CONSTRUCTING AN OBJECTIVE INDEX OF WALKABILITY

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Thesis submitted for the degree of

Master of Arts

Geography and Environmental Studies

University of Adelaide

April 2005

TABLE OF CONTENTS

LIST OF TABLES iii

LIST OF FIGURES iv

ABSTRACT vi

DECLARATION viii

ACKNOWLEDGMENTS ix

GLOSSARY x

CHAPTER 1 INTRODUCTION 1

1.1 Study Aims and Objectives 5

CHAPTER 2 LITERATURE REVIEW: OBESITY, PHYSICAL ACTIVITY AND PLANNING AND TRANSPORT RESEARCH 8

2.1 Overweight and Obesity 9

2.1.1 US Obesity 11

2.1.2 Australian Obesity 15

2.2 Direct Medical Costs of Obesity 20

2.3 Physical Activity 23

2.3.1 Environmental Influences of Physical Activity 24

2.4 The Built Environment and the Influence on Physical Activity: Evidence from Transport and Planning Studies. 31

2.5 Factors Identified from the Literature 65

CHAPTER 3 METHODOLOGY: USING AUSTRALIAN DATA TO DERIVE A WALKABILITY INDEX 69

3.1 Study Area 70

3.2 Spatial Units 72

3.3 Spatial Datasets 75

3.3.1 Spatial Building Blocks 75
3.3.2 Proximity Data 76
3.3.3 Connectivity Data 79
3.4 Walk Index Measures 79
3.4.1 Spatial Building Blocks 80
3.4.2 Dwelling Density 83
3.4.3 Land Use Mix 87
3.4.4 Retail Opportunity 90
3.4.5 Road Length and Intersection Density 91
3.5 Creating the Walkability Index 97
3.6 Survey 97
CHAPTER 4 RESULTS 100
4.1 Measures of Connectivity 100
4.1.1 Measures of Connectivity: Intersection 101
4.2 Measures of Proximity 123
4.2.1 Measures of Proximity: Dwelling density 123
4.2.2 Measures of Proximity: Land Use 128
4.2.3 Measures of Proximity: Retail 131
4.3 Validating the Walkability Index 134
CHAPTER 5 DISCUSSION: ISSUES, FUTURE DEVELOPMENTS AND APPLICATIONS OF WALKABILITY-RELATED MEASURES 138
CHAPTER 6 CONCLUSION 148
REFERENCE LIST 151
APPENDIX 1: AVENUE CODE FOR EXTRACTING SPATIAL DATA 160
APPENDIX 2: LAND USE CLASSIFICATION 164

LIST OF TABLES

Table 2.1: Age-specific prevalence (%) of (A) overweight and (B) obesity defined by body mass index (BMI) (n= 11067) and by waist circumference (n=11059) among Australian adults 18

Table 2.2: Aggregate Medical Spending, in Billions of Dollars, Attributable to Overweight and Obesity, by Insurance Status and Data Source, 1996–1998..... 21

Table 2.3: Medical Spending, in Billions/Millions of Dollars, Attributable to Obesity for Selected Countries. 22

Table 2.4: Associations Between Environmental Variables and Physical Activity. 29

Table 2.5: Estimated Average Walking and/or Cycling Trips per Week Among Residents of High Walkable Versus Low Walkable Neighborhoods 36

Table 2.6: Neighbourhood Characteristics. 46

Table 2.7: Neighbourhood Delimitation. 48

Table 2.8: Neighbourhood Delineation Characteristics, Austin Texas. 52

Table 2.9: Characteristics for Classifying Neighbourhoods..... 55

Table 2.10: Factors Identified in Studies Related to Walking Behaviour. 67

Table 3.1: Walkability Variables. 96

Table 4.1: Number of Intersections by CCD by Direction of Travel..... 106

Table 4.2: Number of CCDs by Potential Travel Directions. 110

Table 4.3: Number of Street and Routes per CCD..... 113

Table 4.4: Decile Change by CCD, Gross to Net Dwelling Density..... 126

LIST OF FIGURES

Figure 2.1: Obesity Levels (BMI), Selected Countries 1996 and 2003.....10

Figure 2.2: Percent of Overweight and Obese Persons, US 1988-2000.....11

Figure 2.3: Obesity Trends, US, 1980.....12

Figure 2.4: Obesity Trends, US, 1990.....13

Figure 2.5: Obesity Trends, US, 2000.....14

Figure 2.6: Obesity Trends, US, 2003.....14

Figure 2.7: Percent of Obese Australian Adults, 1980 – 2000. 15

Figure 2.8: Australian Adult BMI, Males and Females, 1989-2001. 16

Figure 2.9: BMI (>=25), Increases Australian Adult Population 1989-90 to 2001.....17

Figure 2.10: Percentage of the Population with a BMI of 30 or Greater, Selected Countries, 1960 – 2025.....19

Figure 2.11: Examples of Density, Land use Mix and Street Networks.....35

Figure 2.12: Mode Choice comparison for all trip types in San Francisco Bay Area: Representative Samples for Suburban Communities and Traditional Communities. 49

Figure 3.1: Adelaide Study Area 71

Figure 3.2: Urban and Non-Urban CCDs, Adelaide Study Area 74

Figure 3.3: Road Centre Line and CCD Boundary Errors, ASD.....76

Figure 3.4: Spatial Arrangement Using GIS.....81

Figure 3.5: Dwelling Count, Traditional and Automobile Suburbs, Adelaide. .85

Figure 3.6: Land Use and Zoning, Adelaide.....88

Figure 3.7: Nodes and Pseudonodes, Adelaide Street Network. 92

Figure 3.8: Node Buffers for Allocating Directions of Travel. 93

Figure 4.1: Intersections along CCD Boundaries. 103
Figure 4.2: Intersection Directions, Older Inner Urban Area. 104
Figure 4.3: Intersection Directions, Newer Urban Area. 105
Figure 4.4: Number of Intersections per CCD, ASD. 107
Figure 4.5: Density of Intersections per CCD, ASD. 108
Figure 4.6: Directions of Travel per CCD, ASD. 111
Figure 4.7: Density of Cul-de-Sac per CCD, ASD. 112
Figure 4.8: Density of Streets per CCD, ASD. 114
Figure 4.9: Density of Routes per CCD, ASD. 115
Figure 4.10: Density of Route Length per CCD, ASD. 117
Figure 4.11: Connectivity per CCD, ASD. 118
Figure 4.12: Gamma Index per CCD, ASD. 119
Figure 4.13: Eta Index per CCD, ASD. 120
Figure 4.14: Connectivity Index per CCD, ASD. 122
Figure 4.15: Gross Dwelling Density per CCD, ASD. 124
Figure 4.16: Net Dwelling Density per CCD, ASD. 125
Figure 4.17: Decile Class Change, Gross to Net Dwelling Density. 126
Figure 4.18: Decile Class Change, Gross to Net Dwelling Density, ASD. 127
Figure 4.19: Entropy Score deciles, by CCD, ASD. 129
Figure 4.20: Simpson Score deciles, by CCD, ASD. 130
Figure 4.21: Net Retail Area Deciles, by CCD, ASD. 132
Figure 4.22: Walkability Index, Adelaide. 133
Figure 5.1: Time-Distance to Supermarket, Hawthorndene. 144
Figure 5.2: Percentage of respondents under, over and accurately reporting distances within different distance categories 145

ABSTRACT

Obesity is reported to be an epidemic (Cameron et al. 2003; Contaldo and Pasanisi 2003), particularly in western countries with 31% of adults aged over 20 years in the US either overweight or obese in 1999-2000 (CDC 2004). A similar situation is reported in Australia with 16.7% of the adult population (aged 18 or older) obese in 2001 and 34.4% overweight (Australian Institute of Health and Welfare 2003). The US Surgeon General (1996) highlighted the link between increasing girth and decreasing activity levels and suggested that moderate intensity activity such as frequent walking could improve the health outcomes for overweight and obese people. Current public health recommendations emphasize the benefits of accumulating 30 minutes of moderate intensity physical activity, such as walking, daily (Sallis et al. 2004).

As walking for health reasons is important, factors that influence people to walk, in particular environmental influences, are the subject of a considerable research effort. A wide range of factors have been associated with walking behaviour by the public health professionals and transport and town planners, due to the recognition that neighbourhood design and land use may affect transport choice, such as automobile, public transit or walking/cycling (Saelens, Sallis and Frank 2003). A range of characteristics that are correlated with higher rates of walking review have been identified from the literature and grouped as the 3Ds (Cervero and Kockelman 1997) or proximity and connectivity (Sallis et al. 2004; Saelens, Sallis & Frank. 2003; Frank and Engelke 2001). Consistently, population density, land use mix, the

street network and retail access are linked with definitions of neighbourhoods as either supporting walking behaviour or automobile dominated.

This aim of this project is to build an objective walkability index based upon the physical environmental factors identified from the research and apply this to Adelaide, a large urban city in Australia using geographic information systems (GIS). Specifically, this study will build upon the work from the US (Frank et al. 2005) in delimiting cities into walk friendly or unfriendly, adapted to Australian data to provide the basis for an index that can be applied to Australian cities to highlight the variations across cities and between cities.

DECLARATION

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give my consent to this copy of my thesis, when deposited in the University Library, being available for loan and photocopying.

SIGNED:_____DATE:_____

ACKNOWLEDGMENTS

This thesis has been completed over a number of years with a variety of people assisting along the way. In the initial period, Dr Martin Bell offered good counsel and advice about the higher degree system and although Martin moved back to Queensland, his earlier contribution is appreciated. Professor Graeme Hugo has been of invaluable assistance throughout the process and moved me back on track at the right time with a quality topic to get the thesis completed. Thanks also to the people in the PLACE project who offered a different perspective to some of the issues concerning health and physical activity to augment the geographer's view of the world, in particular, Dr Evie Leslie, Professor Neville Owens and Dr Lawrence Franks.

I owe a huge debt to my family, my wife Jane and my sons Gareth and Owen, as they were most often around when the frayed temper snapped due to late nights and lack of sleep. My wife contributed greatly to the finished thesis with encouragement along the way, support all the time and assistance with proof reading and final production.

GLOSSARY

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ASD	Adelaide Statistical Division
BMI	Body Mass Index
CCD	Census Collection District
DCDB	Digital cadastre data base
GIS	Geographic Information System
LOTS	Land ownership and tenure system
NHS	National Health Survey
PLACE	Physical Activity in Localities and Community Environments
Planning SA	South Australian Planning Department
SES	Socio economic status
TOD	Transit oriented development
VMT	Vehicle miles traveled