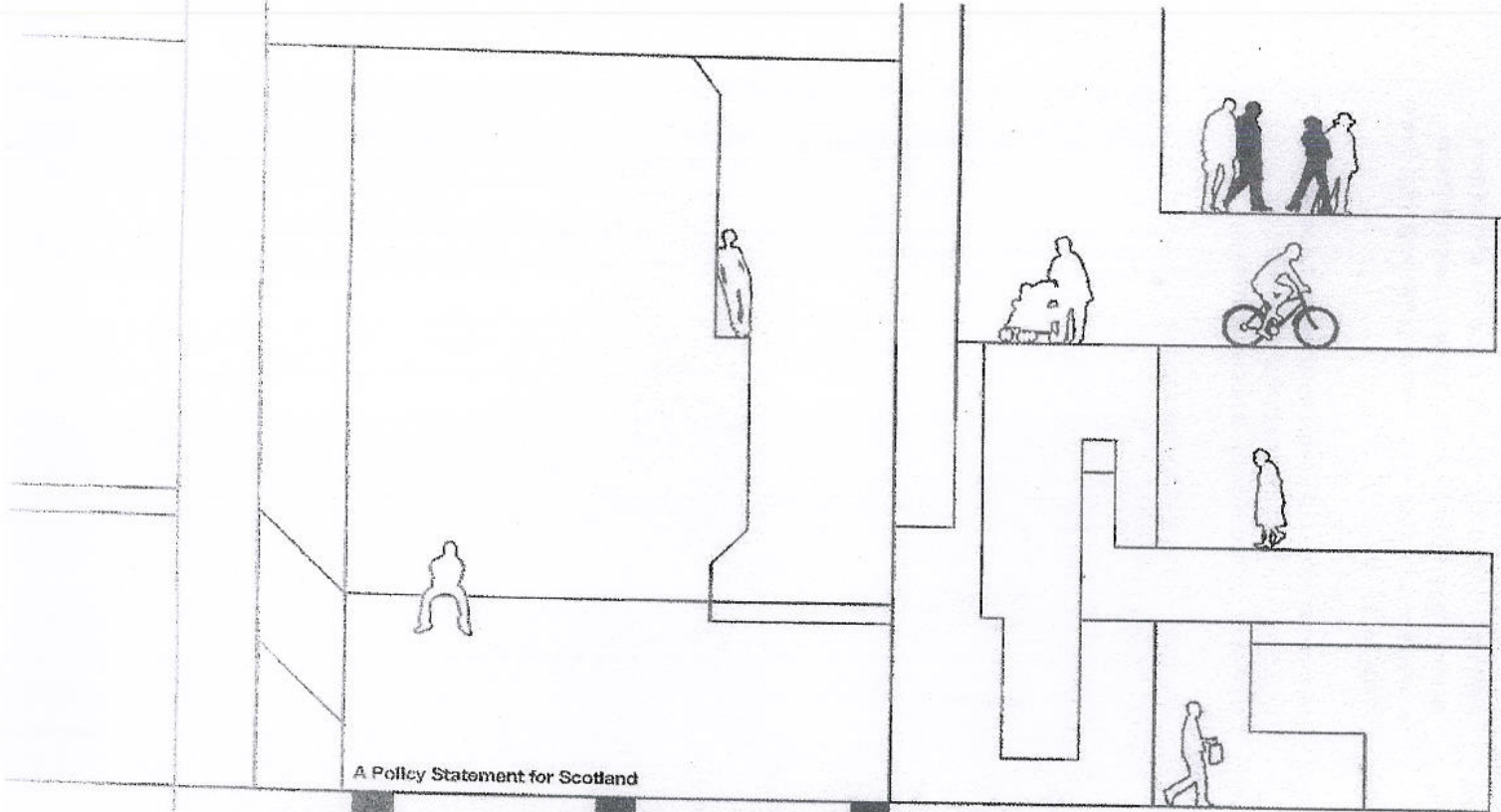


A Policy Statement for Scotland

designing streets

Policies

- Street design must consider place before movement.
- Street design guidance, as set out in this document, can be a material consideration in determining planning applications and appeals.
- Street design should meet the six qualities of successful places, as set out in *Designing Places*.
- Street design should be based on balanced decision-making and must adopt a multidisciplinary collaborative approach.
- Street design should run planning permission and Road Construction Consent (RCC) processes in parallel.

APPENDIX A

Who is *Designing Streets* for?

Designing Streets is aimed at everyone who plays a part in creating or determining the quality of streets; architects, engineers, planners, developers, politicians, local authorities and, indeed, anyone who has an interest in how street design is taken forward. It is important that professionals understand all of the key issues and do not restrict their interest to any one particular area.

Designing Streets is expected to be used predominantly for the design, construction, adoption and maintenance of new streets, but it is also applicable to existing streets subject to re-design.

Development of the document

Designing Streets was developed for the Scottish Government by a multi-disciplinary team of roads and transportation engineers, urban designers, planners and legal advisors, led by WSP UK. The document has been informed by case studies and best practice, and was subject to significant stakeholder consultation. It derives, in essence, from *Manual for Streets*[4], which was produced for the Department for Transport, the Welsh Assembly Government and Communities and Local Government. *Manual for Streets* is evidence-based guidance which focuses on lightly trafficked residential streets and cited and commissioned detailed research. *Designing Streets* has been tailored to meet Scotland's needs and, as a policy document, does not reproduce this evidence in detail.

Streets and roads

Streets have to fulfil a complex variety of functions in order to meet people's needs as places in which to live, to work and to move around. Their design requires a thoughtful approach that balances potential conflicts between different users and objectives. A clear distinction can be drawn in functional terms between roads and streets as follows:

- Roads are thoroughfares whose main function is to facilitate the movement of motor traffic.
- Streets have important public realm functions beyond those related to motor traffic. They are typically lined with buildings and public spaces and, whilst facilitation of movement is still a key function, they normally support a range of social, leisure, retail and commercial functions.

All thoroughfares within urban settings and rural boundaries should normally be treated as streets.

Reference should no longer be made to road hierarchies based on terminology such as local distributor/local access roads.

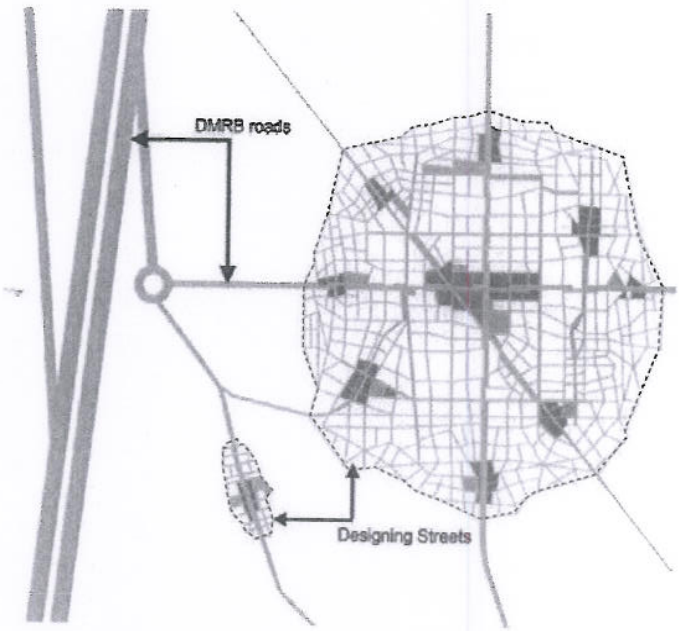
The relationship of *Designing Streets* to main and busy streets

Designing Streets provides policy that should be followed in designing and approving all streets. Whilst its technical advice is aimed particularly at residential and lightly trafficked streets, many of the key principles are also applicable to other types of street, for example rural and high streets. When considering busier streets, the movement function of the street may well become more significant or complex but this should be resolved through an integrated design approach and should not compromise the quality or the sense of place.

Design Manual for Roads and Bridges (DMRB)[5] is the standard for the design, maintenance and improvement of trunk roads and motorways. There are some locations, however, where a more sensitive design that follows the principles of *Designing Streets* may well be appropriate, such as where a small burgh High Street is also a trunk road.

Most importantly, a multi-disciplinary approach, full community engagement and a balanced appreciation of context and function is fundamental to successful outcomes in such cases.

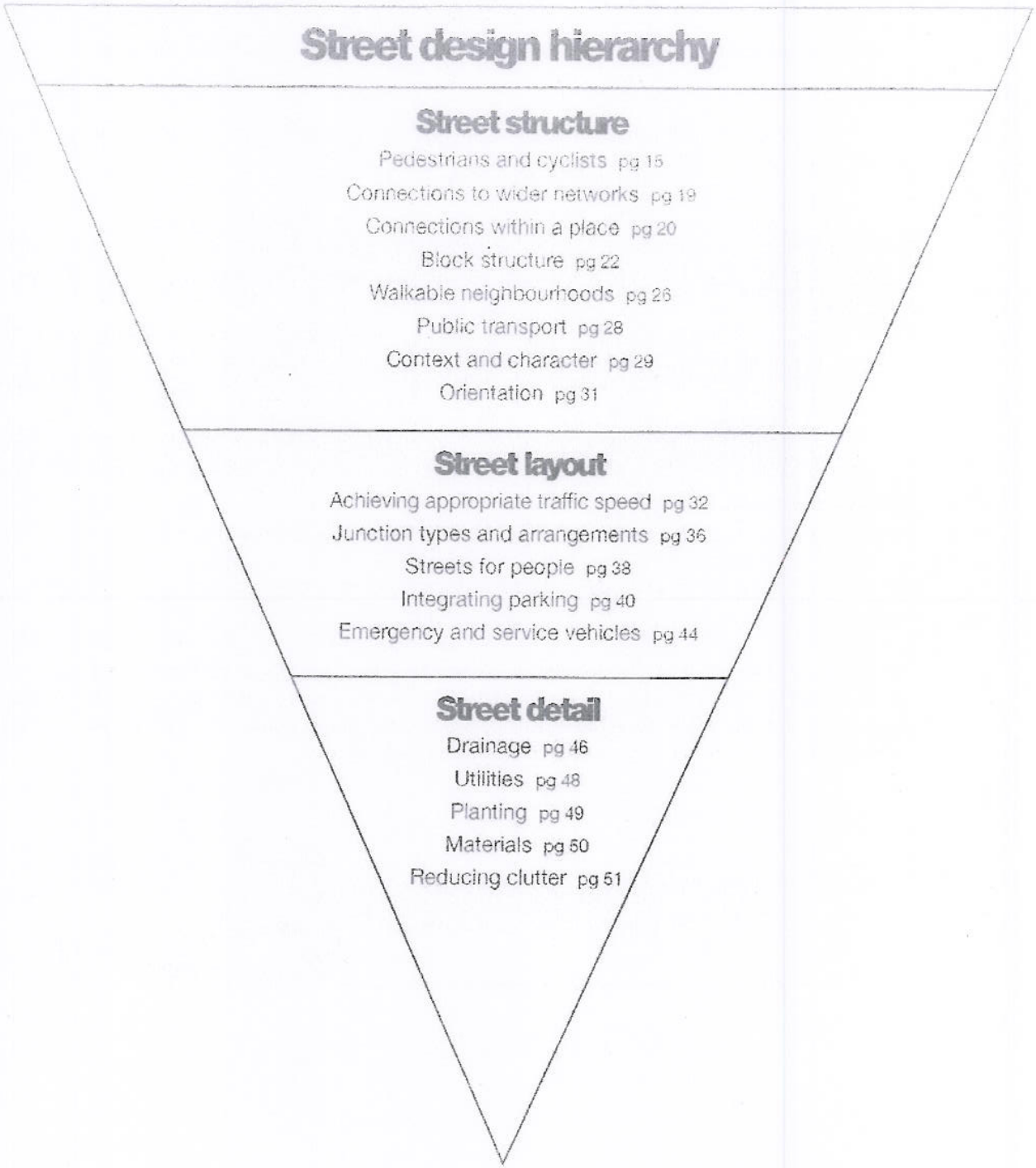
The diagram below shows where streets and roads exist and where they often meet.



Designing Streets policy and guidance should be applied within all urban and rural boundaries

When designing streets, it is important to consider the relevant issues in a hierarchical way, working from issues of structure through to layout and geometry and on to matters of detail. The guidance in *Designing Streets* is structured in this way to help inform the understanding and approach of those involved in street design.

Guidance in support of the considerations in the preceding table is now ordered hierarchically, providing information on street design from macro to micro scales. The hierarchy is a guide to understanding and addressing relevant issues, however there will be overlaps between issues dependant on specific circumstances.



Stopping sight distance

The stopping sight distance (SSD) is the distance within which drivers need to be able to see ahead and stop from a given speed.

The SSD values used in *Designing Streets* are based on research into deceleration rates, driver perception-reaction times and speed. These SSD values are appropriate for residential and lightly trafficked streets. The table below shows the effect of speed on SSD. These values are independent of traffic flow or type of road. It is recommended that they are used on all streets with 85th percentile wet weather speeds up to 60 kph.

Below around 20 mph, shorter SSDs themselves may not achieve low vehicle speeds: the design of the whole street and how this will influence speed needs to be considered at the start of the process; e.g. the positioning of buildings and the presence of on-street parking.

Further information on SSDs, including details of the calculation formula, and also the relationship between visibility and speed is available in *TRL Report No. 332*[11] and *TRL Report No. 661*[12].

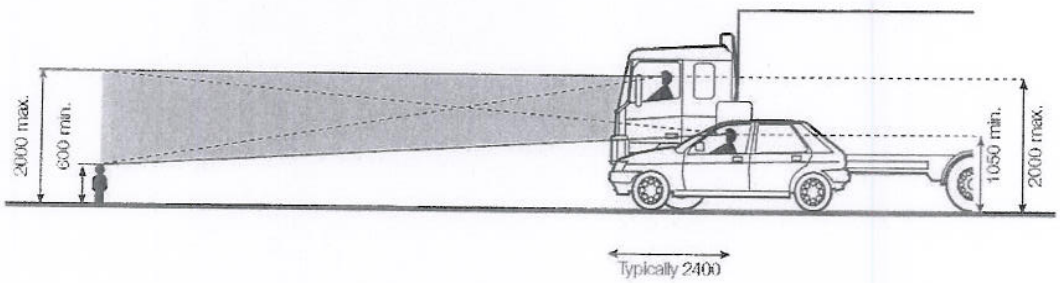
Speed	Kilometres per hour	16	20	24	25	30	32	40	45	48	50	60
	Miles per hour	10	12	15	16	19	20	25	28	30	31	37
	SSD (metres)	9	12	15	16	20	22	31	36	40	43	56
	SSD adjusted for bonnet length	11	14	17	18	23	25	33	39	43	45	59

Visibility requirements

Visibility should be checked at junctions and along the street. Visibility is measured horizontally and vertically.

Using plan views of proposed layouts, checks for visibility in the horizontal plane ensure that views are not obstructed by vertical obstructions.

Checking visibility in the vertical plane is then carried out to ensure that views in the horizontal plane are not compromised by obstructions such as the crest of a hill, or a bridge at a dip in the road ahead. It also takes into account the variation in driver eye height and the height range of obstructions. Eye height is assumed to range from 1.05 m (for car drivers) to 2 m (for lorry drivers). Drivers need to be able to see obstructions 2 m high down to a point 600 mm above the carriageway.



Visibility splays at junctions

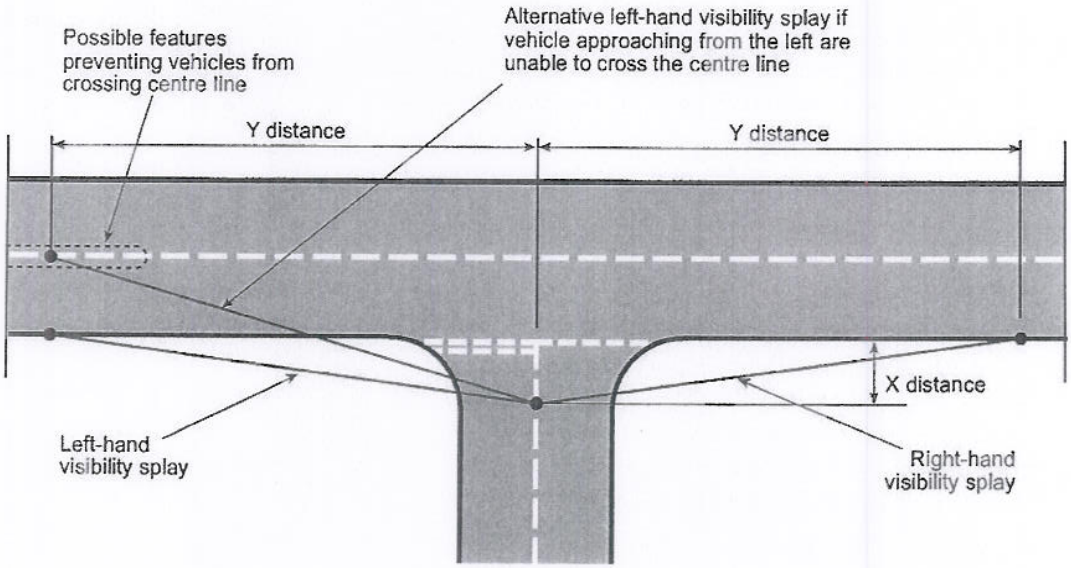
The visibility splay at a junction ensures there is adequate inter-visibility between vehicles on the major and minor arms.

The distance back along the minor arm from which visibility is measured is known as the X distance. It is generally measured back from the 'give way' line (or an imaginary 'give way' line if no such markings are provided). This distance is normally measured along the centreline of the minor arm for simplicity, but in some circumstances (for example where there is a wide splitter island on the minor arm) it will be more appropriate to measure it from the actual position of the driver.

The Y distance represents the distance that a driver who is about to exit from the minor arm can see to his left and right along the main alignment. For simplicity, it is measured along the nearside kerb line of the main arm, although vehicles will normally be travelling a distance from the kerb line. The measurement is taken from the point where this line intersects the centreline of the minor arm (unless, as above there is a splitter island in the minor arm).

When the main alignment is curved and the minor arm joins on the outside of a bend, another check is necessary to make sure that an approaching vehicle on the main arm is visible over the whole of the Y distance. This is done by drawing an additional sight line which meets the nearest wheel track at a tangent.

Some circumstances make it unlikely that vehicles approaching from the left on the main arm will cross the centreline of the main arm – opposing flows may be physically segregated at that point, for example. If so, the visibility splay to the left can be measured to the centreline of the main arm.



X and Y distances

An X distance of 2.4 m should normally be used in most built-up situations, as this represents a reasonable maximum distance between the front of the car and the driver's eye.

A minimum figure of 2 m may be considered in some very lightly-trafficked and slow-speed situations, but using this value will mean that the front of some vehicles will protrude slightly into the running carriageway of the major arm. The ability of drivers and cyclists to see this overhang from a reasonable distance, and to manoeuvre around it without undue difficulty, should be considered.

Using an X distance in excess of 2.4 m is not generally required in built-up areas.

The Y distance should be based on values for SSD.

Forward visibility

Forward visibility is the distance a driver needs to see ahead to stop safely for obstructions in the street. The minimum forward visibility required is equal to the minimum SSD. It is checked by measuring between points on a curve along the centreline of the inner traffic lane. Consideration should be given to vertical geometry and any other obstructions.

There will be situations where it is desirable to reduce forward visibility in conjunction with other methods to control traffic speeds.

An example of the reduction in forward visibility to reduce vehicle speed

Visibility along the street edge

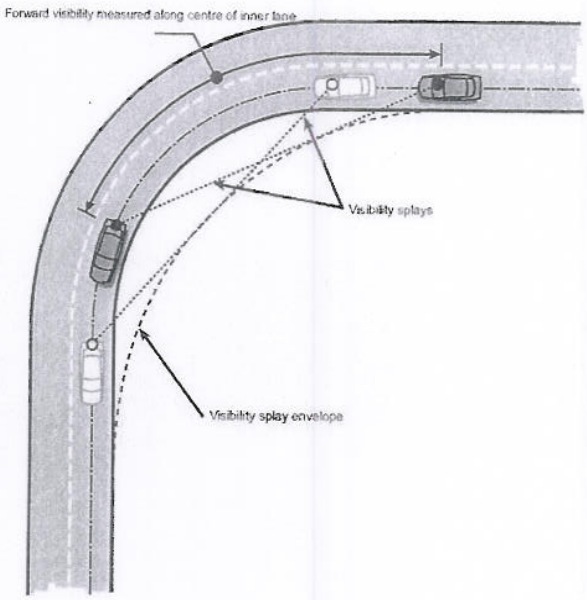
Vehicle exits at the back edge of the footway mean that emerging drivers will have to take account of people on the footway. The absence of wide visibility splays at private driveways will encourage drivers to emerge more cautiously. Consideration should be given to whether this will be appropriate, taking into account the following:

- the frequency of vehicle movements;
- the amount of pedestrian activity; and
- the width of the footway.

Obstacles to visibility

Parking in visibility splays in built-up areas is quite common, yet it does not appear to create significant problems in practice. Defined parking bays can be provided outside the visibility splay if required, and the use of tracked streets that allow for informal parking is also an option. Encroachment of parking space into visibility splays should be avoided where practical.

The impact of other obstacles, such as street trees and street lighting columns, should be assessed in terms of their impact on the overall envelope of visibility. In general, occasional obstacles to visibility that are not large enough to fully obscure a whole vehicle or a pedestrian, including a child or wheelchair user, will not have a significant impact on road safety.



Measurement of forward visibility

Integrating parking

Key considerations

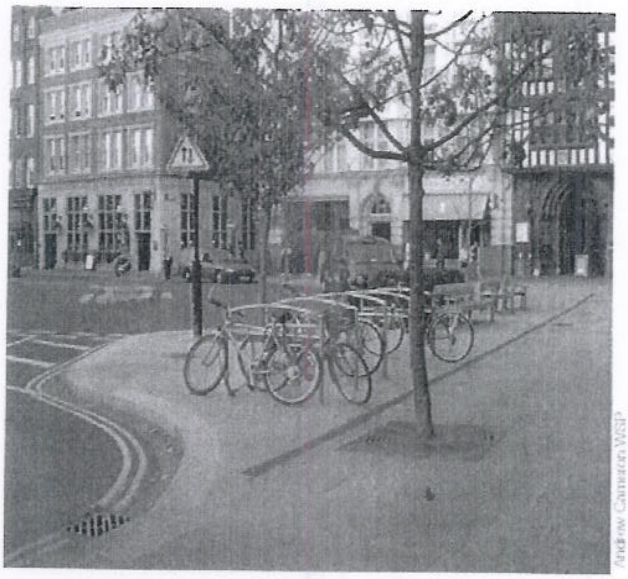
- Parking should be accommodated by a variety of means to provide flexibility and lessen visual impact

Cycle parking

Providing enough convenient and secure cycle parking at homes and other locations for both residents and visitors is critical to increasing the use of cycles. In residential developments, designers should aim to make access to cycle storage at least as convenient as access to car parking.

Reference should be made to the relevant local guidance and any relevant travel plans to determine the appropriate level of provision of cycle parking. The following key principles should, however, apply:

- Shared cycle parking facilities should be secure, overlooked and convenient to use with shelter provided wherever practical.
- Appropriate provision should be made for all potential users including children and visitors.
- Cycle parking can be provided in a number of ways such as: within garages; bespoke cycle storage; communal areas in flats; and on-street cycle racks.
- Cycle stands need to be located clear of pedestrian desire lines, and generally closer to the carriageway than to buildings.
- Cycle parking should be provided at bus and train stations to assist transition between transport modes.
- Cycle parking should be detectable by blind or partially sighted people.



Andrew Cameron WSP

Cycle parking that has good surveillance and is at a key location – in this example near a hospital entrance

Further guidance on the design of cycling facilities is provided in *LTN 2/08 Cycle Infrastructure design.*[19]

Detail

Car parking

The Scottish Government's general planning policy for car parking is set out in the Transport section of the *Scottish Planning Policy (SPP)*[20]. This makes it clear that it is important to consider a design-led approach to the provision of car parking space that is well-integrated with a high-quality public realm. A design-led and contextual strategy for car parking can often lessen the impact on the built environment. Car parking can be provided in a number of ways as set out over the following pages.