The traffic implications of pedestrain malls in city centres

by B.C. Floor
Transport Research Centre
University of Stellenbosch

EXTRACT FROM A PAPER READ AT A SYMPOSIUM ON SHOPPING PRECINCTS AND PEDESTRAIN MALLS ARRANGED BY THE SOUTH AFRICAN INSTITUTE OF TOWN AND REGIONAL PLANNERS

INTRODUCTION

Among current urban planning precepts is one based on the notion that city centres are over-motorized and that the reduction or elimination of vehicle movements will not only establish a more pleasant environment, but induce bustling thoroughfares thronged with people on foot, eager to spend and enjoy themselves. This idea is enhanced by the concept of malls specifically designed to make walking both enjoyable and stimulating, to facilitate comparative shopping and to provide opportunities for relaxation in open, but congenial surroundings.

Within the confines of the city centre, walking is indeed the most efficient form of personal transport and the positive aspects of the so-called pedestrianisation of central business districts can hardly be overemphasized. But, of course, schemes to create malls and pedestrain precincts cannot be considered in isolation from their impact on existing traffic patterns.

In the design of new towns, pedestrain routes may well be included as indispensable links in the overall plan for movement. But in established cities, schemes for pedestrain thoroughfares invariably have to be imposed on existing traffic arrangements - arrangements which, however inefficient, have evolved over a long period and in which many people may have vested interests. Furthermore, the impact of these schemes may extend beyond their immediate vicinity or even the central business district. In fact, any measures intended to induce or make people change their mode of transport in one part of a city may have consequences in another part. Thus the success of schemes to promote pedestrianism in city centres may also depend on transport facilities in the suburbs.

For example, commuters who are obliged to provide their own transport to the city centre, because convenient public transport is lacking, are less amenable to pedestrianization than commuters who arrive in the city centre by bus or train. The underlying principle is simply that transportation facilities in the metropolitan area, including pedestrain thoroughfares, comprise a network and that links in this network cannot be considered in isolation.

The network implication of schemes for pedestrianization in existing city centres can be lessened by efficient arrangements for the parking of vehicles and the change in transport mode from riding to walking, and vice versa. The extent to which such arrangements are feasible, however, depends not only on the scope of the schemes, but the trend in the previous development of the city, as well as the travel characteristics of the inhabitants.

For example, in cities in which the emphasis has been on motorization, both the structure of the road systems around and through the central area and the dependence of business activity in that area on private transport, may virtually rule out pedestrianization on a worthwhile scale, except at prohibitive cost. In such cities, the beautifying of existing pedestrian precincts and thoroughfares, if any, may be all that can be achieved without serious disruption of vehicular traffic. Even small schemes may be doomed if the effect on existing traffic is ignored. To quote Victor Gruen: "Introducing one pedestrien mall into a city core area without taking the necessary steps to improve circulation and to provide automobile storage space, only serves to multiply the troubles instead of eliminating them. If a point of attraction is created for the sake of the crowds who for a few days will flock there, and improved accessibility to this new attraction area is not offered simultaneously, those who have been attracted by the mere novelty will be thoroughly disenchanted and will probably never return. Thus, in the wake of an abandoned mall experiment, comes an avoidance of the downtown area as a whole, usually greater than before the experiment started."[1]

In contrast to cities in which motorization is generally entrenched, many European cities have historic areas into which vehicular traffic has not penetrated to any great extent, or which have never really been adapted for through traffic. In such areas, streets have been eliminated from the traffic circulatory system without much ado; and where those streets have also fullfilled a specific demand for the passage of pedestrians, successful malls have been created. Examples of these more or less natural pedestrian mells in European cities have been the envy of cities without similar opportunities, and have no doubt given rise to many of the attempts to promote pedestrianization artificially. Pedestrain schemes in cities in the

U.S.A. and South Africa probably fall largely within this latter category.

VEHICLE-FREE CITY CENTRES

Among the extreme proposals for the artificial creation of pedestrian zones are those involving the virtual elimination of vehicular traffic from the central business district. Such schemes, which depend on the ample provision of peripheral parking for cars, can succeed only if accessibility both to and within the area, can be maintained. Otherwise the central business district stands to lose its commercial predominance to competing business nodes.

Because the conversion of city centres to pedestrian precincts is topical at present, it may be as well to look briefly at the requirements for internal and external accessibility:

Internal accessibility

Internal accessibility will decrease if the vehicle-free zone exceeds about 800 metres in diameter, unless some other horizontal means of mechanised circulation is installed. It seems to be a contradiction of ideas, however, to conceive a pedestrian precinct in which mobility cannot be ensured by walking. So that if mechanical means of transport are needed to supplement level walking, one can just as well plan for a partially motorized city centre. This point seems to need emphasizing because of the misconceptions sometimes encountered that many of the novel forms of transport researched in recent years could completely substitute existing forms of mechanised transport in city centres. Conventional road vehicles could in any event not be excluded entirely form pedestrian precincts for provision has to be made for ambulance and fire services as well as the delivery of goods.

Of course, if there are limits on the size of a pedestrian precinct, then development can be extended upwards so that mechanised transport by means of elevators and escalators is confined to the vertical and inclined planes while pedestrianism remains the main mode of transport in the horizontal plane. This type of development seems to have cost and environmental advantages over that involving the expansion of the vehicle-free zone to the extent that partial motorization or other supplemental mechanised transport is needed.

External accessibility

The external accessibility of a vehicle-free city centre is unlikely to be improved by the elimination of the vehicles, unless the periphery is well provided with parking garages and the road system enables circulation freely between these garages. Strategically placed signs alongside roadways indicating the current availability of parking would also be needed if fruitless movement between garages and congestion of traffic on the perimeter of the vehicle-free zone is to be avoided.

If, however, the central business district is too large to enable all private vehicles to be barred then the concept of a vehicle-free core served from the periphery by a ring road on which parking garages are located, cannot be applied. This problem has given rise to many of the elaborate schemes for vehicle/pedestrian separation (underground malls, skyways) and so-called people-movers.

Whatever traffic arrangements are made, however, some motorists are likely to experience greater inconvenience and be deterred from making the trip to the central business district, if they have a choice. The closure of the central business district to vehicular traffic is thus likely to enhance the comparative attraction of competing commercial centres, unless public transport can provide a sufficiently convenient alternative for people discouraged by the limitation on private transport. This may not be easy to achieve. At the one end, the potential convenience of public transport may be assured by providing for the penetration of public vehicles into the pedestrian zone, but the effect will be lost if convenience at the other end cannot also be achieved. Unfortunately this is difficult and expensive in low-density residential areas, which are the areas in which the people most effected by the restriction on private transport are likely to live.

Public transport

Commuting trips by public transport are the least likely to be affected by the pedestrianization of the central business district, provided, of course, that public transport services are undisturbed or better still integrated into the scheme. Public transport and pedestrianism are complimentray and it is this fact that can best be exploited in the creation of pedestrian malls. As previously mentioned, it is contradictory to provide public transport as a supplement to walking within a pedestrian zone - this merely defeats the object of pedestrianization. In the complimentary sense, however, public transport is able to deposit masses of people into the pedestrian zone from areas outside, and it is this feature which probably underlies the success of schemes for pedestrianization more than any other. Experience has taught, however, that successful pedestrian malls cannot be created merely by excluding private vehicles from streets and allowing buses in - the complete separation of pedestrians and vehicles is necessary, as well as a mass influx of people.

Two examples should serve to illustrate these points:

Munich

(i) External accessibility to the very successful pedestrian mall in Munich (Neuhauser-Kaufingerstrasse) is provided mainly by stations on the S-bahn which passes underneath its full length and the U-bahn which bisects it under the S-bahn. In fact, because of its length (1 400 metres), the mall may be regarded as two connecting malls fed from the centre by the main interchange on the S-bahn and U-bahn and from either end by stations on the S-bahn. The mall is undoubtedly the most accessible area in Munich and its attraction is enhanced by the general exclusion of vehicles.

Oxford Street, London

(ii) The second example of a pedestrian mall is provided by Oxford Street in London on a Saturday afternoon. The street is served by stations on four (soon five) lines of the London Underground and is probably one of the most accessible places on earth. Because of its length, it may also be regarded as two malls fed from the centre at Oxford Circus by the Central, Victoria and Bakerloo lines, at various points throughout its length by the Central line, and from the eastern end at Tottenham Court Road by the Northern line. Its attraction is, however, not enhanced by allowing buses and taxi's into the street, for although these may add to the external accessibility of the area, they considerably impede comparative shopping on both sides of the street. The admittance of surface public transport to Oxford Street is thus not a contributory factor to its success as a pedestrian mall.

These two examples also illustrate the elaborate transport infra-structure needed to supplement large pedestrian malls. Where the complementary attributes of a high degree of external accessibility and a large influx of people are missing, attempts to create pedestrian malls have been unsuccessful.

TYPES OF PEDESTRIAN SCHEMES

From a traffic point of view, there are three types of pedestrian schemes:

(i) Pedestrian malls which have been recreated as natural pedestrian links in the historic areas of city centres, without serious disruption of traffic. The best example is "Strøget" in Copenhagen, which passes through the centre of the medieval town.

(ii) Pedestrian malls which have been established near the focal points of public transport services discharging large numbers of people into the area, and which, despite some disruption to traffic flows, have not impeded external accessibility because of the high quality of the public transport and the location of the routes underground. A good example is the Neuhauser-Kaufingerstrasse in Munich.

(iii) Pedestrian malls and precincts in motorized city centres which cannot be established without radical changes in the traffic flow and heavy expenditure on alternative road and

parking facilities. Perhaps the most far-reaching scheme of this nature is that planned by Victor Gruen of Vienna in which the whole central area of about 1,2 km in diameter will be closed to conventional vehicles. Unfortunately the scheme seems to defeat its object, because the size of the area requires the introduction of supplementary mechanised surface transport (mini-taxis, electric vehicles), in addition to the underground services, to maintain accessibility.

Driessen Report

The prospects for an increase in the proportion of public transport usage to the central areas of South African cities should be considered in relation to the recommendations of the Driessen Committee. In Brief the Committee has recommended inter alia that the use of public vehicles in cities be curbed and that the expansion of bus and other public transport services be ensured. Among the measures to achieve this, are the raising of charges for private vehicles permitted to enter traffic intensive zones and the additional subsidization of public transport, as well as the reservation of bus lanes and priority for bus movements in cities. The aim of the measures is to increase the attraction of public transport and discourage private transport.

One of the main difficulties in inducing a switch from private to public transport in South African cities arises from the fact that in low-density residential areas the cost of ensuring public transport services of competitive quality to private transport, would probably exceed the cost of private transport. The Committee did not deal with this issue, but did recommend the promotion of higher density housing, which over the long term would facilitate the provision of convenient public transport. In the meantime, however, the prevailing pattern of land-use is likely to preclude any substantial reduction of private transport in favour of public transport.

The Committe also recommend that development in the centres of cities be restricted as far as possible to projects in respect of which the transport implications could be taken fully into account and that the principle of limiting transport to a minimum be observed. The Committee was particularly against the establishment of projects which would necessitate excessive expenditure at a later date to keep the city centre "alive". This recommendation no doubt also applies to shopping malls, which means that if their attraction is likely to induce additional private transport to the CBD, then the effect on the utilisation of the approach roads will need very careful consideration.

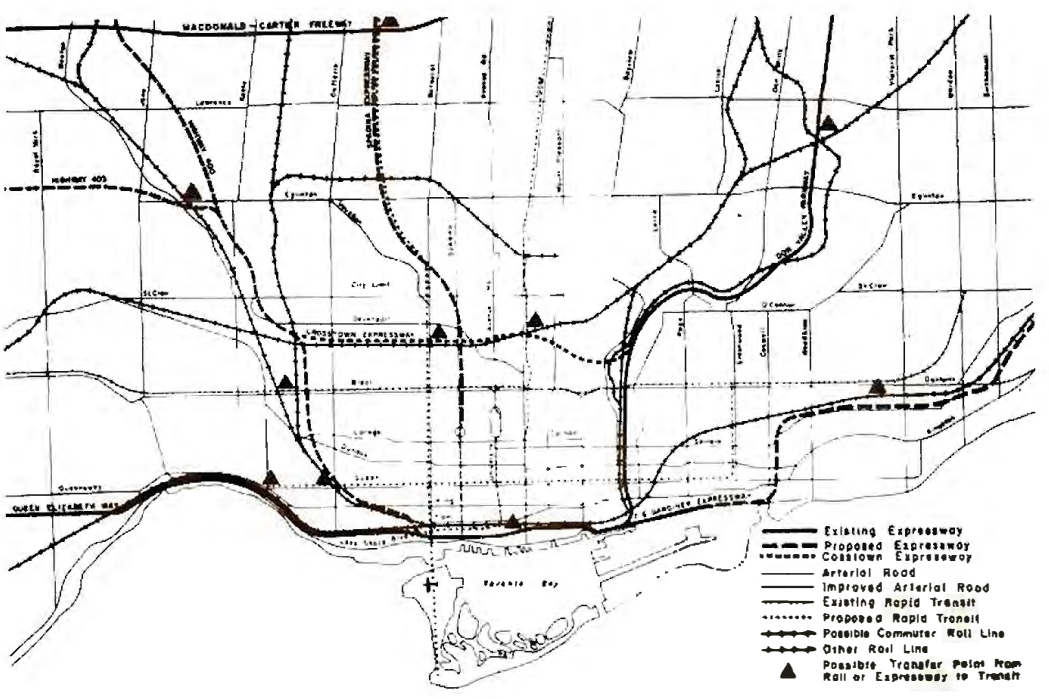
In another recommendation, the Committee required the long commuting distances by non-whites to be reduced in the planning of their employment and residential areas, to which the Government in its White Paper suggested that the long distances may have a desirable effect in confining expenditure by non-whites to their own areas. The issue at stake is really whether one strong central business district for the entire metropolitan area should be promoted, or whether decentralised business districts should be fostered. For it would be at cross-purposes to establish centralised pedestrian shopping malls dependent largely on public transport for their success, if the decentralisation of shopping is also to be promoted through public transport. This is a matter of policy on which the National Transport Commission will be required to rule in terms of its new responsibility for urban transportation development.

Although the recommendations of the Driessen Committee support the expansion of public transport, it cannot be directly assumed therefore that this expansion will enable the promotion of pedestrian malls.

On the other hand, town planners and planning authorities are specifically enjoined by the Committee to "investigate ways and means of making city centres more attractive to pedestrians in order to (a) keep such areas "alive" notwithstanding the effects of measures to discourage the use of cars in such areas and (b) promote the use of public transport during off-peak periods" (para. 5.3.14). In other words, the Committee considers schemes for pedestrianism necessary to enable the elimination of vehicles and to generate traffic for public transport, and not the other way round.

CONCLUSION

Motorization has generally reached a high level in the centres of South African cities, as the data produced by the Driessen Committee clearly shows. This should not be disparaged in the endeavour to justify schemes for pedestrianization, for although the denigration of the motor-car may be fashionable, its ubiquity is the outcome of years of deliberate planning and much expenditure. This planning and expenditure was in response to a need which must still exist, because no satisfactory substitute for the car has so far been found. So-called pedestrianization should therefore not be at the expense of vehicular traffic merely for the sake of pedestrianism, but should fulfill a functional purpose in the overall scheme for movement.



Toronto: An example of integrated traffic planning.

(With acknowledgement to the City of Toronto Planning Board).