

Walk 21, Toronto, October 2007

## ***Streets with people, or roads with cars?***

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### **Abstract**

This paper is about the impact of urban planning on walking. Walking depends on a built form that provides short distances between different activities. Places built before about 1920 were instinctively laid out to enable most trips to be made on foot: there were few other options. But now, catering for car-based lifestyles means that roads and parking make walking unpleasant, while trends towards fewer but larger facilities mean bigger catchments, longer trips, and so less possibility to walk.

The paper brings together two linked arguments. First, designing streets and spaces for walking is not in itself sufficient to ensure that people will actually walk. To achieve streets with people in them on foot is necessary to take a wider urban planning approach in which attention is paid to the context of the street. Second, it is argued that resources devoted to the development of car-based areas means that we miss the opportunity to develop new walkable areas.

As people wake up to the undesirability of car-based developments, from social, economic and environmental viewpoints, there is a need to shift the focus of development to give primacy to travel on foot. With more people walking, we can regain urban spaces that are lively, convivial and safe: streets with people rather than roads with cars.

Recent regeneration projects in both Europe and North America have shown how town and city centres can be made more pleasant for strolling, and these provide positive experiences for people, and help to generate demands for more walkable cities. But most people spend most of their time outside of these special zones, in areas characterised by large-format shops, offices, and leisure centres, with acres of parking, where walking is difficult or impossible. These car-based areas take people away from more diverse and

compact areas where walking can be prevalent, and they lead to people spending time in vehicles when otherwise they could be walking.

The paper argues a change in the style of developments is needed to enable higher levels of activity on foot. It sets out five requirements for this to be achieved, including people-oriented street design, as advocated in "Manual for Streets", the latest guidance from the British Government.

The key test of whether new developments are successful is not whether streets and spaces look good, but whether they are used by people on foot. The paper offers a measurement tool that helps to provide data on street vitality.

The paper concludes that providing high levels of car access is incompatible with walkable neighbourhoods. A choice has to be made when planning new developments, between a form that supports walking, and one that supports motorised travel. We cannot have both because the two forms are incompatible. The author's view is that there is an urgent need to shift to urban forms that nurture walking, and which therefore provide us with convivial streets and spaces.

*"Nobody walks in Dallas: it's too far to where you're going from where you been." Larry Hagman*

### ***Streets with people***

This paper is about the impact of urban planning on walking. Much attention has been focused on the design of streets to make them pedestrian-friendly. But there is little point in making streets pedestrian-friendly if there are no pedestrians. The aim should be streets with people, not just streets designed for people. If people are going to walk, then the layout, density and distribution of activities is just as important as the design of the streets themselves. Creating areas with short distances for people, so that they can walk to where they want to go, should be the first consideration of urban planning. For transport planning, the first objective should be journeys by foot, because these are the least costly and most beneficial. Success can be claimed only when the proportion of trips by foot is increasing. It is strange, therefore, that so little attention is paid to these objectives. The reason, of course, is the pre-occupation with trying to make things work for the car.

We need to look beyond the appearance of the street, and to give prime consideration to the way urban areas are laid out and used. The sense of this becomes apparent when one considers that, on the one hand, there are many beautiful streets with few people walking in them while, on the other hand, there are many poorly designed streets teeming with people.

### ***Context, context, context***

This paper emphasises the three most important considerations that must guide the making of successful walking communities, namely Context, Context and Context! This means:

- The context of the region, city, town and related cultures which have a bearing on travel-styles (incomes, car ownership, regional spatial economic structure etc.);
- The context of the local layout, its spatial characteristics (density, network etc) and its ability to support the things people need within walking distance; and
- The context of competing localities and especially those geared to automobile (car) use, which tempt people away from and thereby undermine walkable neighbourhoods.

Walking depends on a built form that provides short distances between different activities. Places built before about 1920 were instinctively laid out to enable most trips to be made on foot: there were few other options. Even neighbourhoods built around transit stops were walk-oriented. But now,

catering for the automobile (car) means that roads and parking push activities further apart, and also make walking unpleasant. Also, the car means that people can go further to reach the things they need, and there has been a massive push by the providers of shops, leisure, employment and other facilities to provide large units far away from older compact neighbourhoods, and far away from transit nodes. These facilities typically are aimed at car users, have plentiful car parking free of charge, and are located near large highways. These facilities also have attributes that are opposite to those of facilities in (pre-1920) town and city centres that were structured in the pre-motor age. The trend towards fewer, bigger, more scattered facilities has meant larger catchment areas, therefore longer trips, and therefore by definition less possibility to walk. Because few people can walk to such facilities, there usually is little provision for them to walk. The front entrance of stores, for example, face the car park, not the street. The nearest dwellings may be some distance away, and separated by large roads.

Can we plan urban development to provide both for the convenience of the car and for the pleasure of walking? Much play is made (in the UK as in North America) of the desirability of "choice". Property developers promote car-oriented design because "people want the convenience of the car; we are simply meeting that choice". The problem is that it is a false choice, because the car-oriented model is diametrically opposed to, and incompatible with the non-car, walkable model of urban development. The car needs large roads, walking needs small streets; the car needs lots of space for parking, walking needs facilities to be close together.

### ***One city, two travelstyles***

It is possible to experience first hand the different attitudes that arise from having a car and not having a car. Take a couple of days off. On the first day plan an itinerary of shopping, leisure and sightseeing starting at the city centre. You may well be thinking "how near is that gallery, which transit stop do I need to reach that department store; and can I walk to that café in the park for lunch?" You will plan according to proximity and the availability of transit. The second day, take the car and start off at the edge of the city and then plan a day's itinerary. The likelihood is your questions will be different: "Where can I reach by car where it is easy and free to park, and which routes will avoid getting stuck in traffic?" The differences in experience are a product of different development patterns, and as we build and redevelop our urban areas, we have to choose which style should gain the upper hand.

### ***Choosing the walkable way of urban development***

Collectively we are slowly waking up to the undesirability of the profligate car-dependent urban travelstyles. Increasing emissions and loss of inclusive communities are just two consequences that are worrying people.

Dependence on the car and the consequences in later life are also a growing concern for an aging population. There remain, however, powerful forces at work in favour of car-centric urban development such as people being locked into existing car-based communities, and influenced by heavily-promoted car consumerism. Anyone who has tried to build car-free or car-reduced development will know that it is an uphill battle against powerful vested interests and political inertia.

Of course there are many examples of town and city centres that have been made pleasant for strolling, and some recent regeneration efforts have been truly stunning. These success stories provide valuable exemplars. But most people spend most of their time not in these limited central zones, but in the 90% or more of urban areas that make up the suburbs and satellite places. In these areas we are more likely to find large-format shops, offices, and leisure centres, with acres of parking and roads that separate people from their activities, and take people away from more diverse and compact areas where walking is possible. The space consumed per person for living, traveling and parking continues to increase, and this inexorably erodes the potential for travel on foot.

### ***Surely we can have both?***

The promoters of car-based developments often argue that their schemes will not undermine traditional walkable centres, but this is plain wrong. If people, money and resources are going into new car-based developments, then they are not going into walkable areas. If existing walkable communities cannot absorb growth (of population or employment or spending), then new walkable communities can be built. It is simple logic: people cannot be in two places at once, and nor can they spend their money twice. So if they are in a car-dependent place, they cannot offer their presence in a walkable place. If we want new walkable centres, then we have to stop building car-based facilities. There is a saying that reflects this: *"in order to have new ideas, it is necessary to stop having old ones"*.

So the choice is illusory. We either set the trend towards building communities that are walkable, sustainable, inclusive and attractive, or we carry on with car-centric development and let our children suffer its negative impacts. Over time, pressures on oil and other resources will mean that car-based developments will become outmoded, so the sooner we reverse the current trend of loosening the urban fabric the better.

The next part of this paper looks at recent advice in Britain on how to build walkable street networks, and how the issues of context can be addressed. Using examples from Europe and elsewhere of new urban extensions and re-developments the accompanying Powerpoint presentation illustrates how well they meet the criteria for creating streets with people. We also look at a

measure of pedestrian intensities versus vehicle flows that better reflects street vitality.

### ***New urbanism and new street design***

“New urbanism”, “compact city”, “sustainable communities”, “urban renaissance” and similar tags have become familiar in the past decades to denote the promotion of better lifestyles and travelstyles. But how has this translated into what actually happens on the ground? The key test is not whether streets and spaces have been designed to look good, but whether they are actually used by people on foot. Overall we are losing the battle: for example the proportion of trips in Britain made on foot has dropped from over a third to less than a quarter in 30 years.

There is a resurgence of interest in streets that are vibrant. Before the age of private motorised travel, all urban areas were compact and the streets within them were populated. The positive enjoyment of this vitality is now being realised, but only after it has been lost to us in all but those few locations that have survived the onslaught of big roads and parking lots. Toronto, like many other cities, successfully fought off destructive urban freeway construction in the 1970s, and retained a high density core, but smaller cities and suburban areas with lower land values have often succumbed to the “tyre and tarmac” development pressures described above.

### ***What is necessary for streets with people?***

If streets with pedestrian vitality are to extend beyond the special town centre or historic zones (which rarely account for more than 1% of the city area), then it is necessary to have a lot of walking, which can be measured by the proportion of total trips that are made solely on foot. The proportion involving transit can also be added, since these also involve walk stages at either end.

In European cities the proportion of trips made solely on foot is typically 25-35%. In less developed countries proportions can be 75% or more. In North America, outside the big cities with transit, the proportion is often around 5-10%. This single measure almost defines the differences in urban character between these places.

The aim, therefore, is to structure new developments (and over time, whole areas) so that walking becomes a more prominent mode in the mix. There are several pre-requisites, described in the following paragraphs:

#### ***Requirement 1:***

#### ***A population, either resident or gathered***

There is a requirement to have reasonably high residential densities, because it takes a certain number of people to support a school, a range of shops, a

community centre, a recreation hall, and so on. If these facilities are to be found within walking distance, then it follows that the density must be high enough to bring the required population numbers within the walking catchment. However, the density argument is sometimes over-blown. The main problem is the arrangement of activities so that they can only be reached by car. London's suburbs were mostly built before the car appeared in great numbers, yet the lower density parts of outer London functioned perfectly well with walking, cycling and buses, and for longer trips, the train.

The greatest pedestrian intensity will be found at places where people gather. This is usually driven by shopping and employment, since these are frequent and regular trip attractors, but restaurant and leisure quarters, universities and hospitals are also focal points for pedestrian gathering. Centres and facilities that are large enough to provide specialist goods and services will inevitably require supporting populations that are too large to house within the walking catchment area. That is why they need to be located at focal points of transit routes. The fact that transit focal points are inevitably few in number is also the reason why city-scale facilities must be concentrated around them if car dependent access is to be avoided. This latter point unfortunately is often overlooked, at least in the UK, where too often people attractors such as colleges, hospitals and leisure centres are relocated to cheaper sites out of town. This is appealing for internal accounting of the facilities concerned, but it imposes a huge cost on the whole community in terms of walk and transit trips being replaced by car use.

***Requirement 2.***

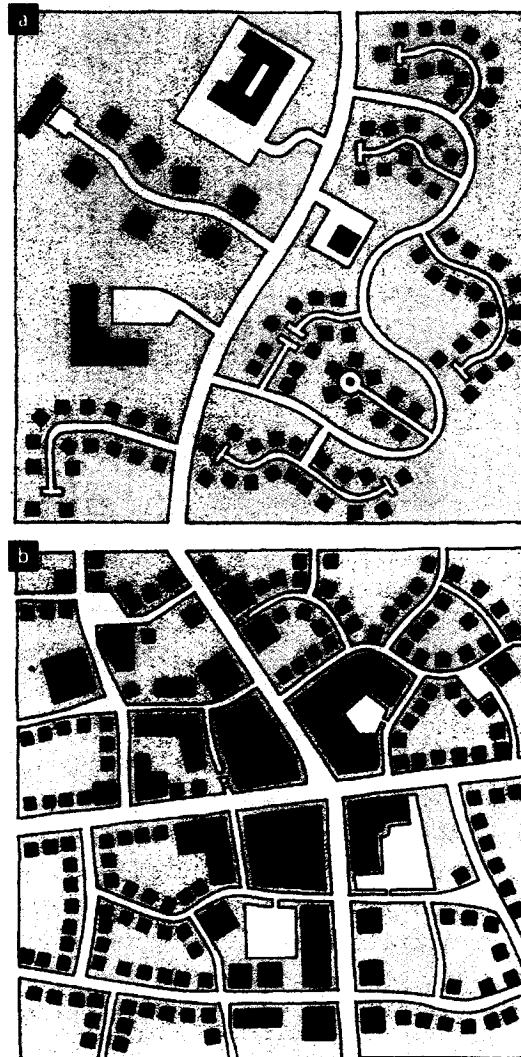
***Streets laid out to provide short distances to places where people want to be, or need to be***

The streets which lead onto high streets, or main streets uses are usually more busy with people than those more than 10 minutes walk away. The people on foot may be going to do a bit of shopping, or accompanying their children to school, or going to catch a bus or train, or indeed all of these things. This can only be done on foot when the distances are reasonably short, and where the things mentioned are mixed together in one locality.

Away from such mixed use areas, there can still be streets that are lively with people due to individual uses such as schools, parks and recreation grounds. The activity may, however, be confined to limited periods of the day, such as school times, and early morning and late evening dog walking in the park, or weekends for sports grounds. But this activity is still valuable and must be capitalised on by designing streets so that houses front onto the routes where people walk and don't turn their backs to the activity.

The proximity between homes and the facilities available to residents will have a limited impact on the degree of walking if there are poor connections between them. Indirect and monotonous routes present little problem for car

users because the journey is still quick for minimum physical effort. But such routes present a major deterrent to walking. Picking up this point, Arrington draws a distinction between “Transit Adjacent Development” and “Transit Oriented Development” (TOD), emphasising the importance of structuring development to achieve walkability (to transit stops), rather than relying simply on proximity (Ref.1). He points to the distinction between transit stops where the land nearest the station is taken up with Park and Ride parking, and those where it is taken up with high density activities on convenient walking routes. Toronto was a leader in promoting Transit Oriented Development by providing incentives to build at higher densities around metro stations. This policy was initiated in the 1970s and the result is visible today, especially along the Yonge Street line.



(a) dispersed and car-dependent versus (b) compact and walkable layout  
Source: DfT (2007) *Manual for Streets* (ref. 4)



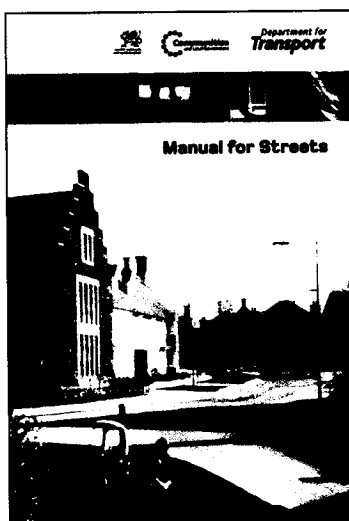
**Requirement 3:**  
**Streets that are designed for people to walk in**

Well designed streets and street networks need to follow the “5 Cs”, namely they should be:

- Connected
- Convenient
- Comfortable
- Convivial
- Conspicuous

The “5 Cs” were developed by the author for the London Government body LPAC and since have been adopted in a number of UK guides and strategies on walking, including Government advice on quality audits for use by local authorities. (Refs. 2 and 3)

In March 2007 the British Government published new guidance on the design of streets. Although it focuses mainly on residential streets, it emphasises the central message of this paper, which is to get the context right as well as the design. The street network should be classified not by the traffic function, but according to the full range of functions that streets perform as social spaces and livable places, not just movement of vehicles. So instead of the usual classification of “primary, secondary, distributor and access roads”, the Manual suggests examples such as “shopping street, mixed-use street, avenue, boulevard, mews, lane, courtyard”.



Ref. 4 *Manual for Streets*

Research in Portland, Oregon (Ref. 5) research showed how the amount of walking correlated with the quality of Pedestrian Environment Factors (PEF). The best walking environments had three times as many people walking than the least good. The correlation also applied to transit use, while car driving was less in the better streets. The PEF factors were:

- Ease of street crossing (depending on street width, frequency of traffic signals, volume of traffic)
- Sidewalk continuity
- Street connectivity
- Topography (hilliness)

***Requirement 4:***

***The people not being somewhere else***

If streets are to be lively with a lot of people-presence, then the streets have to be the places where people want to be. The daily time budget means that people will inevitably have a limited amount of "out of home" time. Given that people cannot be in two places at once, the more time spent inside buildings (retail malls, offices, leisure centres etc.) the less time there is to spend in streets and public places. The shift from facilities fronting onto streets (shops, cinemas, sport and leisure facilities etc.) to stand-alone buildings set amidst car parking and roads means that people are spending more time in private realm rather than public realm. This is changing the concept of what can be considered "public" domain in that many of the places where people gather are now essentially private spaces (see for example Ref. 6). Yet still it is the mixture and diversity of life in vibrant streets that people most admire, and travel the world to experience as tourists.

There is another aspect of this requirement which has been of growing concern in some city regeneration areas. Many areas where new apartments have been built at high density, such as former docklands and riverside sites, should be able to create lively streets and spaces, and yet too often they are deserted places for most of the time, and there is little sense of community. There is a range of causes, including:

- Homes being bought for rent by property companies, precluding purchase by individuals;
- Individual owners or renters using the dwelling as a part-time-residence (Pied-à-terre);
- Insufficient mix of large as well as small dwelling units, leading to under-representation of families, and thus populations with fewer ties to the local community that results from schools, crèches etc;
- Lack of facilities that would attract families and a mix of residents (schools, community facilities etc.).

In London these problems have led to some new high density areas becoming almost deserted, and attracting crime and anti-social behaviour. One undesirable response to this has been for some new high-value residential schemes to be gated, and shut off from the public realm altogether. In the south west of England the problems arising from absentee tenants in new scheme have led to measures to restrict the number of dwellings that can be purchased for let by one company. This highlights the reality that streets with people require not just suitable design and good architecture but also a sales

and management context that encourages permanent residence and community commitment.

**Requirement 5:**

***The people not being in vehicles (or at least, not too many)***

As with time budgets, so it is with travel. People cannot walk and drive at the same time, and the more trips that are made by car, the less trips that are made by walking or other modes. So lively streets with people depend on high proportions of trips being made on foot, and low proportions being made by vehicles. The mode split figures for a given city or area will give a very good indication of how likely it is to experience lively streets in that place. If a third of trips are made on foot, this will result (on average) that every 100 homes will generate about 200 walk trips per day. If another third of trips are transit-based, this generates another 400 trip stages per day, a total of 600 walk stages per day. Compare this with a typical car-dependent area, where the number of walk stages per day will be only 150.

As discussed at the end of this paper, people in vehicles spend a lot less time in any given street or part of a street than do pedestrians on account of the different speeds. This obvious fact is often overlooked in assessing street vitality.

The above five requirements need to inform the planning of new developments and streets, as well as the regeneration and redevelopment of existing urban areas. This can include the selective densification and diversification of areas that are car-oriented.

***What about cycling?***

Bicycles provide an interesting complication for the thesis, and the topic deserves a paper to itself. It should be mentioned, though, that high levels of cycling are often accompanied by low levels of walking, and that cycles provide a greater degree of vitality in streets than cars but not as much as walking. So, if the mode split of urban trips shift to include more cycling and less car driving, that will be positive in terms of street vitality. But if the extra cycling is at the expense of walking, then this will be less obviously beneficial. It is also the case that the urban structuring argument is muddled by consideration of cycling. The average length of trip by cycle is three times that of walking, so it is possible that places that are structured for cycling will produce distances that are too long for walking.

The really convenient fact is that acceptable cycling distances often match those found in low density suburbs. This means that potentially the bicycle can be the answer to suburban car-dependence without necessitating the complete redevelopment of low density areas.

### ***“Being there” versus “rushing through”***

Vibrant streets need people on foot to be there. Their presence is a valuable attribute (whereas with vehicles the valuable attribute is to have as few of them as possible). This contribution of pedestrians to street vitality is, however, easily under-estimated due to the way traffic is usually counted. For years it was only vehicles that were counted, because the only aim was to plan for vehicles. The more enlightened traffic authorities now also count pedestrians (and cyclists), but there remains a problem because only the flow is counted. The argument runs like this: street vitality is provided mainly by pedestrian activity; pedestrian activity consists of people being in the street, as well as passing through it; the presence of people is therefore important, not just the flow.

This has implications for the way retail health is measured. A typical indicator is footfall (sometimes supplemented with interview data on spending, as well as rents, yields etc.). (Ref. 7) But people walking through without stopping will not contribute to retail health; it is people pausing to look in shop windows and to enter shops that is important, and in this may relate as much to the length of stay as to the number of people. Yet the length of stay is not usually part of the footfall counting method.

The table below provides examples of traffic counted by both methods. It shows very clearly that data on traffic flow give the impression that vehicles dominate the scene. A quite different impression is given when the “presence” of people and vehicles is counted rather than the flow. In mixed use streets people have the dominant presence and thus contribute more to street vitality than would be implied from traffic flow data. In places with moderate pedestrian activity, such as district centres, the pedestrian presence is typically double that of the vehicle presence. In busy city mixed-use streets, while the pedestrian and vehicle flows may be equal, the pedestrian presence can be three times greater than the vehicle presence. In most cases, the result is given by the fact that pedestrians travel more slowly than the vehicles, and so spend longer in the field of view than vehicles. But pedestrians stopping to chat or look about also increase the intensity of their presence. Either way, it is a valuable measure of vitality, and of the balance between the contribution of vehicles and people.

The method requires snapshot images of a street or part of a street that includes all of the space between the buildings. High-mounted cameras are ideal for this. In the examples in the table, snapshots were taken at 10-second intervals for one minute in each location. The number of pedestrians and the number of vehicles was counted in each snapshot, and the totals are shown in the table. This is compared with the traffic and pedestrian flows over the same one minute.

Table: Flow versus presence of pedestrians and vehicles

| Site                        | FLOW     |             | PRESENCE |             |
|-----------------------------|----------|-------------|----------|-------------|
|                             | Vehicles | Pedestrians | Vehicles | Pedestrians |
| Suburban centre street      | 23       | 14          | 22       | 42          |
| Inner city shopping street  | 27       | 13          | 17       | 36          |
| Inner city shopping street  | 29       | 13          | 17       | 25          |
| Inner city mixed use street | 26       | 9           | 12       | 23          |
| City centre street 1        | 35       | 35          | 17       | 54          |
| City centre street 2        | 45       | 46          | 20       | 60          |
| Total of six samples        | 185      | 130         | 105      | 240         |

Source: Video surveys by the author (one minute samples)

### Conclusion

Developments with good car access undermine attempts to create walkable neighbourhoods. The more places that are built for the car, the less places there will be to walk in. Lively city spaces and streets can be found, but they are only a tiny part of what cities are about. Creating streets with people is an attractive and sustainable goal, and can be achieved through a shift of focus towards urban planning where form and layout is given just as much attention as the design quality of individual streets. We urgently need to reverse current trends, and to increase walkable communities by actively modifying existing car-oriented areas and refusing to allow the building of new ones.

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Web pages with downloadable reports

<http://www.dft.gov.uk/pgr/sustainable/walking/>

<http://www.dft.gov.uk/pgr/sustainable/manforstreets/>