Walking as a Local Transport Modal Choice in Adelaide

Andrew Allan

Abstract

A glance at transport statistics for Australia indicates that "walking" as a transport option is a relatively insignificant form of urban travel. For medium to long, intra-urban trips, this is probably indeed the case, and for proponents of walking advocating it to be the dominant transport modal choice, this will probably continue to remain so as long as the morphology of Australian cities is predominantly shaped by the needs of motorised transport.

This paper provides an overview of the extent of walking as a transport option, at least in the journey to work. The characteristics of walking as a transport mode are discussed, which is important in setting the context of the walking permeability indices that are developed in the subsequent section. The walking permeability indices are the principle form of analysis used in assessing how well the City of Adelaide and the inner city residential development of Garden East and the new middle distant northern Adelaide suburb of Mawson Lakes are in catering to walking as a local transport modal choice. The final section examines strategies for facilitating walking in Adelaide.

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Introduction

Walking as an activity is critical in determining whether a person perceives an environment to be an urbane, civic place. Positive perceptions about the desirability of an urban environment normally exude out of experiencing the city as a walker rather than as a motorist, public transport commuter or even a cyclist. The relaxed nature of strolling at a stately 4-6km/h is just fast enough to be purposeful in one's journey while allowing one to savour one's immediate environment more completely than any other travel mode. The unfortunate turn of phrase, that something or an experience is "pedestrian", inferring dullness, has done much to harm the idea of pedestrian activity as an eminently enjoyable pastime.

This paper starts out by discussing walking as a local transport mode and examines cities that are designed for walking. The main theme in this paper is how well Adelaide as a city is catering to walking as a significant local transport mode in terms of an analytical concept termed "walking permeability indices". Data from the 1996 census of population and housing for Adelaide's metropolitan area is examined to demonstrate the extent to which walking is used as a walking mode. Discussion of new higher density residential developments in Adelaide's inner city (eg the Garden East development) and in its suburbs (eg Mawson Lakes), are examined through the use of walking permeability indices to determine whether they theoretically facilitate walking as the preferred mode of transport. Finally, strategies designed to facilitate walking as the preferred local transport option are examined.

Characteristics of Walking as a Transport Mode

With the exception of disabled people, walking is the fundamental means of transport for everyone. Walking allows people to have mobility in and around buildings, in open spaces and access to other means of transport. The healthy human body has marvellous all terrain characteristics in the way that it can climb steep slopes or stairs and cope with irregular surfaces and poor weather conditions. It does not need massively engineered infrastructure built to exacting tolerance to anywhere near the same extent as other mechanised transport modes. Nevertheless, large pedestrian numbers are better catered for if such infrastructure is provided for, but it is probably more for reasons of aesthetics, comfort and the minimisation of environmental damage rather than any intrinsic need. Planning for walking is critical because it is the transport mode that provides the fundamental interface between the land-uses and other transport modes. When motorists leave or access their cars, they do so as pedestrians.

Walking does have its limitations, however. The typical walking gait of a normal healthy adult would be about 6km/h (ie 1.67m/s). In unimpeded conditions, this would allow a range of 6km in an hour; 3km in 30 minutes; 2km in 20 minutes; 1km in 10 minutes; 500m in 5 minutes; 100m in one minute. However, a walker's speed for a person of average fitness would wane as fatigue begins to set in. Also, adverse weather conditions, such as heat or rain, may compromise walking performance. Hence, a walker may be able to maintain a steady 6km/h walking gait for 20 minutes, but over 30 minutes this average may decline to 5km/h and over an hour, drop to 4km/h. As a local transport modal choice, walking makes reasonable sense in many Australian urban environments for distances up to 2km (20 minutes). Walking may be competitive with public transport over short distances (up to 2km), assuming it is more direct and if the next bus/train/tram is not due for 20 minutes or more. Frustrating impediments to walking as a local transport option include the severance caused by roads, private property, physical barriers, long waits at traffic lights and a general lack of crossing opportunities.

Characteristics of City Designed for Walking

The elements of a city that is designed for walking include: urban density; urbanity; heterogenous land use zoning; facilities and public transit within close walking proximity to where people work, live and recreate; efficient, economic and comfortable public transit; an attractive public realm conducive to walking; dedicated pedestrian routes and pathways; and permeability in the urban fabric.

Density, urbanity, zoning

Urbane cities encourage community and cultural interaction in a civilised manner. Urbane cities are likely to be more conducive to pedestrian activity because they encourage people to enjoy the city's public realm. Lozano (1990) believes, however, that a critical factor in achieving urbane cities is density because certain densities or minimum population thresholds are needed to generate the interactions needed to make many urban functions and activities viable. With urban transportation, higher urban densities are critical in order to allow public transit and walking to be feasible urban transport options. Lozano (1990) argues that the often widespread separation of activities that has been imposed on our cities by large-scale land use homogeneity and segregation has largely nullified the significance local transport options such as walking or cycling. Lozano's work demonstrates that in designing a city that is amenable to walking, density and mixed urban uses are critical components.

Public transit and pedestrians

Any strategy intended to make cities more attractive to pedestrians has to consider how to discourage an over-reliance on car usage as the primary urban transport mode. However, given the size of modern cities, it is not practicable to expect walking to be anything more than a local transport option. The solution advocated by Newman and Kenworthy (1989) and the New Urbanism movement (Katz, 1994) in the United States in moving away from car-dominated cities, are transit-oriented cities with urban densities and grid style street patterns similar to those of European cities. Implicit in their solution is that walking would be the critical mode of transport in local areas and in complementing public transit that would provide access beyond local areas.

Cevero (1997) has talked about the need for a paradigm shift in which there is a move away from transport planning that enhances automobility towards "accessibility planning". In this new paradigm, new performance indicators would be developed, such as the accessibility to public transit and to facilities by walking, which contrast with roadway level of service traffic performance indicators that are currently the focus of planning for motor transport. There would also be a focus on public and non-motorised transport on a local community scale. Transportation demand management would be needed to extract the maximum use of transport resources already in place and traffic calming could be employed to discourage car use.

Without an attractive public realm, however, it will be difficult to convince people to walk in preference to driving. Active street frontages are needed together with public spaces that are used by people both as a thoroughfare or to recreate. Landscaping and quality design of infrastructure that is both functional and aesthetically pleasing, can help to make walking a more pleasing local access option than the car. However, by itself, an attractive public realm may not be enough. Dedicated pedestrian routes may be needed where the conventional road network is hostile to pedestrians or insufficiently direct or where there is an impermeable urban fabric that inhibits pedestrian movement.

Permeability and the urban fabric

Walking as a local transport modal choice makes reasonable sense for distances up to about 2km at a walking speed of 6km/h. If an urban area around a pedestrian were completely unobstructed, theoretically, this would allow an urban area covering some 12.5km^2 to be accessible to this pedestrian.

A city with a very fine urban grain that allows a high degree of pedestrian permeability and very direct routes may come close to this theoretical maximum. The reality is often very different, since many cities can have a coarse urban grain (ie large blocks impermeable to pedestrian access), that considerably restrict a pedestrian's ease of access. Bangkok's central area is a classical example of a local road network that lacks permeability for pedestrians where what should be a 400m walk as the crow flies can easily become a 3km marathon because of a lack of connecting pathways between long parallel streets. A very coarse urban grain or a city with impenetrable barriers to pedestrians can restrict a pedestrian's experience to a very limited linear experience of the city (ie 2km in either direction along a street). In designing for pedestrians, one has to remember that pedestrians do not have the time or stamina for unnecessarily circuitous routes. Pedestrian permeability is a concept that could be expressed as a walking permeability distance index (WPDI) for pedestrians (see equation 1).

WPDI = AD / DD……………………………………………………………………….. (1)

where DD=Direct distance to be between origin and destination,; AD=Shortest practical distance through the network; WPDI=Walking permeabilty distance index

A WPDI of 1 is the ideal situation a planner would aim to achieve, and this would imply that the network is sufficiently permeable to allow pedestrians to walk directly to their intended destination. As an analytical planning tool, the WPDI could be used to explore trip characteristics between origins and destinations in a local area or suburb, with WPDI=1.5 being set as the limit of accessibility for a development. The origin could be someone's home while the destination might the local community centre or a railway station.

The walking permeability distance index could be presented in a slightly modified format to reflect the actual trip time. This would be important where a dedicated pedestrian network does not exist and pedestrians have to share the road network with other transport modes. Distance may no longer be the determining factor if roads have limited crossing opportunities and long waiting times at pedestrian crossings. Equation

(1) would be modified as in (2), and it would be called the walking permeability time index (WPTI).

WPTI = ADT / DDT……………………………………………………………….. (2)
where DDT = Direct distance time; ADT = Actual distance time (includes delays); WPTI = Walking permeability Time Index

The analytical application the WPTI would be the same as the WPDI, except that it may offer a more realistic assessment of the actual situations a pedestrian is likely to encounter in the urban environment when walking. A higher WPTI of 2 may be needed to indicate the practical limit of pedestrian accessibility. With a walking gait of 6km/h and a WPTI of 2, and a time endurance of 20 minutes, the maximum distance that could be covered would be 1km. This is determined by dividing the direct distance walking range over 20 minutes at 6km/h by the WPTI. Of course, empirically based research of statistically valid population samples would be needed to discover how pedestrians' walking gaits, endurance and response to impediments vary and what the average pedestrian's performance actually is. Nevertheless, in a theoretical sense, these indices are useful for determining the accessibility characteristics in the urban environment. When mapped with a geographic information systems package such as MAPINFO or ARCVIEW, the use of these indices can dramatically highlight the degree of accessibility offered in a particular area. For example, these indices could be mapped for all residences' accessibility to a local school, shops or community centre.

Walking as a Transport Mode in Metropolitan Adelaide

Table 1 details the proportion of the workforce for each local government area (LGAs) in 1996 that walked to work. This table also details the average distance from the city centre and workforce density of each local government area.

Walking as a transport mode ranged from 0.7% for Happy Valley up to 15.6% for the City of Adelaide. Walking appears to be more likely with inner city LGAs at 4.5% or more (ie less than 4km from the city centre) than it does for middle to outer LGAs where it ranged from 0.8% in Tea Tree Gully to 3.4% in Unley (ie 4km or more from the city centre). Glenelg was an important exception at 4%, and this might be explained by its better than average public transport links, and the higher proportion of elderly residents, medium density housing and concentrated retailing activity when compared to other LGAs.

A moderate linear correlation was found (Pearson coefficient of -.39, significant at the 5% level), between persons who walked to work and the distance of the LGA in which they lived was from the Adelaide city centre. No statistically significant correlation was found between the workforce density of a particular LGA and the propensity to walk to work.

There did not appear to be any dramatic differences between males and females that walked to work, with the possible exceptions of Thebarton (5.3% of males versus 3.8% for females), Glenelg (3.4% for males versus 4.8% for females) and East Torrens (3.3% for males versus 1.7% for females). The explanations for this difference may be that Thebarton has a high proportion of male oriented industrial employment whereas in Glenelg, there is a higher female population with employment strongly oriented towards service and retailing opportunities. It seems that in most LGAs, however, there was very little difference in the propensity to walk to work between the sexes, with this being the case in around 12 out of the 29 LGAs.

Table 1. Proportion of the workforce that walked to work by local government area, average distance from city centre, workforce density and sex. 1996 Population and Housing Census, metropolitan Adelaide.

LG area (LGA) in 1996 and size in square km	Average distance of LGA to city km	Workforce - Persons/Ha	% Males who walked to walk	% Females who walked to work	% TOTAL who walked to work	TOTAL Workforce Persons
Adelaide 15.6 sq km	**0**	**4.6**	**15.5**	**15.7**	**15.6**	**7,237**
Kensington & Norwood 3.9 sq km	3	11.1	6.6	6.3	6.4	4,335
St Peters 3.8 sq km	3	10.1	4.8	4.4	4.6	3,833
Thebarton 4.2 sq km	3	7.2	5.3	3.8	4.6	3,028
Prospect 7.9 sq km	4	10.8	2.2	2.3	2.3	8,527
Unley 14.3 sq km	4	11.6	3.4	3.4	3.4	16,607
Walkerville 3.5 sq km	4	8.5	2.6	2.2	2.4	2,986
Payneham 7.4 sq km	5	8.2	2.0	2.6	2.2	6,078
Burnside 25.7 sq km	6	6.8	2.0	2.0	2.0	17,350
West Torrens 32.8 sq km	6	5.2	3.0	2.6	2.8	17,178
Hindmarsh & Woodvill 48.1 sq km	7	6.9	2.2	2.3	2.2	33,261
Enfield 33.2 sq km	8	4.7	2.8	2.3	2.6	15,501
Campbelltown 24.4 sq km	9	7.8	1.1	1.3	1.2	18,929
Enfield-Part B 23.3 sq km	9	1.7	3.7	3.0	3.4	4,077
Henley & Grange 6.7 sq km	9	9.3	1.6	1.9	1.7	6,225
Glenelg 4.9 sq km	10	11.7	3.4	4.8	4.0	5,748
Mitcham 75.5 sq km	10	3.5	2.4	2.1	2.2	26.458
Brighton 8.8 sq km	13	8.2	2.4	1.9	2.1	7,177
East Torrens 117.3 sq km	14	0.3	3.3	1.7	2.6	3,273
Marion 55.4 sq km	14	5.6	1.8	1.6	1.7	30,856
Salisbury 157.6 sq km	16	2.8	1.4	1.3	1.4	44,064
Tea Tree Gully 95.5 sq km	16	4.7	0.8	0.9	0.8	44,646
Stirling 108.3 sq km	18	0.7	1.5	1.4	1.5	7,850
Happy Valley 172.7 sq km	24	1.0	0.7	0.7	0.7	18,127
Noarlunga 169.3 sq km	26	2.2	1.0	1.4	1.1	36,472
Elizabeth 20.4 sq km	27	3.4	2.4	2.9	2.6	6,925
Munno Para 324.2 sq km	28	0.4	1.9	1.9	1.9	14,125
Gawler 41.2 sq km	34	1.5	2.4	2.3	2.4	6,352
Willunga 275.5 sq km	40	0.2	2.4	2.7	2.5	5,368

Source: Commonwealth of Australia, 2000, Derived from Basic Community Profiles for South Australia from the ABS 1996 Census of Population and Housing; Website location: www.abs.gov.au/

The very low rates of people walking to work in the case of Happy Valley (0.7%) and Tea Tree Gully (0.8%), Noarlunga (1.1%) and Campbelltown (1.2%) are LGAs with traditional low density new suburban developments, where high mortgages and two car households are the norm. In addition to the constraint provided by low urban densities, it may be that the imperatives of servicing large mortgages and few local opportunities for high-income employment preclude walking as a transport mode of choice in the journey to work.

Walking as Transport Mode in Adelaide City

Adelaide's city centre lends itself well to walking as the primary local transport mode. This is because the city centre is compact, level, with a fine grained orthogonal grid network of streets and pedestrian pathways. Furthermore, major transport infrastructure or other impenetrable physical barriers do not disrupt the urban fabric of the city. The human scale of many of its public spaces and buildings, the aesthetically pleasing wide streets and the moderate traffic stresses confer on Adelaide's city centre a public realm that is well suited to walking. However, it has been identified that there are certain hot spots in the city (North Terrace, Grenfell, King William Street and Pultney Street) that have relatively high traffic accident and other areas with high assault risks for pedestrians when compared with Adelaide's suburban locations (City of Adelaide, 1999). This is probably not unexpected given the high volumes of vehicular traffic and pedestrian activity that occur in the city. Adelaide still retains a 60km/h general speed limit even in areas of high pedestrian densities and crossing activity.

Adelaide's draft Pedestrian Strategy (City of Adelaide, 1999) did provide some graphical analysis of the degree of permeability provided by Adelaide's grid network of streets. However, table 2 provides a quantitative analysis of the degree of walking permeability provided in the city. Essentially the approach adopted is to identify the main origins and destinations for pedestrian trips in the city centre originating from either the tram terminus in the centre of the city or the railway station along North Terrace. These origins result in the most extreme pedestrian trips required to access the city's attractions, whereas the buses provide almost direct access to the city's commercial and retail heart, Rundle Mall.

Table 2 is divided into two halves. The left half compares the direct straight-line distances with the actual distances required to reach particular destinations in the far right column and then expresses this as the walking permeability distance index (WPDI). The right half compares the time required to walk the straight-line distance at a constant 6km/h with the actual time required by the shortest practicable pedestrian route, but with maximum delays encountered at traffic lights. An optimal situation would be to achieve indices of 1 for WPDI and WPTI if a straight-line path were possible. However, realistically, with an offset path (ie. a diagonal route), this would increase to 1.12 using the Pythagoras Theorem for the length of a triangle's hypotenuse.

Because of Adelaide's fine-grained street grid, it generally performs well on the distance index (WPDI), less so with the time index (WPTI). North Terrace and the parallel street system of Hindley Street/Rundle Mall/Rundle Street are very effective environments in moving large numbers of pedestrians efficiently and quickly. For example, Adelaide Railway Station to the Botanic Gardens, a distance of 1200m, has a WPDI of 1.00 and a WPTI of 1.11. The Victoria Square tram terminus in the heart of the city is 660m from Rundle Mall/Hindley Street and has a WPDI of 1.00, and a WPTI of 1.24 due to the effects of numerous sets of traffic lights. It is also some 1120m from the Hutt Street restaurant precinct and has a WPDI of 1.00 and a WPTI of 1.14.

An interesting finding to emerge from this analysis is that diagonal trips across the city centre are far from optimal when the WPDI and WPTI indices are compared. Adelaide Railway Station to Hutt Street is 1960m in walking distance and has a WPDI of 1.34 and a WPTI of 1.52. The Victoria Square Tram terminus produces similar performances with the 1730m walking distance to the Botanic Gardens producing a WPDI of 1.34 and a WPTI of 1.54 or 1.47 and 1.65 respectively (if pedestrian shortcuts in the network are not used). The disadvantage in using the tram terminus to access most of the city's attractions, is that all of the trips appear to involve diagonal routes that intersect with numerous streets and traffic lights that impede the progress of pedestrians.

Table 2. Walking Permeabilty Indices for Adelaide City Centre

START LOCATION	DD (m)	AD (m)	WPDI	DDT (sec)	ADT (sec) (max est)	WPTI	END LOCATION
Adelaide Railway Station	220	320	1.45	132	230	1.74	Rundle Mall
A.R.S.	930	1100	1.18	558	740	1.33	East End (Rundle St)
A.R.S.	1200	1200	1.00	720	800	1.11	Botanic Gardens
A.R.S.	1460	1960	1.34	876	1330	1.52	Hutt St
A.R.S.	830	1100	1.33	498	810	1.63	Central Markets
A.R.S.	160	160	1.00	96	120	1.25	Hindley St
A.R.S.	540	540	1.00	324	370	1.14	Uni SA City West Campus
Vicitoria Square tram terminus	660	660	1.00	396	490	1.24	Rundle Mall
V.S.T.T.	820	940	1.15	492	720	1.46	A.R.S.
V.S.T.T.	1010	1450 (1290 via ped links)	1.44 (1.28)	606	1010 (910 via ped links)	1.67 (1.50)	East End (Rundle St)
V.S.T.T.	1290	1890 (1730 via ped links)	1.47 (1.34)	774	1280 (1190 via ped links)	1.65 (1.54)	Botanic Gardens
V.S.T.T.	1120	1120	1.00	672	767	1.14	Hutt St
V.S.T.T.	170	220	1.29	102	160	1.57	Central Markets
V.S.T.T.	660	660	1.00	396	490	1.24	Hindley St
V.S.T.T.	950	1320	1.39	570	945	1.66	Uni SA City West Campus
V.S.T.T.	1010	1430 (1250 via ped links)	1.42 (1.24)	606	990 (880 via ped links)	1.63 (1.45)	UniSA City East Campus

Key
DD-Direct distance (m); **AD**-Actual distance (m) by most practicable route; **WPDI**-walking permeability distance index; **DDT**-Direct distance in time(seconds); **ADT**-Actual direct distance in time(seconds); **WPTI**-Walking permeability distance time index
Assumptions for table 2
1. Based on a walking speed of 6km/h
2. Maximum time delay estimated at for pedestrians is 25 seconds for busiest traffic light controlled intersections; 20 seconds for minor traffic light controlled intersections; 10 seconds for minor side streets off main road without lights
3. Worst case scenarios used in estimating the ADT values and the WPTI

One of the poorest performing indices involved walking from Adelaide Railway Station to the Central Markets which is around 1100m in walking distance and this trip has a WPDI of 1.33 and a WPTI of 1.63. The problem here is a lack of directness in the route and a large number of intersections constrain timely progress.
This analysis of WPDI and WPTI indices demonstrates that while the Adelaide city centre performs reasonably well in terms of actual walking distances required in order to reach many of the city's key attractions on foot, in terms of the actual time required, its performance could be significantly improved. If 20 minutes is taken as a general limit of accessibility for pedestrians, poor WPTI indices that approach 2 could restrict an average pedestrian's propensity to a walking range of little more than a kilometre, rather than the 2km that should be possible at a 6 km/h walking gait.

Comparing permeability indices: Garden East versus Mawson Lakes

Walking permeability indices are potentially very useful in comparing how conducive an area is to walking to access facilities. Analysis of walking permeability indices for access to key facilities (see table 3) was conducted for the Garden East residential development in the East End of the Adelaide city area and compared with those for the new Mawson Lakes suburban development 11km north of the city. Mawson Lakes are the vestigal remains of Adelaide's once grand and now abandoned Multi-Function Polis concept of the mid 1990s. Mawson Lakes was chosen because Delfin have marketed this suburb under the slogan "live, work and play at Mawson Lakes", thereby implying that it is a balanced, integrated community with all essential community facilities provided locally allowing low reliance on cars as a local transport option.

Garden East is located in the heart of Adelaide's East End quarter alongside the restaurant district of Rundle Street. It is a mixture of medium to high density residential development ranging from townhouses to 8 storey tower blocks that approaches a dwelling density of around 50 dwellings/hectare on a 3 hectare site. Many dwellings have security parking, however, the marketing of the development has stressed that the Garden East complex is luxurious "city living" and as with Mawson Lakes, the marketing implies that residents would have low reliance on cars for their local transport needs.

For most important facilities, both developments perform reasonably well in terms of their walking permeability indices, with no WPDI exceeding 1.5 and all but one WPTI exceeding 1.65. Although most permeability indices exceeded the practical optimum of 1.12, most indices were in the acceptable range (ie less than 1.5). The very high WPTI needed to access a local park from Garden East is due to the severance of a busy road, but this is offset by the short distance involved. Mawson Lakes does not yet have any primary schools , however, one is planned if demand is there in the longer term. The critical disadvantage for the Garden East development is the long distance needed to access the city's main food shops (1610m), which when combined with the high WPTI due to the large number of intersections, renders it impractical for significant shopping expeditions.

It would be feasible for a resident to survive without a car in a fringe location of Mawson Lakes such as on Brookside Drive. Notwithstanding this, the resident in the worst case scenario analysed in table 3 would have to be a very keen walker to live without a car. Traditional neighbourhood planning theory worked on a 400m radius from facilities as being optimal (possibly 600m in actual walking distances). Mawson Lakes falls significantly short of this ideal with many precincts outside the 400m radius from the proposed town centre. Densities are higher than in traditional Australian suburban development (15 dwellings/hectare versus 8 dwellings/hectare), however, densities would probably have to be double this to really make walking the most likely local travel modal choice.

While Mawson Lakes' performance is acceptable in its current form, there are plans to expand it from its current population of about 4000 to 10,000. This means that the dwellings on the new expanded fringe in the future will perform considerably worse in terms of access, with maximum walking distances approaching 2km to reach many facilities. The WPDI may not be affected unduly because of the fine grained orthogonal grid network of streets, but the WPTI can be expected to deteriorate considerably in a dense street network without a dedicated pedestrian network.

Table 3. Walking Permeability Indices for Garden East and Mawson Lakes

	GARDEN EAST	*East Terrace*	*(City Centre)*	MAWSON LAKES	*Brookside Drive*	*(13km north of city)*
FACILITY	Direct distance (metres)	WPDI	WPTI	Direct distance (metres)	WPDI	WPTI
Primary school	520	1.13	1.29	>2000	_	_
High School	520	1.13	1.29	1020	1.1	1.18
University	270	1.11	1.39	1000	1.13	1.24
Local supermarket	1200	1.34	1.53	805	1.19	1.30
Town centre	640	1.00	1.10	805	1.19	1.30
Cafe	60	1.00	1.00	1120	1.04	1.11
Local park	40	1.25	2.29	360	1.03	1.17
Lake	250	1.28	1.45	680	1.10	1.23
Golf course	2300	1.48	1.63	1340	1.20	1.30
train station	1060	1.16	1.32	1230	1.38	1.42
bus stop	150	1.00	1.22	805	1.19	1.30
employment	100	1.00	1.33	980	1.17	1.24

Strategies for Facilitating Walking

Few local government councils prepare specific strategies to encourage walking within their jurisdictions. Adelaide City Council is an exception. In 1999, the Council prepared their draft "Streets Ahead Pedestrian Strategy" (Adelaide City Council, 1999) and there is currently an integrated movement strategy being developed, called "Adelaide on the Move" (Adelaide City Council, 2000). The main aim of these strategies from the perspective of pedestrian movement is to make the city safer, more pleasant, convenient and enjoyable for pedestrians at all hours and which encourages walking for health and pleasure. This is being achieved through improvements to the city's pedestrian routes, public spaces and landscaping.

Interestingly, there is an emphasis in the latest draft on an enhancement program of key minor streets and laneways to improve the permeability of the city for pedestrians, particularly in the vicinity of Rundle Mall. The focus then appears to be on improving the environment for pedestrians so that people are not inhibited from walking in the city. Little appears to be said about using marketing or educational campaigns to encourage people to walk instead of driving (Adelaide City Council, 2000).

The analysis of the WPTI indices for Adelaide do show however, that for diagonal walking trips or walking trips away from North Terrace and Rundle Mall, pedestrian trips are significantly affected due to delays in crossing streets and waiting at intersections. Strategies that could be employed to over come this are threefold. Firstly, traffic lights could be optimised to respond instantly to pedestrian crossing needs. Secondly, more streets could be pedestrianised to allow the creation of more dedicated pedestrian routes. And thirdly, a new level of pedestrian activity to be opened up either above or below ground that avoids potential conflict between traffic and pedestrian activity.

Conclusions

The analysis of walking as a modal choice in metropolitan Adelaide showed that for the journey to work, only Adelaide City has sufficient local concentration of employment activity for a significant proportion of people (15%) to choose walking whereas in the suburbs only 1-3% people walk to work. Dispersal of employment to the suburbs may be one way of improving walking as a local transport choice, but only if people choose to live where they work. Future national census surveys should be adapted to include questions about the extent of walking activity in people's daily lives, to encourage people to appreciate the value of walking.

The main focus of this paper has been to demonstrate the value of walking permeability indices as a planning tool for assessing how well an urban area caters to facilitating walking as a local transport option. This analysis was applied to the City of Adelaide generally and then to two case studies of residential developments, Garden East in the city and Mawson Lakes. Although both developments performed reasonably well, neither was sufficiently good to allow people to do without their cars. For Garden East, this was due to the logistics of food shopping and for Mawson Lakes, it was because the distances are on the verge of being too large. It does demonstrate that more needs to be done, probably through increased densities and dedicated pedestrian routes to ensure that walking is the more natural local travel choice of people. In the case of Adelaide's city centre, a starting point would be to optimise the phasing of traffic lights to be more responsive to pedestrian demands.

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