

# Earning a Public Space Dividend in the Streets

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## Abstract

*Experiments with shared space or “naked streets” have captured imaginations and considerable media coverage in recent years. Most of the excitement stems from surprise that streets without kerbs, road markings or signage can work well and achieve “safety through uncertainty”. This paper looks at another equally important insight from shared space. It focuses on a series of innovations that, like shared space, re-arrange the roles of streets in new ways to yield a “dividend” of expanded urban public realm, with little or no loss of transport utility. Such a space dividend should be especially welcome in dense cities that are both congested and short of public space.*

## Introduction

What are streets and roadways for? An obvious answer is traffic movement. But that is clearly not the whole story. A second role is to allow the reaching of final destinations—the role we call “access”. Thirdly, streets can be valuable public places in their own right. In addition, moving high-speed motor vehicles differ enormously from movement by low-speed, vulnerable modes such as bicycles. Unfortunately, speedy motor traffic movement and the other roles of streets are in serious conflict. For almost a century, the tension between these roles has been at the heart of debate over street design (Hass-Klau 1990; Jacobs et al. 2002). This article reviews emerging resolutions to this tension.

## The Battle for Street Space

The essence of a street is that it serves all these roles simultaneously—providing for traffic

movement and access, and as public space for urban activities. However, mainstream roadway management has spent many decades seeking, like Le Corbusier, the “death of the street”. It tends to turn everything between kerbs into “traffic space” where motor vehicle movement is the design priority (Patton 2007).

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Motorised traffic, slow modes and pedestrians are strictly segregated in both space and time. The role of streets as “public realm” has been largely restricted to the pavements (sidewalks) and to pedestrian zones. Most cities are desperately short of attractive public space and space for the networks needed by the

gentle but vulnerable modes such as walking and cycling.

Since the 1930s, traffic engineers have routinely classified every roadway in a hierarchy according to the degree to which it serves either traffic movement or access. Major arterials and expressways which are at the top of the hierarchy are managed primarily for maximum vehicle mobility. Any access functions are carefully limited to contain “friction” with the mainstream traffic. Only streets at the lowest level of the hierarchy are used mainly for access. Furthermore, the planning process often seeks to remove as much activity as possible (and hence, the “public space” role) from roadways and their vicinity. The influential UK report of 1963, *Traffic in Towns* by Colin Buchanan, reinforced the idea that segregation was essential (Hamilton-Baillie 2008).

The roadway hierarchy has no place for streets that serve both traffic and multiple other purposes (Svensson 2004). Yet, traditional urban streets and main streets remain ubiquitous. They provide (inadequately) for both access and mobility and are sites of perennial conflict. Such conflict is especially obvious in the heavily used streets of many dense Asian cities. The conventional traffic engineering approach offers little guidance for such multi-role streets (Svensson 2004).

## Expanding Public Realm without Evicting Motor Vehicles

Recently, a series of promising street management innovations has emerged that re-

assert in new ways the multi-purpose nature of the street. (See Box Story “Innovations that Expand Public Realm in the Streets”.) They offer ways to increase the public realm without removing the motor vehicles or seriously undermining the utility of the motorised traffic system. Does that sound too good to be true?

These innovations exploit common insights and principles. First, they involve making a strong distinction between “traffic areas” or “highway” and public space or the “public realm” (Shared Space project 2005). Traffic areas are the realm of conventional traffic engineering where high-speed motor vehicle movement is primary, with its flow carefully segregated from slower users like pedestrians and cyclists.

Second, some of this redefined “public realm” can be shared. It includes new spaces designed for the peaceful co-existence of public place activities, slow movement by vulnerable modes as well as motor vehicles, especially those seeking access to the vicinity. The key to such co-existence lies in keeping speeds low, ideally to no more than about 30 km/h (Shared Space project, 2005). Low speeds mean that motor vehicles need not be excluded but those present will mainly be making access movements or on the “last mile” (or the first) of their trips.

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Third, these innovations shift the boundary between public realm and traffic space, so that a surprising amount of what we now

think of as traffic space becomes part of the low-speed public realm. In shared spaces and in other slow zones, such as Tempo 30 zones and bicycle boulevards, whole streets and intersections are converted to public space. In multi-way boulevards, public realm includes everything from the building line to the outer edge of the central, high-speed traffic lanes. This newly expanded public realm serves local motor vehicle access, slow-mode movement, public space roles and sometimes some through-traffic (with low priority and at low speed). Only the high-speed traffic movement is excluded and kept within traffic space.

Fourth, a key design goal is that both the public realm and traffic space should work better by being kept distinct (Shared Space project 2005). Cities still need high-speed traffic space of course, just as some pure pedestrian space must also remain. But a surprising amount of shared public realm could be reclaimed without diminishing total traffic capacity. The key is that most of the expansion of the public realm envisaged here would take over traffic space that does not work very efficiently anyway. For example, the capacity of many of today's motorised traffic lanes is reduced by turning movements, kerbside drop-offs, parking, loading and other street activities. After transforming such spaces into public realm, the remaining traffic space can be re-designed more thoroughly for its traffic function. Moreover, the new public realm retains some traffic function, albeit at low speed, as a safety valve at times of extreme congestion.

**Expanding the low-speed public realm would also allow us to be much more tolerant of a diverse range of small, vulnerable vehicles.**

A high percentage of traffic volume in most cities is carried by roads at the top of the roadway hierarchy. Much of the remaining traffic is in fact short-distance traffic, or is on the first or last "mile" of a longer trip, or is circling for a parking spot. Such traffic does not need high speeds. In fact, a slower environment is more appropriate for access movement. Furthermore, although public realm requires very low peak speeds, the approaches discussed here also usually reduce the need for stopping and starting, so that average speeds and travel times are often little changed. Therefore, reclaiming such space as public realm has less impact on traffic performance than one would think based purely on the percentage of traffic space "lost".

Expanding the low-speed public realm would also allow us to be much more tolerant of a diverse range of small, vulnerable vehicles that currently do not fit easily into our transport systems. These include bicycles, in-line skates, skateboards, kick scooters, wheelchairs and many other "Personal Mobility Devices".

### **Barriers to Change**

As with most innovations, change will take more than a simple policy decision. In most countries, roadway management practices

are deeply embedded in institutions, their missions, objectives, performance-measures and boundaries of responsibility between agencies; in professional guidelines, codes and design standards; and in traffic rules and road user education.

Fortunately, little change is needed in conventional roadway management when it is applied to its appropriate domain i.e. the high-speed arterials and highways. It is only within an expanded public realm and at its boundaries that drastic change is called for. Standard practice must no longer apply to such spaces. Level of service (LOS) has no place here. Nor do conventional approaches to road safety, such as removal of “fixed hazardous objects”. Roadways that form part of the shared public realm should not resemble highways despite the presence of motor vehicles. Design principles for such streets, including signage and road markings, must be different from those for traffic space.

The public realm of streets needs a whole new set of procedures, guidelines and metrics of success. More research is needed to develop them. This is beginning to happen through experimentation in many countries (Shared

Space project 2008; Hamilton-Baillie 2008; Jacobs et al. 2002). The Netherlands, Sweden and the United Kingdom have revised their guidance manuals on street design (e.g. DfT 2007). Traffic engineers will need to adapt their problem solving to the special challenges of designing shared public realm. They will need to collaborate more with urban design professionals and urban planners, who will also need to take more interest in the streets that they have long neglected.

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## Conclusion

This article has provided a quick review of promising new ways to reconcile movement, access and place-making within our precious urban rights of way. New public space is gained through including low-speed access movement by motor vehicles within the public realm. It is this “public space dividend” that has been my focus. It may be too soon to tell if these ideas can deliver on their promise. We may only find out by trying them out.

## Innovations that Expand Public Realm in the Streets

### Traffic Calming—The First Wave

For several decades there have been efforts to use roadway modifications, such as humps and chicanes, to control motor vehicle speeds on streets whose primary roles are non-traffic ones (Hass-Klau 1990). Such traffic calming began in north-west Europe and by now is familiar almost everywhere.

Early traffic calming tended to focus on streets at the lowest levels of the roadway hierarchy to reinforce the primacy of access and pedestrian activity at that level. More recently, adaptations of traffic calming techniques have been applied to some streets at higher levels of the hierarchy, such as short stretches of shopping streets and the main streets of towns. An early Dutch traffic calming innovation, the *Woonerf* or “home zone”, involved a complete re-design of urban residential streets to make it clear to motorists that they were guests in a home environment. This was a precursor to the more ambitious shared space experiments.

### Tempo 30 Zones (Or “Twenty’s Plenty”)

A variation on traffic calming is to simply signpost very low speed limits, notably 30 km/h (or 20 miles/h). Many European cities now have extensive *Tempo 30* zones (Figure 1). Graz in Austria has been a pioneer, with a blanket 30 km/h speed limit over much of the city. Only major roads allow higher speeds of 50 km/h or more. Sweden’s “Vision

Zero”, which aims to eliminate road deaths and minimise the effects of the “foreseeable crashes” between pedestrians and motor vehicles, has prompted more *Tempo 30* zones in that country.

Figure 1: *Tempo 30* Zone in Vienna



### Shared Space (Or “Naked Streets”)

The shared space approach to streets emerged in the 1990s, pioneered by the late Hans Monderman in towns across the northern region of the Netherlands. Sometimes called “naked streets”, this approach is also seen as a second generation of traffic calming that has been spreading rapidly with trials underway in many countries.

Shared space completely overturns the idea that urban road safety depends on predictability and on clearly defining who

has the right of way (Hamilton-Baillie 2008). Shared space designs often remove most traffic lights, signs and kerbs. No particular user or movement has automatic right of way. This forces road users (car or truck drivers, bicycle users and pedestrians alike) to proceed cautiously and to negotiate their way forward, mostly through eye contact. Australian innovator, David Engwicht (2006), calls this “safety through intrigue and uncertainty”. If this is difficult to imagine, then the videos at <http://www.youtube.com/user/Sharedspace> will help.

Low speeds are both a consequence of and a necessity for this social mode of negotiated motion. In high-speed traffic the human mind is not capable of negotiating with other road users through eye contact. We can only do this at or below about 30km/h. Both crash incidence and the probability of death or injury, even for pedestrians, are very low at these speeds (Shared Space project 2005). Trials have included main streets and intersections in town centres. Surprisingly, travel times hardly suffer because, although top speeds between junctions are much lower, there is much less stopping at intersections.

Even though shared space includes motor vehicles, they become very much part of the public realm at low speeds. Monderman made clear that shared space design is only for the parts of the network that can be designated as public realm. His vision of an expanded public realm includes many surprisingly busy streets. However, it does not include those major arterial roads on which high speeds

remain important. These remain traffic space.

## Accidental Shared Space

The informal emergence of shared space street dynamics can be seen when pedestrians and/or slow vehicles dominate a street space, leaving motorists little choice but to proceed on a negotiated and cautious basis. This is common in inner urban streets of many developing countries (*Figure 2*). It can be seen also on the narrow streets of Singapore’s Little India area. Such “chaos” is of course widely lamented, with pedestrians and other road users blamed for indiscipline. Moreover, at times of low pedestrian activity, traffic speeds do rise and crash risk and severity can become very high. However, the imposition of traffic-focused design in such places would often be a mistake. A better option for these streets might be shared space by design rather than by accident.

*Figure 2: An example of “accidental” shared space in Nanjing, China*



## Bicycle Boulevards/Slow Streets Network

Traffic-calmed “bicycle streets” on which bicycles have clear priority over motor vehicles are common in German cities, among others

(Pucher and Buehler 2008). A number of North American cities, notably Berkeley, California, have successfully used bicycle boulevards to enhance their network of safe, low-stress routes for bicycle users. Bicycles enjoy relatively uninterrupted journeys along these streets, whereas motor vehicles often face detours.

### Multi-way Boulevards

Surprisingly, it is also possible to create public realm and local access functions on very busy roadways that move a large volume of fast-moving traffic. Multi-way boulevards are one way to do this. *The Boulevard Book* by Jacobs et al. (2002) highlights their potential and provides guidance on design. The trick this time is to create slow spaces at the edges.

*Figure 3: Multi-way boulevard in Nanjing, China. The street space on the right (behind the bus shelter) allows pedestrians, cyclists and slow-moving vehicles making access to co-exist.*



*Figure 4: Multi-way boulevard in Vienna*



Some of the most elegant and successful streets in the world, such as many of the avenues in Paris, are multi-way boulevards. They are typically grand streets that have a central zone that is primarily traffic space. Then there is a tree-lined landscaped zone with walkways. This wide median separates the main traffic lanes from a smaller roadway next to another footway and the building line (Figures 3 and 4). In the best boulevards, this side-access street forms the low-speed public realm where traffic, bicycles and pedestrians can share the space safely. The authors argue that well-designed multi-way boulevards, such as Avenue Montaigne in Paris or the Passeig de Gracia in Barcelona, have good safety records, and the traffic lanes work better than equivalent space on conventional roadways. Many countries in Asia, including India, China, Vietnam and Indonesia, also have a tradition of multi-way boulevards. Some, such as CG Road in Ahmedabad, already work well while others could benefit from an effort to ensure low traffic speeds in the service lanes in order to include these lanes and their adjacent medians as part of the public realm.

### “Road Diets”

“Road diets” is another innovation that allows public realm to be created with minimal impact on the utility of traffic space. As you may guess from the name, arterial roads have their traffic lanes reduced (and sometimes narrowed). However, a centre turning lane or turning bays are added, often with medians and an expansion of pedestrian and cycling space as well. In many situations, all this can be done without a loss of vehicle capacity.

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