

design guidance

TRAFFIC CALMING

- STREETS FOR PEOPLE

November 1996



BEDFORD BOROUGH COUNCIL



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Design Guidance

Traffic Calming - Streets for People has been prepared in the context of the emerging Bedford Borough Local Plan and is "Supplementary Planning Guidance". It has been revised to take account of the results of public consultation carried out last year and was adopted by the Planning & Transportation Committee on 28th October 1996 for the purposes of development control.

Traffic Calming - Streets for People Design Guidance was prepared by the Policy Group of the Planning Division with the assistance of colleagues in other sections of the Borough Council.

Copies of this Guide may be obtained free of charge from:

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calming.pm5 (11/96)

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INTRODUCTION

In recent years, the term 'traffic calming' has entered our common vocabulary and in certain cases, the phrase has become synonymous with the use of road humps. These have often been introduced into existing environments in order to reduce vehicle speeds and thereby improve pedestrian safety. This results from a recognition that the design of many residential areas has in the past been dominated by the desire to meet the needs of the motor vehicle - in terms of access, circulation and parking - often to the disbenefit of the pedestrian and cyclist.

The Borough Council shares this concern and recognises the need to create high quality residential environments where vehicles do not predominate. On entering residential areas, drivers should be made to feel that they are in a different environment and one in which vehicles are subordinate to other users. Streets are therefore designed for people - not for cars. For this to be achieved, a fully

integrated approach to highway layout, carriageway design, car parking standards, hard and soft landscape and materials is essential. A major element of this approach is the use of traffic calming measures.

In order to assist in this process, the Borough Council has produced this guidance note. It highlights the range of traffic calming measures at the disposal of Architects and Designers when designing new development. It is not meant to be prescriptive but aims to stimulate innovative approaches to new residential environments.

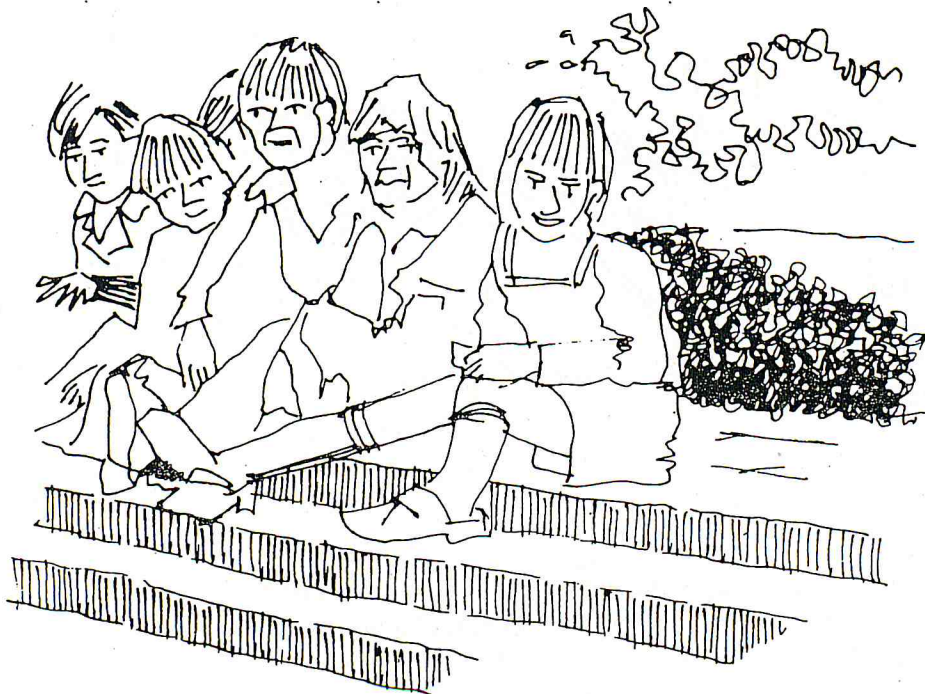
The Borough Council welcomes the opportunity to discuss this issue further with applicants for planning permission and their agents.



THE BENEFITS

Accident severity is related to speed. The consequence to pedestrians and cyclists, in particular, of vehicle speeds above 20mph are well documented, with nearly always serious injury or death. Below this speed serious injury or death is uncommon. Government Legislation enables Highway Authorities to designate 20mph zones subject to the agreement of the Secretary of State for Transport. The main requirement that has to be satisfied before consent is granted is that average speeds in the area do not exceed 20mph. It is therefore essential that appropriate slowing

measures are in place. However, this approach is not just about speed reduction. Lower traffic speed can reduce traffic levels locally or inhibit traffic growth. It can also reduce the amount of extraneous traffic entering an area although consideration needs to be given to the suitability of alternative routes to take the displaced traffic. It can give back space to the pedestrian both by reduced carriageway width and/or reduced traffic volumes - creating a more 'user-friendly' environment. A wider range of activities can then take place within the street, including children's play.



Make streets for children to play in

TRAFFIC CALMING MEASURES

Having defined the Borough Council's aims and objectives in respect of safer, more attractive residential roads, this section of the guide highlights some of the features that can be used to slow traffic. It should be stressed that there is no one design solution which can be applied to every site. Each site may require a different approach based on projected traffic

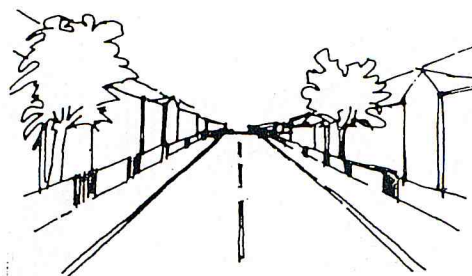
flows, traffic type and site characteristics. It is not the aim of this guide to stifle innovation in this field, but to bring to the attention of designers that traffic calming is more than just road humps, and should form an integral part of the design process.

ROAD LAYOUT

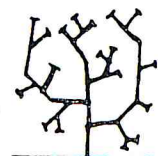
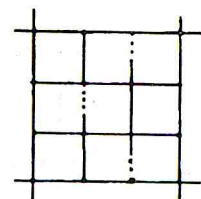
In designing a residential development, consideration should be given to producing a layout which does not encourage vehicles to move through the area at speeds unsuited to a residential area. Therefore avoid:

- a) long straight routes which encourage high vehicle speeds.
- b) providing road configurations which assist with rat running through the housing area.

However whilst actively discouraging through traffic, access into and within the site should be retained, especially for pedestrians and cyclists. Generally speaking a grid system provides more accessibility than a layout based on a series of culs-de-sac.



Straight roads encourage speed



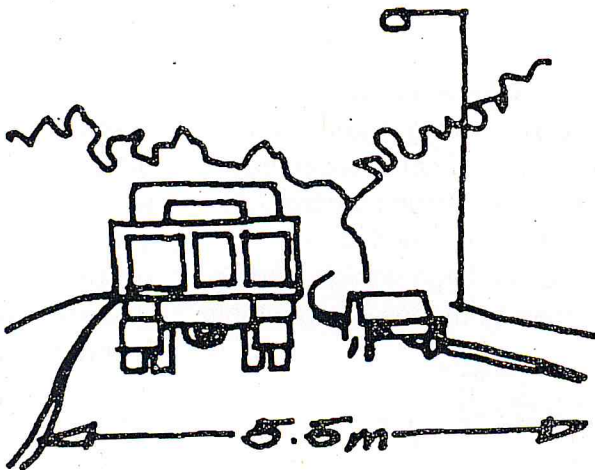
Design Bulletin 32 (Department of the Environment) gives useful advice with regard to the design considerations that need to be taken into account when developing the layout of new roads and footpaths in residential areas.

A grid system is more accessible by pedestrians and cyclists than a layout based on a series of culs-de-sac

SPACE FOR VEHICLES

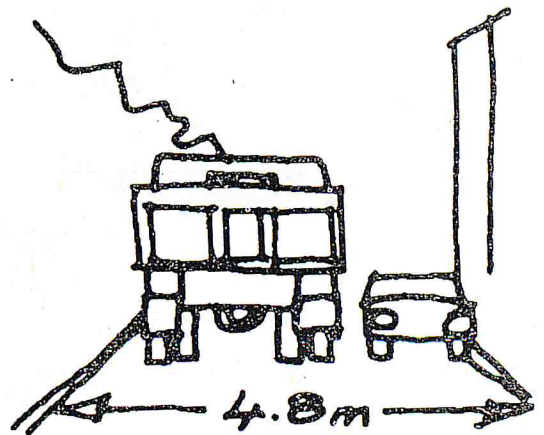
In many respects, roadscape and its restriction provides the key to successful traffic calming. There is a strong relationship between speed and the amount of roadscape given over to vehicles. The more space that is provided, the more drivers are encouraged to speed. Furthermore, the faster the traffic, the greater the amount of space that must be provided to allow for its safe passage.

AS SPACE
SPEED



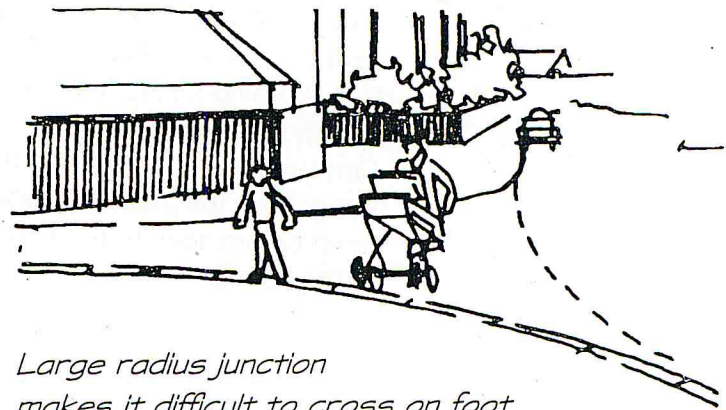
If traffic levels can be accommodated with less space then slower speeds will be achieved

So the lower the speed the less roadscape is needed, and the less roadscape, the lower the speed. Para 3.10 of Design Bulletin 32: Residential Roads and Footpaths considers the minimum road widths needed to accommodate different traffic types and at different flows.

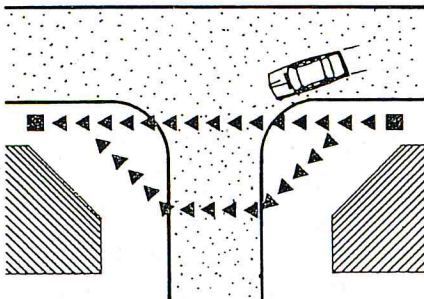


JUNCTIONS

Traditionally, T-junctions have been designed to accommodate the turning movements of the largest vehicles. This has resulted in wide bell-mouth junctions which can be negotiated at speed by smaller vehicles, in particular by cars. They also maximise the crossing distance for pedestrians and this can cause particular inconvenience to people with prams, and wheelchairs.

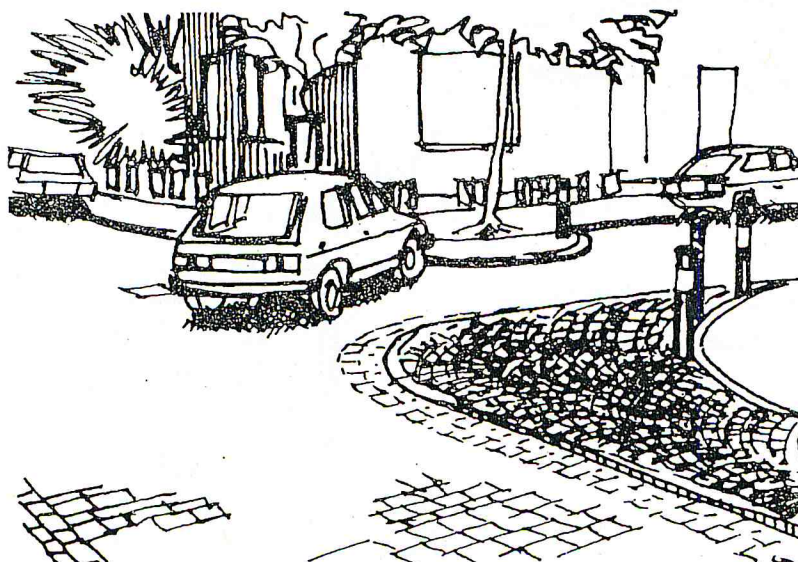


Large radius junction makes it difficult to cross on foot



In order to achieve lower speeds and reduce crossing distances, the use of small radii corners can be used in certain circumstances. These can be modified to accommodate large vehicle turning movements by means of mountable

shoulders. These are areas of slightly raised paving or blockwork which allow the wheels of service vehicles to overrun the corner, whilst deterring car drivers from doing the same. This measure can also be used on tight bends. In para 2.39 of Design Bulletin 32, it is recommended that this restraint should not be used for junctions where roads have footways.



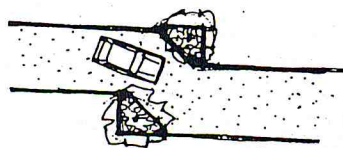
The use of mountable shoulders at a T-junction



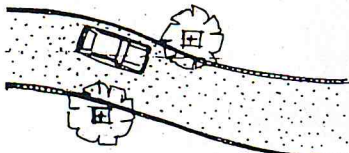
CHANGES IN DIRECTION

In day to day driving within an urban area, drivers may have to negotiate a variety of road narrowings and obstructions as a result of parked cars, service vehicles etc. These have the affect

of slowing vehicle speed as the driver has to modify his/her driving style to cope with these. There are various traffic calming measures which seek to achieve this on a more permanent basis. These include:



Severe sideways movement over a shorter distance is effective



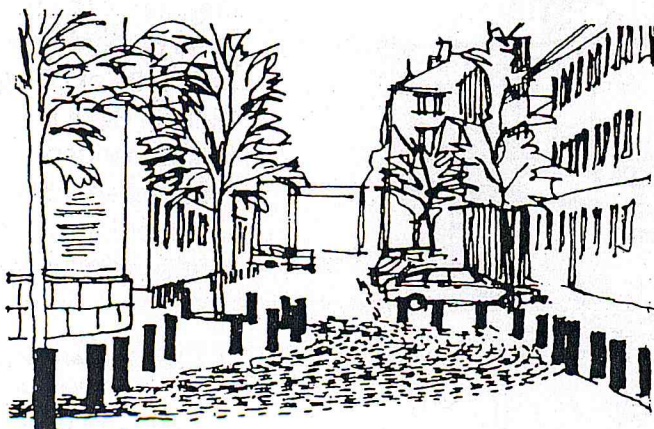
Limited movement over a longer distance is ineffective

i) Chicanes

These cause drivers to change direction. For these to be effective, the amount of sideways movement should be severe and over a short distance. Chicanes can be created by a variety of means - using pavement extensions, areas of planting, trees etc. Their effect can be increased by locating planting/planters to limit the forward visibility of the driver. As the driver cannot see too far ahead, he/she is forced to slow down in order to negotiate the chicane safely. It is this perception of danger that helps to modify driver behaviour. It is not however the intention to create deliberately dangerous situations.



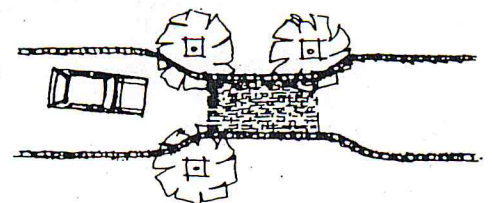
The use of raised planters to reduce forward visibility



The use of surface changes and bollards to emphasise the change in direction required

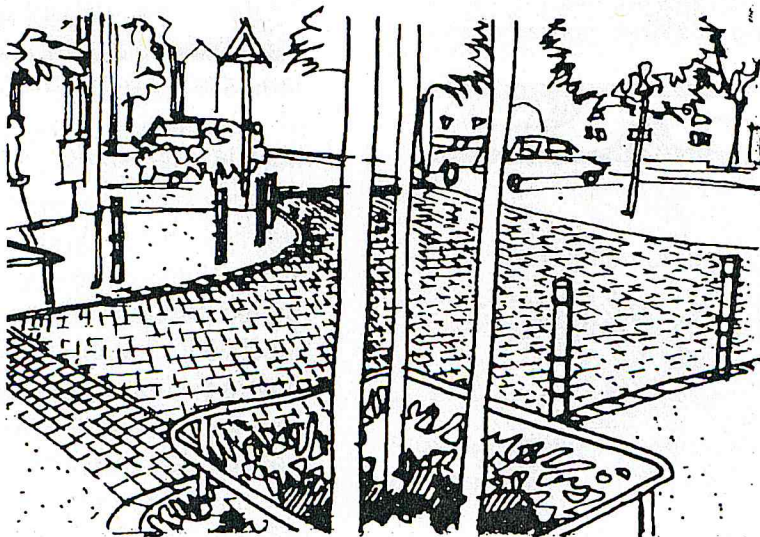
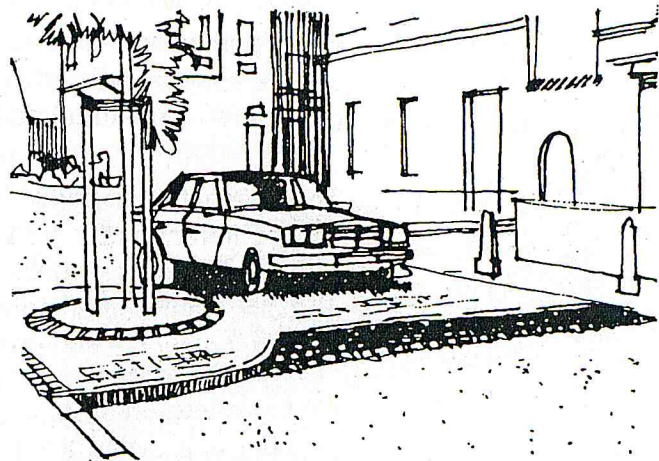
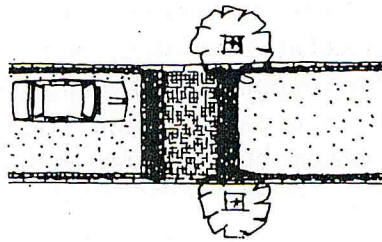
ii) Road Narrowing

Carriageway widths can also be reduced in order to provide a series of 'pinch points'. These work best with two-way traffic where there is no clear definition of vehicular priority. This creates a degree of uncertainty and encourages drivers to slow down on approach. Road narrowing can also be used at main pedestrian crossing points, and has the added benefit of reducing crossing distance.



ROAD HUMPS AND SPEED TABLES

Road humps, cushions and speed tables are effective in reducing vehicle speed. Speed tables are particularly valuable at main crossing points, where if flush with the footway, pedestrians can cross the road more easily. In those cases clear distinction needs to be made as to who has priority - vehicles or pedestrians. It may therefore be necessary to erect barriers on the approach to the speed table to reinforce this. Speed tables are of particular benefit to the elderly, the disabled and people with prams. Speed tables can also be used in order to provide a 'gateway' into new development. The driver entering a residential area is therefore made to realise that he/she is entering an environment where cars do not have prominence.

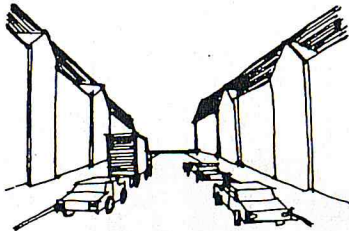
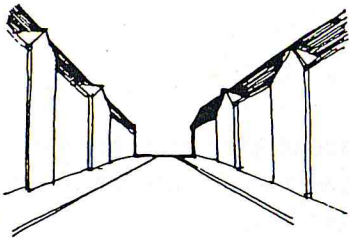


The use of a speed table at a junction

In certain cases, it may be appropriate to extend speed tables in order to cover whole junctions.

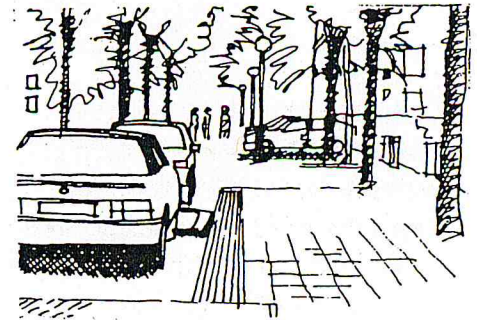
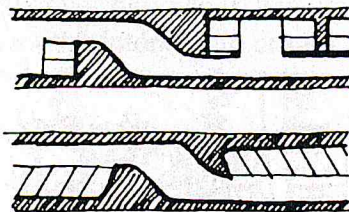
PARKING

Whilst in terms of convenience and security, there are advantages in accommodating as much car parking as possible within the curtilage of dwellings, this may in certain circumstances be unacceptable or impracticable. The arrangement of parked cars within the street can have a beneficial effect in terms of slowing traffic. Streets which have little or no on-street parking will encourage higher vehicle speeds than streets with considerable on-street parking.

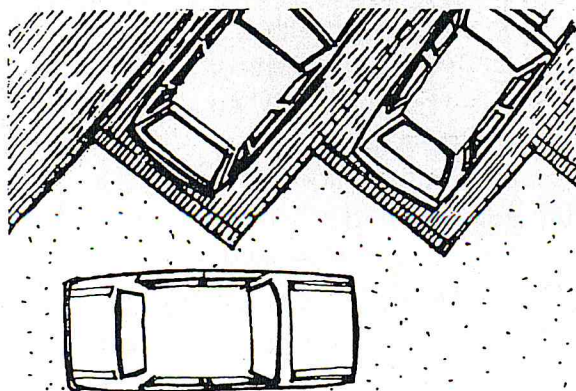
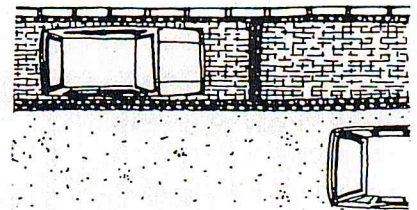
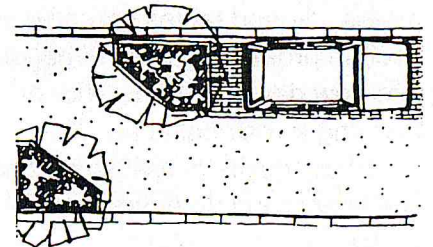


The absence of parked vehicles can encourage higher vehicle speed

The delineation of parking bays using different materials and textures can also be useful in reducing apparent amounts of roadspace even when unoccupied by parked vehicles. Parking bays can also be arranged so as to complement chicanes.

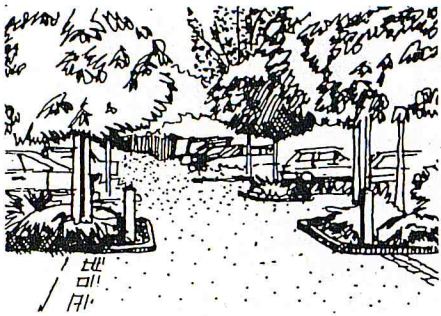


In this case, the parked vehicles themselves necessitate a change of direction



Angled parking will be more effective in reducing speed as drivers perceive a potential threat from vehicles reversing out into the main carriageway. This perceived threat is less apparent if parallel parking is used. This approach would only be appropriate in certain circumstances eg over short sections of cul-de-sac or small courtyards.

LANDSCAPE



The use of planting to soften a parking area

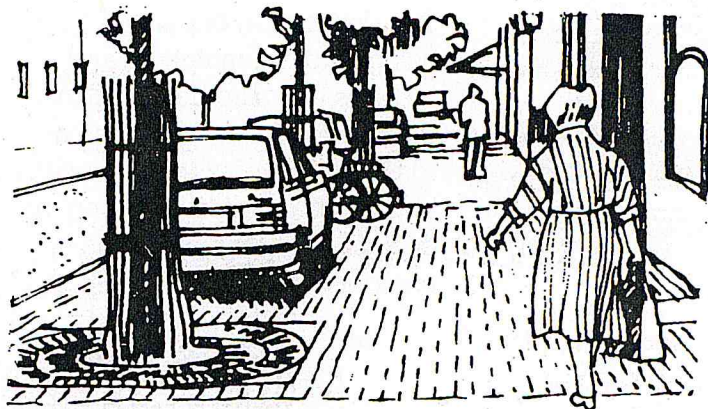
Traditionally, residential environments have been dominated by the needs of the motor vehicle. Carriageways, footways and private drives have combined to create a sea of asphalt which is generally unappealing. The introduction of traffic calming can and should revolutionise the residential environment.

Landscape can be broken down into soft and hard elements.

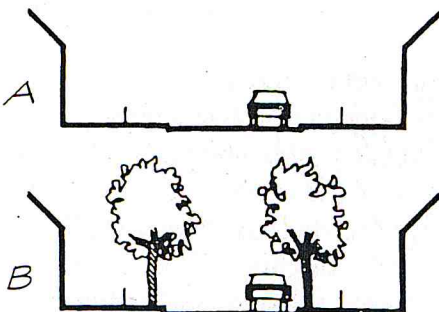
i) Soft Landscape

The introduction of trees and shrubs into streets can have a major impact on residential quality. These can:

- * Provide a vertical element in the street scene which reinforces speed tables, etc.
- * Help to delineate parking areas e.g. parallel parking. This has the additional benefit of reducing the amount of roadspace even when the parking bays are unoccupied.
- * Be used to reduce optical width.

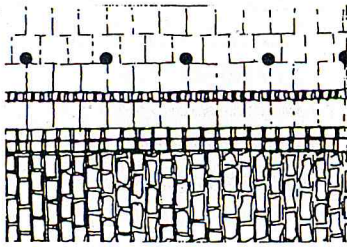


The use of trees to delineate parking bays



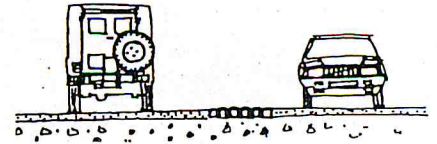
The use of trees in example B to reduce the driver's optical width

Drivers' perception of appropriate driving speed is influenced by the relationship between the width of the street and the height of vertical elements. Speeds are lower when the height of vertical features is greater than the width of the street. Trees can also provide shelter and shade and help to soften the hard urban landscape.



ii) Hard Landscape

Carriageways and footways need no longer be constructed only in asphalt. A wide variety of materials are now available. These can be used to provide visual relief and to delineate parking areas, crossing points and the main carriageways. If used in conjunction with chicanes etc, changes of material can be used to reinforce these measures visually. Colour and texture are particularly important and can be used to highlight particular features.



Cobbles help to separate carriageways and discourage overtaking

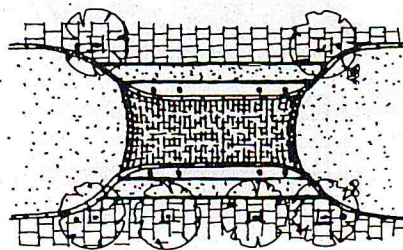
In certain circumstances texture variation can be used to reduce vehicular speeds, as it provides the driver with a tactile reminder to slow down. The use of cobbles is particularly effective in certain circumstances.

SPECIAL CONSIDERATIONS

In designing a traffic calming scheme, consideration needs to be given to particular road users, viz:

i) Service and Emergency Vehicles

Of prime consideration should be the ability for service and emergency vehicles to enter into a residential area safely. Turning facilities should also be provided. Most traffic calming measures, if carefully designed can accommodate these requirements.



The use of separate cycle lanes on either side of the road narrowing

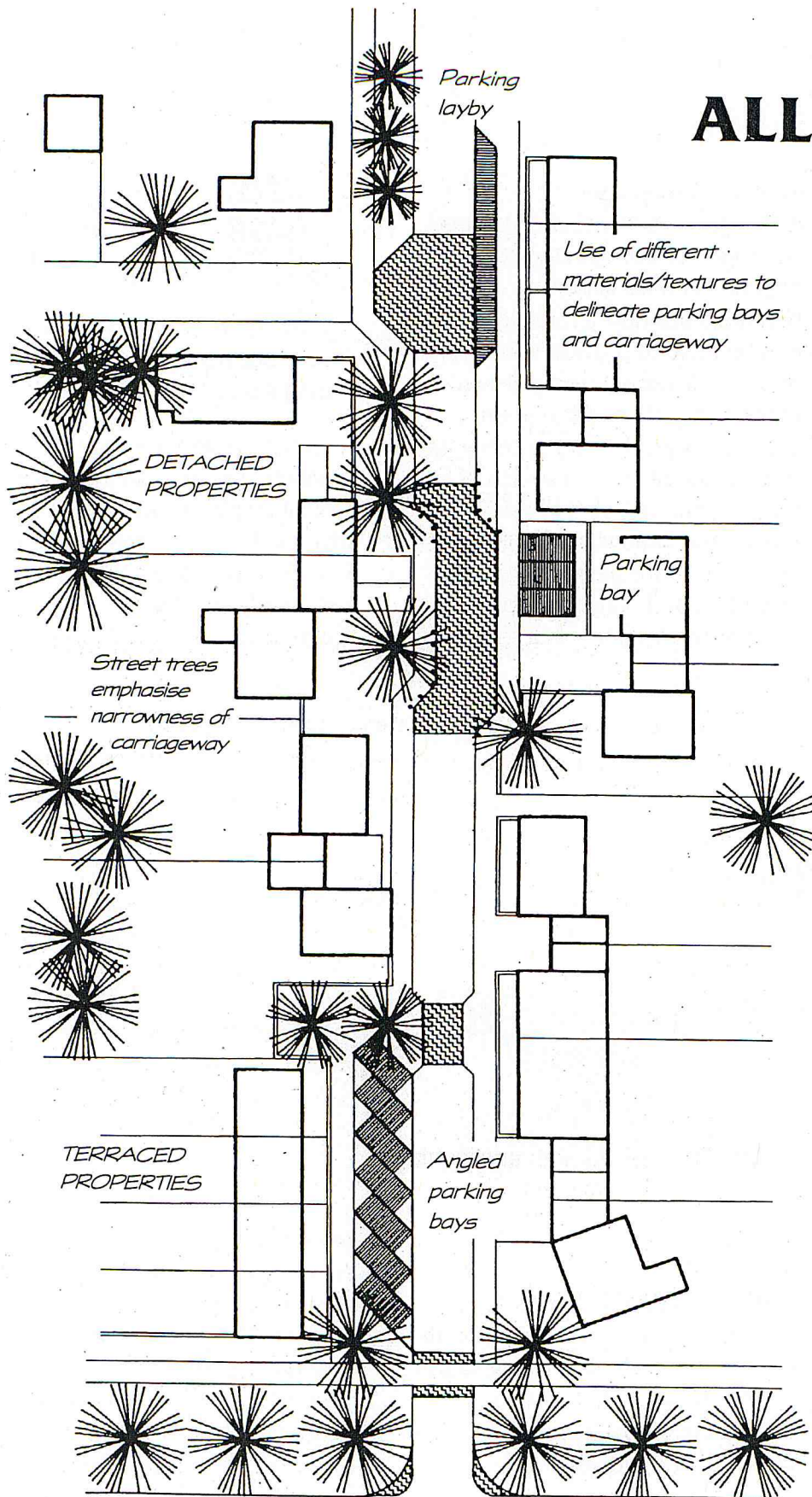
ii) Cyclists

In designing road narrowings or chicanes, care should be taken to ensure that the safety of cyclists is not compromised. Provisions should therefore be made for cyclists to negotiate these obstructions safely - the use of separate cycle lanes may be appropriate.

iii) Public Transport

In laying out a new housing area, consideration should be given at the outset to the provision of bus routes to serve the development. This will have a bearing on the type of slowing features that can be used in these sections of carriageway. For example, recent experience shows that the use of speed cushions may provide a solution.

PUTTING IT ALL TOGETHER



This indicative layout shows how various traffic calming measures can be used in different situations. This is for illustrative purposes only and represents one of many solutions.

Chicane. Change of direction reinforced visually by use of bollards and tree planting to reduce driver's forward visibility. Change of texture also provides a tactile reminder to slow down

Areas of different surface texture which may be raised to form speed tables

Gateway feature using speed ramp, mountable shoulders, reinforced with tree planting

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Circular Roads 3/90 Road Humps (DoT)

DoT. Traffic Advisory Leaflets

Measures to control traffic (1/87)

Speed Control Humps (2/90) 2

20mph Speed Limit Zones (7/91)

Overrun Areas (12/93)

Entry Treatments (2/94)

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Further Information

The Borough Council welcomes early discussions with applicants and their agents. For further information please contact:

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