

Potential for Increasing Walking Trips

Bruce James, Gary John, Jeremy McKaskill

Abstract

Trends in travel behaviour in the Perth Metropolitan Region has shown that walking trips (from an origin to a destination) as a mode share have been declining. The number of trips people make has remained constant with the trips previously undertaken by foot being undertaken by car.

This paper presents the results of indepth research undertaken for the Western Australian Department of Transport to ascertain the reasons why car trips can not be undertaken by foot (within a defined distance criteria). The traditional response is to identify the barriers to walking and by removing the barriers, the number of walking tips will increase. This approach predisposes that people are internally motivated to walk rather than use the car.

The indepth research technique allows the reasons why people didn't walk for a particular trip they made to be classified as objective or subjective. From this understanding it is possible to ascertain the potential for walking trips.

The indepth research was undertaken in three different land use settings (inner, middle and outer suburbs) and the effects of these different settings on walking behaviour can be quantified.

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Bruce has a background in town planning and recreation prior to working in the transport sector. This interesting combination has been an important contributor to the unique approach adopted with TravelSmart.

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Gary John has worked in the Travel Demand Branch at Transport since shortly after the formation of the branch in 1996. He has been involved in the research, development and implementation of a range of TravelSmart programs and was appointed acting manager of the branch in February 2000. Prior to this he worked in the area of regional transport policy, principally in the area of regional transport strategies for the non-metropolitan regions of WA.

Before joining Transport he worked as a town planner in strategic and policy development at the Ministry for Planning in Perth, and prior to this in several metropolitan local government authorities.

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Introduction

The need to change the mode share for travel in the Perth Metropolitan Region is clearly enunciated as a set of targets in the region's Metropolitan Transport Strategy. The trends in travel behaviour in the inner, middle and outer suburban areas consistently show a decline in the mode share for walking.

The traditional mobility management approach to achieve mode change has been through the provision of transport services and infrastructure, including pricing, and in the longer term land use policies. Walking is often not considered mode of transport or only considered in the context of accessing other modes, such as train stations and car parks.

This paper outlines the potential to reverse this trend through the behavioural approach without the need for system improvements, pricing and land use policies. It draws on the in-depth research technique, developed by Werner Brög over many years applied in the Cities of South Perth and Subiaco and Town of Victoria Park, referred to as the study area. Application of the in-depth technique has also been applied to the City of Melville (middle suburban area) and a portion of the City of Joondalup (outer suburban area) however the results are not available for inclusion in this paper. It hoped they will be available for presentation at the conference.

The research presented in this paper is an integral part of the TravelSmart[®] behaviour change programs being undertaken by the Western Australian Department of Transport. For more up to date information on these programs visit the TravelSmart web site at <www.travelsmart.transport.wa.gov.au>.

Transport Policy Setting

The Metropolitan Transport Strategy (MTS) provides the overall policy setting for the need to achieve a better balance in the use of the motor car (Department of Transport *et al*, 1995). The relevant MTS targets for the travel behaviour approach are:

1. The car occupancy target is to increase car occupancy from 1.21 in 1991 to 1.25 by the year 2029 (the trend is 1.13 by 2029).
2. The trip length target for personal trips is to reduce the average trip length from 8.4 km in 1991 to 7.2 km in 2029 (the trend is to 10.7 km in 2029).
3. The mode share targets, shown in Figure 1, clearly illustrates the aim of redistributing car driver only trips across the alternative modes. This is the primary target for behaviour change programs.

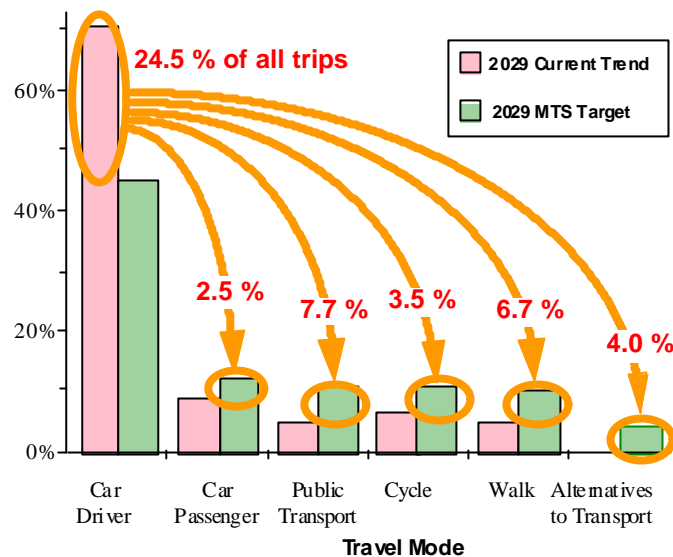


Figure 1: Metropolitan Transport Strategy Mode Share Targets

The primary target for the behavioural approach is the mode share target. The aim of the TravelSmart programme is to change car trips to walking, public transport, cycling and teleaccess. Therefore the focus is on changing car trips to walking, not cycling or public transport trips to walking.

Walking Behaviour

Analysis of the available travel survey data in 1986 and 2000 for the inner, middle and outer suburban areas surveyed consistently show a decline in the mode share for walking trips. Table 1 shows the change in mode shares for the three areas.

Table 1: Mode Share 1986 to 2000

Main mode	Inner Suburb		Middle Suburb		Outer Suburbs	
	1986	2000	1986	2000	1986	2000
Walk	17	15	14	10	16	12
Bicycle	3	3	2	2	1	2
Car as driver	54	57	58	60	55	55
Car as passenger	19	19	21	23	23	25
Public transport	7	6	5	5	5	6
	100	100	100	100	100	100

Table 1 clearly shows that the mode share for walking has trended in the opposite direction to the MTS Targets. A reason for this could be that people on average travel further now compared to 1986.

Table 2 shows the differences for each suburban area.

1. Cities of South Perth and Subiaco and Towns of Vincent and Victoria Park.
2. City of Melville
3. Five suburbs in the City of Joondalup.

The average distance travelled per person in the inner and middle suburban areas has remained constant. Travelling further as the reason for the reduced walking mode share does not seem relevant for the inner and middle suburbs. It does however appear to be

the case for the outer suburbs. Completion of the indepth research survey in the middle and inner suburbs will provide greater clarity on this issue.

Table 2: Average distance travelled per person

Suburban area	Average distance travelled per person	
	1986	2000
Inner ¹	26 km	25 km
Middle ²	27 km	29 km
Outer ³	33 km	37 km

In-depth Research Rationale

We all perceive the world around us in a subjective fashion. This leads to incomplete and distorted views of the world, but regardless of how wrong these subjective worlds may be, these views determine our behaviour.

A situational research technique was developed to analyse and understand individual behaviour patterns (Brög, 1982). Every individual is given a specific amount of personal freedom by his environment within which he can act; this is his objective situation. The personal freedom of the individual is affected by

- the transport infrastructure and services they can access;
- the constraints and options of the individual and his household which can be socio-demographically deduced (e.g. age, stage in life cycle); and
- their social values, norms and options which are pertinent to travel behaviour.

Each individual experiences these objective situations differently; thus creating individually different subjective situations. The subjective situations differ from objective situations due to perceptions being incomplete or distorted consciously or unconsciously. The extent of deviation depends upon the individual person and their specific experiences.

Individual decisions are made in these subjective situations. Thus individual decisions made in subjective situations are responsible for determining behaviour.

To understand travel behaviour, it is necessary to reconstitute the chain linking objective situation – personal perception – subjective situation – individual decision – behaviour. It is possible by using different methods to influence every link in this chain.

Therefore behavioural change measures should not just be based on ‘hard policies’ like system improvements, but also on ‘soft policies’ like communication, motivation and – last but not least - information.

Data Base and Study Area

The implementation of the in-depth research methodology requires an intensive dialogue with each household (up to one hour) with each member having previously completed a travel diary (Brög and Erl, 1980).

The sample used for this was 406 persons, evenly distributed through each of the local authority areas of South Perth, Subiaco, Victoria Park. The interviews were carried out in October and November 1998 with a response rate of 67.5%. As stated in the introduction the in-depth technique has also been applied to the City of Melville (middle suburban area) and a portion of the City of Joondalup (outer suburban area), however the results are not available for inclusion in this paper.

Current Motorised Private Mode Trips

Car as the mode of transport, both passenger and as driver, accounts for 76% of all trips in the study area – are used on average for just under 800 trips per year. Table 3 shows the breakdown of car trip numbers by trip purpose and distance.

Table 3: Trips with Motorised Private Modes (per year)

	Up to 1.0 km	1.1 to 3.0 km	3.1 to 5.0 km	5.1 to 10.0 km	Over 10 km	Total	Proportion
Work	8	34	35	54	67	198	25%
Education	4	10	12	5	8	40	5%
Shopping and services	35	72	97	43	19	206	26%
Leisure	21	47	42	68	84	230	29%
Other	12	27	26	31	24	119	16%
Total	80	100	151	190	182	793	100%
Proportion	10%	24%	19%	24%	23%	100%	

Of those eight hundred trips with motorised private modes 10% (80 trips) are less than one kilometre (average 0.8 km) in length and almost a quarter are between one and three kilometres (average of 2.3 km). The most frequent trip purpose with more than a quarter of all trips is leisure, followed by shopping (including “service” trips to the post office, doctor, etc.) and by work trips.

To determine the possibility for replacing car trips it is necessary to test each individual trip to see if there was an objective reason for using the car (eg. business use of the car, car trip within a longer transport chain, transport problems, etc.). The interactive approach of the indepth technique coupled with each individual’s travel diary provides an avenue clearly differentiate between people’s subjective and objective situations, unlike traditional market research that relies solely on determining people’s subjective situation.

Small Changes Large Effects

Prior to examining the potential for behaviour change, it is worth considering that a small increase in the share of walk trips from car trips can achieve impressive improvements. This is shown in Figure 2.

In 15% of all trips walking is the main mode, in 3% the bicycle and in 6% public transport. In absolute numbers the average person makes 159 walking trips per year, 32 cycling trips and 65 public transport trips. In contrast 76% or 803 of all trips are made by motorised private transport, 58% with the car as driver and 18% as passenger.

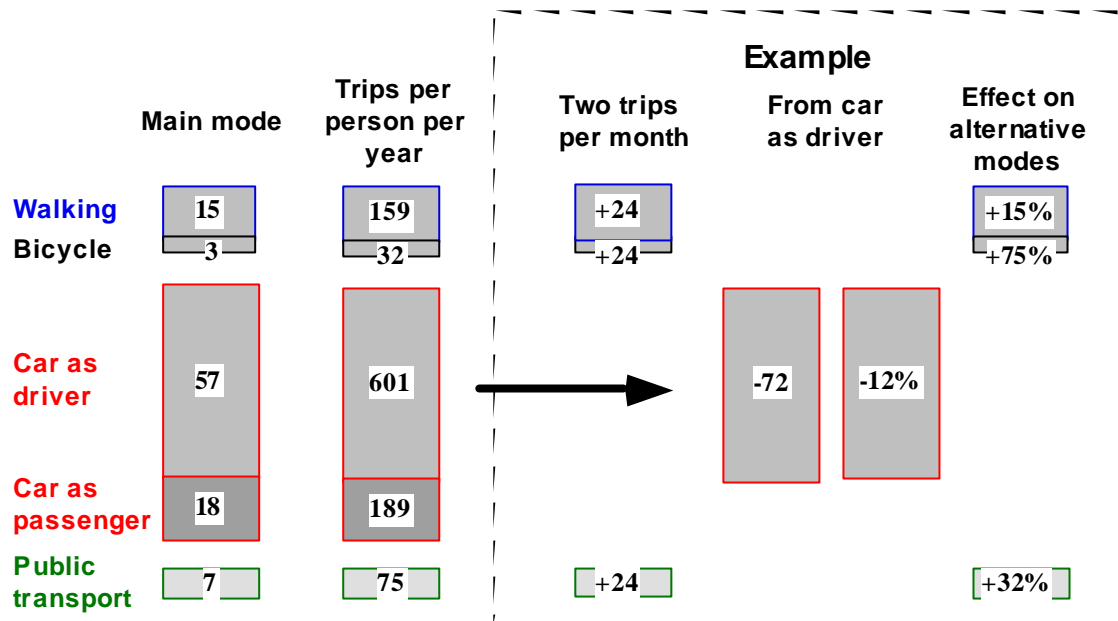


Figure 2: Changes are possible

To increase, for example, the share of walking by 15%, a change in the mode choice for 24 trips per person per year would be necessary. That means two trips per month - there and back. This behaviour change is moderate and does not require major changes to lifestyle or levels of mobility.

Criteria used to Define Walking Potential

Every time someone makes a trip a mode can be chosen and most people choose and use all kinds of different modes. This is an opportunity for behaviour change measures – because everybody has a trip each day where walking is a feasible alternative. These trips are the potentials for behaviour change (Brög and Erl, 1996).

On the other hand there are also always trips without an alternative mode. First of all there can be constraints against walking like the use of cars for business reasons or transport of heavy luggage. Secondly, the trip distance is too great for walking. Finally there are trips that can be defined as free of choice, where people could walk but chose not to.

The following criteria were conservatively applied to determine if walking was suitable:

1. People do not have a constraint, such as needing to carry a large parcel, feeling unsafe travelling at night, work business, etc.
2. A car trip that is less than two kilometres that can be made by walking.

Reasons Why Walking was Not Chosen

As a part of the indepth research, reasons why people didn't walk were gathered for each car trip they made. In 78% of cases the reason cited is that the trip people made was too far to walk (ie criteria number 2). For the remaining 22% of trips a variety of objective reasons (a constraint) and subjective reasons (do not have a constraint).

Table 4 outlines the reasons and the number of times these reasons were given. The only major constraint reason relates to the need to carry luggage (7.4%). The issue of system improvements, such as more footpaths in the study area, is not seen as a major reason why people wouldn't walk.

Table 4: Reasons why people didn't walk

Distance too far (>2 km)	782
No reason	74
Luggage not easy to carry	70
Journey considered too long to walk (<2km)	68
Usually too uncomfortable	43
Usually too slow	34
Was taken as a passenger instead	30
Don't want to walk	25

Potential for Change

The in-depth research identified that up to 20% of motorised private mode trips are in 'principle' changeable to walking (no constraints, alternative available).

When the "no constraint" reasons are grouped it is evident for the car trips where walking is possible that in 35% of cases people freely choose either mode and in 50% of cases make a negative judgement about walking. This is shown in Figure 3.

Out of all possible walk trips 15% are undertaken with the car because of time reasons. "Community climate" is a stronger factor affecting the decision to decide to walk (20%) than infrastructure (9%). Comfort was mentioned for 21% of the relevant trips. This evidence shows that 'hard policies' are a lesser barrier to walking compared to people's subjective views about walking.

Thirty five percent of the possible walk trips are therefore free of choice. The free of choice potential for walking is clearly stronger than that for cycling and public transport.

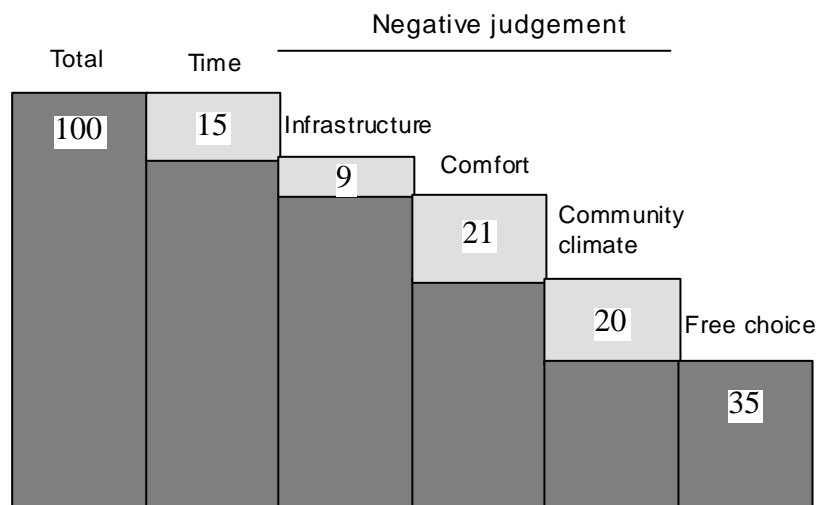


Figure 3. Potential for Trips by Foot (Car trips with no constraints, walking possible)

Potential Mode Share for Walking

Based on the indepth analysis it is evident that the maximum potential for walking as a mode share could be 25% of all trips, an increase in mode share of 10%. The MTS Targets for walking is an increase of 2.5%. The indepth research clearly shows that theoretically that this increase of 2.5% is achievable in the study area through effective “soft” measures alone.

Conclusion

A review of travel behaviour in the areas survey in the Perth metropolitan region shows that the mode share for walking has declined from 1986 to 2000. The intensive in-depth research undertaken for the three local communities shows that the issue for behaviour change is not one of potential but rather one of devising effective measures. Effective “soft” measures excluding transport system improvements could achieve the MTS Target for walking

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