

7

chapter 7 Traffic Calming for New Residential Roads

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7.1 Philosophy of speed restraint on new roads

Historically, many residential roads were not designed to cope with the volume and parking requirements of the present day levels of traffic. Consequently they often have accident problems. Even recently built roads in housing areas do little to limit the speed at which vehicles can be driven along them. Their alignment is often straight or flowing and the carriageway is wider than necessary. This encourages driving speeds well in excess of the 30mph legal speed limit. As a result, residents are concerned about safety and this leads to requests for traffic calming measures such as ramps.

It has been common practice (for many years) in some European countries, to design residential areas to physically limit vehicle speeds to 30kph or 20mph. Chapter 5 illustrates how achieving lower speeds can reduce the number of accidents and increase the feeling of safety. Chapter 6 outlines the use of a wide variety of traffic calming techniques to reduce vehicle speed and improve safety where there are problems on existing roads.

On new roads however it is possible to constrain speeds without the need to resort to crude remedial treatments such as ramps. The opportunity exists to use horizontal alignment constraints backed up by good urban design to keep speeds low. The careful positioning of buildings, landscaping and the use of different materials can help to reinforce the need to reduce speed and reduce the dominance of motor vehicles.

It is possible to integrate such traffic calming measures with the sustainable development philosophy, and provide safer more attractive places for people to live.

On new roads, vertical deflections should be a last resort where site constraints give no opportunity for other methods of keeping speeds low. Speed tables and speed cushions should only be used in these exceptional circumstances. It should not be necessary to use ramps on new roads and mini-roundabouts are not recommended in new residential layouts.

Diagram 7.1 New road calmed by horizontal layout constraint



Table 7.1 Spacing between speed restraint measures

ROAD TYPE	LOCAL COLLECTOR	ACCESS
Design speed (mph)	30	20
Spacing of measures (m)	100 - 120	60 - 80

Access roads in new residential areas should be designed to physically constrain vehicle speeds to 20 mph. Carriageway width should not exceed 5 metres. Where appropriate, indented visitor car parking should be provided.

Local Collector roads in new residential areas should be designed to physically constrain speeds to 30 mph (see Section A, Chapter 1.7). Carriageway width should not exceed 6 metres. However additional width will be required where provision must be made for on-road cycle tracks or indented car parking. The design of the roads should be pedestrian and cycle friendly.

Speed restraint measures should not have the appearance of an afterthought or remedial treatment.

7.2 Speed restraint measures

It is important that the speed restraint measures used on new residential roads are integrated with the appearance of the development. High quality materials, in keeping with the local area, should be used and the measures should be landscaped. The measures should not have the appearance of an afterthought or remedial treatment.

This chapter looks at a range of measures that are appropriate for new roads. Ramps are not recommended. Speed Tables and Speed Cushions should only be used where site constraints give no opportunity for other methods of keeping speeds low. Long straight lengths of road should be avoided. Table 7.2 outlines the common methods of traffic calming for new residential developments and indicates the appropriate road types for their use. The list is illustrative and is not intended to preclude other appropriate measures, which should be judged on their own merits.

Table 7.2

SPEED RESTRAINT MEASURE	LOCAL COLLECTOR	ACCESS ROAD	
		MAJOR	MINOR
Entry treatment	X	✓	✓
Shared surface	X	X	✓
Carriageway narrowings and chicanes	X	✓	✓
Speed reduction bend	✓	✓	✓
Speed control island	✓	✓	✓
Change of priority at junction	X	✓	✓
Traffic island	✓	✓	X
Speed table/cushion (exceptional circumstances only)	X	✓	X

In order to keep speeds low the features should be spaced regularly. The recommended spacings between features (based on monitoring of existing roads) are shown in Table 7.1.

Entry treatment – This marks the change from one type of road to another to make drivers aware of a change in the nature of the road. Typically this would be where a driver turns off the "Local Collector" road onto an "Access" road or from a major access road to a minor one with a shared surface.

Shared surface – This is where a road does not have a separate footway. These can serve up to 50 dwellings and may need further calming features if longer than 80m. The minimum width of the road should be 4.8m but may require widening on bends. The road surface finish should contrast visually and texturally with other conventional access roads so that drivers do not assume precedence.

Carriageway narrowings and chicanes – These can be achieved in a variety of ways and some illustrations are shown below. Care should be taken that pedestrians, cyclists and other vehicles are not masked by any of the landscaping associated with the measure. A vehicle may be required to give way to an opposing vehicle.

Speed reduction bend – Bends in the horizontal alignment can help to reduce speed if they are sufficiently "tight". This requires specifying a maximum radius and angle of turn for appropriate speeds. Adequate forward visibility (33m for 20mph and 50m for 30mph) for the design speed should be maintained around the bends. It may be necessary to provide widening in an overrun material on the bends (see Diagrams 7.4 and 7.5).

Speed control island – These involve lateral shifts of the carriageway and can incorporate the provision of overrun areas or "mountable shoulders" (see Diagrams 7.6 and 7.7). Smaller vehicles slow down and follow the deflection created by the central island. Longer vehicles can mount the overrun areas to negotiate the measure slowly without mounting the footway. Speed control islands are not roundabouts and should not be used at junctions. If used on bus routes the overrun areas may be omitted.



Entry treatment into an Access road



Shared surface access sympathetic to new housing with high quality finishes

Diagram 7.2 Pinch-point reinforced by position of buildings



Priority Junctions – Drivers slow down when turning or yielding right of way at junctions. The careful positioning of priority junctions can assist in restraining speed along a length of road (see Diagram 7.8). Crossroads layouts are not recommended.

The priority at a junction can be changed to act as a speed reducing measure. This is illustrated in Diagram 7.9.

On roads with a relatively low traffic flow (such as access roads), the priority at a junction can be changed to slow traffic down. Diagram 7.9 shows a layout where priority has been changed by creating an offset in the main alignment and giving priority to traffic coming to and from what would traditionally have been regarded as the side road. It is important that approach speeds are low and that visibility for all turning movements is adequate.

Traffic islands – These can be useful facilities where pedestrians and cyclists cross local major access roads and district collector roads. They can help to promote the use of cycle tracks and pedestrian links.

Diagram 7.3 Examples of narrowing at a location where pedestrians may cross

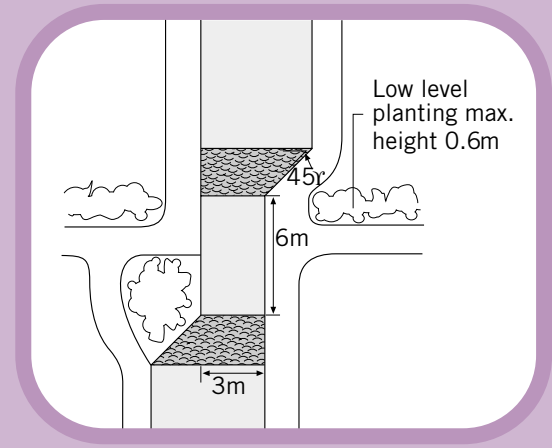


Diagram 7.4 Double speed control bend

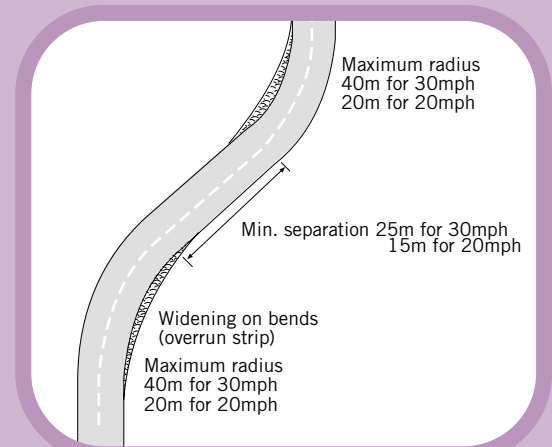
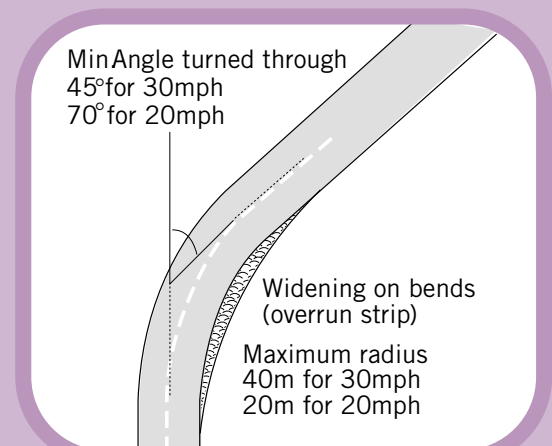


Diagram 7.5 Single speed control bend



7.3 References

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6. Lincolnshire Design Guide for Residential Areas – Lincolnshire County Council – UK. (Environment Services Directorate, 4th floor, City Hall, Beaumont Fee, Lincoln, LN1 1DN, Tel +44 1522 552222)
7. Design Bulletin 32, Residential Roads and Footpaths: Layout Considerations, Second Edition – Department of Environment, Department of Transport – UK. (Available from The Stationery Office, Telephone orders +44 870 600 5522, Fax orders +44 870 600 5533)

Diagram 7.6 Speed control island 20mph

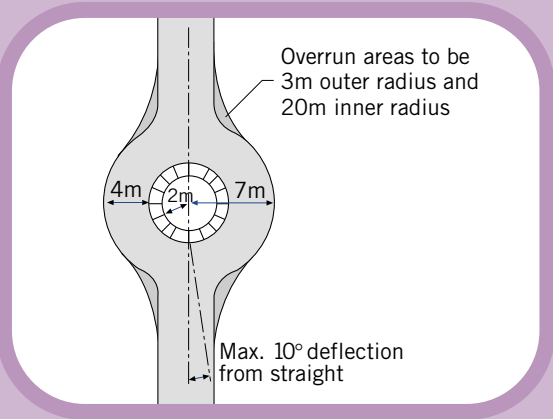


Diagram 7.7 Speed control island 30mph

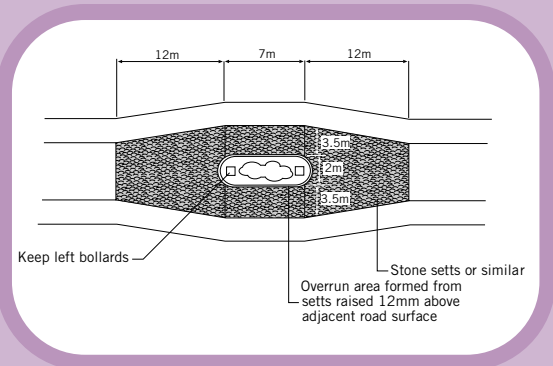
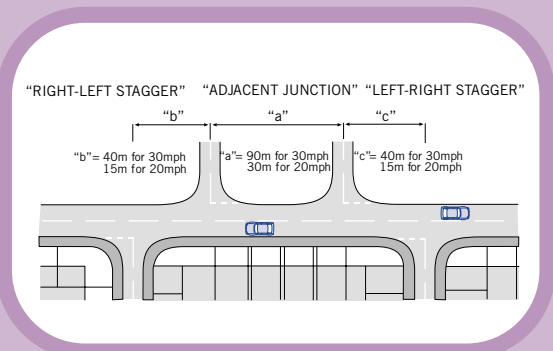


Diagram 7.8 Location of priority junctions



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Diagram 7.9 Change of priority junction at a junction

