

An Active Living Program supported by The Robert Wood Johnson Foundation
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Policies to Promote Evidence-Based Physical Activity Interventions

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www.activelivingresearch.org

What are we doing about the problem of inactivity?

- Minor investment in programs
- Guided by theories that emphasize psychological & social influences
- Primary goals are education and behavior change skills training
- Primary targets are individuals, families, & small groups



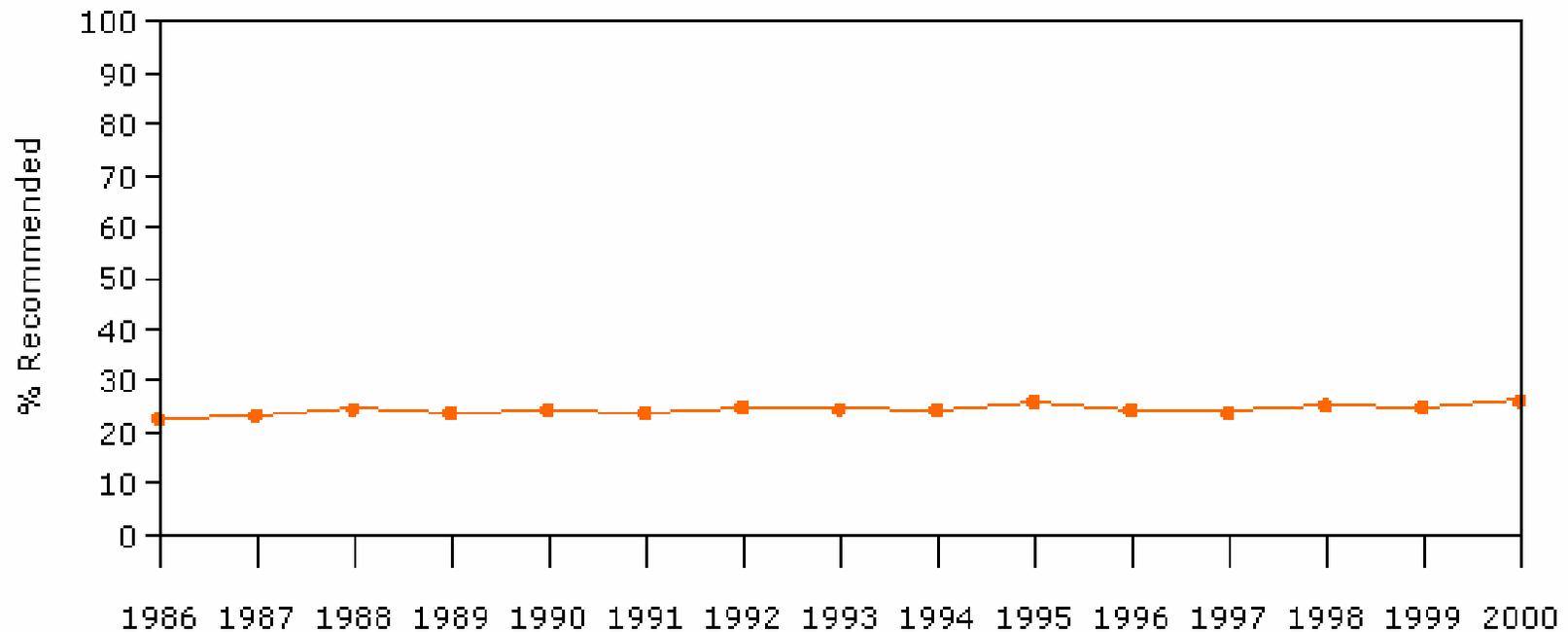
Are these methods sufficient?

- Useful in many cases: theory based programs can be effective
- But not sufficient
- Programs reach a limited percent of the population and have short term effects
- Programs are not designed to change the root causes of current behavioral patterns



Promoting exercise has not worked

Trend in Recommended Physical Activity for U.S. Overall



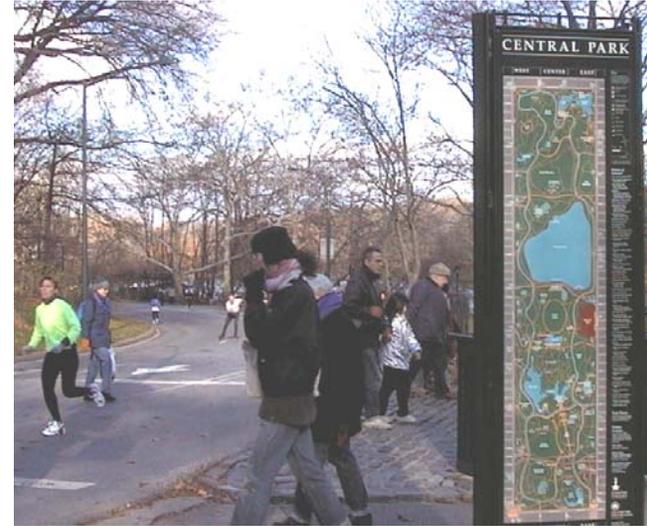
Source: Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System



Why aren't more people active?

People?

- Biology
- Psychology
- Social/cultural factors

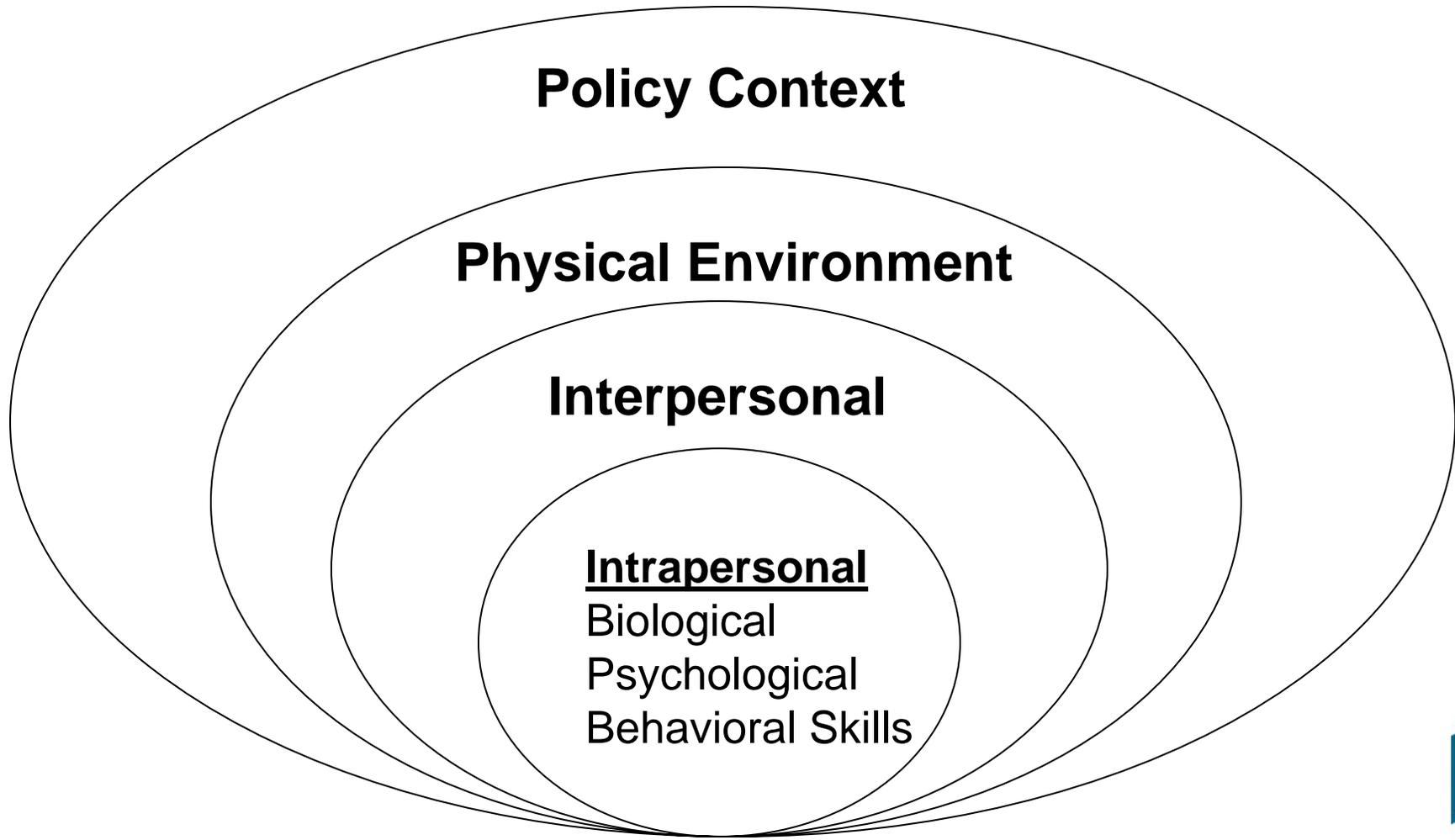


Environment?

- Reliance on cars
- Sedentary entertainment
- Activity engineered out of daily life



An Ecological Model of Health Behavior



Principles of Ecological Approaches to Health Behavior Change

- Multi-level interventions may be most effective
- Creating more activity-friendly environments should make individual programs more effective

Try This Approach: Create environments that make healthful choices easy. Then motivate and educate people to make those choices.



Promise of Built Environment Changes

- Many believe we have built a world that supports unhealthy habits
 - Neighborhood design requires driving
 - 95+% of transportation budgets for cars
 - Limited funding for parks & PE
 - Many options for sedentary entertainment
- For long-term solutions, built environment changes may be an essential component
- Built environment changes are permanent



What is an Activity-Friendly Environment?



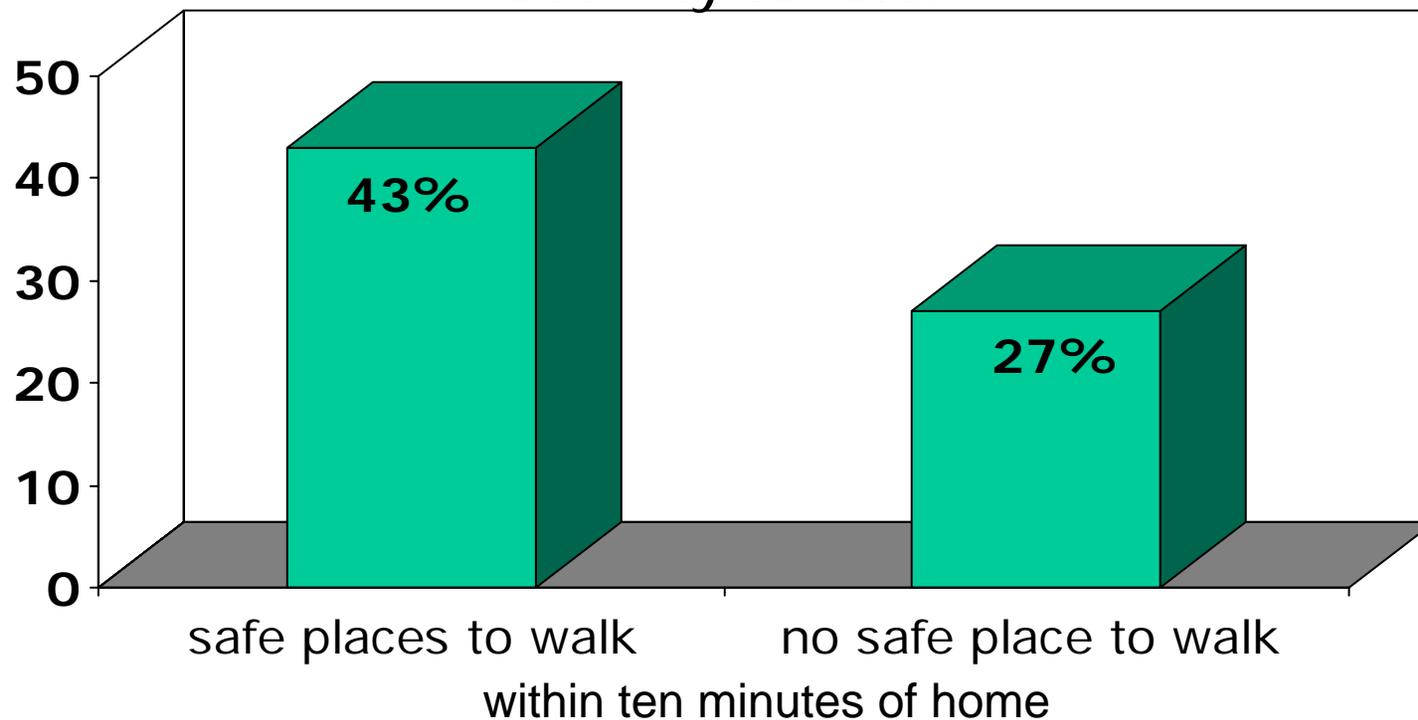
A place that makes it easy to choose to be physically active, through planned exercise or routine daily activity.

- *Health researchers have studied recreational environments & leisure time PA
- *Transportation researchers have studied community Design & active transport

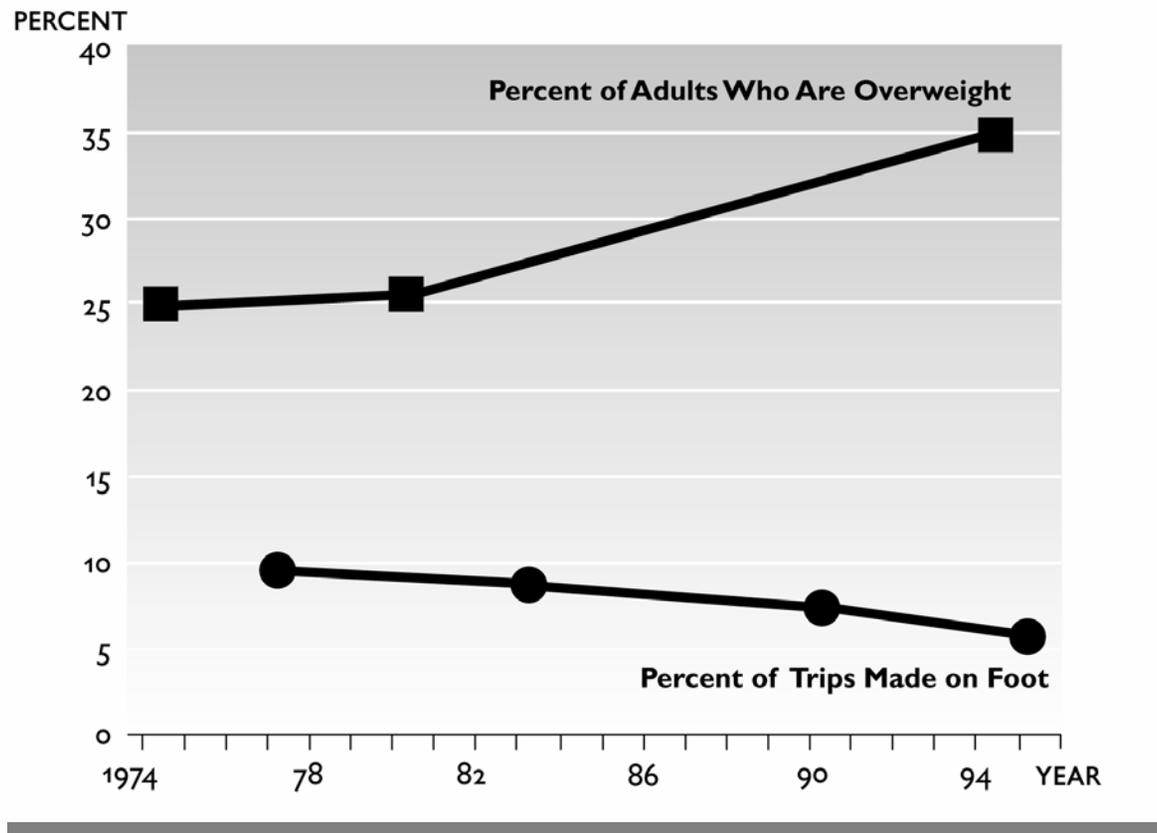


Access to facilities helps people get enough activity.

Residents meeting recommended activity levels:



Walking for Transport Is Declining, While the Number of Overweight Adults Is Climbing



Based on data from the Nationwide Personal Transportation Survey and the Centers for Disease Control and Prevention.



People living in sprawling counties:

- Walk less in their leisure time
- **Have higher BMI's**
- Are more likely to be obese
- Are more likely to have high blood pressure.



Photo: Congress for the New Urbanism

Ewing, R. *Am. J. of Health Promotion* 2003



Walkability > Driving/Walking > Obesity

- Larry Frank & group: 10,800 Atlanta adults
- Living in walkable neighborhoods (mixed use, grid streets) was related to:
 - More walking for transport
 - Less driving
 - **Less obesity**
- **Each hour driving=6% more risk of obesity**
- **Stronger findings for whites than blacks**

Am J Prev Med 2004



Neighborhood Quality of Life Study

Combining perspectives and methods from health and planning/transportation

James Sallis--San Diego State U.

Brian E. Saelens--Cincinnati Children's Hospital Medical Center

Lawrence D. Frank—U British Columbia

Funded by NIH/NHLBI, 2001-2005



Neighborhood Quality of Life Study

Study Aim

Investigate whether people who live in “walkable” communities are more active, after adjusting for SES, than people who live in less walkable communities.

“Walkability” means high density, high street connectivity, and mixed land use.



NQLS Neighborhood Categories

Walkability

Low

High

Socioeconomic Status

Low

High

4 per city

4 per city

4 per city

4 per city



High walkable, High income Shopping district



Low walkable, High income Closest shops



High walkable, High income Residences



Low walkable, High income Residences



NEIGHBORHOOD QUALITY OF LIFE STUDY

Participant Selection & Recruitment

Adults aged 20-65 recruited from randomly selected households in target neighborhoods

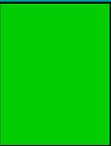
Names, addresses, & phone numbers obtained from commercial sources

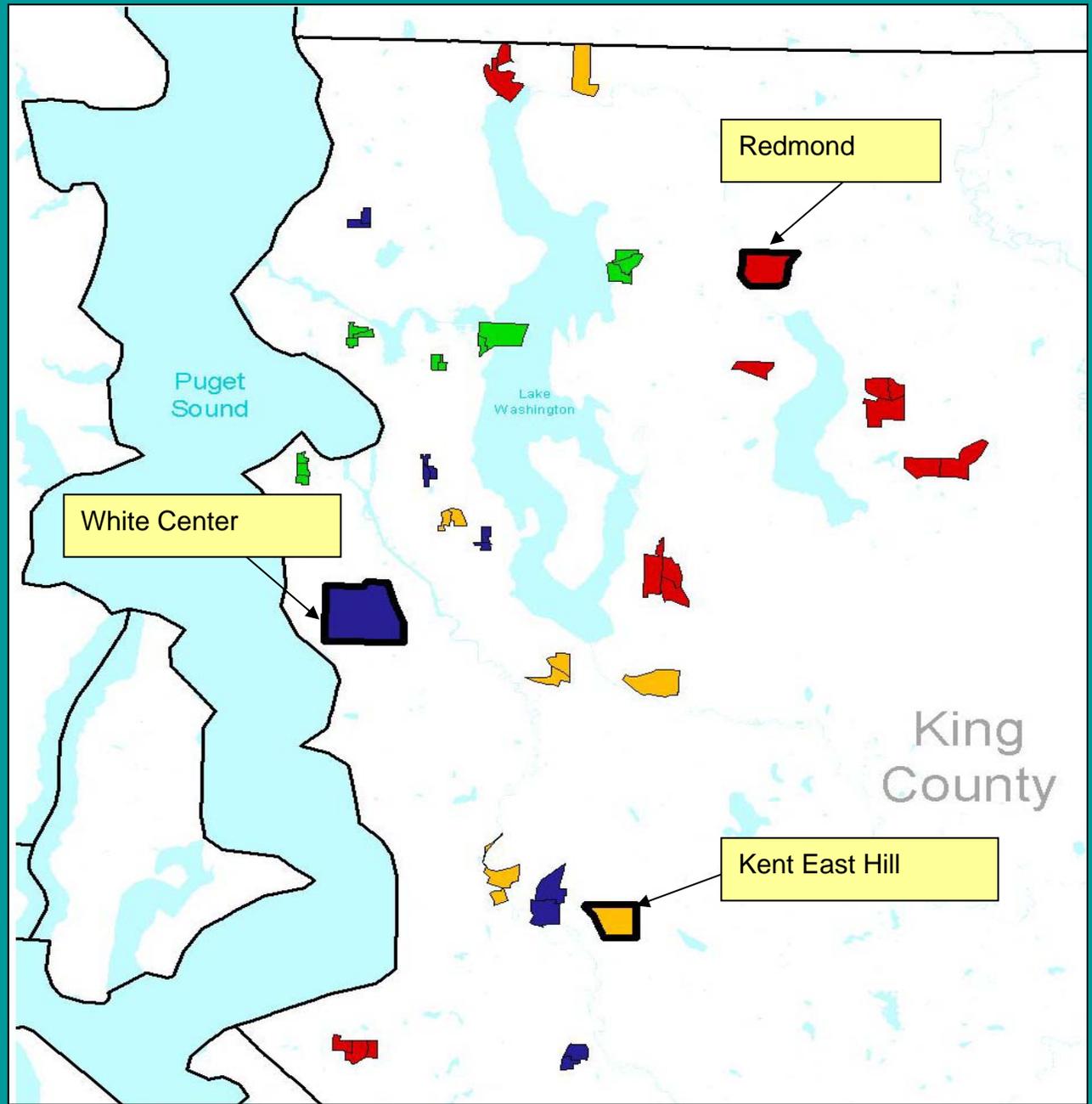
Recruitment by mail & phone

Goal of 60-75 participants in each of 16 neighborhoods in King County & 16 neighborhoods in Baltimore-Washington



NQLS Communities

	Income	walkability
	Hi	Hi
	Hi	Low
	Low	Low
	Low	High



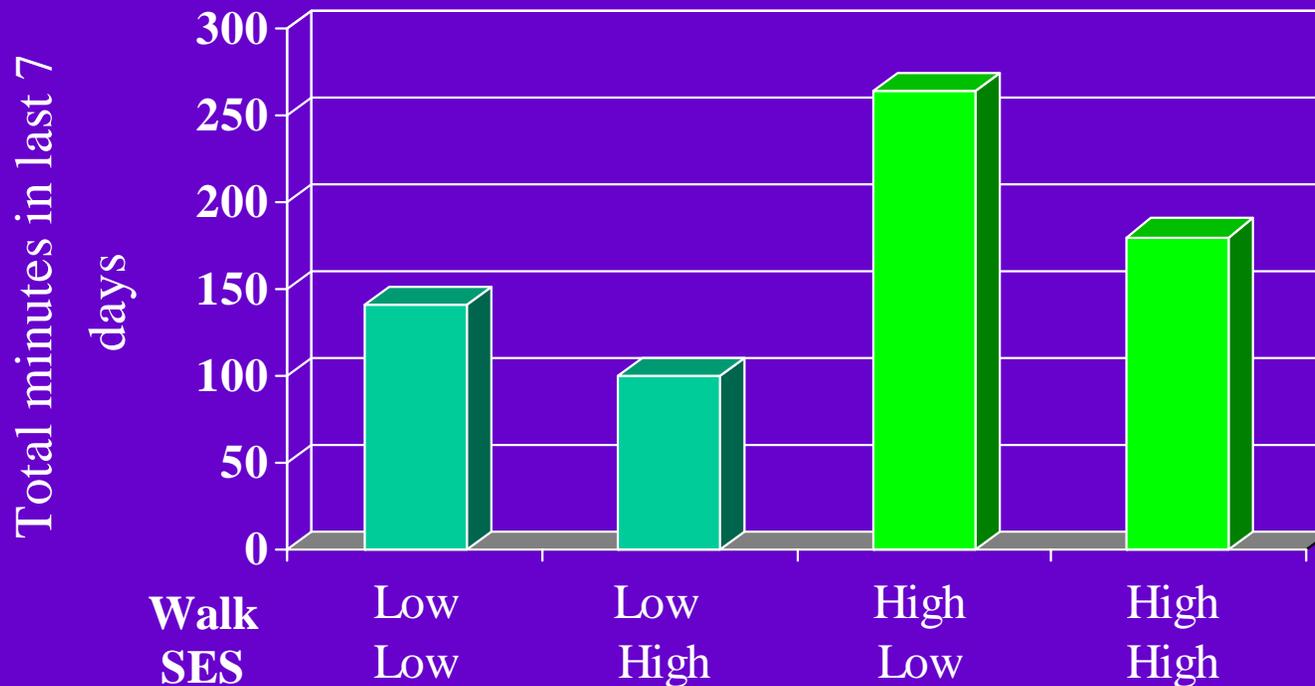
Case Study Locations

IPAQ: Walking for Transport (*min/wk*)

Walkability: $F=24.85, p<.001^*$

Income: $F=9.22, p=.002^*$

Walkability X Income: $F=1.10, p=.30$



Adjusted for age and sex

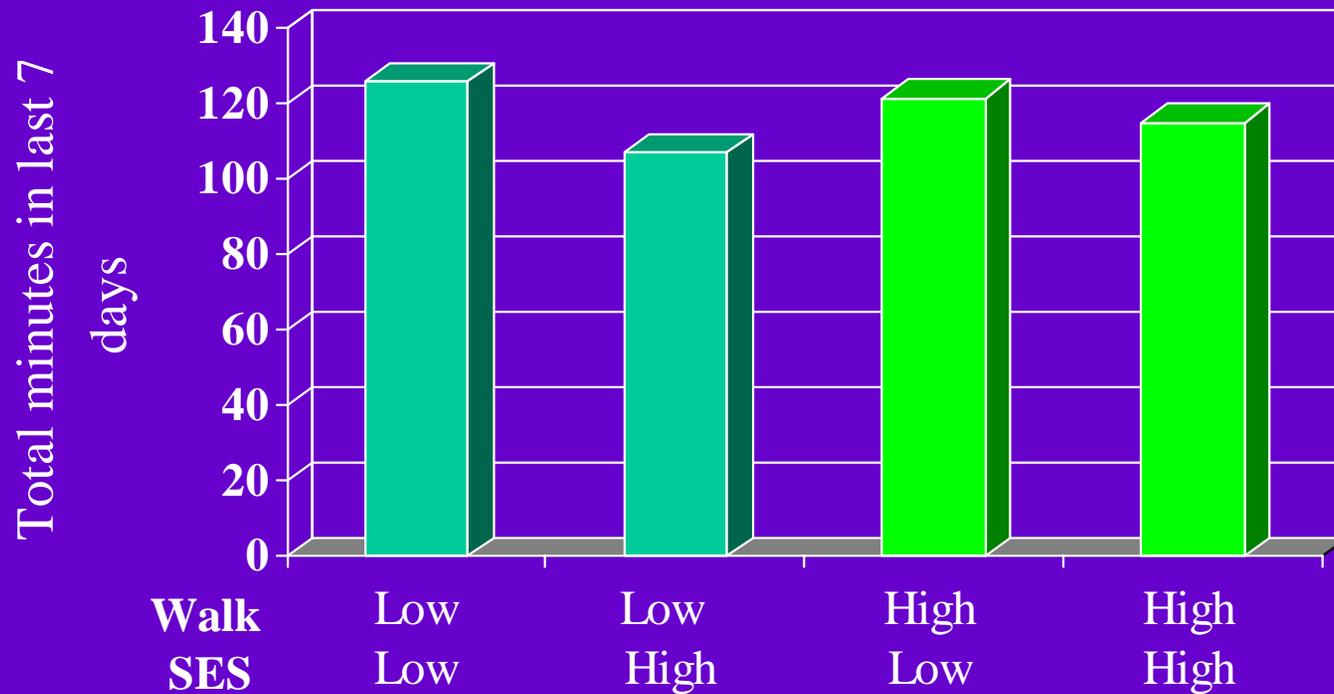


IPAQ: Leisure Walking (*min/wk*)

Walkability: $F=0.02$, $p=.881$

Income: $F=1.10$, $p=.29$

Walkability X Income: $F=0.27$, $p=.60$



Adjusted for age and sex

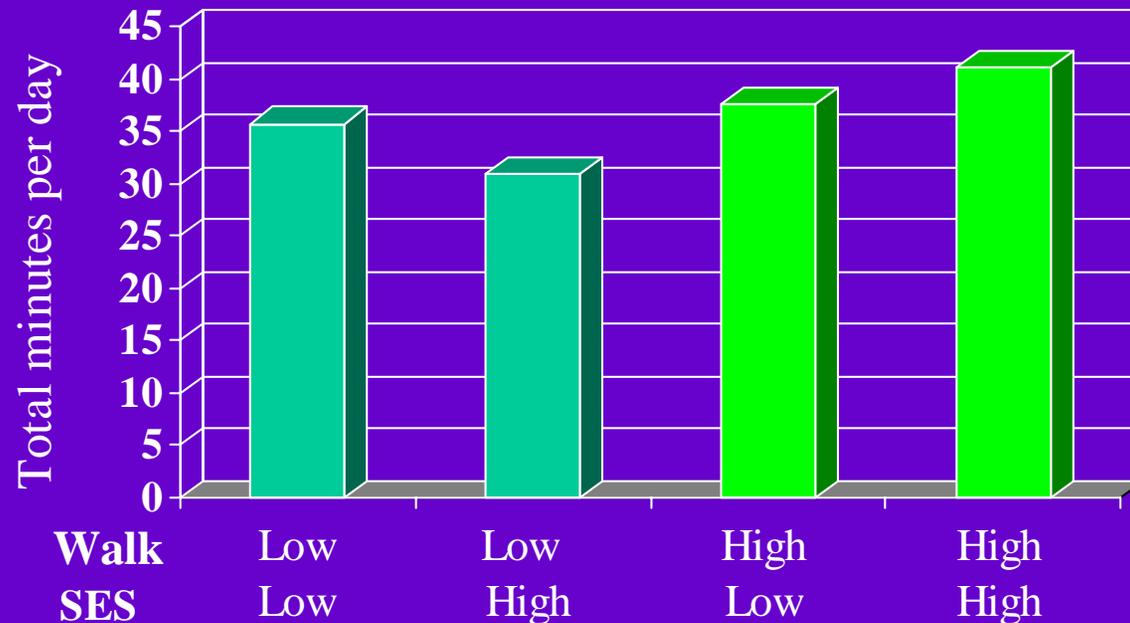


Actigraph: Mod+Vig PA (*mins/day*)

Walkability: $F=13.75$, $p<.001^*$

Income: $F=0.153$, $p=.70$

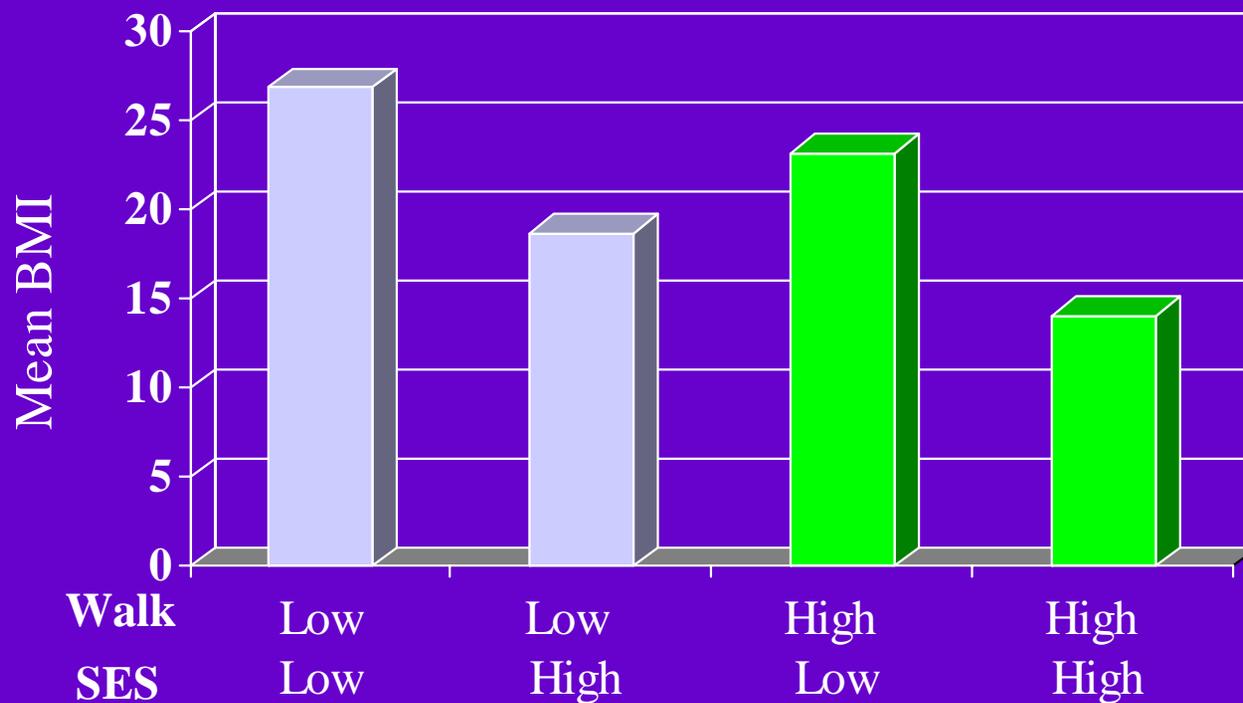
Walkability X Income: $F=6.50$, $p=.011$



Adjusted for age and sex



Percent Obese (BMI>30.0)

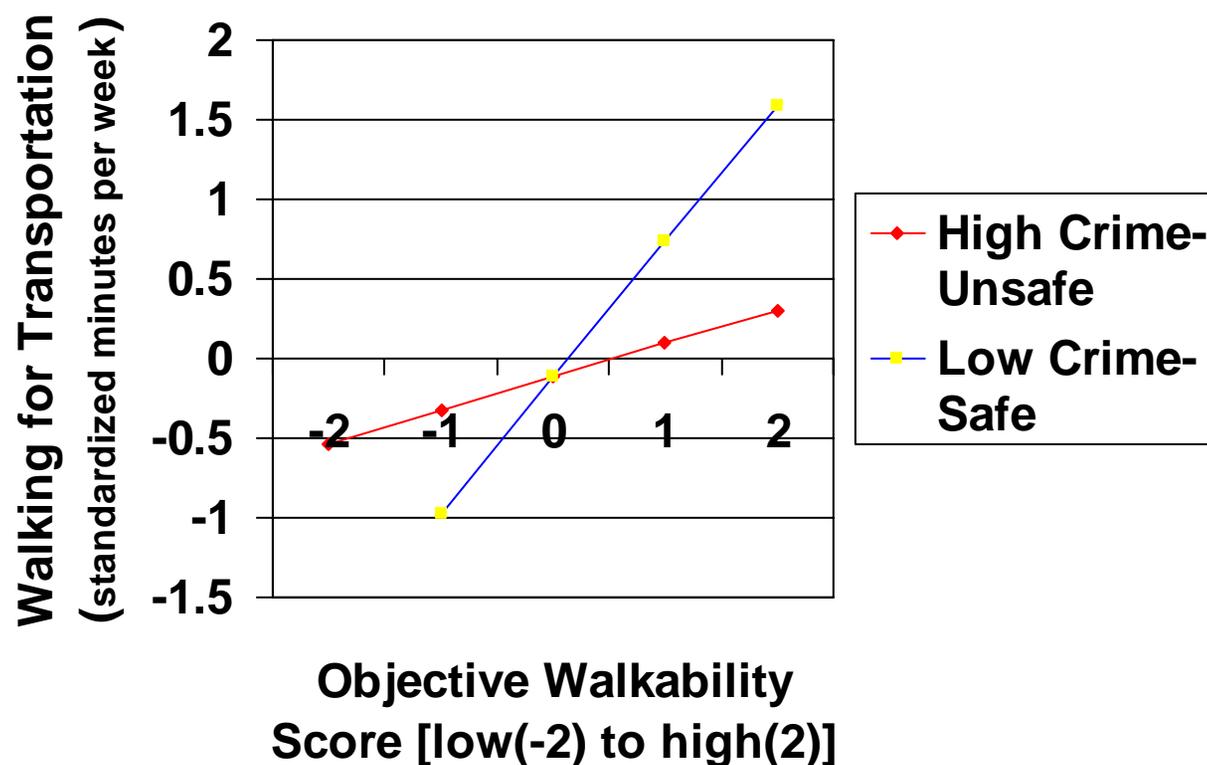


Policy Implications

- Encourage creation of more walkable neighborhoods by changing
 - Zoning laws
 - Development regulations
 - Transportation investments
 - Road standards
- Don't forget parks, trails, sidewalks, trees, affordable housing



Interaction between Objective Walkability Scores and Perceived Safety/Crime in Predicting Walking for Transportation (p=.067) (all standardized scores)



Crime may negate the effects of walkability on PA



Next Steps for NQLS

Final data analyses are underway

Study of older adults in same neighborhoods (Abby King—PI)

Study of activity and food environments in relation to weight gain of children (Brian Saelens—PI)



Relation of neighborhood walkability to objectively measured PA in 98 adolescents in San Diego: SCAN. Mort Kligerman, SDSU, submitted

Final model of linear regression explaining moderate to vigorous physical activity for buffer of 0.5 mile around the subjects' homes, by street network distance.

Variable	β	t	p-value	Variance explained
Gender	-.193	-2.004	.048	.04
Ethnicity	-.284	-2.750	.007	.05
Walkability	.278	2.701	.008	.05



NQLS Youth Pilot Study: Correlates of Active Commuting

- 259 parents of children aged 4 to 17
- 16% of children actively commuted
 - 25% in hi-walkable neighborhoods
 - 11% in lo-walkable neighborhoods
 - Effect only seen in hi-income neighborhoods
- Parent concerns about safety were strongly related to active commuting
 - Parent concerns were higher in lo-walkable neighborhoods

Kerr et al, Med Sci Sports Exerc, April 2006



Environmental & Policy Approach is Being Validated

- Institute of Medicine's childhood obesity report recommends mainly policy & environmental change
- Transportation Research Board & IOM report concludes that built environments are related to PA, and there are many opportunities for improving built environments. Special Report 282 at www.trb.org



Policies to Promote Evidence-Based PA Interventions

- Evidence-based PA interventions are inadequately used, so ineffective or untested interventions continue to be used in practice
- Policies can
 - create demand for programs
 - provide incentives for PA
 - create activity-friendly environments



Policies & Markets

How can supply of evidence-based programs be increased?

How can delivery systems be developed & improved?

How can demand be increased?

Which are public goods (parks, sidewalks) & which are marketable products (training & materials)?



What is the

E-B Intervention Supply Chain?

Develop E-B interventions (prototypes found to be effective)

- Assess cost-effectiveness

Prepare for mass production

- Marketing, materials, staffing, training

Develop & evaluate diffusion strategies

- Includes market research

Obtain resources for diffusion

Ensure quality of program delivery



What are Options for Increasing Demand for E-B Interventions?

Market E-B programs to target audiences

Require adoption & maintenance of E-B programs

Provide payment for E-B programs

Provide incentives for adoption, maintenance, & quality of E-B programs

Surveillance & accountability for use of E-B programs



www.sparkpe.org

SPORTS, PLAY & ACTIVE

SPARK

RECREATION FOR KIDS!



SPARK Outcomes

- Improved quality of PE instruction
- Increased physical activity in PE
- Improved cardiorespiratory & muscle fitness
- Improved sports skills
- Participation in self-management program associated with improvements in BMI & PA-related perceptions
- Positive impact on academic achievement
- Students enjoy SPARK lessons



SPARK Dissemination

- Initially disseminated on non-profit basis, through university
- In 2002, SPARK was licensed to Sportime, a maker & distributor of PE equipment
- Sales have doubled or tripled yearly, due to additional resources for marketing and capacity for delivery of services



Examples of Policies to Support Diffusion of E-B School PA Programs

CDC/NIH develop criteria to evaluate & identify E-B school PA programs

Federal PEP bills require funded PE/PA programs to be evidence-based or be evaluated



Examples of Policies to Support Diffusion of E-B School PA Programs

- States require or provide incentives for adoption of E-B school PA programs
 - Add criteria for quality of PE/PA programs to school evaluation procedures
- Professional organizations (e.g., NASPE) prioritize & support use of evidence-based programs
- University accrediting organizations for Exercise Science depts adopt criteria that support teacher training in E-B programs



We Must Multiply Examples of Bold Action

- In Norway, the education ministry declared all schools must provide 1 hour of PA daily
- Incoming president of Costa Rica wants to spend 5% of health care budget on prevention. US spends less than 1%
- In Portland, Oregon all land use & transportation policies make pedestrians the #1 priority
- Colorado uses lottery money for recreation facilities



We Must Multiply Examples of Bold Action

- Coalitions throughout Latin America are dedicated to *Agita Mundo*
- Australian premiers (governors) lead “whole of government” approach to PA promotion that involves all government departments
- Japan provides teachers, training, time, and equipment needed for quality PE



Brisbane, Australia has invested in pedestrian facilities



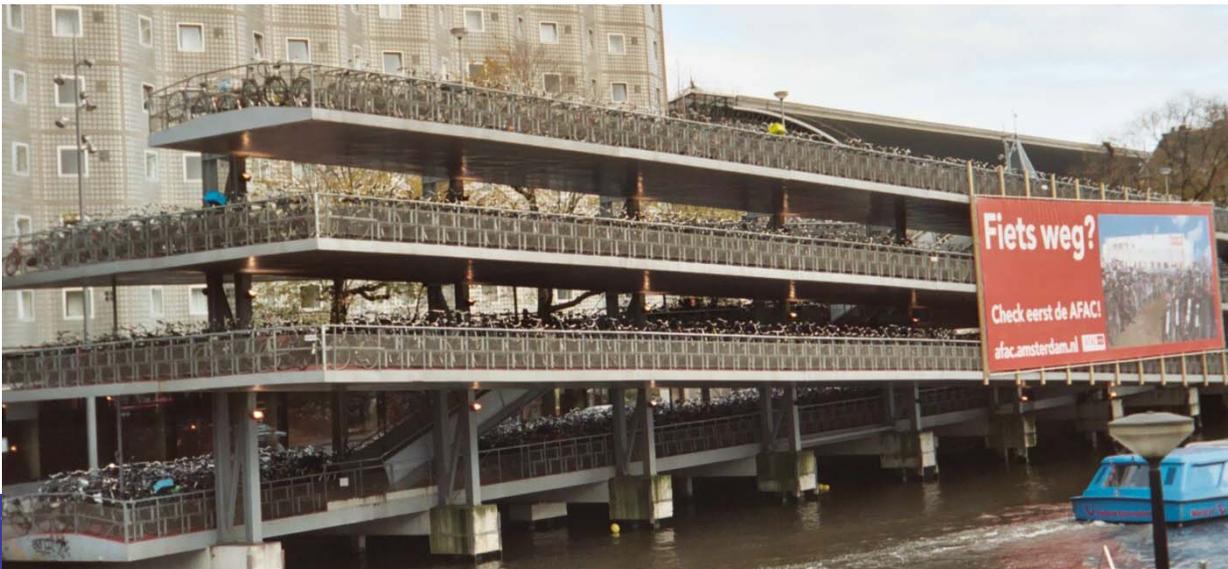
- *Beautiful pedestrian bridge
- *Walkways along the river
- *Pleasing aesthetics



Bogota, Colombia has invested heavily in walking, cycling, & PA events



Amsterdam is a model for being friendly to pedestrians & cyclists



The Incredible Bicycle Parking Structure At the Train Station



search.org

Framework for Effective Physical Activity Promotion

Where will resources come from?

- Government health agencies, private partners, grassroots, fees, taxes?

Strong coalitions are required

- Broad--from many sectors & disciplines
- Deep--from grassroots to professionals

Focus on policy & environmental change

- We need training & organization to advocate effectively

Who will lead this movement?



www.nqls.org



www.nqls.org

www.drjamesallis.sdsu.edu



www.activelivingresearch.org