

TRAFFIC CALMING IN BRITAIN: "DEVELOPING THE ART"

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1. The Problem

Like most heavy industries, road traffic is a source of danger, dirt, noise and air pollution; but no other heavy industry is carried on in the streets where we live and work. No matter where we are, we can rarely escape the damaging effects of motorised road transport. These environmental problems are a powerful negative feature of urban life, causing many people to take themselves and their businesses to places away from the worst affected areas. Ultimately this process can destroy the vitality of compact towns and cities, and even villages, as it has in much of North America.

The improvement of traffic and environmental conditions is not an optional luxury, but an essential requirement for urban survival. The alternative will be a continuing drift to a car-dependent lifestyle which, whatever the immediate attraction for the individual, is unsustainable in the long run (See Pharoah 1992.) This paper therefore assumes a "pro-urban" stance, and sets out a traffic calming strategy within this broader vision.

2. Urban-friendly transport strategy

An "urban friendly" strategy must have three broad objectives:

1. Less travel (planning and pricing measures to reduce distances),
2. Switch from car to other modes ("sticks" to discourage car use, and "carrots" to encourage travel on foot, cycle and public transport),
3. Urban-friendly design (offering tangible safety and environmental benefits).

Total miles travelled by Britons is now four times greater than in the 1950s, the hey-day of rail and bus. It is unlikely that public transport could ever be expanded to meet this level of demand, and measures will be needed to reduce the need for travel (Objective 1) with location planning being of key importance.

Meeting the full potential demand for car access in towns is neither feasible nor desirable. In order to improve economic as

well as environmental conditions in towns, it will be necessary to reduce the proportion of travel undertaken by car (Objective 2). Some local authorities have adopted traffic "restraint" policies, but not one has yet put forward a policy for overall traffic reduction. As a result, traffic will continue to grow, and overall conditions in both town and country will continue to deteriorate.

Traffic calming is concerned primarily with Objective 3, using speed management and street design techniques to deliver benefits at street and local community level. It is not a complete answer, and its potential is limited by the excessive volume of parked and moving vehicles, but it is essential if the wider problem of urban vitality and viability is to be resolved.

We can summarise the benefits of traffic calming as follows:

- Less accidents
- Safe and comfortable streets
- Less noise and fumes
- More attractive public space
- Stronger economic and social communities.

3. Traffic calming in Britain

Traffic calming is now an established part of transport policy in Britain, driven in the main by the national target of reducing road accidents by one third (from mid-1980's levels) by the year 2000.

Compared to other North West European countries, Britain was slow to develop the technique, but progress in the past two or three years has been rapid. Most highway authorities now have adopted some kind of programme and have implemented local schemes. Some have a special budget for the purpose.

For most people, traffic calming is probably associated with the speed hump. Other techniques (chicanes, optical narrowing, etc.) are less commonly found, and schemes which integrate functional traffic calming with urban design and landscape are rare. Most schemes are aimed at reducing accidents, and other objectives have been secondary or absent. Gradually, however, streets are being redesigned to make life easier for pedestrians and other users, and main roads as well as residential streets are beginning to feature in traffic calming plans.

Despite the progress made, traffic calming remains the exception rather than the rule, applied to less than 0.3% of urban roads. We must therefore consider what direction future policy might take. The author was involved in the first area-wide examination of traffic calming possibilities in London ("ELAS", Ove Arup, 1989), and subsequently with the development of traffic calming strategies for Devon County and the City of Birmingham (Devon C.C. 1991 and MVA 1992). What follows is derived from that work.

4. Scenario for traffic-calmed towns

What would our towns, cities and villages be like if they were fully traffic-calmed? Roads and streets would be graded not only by their traffic significance, but also by other activities that

take place within them. This grading would be expressed in terms of user priorities, traffic speed, and street design. This may be referred to as the "speed management" approach, as set out below. (An example appears at the end of this paper.)

SPEED MANAGEMENT CLASSIFICATION OF THE URBAN ROAD NETWORK

LIVING PRIORITY	20 mph streets where priority is given to residential or other street activity.
MIXED PRIORITY	20 - 30 mph sections of main traffic roads with shopping or other important non-traffic activity.
TRAFFIC PRIORITY	30 mph roads where traffic movement has priority, but where vulnerable road users are protected.

The great majority of the network (80-90% of urban roads) would fall into the first category - "living priority". Physical measures would be needed at frequent intervals in about two thirds of these roads to ensure self-enforced slow and steady driving, and for environmental enhancement.

The main traffic routes would fall into one of the other two categories, depending on the intensity of frontage activity. Most of their length would be "traffic priority". Provision would be made to protect pedestrians and cyclists. Buses and perhaps goods vehicles would be accorded priority in the flow of traffic. A 30 mph speed limit would apply.

Those sections of main road with intense frontage activity, mostly shopping centres astride the main road would become "mixed priority" areas. Speeds would be lower and vehicles passing through would have to relent to pedestrians, cyclists, turning traffic, buses, vehicles loading and parking, and so on. The London and Birmingham studies referred to above indicated that about 10% of urban main roads would require such "mixed priority" status. Main roads in villages would need similar treatment.

Questions that arise from this scenario are:

- Will it be effective?
- Can we afford the necessary measures?
- How long will it take to complete?
- Are there alternative approaches?

5. Evaluation of traffic calming

Experience from several countries (including 20 mph zones in England, see Mackie et al, 1993) leads us to expect a reduction of serious and fatal road injuries in urban areas of at least 50% (about a third of the total). Vulnerable road users, including pedestrians, cyclists, children and elderly, benefit in particular. This alone would produce an economic return on the investment.

A reduction of traffic speeds from 30 mph to 20 mph can produce a reduction in roadside noise of 3 - 5 DbA, equivalent to a halving

of traffic volume. Exhaust emissions will also be reduced providing that a calm style of driving is achieved. Traffic calmed areas will stimulate local business and cultural activity.

The quality of design and construction is important. Dutch and German schemes in particular often reach astonishingly high standards of paving, landscaping and detailing, while British efforts are often of poor quality. A comprehensive traffic calming programme provides the opportunity to revive urban design and provide long-overdue investment in public areas.

The real test, of course, is public opinion. Well-designed traffic calming schemes implemented with involvement of the "end-users" have proved popular in almost every case. A majority of car drivers also approve where the overall benefits are clear.

6. Can we afford it?

The total cost of traffic calming on the model outlined above could be in the region of £7 billion (or £120 per head), spread over an implementation period of 10 or 15 years.

The bulk of this investment should come from existing road budgets. Diverting 20% of the £23 billion planned to be spent on the Trunk Road building programme would yield £4.6 billion, or two-thirds of the total. The remaining third would be financed from local road budgets, non-transport budgets, and private sector contributions. In cost-benefit terms, accident reductions alone would repay the investment, and there would be other benefits as well.

7. What are the alternatives?

The main area of debate in other European countries concerns the relative merits of public education, legal provisions, and physical street reconstruction. In Germany, financial constraints have led to a reduction in the use of physical measures, and greater reliance on public awareness campaigns. In the Netherlands (as in Britain) 30 kmh zones can only be implemented where physical measures ensure self-enforcement. Unless major resources are diverted for the construction of physical measures, Britain too will have to rely more on public awareness campaigns to rid ourselves of the "speed culture".

A further possibility, which has so far received little attention outside the German State of Northrhine-Westfalia, is the use of switchable vehicle speed-governors. Traffic speeds can be limited automatically to the legal maximum by governors installed in each vehicle, and activated by beacons at speed zone boundaries. This technology would remove the need to install humps or other measures whose sole purpose is to force drivers to slow down. The disadvantage would be that the system would be costly to install, and would not bring the wider benefits of street re-design.

A major problem that remains is the continued manufacture and aggressive marketing of cars capable of speeds and performance that are wholly incompatible with the urban environment. Out of the 400 plus models on sale in Britain, 97% can exceed the maximum speed

limit to be found in Europe (80 mph except in Germany). 84% can exceed 95 mph, and more than a quarter can exceed 125 mph. With suspension and braking systems to match, modern cars are presenting designers of traffic calming schemes with ever greater problems. High performance has no place on public roads, and could be prevented by the international vehicle construction regulations.

8. Conclusion

The benefits of traffic calming are widely accepted and schemes are being introduced in many towns. But at present rates of progress, calming all the areas that need it will take another 500 years!

The challenge is to spread the benefits to all built-up areas within a reasonable time. The scenario for comprehensive traffic calming described in this paper (and lowering the general urban speed limit from 30 to 20 mph) can be achieved in 10-15 years with a fifth of the money currently planned for enlarging inter-urban Trunk roads. This switch away from road-building to street improvement will produce a sum of benefits that is vastly greater.

Achieving the full range of benefits will require more concerted efforts to include environmental enhancements as part of scheme design. This will require a stronger input from urban and landscape designers, and a change of grant rules to allow funding of features not directly associated with reducing accidents.

The benefits to be gained from traffic calming are increasingly limited by excessive volumes of parked and moving vehicles. Traffic calming must therefore be developed as part of a package aimed at less car travel, promotion of the town-friendly modes, and environmental improvement. Such a strategy is not a luxury, but essential to retain the vitality and appeal of urban life.

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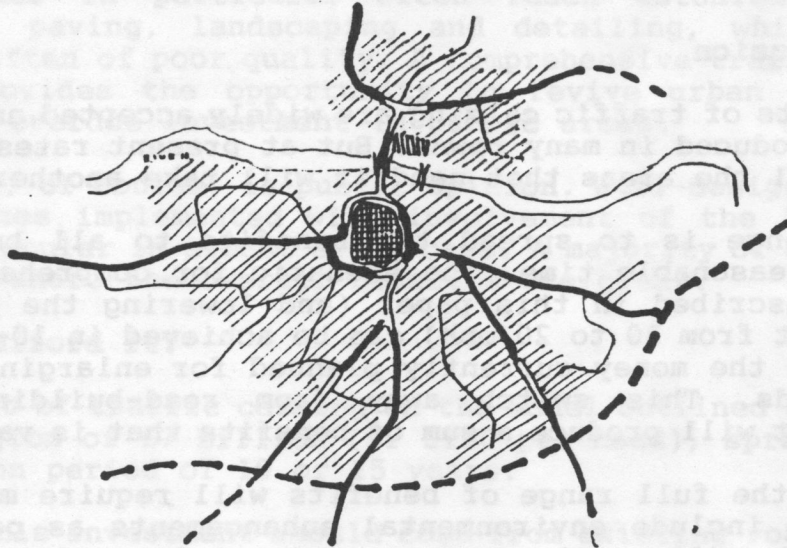
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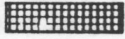





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EXAMPLE OF "SPEED MANAGEMENT" FRAMEWORK



-  10 mph and pedestrian zones
-  20 mph zones
-  20 mph collector roads
-  20 or 30 mph mixed priority roads
-  30 mph traffic areas
-  40 mph + roads (non urban)