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Special Issue:
An international review of liveable street thinking and practice

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Mike Biddulph sets the scene about liveable streets based on Appleyard's original concept from 1981 and explains how this issue pulls together a number of papers which reflect on how these issues are being thought about and how they are affecting the design and management of more liveable streets internationally.

Lia Karsten reflects on the extent to which street activity, previously rejected within Dutch society, has been progressively reappropriated in the Netherlands by middle class residents returning to live within older, denser, more central, former working class neighbourhoods.

Exploring similar themes and techniques to Appleyard, Daniel Sauter and Marco Huettenmoser compare the impact of traffic volume on the quantity and quality of street life in streets in Basel, Switzerland. They discuss how quieter streets offer the greatest potential for a richer community life and examine how this has been achieved.

Roger Mackett *et al* have developed software to evaluate the accessibility of environments for people who, due to a physical disability, are less mobile. Using a case study from St. Albans in the UK they show how changes to these details can make significant differences to how such people might use the streets and gain access to the services that they need.

Reid Ewing and ? Lane examine the extent to which traffic calming has been adopted in the US. They argue that the US is behind some states in Europe and note in particular that calming measures are not necessarily developed in association with an integrated package of measures designed to create environments really fit for walking or cycling.

Carey Curtis and Reena Tiwari discuss the important process of turning arterial strips into what they call "activity corridors. The article examines strategic work in Perth, Western Australia undertaken to help turn important roads into vibrant "walkable" streets by creating an operational strategy for development which can be adopted by planning and highways professionals.

Mike Biddulph reviews the impact of the UK's home zone initiatives which saw the legal designation in the UK of streets equivalent to the Dutch woonerf and funding, in England at least, for a series of demonstration projects across the country.

Ben Hamilton-Baillie discusses the role of shared space projects, and in particular notes the importance of work in Fiesland in the north of the Netherlands by Hans Monderman, and its impact on how street space is being conceived in parts of the UK.

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Towards shared space

Ben Hamilton-Baillie*

Hamilton-Baillie Associates Ltd, 94 Whiteladies Road, Clifton, Bristol BS8 2QX, UK

The streets and spaces that constitute the majority of our public realm play an increasingly important role in the economic and social foundations of towns and cities. Simultaneously, public dissatisfaction with the clutter and barriers associated with conventional traffic engineering is growing. There is also growing recognition of the links between health and the quality of the built environment. New approaches to reconciling the relationship between traffic and the public realm represent a significant challenge to long-standing assumptions underpinning the conventional segregation of traffic from civic space associated with established policy and practice. Often labelled 'shared space', such schemes raise important questions about risk and safety, the role of government in regulating and controlling behaviour and the conventional professional boundaries of urban designers and traffic engineers. A radical review of the role of government in regulating and controlling street design, combined with decisive changes in the organisational structure and processes employed by highway authorities is implied if the benefits for safety, traffic capacity, health and economic vitality from shared space are to be realised. This paper outlines the background and principles underpinning shared space, and describes some of the significant examples in the UK and mainland Europe.
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Introduction

Despite local policies to prioritise walking and cycling, and impressive initiatives such as the UK's National Cycle Network, it would appear that public dissatisfaction with British streets as a whole continues to increase. As the most accessible and immediate component of the public realm, the poor quality of our streetscapes has important effects on communities, travel patterns and lifestyles. As streets become less attractive, people are less inclined to spend time in them for social activities. Walking and cycling become less attractive, public perceptions of safety decline and activities such as play transfer from the public realm to private space.

The implications for physical activity and health from a decline in quality of the public realm are hard to quantify. The increase in sedentary lifestyles has been well documented, especially the change in children's travel patterns. Wider inter-connections between the environment and health are more hypothetical, especially the links between the public realm and mental health. While traffic volumes and travel patterns are relatively well documented, the informal use of streets and public spaces has rarely been the subject of quantitative analysis. But it is a reasonable hypothesis that an incoherent and unattractive public realm does not promote general health and well-being.

It is not difficult to identify what it is about UK streetscapes that make them so unattractive as places to attract informal public activity and human presence. Take a snapshot of the 'centre' or focal point of almost any neighbourhood, town or village, and it is likely to be dominated by the standardised features associated with conventional traffic engineering. White lines, yellow lines, zig-zags and garish cross-hatching will characterise the asphalt of the horizontal plane; traffic signals, road signs and steel pedestrian guard rails will fill the vertical plane (Figure 1).

*Correspondence: Tel: +44 (0)117 9114221 or +44 (0)796 8774280, E-mail: ben@hamilton-baillie.co.uk

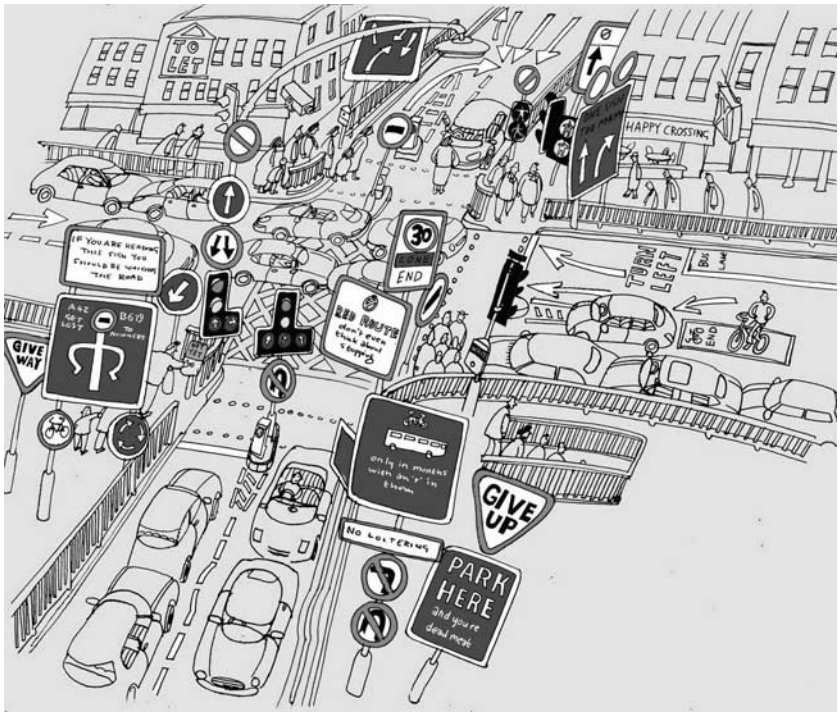

Figure 1. The impact of traditional engineering measures on the urban environment.

Busier roads will have underpasses or bridges, and concrete kerbs, barriers and traffic islands will fragment the space, isolating small residual spaces for pedestrians from each other and from the traffic. Compensatory measures for people with visual or physical disabilities, such as drop kerbs, standardised tactile paving and beeping pedestrian crossing signals add to the visual and audio confusion. Our streets are not welcoming places.

Many noteworthy examples of urban regeneration have begun to restore confidence in busier city centres and brought a welcome renewed interest in the potential for lively public spaces, but successful schemes are the exception, not the rule. At the other end of the urban spectrum, a few celebrated (and usually expensive) home zones have raised expectations for new relationships between people and traffic on quieter residential streets (Department for Transport, 2005) (Figure 2). Between these two extremes, the average High Street, radial urban distributor road or village centre is at best tolerated, and at worst avoided by anyone seeking pleasurable human interaction. And the problem is especially evident among the poorer sectors of society. More articulate communities have the resources, stamina and energy to do battle with traffic engineering to restore distinctiveness to their neighbourhoods. For deprived neighbourhoods the idea of an attractive public realm as a place to foster informal physical activity associated with walking, cycling and interacting for pleasure seems remote. However, many of us have glimpsed the potential, while people watching from a pavement cafe in a European place or piazza, admiring its unique character that forms the stage for everyday human interaction in the fascinating pastime of people watching.

Why has this loss of 'the public realm' happened?

The streets and public spaces that make up the public realm of our cities, towns and villages have always had to serve a multitude of purposes essential to our social, cultural and economic needs. Principally these purposes fall into two broad categories; those associated with movement and transport, and those associated with social exchange and interaction. The balance between these two complementary functions, and the nature, design and use of the public realm, appears to both reflect and determine our social values, and radically affect our activity patterns and behaviour.

The introduction of motorised vehicles during the last century posed new challenges for the way we

Figure 2. The Methleys Home Zone, Leeds.

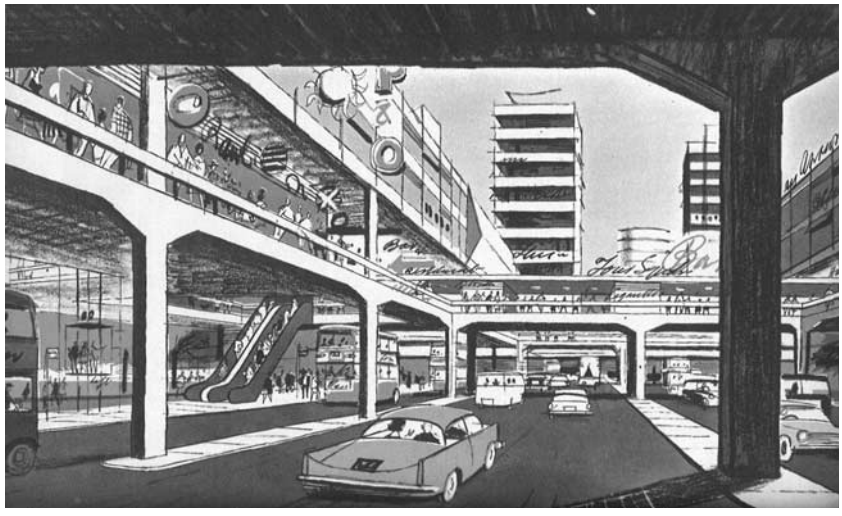

Figure 3. The concept of segregation from the *Buchanan Report*.

use the public realm. The ability, and desire, to move vehicles at greater speeds and in greater volumes gave rise to new ideas, technologies and policies aimed at balancing the need for safety and accessibility. A new profession emerged of traffic engineering, premised on a series of assumptions and principles; a profession separated from the design professions of architecture, landscape architecture and what would become urban design. Streets became increasingly regulated by governments through the use of consistent, standardised mechanisms of highway rules, control systems and markings. In 1963 the Buchanan report, *Traffic in Towns*, established the key policy framework for streets (Ministry of Transport, 1963). Central to its conclusions was the need to *segregate* traffic movement from pedestrians and social activities (Figure 3). The principle of separation and segregation has continued to guide policy in relation to our built environment ever since, both in the UK and across much of the developed world.

In recent years there has been an increasing recognition of the widespread, unforeseen implications of a policy of segregation. It would appear to contributed to the rapid decline in levels of walking and cycling. The need for underpasses, bridges, traffic signals, barriers and controls, implicit in achieving segregation, has reduced accessibility for non-motorised traffic. Isolation, inequalities, and a fragmented and degraded public realm were outcomes not anticipated by Buchanan and his team. In addition to the detrimental effects on health from reduced options for movement, the policy of traffic segregation has not appeared to deliver the safety benefits anticipated. Pedestrian casualties, especially among children, continue to be a central cause for concern (DETR, 2000). An increasing understanding of behavioural psychology and the phenomenon known as 'risk compensation effect' (of which more below) may explain the persistent problems of road safety associates with current traffic policy.

What can be done to promote successful public spaces?

The policy of segregation, applied to the design of the streetscapes of cities, towns and villages has spawned two quite distinct and separated areas of professional interest. Traffic engineering has developed as a discipline focused closely on the efficient movement of motor vehicles. The training, philosophy and practice of traffic engineers have evolved in isolation from those other professions responsible for the public realm. Bringing these two areas together to combine an understanding of the multiple purposes of streets and public space is thus essential to integrating the complex functions (see eg CABE, Institution of Highways and Transportation and English Heritage, 2006). The schism extends to government organisation; in the UK the Department for Transport is responsible for streets, while the Department for Communities and Local Government is responsible for urban policy and public space.

Encouraging the creation of the type of streets and public spaces that promote the informal, spontaneous activities associated with physical and mental health and well-being requires a clear distinction to be drawn between such streets and 'the highway'. This is not to argue that cars and vehicles need necessarily be removed from the public realm. But increasing numbers of examples suggest that the removal of the familiar characteristics associated with the highway, such as road markings, traffic signals, signs, kerbs, bollards and barriers can dramatically change the relationship between people, places and traffic. In the absence of rules, predictability and certainty, drivers have to rely on cultural signals and informal social protocols. Speeds reduce, eye contact becomes the norm, and the driver becomes a part of her or his social surroundings and context.

Reduction in the speed of traffic is the single most important measure to permit the multiple uses of streets and public spaces. Numerous studies of the relationship between traffic speed and pedestrians suggest a qualitative change occurs somewhere around 20 mph (30 kph) (see eg DETR, 1996 and 1997 and Pilkington, 2000). It is probably no coincidence that 20 mph is close to the maximum human evolutionary speed; our skull thickness and physiology are sized for impact up to our maximum running speed. Conventional highway policy in the UK has assumed a legal limit of 30 mph and engineers have designed for speeds of around 35 mph.

Designing for lower speeds, appropriate to the human context of streets and public spaces, is the most critical measure to restore the balance between people and vehicles. Interestingly, empirical evidence also suggests that journey times for vehicles improve at lower steady speeds, due to greater efficiencies at intersections (Hamilton-Baillie and Jones, 2005).

Achieving lower speeds does not require increasing regulatory controls, enforcement and conventional interventions such as traffic calming. On the contrary, removing the legal and state-defined controls appears to allow the much more powerful social behavioural constraints to come into play. The less the manifestations of 'the highway' are evident, the more drivers rely on their remarkable ability as humans to read situations and adapt to circumstances. As David Engwicht has pointed out traffic speeds are determined, above all else, by driven perceptions of human presence in the street, or what Engwicht calls the degree of ''psychological retreat'' from streets. Reversing such a retreat requires street designers and users to grasp every opportunity to emphasise human presence and activity in the spaces between buildings. (Engwicht, 1993, 1999, 2006).

The greatest cultural change necessary to restore spontaneous human activity in our public realm is a fresh understanding of the importance of accepting risk as an essential component of activity and interaction. The policy of segregation, so central to the segregation of urban traffic engineering, has assumed that risks should be minimised in the pursuit of safety. But as Professor John Adams and others have pointed out, risk is essential to human activity, and hence to the creation of successful public space (Adams, 1995). A recognition of 'risk compensation effect' prompts a fresh understanding of the adverse effects of measures such as traffic signals, signs, pedestrian guard rails and barriers on safety, and of their tendency to discourage informal physical activity. It may seem perverse to argue that well being can be improved through making spaces feel riskier, but that is the firm conclusion from both research, and from empirical studies (CABE, 2005, 2007).

Interesting echoes of Professor Adams' observations concerning the importance of risk can be found in research findings on the relationship between the attempts to design out risk from children's play equipment, and the activities of children. The 'Daisy Chain' survey of 2002 by the Children's Society and the Children's Play Council noted that extensive investment in 'safer playgrounds' had achieved no measurable improvement in child health or safety. It had merely transferred the risk elsewhere, either reducing activity and thus increasing problems associated with sedentary lifestyles or shifting activity to more dangerous locations (Ball, 2007). Likewise the removal of 'pedestrian safety barriers' in the recent renovation of Kensington High Street (against the advice of safety engineers) appears to have significantly improved the accident figures for pedestrians (Swinburne, 2005). Increasing the apparent risks appear to encourage more engagements of both drivers and pedestrians with their surroundings, causing adaptions is the behaviour of both. Levels of pedestrian activity in Kensington High Street have also significantly increased.

Breaking down the conventional divide between engineers and the design professions requires decisive changes in the organisational structure of local and national government. In addition, a fresh appreciation of the value of risk and the nature of safety means that standard processes, such as street adoption standards and safety auditing, need fundamental rethinking. Health and wellbeing are so closely and intricately linked to every aspect of our lives, that the 'single-issue' method of evaluating public space is no longer appropriate. Transport assessments, safety audits, environmental and aesthetic considerations cannot be isolated from each other or from health assessments; they are all critical to patterns of physical and social activity.

What examples and precedents do we already have?

The principles underpinning the integration of all aspects of movement and interaction into the design and management of streets have been evident for at least 30 years in mainland Europe. Early examples in The Netherlands came in the form of *woonerven*, and focused around new approaches to the design and management of residential streets (see Royal Dutch Touring Club, 1977 for the original explanation and justification in English). In recent years the term *shared space* has been increasingly applied to places where traffic has been successfully integrated into busier cities, towns and villages. The most notable examples are to be found in Denmark, Sweden and The Netherlands, although there are examples in almost all European countries. The principles are relatively new to the UK, but there are already enough examples to encourage further research, training and application of the approach (Shared Space Project, 2005, 2008) (Figure 4).

The best documented example of shared space is the remodelling of a number of intersections in the Dutch town of Drachten, in the northern province of Friesland. The busiest, the *Laweiplein*, outside the city's theatre was previously a conventional traffic signal-controlled large intersection handling around 20 000 vehicles per day. The dismal surroundings of this busy junction, and the wide approach roads were congested, dangerous, and did little to foster civic activity. Pedestrian and bicycle routes were inconvenient and unattractive (Figure 5: Laweiplein before treatment).

The reconstructed square includes a compact roundabout that forms an integral part of a coherent area of public space. Vertical water jets unite the space; their height responding to the volume of traffic. Despite the volumes of traffic,

Figure 4. The shared space concept.

Figure 5. Laweiplein before treatment.

the informal protocols that have emerged spontaneously among drivers, cyclists and pedestrians allow free-flowing movement and a lively, animated public realm to emerge. The fountains attract human activity, especially children's play, close to cars, buses and trucks manoeuvring around the central island. The proximity helps to slow traffic, which in turn improves the traffic flows. After a few years of operation the new arrangement has succeeded in creating a space that encourages public life (Figure 6).

Blackett Street in the centre of Newcastle-upon-Tyne was remodelled 5 years ago to allow pedestrians and cyclists to move freely among the delivery traffic, taxis and high volume of buses that move through this lively urban space. There are no physical barriers or formal pedestrian

Figure 6. Laweiplein after treatment.

Figure 7. Blackett Street, Newcastle-upon-Tyne.

crossings, yet injury accident rates have declined despite increases in volumes of pedestrians (CABE Space, 2007). An informal protocol with the bus companies maintains bus speeds at around 10 mph (Figure 7).

In the heart of Covent Garden, the busy intersection known as Seven Dials represents a small, but effective example of shared space. In place of traffic signals, highway markings or a conventional roundabout, the space was remodelled 20 years ago to encourage human presence at the foot of the column in the centre. Some drivers use the monument as a roundabout, some do not. The element of uncertainty and the relaxed informality in the way the use of space responds to the weather and to the surrounding pubs and cafes creates a memorable, safe and efficient traffic intersection and piece of public realm (Figure 8).

Numerous completed schemes in Denmark, Germany, Spain, Sweden and The Netherlands

Figure 8. Seven Dials, Covent Garden, London.

are increasingly inspiring the application of shared space in the UK. Highway authorities, including Devon, Dorset, East Sussex, Kent and Suffolk County Councils, several London Boroughs as well as unitary authorities such as Bath & North East Somerset, Edinburgh, Manchester and Newcastle are introducing shared space as a key policy component to bring together aspirations for combining efficient traffic circulation, modal shift to walking and cycling, enhancement to the public realm and improved health.

Promoting Further Action

The awareness, acceptance and implementation of shared space principles are essential if a step change in the quality and coherence of the public realm is to be realised. To achieve this, action is needed at three parallel levels – the political, the professional and with the public.

Shared space, fostering the multiple uses of streets and spaces for every kind of social activity as well as movement, requires the formal abandonment of the principle of segregation in urban traffic engineering. A radical withdrawal by the state from the tendency to standardise and regulate the public realm is necessary. Key regulatory highway documents such as, for example in the UK, the *Traffic Signs and General Directions* statutory instrument should be withdrawn from use in the built environment and from quiet rural roads (HM Government, 2002). Government advice on safety, on street design, on driver training and the highway code, and the guidance given to local authorities requires radical review in the light of successful shared space schemes that challenge the conventions and assumptions that underpin them. At a local level, clear and determined political leadership is required to question the orthodoxies that have given us such poor streetscapes, and to provide the encouragement and protection to officers prepared to innovate and introduce best practice from elsewhere.

To overcome the gulf that exists between traffic engineering and the design professions organisational, cultural and educational change is required. Almost all local authorities currently separate the two activities into distinct departments, usually in different buildings, and often into different levels of government. Responsibility for streets is usually fragmented among 20–30 separate agencies, rarely with any overall coordination.

Institutional changes are needed among the key professions. Improving health through clearer focus on the quality of the public realm calls for a shake up of the conventional professional associations such as, for example in the UK, the

Institute of Highway Incorporated Engineers, the Institute of Highways and Transportation and the Institute of Civil Engineers who focus on highways, and bodies such as the Royal Institute of British Architects, Landscape Design Institute and the loosely confederated Urban Design Group who are trying to embrace a broader design agenda for the public realm. Welcome initiatives by CABE and English Heritage (CABE, Institution of Highways and Transportation and English Heritage, 2006) have begun to combine the training of both sides of the divide. The education of urban planners, urban designers as well as traffic engineers in the relevance of the public realm also requires bold changes in universities and technical colleges.

Changing attitudes among the public, the people who inhabit and animate our streets and public spaces, is made easier by the evident dissatisfaction with the *status quo*. Publicity and awareness of successful schemes is critical to overcoming scepticism and ambivalence about the often counter-intuitive outcomes of shared space. At present, little opportunity is offered to the public to influence, or even comment on, the highway measures that are installed in our streets and public spaces. Encouraging communities, neighbourhoods and local political groups to demand more involvement in defining the public realm requires advocacy and confidence building at a local level. But the impact of a few, well-publicised local schemes can clearly transform attitudes towards the possibilities for creating a public realm that promotes the sort of activities taken for granted in former decades, and which appear to be a vital ingredient in promoting and maintaining health and well-being.

Shared space, and the creation of a public realm free of barriers to simple day-to-day movement and interaction, requires a change in the 'mental map' of every person as they step outside their front door. Pioneering examples in the UK and in mainland Europe suggest that the cultural, political and institutional hurdles to redrawing such maps are less forbidding than is often feared. The time seems right to allow this new initiative to help link the spaces between our buildings into a coherent, continuous and life-enhancing public realm.

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