

# Stop the rock

In the first of a new series of practical street design notes, Kensington & Chelsea explains its specification for laying large York stone slabs where vehicles overrun.

It is said that places which are clean and tidy are less likely to encourage crime. Places which are also free of street clutter encourage you to look around with a more discerning eye and appreciate the locality for what it is, that is, its 'special characteristics'. Less clutter, even to the extent of producing clean unobtrusively patterned and undamaged paving slabs, can help enhance the local distinctiveness of an area.

Large concrete slabs, that is those up to 600mm x 900mm, are a good quality footway surface where the cost of natural stone cannot be justified. The reason that large slabs of any material are considered to be unsuitable, though, is that they are liable to be broken by overrunning vehicles.

Ron Wright, highways manager at the Royal Borough of Kensington & Chelsea has a working lifetime's experience in highway maintenance. As the third generation in his family to serve the Royal borough he has a keen interest in the long term quality of its streetscape. 'The council considers that high standards of footway materials, workmanship and maintenance are really important,' Wright explains. 'Natural York stone slabs in sizes up to 600mm x 900mm are our normally specified footway material. They are easily obtained and, when well laid, give a clean, uncluttered and traditional appearance that sets off the fine buildings in the borough.'

The most critical problems for all slabs are breakage and rocking, which causes trip hazards. The most frequent breakages are caused by vehicles overrunning. Once the slabs are broken the under bed gets washed away and the broken pieces rock about. For the places where moderate overrunning by vehicles cannot be avoided, the council has developed a robust specification. Under the slabs there is a 100mm thick concrete base, to specification C25P. This concrete is carefully compacted and allowed to cure.

The slabs themselves are then laid on a 25mm-thick lime mortar bed. Wright says this thickness allows the slabs to be accurately levelled. In all the borough's streets the council has to expect the slabs to be lifted for access to underground services. The lime mortar bed does not adhere to the slabs as strongly as cement mortar and so the slabs can be lifted more easily and without being damaged. In fact, the lime mortar can be cleaned off.

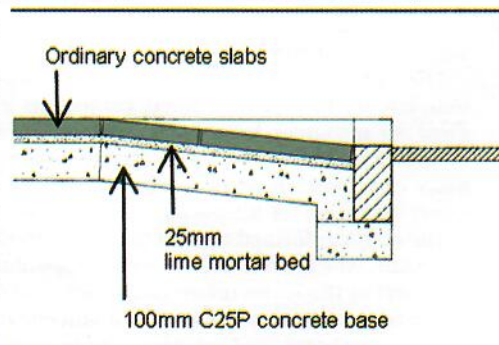
The gaps between the slabs are 10mm to 12mm and are pointed. To make sure that there are no mortar splashes left on the slabs, the council uses a thin metal template. The 10mm to 12mm gap is wide enough to allow the pointing to be cut out by a machine in order to lift the slabs.

In places where a tactile surface is needed, such as at zebra crossings, the council often uses a York stone slab of the same colour for the surrounding slabs. This gives a degree of warning and protection for people with visual impairment while maintaining a clean and neat appearance to the footway.

Before the council used York stone generally, these same thorough techniques were applied when large concrete slabs were laid (*see diagram*). As Wright himself adds: 'We insist that these workmanship procedures are adopted by including photographs or finished work and precise methods of operation in specifications.'



Cluttered, poorly maintained streets (above) contrast sharply with examples in Kensington & Chelsea (left). Here, well-laid slabs give a clean and traditional finish to the footway



For more information, see Colin Davis urban design at [www.StreetDesign.Info](http://www.StreetDesign.Info)

# Signs of the times

In the second of our practical street design notes, we look at street name plates that reflect their local identity.

Throughout the country, high-profile regeneration programmes seek to restore economic well being through reconstruction schemes and large-scale restoration. Yet much can be done to improve the appearance of an area by simply reducing street clutter and enhancing local architectural character as part of the process of normal highway maintenance.

One of the few categories of street furniture which can truly contribute to the architectural and historic character of a locality is street name signs.

In other countries, such as the United States, it is traditional for street name signs to be fixed to lamp posts. But in this country, people expect to find them on boundary walls and fences at the back edge of the footway. Then, as other street clutter is removed, so the street name signs become easier to see.

Since their legibility is essential, traditional locations should be maintained – that is as near as possible to a corner of a street and at about one metre above ground. They can be fixed to building walls, boundary walls or fences or, if this is not possible, on a building above the level of the ground floor window.

While legibility is essential for visitors, doctors and ambulance drivers, the people who see street name signs most often are local residents. Naturally, they take enormous pride in their design and upkeep. Hence replacement signs should ideally conform to the local pattern, even where the locality is quite small compared with the total area administered by a single authority.

Street signs demonstrate a huge variety of designs. For some, the lettering is cast in iron, painted on brickwork or printed on enamelled steel, while for others it is indented into aluminium sheet, carved in stone, painted on the back of glass or even glazed into individual ceramic tiles.

In Hampstead, north London, there are some ceramic tiled street name signs dating back to the 1860s and believed to have been made by the Minton factory. They form part of a totally designed street scene created at that time by the Arts and Crafts movement.

Now the London Borough of Camden, in conjunction with local amenity groups, is enhancing the local architectural character of this area with a scheme to replace the traditional ceramic street name signs.

David Christie of the Hampstead Special Projects Association explains: 'We have been working closely and in a friendly relationship with Camden for some years to reinstate the original design harmony of the area.'

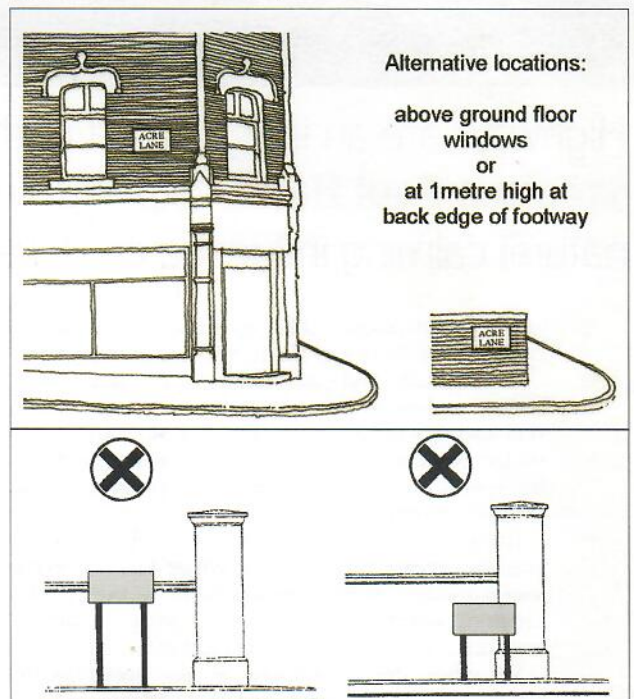
The ceramic tiles themselves were made by Janet Steel of Norton Tiles. 'The tiles are at least 10mm thick and are hand crafted in a similar way to the originals,' Steel explains. 'We use a very white earthenware clay and two glazes, a black underglaze which defines the letter, and a final transparent sealant glaze which covers the sides and back, as well as the front.'

The replacement tiles used were obtained through Paul Cleghorn. His company specialises in supplying and fixing replica signs. He says: 'We fix the tiles in the original way by cutting into the brick walls so the surface of the tiles is level with the wall. We take a lot of trouble to fit the tiles neatly into the architectural design of the building and the bond of the brick wall.'

At Camden, Martin Reading team manager and highways maintenance engineer is pleased with the arrangement. 'We use the replica ceramic tiles in areas where they were a local tradition, if it is practically possible, and we are able to obtain permission from the boundary wall's owner,' he says. 'Typically, if at a street corner, there are three original ceramic street name signs and one is missing, we replace the fourth in ceramic tiles.'



There is a huge variety of street name signs across the UK



For more information, see Colin Davis urban design at [www.StreetDesign.Info](http://www.StreetDesign.Info).  
Paul Cleghorn Tel: 01903 744387, Norton Tile Tel: 01243 544224

This month's practical street design notes look at the layout of pedestrian crossings, and zebra crossings in particular, as an important element in the design of public places.

# Design notes

**M**ore of us are now taking advantage of the ridiculously low airfares to take short breaks in European cities. But while the brochures show enticing vistas of newly-designed or refurbished plazas and piazzas, the reality can be even more remarkable.

In the cold of a Scandinavian winter, people are so keen to take advantage of their civilised public spaces that they sit out in the freezing air under blankets. They are also seen strolling about on expansive pedestrian crossings, each seemingly placed in the very position that anyone would wish to cross.

Coming back to reality, we shake our heads in sorrow at the restrictive nature of our own national traffic-management regulations. Here, pedestrians are expected to make inconvenient detours, and are herded into tight sheep pens in the middle of the road while, urged to cross quickly by a shrill bell, they wave sincere gratitude or preferably make a tug of the forelock.

But are our regulations really so restrictive?

The geometry of a pedestrian crossing is set out clearly in the relevant regulations\*. A cursory glance at the accompanying diagrams appears to confirm the sad truth that we are stuck with a standard 2.4m-wide crossing and an attendant stream of zigzags lines. But there is hope.

Although the diagram illustrates, clearly, the minimum requirement, the notes and captions to the diagram do add that there is a wide range of alternatives which can be assembled within the strictures of the regulations. We tend to mislead ourselves by simply looking at the pictures, rather than reading the words.

The width, for instance, can, without further referral, be some 10m wide and the zig zags may – if the conditions are deemed by the local highway authority to be correct – be reduced to two from eight.

The result can be seen in our own diagram of one of the alternatives – a wide, spacious crossing that gives pedestrians a greater feeling of security and comfort. There may be some inconvenience to drivers, but that has to be offset against the advantages to pedestrians. The problem is, there are no recognised methods to measure a pedestrian's sense of security and comfort, or against a driver's inconvenience.

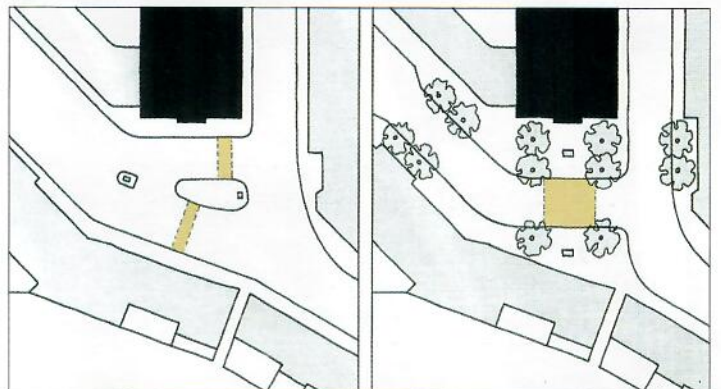
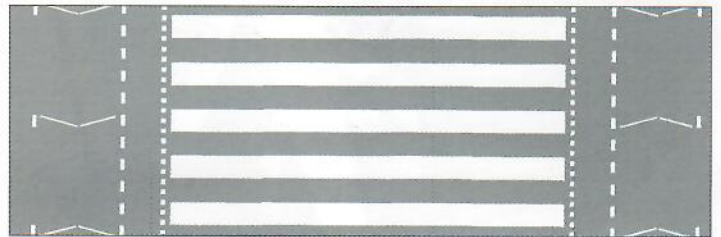
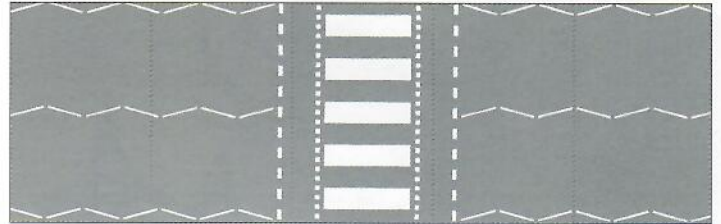
From an urban design perspective, the opportunities offered by the permitted variations become clearer when they are applied to the design at a particular location.

In the two sketch plans, the black shape represents an important local civic building, perhaps a town hall. In the left-hand sketch, a normal arrangement of a two-stage conventional crossing has been located, with little or no regard to the adjacent buildings. In the right hand sketch, the area in front of the town hall has been reorganised into a recognisable place.

Trees have been planted at the front to emphasise the symmetry of the entrance to the building and help create a recognisable, useable square, or place of the kind that local people would value and visitors remember.

To add further value, the arrangement of the crossing extends the new square logically across the zebra crossing to the footway on the other side of the road. It extends the sense of importance of the building well beyond its immediate boundary.

The traffic arrangement, instead of completely ignoring the layout



Are our regulations on zebras restrictive (top)?  
The words suggest possibilities for wider lines and less zig-zags (middle)  
offering room to manoeuvre better-quality streetscapes (bottom)

of the adjoining buildings that determine the character of the area, has been integrated with it. The total scene has been treated as people see it – as a whole.

With these lawful alternatives in mind, a skilful design team can begin to help form memorable places. Places where people would be proud to live and which might even be on the itinerary of someone's city break. Perhaps, more often, we need people with the skills of different disciplines to work together, preferably led by someone who is fortunate to personally possess those interdisciplinary skills.

\*Zebra, pelican and puffin pedestrian crossings regulations and general directions 1997. Regulations 5 (1), and 6(1), which includes a reference to Schedule 1. Schedule 1, Part II paragraph 6 and diagram.

The regulations and particularly the diagram are available online: [www.legislation.hmso.gov.uk/si/si1997/97240001.pdf](http://www.legislation.hmso.gov.uk/si/si1997/97240001.pdf)

● Colin Davis is an urban designer. [www.StreetDesign.info](http://www.StreetDesign.info)

Why are courtesy crossings not more widespread? This month we look at those in Shrewsbury, where physical alterations to the carriageway, instead of traffic orders, have encouraged people to drive with consideration.

# Design notes

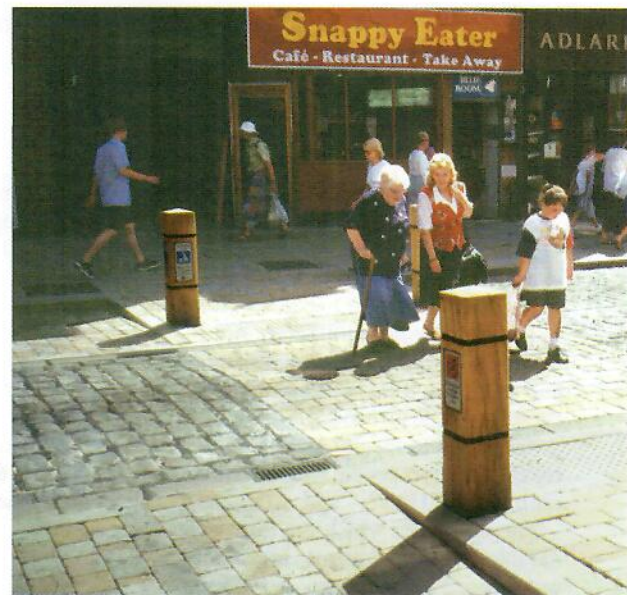
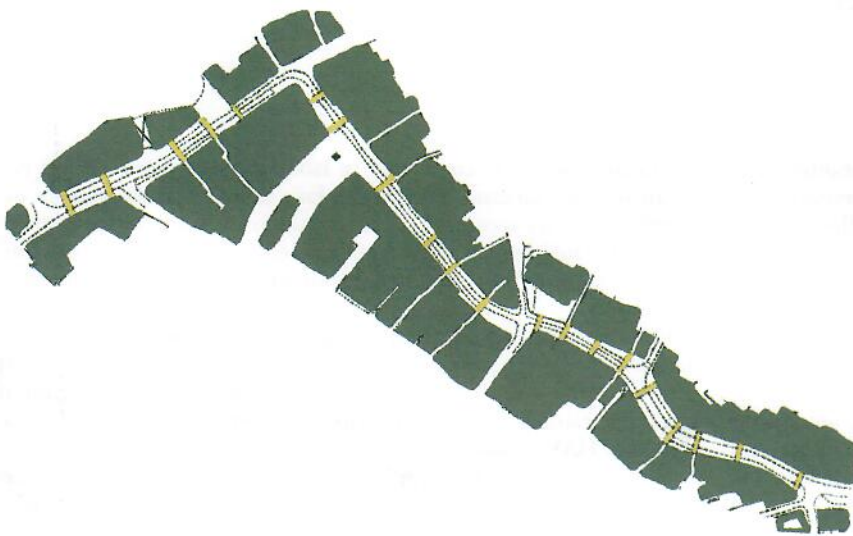
Consider the normal paraphernalia associated with a simple controlled pedestrian crossing. There are regulatory signs to enforce the traffic regulation orders, with zig-zag lines, pedestrian signals and associated traffic signals, signal control boxes poised as an obstruction to pedestrians – plus ugly guard rails.

Then reflect on the measures taken in Shrewsbury and a few other locations that achieve the same objective – allowing people to cross a road in safety – but with a series of informal crossings. These can be put in place without traffic orders and, therefore, without all the regulatory signs, lines and equipment needed to enforce them.

Shrewsbury's scheme came about 10 years ago, when it was selected

particular pedestrian desire line and/or significant architectural feature so, for example, a crossing will be aligned with the entrance doors of an important building. The total effect is one of harmony. It also demonstrates that a traffic scheme can embrace local architectural character and reinforce it, rather than merely paying lip service to it.

The crossing places have a simple design of York stone setts extending between the footway's tactile paving. Tactile surfaces are restricted to the paving at the edge of the footway, and are cut out in a matching York stone. Such attention to detail is of benefit to people with disabilities, and the absence of zig-zag lines appears to make no difference to safety. Neither does the absence of guard railing, leading one to ques-



Shrewd Shrewsbury: The town was chosen to take part in a 'historic core pilot' scheme, and right, the crossings have been created using unobtrusive materials and are popular with locals

to participate in the 'historic core zone' pilot promoted by the English Historic Towns Forum, with support from the Department for Transport, English Heritage and the Civic Trust. This experimental scheme was promoted by Shropshire County Council and carried out with the full co-operation of the DfT. Its purpose was to reduce street clutter and improve the environment for pedestrians, without reducing safety.

The one-way road chosen lies at the centre of the historic town and is used predominantly by buses during the day.

Key to the scheme's success is that traffic speeds are kept below 20mph by the informal crossings. Drivers have become used to stopping for pedestrians.

The single-direction carriageway was narrowed to a minimum of 3.5 metres by widening the footways. It was surfaced with black basalt setts to act as a continuous 'rumble strip', and footways were surfaced with York stone flags, to echo traditional materials used in the town.

An innovative feature was the integration of pedestrian 'courtesy' crossings with the surrounding streetscene. Unlike most traffic schemes, it was not designed in isolation.

Each of the crossing places has been carefully located to serve a par-

tion it elsewhere. Yellow lines are also absent. The whole street was made a parking restricted zone, so they were not needed.

However, it was still necessary to indicate parking, loading bays and bus stopping places. Changes in materials are used, terminating at informal pedestrian crossings. The necessary statutory signs with loading and parking restrictions are smaller than the normal minimum, but with authorisation from the DfT. They sit on stout oak posts, which also act as guidance and reassurance to pedestrians at the crossings.

This scheme has proved popular, with 57% of those surveyed keen to see further restraint. It has led to a 34% reduction in traffic volume and a 22% reduction in speed and shows that it is possible to improve safety through physical enhancement, rather than Traffic Regulation Orders.

The surprising thing is that, although the scheme has been in existence for some 10 years – and has certainly achieved its environmental objectives, as well as traffic and safety functions – its concepts have not been widely copied.

• Colin Davis is an urban designer. ☎: [www.StreetDesign.info](http://www.StreetDesign.info)

Why is there such an abundance of guard rails in Britain? This month, we look at how good crossing design can replace the need to fence pedestrians in.

# Design notes

The British seem to have a passion for guard rails. Travel to any other country and they seem not to grow in such abundance, a point noticed in 2001 by the House of Commons Select Committee on Environment, Transport and Regional Affairs. It commented in its 11th report: 'It is remarkable that they should be considered essential here when, on our visit to Barcelona, Milan, Ferrara and Munich, we scarcely saw a single piece of guard railing, or a staggered, cattle-pen crossing.'

It went further and declared them ugly and a nuisance. 'These grotesque items both inconvenience pedestrians and disfigure our cities. Our own experience suggests they are ignored by many pedestrians, who are unwilling to accept the delay they cause.'

In fact, over the years, there have been some pioneering projects whereby councils have carried out economic regeneration schemes, renewed their public realm and, at the same time, removed long stretches of guard rails.

The Strand, in Westminster is a good example of this from the 1990s. The pedestrian crossings were moved to where they are actually needed - on the pedestrian's direct and natural line of travel. The crossing mid-way along the Strand was repositioned so it follows directly the pedestrian route from Embankment to Covent Garden. The crossing was also widened.

The much-awarded High Street scheme in Kensington shows how guard rails can be removed at a complex intersection to reduce the frustration of pedestrians. The original layout required pedestrians to cross the road in three stages, each with its own press button and wait.

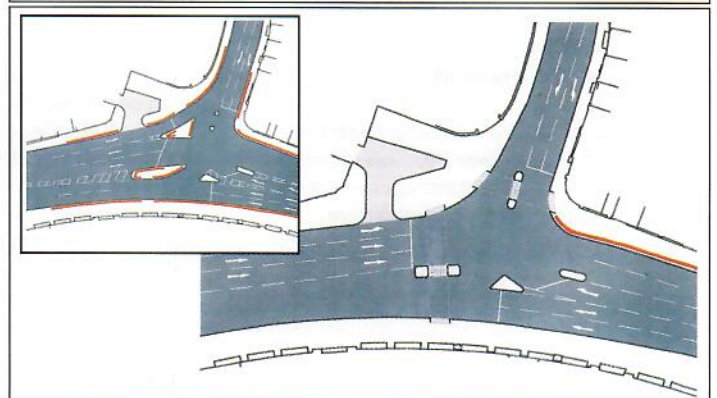
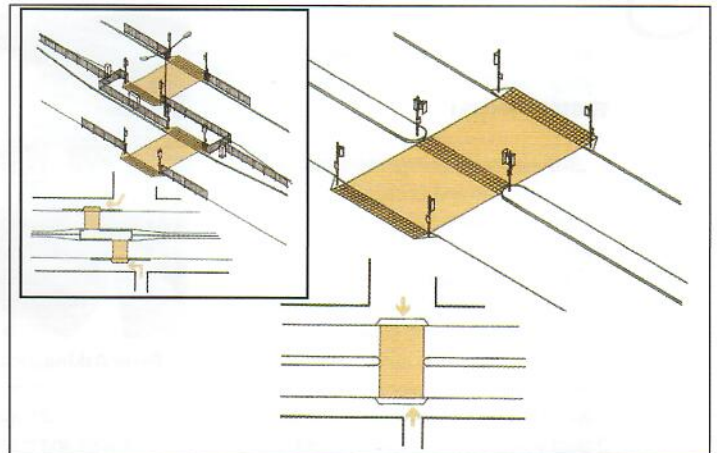
Instead of going through the conventional safety audit process, the Royal Borough of Kensington & Chelsea decided to remove all but a small section of guard rail. The one place where the guard rails remain, although in a more elegant style, is at a place where anyone trying to cross the road would be faced with four separate flows of traffic and where even an able-bodied pedestrian would be putting themselves in danger.

But the relatively-short length of guard rail is only on one side of the road. Someone about to cross from the other side would see it and be deterred. By using stainless steel, a complete design strategy is followed in every detail.

As Craig Wilson, the council's director of transportation and highways said: 'Our desire for simplicity, quality and elegance justified our guidelines for the design'. The council recognised that people expected safety, but not at the expense of visual quality and amenity.

Studies to establish the real value of guard rails in safety terms have been inconclusive. The London Road Safety Unit's research summary No 3<sup>1</sup> concludes there are no compelling safety reasons for guard rails, except near schools. However, safety cannot be ignored, and should be addressed sensibly. 'To ensure that, in departing from safety design norms, we were not actually compromising safety. We have adopted an "evidence-based" approach', Wilson said, when he explained Kensington & Chelsea's policy in 2002. 'Our approach was to go ahead as we thought right, monitor carefully, and be prepared to add further features later, if necessary'. Now, three years later, the council has not had to make any adjustments.

Yet while these projects, which thoughtfully combine urban design with traffic engineering, are being carried out, in most of our towns and cities across the country, the march of these 'grotesque items' continues - with little evidence that the majority have any practical purpose.



On your guard: (top) Kensington & Chelsea after; (above): Diagrams of the Strand, before (inset) and after; and diagrams of Kensington, before (inset) and after

• Colin Davis is an urban designer. ☎: www.StreetDesign.info

\* [http://www.tfl.gov.uk/streets/downloads/pdf/LRSR/Research\\_Reports/Research-SummaryNo3-PedestrianGuardRailing.pdf](http://www.tfl.gov.uk/streets/downloads/pdf/LRSR/Research_Reports/Research-SummaryNo3-PedestrianGuardRailing.pdf)

Much has been made of expensive 'clutter-busting' schemes recently, and this month we consider the built-in clutter of traffic schemes.

# Design notes

Like people, towns want to show themselves at their best. They have prestige areas, and these appear in glossy brochures to convince incomers of the business opportunities. Yet, not far from such lavish scenes, lie the typical streets which those same potential investors see on their way in from the airport. These streets, often just outside the town centre, give the impression of clutter, visual chaos and neglect.

Our streets look so cluttered for reasons that are common throughout the country. The same component parts of clutter appear from the south of England to the north of Scotland. The same, oddly-designed, poorly-located and ill-matching signs, boxes and other equipment are put up by separate agencies, renewed over separate timescales and paid for through separate budgets. They are seldom designed or co-ordinated.

Virtually all such works are permitted development, and outside the control of the town and country planning acts. In areas where there are county, district and town councils, all three tiers contribute separate services that have an effect on the appearance of a street.

Sometimes, large sums of public money are spent on street enhancement and a fresh start is made. But the day after the mayor declares the scheme complete, the chaotic system takes over once more. Alterations and adjustments to the scheme take place, with little respect for any original design concepts – bins, signs, posts and boxes creep back.

With extraordinary effort, authorities and agencies – often through the tenacity of an individual – can forge informal links which are sustained long enough to create and retain quality. For example, in small towns where people from different agencies, through a respect and fondness for a place, develop a common will to do their best for the town.

For the majority of our streets, however, the present system of constant, unco-ordinated changes by separate agencies is likely to continue.

Yet, where a completely new traffic scheme is being installed, there would seem to be an opportunity to at least create visual quality as well as practicalities. Here, we meet a quite different problem.

Traffic schemes are assessed primarily on their likely success in answering tangible traffic and safety problems. Design – character and appearance – does not appear in normal assessments of traffic schemes. Indeed, an attempt to balance the considerations of measurable throughputs and safety with character and appearance would risk accusations of quaint irrelevance.

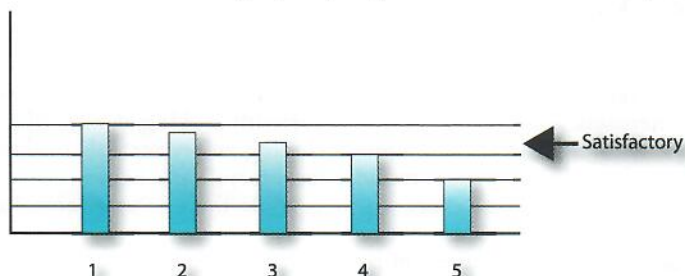
Character and appearance, handled with assurance by some professions, and even acknowledged in legislation, are totally ignored by other professions and legislation – many of which have huge influences over the places where we live and work. Add a consideration for issues of appearance into an assessment, and the best scheme may be different from that first chosen (see diagrams).

Included here is a picture of a purposely-designed bus gate (above right). It is situated in an internationally-revered historic town where character and appearance might be considered important for its image and, therefore, continuing economic wellbeing. Nevertheless, the environmental benefits of the bus gate – to prevent all but buses entering the central area – is seen as sufficient to counterbalance a remarkably ugly collection of signs and equipment.

To suggest that a bus gate should not only provide a practical purpose, but also contribute to the attractiveness and visual experience of the street would, to some, be mere frivolity. Is it possible that we could do better?

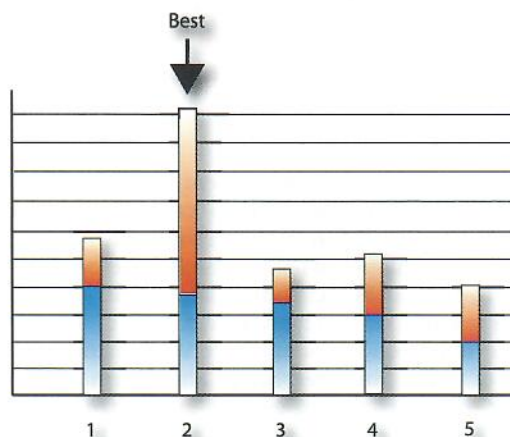


Less is more: Bus gate (above) and typical clutter outside a town centre (inset)



Single issue assessment

A: Scheme assessment diagram



Multiple issue assessment

B: Scheme assessment diagram A with issues of appearance considered

Big Brother is watching you, as you cannot have failed to notice. This month, the retrofit of bulky cameras is examined.

# Design notes

A great opportunity facing our professions is to foster more understanding between the interests of urban design and the technologies that are needed to make life in the public realm pleasant – and even enjoyable – as well as safe.

But sometimes, it feels that each step forward is accompanied by at least half-a-step back.

The first picture shows an ordinary urban street. Not the sort of street which is so bad that it justifies special regeneration funding, or so prestigious that developers donate millions for a comprehensive facelift. For much of the population, it is the local high street.

In the second picture, unnecessary signs have been removed and the guardrails are gone. Traffic signal systems have been simplified and the signal heads combined with lamp columns. The signal control equipment box has been put in a less-obvious position – possibly a radical underground solution was decided on. Paving has been simplified. Odd ‘makings-good’ with poorly-laid, little concrete blocks have been avoided, and the visibility of manhole covers reduced by running paving slabs across in in-set covers. The carriageway road markings are reduced to a minimum.

Suddenly – although this probably took about 10 years of painstaking discussion, negotiation and compromise, driven by someone with technical skill and perseverance – you can see where you are. Clearing away the clutter reveals the place for what it is – a charming part of town with a Victorian pub and a church spire in the distance.

Then, along comes a new problem which requires a highly-visible solution be retrofitted into the scene. The problem is security. The solution is cameras.

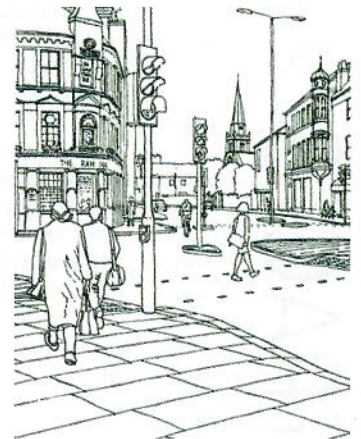
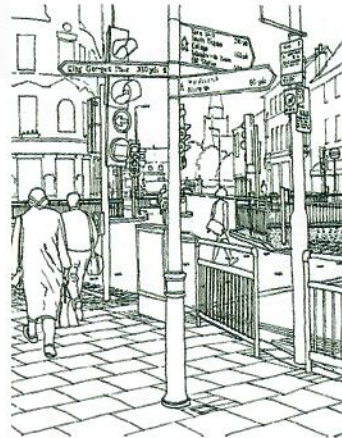
The design of a street never ends, roads are constantly being adjusted. But with no-one in total control, the following process is typical.

The problem of security is dealt with by a special sub-group of the local authority, with interests from local traders and police, and financial assistance from the Home Office. A scheme is produced, based on the perceived need, and the most-effective location for the cameras. Planning permission is not required. There is no formal co-ordination with other local authority services, such as planning or even traffic and highways, and so the cameras, with their bulky equipment boxes, are erected, right in the middle of what seemed to be a spare bit of footway.

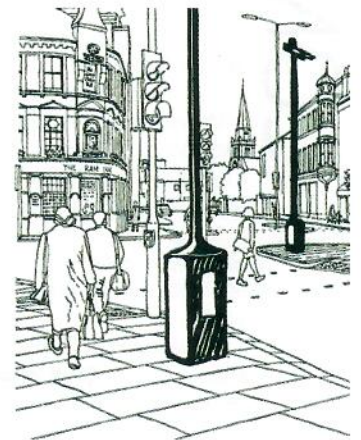
The fact that their appearance may be a jarring or obtrusive is never considered. How do you measure the disadvantages of jarring and obtrusiveness? Not easily, especially when balanced against the more tangible ‘horrors’ that cameras are intended to prevent.

Well, up to a point. Technology has moved on. It is now possible to have security cameras small enough to be fitted to the sides of buildings. The last two pictures show cameras sensitively positioned on buildings in an urban area. Cables and equipment boxes were fitted out of sight.

It may be necessary to install an extra camera or two to make sure all required sightlines are covered, but the real drawback of this advance is the extra time and effort needed. So, how much time and effort should be devoted to preventing visual harm and unnecessary obtrusiveness in an attempt to keep a place pleasant, even enjoyable, as well as safe?



**Out of sight:** Streets may be cleared of clutter (see above), but the installation of security cameras can ruin the effect. Now, help is at hand in the form of unobtrusive CCTV equipment, neatly concealed from view



## Spot the camera



This month we consider whether the appearance of a road beyond the kerb has any effect on a driver's behaviour.

# Design notes

Imagine a six-metre road, wide enough for two vehicles to pass comfortably in opposite directions. Just 50 metres ahead there is a sharp turn to the right, with poor or no sight lines. What sort of warning signs should be provided in order to persuade a driver to approach the corner at a safe speed?

A driver has just turned into the road and is already travelling below 20mph. Can we assume, reliably, that the immediate surroundings – the landscape, the streetscape or the land use beyond the kerb – has any bearing whatsoever on the driver's behaviour?

Below are sketches of this six metre-wide road, set in various rural or urban contexts. Let us predict the driver's reaction to each condition.

1. Open country: A couple of hikers on the verge give no reason to slow down. In fact, the corner can be seen as a challenge – hope nothing very big is coming in the other direction, shift down and go for it.

2. More of a challenge: The hard rocks are close to the kerb, providing little space to avoid a collision with anything round the corner. With no indication of what lies ahead, keep going, and trust to the law of averages.

3. Near a small airport: Location means the chance of an entrance off the road, with heavy vehicles, is high. And a McDonald's sign suggests more activity. Approach with caution.

4. Entrance to rural village: This must say slow down, although people who know the road well may decide that the risks are calculable.

5. Small town high street: The few pedestrians suggests it is a Sunday morning. Nevertheless, there is every chance that something big could be coming the other way.

6. City centre: Would you really slow down to a crawl in case there is a brass band marching just round the corner?

signs make any difference to a driver's speed? Would they provide anything he could not gather from the scene?

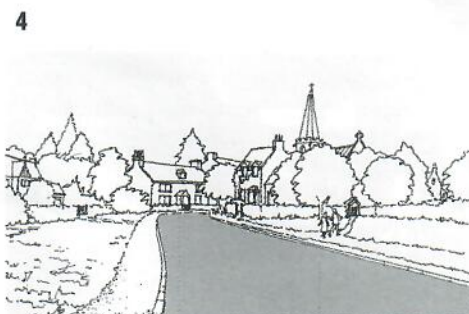
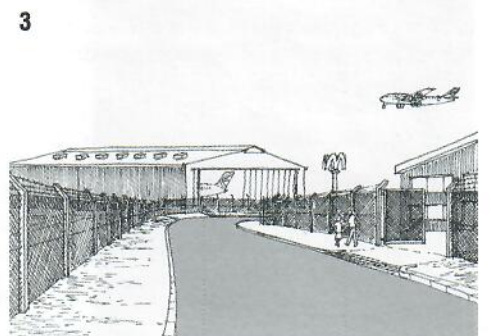
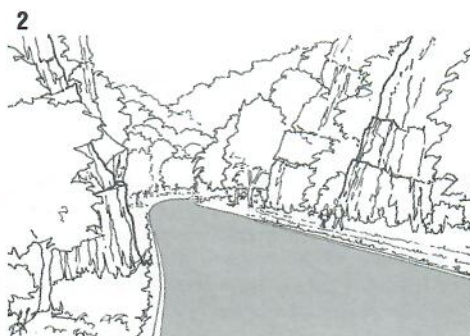
Intent on providing a road that is as safe and efficient as possible, perhaps designers are too concerned with the calculable mathematical formulae involving vehicle flows, carriageway geometry and the numbers of pedestrians at crossing places. To assist, signs are erected to instruct and warn drivers of potential risks, and sometimes the surroundings beyond the kerb are taken into account. Yet, can we really assume that drivers look only at formal traffic signs and not their surroundings?

We all recognise the influence of locality, but how big is it and can it be relied on? In an accident, would the highway authority be blamed for not effectively warning of the danger? Can the seemingly-obvious deductions about driver response to locality and its potential danger be substantiated in a way that can be applied by a design technician? Fortunately, studies are beginning to show that they can.

The Scottish Executive's studies on natural traffic calming include work by Professor Terence Lee of the psychological studies department of St Andrews University. It shows that drivers do note surroundings and adjust their driving habits accordingly. Consequently, it is possible to adjust and design new landscape and townscape to affect driver behaviour.

Nationally-published research is anticipated that will develop further the psychological approach to effective traffic calming and driver behaviour, in order to provide streets that are not just safe and efficient but are pleasant places to live and work.

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This month we tackle the issue of fixing traffic signals to streetlighting columns

# Design notes

Public realm design awards are a double-edged sword. Nice if you are around when they are given out. Slightly annoying if someone else gets all the credit that should be yours. But what really makes a winner?

Perhaps no scheme should be considered for an award until five years after it has been completed. In the real world of the tough street, paving and street furniture need to withstand an incredible amount of wear and tear and downright abuse.

So, the challenge is to produce a good-quality street furniture which serves its purpose and looks good for years, not just days and months. As a contributing factor, the less clutter there is, the less the maintenance costs, and the easier it is to clean and sweep footways.

On a typical short stretch of city centre narrow pavement, near a street corner, there may be five posts. They block the view, clutter the pavement, and add to confusion. One technique to eliminate unwanted posts is, where practical, to fix traffic signals to lamp columns. The principle is not new. It has been carried in several places across the country over the last couple of decades. At Milton Keynes, it seemed to be a standard procedure from the days when it was being developed as a prestigious new city.

There have also been isolated examples in Norfolk and Wiltshire where, to overcome the problems of restricted sites, signals have been fixed to lamp columns as a practical expedient, usually when both installations were being renewed at the same time.

But these are rare. Now, with the growing legislative enforcement of rules concerning safety of maintenance personnel, there are concerns that such initiatives should be resolved. The arrangements for handling two distinct electrical systems, each serviced by a separate workforce, in a single column, should be fail-safe.

The main issue concerning location of equipment is that traffic signals need to be precisely positioned in relation to traffic orders, whereas lighting columns can be positioned with greater tolerance.

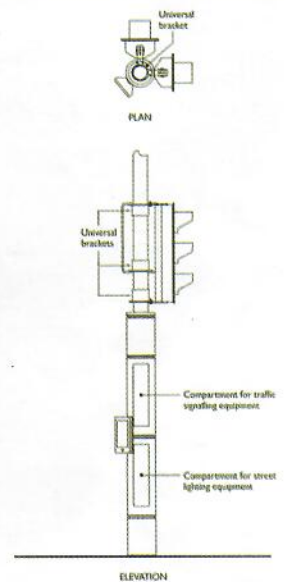
There are managerial, as well as technical issues to be addressed, here. First the installation of both signals and streetlighting need to be considered at the same time, not easy when each might be controlled by a separate budget, timescale and authority. Some management and financial co-ordination is needed.

The two electrical systems: high voltage for the streetlighting, and low voltage for the signals, need to be kept apart. Each needs its own control equipment housed in a separate locked enclosure in the lamp column with its own key and is accessible at all times. Cable runs are also kept separate.

Several styles of dual column are available from a stainless steel-clad column to more budget, off-the-peg designs.

Whichever is selected, it should be robust for its purpose, easily cleaned and maintained, and capable of having graffiti and advertisement stickers removed.

The picture of the cluttered city centre pavement (*top right*) also shows that other matters need attention, and these are certainly within the control of a highway authority. Advertisement 'A' boards are not appropriate in narrow footways, and the surface and maintenance of the footway could be better. Less obstruction on the pavement reduces frustration for able-bodied



Street corners can be a focal point for clutter. With the right managerial practices, a more elegant solution is possible

pedestrians and is certainly a great help to people with disabilities coping with things to walk around or stumble over.

Is all this effort really justified? In the long term, yes. Reducing street clutter benefits all our streets, not just a few street enhancement schemes that might be potential award winners.

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This month, **Colin Davis** reports on the issues surrounding putting street lamps on buildings.

# Design notes

Walk through a historic town on a sunny afternoon and you will stumble across little groups of tourists standing, gazing at what the UK has to offer. Many from the New World come to tread the same streets as their forebears, to look for real evidence of the past and not Disneyworld make believe.

These visitors are part of the constantly-expanding economy of international tourism, a significant earner. We offer them restored historic buildings – often still being used for their original purpose – and, increasingly, completely-restored public spaces.

The techniques for whole public space or street restoration should mean damaged or decayed parts are skilfully replaced in order that the whole appears as near the original as possible. So, with historic towns, all the charm of a Dickensian Christmas card should be there without the anguish and danger of that period. Indeed, we demand modern transport systems, safety, and lighting standards to be incorporated everywhere.

Public lighting, whether for streetlighting or floodlighting, needs careful design.

The example in the pictures is a historic marketplace in a small Wiltshire town. The buildings are mostly distinguished Georgian or early Victorian structures, which follow an earlier medieval town plan. At its centre, there is a historic tower commemorating a citizen of the town. It is illuminated at night with four floodlights, each neatly incorporated into a replica lamppost, contemporary with those of William Henry Fox Talbot.

Although the space was traditionally a cattle and farm equipment market, it is now used mostly as a municipal car park. Rather than looking lost among a sea of cars, the important views of the tower have been safeguarded. In fact, the car park seems agreeable enough for two people to sit there at the base of the tower and chat.

The process of restoration took seven years and involved three councils. The tower is owned and managed by the town council. It is surrounded by a car park that is owned and managed by the district council, which, in turn, is surrounded by county council highways.

Streetlighting, a county responsibility, was fixed neatly and unobtrusively to buildings. The colour of the lanterns in each case blended exactly with the colour of the wall to which it was fixed. The district council negotiated way-leaves for the lights, cables and control equipment.

All the footway paving was also restored and street furniture clutter removed. Removing the modern streetlighting columns was essential, but part of a bigger endeavour. The budgets of all three councils needed to be co-ordinated, which is what took the time.

The principle of fixing streetlighting to buildings has been developed most successfully in the City of London. It has a local byelaw which allows the corporation to insist that lights and their equipment are fixed to buildings, which has led to two important trends.

First, a practice has developed whereby light fittings and cables are sensitively positioned in relation to the architectural characteristics of historic buildings. The lights are positioned with the same care that would have been given to windows or decorative art. Cables are hidden under cornices at the side of columns or under ledges.

Second, it has an effect on the design of modern buildings in the City.



Seeing the light: Small market town (top and right) in Wiltshire and (left) Bank station in the City of London

Because the principle has the force of law, architects and owners are naturally concerned that retrofitted lights might mar the original design concepts of their prestigious buildings. Lighting positions are therefore agreed at planning application stage.

Lights can be fixed to new buildings and located exactly to contribute to the architectural style of the building. Architect James Stirling's idiosyncratic postmodern-style building at Bank station is a good example. Cable ducts are internal. Control equipment boxes are discreetly set into external walls, although accessible for maintenance at all times.

In both examples, streetlighting standards have not been eroded, but simply made less obvious during the daytime. Back in Wiltshire, those tourists can admire a well-presented historic monument, read its inscription and ponder their genealogy.

This month, **Colin Davis** explains just what 'design' means for the streetscape.

# Design notes

'When I choose a word,' Humpty Dumpty said to Alice, in a rather scornful tone, 'it means what I choose it to mean – neither more nor less.' He could have been talking about the word design.

What exactly do we mean by design? Is it an extra, non-essential decoration added to a practical solution like coloured icing to a cake? Or is it an integral part of a total concept which takes into account impressions and feelings as well as facts?

Consider the design of a bridge, one of the most tangible of engineering endeavours. Its purpose is to span between two points – a practical project that needs no further embellishment or meaning.

However, when the Forth railway bridge was built, soon after the Tay bridge disaster of 1879, in which 75 people were killed, it had to be robust. It was not just over-engineered, it was also built to look secure. It was designed to impress, and to inspire confidence. The Thames Millennium Bridge, in contrast, stretches engineering principles to the limit, and almost beyond. Designed to look elegant and defy conventional structural wisdom, it was conceived to thrust a 'blade of light' across the Thames.

Each structure has something to say which is beyond the mere provision of a means to cross a stretch of water. They are examples of total design, yet they can be comprehended in a single glance, and so are easy to appreciate.

In urban design, it is often the converse that is seen – a space created by the surrounding buildings. Instead of looking at an object from the outside, people go inside to experience the space almost as a huge room with no roof.

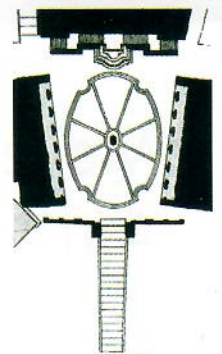
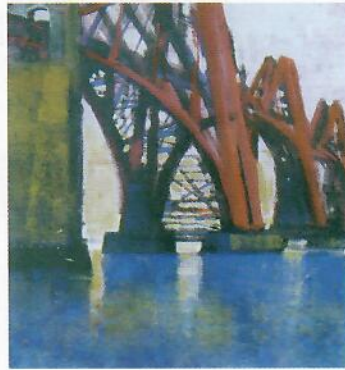
The Piazza del Campidoglio, Rome, is an outdoor civic space enclosed by three renaissance buildings. The focal point is the Palazzo del Senator, flanked by two arcaded classical structures facing each other as if mirror images. The purpose of the square is to impress. There is an impression of completeness. The square, though public, is an integral part of the group of buildings, and feels part of the grandeur of the palace. Patterns in the stone paving, sculpture, even lighting columns, are woven into the total design.

Returning to Britain's more modest towns and streets, it is still possible to weave these classical principles into practical everyday street design. Many important buildings – churches, town halls and market halls – are built in classical styles, based on symmetry and are worthy of being a focal point.

The paraphernalia needed to manage traffic usually blurs and detracts from the subtleties of a focal point but, with care, small traffic-management interventions can be made to add importance to a focal point. This way, a streetscene can be given more clarity and more easily recognised.

At the Corn Market, in Devizes, Wiltshire, the layout of a small informal pedestrian crossing has been related precisely to the design of the building, while still serving its practical purpose.

Instead of the crossing being positioned only in relation to the alignment of the road and footways, it adds importance to this already-significant building in social, architectural and urban design terms. Widened footways and dropped kerbs relate visually, but are subordinate to the main building, and give it greater importance. A wide and spacious



(Clockwise from top left): Firth of Forth bridge; Thames Millennium bridge; plan of Piazza del Campidoglio, Rome; Devizes crossing; and Palazzo del Senator, Rome



refuge in the middle of the road provides even more clarity, comfort and safety. The two decorative lighting columns are positioned symmetrically to relate to the front door of the building, and so are the keep-left signs.

Now, that is what is meant by the word 'design' Neither more nor less.

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This month we take a look at what the traffic signs regulations actually say.

# Design notes

There is a growing awareness that streets are about more than traffic. While cyclists can be considered as traffic, there are also pedestrians of all shapes, sizes and abilities, who are trying to pursue various activities on our streets.

People, especially tourists, walk about towns and cities for pleasure. They are not necessarily part of the transport system, although they may be moving as they have a good look at the place.

The appearance and convenience of our streets, especially from the point of view of visitors on foot, is important, and often has a bearing as to how an area is perceived and its economic wellbeing.

Among the many solutions put forward for improving the quality of streets is a call for the Government to change the Traffic Signs Regulations, which are seen as responsible for the huge amounts of street clutter. Yet, careful study of the regulations, as distinct from the ostensibly helpful advice notes, show they can be implemented lawfully with considerably less clutter than is sometimes deemed necessary.

Here are four examples:

- **No entry (sign 616):** This sign is usually required to be placed on each side of the road, but in certain circumstances can be placed on only one side – for instance at a junction where the relevant road is less than five metres wide. Direction 8 (3) (b) (ii). In this case, the width of road refers to the distance between the kerbs.
- **Roundabouts (sign 606):** Turn left signs at roundabouts are not mandatory, although the highway authority must satisfy itself that drivers are not being misled. As the Department for Transport notes: 'In environmentally-sensitive areas, where the direction in which traffic should circulate is so self-evident that no-one is likely to be in any doubt, even if no sign 606 (or sign 515, the chevron) is provided, it might be felt that the sign could safely be omitted. That's lawful.' The roundabout with the obelisk at Seven Dials, London, is one example where signs have been omitted. Drivers have no difficulty in deciding which way they should circulate.
- **Car parking places (sign 661 series):** These signs explain where drivers can park and other parking restrictions. They need not be fixed to separate grey posts. They can be fixed to adjacent railings, walls or structures. While obtaining permission from private owners is a consideration, in some neighbourhoods this has been organised by local residents or amenity groups. The point that the signs might be hidden by parked cars is no excuse for non compliance as they are not intended to be read by drivers while driving. They are expected to find a safe place to stop find the sign and read it.
- **Pedestrian zone (sign 637 series):** These signs are usually needed in city centres to indicate pedestrian areas and parking and waiting restrictions. They can be fixed neatly to walls.

Where the walls have obvious architectural elements, the signs should be fixed and positioned with the same care that a doctor would use with his brass plate. The signs can be fixed so that they appear to be part of the total scene. A likely reason why these lawful and neater arrangements are not carried out is that signs are put up to indicate new traffic arrangements and decisions are usually made on a single issue-by-issue basis. But the regulations can hardly be blamed.

There are ways to carry out practical traffic management programmes



Given notice: (top left): Two 'no entry' signs; when only one is necessary (right); London's Seven Dials roundabout has no signs; and (bottom right and above) parking signs on railings and in pedestrian zones

and, at the same time, enhance the total streetscene and its economic wellbeing. A start can be made in conservation and other 'sensitive' areas – although it is difficult to think of any part of this country that should not be considered sensitive.

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This week, **Colin Davis** investigates how a foreground that is minimal and consistent helps create what the Office of the Deputy Prime Minister calls 'local distinctiveness'.

# Design notes

Look at a well-known view: The parade ground at Horse Guards, London, for example. There is a well-kept sweep of Georgian buildings and a few people appreciating the view and space. Essential to this view is what is in the foreground.

A full impression of the whole imposing terrace cannot be gained if you are close up. You need to stand back. It is then that attention focuses on what is in the foreground – or in this case, what is not.

The scene is remarkably clutter-free, primarily because it is a parade ground which needs clear spaces. But the street furniture also complements the main buildings, and adds dimension and quality to the total scene.

Look closely and notice that there are only three main colours and materials in use – light grey stone for buildings, statue plinth and footways; beige gravel for the parade ground and a similar material on the highway; and black metal for the statue, lighting column and chain rails.

The foreground paving and street furniture are a suitable setting to the main scene. They have been designed to be minimal, so they do not dominate the scene, and consistent in style with the total scene, so that they appear to be part of it.

These principles can be seen in many urban spaces which have been designed as part of a complete group of buildings, both historic – the courtyard at Somerset House – or modern – the Circle court at Broadgate. In each case, the design and execution of all the paving and street furniture acts as a consciously-designed, though visually-subordinate setting for the main buildings.

Should these principles of minimal and consistent design for paving and street furniture be translated to a typical high street scene? Some might argue that disorder and visual chaos is the result of a dynamic and modern society, and should be encouraged, or at least condoned. But for many people, some sense of order is desirable to give the equally-appreciated sense of safety.

There is another advantage of a foreground designed to be both minimal and consistent. By paring away familiar foreground clutter, it is possible to see what is beyond – usually something interesting that helps people distinguish one place from another, such as the town hall or a castle, and its environment, for example, the end of a street or bend in the road.

Turning these principles into action for the improvement of the streetscene is not easy. Public streets are rarely controlled completely by any single agency, and so they are not really designed. But keep in mind the principle that the less street furniture there is, the better, and you might find some signs, bins, boxes, posts and railings are superfluous.

Co-ordinating the style and colour of all paving and all street furniture is a complicated task that has been achieved only in a very few places. Street furniture is put in place over time by different people in answer to different needs. Designs that co-ordinate with what is already there are not easy to produce.

But the effects can be dramatic, as the four high street scenes show. The same clutter is applied to two different places. Only when the clutter is reduced can you begin to see exactly where you are.



Clearly better: An uninterrupted view of London's Horse Guards parade ground (top), while two pairs of high street scenes (below) show how reducing common distractions can help people identify exactly where they are

This month, **Colin Davis** seeks to translate the language of car parks. What do they say about the area we are visiting?

# Design notes

Can car parks speak? If so, do they say 'welcome', or 'well if you must, buy a ticket here and get on your way'? As the transport minister said recently, 'streets are for people, not just for traffic' so, by extension, car parks should be for people, not just cars.

In fact, car parks have a special role in the economic wellbeing and development of a town. They are where people stop acting as driver, get out of the car and look at the place from the totally different point of view of a pedestrian.

If it is a first visit, it is where a person will get a first impression of a place – hopefully clean, tidy and safe. But is it welcoming? Have we arrived at a nice place that was really worth the journey? Or is the car park some sort of visual embarrassment that is intended to be excused by a local rate payer as an example of necessary frugal public spending and be overlooked by an indulgent first time visitor?

There are some excellent car parks that get awards, often the multi-storey type that are within a new shopping complex where economics and design work together for retail success. There are also some remarkably welcoming car parks associated with stately homes. The National Trust has become adept at converting walled kitchen gardens or even orchards into people-friendly car parks.

Cars are sometimes put where there are historic monuments or even sculpture as well as trees. As the picture shows (*top right*), another half dozen cars could probably have been squeezed into the space, but the cars have been carefully positioned to allow the monument to continue to be the focal point.

Little details such as keeping signs as small as can be practical, and fixing them to tree grills or litterbins, have all been thought through. The result is a car park that says 'welcome' from the moment your feet are set on the ground.

So, if cars can be put in pleasant places, can the places where other cars are put be made pleasant?

Compare this with a typical small town car park. Arrangements for ticket sales, information on times and charges, lighting, litter collection and security all seem to have been put in place by different hands a different times. The result is not too welcoming.

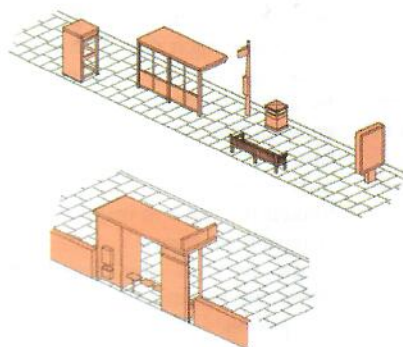
Yet, unlike a public street, a car park is completely under the control of a single agency, usually a district council. There is probably also a strong corporate policy on the economic development of local trade and business, of which encouraging visitors through visitor car parking would form a part.

Techniques for co-ordinating essential equipment are available. The problem is similar to that faced by the designers of bus shelters. There is no technical reason for not including in a bus shelter the seats, bins, bus stop signs, timetables, advertisements and even public phones that are needed at a bus shelter. It can be done, but because each may be provided by a different agency, it is not.

A car park that is controlled by a single agency should be able to say 'welcome.' Perhaps the industry will soon get its head round the problem of producing some co-ordinated kit.



The good, the bad and the ugly: subtle changes to the design of car parks – such as creating space (*above*); and keeping signs small (*left*) – can make a big difference. Adding clutter to an area (*below right*) can be an eyesore, as designers of bus shelters tend to find (*below left*)



This month, **Colin Davis** looks at how design can restore dignity and character to the streets.

# Design notes

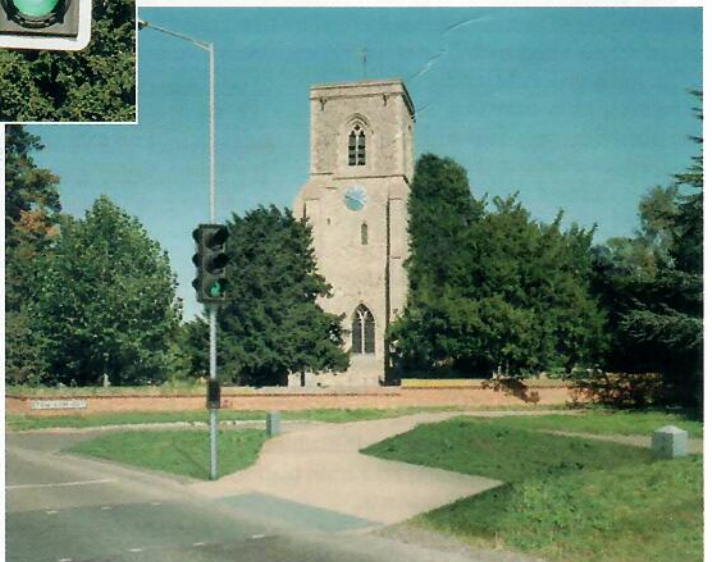
Imagine returning after some time to a favourite rural village. Turning a corner, expecting the familiar view of the parish church, you see instead some recent improvements – a new signalled crossing. Times change, but you cannot help thinking that it could, perhaps, have been just a little more elegant.

This particular picture (*right*) was published last year by English Heritage as part of its 'Save our streets' campaign. Its aim was to restore dignity and character to historic streets, largely by removing unnecessary signs, pole and barriers.

Taking up this challenge, session delegates at a nationwide CABE/Institution of Highways and Transportation programme – designed to raise the awareness of urban design in the minds of highway and traffic engineers – were asked to come up with some suggestions.

Here are a dozen to think about:

1. Is the ugly, cranked, drainpipe-style signal post necessary? There seems plenty of room to set the post back from the road to prevent it being hit by a vehicle.
  2. Are the secondary signals and second pedestrian push button necessary?
  3. Can the pedestrian signals be replaced with near-side 'Puffin' signals? In which case, the unsightly scrap-iron-style signal bracket is not needed.
  4. Do the white lines around the signals really serve a purpose? They are not required by the Traffic Signs Regulations and General Directions (TSRGD), and are not, therefore, mandatory.
  5. Could the simplified signals be fixed to a suitably relocated and modified lamp column? Then a separate signal post would not be needed.
  6. Are the two rows of different guardrails required? There is plenty of room for alternative landscape or grass verges.
  7. Does the cycle-direction sign need to be so big and on a post? It could be closer to the ground.
  8. Is it necessary to have a sign saying that the path is no longer a shared cycleway and footway?
  9. Does the tactile paving need the stem extension across the footway? The grass verges guide people with visual impairment to the push button. Could the tactile paving be a similar colour to the rest of the path? In conservation areas or near listed buildings, official advice permits a relaxation of the colour differentiation.
  10. Could the crossing be wider than the minimum 2.4m? A more comfortable width would be 6m, and acceptable within the crossing regulations.
  11. Could the skid-resistant road surface be the same colour as the rest of the carriageway? Arbitrary unintended colours are ugly and confusing, as they reduce the impact of statutory road markings.
  12. Finally, could the name sign be fixed more neatly on the wall?
- Just a few ideas but, at each programme session, many of the



*Before and after:* English Heritage used the top illustration as part of its 'Save our streets' campaign. The same view revised by applying urban design principles. *Inset:* signal bracket detail

same points were raised, so it can be done. Perhaps we need more leading politicians, and their chief executives, to put in place systems that will deliver public realms of quality as well as safety.

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This month, **Colin Davis** looks at walking and the design of more 'comfortable' streets.

# Design notes

Streets for All, Living Streets and Mixed Use Streets are some of the publications, organisations and campaigns that describe a growing concern expressed by minister for transport, Derek Twigg, that 'streets are for people, not just traffic'.

Of particular interest are techniques to allow pedestrians to walk in urban streets more comfortably – that is, able to walk directly where they want to go, with as few diversions as possible, and to walk with as little intimidation by traffic as possible.

Take the simple act of crossing a road at a street corner. How often does it feel as if the traffic turning is too fast? And how often is it necessary to take a detour just to cross a road?

Yet, a strict reading of the *Design manual for road and bridges* regarding the radius of kerbs at road junctions appears to deliberately put pedestrians at those disadvantages. Figure 5/2 of Volume 6, Section 2 Part 6, TD42/95 shows a side road entrance to a main road with the large-radius kerb designed to relate to the requirements of the swept path of the rear wheels of a long vehicle. The effect on pedestrians is explained as: 'Pedestrian crossing points should be a minimum of 15m back from the "give way" line.' You get the impression that the person who wrote it had not often walked home with the week's shopping.

Another affect of large radii is that they encourage higher turning speeds which, due to the dramatic improvements in acceleration and road holding of an ordinary family car, are far greater now than when the concepts in the *DMRB* were first considered. These wide arcs also result in areas of tactile paving which is quite oddly shaped, unsightly and probably difficult for people who rely on it to comprehend. In some places, the footway completely disappears.

Fortunately, the *DMRB* applies only to Highway Agency roads and is expected to be modified by highway authorities for their own urban roads. In fact, as the modified diagram shows, the swept path of the rear wheels of turning vehicles need not determine the geometry of the kerb, merely its limits. The actual kerb line can be made much more acceptable to pedestrians. A kerb at right angles to the direction of walking it is more logical and comfortable to use. People should also be allowed to walk directly where they want to go, with as few detours as possible.

Where sharp street corners have existed for decades or even centuries, it is surprising to see how well the drivers of large vehicles actually cope – bus drivers skillfully take buses within inches of the kerb each time.

If drivers were likely to drive over the footway then a carefully-positioned bollard would be sufficient deterrent, set at the edge of the kerb, rather than within the footway, so that the effective footway width for walking is maximised.

Does 'streets are for people' mean that we should reappraise some of our established attitudes to road geometry, and make life for pedestrians a little more comfortable?

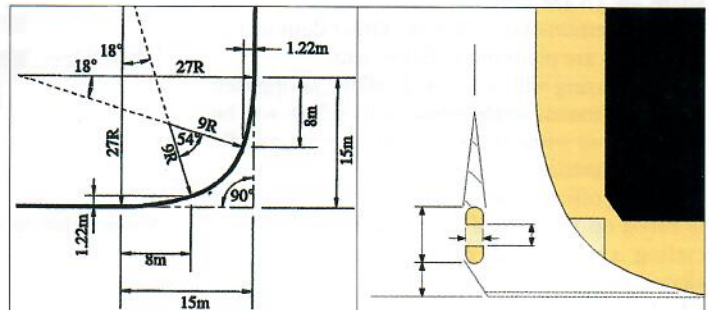
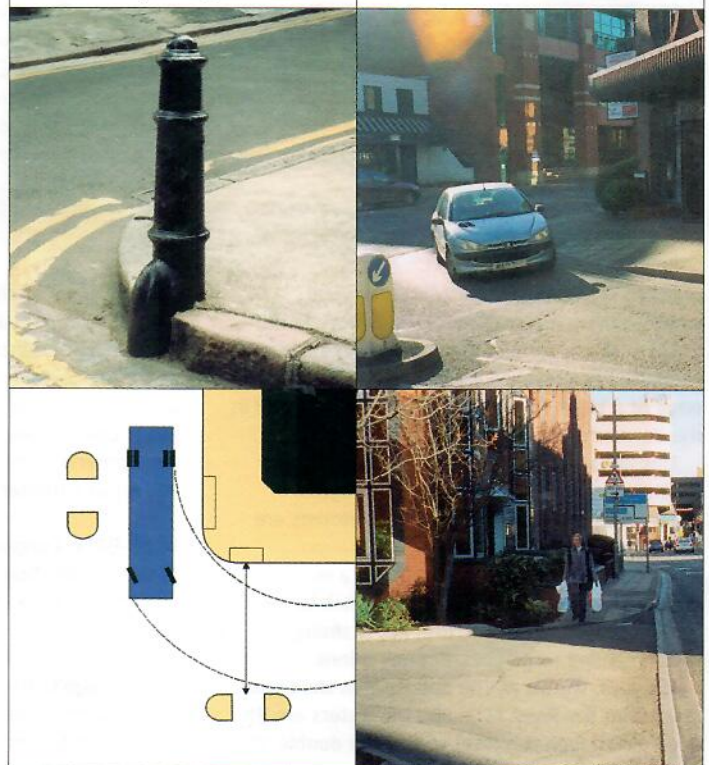


Figure 7/3 : Design of a Compound Curve (para 7.18)



Clockwise from top left: Large radius from DMRB TD 42 95; large radius from *DMRB* with buildings and tactile paving; large radius. Car turning at speed; large radius. Walking home with the shopping; sharp corner. Long vehicles turning at sharp corner, and sharp corner. Bollard at corner in historic town centre



This month, **Colin Davis** considers road surfaces and their visual contribution to the landscape of the street.

# Design notes

The picture of Lavenham, Suffolk (*top right*), shows a quite outstanding country village. Look more closely and you see the colour and texture of the bound gravel road surface reflects the colour and materials of the lime-washed buildings. Traffic signs and lines have been eliminated or reduced to the minimum. Road markings have been effectively avoided.

This whole scene has a sense of completeness and unity. It harks back to the time when it was sensible to build roads with material from local quarries. The roads had an appearance that was the direct result of the local geology. The same can be said for the appearance of the buildings. At Lavenham, they built in timber and render, rather than brick or stone.

Remarkably-wide variations in the geology of Britain, together with the difficulties of transportation, automatically created the very marked differences in the buildings as well as the landscape which characterise each part of the country. It was almost impossible to construct roads and buildings that did not contribute to the local distinctiveness. It has given Britain its charm.

Today, with the whole world from which to draw materials, there is a wide range available to create the exact effect desired. But these materials need to be selected with restraint.

Whereas a bound gravel surface for the carriageway, and even a matching footway, is appropriate for a village in rural Suffolk, something more metropolitan would be appropriate for a city centre. The road surface could have a controlled, neat and tidy, almost formal appearance – more business suit than country casuals.

There is a temptation to apply a vast range of coloured surfaces, ostensibly to indicate prohibition on bus lanes, or warnings at dangerous spots, or places to give way to cyclists. However, it is easy to over-embellish these roads so that the addition of a simple skid-resistant surface adds to an array of arbitrary, oddly-shaped and frankly, confusing, coloured road surfaces. How is a driver intended to react to a patch of buff-coloured road? Is it a message or a warning? Is it an attempt at beautification, or is it merely the only colour that was available to reduce skidding?

Fortunately, a sense of formal unity in urban streets can be achieved in practice. None of the coloured surfaces are actually needed in order to enforce a traffic order, and so can be lawfully removed.

Even skid-resistant surfaces can be of a colour which is similar to that of the surrounding road. Several companies produce satisfactory products. For example, by using Guyana bauxite, a dark grey material, it is possible to meet a skid resistance of 70 PSV (polished stone value) considered satisfactory by the Highways Agency for 'demanding' locations and, at the same time, have a surface that is a similar colour to a normal carriageway.

The texture and colour of road surfaces can be completely compatible with, and enhance, the particular character of a street, be it in town or country.

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Two companies which supply Guyana bauxite are Ringway Special Treatment (☎: www.ringway.co.uk) and Sight Grip (☎: www.sightgrip.com).



**Coloured judgement:** Engineers now have a range of surface materials, but what works in a Suffolk village (*top*) may be inappropriate in an urban setting (*middle*), a consideration that should extend to anti-skid surfaces (*bottom*)

This month, **Colin Davis** examines the issue of pedestrian safety and comfort.

# Design notes

'We are the champions of streets' says the organisation Living Streets. 'We believe in safe, vibrant and healthy streets for all. Local streets are a service that we all use but, for decades, traffic priorities have been allowed to overwhelm them, and they have been left dirty and unsafe.'

It has a point. One reason for this situation is that, if you apply the industry standard computer programme for designing a signal-controlled traffic junction, the issues concerning vibrant and healthy streets – that is, the quality of the place from the viewpoint of people who walk – does not enter the equation.

The efficient operation of the junction is the engineer's primary aim. It is quite acceptable, in these terms, to force pedestrians to cross a road in two or even three, separate stages, in order to maximise peak-hour vehicle capacity. If pedestrians are required to deviate from their chosen direction, or 'desire line,' so be it. And if they have to be accommodated on standard, narrow crossings, that is the norm.

However, like safety audits, these computer programs are not intended to be the final word on design. They need to be interpreted. The crucial elements of street design that traffic programmes ignore need to be considered subsequently or, better still, introduced as basic requirements to the design brief.

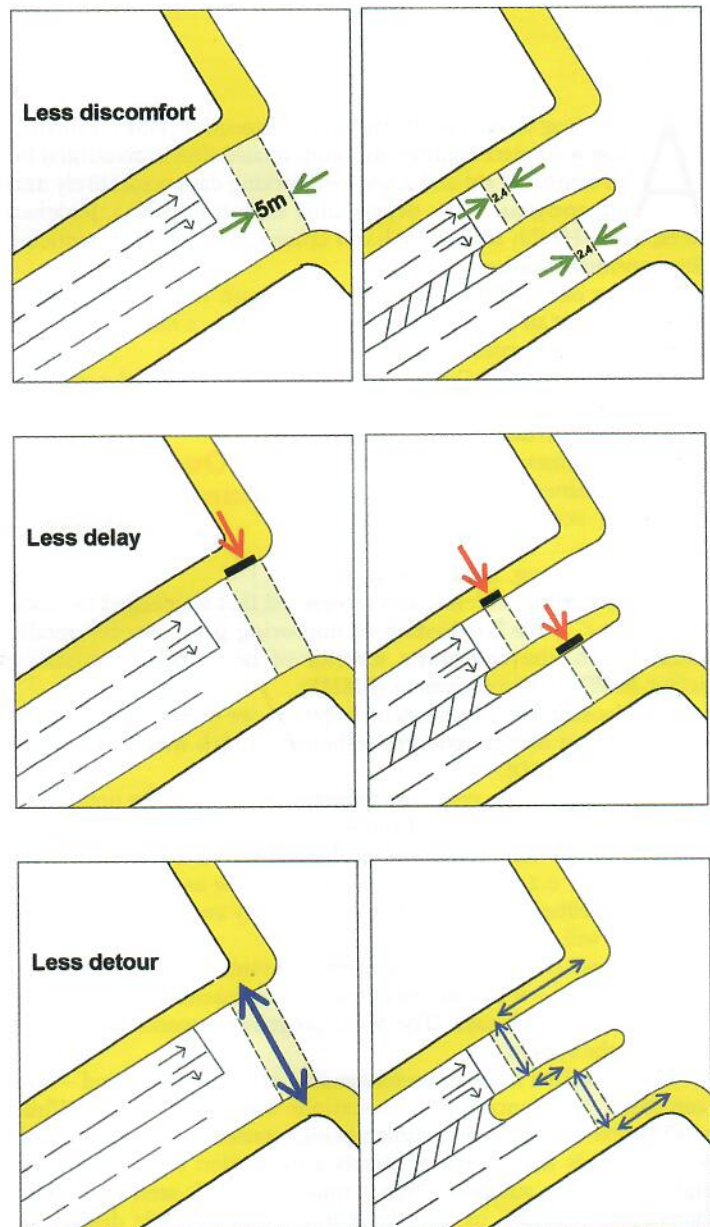
It is quite possible to prepare a junction design which gives pedestrians the opportunity to cross to the other side of a road in one stage rather than two or three, in a space that is wide, feels safe and comfortable, and has no unnecessary deviations in direction. This is an arrangement that certainly helps people with disabilities. It also reduces frustration for able-bodied people and the temptation to take undue risks. It might even eliminate the need for guard rails and more street clutter.

But all this often comes at a cost to the efficient operation of a signalled junction to reduce delays and traffic queues, which the computer programmes are calibrated to produce.

The challenge is to consider how to balance the needs of drivers with the requirements of pedestrians. One way is to consider the real inconvenience of a traffic queue compared with the real inconvenience of a three-stage pedestrian crossing. That is to say, to compare the total number of people delayed beyond an acceptable time – for instance, the number of drivers having to queue for longer than a full signal cycle versus the number of pedestrians having to cross in three uncomfortable stages rather than one.

On the right are two alternative junction designs for comparison. At one, drivers might be delayed, but only during one hour in 24. At the other, pedestrians are likely to be delayed at all times of every day, throughout the whole year.

A direct comparison of delay to different categories of people – drivers and pedestrians – may be too simplistic. But when several times the number of pedestrians are delayed compared with drivers, one begins to understand the arguments of the folks at Living Streets.



Two alternative crossings: Striking a balance between pedestrian safety and comfort and driver delays

This month, **Colin Davis** appraises pedestrian priority in non-residential shared-use streets.

# Design notes

**M**ost readers will be familiar with home zones, those special residential areas where pedestrians should be able to walk down the middle of street and feel perfectly safe because vehicles are obliged to give way to people.

These schemes often involve painstaking consultation and the participation of local residents as traffic calming techniques are innovatively merged with landscape design.

The principle of such a 'shared surface' has many advocates, and there have been several attempts to replicate the idea in non-residential locations. Obvious locations are in small town centres, where total pedestrianisation, even for a short period during the day, is just not feasible. Whereas a large store in a pedestrianised street can dictate that deliveries should take place during certain restricted hours, small traders in small towns do not have that luxury.

Perhaps some form of home zone for shopping streets is needed? Of course, it would have to be called a different name – possibly 'community zone'. It would be a place where pedestrians would still have priority over vehicles, and the vehicles would be restricted to essential delivery or services.

That there is a need for such a traffic regulation is shown by the attempts which are now being made to create shared surfaces within the current traffic order rules. Streets with low traffic speed and flows, which for practical purposes cannot be made wholly pedestrianised, are being resurfaced so that the footway merges with the carriageway.

Such schemes can look very enticing on paper. But the removal of a kerb along a normal trafficked road means people – especially those with vision disabilities – need to have at least some understanding of where they can walk in safety.

Drivers assume that in a road they have a degree of priority, and would expect pedestrians to keep to one side on, what seems to them, to be the equivalent of the footway.

Kerbs are sometimes replaced with white lines or a longitudinal ridge-like form of tactile paving. There is no mention of them in the *Highway code* and so they are misunderstood. In some cases, temporary plastic barriers are put where the kerbs once were (*top right*) – which rather negates the original intention of a shared space.

The pictures (*right, mid and bottom*) are also of shared use streets in Germany and the Netherlands, where the pedestrian zone signs allow for essential deliveries. Local culture dictates that those drivers allowed into the streets drive with consideration for pedestrians. This could be a difficult concept to get across to our own 'white van man'.

Would you be confident enough to walk down the middle of a shared-use shopping street and feel safe? Or do we really need an official form of home zone for shopping streets?



This month, **Colin Davis** follows the yellow-lined road, and discovers an alternative way to restrict unwanted on-street parking.

# Design notes

**Y**ellow lines can still cause outrage. Not because of what they do – which is accepted – but because of their physical appearance. To many people, they are an ugly intrusion into an otherwise-harmonious streetscene.

For at least 20 years, there has been a little-known or understood procedure for obtaining Department for Transport permission to omit yellow lines in special restricted zones – usually environmentally-sensitive, historic areas. The lines are replaced with discreet wall signs.

The few zones which exist – in the centres of Bath and Norwich, for example – tend to be quite small. They are places where a driver feels he has entered somewhere quite special, and had better act accordingly.

In the decades since this procedure was introduced, the number of restricted-parking zones has increased dramatically and, with them, the streets of yellow lines. At the same time, the notion that people only care about the appearance of environmentally-sensitive areas is being overtaken by the realisation that there is concern for the appearance of all public areas. And there seems little sense in pumping millions of pounds of regeneration funds into a deprived area to improve the environment if, by ruling that it is not environmentally sensitive, it is blighted with depressing yellow lines.

Fortunately, different kinds of yellow line come within the *Traffic signs regulations and general directions (TSRGD)*. Where necessary, they can be made less obtrusive – the *TSRGD* state that yellow lines can be 50mm wide as well as 100mm. The *Traffic signs manual*, chapter five, advises that ‘in areas regarded as environmentally sensitive, the 50 mm-wide line may be used’ – begging the question of why the 50mm width should not be applied everywhere.

Lines may vary slightly in colour, too. A less vivid shade of yellow, known as primrose, may also be used anywhere – or rather everywhere. This is probably sensible, given that drivers do not park on yellow lines because they cannot see them, but simply because they decide to take a risk.

Recently, an area of more than a dozen residential streets near Glasgow city centre has been designated as a restricted-parking zone. However, in a change to normal practice, the zone is only marked by signs at the point where the yellow lines of the surrounding parking zone come to an abrupt end. In the zone itself, only places where parking or loading is permitted are marked.

The primary advantage of this practice is a predictable improvement in the appearance of the streets but, interestingly, drivers really do respect the new road-marking regime.

Even more compelling to practical engineers are two further facts. First, the annoying physical problem of getting lines decently applied to rough surfaces, such as granite setts or some un-made surfaces, is reduced. Second, costs are reduced – both the initial cost of lining and related maintenance costs. It has been suggested that the cost of such a project is about 20% of the cost of a normal yellow line scheme.

So, do we have a win-win situation – better appearance at less cost? We await similar experiments in England with interest.



Yellow lining can look garish (*top, left*) and is difficult to apply to traditional materials (*top right*). Neatly-applied 50mm primrose-coloured lines can make a difference (*middle*) and a new road-marking regime in a restricted parking zone (*bottom*)

Continuing his examination of quality and style in the streetscene, **Colin Davis** steps out to look at historic surfaces.

# Design notes

A place where historic buildings experts and civil engineers come together is in the appreciation and restoration of historic ground surfaces. Take, for example, the famous cobbled surface that surrounds the elegant Radcliffe Camera building in the centre of Oxford. Although historically important, this surface had been poorly patched over the years, with small areas of square setts, new cobbles laid in rows rather than randomly, and even areas of tarmac.

The original design, which was accurately recorded, had a mixture of granite setts and smooth York stone, and had been devised to allow someone to walk – although not always directly – to every part of the square without having to walk on the cobbles. There were handy short cuts, formed with setts, from the Radcliffe Camera across to the Bodleian Library, and outside St Mary's Church there was a smart area of black basalt setts as a clean surface for anyone alighting from a carriage before going to the church. These subtleties are still valid today, since they help people with walking disabilities or those using wheel chairs.

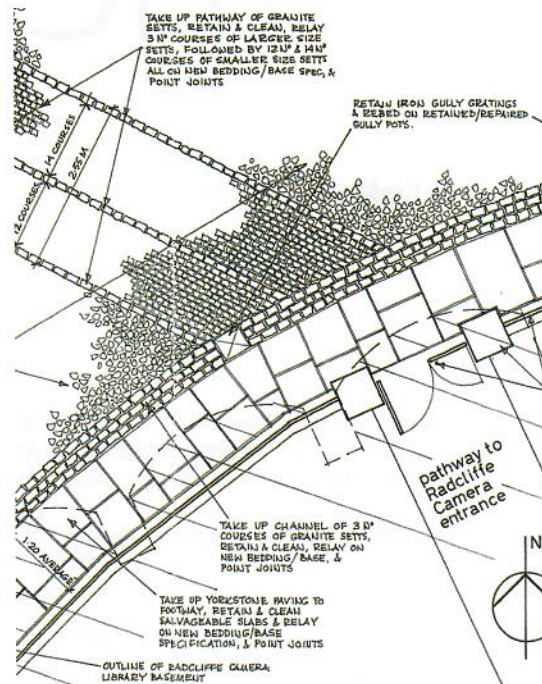
For its recent reinstatement, the design objective was to fully restore the surface to its original appearance while, in engineering terms, the surface had to withstand infrequent but heavy vehicles. The intention was to keep the irregular rhythm of the cobbles as much like cobbles on the beach as possible, in contrast to the regularly-laid setts. The setts were aligned exactly as they had been, usually in a pattern which precisely respected the alignment of the Camera itself.

Several sample panels were made to help decide the right pattern and standard of workmanship. The cobbles had to look as the best of the original cobbles had, but larger stones were used to reduce the likelihood of them coming out. The space between them had to look as small as possible, so the cobbles were more visually dominant than the spaces between them. This was achieved by fitting the cobbles vertically tight together, rather than horizontally. The surface dressing between the cobbles was, in fact, the original hoggin, reused.

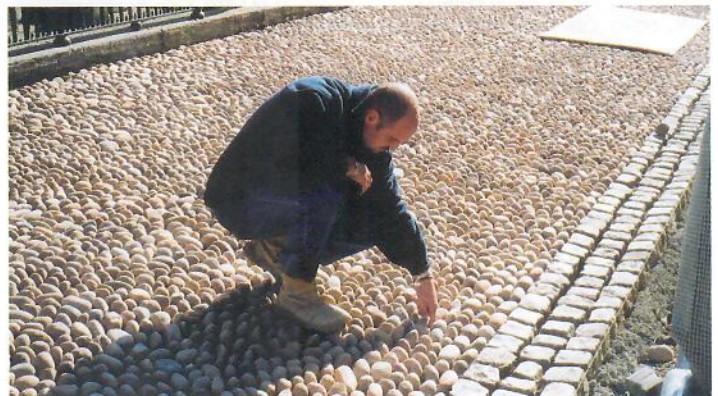
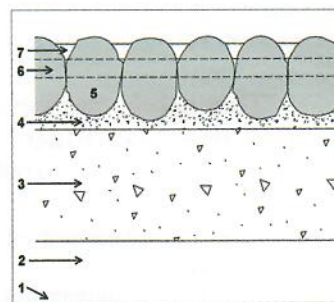
The specification consisted of seven materials, each contributing to a surface that accurately restores the historic appearance but also resists the horizontal forces exerted by the power steering of modern heavy vehicles.

Specification for the laying the cobbles (see diagram), from base upwards:

1. Class 6F1 capping, a selected fine grade granular material;
2. 150mm type 1 granular sub-base;
3. 175mm cement-bound material category 3 (CBM3);
4. 70mm Steintech bedding mortar BM 04;
5. 70mm x 100mm river cobbles hammered into bedding mortar to the correct level;
6. 25mm Steintech jointing mortar HD 02, between cobbles;
7. 20mm locally-sourced hoggin, top dressing.



*Clockwise from left:* Measured drawing of pre-existing layout; cobbles being hammered in; cobbles before hoggin dressing; section of construction specification



Sett in stone: Several sample panels were taken to determine the right pattern

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Credits: Steintech mortar; CED natural stone; MayerBrown Engineers; CJDA Urban Design

This month, it is the turn of roundabouts, as **Colin Davis** explains their visual impact.

# Design notes

A roundabout is a roundabout is a roundabout, isn't it? Not quite. Occasionally, they add to the character of an area. Some are lovingly tended with flowerbeds. Some seem to be extensions of beautiful parkland, however many, unfortunately, appear quite neglected and forlorn and have a depressing effect on their surroundings.

Nevertheless, they all have a practical function – to help traffic move in an orderly fashion at an intersection, and this is the problem. Because their function is similar, roundabouts tend to look the same and create a low-grade feel to their location.

The combination of haphazard constructions of chevrons and the proliferation of illuminated plastic bollards is the main visual problem. Yet, in urban and 30 mph areas, there are few traffic reasons to install either the chevrons or the plastic bollards.

Chapter 4, paragraph 3.19 of the *Traffic signs manual* states that chevrons are not needed on small roundabouts on 30 mph roads. A straightforward turn left sign is sufficient, although even they are not a legal requirement, but drivers should not be misled and in many cases, do need some reminder that they have reached a roundabout.

But the conclusion, even from the traffic viewpoint, is that in urban areas, chevrons are seldom needed. It is trickier to decide whether to remove plastic illuminated bollards as it depends on their intended purpose. Illuminated bollards are usually situated at the approach to a roundabout, on the splitter island, and include a keep left sign and again – in a plain form – on the same splitter island at the exit to the roundabout.

With regard to the latter use, official advice suggests that they are not needed if the directional flag sign behind them is itself illuminated. Yet, in many urban situations where there is good streetlighting, this is not done. So, depending on the local conditions, bollards at the exit of a roundabout are seldom necessary.

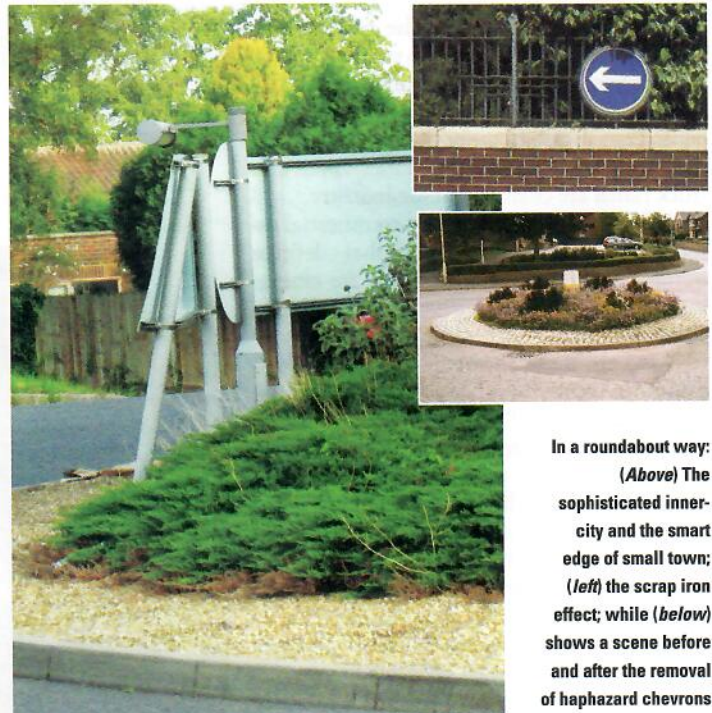
The keep left bollards serve another function, however. They remind drivers to moderate their approach and, if they are overtaking, to get back on to their own side of the road.

There are many variations of these signs – or rather, being controlled by the *Signs regulations*, the alternative designs of the supporting bollards are many, varied and often over embellished. A more elegant version is now available, with the basic traffic sign supported by a flexible post, thereby reducing street clutter to the minimum while retaining the essential traffic function.

All this means that roundabouts need not depress the appearance of an area, as there is flexibility in how they look. It is possible for them to respond visually to and enhance the urban design characteristics of their locality – sophisticated inner-city, smart edge of town centre, tidy suburb or rural wilderness – and, in each case, are safe and easily maintained.

These and other issues of integrating traffic engineering with urban design will be addressed in a new short course leading to an IHIE public realm professional certificate.

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Electro-luminescent keep left sign on flexible post from Rediweld  
@: info@rediweld.co.uk  
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In a roundabout way:  
(Above) The sophisticated inner-city and the smart edge of small town; (left) the scrap iron effect; while (below) shows a scene before and after the removal of haphazard chevrons



Can the influence of public spaces really be measured in money or human wellbeing? **Colin Davis** takes a closer look at regeneration.

# Design notes

The principle underlying regeneration is simple: By concentrating public funds into a particular location, others – private sector investment, business – will be encouraged to follow suit and create opportunities for employment and general economic wellbeing.

There are classic examples of this principle at work, and most involve transport. The redundant London Docklands, for example, stagnated as derelict sheds and open water for decades until the promise of public funding for better transport was made reality. Once the Docklands Light Railway and London Underground's Jubilee Line extension were in place, then investors put in their own money.

Part of the attraction of regeneration, of course, is the totally bright, sparkling image that a new development projects. However, English Heritage advocates conservation as a vital part of such projects, and its funding programmes have contributed to the transformation of many local communities. But if the big business of tourism depends on making the very best of what is on offer, where is the evidence?

Using figures from 2000, EH says that each of its £10,000 grants leveraged £48,000 of match-funding, together delivering 177m<sup>2</sup> of improved commercial floor space, plus a new job, a safeguarded job and a new home. The added value is that the finished scheme also contributes to the sense of quality in a place. But while we all recognise quality when we see it, can we measure added tourism revenue? Or quantify a feeling of pride in the historic culture of a place?

When British Urban Regeneration Association (BURA) was established, it was for the promotion of regeneration. Now it is widening its interest to include culture – art as an economic attractor.

And this is not a new idea. Antony Gormley's Angel of the North sculpture, for example, established new attitudes towards art, but the question remains: How can we objectively measure the results? Do better streets and public spaces actually have a tangible affect on people's lives, or is it all hope and wishful thinking? It is expected that an answer will be provided by an eagerly-awaited study by the Commission for Architecture and the Built Environment (CABE). *Are our streets paved with gold?* was commissioned to see if there was hard evidence for the belief that quality of the public realm effects measurable wellbeing.

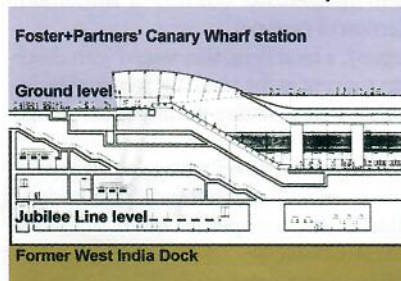
At present, there are few objective measurement tools to assess quality of the public realm. TRL's Pedestrian Environment Review Software (PERS) is one way, and assesses the quality of pedestrian walking routes. It keeps to the things that can really be measured or observed – pedestrian flows, footway widths, trip hazards, obstructions and conflicts with other users – rather than the quality of local art, landscape or historic buildings. Nevertheless, it certainly covers the sort of areas which can help make a place pleasant and convenient to visit.

CABE is using PERS and economic wellbeing – as expressed through property values, or stated rental values – for its study. Comparisons are tricky to pin down, but it does seem to be an interesting attempt to prove whether there really is some hard evidence. The results should be published later this month.

• **Colin Davis**, engineer and urban designer, is the director of a new public realm course ☎: [www.publicrealm.info](http://www.publicrealm.info)



Anyone can help: A little maintenance pays dividends



Clockwise: Station built in the drained East India Dock; PERS measures broken slabs; obstructions; and graffiti

Help is needed to show how visually acceptable yet useful tactile paving can be achieved in practice, says **Colin Davis**.

# Design notes

One subject which is difficult to discuss objectively is the infamous appearance of tactile paving. This is the blister paving which is set into footways at places where a ramp has replaced a kerb in order to help wheelchair and pushchair users cross the road.

It is difficult to discuss the subtle visual qualities in a public space with someone that can not see at all. The issue seems to be quite trivial compared with the fundamental disability of lack of sight.

But the Disability Discrimination Act requires public bodies to promote equal opportunity for disabled people, so the subject undoubtedly is important, and it is not going to go away.

Speakers at urban design conferences frequently show pictures of seemingly-ludicrous patches of tactile paving, sprinkled at random on the footways at most street corners and cycle tracks.

Certainly, in some locations, its purpose is far from clear and seems confusing to someone with sight. It is hard to imagine how any-

one with little or no sight could possibly find it helpful.

Although tactile paving is not mandatory, and not an official traffic sign within the traffic signs regulations, the *Guidance on the use of tactile paving surfaces* now has virtual mandatory status regarding signal controlled crossings. The Audit Commission has adopted it as the basis for compliance with performance indicator BV165, on which some local authority funding relies.

One problem is the format of the official guidance, which consists of simplified, not-to-scale, diagrams and full text. The text gives good advice. It points out that 'layouts of pedestrian areas should be simple, logical and consistent', and explains that variants can be used to suit each location. But the over-simplistic diagrams are what tend to be followed in most places.

Like all single-issue guidance, there is little recognition that it is just one of the 100 or so separate and unco-ordinated publications which offer advice on aspects of the public realm – traffic and urban design.

No reason is given as to why the special tac-

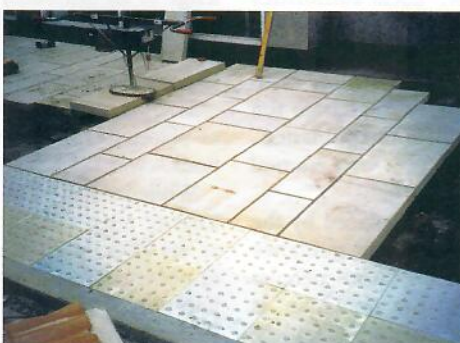
tile slabs are not the standard paving slab size. Consequently, at every street corner in the land, there is a strange, seemingly-thoughtless change in the pattern of paving, for no apparent practical reason.

No evidence is offered as to the research which led to the colours that are recommended. The standard buff colour of the special paving slabs seems so close in tone to the normal colour of any surrounding concrete slabs that there is hardly any useful contrast, yet it is sufficiently different to look like careless design. In fact, the place where a tone contrast would seem to be most useful is at the line between footway and road, rather than between the tactile paving and the surrounding surface.

This is an issue that effects the appearance of every street corner in the UK. Help is needed in order to show how visually acceptable, yet really helpful, tactile paving can be achieved in practice at the most complicated locations.

• **Colin Davis**, engineer and urban designer, is the director of a new public realm course.

☎: [www.publicrealm.info](http://www.publicrealm.info)



**Tactile response:** (Clockwise from top left): The poor appearance of some tactile paving; confusion at street corners and cycle track intersections; confusing patches at the entrance to a drive; tactile slabs are required to be a special size; and finally, simple and logical, yet neat and tidy



**Colin Davis** looks at a welcome addition to the *Manual for streets* – the blindingly obvious.

# Design notes



In the real world: An elderly pedestrian demonstrates something the *Manual for streets* has recently discovered

According to Gillian Merron, minister for transport, Baroness Andrews, under secretary at the communities department, and Tasmin Dunwoody, deputy minister for the environment: 'Places and streets that have stood the test of time are those where traffic and other activities have been integrated successfully, and where buildings and spaces, and the needs of people, not just their vehicles, shape the area.'

This quote appears in their joint foreword to the recently published *Manual for streets*, accompanied by a plan of the 200-year-old Georgian streets of London.

The manual defines streets as highways which have important public realm functions beyond the movement of traffic, and notes that: 'Streets make up the greater part of the public realm,' and 'many of the criteria routinely applied in street design are based on questionable or outdated practice'.

While it is primarily intended for the design of new residential streets, it does state that: 'Many of its key principles may be applicable to other types of street, for example, high streets.'

A key diagram shows the need to consider 'place' as well as movement. For example, a high street has an important function for local people besides its role as a corridor for movement. This new dimension is virtually absent in documents within the *Design manual for roads and bridges*, which is intended only for trunk roads.

Among the manual's many recommendations is a reminder that pedestrians, particularly those with disabilities, find it diffi-

cult to cross side roads where the kerb at the corner has a large radius. It makes tactile paving difficult to comprehend, too.

The pictures (*above*) show a genuine incident in a typical high street recently. In the first picture, an elderly pedestrian is attempting to cross the road and has positioned herself as far as possible away from the corner, while still being to look back along the high street.

Waiting until it appears to be safe to cross, she sets off, only to be caught out – as the second picture shows. If her looks could speak, it seems likely the following reaction would be in order: 'They expect you to have eyes at the back of your head. So, I waited until it was clear and started to cross. But before you could say "Stirling Moss", some born-again boy racer comes along from the other direction and almost knocks me over. It wasn't the first time, either.'

It appears it has taken all this time for those nice ladies in the ministry to wake up to the blindingly obvious.

'When drivers turn off the main road, they never slow down to let you get across. They speed round the corner. The wider the corner the quicker cars go round it and the less chance someone like me has of getting across the road in one piece.'

'It is hardly surprising that the walk to the shops is no longer a pleasure for which people would leave the safety of their cars. I'm only walking because I don't have a car to get out of.'

Can good street design and safety ever co-exist? **Colin Davis** points out that streets are places too.

# Design notes

**M**anual for streets, the document spelling out the Government's new attitude to streets, is like a breath of fresh air. There is no new legislation, but it is now officially recognised that streets are places too.

Yes, they have a function to facilitate movement, but they are also places where people live.

Although the manual is intended mainly for the design of new residential roads, it acknowledges that it is in most existing high streets that the balance of priorities between movement and place has to be resolved. So, as concerns for safety need to be balanced with amenity, the manual recommends that a quality audit take the place of a single-issue safety audit.

A typical case is where pedestrian crossings, bounded by unsightly guardrails, are positioned in front of a locally-cherished building.

Previously, any specific historic context or artistic distinctiveness the building might have afforded the local community would not have figured in a consideration of the design of the crossing. A crossing was a crossing, and was to be applied without regard to the quality of the location.

In the illustration (*right*), just such a crossing is located in front of a redundant, Gothic-styled church. To the casual observer, the building may add little or no special value to the scene, but a closer reading of the street reveals that the church is not just a late Victorian edifice erected hurriedly to serve a growing suburban population.

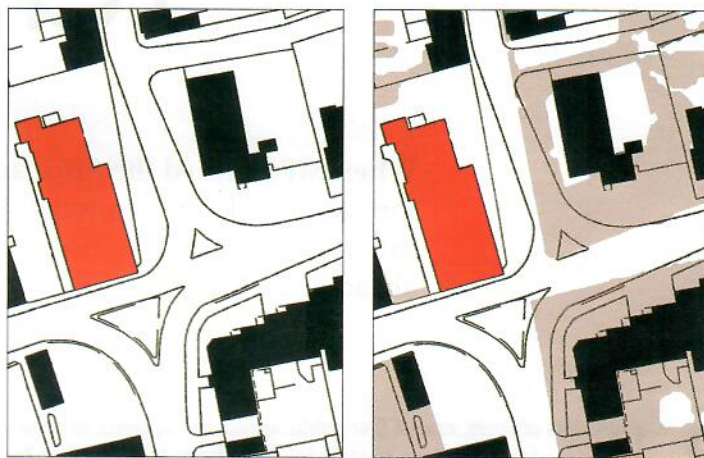
This structure is, like many town centre churches, actually a building which stretches back at least 800 years on a site that has almost certainly been used for worship for more than 1,000 years. It stands at a crossroads set out by the Saxons on a road pattern not substantially changed until the 1960s.

Consequently, its value in terms of historic context and quality of place is high. And the sketch (*below right*) produced by Alan Legg as part of a PRIAN public realm study suggests a way to integrate this heritage with traffic needs.

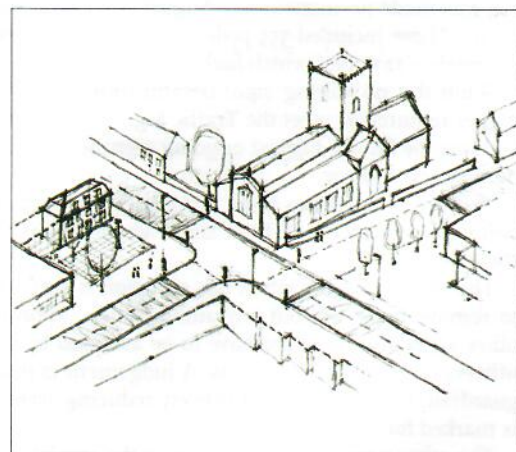
Objections to adjusting the design of a crossing to take account of heritage usually cite the need to conform to official traffic manuals. But this is not the case. *Manual for streets* emphasises that, apart from trunk roads, it is for highway authorities – not government – to set design standards for highways.

It is a common mistake, but many believe that the official advice in the various design manuals has the force of legislation, and that not to comply would expose an authority to risks of safety and liability. However, the few cases that have reached court have been dismissed. The House of Lords restated the legal situation when it ruled that drivers must take the road as they find it, and are responsible for their own safety and the safety of others.

Safety audits are only one of the tests of a good design. They may be overruled if the reasons for a final design decision are correctly recorded, so that even a run-of-the-mill crossing can be designed to take account of context and place.



**Top left:** Current road junction, church is in red. **Top right:** Road junction with historic street pattern overlaid. **Above:** Church with current crossing in foreground. **Right:** PRIAN public realm study by Alan Legg



Longevity is essential for every authority, but even concrete paving can be tested severely by heavy vehicles. **Colin Davis** explores strengthened footways.

# Design notes

Concrete paving slabs have been in use on the footway for more than 50 years. As heavy delivery vehicles have been around for at least as long, it would be reasonable to expect that the problems of the former being broken by the latter might have been resolved. Not so, judging by the appearance of many high street footways (*see right*).

Is it because the industry is so fragmented that no solution has been found? Designers, contractors and suppliers operate separately, so if a problem occurs, each can blame the others.

This may be the case in some cases, but it does not address the cause. In theory, footway slabs are only intended for pedestrian traffic, not vehicles. However, in practice, it is virtually impossible to stop 'white van man' going where he pleases and driving over the slabs – and breaking them.

Various methods are used to prevent this happening. The most common is to put a row of bollards along the edge of the footway, although this not only looks ugly, but also constricts movement. Bollards set back from the kerb by 500 mm, when the whole width is only 1,500mm, can significantly reduce the effective space for pedestrians.

Another device involves strips of concrete set behind the kerb. This simply looks as though it is for drivers to park on and probably encourages drivers to do so. A similar method sees small element 400mm x 400mm slabs put in the same place, but these also draw attention to the strip behind the kerb, and break up the visual continuity of the whole footway. Ideally, the edge of the footway should be strong enough for the likely use, but have a similar appearance to the rest of it.

Faced with this challenge, students at the Institute of Highways Incorporated Engineers' (IHIE) public realm course mounted a rough-and-ready practical test. With the help of Charcon products, a row of various different slabs was laid out behind the venue, supported only at their edges on 25mm battens. This replicated a slab which was totally unsupported, a condition which occurs when the bedding sand has washed away.

The slabs tested were: 600mm x 750mm and 400mm x 400mm ordinary concrete slabs; 600mm x 750mm fibre-reinforced slabs; and 600mm x 750mm steel-reinforced slabs. For the test, a series of vehicles was driven over them. First, a car was used, and all held up well, except one of the ordinary 600 x 750 slabs, which cracked. Then the big test, as an ordinary laundry delivery truck was driven over the set of slabs and back again. Driven by those on a tight time schedule, this is the sort of truck commonly seen delivering on any high street to small shops and businesses.

The results were conclusive. On the first run, all the slabs except the steel-reinforced slab cracked, although the fibre-reinforced slab had only a hair crack. On the second run, all the non-reinforced slabs completely shattered. The fibre-reinforced slab had visible cracks but held together – it would not have caused a trip hazard, but was unsightly.

Only the steel reinforced slab came through the onslaught completely undamaged.



**Cracking up under the strain:** Damage to footways caused by heavy goods vehicles is a common sight in urban streets throughout the UK. (*Below*): Students from the Institute of Highways Incorporated Engineers, in a series of experiments, tested various paving stones for strength. Steel-reinforced slabs proved to be the most resilient



**Colin Davis** examines the benefits of a more civilised way to merge traffic at junctions.

# Design notes

Reducing street clutter is catching on. Caerphilly County Borough Council's director of the environment, Anthony O'Sullivan, is reported to have identified 1,000 road signs that are not necessary, and which will be removed soon. He is convinced this will help improve highway safety, following the theory that if drivers have less instructions, they think for themselves, and drive more carefully and considerately.

New advice in the latest version of the *Highway code* emphasises the need for drivers to be more considerate to each other, in particular, by taking turns to merge where two lanes narrow to one at roadworks. It is a notion that has been developed for some 20 years in the States of Guernsey.

In Guernsey, the arrangement of 'filter in turn' is used at T-junctions and crossroads instead of a conventional roundabout or mini-roundabout. The pictures (right) show three examples of these junctions with plans.

The official rules are straightforward: 'At the intersection, a driver must not enter any part of the carriageway into which he can see that another driver proposes to enter into his path, unless:

- He or she reaches the intersection before the other driver;
- The driver who last entered the intersection did not, to his or her knowledge, do so from the same entry as themselves.'

Drivers themselves determine the sequence of taking turns. The complexity is similar to that at a mini-roundabout, which encourages drivers to observe carefully the movements of other drivers. Occasionally, drivers might resort to a little 'priority bullying,' while large 4x4 vehicles may feel they always have preference.

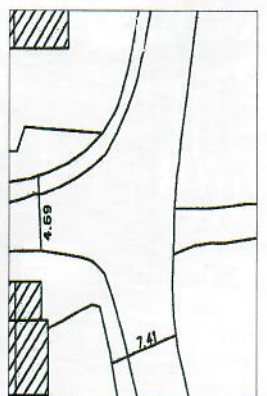
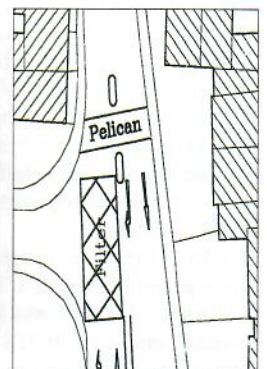
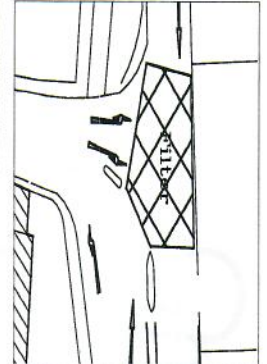
The arrangement can be put in place where there is not enough room for a roundabout or mini roundabout, or in relation to only a half-road width, and is helpful where there is no obvious priority. The yellow box markings may be considered unnecessarily ugly, but some other subtle change in road surface could be used.

Equal priority can be given to all arms of a junction, which may be helpful where drivers emerging from a minor arm at an intersection on to a main road would normally fail to find a suitable gap. As the pictures show, pedestrian refuges and signalised crossings are located adjacent to the junctions, but zebra crossings are only used where the relevant road is one way.

From the safety aspect, the key is for drivers not to be faced with complex decisions without due warning, or in places where they might not be able to react in time. In Guernsey, the arrangement works well where volumes and speeds of traffic are moderate – 600 vehicles per hour and 30mph respectively.

It seems a suitable solution for historic town centres, where normal roundabouts or even mini roundabouts are visually intrusive, or rural situations where harder traffic control solutions tend otherwise to impose an alien suburban character on village centres.

We look forward to seeing the first experimental filter-in-turn junction on the mainland.



Less intrusive: 'Filter in turn' junctions, in urban and rural settings

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Information and illustrations supplied by Peter Pidd, head of transport services, States of Guernsey

Square, circus and crescent. **Colin Davis** examines a sequence of stunning spaces in Bath.

# Design notes

Streets are places where buildings line a piece of land on which traffic moves. Sometimes, the buildings are arranged into a group, perhaps a terrace and, in turn, these terraces can be arranged into shapes such as squares or crescents.

An interest in shaping streets to provide a backdrop for pure pleasure lay behind the development of the ultimate leisure centre that was the City of Bath in the mid-18th century. People with nothing better to do than spend their wealth on pleasure, delighted in living in fine houses that, when grouped together in a terrace, had all the appearance of a palace.

The designer developers John Wood – both father and son had the same name – bought up sufficiently-large tracts of land to set out their new houses into a sequence of spaces which provided a progression of spatial experiences. They were Queen Square 1728, Gay Street 1734, The Circus 1754, Brock Street 1767, and Royal Crescent, 1767.

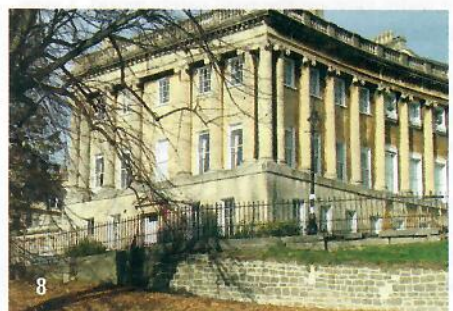
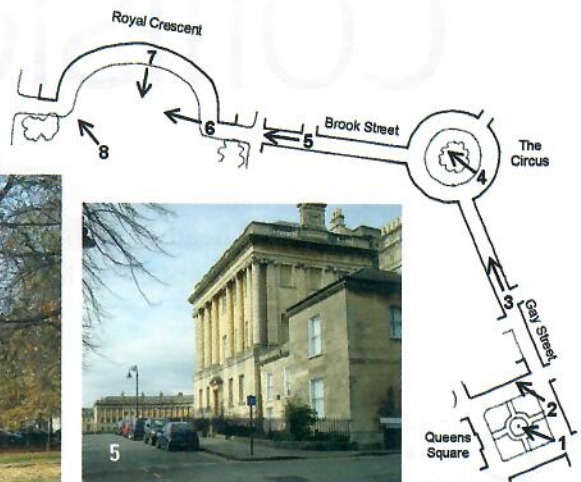
In order to experience the spaces as they were intended, start at the obelisk in the middle of Queens Square (1). Examine the north side of Queens Square (2). Although it looks like a palace, it was built as individual houses.

Walk up the hill of Gay Street (3) and see the trees of The Circus gradually come into view. The Circus houses (4), seen through the trees, have regular facades with superimposed classical columns which happen to follow the three 'orders' or styles seen on the Colosseum in Rome.

Take the first street on the left out of The Circus, Brook Street (5), and the expanse of the Royal Crescent (6) at its side, all of its 30 individual houses look out across a stunning view that allows a private lawn (7) to merge into the countryside beyond.

How is it done? The Woods adopted a simple ha ha, (8) a sunken boundary wall, to give the illusion of a continuing, uninterrupted lawn, stretching beyond the confines of the private garden.

Stunning: The spa city of Bath was developed in the mid-18th century: (For details, see article)



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While authorities are now recognising the influence of quality in the streetscene, **Colin Davis** reflects on the absence of a co-ordinating influence.

# Design notes

There is a new and very welcome interest in the quality of the street as a place for people, not just traffic. The seminal document *Manual for streets* is having a significant effect on the way people regard the ordinary street.

So, if a street is a place with several functions, then who makes sure that all these functions are carried out effectively, are co-ordinated, and fit together to achieve a public realm which is well ordered, efficient and a source of local civic pride?

At one time, it would have been the trusty municipal engineer. Now, there is a whole range of separate, unco-ordinated services, all demanding their own equipment, street furniture and interventions in the street scene. Each is delivered by a separate agency, some within a local authority, but by no means all.

Each agency has its independence guaranteed by having its own budget, remit and timescale. Many are specifically funded through central government single-issue programmes, promoted by some half-a-dozen government departments – transport, communities, the Home Office, business and enterprise, as well as culture, media and sport.

Consequently, the average street is littered with signs, lines, posts, bins, boxes, shelters, columns, kiosks and barriers, all of which probably have some sort of purpose, but which, together, create a place which looks and feels like the dumping ground for neglected junk. Not the sort of place where you would want to linger, meet friends or even visit again.

In fact, because many of the services are provided to national – although seldom mandatory – standards, the same unco-ordinated components are seen in streets from Lands End to John O' Groats. You have to peer through and beyond the junk to recognise where you are.

A primary reason is the result of the way the agencies are managed. Each autonomously implements its own service budget. On the management structure diagram (right) this is seen as distinct horizontal divisions. Unfortunately, there are also vertical divisions which prevent co-ordination.

Above the service agencies there is a semi-detached layer of often non-technical middle management. And above them float the higher echelons of council leader and chief executive, in their own known world, often, regrettably, with little or no detailed understanding of their own powers to create streets of true quality.

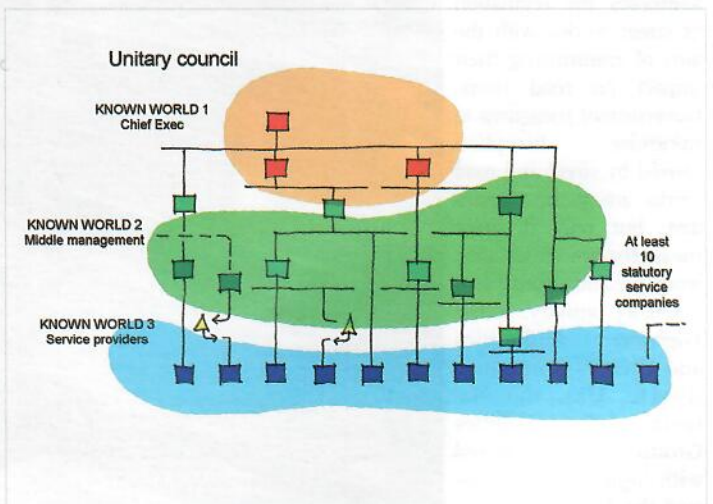
Whereas the traditional municipal engineer would have had a sound knowledge of all the services under his control, this is now seldom the case. Middle managers are often just that – people with skills in management. Even those promoted from one agency to a position where they now notionally control several may still find some of the services totally outside their own expertise.

The situation is even more complex where the agencies operate from within separate county, district and town or parish councils.

Before we can truly resolve these conflicts, there is a need for senior managers and local politicians to have greater understanding of the principles and concepts that influence our streets, and how they themselves could achieve a co-ordinated sustainable public realm.



More than enough: Not the sort of area where you would want to linger



Divide and rule: A typical management structure of a unitary authority shows the divisions both horizontally between service agencies, and vertically, where there is a lack of understanding between senior management and politicians of the service agencies they control

**Colin Davis** looks at a return to shared surfaces in La Laguna, Tenerife

# Design notes

**W**hat would the conquistadors have made of modern La Laguna? Having spent most of the 15th Century painfully taking over the Canary Islands, less than 160km from the coast of the western Sahara, they finally established the city in 1497. That was some 10 years before Henry VIII came to the English throne.

La Laguna is on the island of Tenerife, at the opposite end to the sun-drenched holiday beaches, flash cars and yachts. It is reached by a state-of-the-art tram system from the port of Santa Cruz, famed for having beaten off an attack by Horatio Nelson, forcing him to withdraw minus his right arm.

The tramline rises 549m and stops at the edge of the historic street layout, which has remained virtually unchanged since the conquistadors established it as the regional centre for their distinctive brand of military prowess and cutting edge ideas on local government.

They took care to create a city. A simple grid pattern of streets is adjusted to produce vistas towards important church towers and public squares at key buildings such as the cathedral and governor's mansion. This gives them suitably impressive settings and provides space for public events such as markets and celebrations.

For at least three centuries the streets were made up of rough loose stones, dusty in summer but muddy for much of the year. Drainage was a problem. By the 19th Century, there were narrow footways with rudimentary drainage channels, which remained until quite recently. When traffic and car parking took over most of a street, pedestrians had to walk in single file.

Now, as part of a comprehensive regeneration project, the streets of this World Heritage Site are being repaved once more as a level surface with no kerbs, either as conventional pedestrian areas or, where traffic is essential, as 'shared surfaces'.

All parking is being removed, some to edge-of-town car parks and others entirely, because of the better public transport.

The new single surface incorporates much improved drainage, with the gratings skilfully integrated into the new local stone paving, which follow traditional patterns seen in the private and public spaces of the city. Typically, a diagonal pattern at street corners echoes those seen in the courtyards of the larger city mansions.

Cut with millimetre precision, the 100mm-thick stone blocks are laid on a proprietary mortar bed. As the refurbishment of many adjoining historic buildings is taking place at the same time, the new street paving is protected from damage by construction traffic by temporary steel sheets.

The project is a good example of heritage-led, economic regeneration. The new paving has real quality of design and workmanship, but has a purposefully subdued effect that helps bind the whole historic city together. The conquistadors would have been impressed.



State-of-the-art tram system.



Originally the streets had no footways.



Traffic and car parking took over most of a street.



A comprehensive regeneration project.



Stone paving patterns follow local traditions

This week, **Colin Davis** reviews the latest guidance on traffic management and streetscape.

# Design notes

A major new guide from government containing information that will transform street design,' said the flier for the Government's *Manual for streets*. Published last year, it was warmly welcomed by this column and throughout the industry. Things were taken forward again this week with the publication of a new *Local transport note 1/08: Traffic management and streetscape*.

It reconfirms the official view that, when traffic is managed, design can be carried out to reduce street clutter while enhancing the streetscape, streetscene, urban quality, local distinctiveness, public realm... call it what you will. All the while, it complies, too, with statutory traffic management rules and good practice concerning traffic efficiency and safety.

The LTN uses evidence from a number of trial projects. I should declare an interest here as a member of the consultancy team, working with the Department for Transport and several local highway authorities and their advisers, to organise the trials and record the results.

One trial site was at Clifton, Cumbria, where the A6 passes through the 1.6km-long village street. As the M6 runs parallel and takes much of the long-distance traffic, the virtual three-lane road through this primarily residential village is no longer completely necessary, although some large commercial and agricultural vehicles remain.

The highway authority had previously made a commitment to deal with the perception of speeding, and a conventional signs and lines scheme had been discussed. However, the trial put in place an alternative traffic-management scheme.

Using the results of previous studies, the traffic signs and road markings were reduced to the minimum necessary for enforcement, and speed reduction was encouraged by a series of regular road narrowings. These reduced forward visibility and increased uncertainty, principles that research for *Manual for streets* had shown to be successful for cutting vehicular speeds.

The principles might not be suitable for all locations but, in this case, the result was more visually acceptable than in similar situations elsewhere. Its design gave a driver who slowed to negotiate a road narrowing a view of another one or two further ahead.

Each narrowing was positioned and designed to relate to a local landmark or place where people congregate, such as the school, pub and hotel.

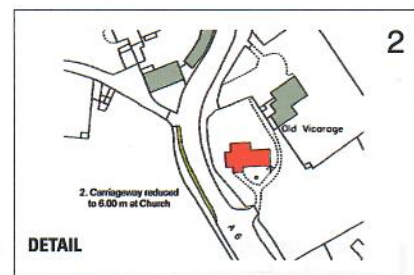
An important streetscape objective was to make the interventions appear to be a natural part of the streetscene, and not to look like a bolt-on addition, in order to retain and enhance the rural feel of the village.

The narrowing at the parish church – marked '2' on the plan – is the last one before the north exit from the village. Here, the narrowing was formed simply and inexpensively by widening the grass verge – almost to the kerb line that existed before a 1960s road widening.

Clifton's scheme has functioned for a year and is being closely monitored. Traffic efficiency and safety do not appear to have been compromised.

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LTN 1/08: *Traffic management and streetscape*. Researched and prepared by MVA Consultancy, Urban Initiatives and Colin Davis Associates for the Department for Transport



- (1): Strategy plan. Places where the road width is reduced
- (2): Detail layout of widened grass verge at site 2 at the parish church
- (3): View of site 2 before
- (4): View of site 2 after, with widened grass verge and white line removed
- (5): Minimal signs and lines at village entrance, site 9
- (6): Typical cluttered signage seen elsewhere





While the aesthetics of tactile paving are worthy of consideration, its real purpose should come first, says **Colin Davis**.

# Design notes

make no excuse for dealing with tactile or blister paving, once more. Last year, I made a number of points about the ugliness of tactile paving, and questioned whether it could be simplified, visually. Such comments need to be expressed with care, because no-one wants to make life for people with disabilities more difficult than it is already.

Also, a highway authority has obligations under the Disability Discrimination Act.

However, in a recent issue of *Access by design* magazine, consultant, Brian Towers, raises the same issue from the point of view of the users – those people with visual impairment. His research shows that much of the paving is either confusing or totally useless.

Due to the variety of site conditions, the 30 or so official alternative patterns and layouts for tactile paving produces thousands of variations and conglomerations.

This is confusing for people who can see, so imagine what it must convey to those who cannot.

Apart from the surface being confusing for blind people, others find the surfaces are more of a curse than a blessing. People with walking difficulties or those who use wheelchairs find the surfaces a hindrance, painful or a trip hazard.

One reason is that, in the long chain of command between a local authority chief executive and his operative, there could be seven or eight links, but few people with a direct understanding of the true purpose of tactile paving.

Even fewer of these will have the authority to intervene and apply the surface logically, in relation to a specific location, even if it means disregarding some of what is advocated in official guidance.

There are too many profiles of tactile surface, too many colours, too many locations where it is used, too many confusing configurations that can be devised for it, and also, too many oddly-shaped footways which require the standard configurations to be skilfully adapted by a specialist – which is a skill that is seldom available.

It is refreshing to hear an expert in disabilities agree with what urban designers have been saying for some time – that tactile paving should be made simpler, easier to understand and used more sparingly.

Now may be the time for a complete review of the tactile paving issue. It should be considered from the viewpoint of those it is intended for, as well as from the viewpoint of other people with disabilities and the wider public who may appreciate the total quality of footway paving in the context of the public realm.

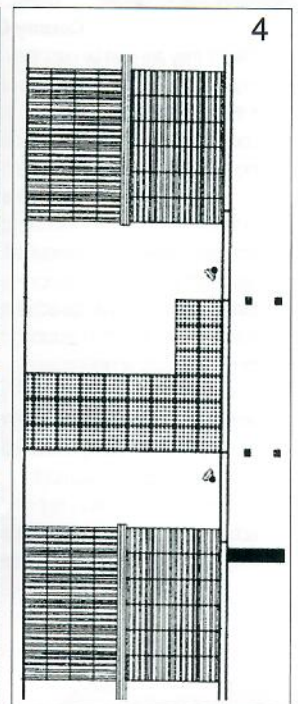
No new legislation is required. There is nothing to stop every highway authority looking at the issue, drawing its own conclusion, and deciding – as Towers suggests – to design roads and paths so that hazard warnings are not required.

Then, blister paving can be reserved for its original function – to indicate to someone with a visual impairment that they have reached a recognised crossing place.

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1 Blister paving sensibly applied at a zebra crossing. Tonal differentiation is where it is needed, at the dropped kerb;



2 No tactile surface at a side road dropped kerb;  
3 Unnecessary tactile surfaces at a locked private gateway;  
4 One of the confusing official advisory diagrams. This conglomeration of surfaces becomes even more ludicrous when applied to real streets;  
5 A tactile surface used purely as decoration



This week, **Colin Davis** turns the spotlight on quality public lighting.

# Design notes

Streetlighting is often judged by its intensity. That is, the more there is, the better – there are standards to be met. Yet as the new Department for Transport *Local Transport Note 1/08 Traffic management and streetscape* points out: 'Regulations and technical standards have a key role in the delivery of good design, but, if used as a starting point, they may serve to compromise the achievement of wider objectives.'

In other words, do not use standards as a starting point, use vision and purpose.

Indeed, the Institute of Lighting Engineers is pleased to state, in its outdoor lighting guide: 'With a very few exceptions, standards, such as BS 5489, do not have the force of law. The application of a standard is almost always voluntary.'

And so, the purpose of public lighting, wherever it is installed, might reasonably be said to help create an interesting, pleasant, safe, cared-for place, where the local streetscene is respected and possibly enhanced.

The pictures show some examples.

1. Hector Guimard's lights for the Paris Metro, designed like huge insect eyes, were fantasies of the world of Art Nouveau. Now they are acknowledged original works of art.

2. Highway lighting, reduced to the simplest modern style and fixed neatly to a modern building in order to avoid the clutter of a column. The light is positioned to fit exactly the design of the stone façade and has all its cables and control equipment out of sight.

3. A converted Victorian gas lamp in a suburban setting. This retains the modest scale and proportion of the lighting column to the building.

4. A group of rather embellished lighting columns, with their brackets and decoration painted in a suitable subdued colour and positioned to help visually enclose the space at the top of the steps. Together with the over-sized face, they act as a foil to the ever-changing colour or human activity in the foreground – in this case a brightly coloured scooter.

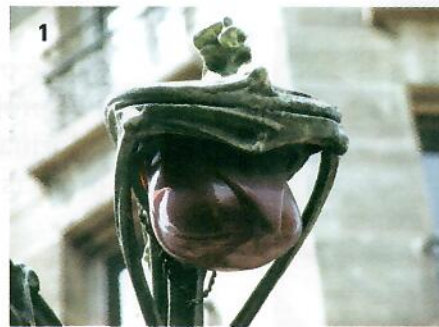
5. Where a visually appropriate lamp cannot provide sufficient light intensity, it is possible to consciously use the light from shop displays, or fix additional supplementary light fittings out of sight, so that their light can be reflected down from adjacent walls.

6. Into the realm of theatrical stage lighting design. The idea of creating magical places at night can be extended to emphasising important local buildings, by lighting them in different colours and by creating areas of dramatic shadow.

In this concept diagram, instead of all the buildings in the street being equally lit, only four are picked out. At the left, an assembly building with shop and a Georgian coaching inn are given special treatment. Both would be locally important to the history of the town. In the middle distance there is an important medieval gateway. On the horizon, a cathedral with a spire dominates the town at night in a way not perceived during daylight hours.

Therefore, although lighting should still be considered for its practical purpose in the streetscene, its aesthetic qualities need to be thought out too.

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As a trial permitting cyclists to contraflow on selected roads hits the headlines, **Colin Davis** turns his attention to flying motorcycles.

# Design notes

Cycling up a one-way street will soon be legal in Kensington and Chelsea,' said a recent headline. In fact, the experiment to be put in place in the royal London borough extends to only a few, selected streets, and is a subtler.

High volumes of fast, one-way traffic do not use the selected streets. They are quiet streets with a 'no entry' sign at one end, which is designed to prevent vehicles taking a short cut through the residential areas, bringing the nuisance of excessive traffic noise, fumes, vibration, visual intrusion and accidents.

In most cases, the streets are actually already two-way. A vehicle joining the street from a property can turn in either direction, but other vehicles can only enter the street from one end. So the issue is one of road signing: Which traffic sign should be used to indicate that vehicles must not enter, but cycles may?

The correct road sign for this situation is listed in the statutory *Traffic signs regulations and general directions (TSRGD)* as sign 619. Known in the trade as 'the flying motorbike', it advises that motor vehicles are prohibited. But the public does not always readily understand this message, and that is the problem with this sign.

To many, a logical alternative road sign would be the normal no entry sign (sign 616), with a plate below stating 'except cycles' – traffic sign 954.4.

Unfortunately, the law specifically bans this combination. Paragraph 21 (2) of the *TSRGD* specifically states: 'A plate shown in diagram 954.3 or 954.4 shall not be placed in conjunction with the sign shown in diagram 616'. The law is seldom as clear as that.

While the directions rather than regulations part of the *TSRGD* is understood to fall within a category of signs which may be adjusted by permission of the secretary of state, this has raised concern at official levels in the Department for Transport.

It argues that any adjustment, addition, or caveat to a sign acknowledged as the most widely understood should be avoided. This is a pity, because across the country, councils struggle to create the same effect by constructing expensive concoctions of separate, short cycle paths at the entrance to streets, together with extra kerbs, signs and guard rails.

The example illustrated (pictures 1 and 2) also includes the exception plate with the white arrow indicating the direction traffic must take (sign 606). A combination of signs that is lawful.

At present, evidence is lacking either way. As a no-entry-except-for-cycles sign does not exist, it is difficult to prove that it may be misunderstood.

However, sign 619 does exist, although is rarely used. This is the sign that the Royal Borough of Kensington & Chelsea is about to put in place to test driver's compliance. The photomontages (pictures 3, 4 and 5) show how the alternative road sign might look at one of the selected streets.

If anyone has any real evidence that the 619 flying motorbike sign is, or is not understood, the Public Realm Information and Advice Network (PRIAN) would like to know.



1. Elaborate arrangement of short cycle lanes, signs and guard rails to allow cyclists but not drivers to enter a street
2. Detail of exception plate, with 'turn left' sign. A lawful combination of signs
3. A Kensington street with the current 'no entry' sign
4. The lawful sign proposed, sign 619, the 'flying' motorbike
5. The alternative, unlawful, combination of signs. But to many people, this is more easily understood

# Design notes

This week, **Colin Davis** fixes his sight on visibility splays at junctions.



Public realm quality has few absolutes, as places are different. People look for interest and variety and compare, possibly subconsciously, tight, built-up places with spacious low-rise, park-like places. They appreciate both, yet despite visits to tightly-packed historic town centres, what they build tends towards the spacious and park-like.

The trend away from building new, narrow, interesting, mixed-use streets is influenced by an insistence on vehicle-friendly rules on sightlines. It is difficult to have both.

Sightlines are prescribed through the familiar X and Y dimensions. X is the distance back from the 'Give way' line of the minor 'arm' or street, and Y is the distance along the major arm or street which needs to be clear to allow drivers in both arms to see each other and act safely. The hypotenuse of the triangle formed is the sightline, or visibility splay, and it encourages buildings to be set back at street corners, which creates a more suburban character (see image 5).

It is interesting to look again at a well-known street pattern and see how conventional sightline guidance would affect it. So, consider the main picture (above),

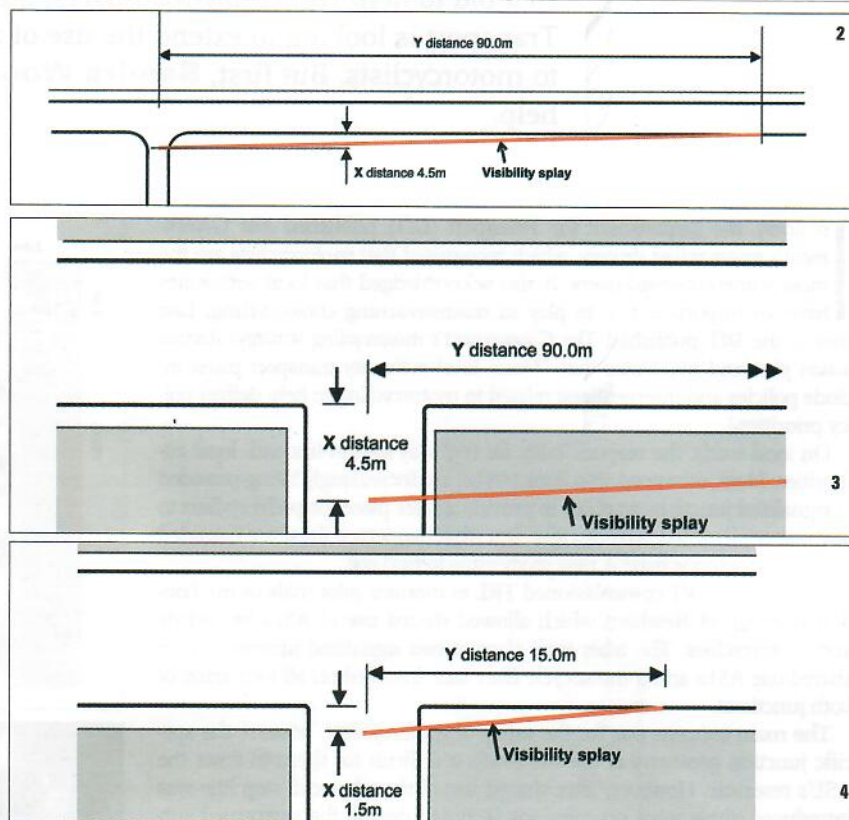
which shows the theatrically-famed Garrick Street in London, at the corner of Rose Street.

If the area was to be rebuilt to conform to conventional *Design manual for roads and bridges* (DMRB) visibility splays for a 30mph road – that is X of 4.5m and Y of 90m – it would be changed out of all recognition (images 2 and 3).

*Manual for streets* (Department for Transport 2007) suggests X as 2.4m, that is the maximum distance between the front of a car and the driver's eye, and a Y which varies according to the speed of traffic on the major road – 15m for 15mph. It also assumes that parked delivery vehicles will not block the view. In a prestigious main street, where the footway is 2.4m, these standards can often be met.

But, in order to maintain the urban character of this public realm at Garrick Street, drivers have to cope with a visibility splay consisting 1.5m at X and 15m at Y (image 4). That is, a side street with narrow footways enters a more main street with footways of only 1.5m where the shops and cafes are built right up to the back edge.

Fortunately, *Manual for streets* is helpful. It does not put forward new universal standards but states that a



minimum X dimension of 2m may be considered. This implies that a minimum of 1.5m may also be considered, which would be the case where the footway is 1.5m wide and design speed less than 15mph.

There is always a compromise. Once speed is reduced to, say, an effective 15mph or less, drivers, cyclists and pedestrians have time to safely interact with each other. The visibility splay requirements are entirely the responsibility of the highway authority.

**Visibility splays:**

- 1. Actual at Garrick Street, Covent Garden
- 2. With X of 4.5m and Y of 90m from DMRB
- 3. With X of 4.5m and Y of 90m applied to Covent Garden
- 4. Actual X of 1.5m and Y of 15m at Garrick Street
- 5. Suburban street

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# Design notes

UK road signs are being reviewed for the first time in 40 years. **Colin Davis** reports.

'Take part in the biggest review of road signs in 40 years,' says a recent press release from the Department for Transport.

What an opportunity. The last comprehensive review, the Warboys report in 1963, introduced what was termed 'Continental-style' signs. Halt was changed to Stop and, with particular subtlety, the No entry sign was retained virtually unchanged, except that the words No entry were omitted. Archive newsreels show Ernest Marples, the transport minister at the time, proudly presenting the new signs as a great British achievement, and even suggested that we had some signs to offer the Continent.

The result was far greater clarity. Over the years, this clarity has been eroded as more signs and variants have been added. The Traffic signs regulations and general directions (TSRGD), although retaining some very clearly-written language, contains a huge number of symbols and diagrams, seldom fully understood by the public or even those who often incorrectly erect them.

Signs are easy to make and cheap to put up. Sometimes, councils are tempted to concoct their own variations.

But the new review could also be an opportunity to remove thousands of redundant signs. The recent Departmental local transport note 1/08 *Traffic management and streetscape*, reminds us that the regulations require far less signs than are currently seen on our streets. Clutter can be reduced.

Drivers are expected, by law, to take the road as they find it. Arbitrary warning signs are not mandatory. There is a huge variety of dangers that drivers need to take into consideration. A warning sign implies it knows what is the most severe. It may not.

Reduced clutter improves legibility and allows drivers to read the whole road with greater clarity, and make their own informed judgments. Reduced clutter increases a sense of place, and helps us distinguish one place from another. Street clutter tends to be very similar. You can see the same collection of ill-assorted traffic equipment and signs right across the country, although tourist offices are unlikely to say: 'Come to Ourtown. It looks the same as everywhere else.'

Acting on the premise that a regulatory traffic sign is only needed if there is a traffic order, Keep left signs are only needed in places where there might be some confusion. In normal circumstances, such as at a pedestrian refuge, they are not needed.

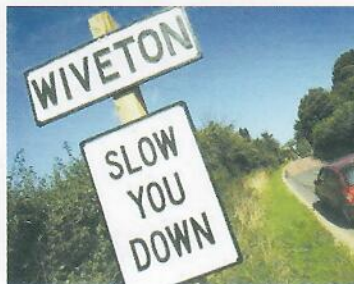
Pictures of one of the current DfT Mixed Priority Routes, Road Safety Demonstration Project at Walworth Road, Southwark, show both formal and informal crossings at a busy inner-city street. People who want the security of a formal crossing place, use the pelican. Those who feel able, use the central refuge, which also has no kerb. Clutter has been reduced to a minimum. At each crossing there are neither guard rails nor Keep left signs.

Presumably, the review will also note that the widely-used sat-navs and the potential for satellite-directed speed control may make many more signs redundant.

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## Pictures

1. Mixed messages. Clutter of signs
2. Slow you down, Norfolk (Photo: Matthew Usher)
3. Typical guard rails and Keep left sign
4. Minimal clutter at pelican crossing, Walworth Road
5. No clutter at pedestrian refuge, Walworth Road



# Design notes

**Colin Davis** returns to the subject of sightlines, but this time to view their role in the village.

**P**icture the scene: a huge lorry bears down on a tree-lined village street just as a parked car is about to reverse into its path from an angled parking place. As neither driver can see the other, is this an accident waiting to happen? Or is it a subtle traffic-calming device that maintains the identity of a rural village?

The Department for Transport's *Manual for Streets* actually suggests that trees be planted in residential roads as a traffic calming device. But these trees lining the trunk road in question are mature specimens, with neatly planted flowers at their base. No one has decided to fell the trees, change the parking arrangements or even put up warning signs, because normal sightline standards need to be balanced against a street's sense of place.

Another example of this, where proper sightline standards cannot apply at road junctions, is where parked vehicles block the view. This is a common situation in congested historic urban area this weeks, where some on-street parking and its associated activity adds to the character of a street.

Yet, where vehicle speeds and volumes are low, drivers can and do anticipate problems and deal with them safely. Most of us have experience of this (see illustrations below):

1. The red vehicle emerging into the traffic stream inches out because the driver has little or no view of the approaching (blue) vehicle.
2. As the red vehicle moves further out, a point is reached where approaching drivers can see it, but he still cannot see them.
3. Soon both drivers can see and react to one another.
4. Both drivers can decide what the other will do and continue safely on their journey.

This system works, perhaps contrary to accepted wisdom, because each driver proceeds with care and is in a position to take appropriate action. It helps that in the early stages (1 and 2) there is still room for the blue vehicle to take evasive action, even if it cannot actually stop.

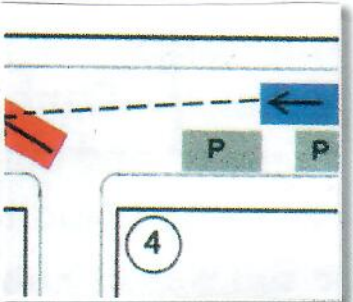
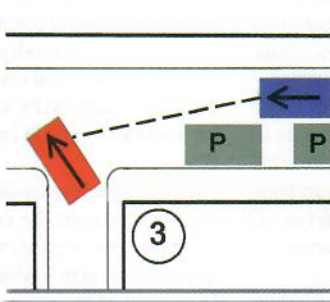
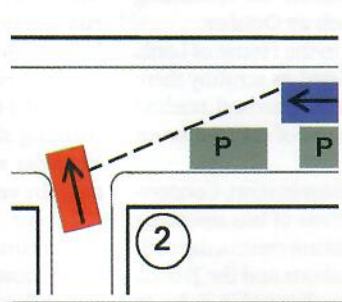
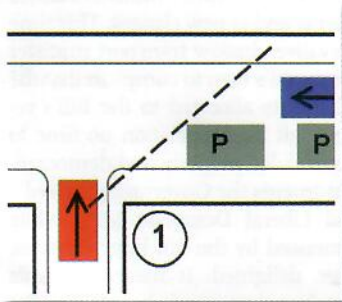
It would not work on a 40mph road, where drivers assume the right of way and are unable to stop safely. But in a small, confined area, where speed and volumes are low, and drivers are aware of potential dangers, have time to react and have space to manoeuvre, it works.

This allows a sense of place in the urban scene to be preserved, and this approach is being adopted for mixed-use streets – those that function as places as well as roads – even in new developments.

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View from the street: (anti-clockwise from top): Village main street with angled parking; trees in the road; an urban street that standard sightlines would preclude; and seeing round parked cars in an urban street



Gently does it: Where vehicle speeds and volumes are low, even without standard sightlines, drivers can safely negotiate a junction

# Design notes

**Colin Davis** visits the Moroccan city of Marrakech – a shared space, both day and night.



Everyone wants a share: The Jemaa el Fna square in the centre of Marrakech is used by both vehicles and pedestrians during the day, but at night is transformed into a giant entertainment and eating area

**W**hat's the first thing that comes to mind when we think of the design of a public space? Lots of landscape features for people to look at? Benches, bins, bollards, lamps, trees, flowers, walls, fountains, water features, steps, railings, patterned surfaces, kerbs, and perhaps public lavatories?

But what if we didn't have the funding for all these? What would people do if there was no equipment for them to use? And are there any places where people congregate and maintain quite easily?

The answer is yes, of course. The most obvious is a sandy beach in summer. People sit, sleep, play games, talk to friends, provide themselves with windbreaks, cushions, seats. And within a few hours, they leave, taking their belongings with them. The tide comes in. Then the tide goes out and the whole beach is clean and clear and ready once more for people to start all over again.

But could this simplistic approach be applied to

a permanent public space? The Jemaa el Fna in Marrakech, Morocco, started out as an army parade ground.

It is a simple, yet irregularly-shaped open space. Until recently it was surfaced merely with the cheapest blacktop. Now, as a nod towards the sophisticated tourists arriving by budget-priced jets, it is paved with simple but cheap concrete paving blocks.

But that is all. The absence of benches, bollards, bins, trees, walls and all the rest allows it to be transformed every evening into a huge restaurant and entertainment venue. The principle is simple – one day there is nothing, the next day, everything is in place.

Except that in Marrakech this happens each evening, and everything is cleared away before morning. It is also a vehicle-through route. During the day the space operates as a totally shared space and also shared surface.

The main vehicle entrance to the space is a sim-

ple rough moveable barrier, manned by a policeman. Once in the space, there is absolutely nothing to indicate which line across the traffic should take, although the general rule appears to be that traffic will take the most direct route. Pedestrians do the same, and if they walk with determination, then vehicles give way.

The setting up of the rows of restaurant kitchens, long tables and benches is a spectacle in its own right. Each of the 30 or so groups of stalls and kitchen equipment arrive by hand cart. Grandstand seating to watch is provided by adjacent first floor permanent cafes.

By morning, the square is clear for the various entertainers, fortune tellers, snake charmers, or just people who dress up in fancy costume to dupe the tourists into having their pictures taken with them, at a price. It's a bit like Covent Garden, in London, only somewhat larger. So who needs landscape features?

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# Design notes

This week, **Colin Davis** asks whether we really need guardrails.

The debate about the effectiveness of guardrails is still rumbling. They continue to be installed as a matter of course at many junctions in the belief that the more there are, the better, that people should be protected from themselves, and that vehicles and pedestrians are best kept apart. Nevertheless, people often prefer to make their own decisions as to what is safe and what is not, even seemingly rational and sober people (see picture 2, right).

On the other hand, there are people who believe the removal of all guard rails will automatically make streets safer and miraculously reduce accidents. The third picture (right) shows The Strand outside London's Charing Cross station which, for 12 years, has had no guard rails to prevent people deciding when it is safe to cross or when to wait for the green pedestrian signal.

Aware of the debate, Transport for London has come up with an objective procedure to assess the risks relating to guard rails. Since crossings which are where people actually want to cross are more likely to be used, it relies on close observation of pedestrian behaviour, particularly desire lines – the line or path a pedestrian would wish to take, given the opportunity. Most desire lines are obvious, such as the crossing directly to or from a train station.

Crucially, TfL's procedure accepts that even if crossings are conveniently positioned and designed to be attractive to pedestrians, there will still be people that decide to cross informally during the red warning light, or near rather than at the crossing. These people decide when it is safe to cross, and manage it where the design of the facilities allows.

Data for a complex junction in south London indicates that, at formal crossings, almost half the pedestrians cross informally without waiting for the 'green man', and as many more cross away from the crossing entirely.

So, if guardrails have little effect on safety, do they have any purpose at all? Yes they do in some places where even an able-bodied adult would have difficulty in crossing without assistance. The sixth picture (right) shows a site in west London where four constantly-moving lanes of traffic are going in different directions or making turning movements.

But if we need far fewer guardrails than at present, perhaps the remainder could at least be designed – as these are – to be less unsightly?



Picture 1: Guard rails installed in the belief that the more there are, the better;

Picture 2: Some people prefer to make their own decisions as to what is safe;

Picture 3: People crossing informally near, but not on, a signal-controlled crossing;

Picture 4: Crossing designed to allow people, should they wish, to cross near to but not on the crossing;

Picture 5: Diagram showing the number of crossing routes near, but not on, the formal crossing;

Picture 6: Guard rails may be necessary where even an able-bodied adult would have difficulty crossing

# Design notes

Navigation by sheep anyone? **Colin Davis** explores the subject of roundabouts.

So, what is it about roundabouts and the British? They seem to be a national obsession. We have big ones, small ones, minis, official ones and informal ones. The characteristic that binds most of them together, however, is that they are unbelievably ugly – usually a collection of mangled traffic signs and lines.

For some places, roundabouts are the standard form of junction design, and on the main grid in Milton Keynes, for example, there must be 100 roundabouts.

This high concentration creates a particular local driving etiquette: Whereas the definition of a 'give way' rule at a roundabout is that, when entering, a driver should not cause a driver already on the roundabout to slow, in some places this is interpreted as assuming the driver already on the roundabout is happy to be missed by a hair's breadth.

Such behaviour in any other town would be taken to be aggressive, and might invite retaliation, but in Milton Keynes, the only drivers who leave ample space at roundabouts are strangers and wimps.

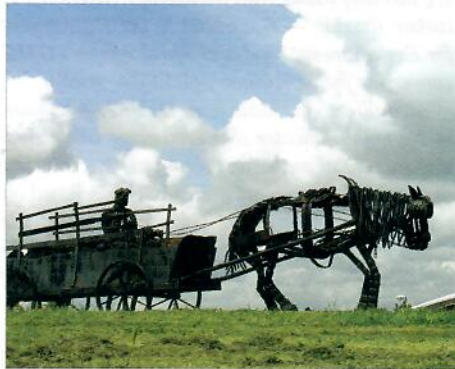
No doubt frequent drivers there also find it easy to navigate their way around the network and distinguish one seemingly-identical roundabout from another – although some are clearly labelled, they use quite forgettable names. Admittedly, there are also some subtle differences in landscape design and varied tree species, but this does not help the non-horticulturalist.

So, it was a pleasure and a surprise to come across the outstanding contribution to navigation and local identity that are the sculptural wayfinders on the roundabouts of Telford. Each is an easily recognised, individual piece of art that helps identify each junction as a place. This is a real help in a new town where local landmarks are often hidden behind luxurious, but similar, landscape.

Telford's sculptures can all be seen at some distance and have clearly identified shapes even a three-year-old could place: 'There's the funny horse mummy. We must be nearly there.'

Extremely well made, and constructed to last too, the pieces relate to the geography and history of their locations, such as a nearby military establishment or site of a historic mine.

Of the group, the clock tower seems a little



Navigational aids (clockwise, from bottom left): A determined sheep in its pen; the modern concrete spire; the weary horse; a clock towering in splendid isolation; and a mine headframe and sheave wheel

lost in a rural setting, especially as the clock did not work when we passed.

The elegant concrete spire represents a modern city, while the horse looks as though it has had a very tough life. But the headframe and cheave wheel has a calm presence which also serves as a guide to direction – always useful for road-users when negotiating a roundabout.

The steel sheep are an interesting idea, and

not unrelated to Milton Keynes' famous concrete cows, now herded into a shopping centre. The sheep have their own arrogance and determination, stand regardless of the surrounding traffic and weather, and are slowly, actually very slowly, walking into their own steel sheep pen.

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# Design notes

**Colin Davis** looks at 'urban engineering', a positive step to bring together urban design with highway and traffic engineering.

Is the recession a real worry? Surely, the public sector and those who serve it will avoid being part of the predicted increase in the unemployed. What they are unlikely to avoid, however, is the unsettling changes, as organisations adjust and evolve. As established truths no longer seem so valid, demands for 'joined-up thinking' increase, and the expectations of councillors and the public constantly increase, it makes some people crave stability and recession-proof careers.

Rooted in a time of greater stability, but now just a memory, was the municipal engineer. This great personage brought the experience of a lifetime to bear on a range of interrelated subjects, including highways, lighting, what traffic management there was and – if we go far back enough – even town planning.

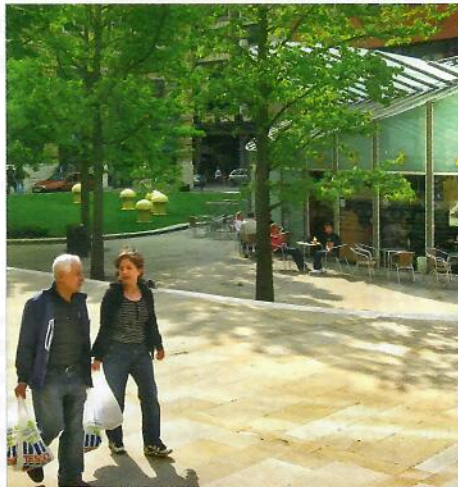
Dealing personally with such a complete range of public services on the street allowed the municipal engineer to co-ordinate them all as a comprehensive whole. We struggle to do this today because the municipal engineer's role is now sub-divided and carried out by teams of independent specialists – experts in the needs of cyclists, people with disabilities, traffic signals, parking, lighting and so on. Only at the very top is there any awareness of the opportunities for co-ordination.

This division is especially evident on the street. A new approach is needed to deliver high-quality public realm because current professions are segmented and often required to argue for the conflicting needs of street users. So, should there be an additional skill of 'urban engineering' to combine a broad understanding of the practicalities of traffic and highway engineering with the opportunities of urban design?

Most schemes are too small for multi-disciplinary teams, yet have a huge, cumulative impact on the public realm. But, if each specialist was also to have experience in the public realm as a whole – in effect, to be an urban engineer – then every modest intervention could also contribute to the gradual improvement of the total public realm.

Urban engineers would, of course, retain their specialism, but have the added awareness and skills needed to address the diverse needs of the public realm.

Pioneering experts, such as the late Hans



Co-ordinated response (clockwise, from top left): Engineering and urban design co-ordinated in Birmingham; a riot of expensive yet unco-ordinated services in a large city; funds for flower baskets but not for painting lamp columns; and a jumble of unco-ordinated street services in a small market town

Monderman, combined engineering with urban design on schemes which have stood the test of time. They have inspired projects in the UK, and even influenced the Department for Transport's *Manual for streets*.

Training is needed to ensure that the advantages of the multidisciplinary approach and joined-up thinking are available within local authorities and consultancies. To address the immediate need, the Public Realm

Information and Advice Network has adapted its interdisciplinary course to concentrate exactly on this issue. Graduates will have a thorough understanding of what we might term 'urban engineering'.

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For more information on the PRIAN interdisciplinary course ☎: www.publicrealm.info

# Design notes

This week, **Colin Davis** makes a case for 'good ordinary paving.'

Friends from across the North Sea look upon our streets with incredulity: 'You British,' they say. 'Your streets are either like fantasy art or a complete dog's dinner.' They have a point. As nothing not invented here is accepted, and art remains special and rare, we just muddle on and hope for the best.

This 'fantasy art' swipe is a back-handed compliment. When it comes to creating a real impression, for a special occasion or purpose, we can really pull the stops out.

The square at the corner of Elwick Road and West Street in Ashford, Kent, is an example (pictured). It was designed by the artist John Atkin as part of a traffic scheme led by landscape architects Whitelaw Turkington, with Jacobs as engineers.

Atkin's main three-dimensional centre-piece is at the middle of a traffic island. Coloured paving is laid out in geometric shapes that swirl around it. To one side there is an informal, non-zebra-zebra crossing at a convenient place for pedestrians. There are no traffic signs. The whole composition has been painstakingly put together with much thought and it is quite stunning and one hopes it will remain so and be properly maintained as time goes by.

But such well-designed schemes are few, and to see them requires a special journey. Generally, the average local high street is more likely to resemble the 'dog's dinner' – a variety of surface materials, colours and textures with little or no overall co-ordination.

It seems that, without a budget to throw millions of pounds at a problem, the default systems take over. That is lots of materials, installed at different times, in order to meet distinct needs. When merged together, however – as they always are to the observer – any individual meaning or purpose becomes lost.

Yet paving surfaces that are a suitable and subtle setting for the rich variety of buildings and streetscenes we have, can be achieved at no great expense. Paving rarely is so important that it can carry off being the focus of attention and a demonstrative work of art in its own right. Rather, it is a setting on which human activity takes place.

At Lavenham, Suffolk (pictured) the same bound gravel has been used for both carriage-way and footway. Simple surfaces in colour



Like claret? (clockwise from top): Ashford's 'fantasy art' at Elwick Road; a 'dog's dinner' of paving; Lavenham's bound gravel surface; neat and tidy 10mm joint in concrete slabs; and offset concrete slabs as good ordinary paving

and texture, they compliment the traditionally designed historic buildings. Granite kerbs mark the edge of the carriageway and, again, traffic signs have been minimised.

An urban version of the same theme is simple paving of large concrete slabs, laid with pointing between the slabs, and with ironwork finished in a neat and tidy way. Alternatively, ordinary concrete slabs could be laid in ran-

dom widths and random lengths – this is pictured where all the slabs are of standard sizes, so readily available from normal stockists.

This is certainly not high art. It is simple to produce anywhere – what might be called 'good ordinary paving'.

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# Design notes

This week, **Colin Davis** revisits the spread of sharing.

Shared space, shared roads, shared surfaces, or even shared surfaced streets. What exactly do they all mean? With the Guide Dogs for the Blind Association running a campaign saying 'No to shared streets', and the Department for Transport conducting research into shared space and shared surfaced schemes, there is certainly a need for clarification.

At present, there are several schemes across the country where the notion that streets are for people not just traffic are being put into practice.

The idea has been around for decades, from the days of the pre-war play streets, but has come to prominence more recently with home zones. The guidance on home zones explains that road space is shared between drivers of motor vehicles and other road-users, with the wider needs of residents in mind. This includes people who walk and cycle, children and those with disabilities, such as the blind.

Since then, there have been some high-profile examples of shared spaces applied to town centres. Most use the ideas put forward by the late Hans Monderman, that driver behaviour can be changed and safety improved by the design of shared surfaces, so that drivers feel and understand they are in a place where pedestrians have priority.

But is it sufficient to rely solely on design? Should there also be a national system, and recognised traffic sign, which explains to drivers what is expected of them?

I recently revisited a couple of shared surfaced schemes to test the theory: New Road, Brighton; and Sloane Square, London.

At New Road, there was very little traffic, and virtually no through traffic – the odd driver either lost or looking for a parking place. The majority appeared to be drivers related to local businesses and they 'knew the score'. Most negotiated their way through the pedestrians with, I thought, a little impatience.

The signs at the one entrance to the scheme relate to the parking regime, not to its shared road surface.

At Sloane Square, speed and volumes were far greater. It is a through route and well used by taxis, white vans and 4x4s. People crossed the vehicle route with determination, and drivers seemed to have a need to press on and clear the busy roundabout. The negotiation between driver and pedestrian, as one would expect in a high-powered,



Shared space revisited: New Road, Brighton (left); and Sloane Square, London



Sign language: A pedestrian priority sign in the Netherlands (above); and a home zone sign in Germany (right) with, inset, the UK equivalent



up-market urban area, took place at considerable speed. There was no dithering on either side. Everyone was decisive.

Here, the sign used to help drivers was the standard warning sign for pedestrians in the road.

So, if authorities are to be encouraged to adapt streets in this way, would it help if there was a wid-

er use of the home zone system? Perhaps adapt the sign to show, as they do in Europe, children playing ball rather than, as in the UK version, simply running out of the way?

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# Design notes

This week, **Colin Davis** takes a measure of the comfortable cycling index

Just how safe are our roads for cyclists? In some areas, cycle lanes have become more common, and cycle routes have sprung up to help riders thread their way through back streets, marked by special blue signs. Sustrans displays its 19,000km of priority or dedicated cycle paths on maps, and every weekend, throngs of Lycra-clad, energetic people with smart helmets and the obligatory sunglasses venture forth on to the roads.

But surely these routes, though welcome, are a distraction? Bikes are really useful for short journeys. If we are intent on persuading people to abandon their cars and get on their bikes, every street should be safe for cyclists. So, how friendly and comfortable are our streets for cyclists, really? One way to find out is with an easy-to-use gauge: The comfortable cycling index (CCI).

CCI is an indicator of how attractive and comfortable a road is to the ordinary people that we would want to encourage to use their bikes on ordinary streets.

The basis for the CCI is that people are sensible, and only cycle on a street if they think it is 'safe'. But people regard safety differently. Young men, for example, take more risks than women, and far more than older people – and so the CCI categorises people into 'high-risk takers' and 'low-risk takers', and uses this to help indicate 'safety'. Streets which are used by low-risk takers must be more comfortable for cyclists than streets that are only used by the high-risk takers.

Another consideration is that people who want an additional benefit, such as fashionable communal exercise, will discount risk. Anyone who wants to go from A to B in the comfort and convenience of a car will do so if they have one. The bike will not be a practical option. But to go a short distance, a couple of kilometres, when the weather is good, they might use a bike, if they thought the roads were safe and comfortable.

Different categories of cyclists are given different scores, according to their willingness to take risks, and under what circumstances. To compare streets, simply tally a total score over a fixed time.

- Complete sports outfit. These people will go anywhere. **0 points**
- Young person with helmet and high-visibility



How they score: 1 Full sports gear; 2 younger person with helmet and high-visibility jacket; 3 younger person with no special clothes; 4 younger person without helmet but with basket and child's seat; 5 older person with no special clothes; and 6 child on back seat, standing up

jacket. These are the first non-sports cyclists to try out a street. **1 point**

- Younger person with helmet but no high-visibility jacket. **2 points**
- Younger person without helmet and special clothing. They tend to be on very local journeys or just going to work. **4 points**
- Younger person without helmet but with basket and/or child's seat. **6 points**

- Older person without helmet and special clothing but with basket. **10 points**

- Older person without helmet but with basket and a dog. **20 points**

And if the child on the back seat of a bicycle is standing up, the score is 30 points.

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# Design notes

Rounding off another year of design notes, **Colin Davis** explores the problem of broken slabs and reinstatement

**B**roken paving slabs – a problem which seems to have been around forever. The best-designed street enhancement schemes can literally fall apart as paving slabs break up, acting like soup stains down an expensive suit. People look at the stains not the suit. A cheap suit would have had the same effect.

But poor maintenance is not just unsightly, it can be dangerous.

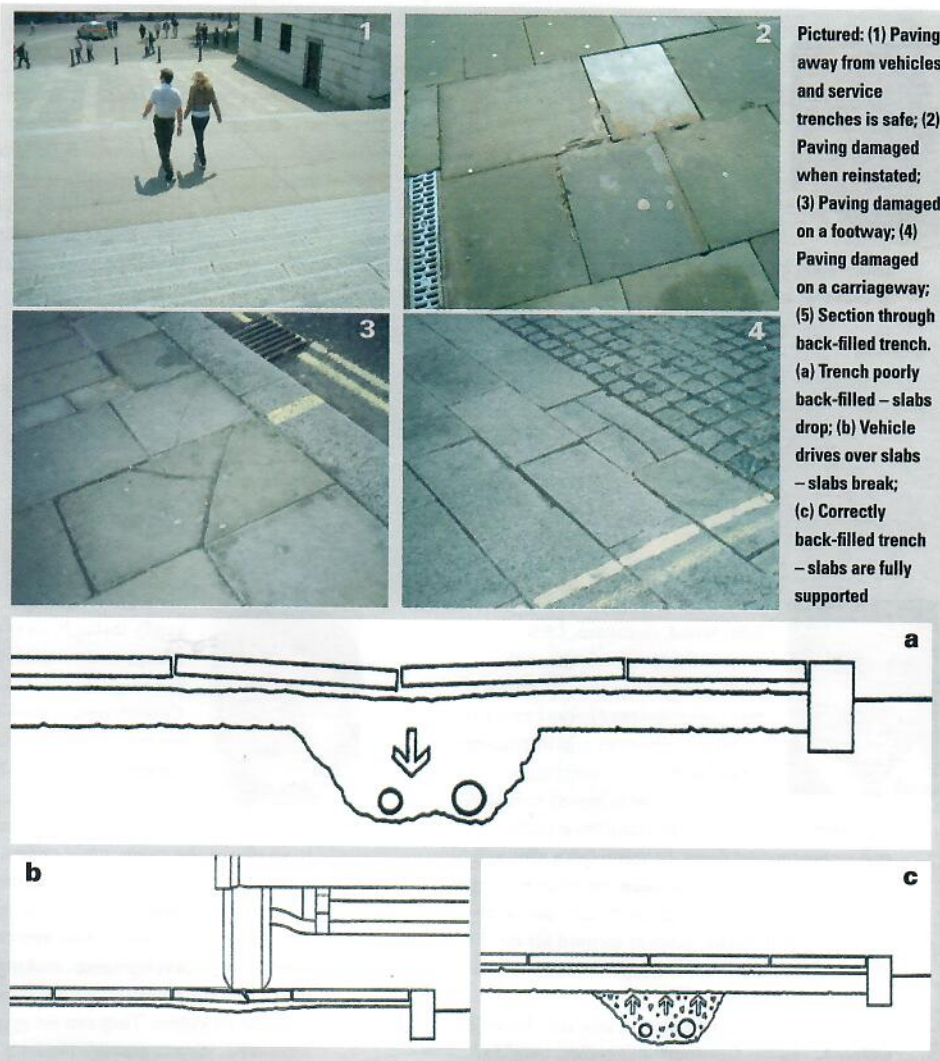
Of all the reasons for broken slabs, poor reinstatement of service trenches is the most common cause. When the slabs are laid, they are fine, and continue to be so until they are lifted for a service trench to be dug. When the trench is back-filled there is insufficient compaction, so the trench sinks, leaving the slabs above without support. It only takes a vehicle to run over them and they break (see diagrams, right).

Much of the problem would be solved if there was a better system of controlling and improving the quality of service trench reinstatement. Interestingly, the Department for Transport has launched two initiatives which should help.

The first, the recently-amended Street Works Regulations 2009 regarding inspection fees, should make a huge difference. The fee an authority can charge a utility company to inspect works carried out has increased from £25 to £50. The new fee structure has been justified by new calculations of the actual costs of inspections, taking into consideration essential back-up and overheads borne by the authority.

A leading authority in the administration of reinstatement of street works under the present fee structure is Kensington and Chelsea RBC. Its procedures make clear what it expects in terms of materials, structural stability and how the finished work should look. Appearance is not a matter ignored by the residents of the royal borough. Standards of construction are made known, and invariably include high-quality, 63mm-thick concrete or stone slabs, with neat pointing. Workmanship standards are high and can be seen across the borough, and contractors working for utility companies know, in advance, the standards demanded.

The second initiative is the road works permit scheme, currently being introduced in parts of London and Kent, and soon across the country.



**Pictured: (1) Paving away from vehicles and service trenches is safe; (2) Paving damaged when reinstated; (3) Paving damaged on a footway; (4) Paving damaged on a carriageway; (5) Section through back-filled trench. (a) Trench poorly back-filled – slabs drop; (b) Vehicle drives over slabs – slabs break; (c) Correctly back-filled trench – slabs are fully supported**

Under the scheme, service company contractors will only be able to carry out works on the highway if they have a permit. The permits will include conditions regarding the timescale and quality of work, and will be enforced by fines.

Its aims are to increase road safety, protection to road infrastructure, safety for workers in the road and a reduction in disruption for road-users, but there is a further additional benefit. Highways in-

clude footways, and it is on the footways where the reinstatement is so important for the continued feel of quality.

These two additional powers should act together to give authorities far greater control over the quality of their own streets. So, no more broken slabs?

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