Part III: Layout
Chapter 5: Speed Restraint

Update 14/4/26

5.1 Design-led speed management

5.1.1The design of new streets must inherently constrain vehicle speeds to levels that are appropriate to their function, context, and intended character. Speed restraint shall be achieved primarily through vision-led, place-based design, rather than reliance on traffic regulation or retrospective engineering measures.

5.1.2 All streets shall be designed to operate comfortably at target design speeds typically between 15mph and 30mph, depending on their role within the movement and place hierarchy. These target speeds shall reflect the street's function as a public space, the degree of pedestrian and cycle activity anticipated, adjacent land use, and the desired quality of the street environment.

5.1.3 Streets should be self-explaining, legible, and intuitive to use, such that drivers naturally adopt appropriate speeds without the need for excessive signage, enforcement, or isolated traffic-calming features.

5.1.4 Target design speeds shall be achieved through the physical form and layout of the street. The application of speed limits, signage, or traffic regulation orders does not in itself constitute acceptable speed restraint and shall not be relied upon as a substitute for appropriate design.

5.2 Place-making and street character

5.2.1 Speed restraint must be integrated with the overall placemaking objectives of a development. Street layouts shall be designed to support:

- pedestrian priority and safe crossing opportunities,
- inclusive access for all users, including disabled people and children,
- comfortable and convenient cycling,
- a high-quality public realm that encourages social interaction and street activity.

Vehicle speed reduction should contribute positively to the sense of place, rather than detracting from it. Elements that reinforce character, enclosure, and spatial definition are encouraged, provided they are consistent with safe and inclusive movement.

5.3 Primary speed control through layout and geometry

5.3.1 The preferred method of controlling vehicle speeds is through street layout and geometric design. Designers should demonstrate, at an early stage, how target speeds are achieved through the configuration of the street rather than through add-on measures.

Design techniques may include, but are not limited to:

- limiting forward visibility and avoiding long uninterrupted straight sections,
- introducing appropriate horizontal deflection through changes in alignment or street form,
- controlling junction spacing and street lengths,
- managing carriageway widths to reflect context and priority, rather than designing for maximum vehicle comfort,
- reinforcing enclosure through consistent frontage, street trees, and active edges.

Where such measures are effectively applied, additional traffic-calming features may be unnecessary.

5.4 Use of traffic calming features

5.4.1 Where layout and geometry alone cannot reliably achieve the desired operating speeds, supplementary speed restraint measures may be considered. These should follow a clear hierarchy:

1. **Horizontal and visual measures** should be considered first.
2. **Vertical deflection measures** should only be introduced where other approaches are demonstrably insufficient.

5.4.2 Vertical traffic-calming features can have impacts on bus operations, emergency services, noise, vibration, accessibility, and cycling comfort. Their use must therefore be justified, proportionate, and compatible with the overall street design.

5.4.3 Due to operational and parking management considerations, the use of chicanes will not normally be supported unless it can be clearly demonstrated that they will function effectively at all times of the day, including under typical parking demand, and without giving rise to conflict, obstruction, or maintenance issues.

5.4.4 The assessment of whether supplementary speed restraint measures are required shall be undertaken using engineering judgement applied in a proportionate and evidence-led manner, having regard to the target design speed, street function, layout, and anticipated user activity.

5.5 Spacing of speed restraint features

5.5.1 Speed restraint features shall be arranged to create a continuous speed-controlled environment. Isolated or widely spaced features that permit re-acceleration between restraint points will not be considered acceptable, even where individual features comply with dimensional criteria.

5.5.2 The maximum distance between effective speed restraint points shall normally align with the target design speed, as set out below. Speed restraint points may include junctions with priority control, horizontal deflection, or vertical features.

Maximum distance between traffic calming features		
Target Speed		**Maximum distance (m)**
kph	**mph**	
50	31	150
40	25	100
30	19	60
25	16	40

Distances shall be measured along the driver's path of travel between effective speed-controlling elements.

5.6 Vertical deflection measures

5.6.1 Where vertical deflection is justified, speed control humps and speed tables shall be designed to be comfortable, predictable, and accessible for all users.

Except on designated bus routes, vertical deflection features shall normally take the form of:

- flat-topped speed humps, or
- junction or crossing tables.

These shall typically incorporate:

- a minimum flat-top length of 7m,
- a typical height of 75mm,
- approach ramp gradients of approximately 1 in 13, subject to local longitudinal gradients and drainage considerations.

On steeper streets, ramp gradients shall be adjusted to maintain comfort and safety, with particular regard given to downhill approaches.

5.6.2 All vertical features shall be designed and constructed to minimise adverse impacts on cyclists, wheelchair users, and people with mobility or sensory impairments.

5.7 Materials and construction

5.7.1 Vertical traffic-calming features shall normally be constructed in bituminous materials to ensure durability and ease of maintenance. Where used within block-paved streets or shared-surface environments, materials shall match the surrounding carriageway to maintain visual continuity and reinforce place character.

5.7.2 The long-term maintenance implications of vertical traffic-calming features must be fully considered. Where such features are introduced, appropriate commuted sums will be required to cover future inspection, repair, and renewal, commensurate with the form, number, and complexity of features proposed.

5.8 Entry features and transitions

5.8.1 Entry ramps and gateway features may be used to signal a change in street character and operating speed, particularly at the transition from higher-speed routes into residential or low-speed environments.

5.8.2 Entry features should reinforce place identity and priority, rather than act solely as engineering devices. Heights will normally range between **75mm and 100mm**, with gradients designed to balance effectiveness, comfort, and drainage with the lower end of the range preferred on bus routes or streets with higher cycle flows.

5.8.3 Rumble strips or coarse textured treatments will only be considered in exceptional circumstances due to their potential impacts on noise, vibration, comfort, and long-term integrity.

5.9 Bus routes and passenger comfort

5.9.1 Where speed restraint measures are proposed on streets used by bus services, their location and design must minimise adverse impacts on passenger comfort, accessibility, and service reliability.

5.9.2 Vertical deflection features shall be designed to provide a sufficiently long flat top or table section to allow stable and predictable passage of buses, minimising pitching movement and ensuring a comfortable environment for seated and standing passengers. Designs should avoid situations where one axle is entering or exiting a feature while another remains on a ramp.

5.9.3 Vertical features shall not be located where they would adversely affect passengers boarding or alighting, particularly those standing, using mobility aids, or travelling with pushchairs. Adequate separation shall also be provided so that passengers have sufficient time to stand, move safely towards the bus doors, and for boarding passengers to reach a seat or stable standing position, without the vehicle mounting, crossing, or descending a speed restraint feature.

5.9.4 Early engagement with passenger transport teams is expected where bus routes are affected. Designs shall demonstrate, where relevant, that the form, spacing, and profile of vertical features provide a smooth and predictable passage for buses under normal operating conditions, including during passenger boarding, alighting, and internal circulation.

5.10 Existing highway and consultation

5.10.1 The introduction of speed restraint measures within the existing public highway may be subject to statutory procedures and public consultation. Where this is the case, the promoter shall be responsible for associated costs.

5.10.2 The outcome of consultation cannot be guaranteed and may necessitate amendment or redesign of proposals. Schemes should therefore be robust, well-justified, and clearly aligned with the function and character of the street.

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