URBAN ACTIVITIES, MOVEMENT AND PARKING: A TIME FOR HARD DECISIONS

Cameron, J.W.M. and Krynauw, M.N.

TRC Africa (Pty) Ltd., PO Box 95230, Waterkloof 0145, Pretoria.
Tshwane Metropolitan Municipality, PO Box 6338, Pretoria 0001.

ABSTRACT

The relationship between urban activities and movement has owed its changing character to policies relating to the supply and pricing of road space and parking. In metropolitan cities, in an era when rival municipal administrations vied to attract retail, commercial and industrial activities to strengthen their income base, parking tended to be supplied free of charge or at relatively low cost. This helped to accelerate the decentralisation of cities and the dispersal of activities. While decentralisation may have reduced the tidal flow of road traffic in urban areas, it has generally created a demand for additional road space and has increased congestion and weakened public transport. It has resulted in significant problems associated with exhaust emissions, adversely affecting air quality over cities.

Since 2000, the creation of unicity administrations in the six metropolitan areas of South Africa has created an opportunity for more rational parking policies to evolve, which could impose more realistic car commuting charges and indirectly support public transport.

Apart from parking charges, other mechanisms may be considered to improve road management and use and to attract commuters towards public transport. Gautrain, between Johannesburg and Pretoria, for example, will rely on road tolls to act as a deterrent to private car use in the train corridor, thereby making public transport a more viable alternative. Tolls and levies need to be applied comprehensively and systematically to avoid unforeseen distortions of the urban activity and movement systems.

The paper examines international experience in applying parking and other pricing policies to influence the relationship between urban activities and travel movement. It also examines recent research in South Africa which evaluates the sensitivity of car travellers to increases in parking fares.

1. INTRODUCTION

Urban economic activities were traditionally centralised. This was because most towns and cities developed around an accessible “central place”. When urban transport was dominated by technologies which could only be provided by the state or city administrations, (suburban trains, trams or bus services), the centralising tendency of urban activities was reinforced. Most movement converged radially on city centres. As cities grew, new administrations were added on the periphery and transport technology evolved to facilitate a greater degree of personal choice and freedom. The centralising tendency of urban activities was challenged mainly by rising car ownership and use, but also by migration to suburban centres. Since the 1950’s, a decentralising tendency has challenged the primacy of the central business districts (CBD’s) throughout the world.

The relationship between urban activities and movement has owed its changing character to policies relating to the supply and pricing of road space and parking. In metropolitan cities, in an era when rival municipal administrations vied to attract retail, commercial and industrial activities to strengthen their income base, parking tended to be supplied free of charge or at relatively low cost. This helped to accelerate the decentralisation of cities and the dispersal of activities. The foregoing are so-called "pull factors" affecting CBD's. While decentralisation may have reduced the tidal flow of road traffic in urban areas, it has generally created a demand for additional road space and has weakened public transport. It has resulted in significant problems associated with exhaust emissions, adversely affecting air quality over cities.

Central business districts have also been negatively impacted by congestion caused by an oversupply of parking at the centre and an inability to supply sufficient road space to meet the demand for private car movement. This is one of the "push factors" shaping development in and around the CBD.

The evolving urban development patterns have posed serious problems for municipal decision-makers. Resolution of the problems requires both resources and strong political will. Some "hard choices" need to be made. Most people acknowledge that the provision of more road space is not a sustainable solution and is one which will have serious environmental consequences. This paper seeks to demonstrate that road users are largely "free-riders". The value they derive from the use of municipal road space and parking, needs to be captured and applied to making improvements in the more sustainable forms of public transport which can be supplied, to ensure the mobility of citizens. These hard choices have recently been made by the Mayor of London, Ken Livingston.

Whenever any individual does something courageous or outstanding, there are inevitably those who seek to denigrate him or diminish his achievements. Such is the case with "Red Ken" Livingstone. His opponents have been quick to "play the man rather than the ball", diverting attention from his commendable scheme to introduce congestion charging in London, by demeaning him for his political affiliations or his personality and other irrelevant characteristics. This is one of the reasons why it takes courage to make the right decisions in municipal government. Local politicians are much closer to the coalface and find it difficult to carry through unpopular decisions. Most prefer to lie low and hope the crisis will blow over

There is nothing new about congestion charging. It has been practiced in Singapore for decades, but it is new and refreshing to hear a political leader take on all opponents in a full frontal attack on the problem, while admitting that if the scheme does not work, his political career is likely to be extremely short-lived. In South Africa we are facing the same hard decisions. As I will demonstrate, we have been prevaricating since the mid-1970's.

2. BACKGROUND

I started working in urban transport in South Africa a year after the publication of the findings of the Committee of Enquiry into Urban Transport Facilities in the Republic - the Driessen Report (Department of Transport 1974). Nearly three decades later, I still have the irritating habit of reminding people what was said by that Committee in 1974.

On the issue of congestion and road pricing, I quote two of the Committees' recommendations as follows:

- (5.5.17)The major local authorities and the proposed Metropolitan Transport Advisory Councils should take cognizance of the congestion and resultant socio-economic costs caused by car transport in urban areas when urban transport plans are prepared

- (6.6.10)A levy and permit system for directly controlling the number of cars which are permitted to enter congested areas or "restricted zones" in major cities should be introduced to improve the balance between the number of vehicles and the available road space.....such a system should…..be implemented with due regard to the viability of the Central Business District.

On the subject of parking, the Driessen Report is also interesting in that it recommended:

- (6.4.4) The conditions in which parking facilities will be provided or permitted should be set out in urban transport plans submitted to the National Transport Commission.
- (6.4.6)The principle of charging for parking space and loading zones in central city areas should be applied and charges should cover all direct and non-direct economic costs, except in the case of park-and -ride facilities.
- (6.4.7)Legislation should, where necessary, be adopted to enable local authorities to frame regulations whereby the provision of parking space in all buildings and on all sites can be controlled, and to impose a special tax or levy on parking space.

These recommendations were taken up in the Urban Transport Act No. 78 of 1977, sections 21 and 22 (Republic of South Africa, 1977).

The relevant clauses, which are still available, for use by planning authorities are as follows:

- Any local authority…..may…..impose in accordance with any applicable approved transport plan, levies…..on:
  a) specified classes of motor vehicles entering specified portions of the metropolitan transport area in the area under its jurisdiction at specialised times;
  b) the parking of motor vehicles in any building or premises in specified portions of the metropolitan transport area in the area under its jurisdiction; and
  c) parking places for motor vehicles in such portions.

Further in Section 22:

- Any local authority…..may in accordance with any applicable approved transport plans:
  a) regulate the size, class or number of motor vehicles that may enter any specified portion of the metropolitan transport area in the area under its jurisdiction, and determine the time or times when any class of vehicle may enter any such portion;
  b) regulate or prohibit the entry of any class of motor vehicle in any such portion during any specified period;
  c) regulate or prohibit the provision of parking places for vehicles in any building or premises in any such portion in any specified period.

In the intervening twenty-five years, no municipality has published any transport plan which has made any attempt to effectively regulate congestion or parking, or use any levies for the betterment of urban transport in South Africa. It is, therefore, not that we do not have the means to address our problems, rather that we do not have the courage and political will to do so. The theme of this paper is that the day of reckoning is approaching. Municipal decision-makers will soon be required to make some unpopular decisions to protect the environment and public and private investment in our cities. On the one hand the measures will need to restrict freedom of movement, but on the other they will require investment in public transport to compensate for that loss of freedom.

3. MANAGING URBAN ACTIVITIES AND FINANCING INTRA URBAN MOVEMENT

Urban planners in South Africa are continually preoccupied with the problem of integrating land-use and transport planning. We are perpetually and continuously vexed by the so-called land-use transport conundrum.

There is essentially nothing really complex about land-use transport interaction. The only complexity is in our minds and in our reluctance to "grasp the nettle". The failure to integrate the planning process has most to do with institutional and human problems related to fragmented transport and land-use departments, empire building and narrow-minded protection of functional turf. Given the requisite vision, trust and goodwill, land-use and transport planners could come together to map out appropriate strategies for urban development. This would aim to promote city form and development, facilitating urban activities and the movement between them in a cost-efficient and effective manner.

Even given the articulation of an integrated plan and the desire to see the plan come to fruition, the usual stumbling block is a lack of commitment towards plan implementation and the ongoing management of urban activities and movement.

The usual excuses given for the failure to implement plans, whether they be integrated or not are as follows:

- inadequate funds for implementation;
- political interference, particularly in respect of land-use decisions; and
- the lack of political will in respect of the implementation of unpalatable policy decisions, which usually impact on the powerful and vocal, freight and motor industry lobbies.

Many of the foregoing excuses are unfounded. As has been demonstrated, the lack of funds for implementation can be linked to the unwillingness to introduce unpopular measures which can be used to raise funds, such as tolls and levies. As long as transport enjoys a low priority from the State (the Treasury) it will be necessary to source money through a user-charging mechanism. This fact has already been recognised by the National Department of Transport which established the enabling legislation and user charging in the form of the South African National Roads Agency Limited and the National Roads Act No 7 of 1998 (Republic of South Africa, 1998).

The tolling of national roads has begun to severely impact on travel in urban areas. First to have been affected has been the metropolitan area of Tshwane, but it is anticipated that tolls will soon follow on national roads in Cape Town and Durban. The way that the tolls are being implemented at present is inequitable. The toll application in urban areas needs to be challenged by politicians in the municipal level of government.

The reasons for this statement are that:

- to be equitable, the toll needs to be applied to the benefit of local residents, whereas the urban toll fees collected from Tshwane residents are being used to cross-subsidise national road development in the rural areas, such as on the N4 through Mpumalanga or on the N4 between Tshwane and Mafikeng.
- it is inequitable to charge for the use of roads in certain parts of any one city and not in others;
- applied in such a fashion, the long-term impact of tolls will be to distort development so as to escape the tolls. This may contribute to urban sprawl by adding a further cost burden to the municipal sphere of government.

The most important principle relating to urban tolls and tolling is that the toll strategy should be part of a total package of road management and financing relating to the area in question. The role of the toll road in its municipal context needs to be specified. In theory, only those people using the road for extra-territorial trips should be tolled (i.e. those either entering or leaving the city by means of the road). It should, therefore, not be possible for an urban motorist to use a national road for local travel. Argument will, however, hinge around personal choice, with SANRAL claiming that if motorists want to use national roads for local trip purposes, they should be prepared to pay. This is, however, a crass viewpoint if no local alternative exists.

From a city perspective, SANRAL should be rated for its occupation and commercial use of land in the municipality, like any other government department or business. Such rates can then be applied to the provision of the necessary municipal road alternatives.

The debate about the application of toll charges by national authorities within the municipal sphere of government has been inserted to demonstrate the principle of the user-charging mechanism and the need for such mechanisms to be applied consistently and equitably throughout a city. This introduces the principle of user-cost recovery and suggests the need to re-examine the application of instruments such as levies and parking fees which are available to city authorities. It is quite obvious that it will not be practical to continue to allow our cities and metropolitan areas to be characteristically sprawling low-density centres, dependant on movement by motor car and thus heavily dependant on future road building. This will not be sustainable. The paper turns to the examination of parking charges and licenses as suitable mechanisms to raise the necessary funds to develop public transport systems and as incentives for the development of more compact urban forms.

4. THE IMPACT OF PARKING POLICIES

Donald C. Shoup of the University of California, Los Angeles, has undertaken extensive research into the impact of parking policies. His research relates to cashing out employer-paid parking problems caused by minimum parking requirements, and the connection between parking supply standards and air pollution, congestion and low density sprawl (Shoup, 1991, 92, 93, 99a and 99b).

The following five steps quoted by Shoup in his diatribe against minimum parking requirements, describes the dysfunctional interaction between transportation engineers and urban planners (Shoup 1999a):

- Transportation engineers survey parking occupancy at sites that offer ample free parking and lack public transport. The Institute of Transportation Engineers (ITE) summarises the peak parking occupancies observed at each land use and reports the parking generation rate.
- Urban planners use the parking generation rates to set minimum parking requirements for all land uses. Because the required parking supply is so large, the market price for parking is zero, and most new developments offer free parking.
- Transportation engineers survey vehicle trips to and from sites that offer free parking. The ITE summarises the data on vehicle trips observed at each land use and reports the trip generation rate.
- Transportation planners design the roads and highways to satisfy the trip generation rates. Therefore, the transportation system provides enough capacity to satisfy the expected demand for vehicle trips to and from land uses that provide free parking. Urban planners limit land use density so that new development will not generate more vehicle trips that nearby roads and highways can carry.

The observed travel demand becomes the guide for designing the transport system to bring cars to the free parking. Planners limit development density to prevent traffic generation around the sites that offer free parking. Because of this circular reasoning, free parking is the tail that wags two dogs – transportation and land use (Shoup, 1999a).

Shoup goes on evaluate the costs of parking provision in the US and concludes that a minimum parking provision of four spaces per hundred square metres, which is common in office blocks in South Africa, increases the cost of office space by 27 per cent in the case of above-ground parking spaces and by 67 per cent in the case of underground parking. He notes that where the parking is “free” or motorists do not pay directly for consumption of the space, the developers increase the cost of all the goods and services sold at the site.

Accordingly, minimum parking standards externalise the cost of parking. Thus, the consumer cannot reduce what he pays for parking by consuming less of it. Accordingly, minimum parking requirements bypass the price system in the markets for both transportation and land (Shoup 1999a).

Minimum parking requirements in zoning ordinances are a disastrous substitute for millions of individual evaluations (decisions) of what the parking space is worth. Shoup proposes to price parking rather than require off-street parking. His argument is that minimum parking requirements force everyone to pay for parking through higher prices for all other goods and services, but everyone does not benefit equally from free parking. He cites the example, that on average households with incomes below US$10 000 per year own only one car while households with incomes above US$40 000 own 2.3 cars. In total 10.6 million American households do not own a car, but even these households indirectly pay the costs imposed by minimum parking requirements. Shoup's argument is that because cars are not distributed equally in the population, charging motorists only for the parking they use is far fairer than requiring everyone to pay for parking whether they use it or not.

According to Thomas Kuhn (1996) a paradigm is a conceptual scheme that has gained universal acceptance through a profession and each profession's practises embody its ruling paradigm. He argued that scientific education inculcates in students an intense commitment to existing scientific paradigms. Shoup argues, however, that the planning profession's commitment to parking requirements is based not on education and science, but on motorists' yearning to park for little or nothing (Shoup, 1999b).

Shoup argues that pricing curb parking rather than requiring off-street parking will improve urban design, reduce traffic congestion, restrain urban sprawl, conserve natural resources and produce neighbourhood public revenue,. Eliminating minimum parking requirements will also reduce the cost of housing and as many other goods and services. He concludes that de-regulating the quantity and increasing the quality of parking will improve transportation land use and the environment (Shoup 1999a).

5. CONGESTION CHARGING

Because off-street parking is usually owned by the private sector, mechanisms are found for recouping the costs of the parking through indirect pricing strategies as indicated in the preceding section. The same mechanism does not, however, apply to most urban road space which is owned by one or other government entity. The sole exception is on toll roads, where currently users are charged largely for the space they occupy rather than for the wear and tear they impose on the facilities.

A similar logic can and should be applied to charging for the consumption and/or use of road space. This principle has been successfully applied in Singapore for many decades. After the introduction of the Singapore area licensing scheme (ALS) in 1983, the total number of vehicles entering the restricted zone in the morning dropped from 8 200 to 6 100 in the peak period at 8.30 a.m. Similarly at 8.30 a.m. the total number of cars passing the cordon into the restricted zone dropped from 5 100 to 2 200. There were fairly significant changes in modal share accompanying the introduction of the ALS. Before the ALS, buses accounted for 33 per cent of trips into the zone and this rose by 30 per cent to 43 per cent. Likewise, before the ALS 48 per cent of trips were made by car compared with only 27 per cent afterwards. One of the main changes was that the car pool share rose from 8 to 19 per cent.

The most interesting scheme is the congestion charging recently introduced on the 17 February 2003 in central London. A map of the affected area is listed below.

Congestion charging is defined as a way of ensuring that those using valuable and congested road space make a financial contribution. The charging encourages the use of other modes of transport and is also intended to ensure that for those who have to use the roads, journey times are quicker and more reliable.

The London scheme requires drivers to pay £5 per day if they wish to continue driving in central London during the scheme's hours of operation which are from 0700 to 1830, Monday to Fridays. Before the introduction of the scheme, it was estimated that London loses between £2 and £4 million every week in terms of lost time caused by congestion.

As part of the congestion charging strategy, a wide range of other measures were introduced which were designed to make public transport easier and cheaper, faster and more reliable. Transport for London set aside £100 million for traffic management schemes complementary to congestion charging. The charge is £5 per day if the fee is paid by 10 p.m. on the day of travel. Thereafter an additional £5 surcharge applies. This is to encourage early payment.

An important aspect of the congestion charging strategy is that the Mayor of London took a significant political risk in introducing the scheme. He described the scheme in his election manifesto along with other key proposals for properly integrated transport systems in London. The Mayor spent over 20 months following his election, consulting on and amending the details of the scheme in order to meet the demands from businesses, residents and a large number of other interest groups. The decision to go ahead was announced in February 2002. As indicated previously, the scheme was introduced on 17 February 2003.

The following is an extract from a press release from Transport for London issued a week later on 24 February 2003:

- As of 10 a.m. today, around 44 000 have paid the charge for today;
- On Friday 94 000 drivers in total paid a charge for Friday;
- All payment channels are operating smoothly:
  - SMS/text payment is working well;
  - Retail – more than 1 500 retail outlets within M25 are successfully taking charge payments;
  - Web – no problems reported;
  - Call centre – running smoothly at the moment although expected to become busier (TFL, 2003).

A more recent item issued by Transport for London indicates that London's congestion charging scheme, the world's largest travel demand management initiative, has been operating since 17 February without any major problems. Even public opposition to the scheme seems to be dropping, with 30 per cent of London business people indicating they believe it is having a positive effect, while only 5 per cent thought it is having a negative effect (TFL, 2003).

While an accurate picture of the impact of the scheme will not be known until it has been operating for at least a year, early indications are that it may be almost too successful. Traffic volumes in the 8 square mile zone have fallen by 20 per cent, a drop which has provoked speculation that the scheme will fall £6 million short of its revenue target (£121 million) for the first year. However, Transport for London believes traffic volumes will creep back up towards the expected level (a reduction of only 15 per cent) and that fines will cover any revenue gap.

Early research shows that speedier and more reliable buses are being enjoyed by record passenger numbers since the congestion charging started. Patronage is around 10 per cent higher than at the same time last year, average bus speeds in the morning peak have increased by 15 per cent and the number of services not operated due to congestion have fallen from 2.7 per cent to just 1.2 per cent.

Retail sales in the zone from the same period last period last year have fallen but other factors are likely to have contributed to this including a major failure of the Underground central line.

6. CONCLUSION

The potential for charging motorists cost-related parking and congestion tariffs is greatest in the 6 metropolitan areas in South Africa. This is because they are governed by single administrations, so it should be possible to manage the pricing mechanism in a way which it is complementary to the development objectives of the municipality. In a situation where there is concern about possible further decentralisation from central areas, which are very adequately served by public transport, an area licensing scheme or congestion zone may not be recommended. There are, however, other mechanisms which can be used to ensure that motorists pay for either, or both, parking or road space consumption. A mechanism which may be considered is a shadow toll in the form of a local fuel levy or an increase in the vehicle licence fees impacting on all car owning residents, with the revenue going to the transport authority.

It is important to note, however, that as in the case of London, any measures to introduce road pricing should be accompanied by a wide range of measures designed to make public transport, easier, cheaper, faster and more reliable. Transport for London is bringing in extra buses to the capital's streets, introducing more routes and improving the frequency and reliability of services. It is important to note that the London Mayor's transport strategy has 10 key priorities apart from the obvious first priority of reducing traffic congestion.

Some of these include:

- overcoming the backlog of investment on the Underground;
- making radical improvements to bus services across London;
- better integration of the national rail system with London's other transport systems;
- increasing the overall capacity of London's transport system;
- improving journey time reliability for car users;
- supporting local transport initiatives;
- making the distribution of goods and services in London more reliable, sustainable and efficient;
- improving the accessibility of London's transport system.

In the light of the London experience, it is important to note that any revenue derived from charging users for road space should be applied directly to the transport system rather than going into general revenue. In respect of fuel charges, it is ironical that in Britain, motorists could face a fee of up to 45 pence for every mile they drive under a proposed national road pricing scheme. This is because steadily increasing fuel economy is posing a significant problem for revenue raising. Because less fuel is consumed per kilometre, increases in tax revenue are falling well behind increases in transport activity.

Whatever mechanism/s are employed to arrive at more direct user charging, it is essential that they impact fairly on all system users.

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