



It takes a whole community to make people healthy: urban design – a key element

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Creative and Sustainable Communities, Melbourne 2005
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Walking, Bicycling, and Urban Landscapes | Urban Form, Health, and the
Law's Limits | Smart Growth | Success in Promoting Safe Walking and Biking
to School | A Research Agenda for Community Design, Land Use, and Health |
BUILT ENVIRONMENT AND HEALTH | Does Urban Sprawl Increase Motor Vehicle
Occupant and Pedestrian Deaths? | Linking Housing and Health in Europe



AMERICAN JOURNAL of

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SPECIAL ISSUE: HEALTH PROMOTING COMMUNITY DESIGN
RICHARD KILLINGSWORTH, EDITOR
JOANNE EARP & ROBIN MOORE, ASSOCIATE EDITORS

Introduction

- Richard Killingsworth 1 Supporting Health Through Design: Challenges and Opportunities
JoAnne Earp, Robin Moore

Conceptual Approaches

- Daniel Stokols, Joseph G. Grzywacz 4 Increasing the Health Promotive Capacity of Human Environments
Shari McMahan, Kimari Phillips
Christine M. Hoehner, 14 Opportunities for Integrating Public Health and Urban Planning Approaches to
Laura K. Brennan Promote Active Community Environments
Ross C. Brownson, Susan L. Handy
Richard Killingsworth

Building the Methods

- Anne Vernez Moudon, Chanam Lee 21 Walking and Bicycling: An Evaluation of Environmental Audit Instruments
James Emery 38 Reliability and Validity of Two Instruments Designed to Assess the Walking and
Carolyn Crump, Philip Bors Bicycling Suitability of Sidewalks and Roads

Building the Evidence—U.S. Approaches

- Reid Ewing, Tom Schmid 47 Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity
Richard Killingsworth, Amy Zlot
Stephen Raudenbush
Sara L. Huston, Kelly R. Evenson 58 Neighborhood Environment, Access to Places for Activity, and Leisure-time
Philip Bors, Ziya Gizlice Physical Activity in a Diverse North Carolina Population
Genevieve Fridlund Dunton 70 Assessing the Perceived Environment Among Minimally Active Adolescent Girls:
Margaret Schneider Janner Validity and Relations to Physical Activity Outcomes
Dan Michael Cooper
Wendy C. King, Jennifer S. Brach 74 The Relationship Between Convenience of Destinations and Walking Levels in
Steven Belle, Richard Killingsworth Older Women
Mark Fenton, Andrea M. Kriska

Building the Evidence—International Approaches

- Ilse De Bourdeaudhuij 83 Environmental Correlates of Physical Activity in a Sample of Belgian Adults
James F. Sallis, Brian E. Saelens
Billie Giles-Corti, Sally Macintyre 93 Environmental and Lifestyle Factors Associated With Overweight and Obesity in
Johanna P. Clarkson Perth, Australia
Terro Pikora, Robert J. Donovan

Interdisciplinary Perspectives

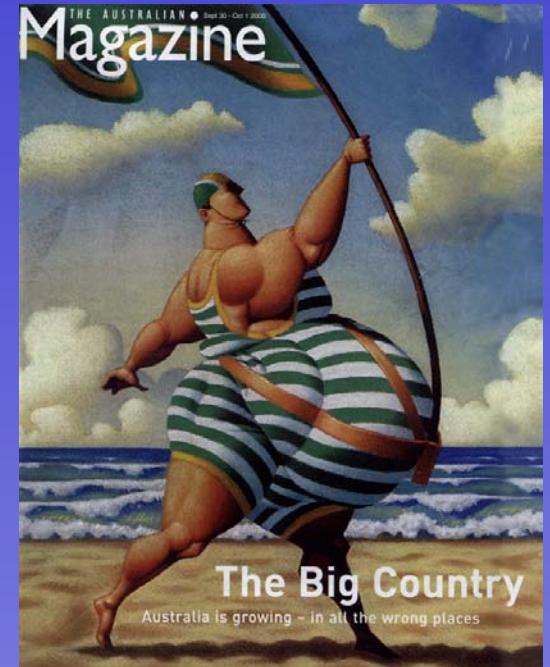
- Todd Litman 103 Integrating Public Health Objectives in Transportation Decision-Making
Trip Pollard 109 Policy Prescriptions for Healthier Communities
Edward W. Maibach 114 Recreating Communities to Support Active Living: A New Role for Social
Marketing

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Presentation

- What is the potential of the built environment to affect:
 - Physical health
 - Mental health
 - Environmental health
 - Community health?
- Concluding comments

Urban design and physical health

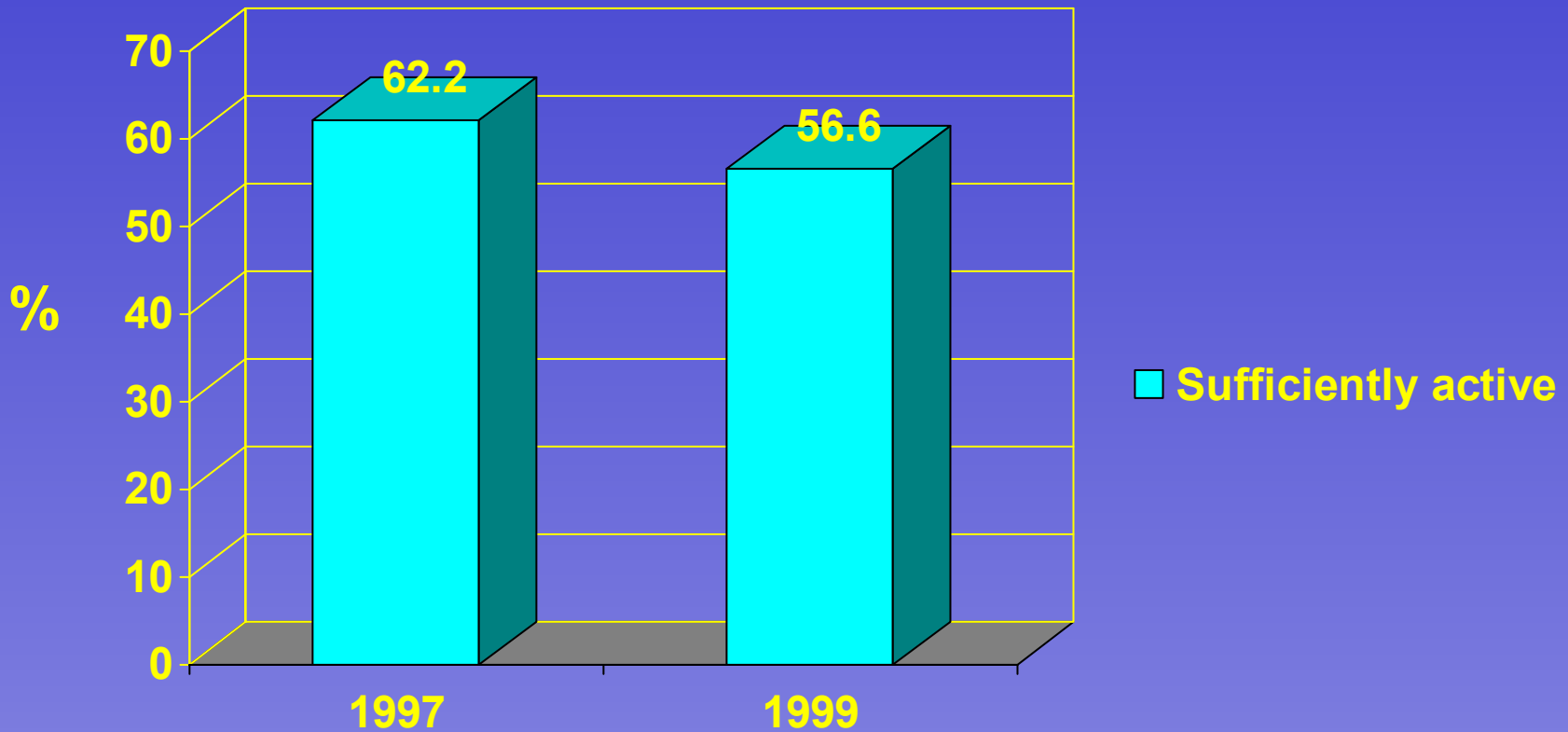


Burden of disease of physical inactivity in Australia

- Attributed to physical inactivity each year
 - 13,000 *deaths* : 37 deaths per day, 1.5 per hour
 - 168,000 *disability adjusted life years*

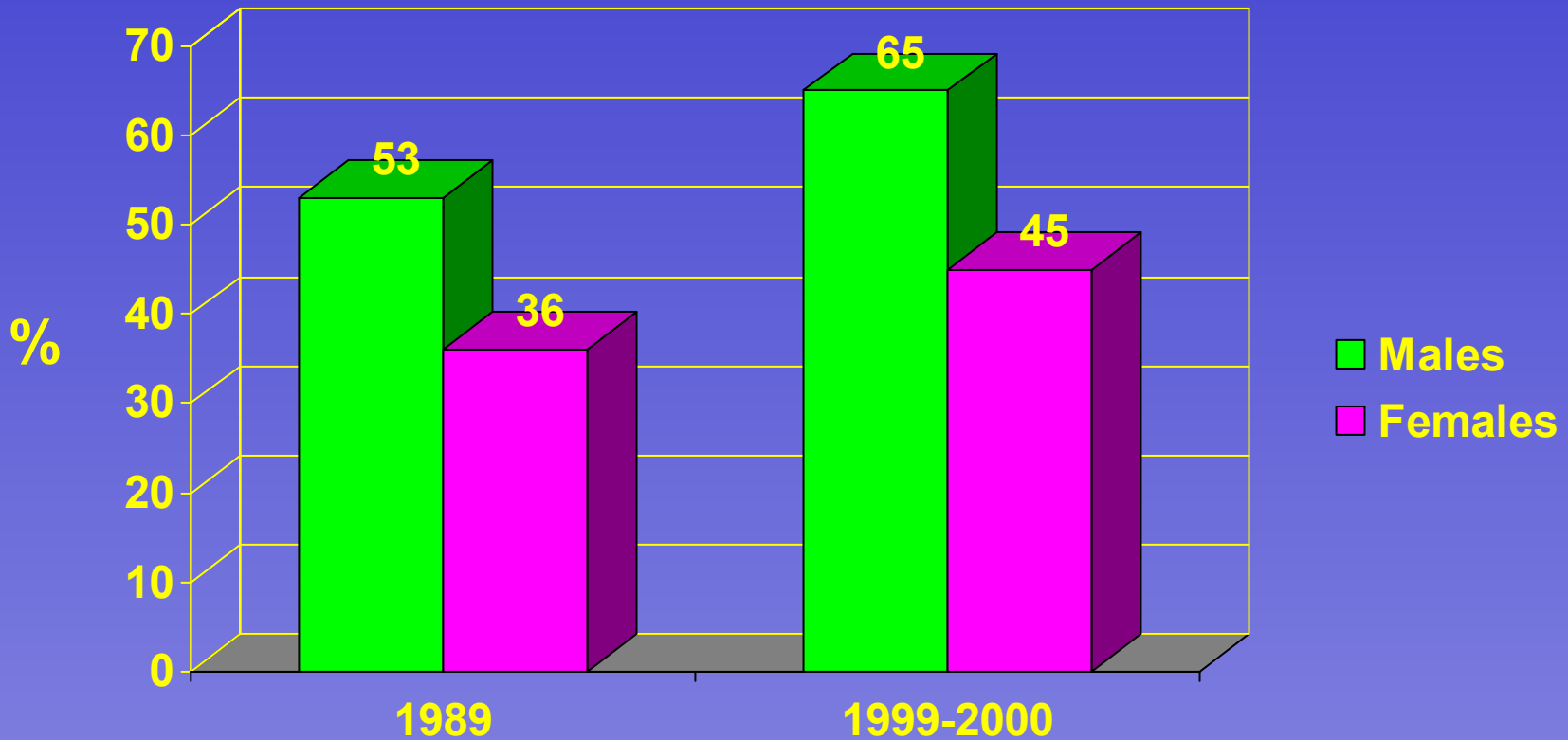
Source: AIHW 1999, Burden of Disease

Proportion Australian adults sufficiently active (150 minutes per week)



Armstrong, Bauman, Davies (2002)

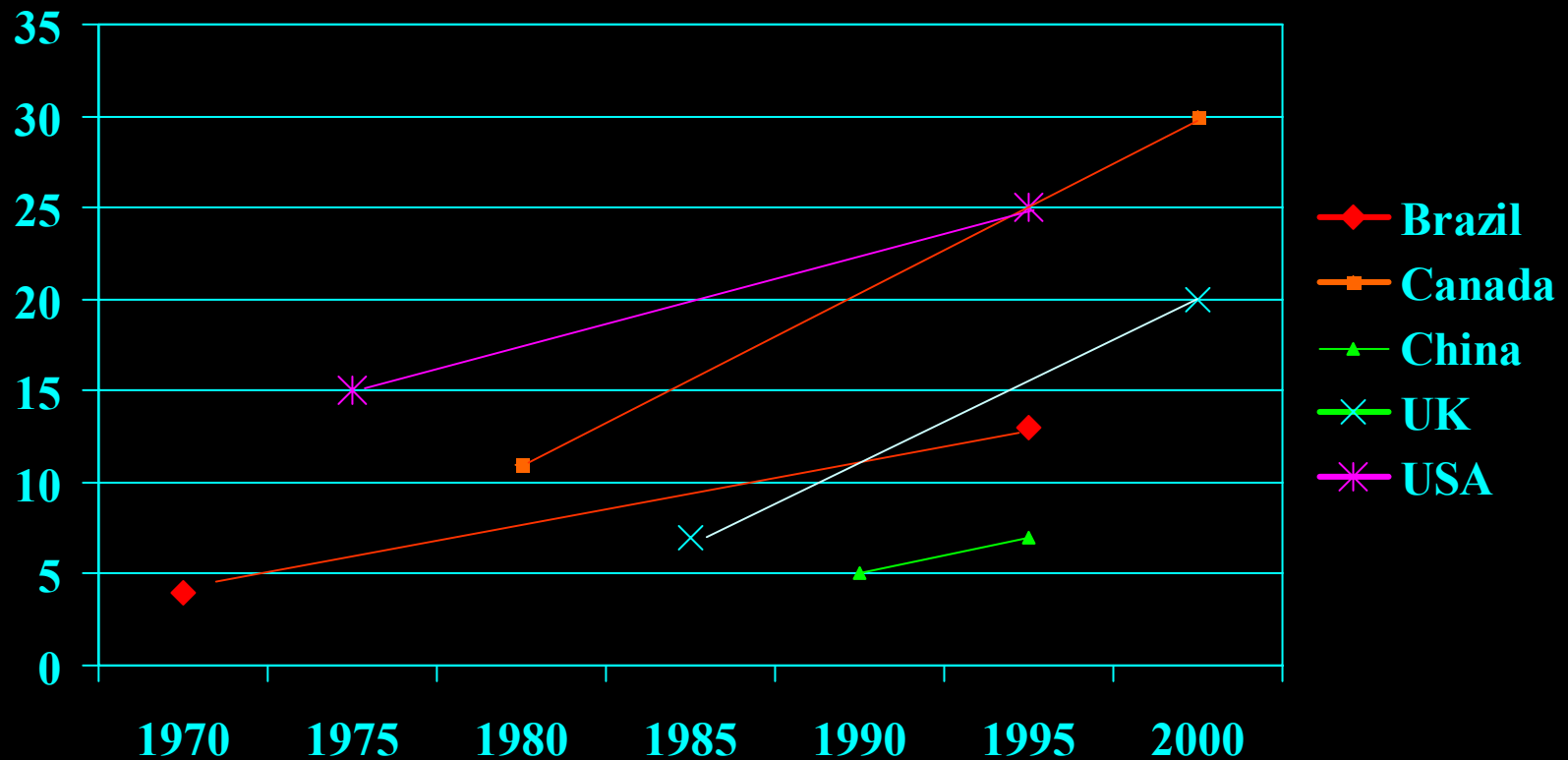
Proportion Australian adults overweight (aged 25-64 years)



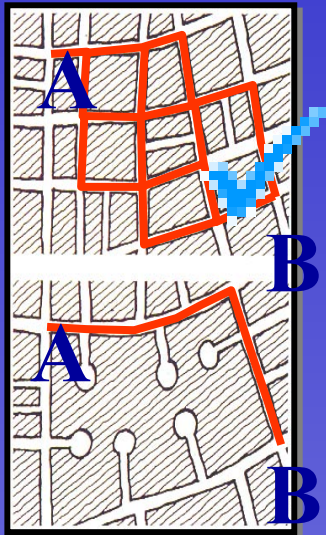
AIHW, 2003

Trends in prevalence of overweight 1970-2000 in children

Obesity reviews 2004: 5 (supp 1):4-85.



Connected Street Networks



Places to walk or cycle to



Well connected, Integrated, public transport system



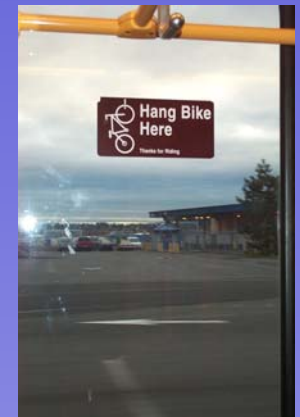
Well developed infrastructure for cyclists



Mixed use planning

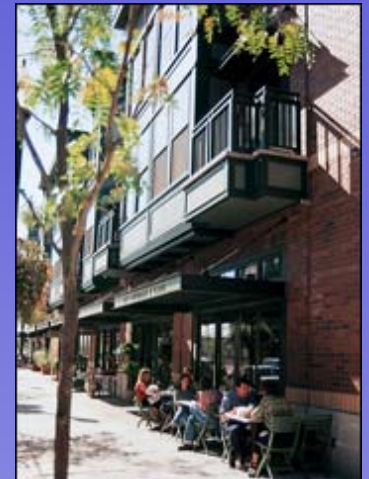


Footpaths



Access to footpaths increases walking

- Footpaths



Access to footpaths increases walking

- Footpaths

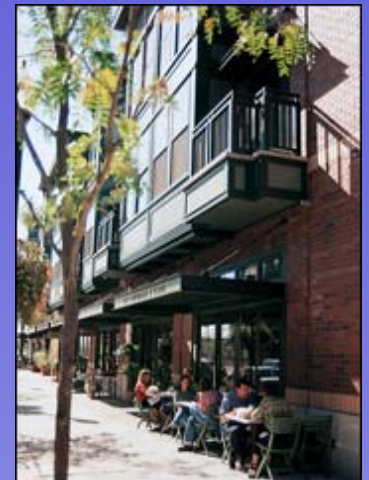
- Physical activity in older adults (Booth et al 2000)
- Physical activity (Brownson et al, 2001)
- Walking as recommended (Eyler et al 2003)
- Walking in neighbourhood for recreation or transport* (Pikora 2004)

*Objectively measured



Access places to walk to increases walking

- Places to walk to



*Objectively measured

Access to places to walk to increases walking

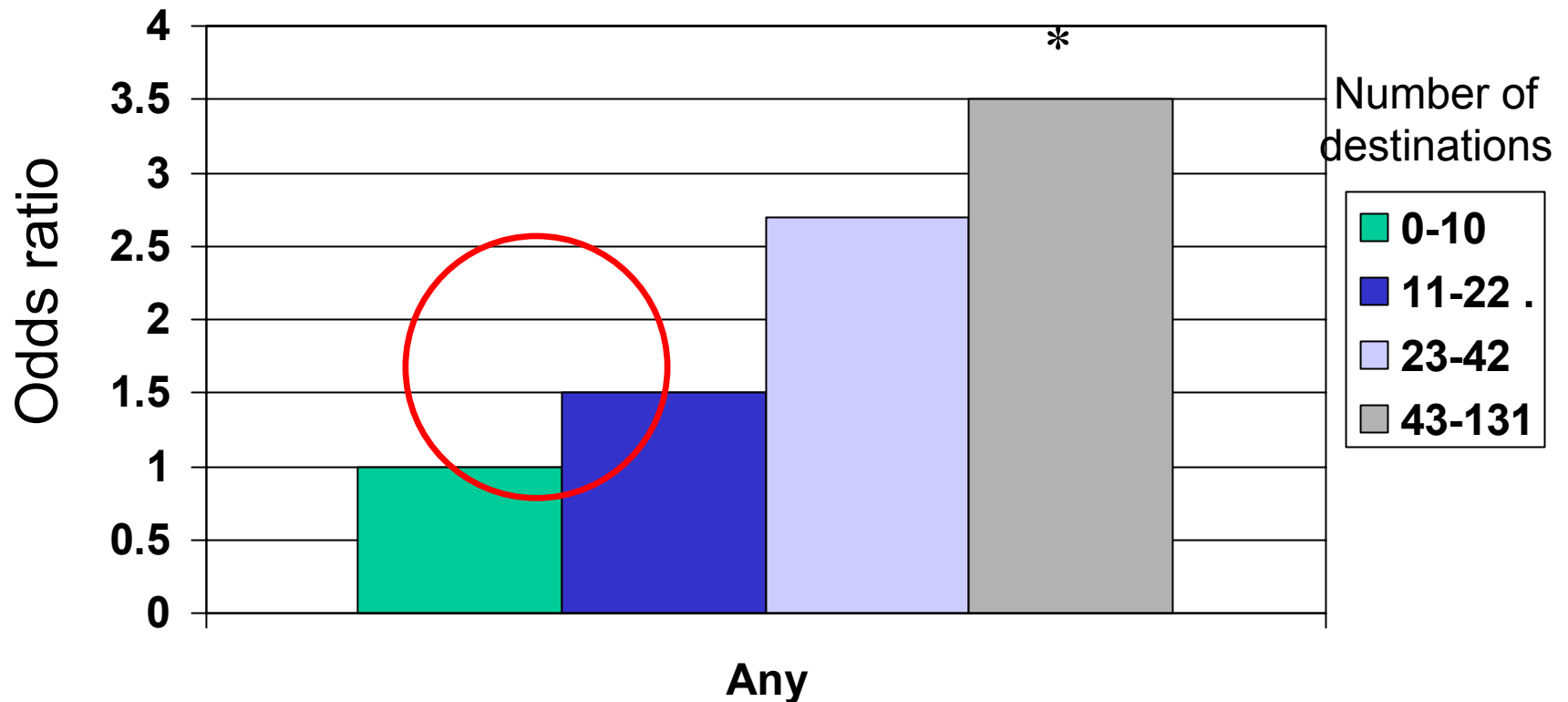
- Places to walk to
 - Physical activity in older adults (Booth et al 2000)
 - Walking as recommended (Eyler et al 2003)
 - Walking (Ball et al, 2001)
 - Walking (Humpel et al 2004)
 - Walking in neighbourhood for transport* (Pikora 2004)
 - Walking for transport (Hoehner et al 2005)

*Objectively measured



Non-residential destinations within 400m from home and transport-related activity

(Hoehner et al. Am J Prev Med 2005: 28(2s2):105-116).

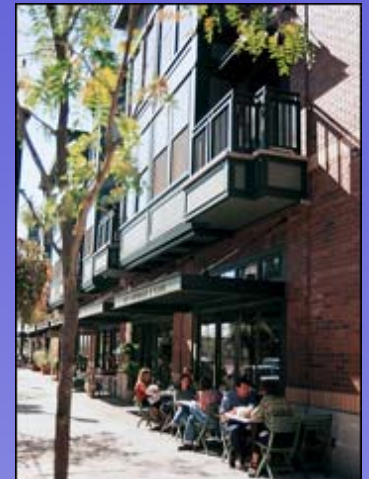


Transport activity

*Test for trend <0.05

Access to places to walk to increases walking

- Places to walk to
- Access to local shopping*
 - Poor association with total driving* (Handy & Clifton 2001)



*Objectively measured

Safer neighbourhoods – encourage more walking

- Unsafe neighbourhoods



Safer neighbourhoods – encourage more walking

- Unsafe neighbourhoods
 - Inactivity (neighbourhoods (CDC 1999))



Safer neighbourhoods – encourage more walking

- Unsafe neighbourhoods

Although...

- Perceptions of heavy traffic
 - More physical activity (Brownson et al 2001)
 - More time walking (40-60 year olds) (Carnegie et al. 2002)



Attractive neighbourhoods encourage more walking

- Perceive neighborhood environment less aesthetic



Attractive neighbourhoods encourage more walking

- Perceive neighborhood environment less aesthetic
 - No walking (Ball et al, 2001)
 - Less time walking (Carnegie et al, 2003)
 - Sedentariness-rural women (Wilcox et al)



Access to attractive and larger public open space

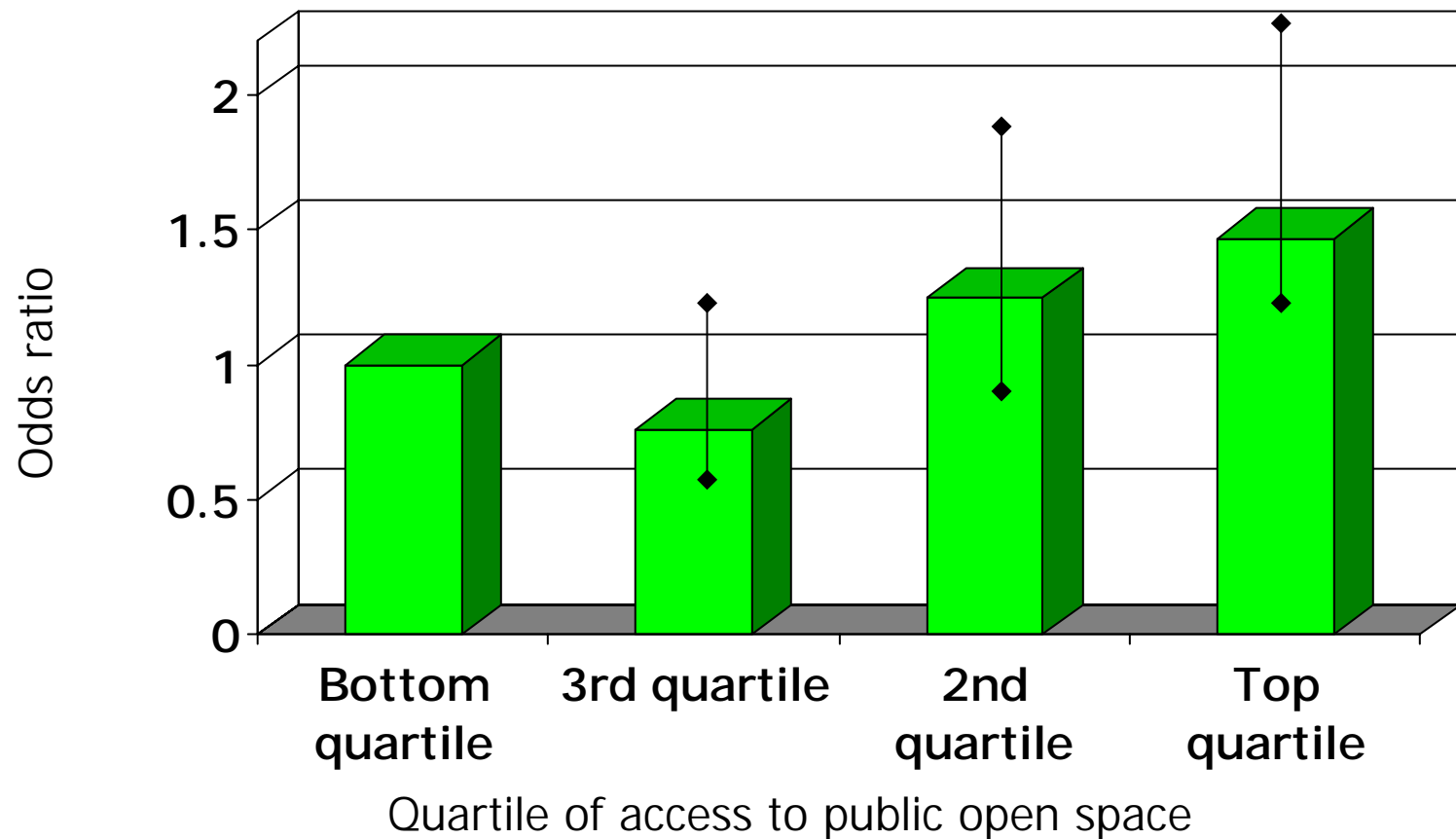
- Access to attractive larger open space* (Giles-Corti et al, 2003)
 - Higher levels of walking (30 minutes on six days/week)



*Objectively measured

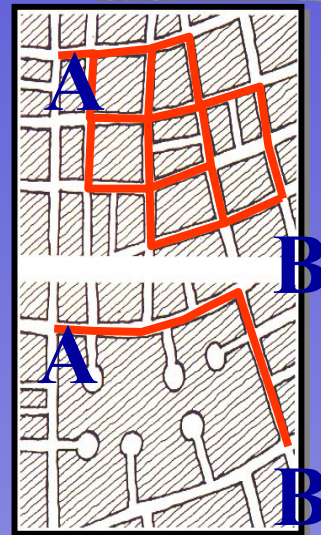
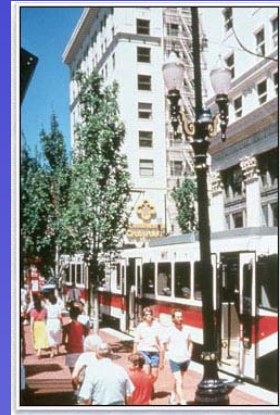


Access to public open space and walking as recommended



Walkable neighbourhoods encourage more physical activity

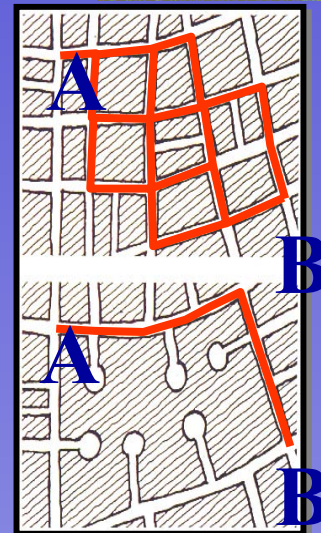
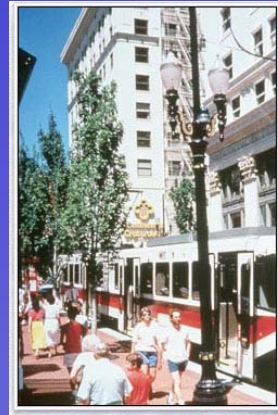
Behaviour	High walkable	Low walkable*
Self reported walking for errands (median minutes)	137.5	65
CSA minutes total PA	210.5	139.9
CSA minutes total moderate intensity activity	194.8	130.7



*Objectively selected
Saelens et al. Am J Pub Hlth 2003;93(9):1552-1558.

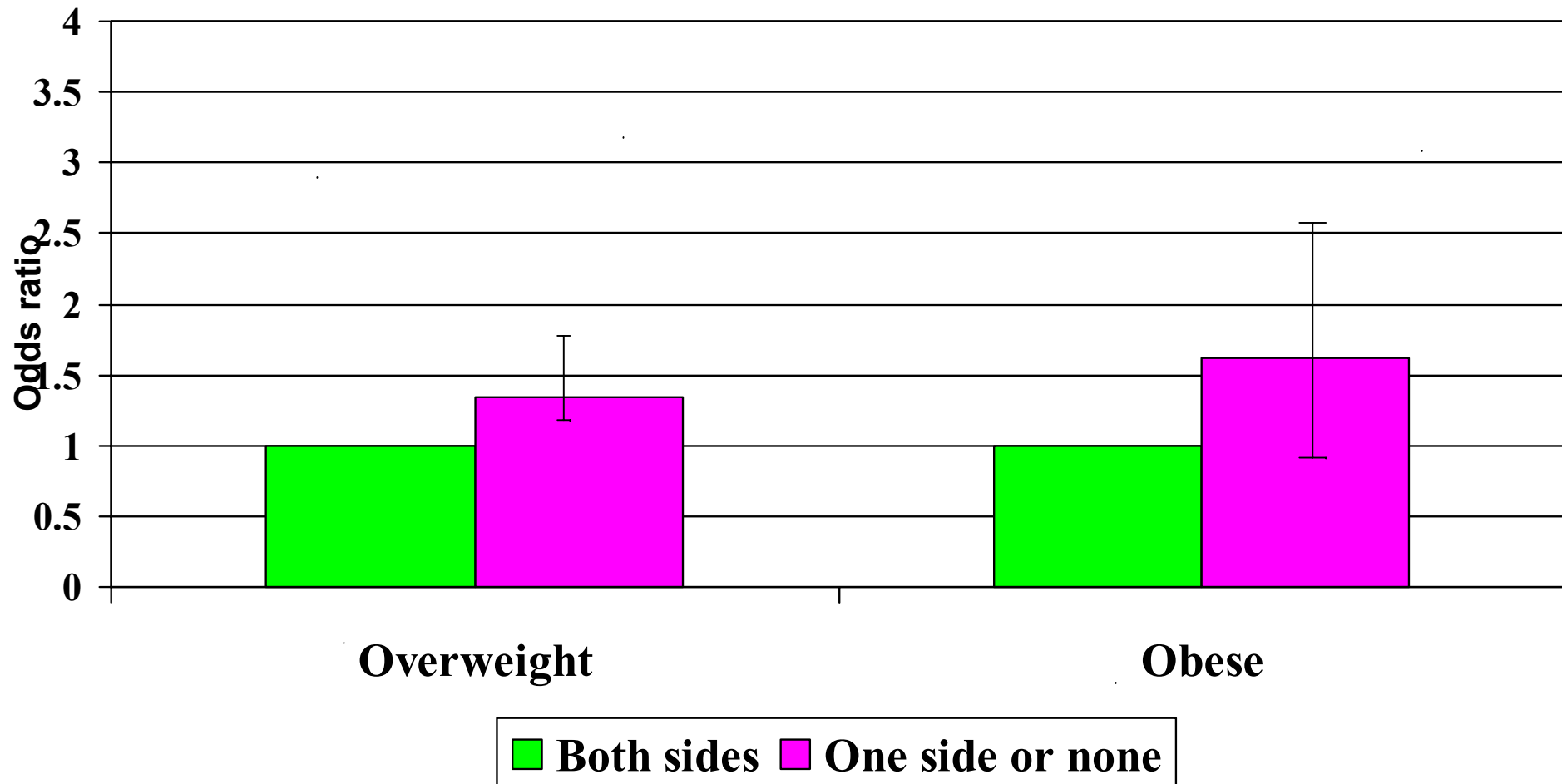
Walkable neighbourhoods encourage more physical activity

	High walkable*	Low walkable
Prevalence Overweight	35	60



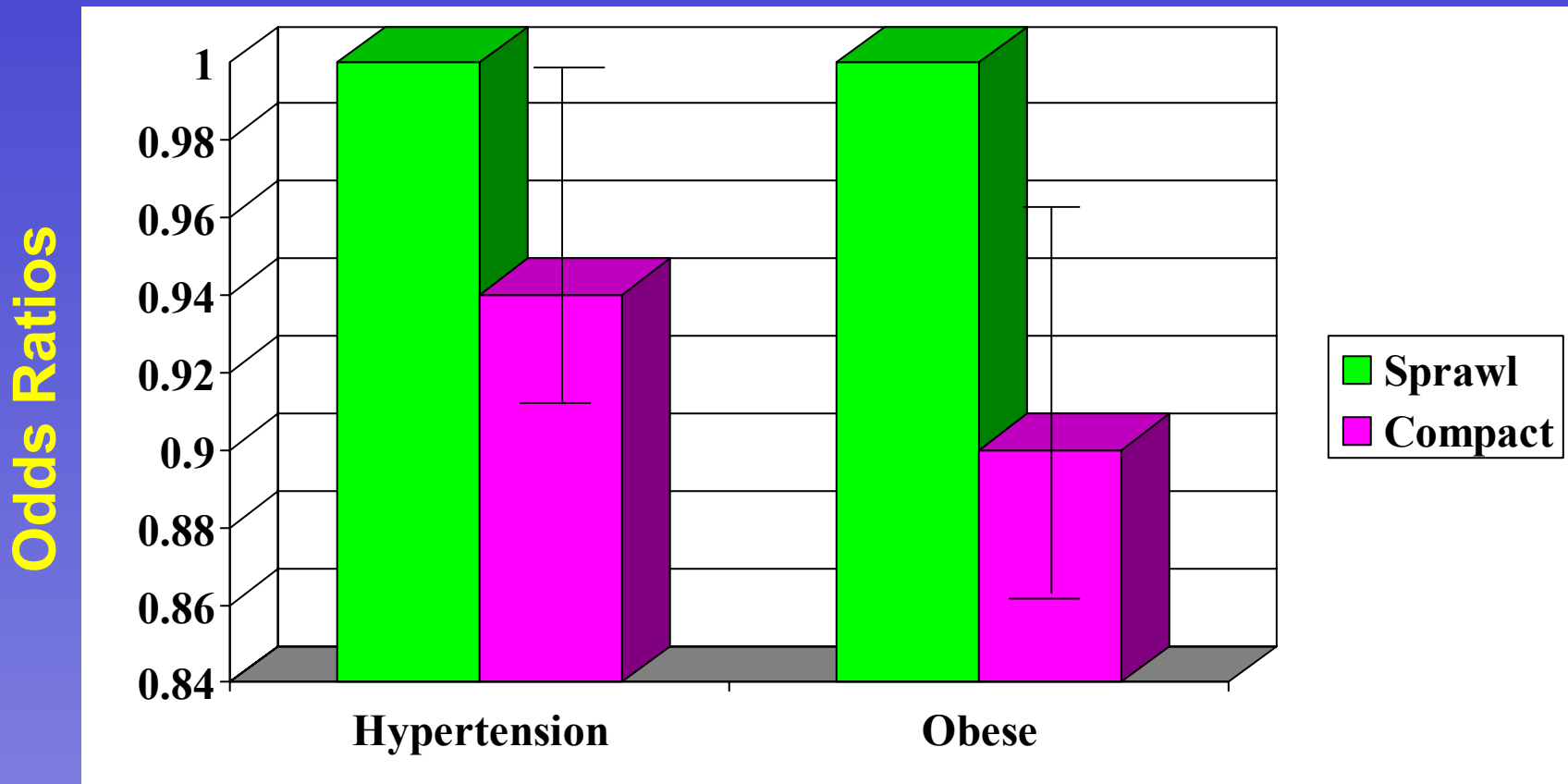
*Objectively measured
Salaens et al. Am J Pub Hlth 2003;93(9):1552-1558.

Association between presence of footpaths and overweight and obesity (adjusted)



Presence of side walks in subject's street

Relationship between urban sprawl and obesity and hypertension (adjusted)



Community design correlates of obesity (n=10,898)

(Adjusted for age, education, income, gender, race)

Time spent in car as passenger or driver

- Every additional 60 minutes/day in car increased the odds of being obese by 6% (OR 1.001; 95% CI 1.0001-1.002)

- Walk distance

- Each km walked reduced the odds of being obese by 4.8% (OR 0.952 95% CI 0.910-0.997)

- Land use

- Each quartile increase in land use mix associated with 12.2% reduced odds of being obese (OR 0.878; 95% CI 0.839-0.919)



The RESIDential Environment Project (RESIDE)

5 year longitudinal study evaluating
the 'Liveable Neighborhoods'
Guidelines



EDITION 2
JUNE 2000

INTRODUCING

Liveable Neighbourhoods

A Western Australian Government Sustainable Cities Initiative



FOR TESTING AND REVIEW

Urban design and mental health





Mental health in Australia

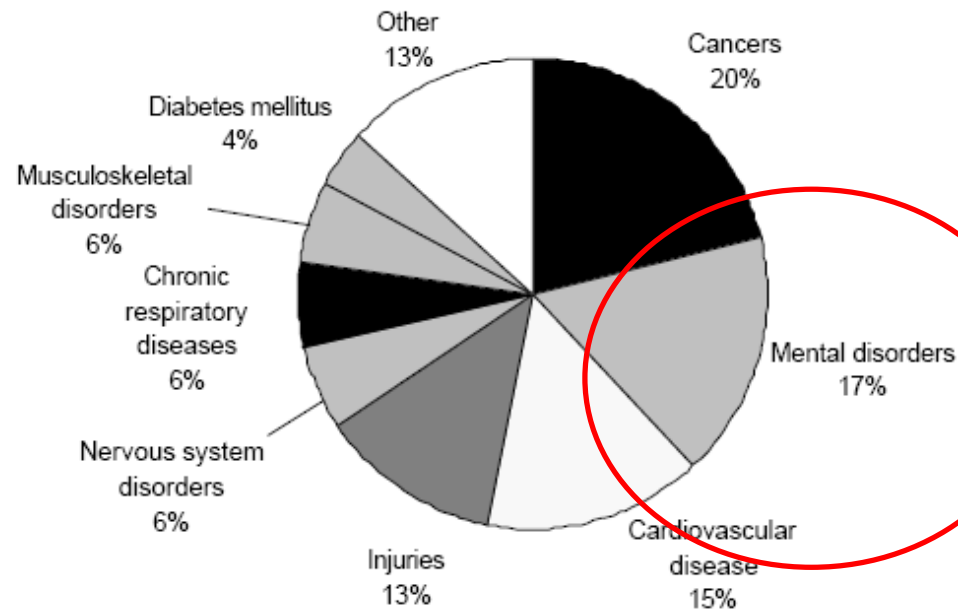


Figure 5.7: Main causes of disease burden (DALYs) in adults aged 25–64 years, Australia, 1996

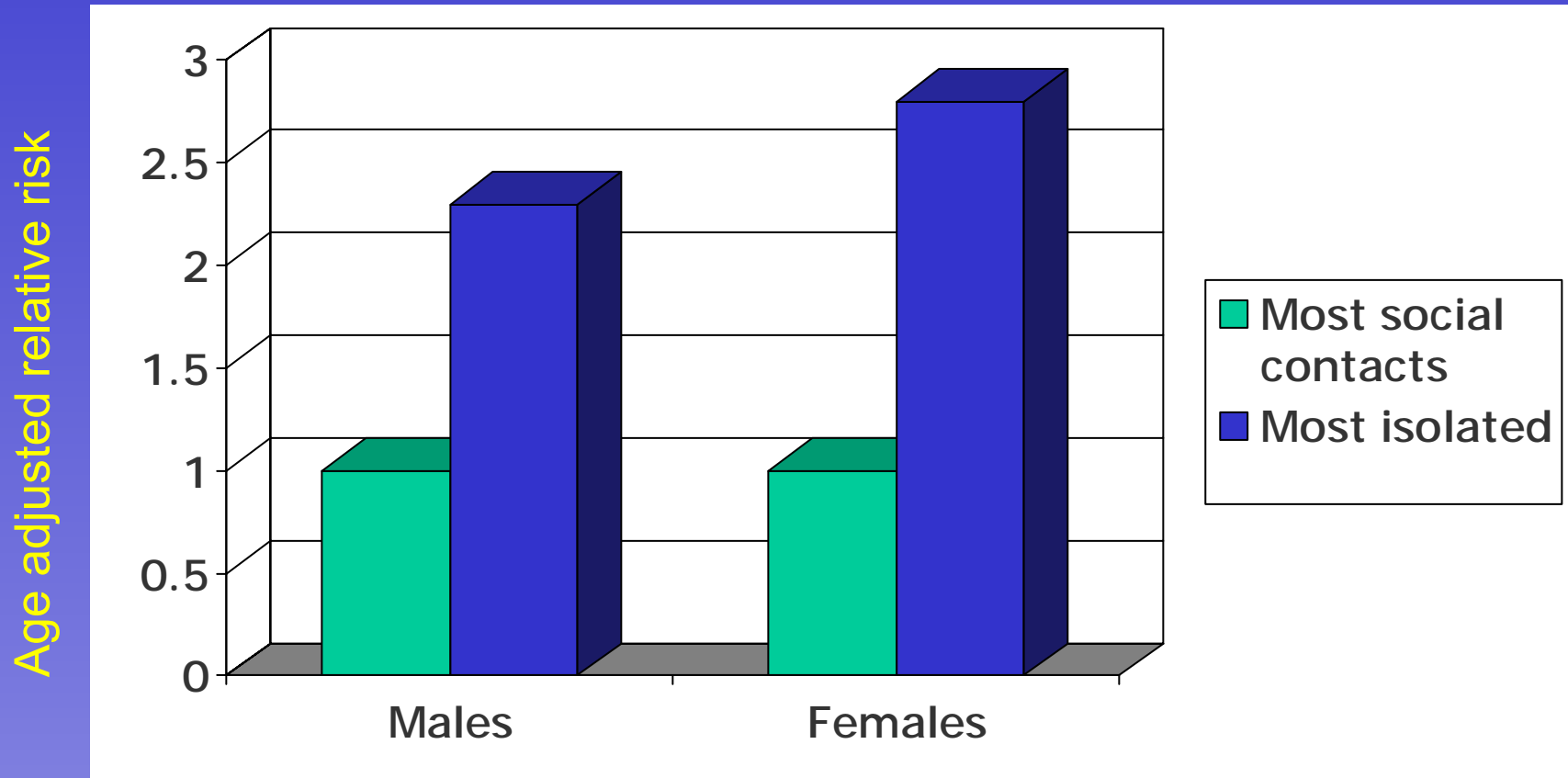
AIHW, The Burden of Disease and Injury in Australia (1999)



Global trends in mental health

- By 2020, World Health Organisation estimates
 - uni-polar depression will be **third** leading cause of disability (DALYs) (after ischaemic heart disease and cerebrovascular disease)
 - Self-inflicted injuries the 10th leading cause

Social networks and mortality





Places to walk to and meet locals



Public places that encourage interaction



Casual interactions with others on footpaths



Access to public transport - reduce social isolation



Restorative public open space



Restorative environments and mental health

- Walk or jog through park vs urban environment
- Compared with participants in urban walk or relaxation conditions natural environment group
 - experienced a greater sense of 'being away', 'fascination'
 - higher levels of overall happiness and positive affect
 - Reduced mental fatigue
 - Reduced feelings of aggression

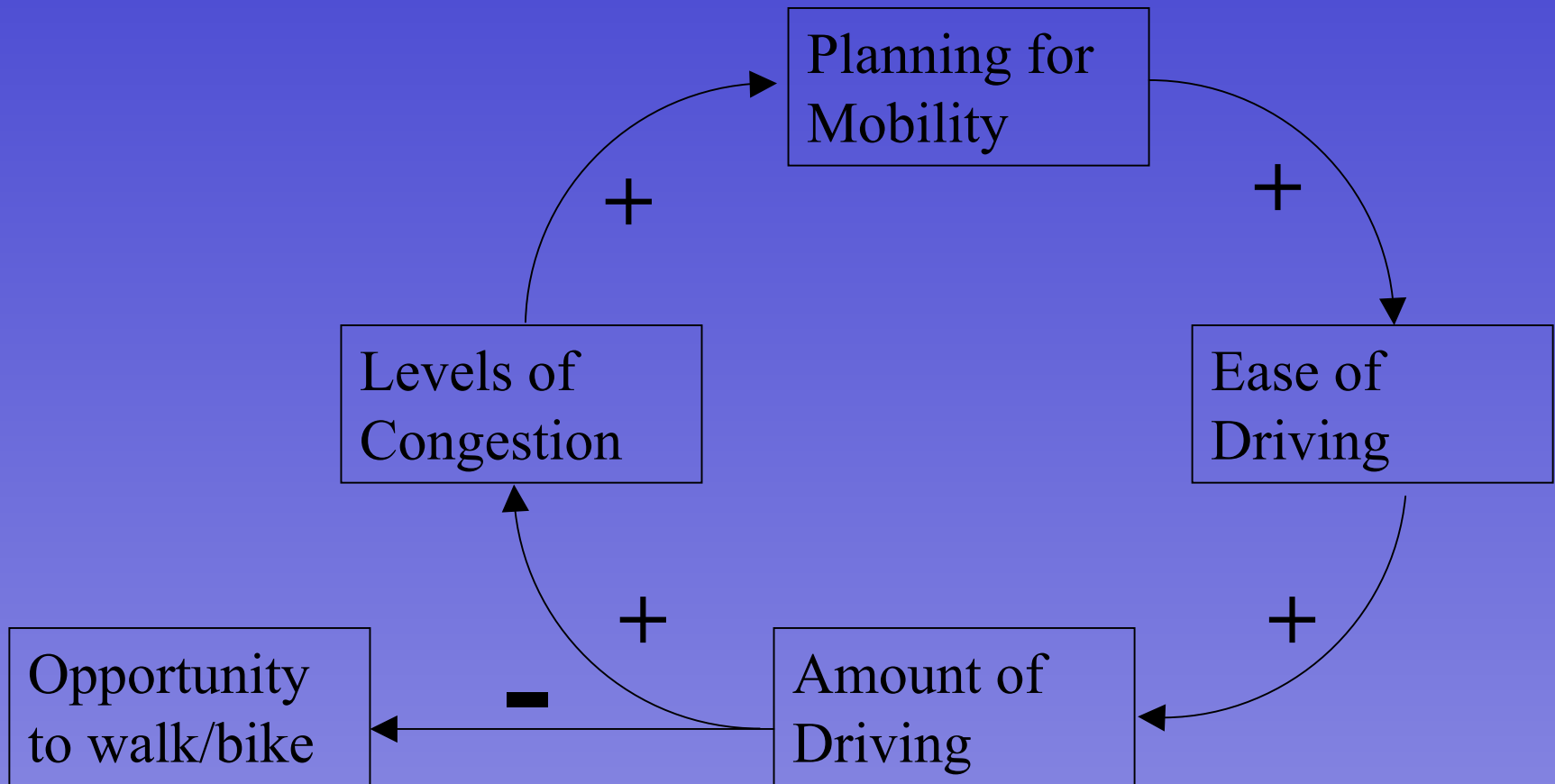


Urban design and environmental health

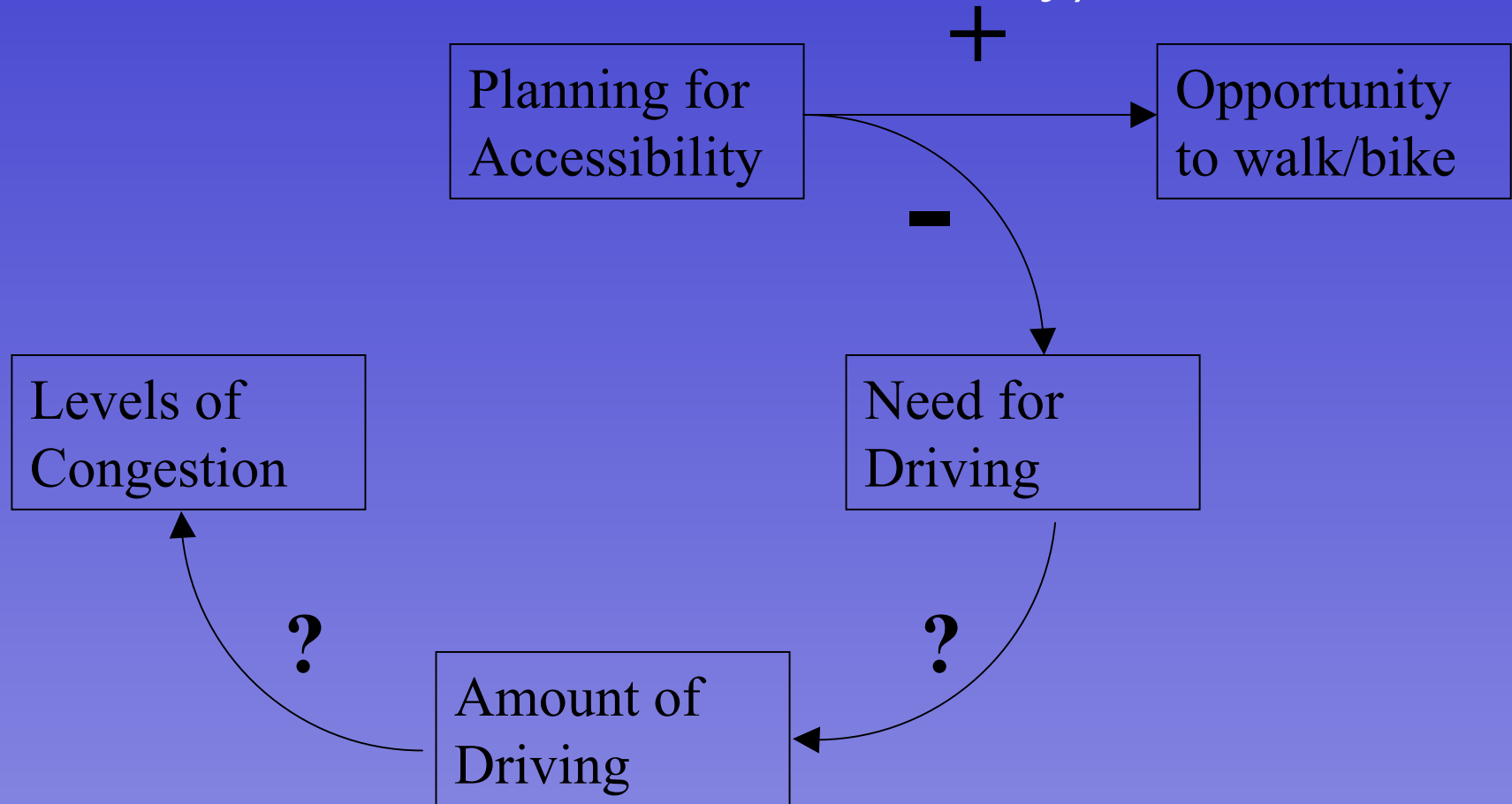


Traditional Approach to Transportation Planning

(Slide thanks to Susan Handy)

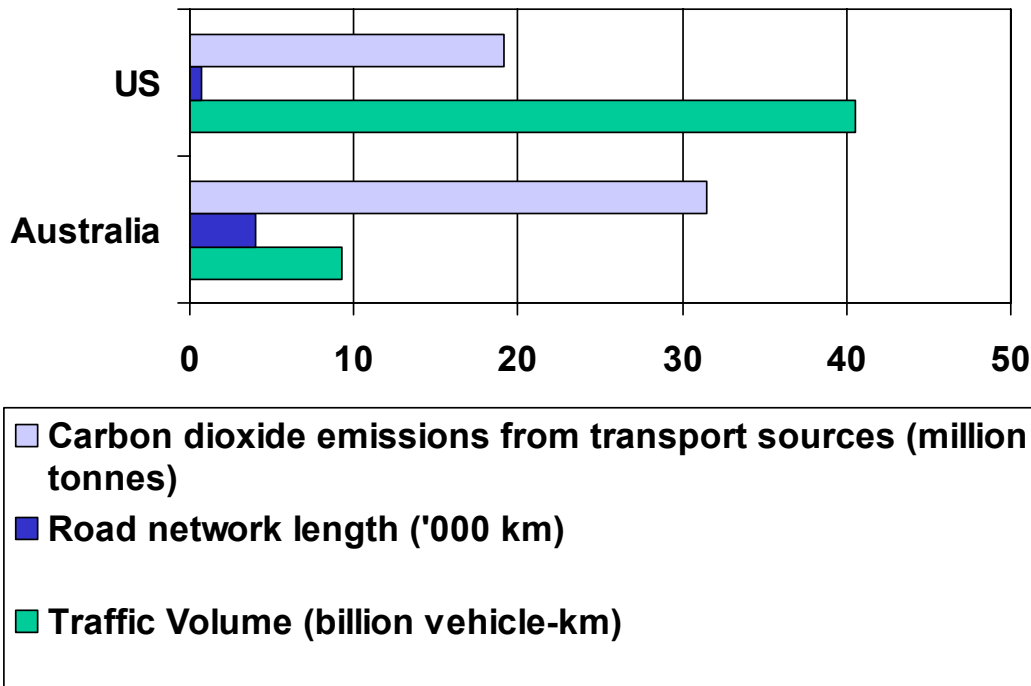


New Approach to Transportation Planning (Slide thanks to Susan Handy)



Health impacts of traffic?

% increase environmental indicators 1983-1994



Source: ABS, Australian Transport and the environment 1997

Acute Asthma events and acute non-asthma events in children and youth during 1996 Olympic Games

Source:	Acute Asthma Events			Acute Non-Asthma Events
	Baseline	Olympic Period	% change	
Georgia Medicaid	4.23	2.47	-41.6	
HMO	1.36	0.76	-44.1	
Pediatric emergency	4.77	4.24	-11.1	
Georgia Hospital	2.04	1.66	-19.1	

Source: Friedman et al. JAMA 2001;285(7):897-905

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Source:

Acute Asthma Events

Acute Non-Asthma Events

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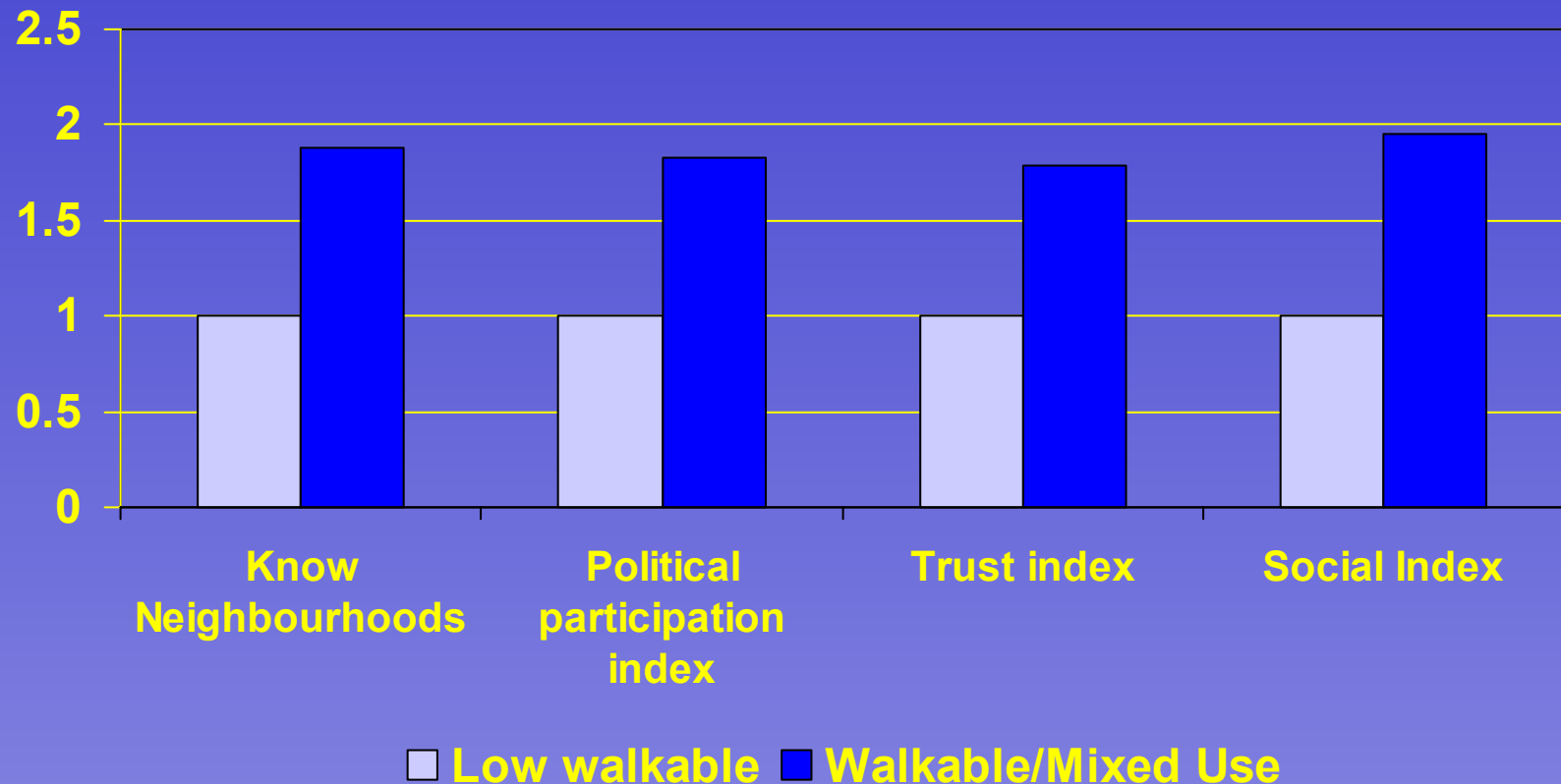
	Acute Asthma Events			Acute Non-Asthma Events		
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Georgia Medicaid	4.23	2.47	-41.6	100.5	97.4	-3.1
HMO	1.36	0.76	-44.1	37.6	38.1	+1.3
Pediatric emergency	4.77	4.24	-11.1	118.4	115.9	-2.1
Georgia Hospital	2.04	1.65	-19.1	19.7	19.9	+1.0

Source: Friedman et al. JAMA 2001;285(7):897-905

Urban design and community health



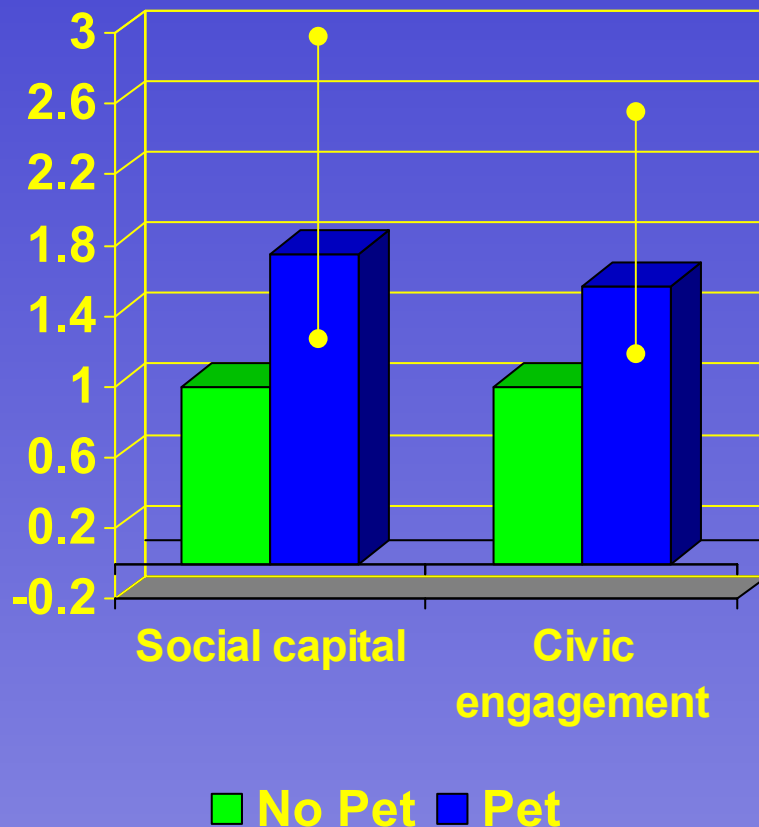
Walkable neighbourhoods create social capital



Leyden Am J Public Health, 2003;93(9):1546-1551.

Pet ownership creates social capital

(Wood et al, Soc Sci Med 2005)



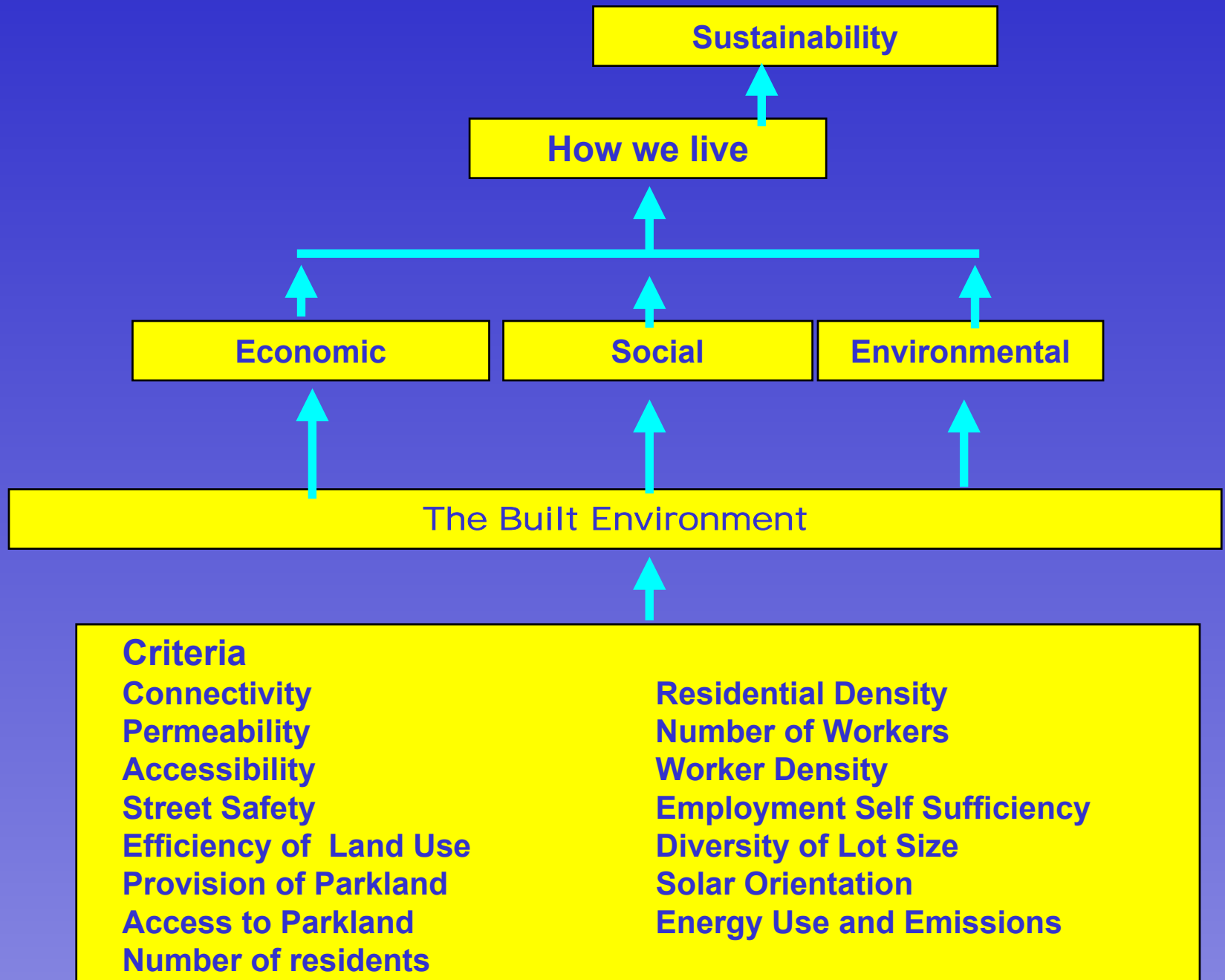
Sense of place created through public and community art

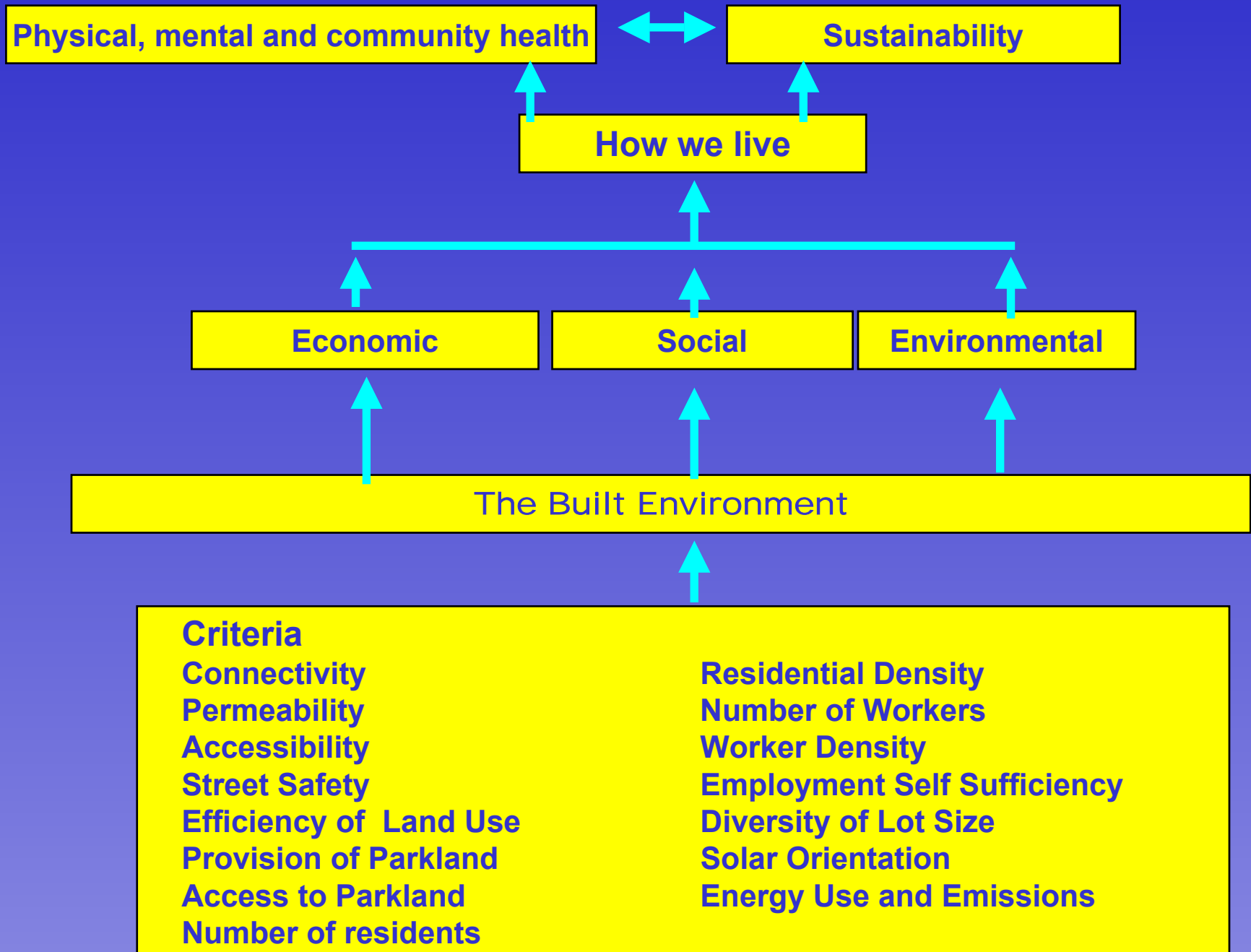




It takes a whole community to make people healthy...









More information:

billie@cyllene.uwa.edu.au

<http://populationhealth.uwa.edu.au/reside>

Recent reviews

- Saelens et al. Environmental correlates of walking and cycling: Findings from the transportation, urban design, and planning literatures ***Ann Behav Med*** 2003;25:80-91.
- Owen et al. Understanding environmental influences on walking: review and research agenda. ***Am J Prev Med*** 2004, **27**:67-76.
- McCormack et al. An update of recent evidence of the relationship between objective and self-report measures of the physical environment and physical activity behaviours ***Australian Journal of Sport Medicine*** 2004;7(1):81-92.