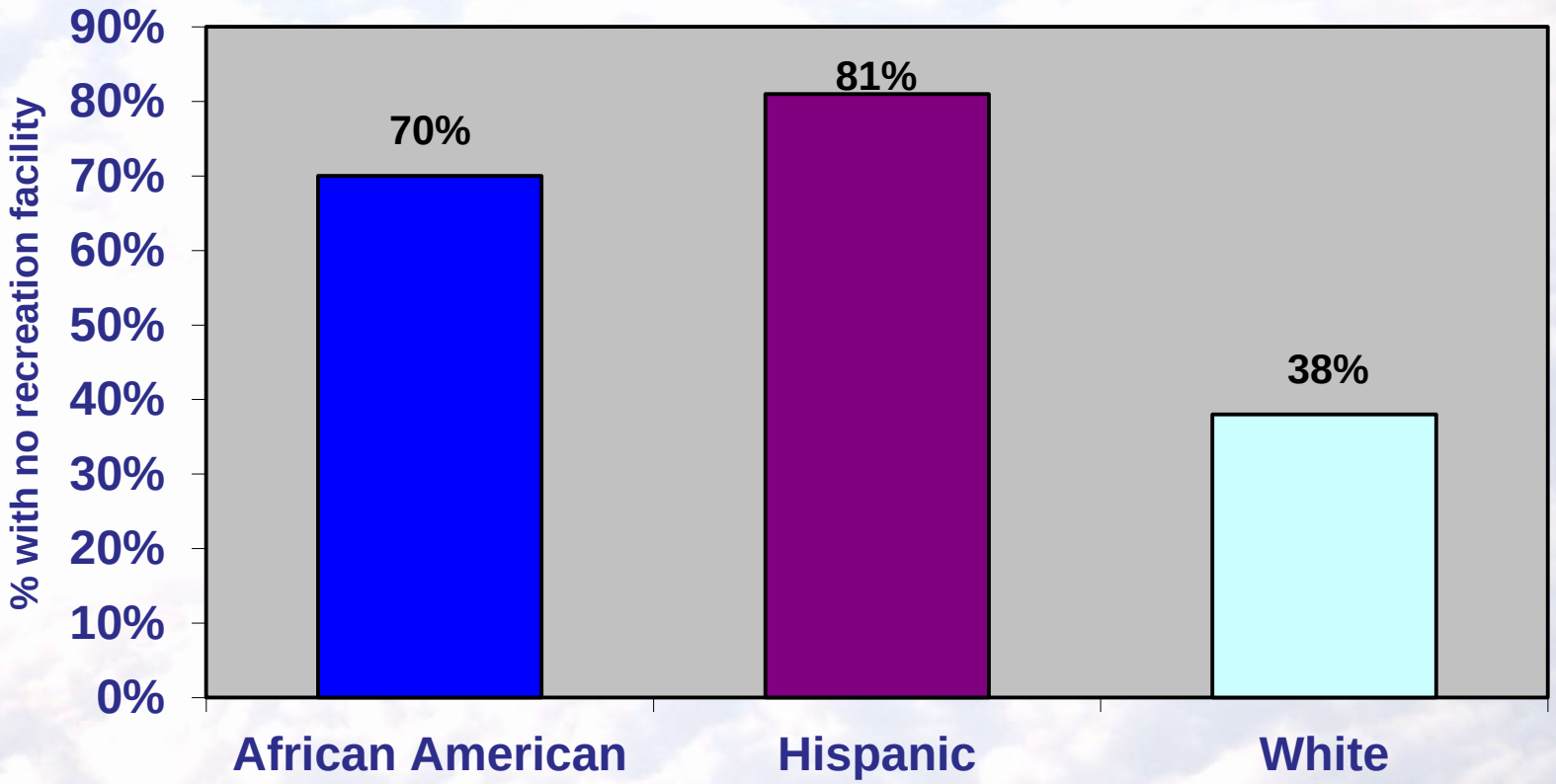


Note: The following differences were significant at p<=0.001: Low-income vs. High-income; Middle-income vs. High-income.

Based on observations of 10,777 street segments in 154 communities across the US

Disparities in Recreational Facilities

(% of census tracts without facilities, by race/ethnicity)



Moore, Am J Prev Med, 2007

If the best solutions solve multiple problems, then building activity-friendly communities is an exceptional solution.

Co-Benefits of Designing Activity-Friendly Environments

	Physical Health	Mental Health	Social Benefits	Environmental Sustainability	Safety / Injury Prevention	Economic Benefits
Open spaces / Parks / Trails	57.5+ 3.5(0)	93+	42.5+ 4(0)	20+ 4(0)	23+	19+ 4(0)
Urban Design	105+ 54(0) 19-	31+ 4-	80.5+ 29(0)	265.5+ 45.5(0) 3.5-	13.5(0) 18.5-	69+ 10.5(0) 4-
Transport Systems	7+ 3.5-	3+ 3.5(0)	23+	70+ 21(0) 3-	67+ 14(0) 4-	56+ 3.5(0) 4-
Schools	19.5+ 3.5(0)	21+	11+	21.5+	4+ 3-	15+
Workplaces / Buildings	55+ 3.5(0)	18.5+ 4-		20.5+		48+ 3.5(0)

Sallis, J.F., et al. (2015). Co-benefits of designing communities for active living: An exploration of literature. **International Journal of Behavioral Nutrition and Physical Activity, 12:** 30.

Resources at www.activelivingresearch.org