

4.4.2 Carriageway Surfaces

The material, texture and colour of the carriageway are important tools for informing drivers of driving conditions. Research has found that the use of robust surface materials (such as block paving) can reduce vehicle speeds by 4-7 km/h alone.³² The use of paving, imprinted or looser materials (combined with no kerbing, see Section 4.4.8 Kerbs) is one of the clearest ways of reinforcing a low-speed environment and of signalling to all users that a the main carriageway is to be shared (see Figure 4.56). The use of such surfaces also adds value to place, particularly in historic settings.

With regard of surface types:

- The use of standard materials, such as macadam/asphalt should generally be confined to streets with moderate design speeds (i.e. 40-60km/h).
- Where low-design speeds (i.e. 30km/h) are desirable changes in the colour-or texture of the carriageway should be used periodically, such as at crossings or at strategic locations, such as *Focal Points*.
- Where shared carriageways are proposed (i.e. 10-20 km/h) changes in colour and texture should be applied to the full length of the street.

The use of robust finishes may also be used, on all streets, for the full carriageway where large numbers of pedestrians congregate. Such treatments should be considered in *Centres* (i.e. along shopping streets), in all urban areas around *Focal Points* and adjacent to schools, squares, parks and other areas where vulnerable pedestrians are present (see Figure 4.57).

Designers should also consider the use of at-grade material changes (up to 25mm in height) such as at crossings, particularly on streets with more moderate speeds and where the aim is not to require large reductions in speed but to alert drivers of a change in driving conditions ahead (see Figure 4.58).



Figure 4.56: Example from Adamstown, Co. Dublin of a shared surface 'homezone' adjacent to a school. Paving materials, combined with embedded kerbs encourage a low speed shared environment.



Figure 4.57: Example from Chapelizod, Co. Dublin, where the carriageway has been paved adjacent to a square in a village centre to add value to place and calm traffic in an area of higher pedestrian activity.

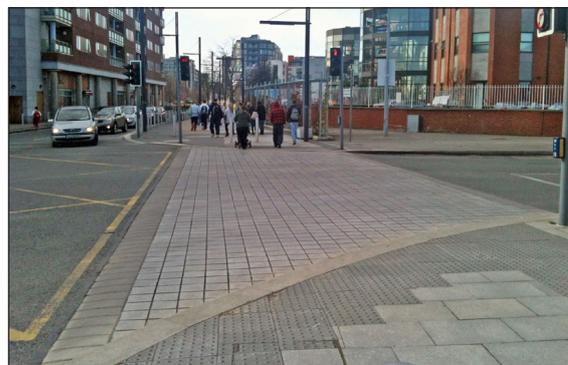


Figure 4.58: Examples from Tallaght, Co. Dublin of a robust surface material (including a slight vertical deflection) designed to add value to place and increase pedestrian safety by alerting/slowing vehicles on approach to the crossing.

³² Refer to Section 7.2.15 of the UK *Manual for Streets* (2007).

4.4.3 Junction Design

Junction design is largely determined by volumes of traffic. As noted in Section 3.4.2 Traffic Congestion, the design of junctions has traditionally prioritised motor vehicle movement. Designers must take a more balanced approach to junction design in order to meet the objectives of *Smarter Travel* (2009) and this Manual. In general designers should:

- Provide crossings on all arms of a junction.
- Reduce kerb radii, thereby reducing crossing distances for pedestrians and slowing turning vehicles (see Section 4.3.3 Corner Radii).
- Omit left turn slips, which generally provide little extra effective vehicular capacity but are highly disruptive for pedestrians and cyclists. Where demand warrants, they may be replaced with left turning lanes with tighter corner radii (see Figure 4.59).
- Omit staggered crossings in favour of direct/single phase crossings (see Section 4.3.2 Pedestrian Crossings).
- Omit deceleration lanes. These are not required in low to moderate speed zones (i.e. up to 60km/h).
- Include pedestrian, cyclist and bus passenger delays in the optimisation of traffic signal phasing and timings. This will almost certainly lead to a reduction in cycle times.
- Minimise waiting with pedestrian cycle times of no more than 90 seconds at signalised junctions (see Section 4.3.2 Pedestrian Crossings).

Designers should also have regard to *Context* and *Function* when selecting junction types (see Figure 4.60). Junction design will also need to be considered in conjunction with crossing types and ratio of flow to capacities (see Sections 4.3.2 Pedestrian Crossings and 3.4.2 Traffic Congestion).



Figure 4.59: Left turning slips (left) generally offer little benefit in terms of junction capacity and increase the number of crossings pedestrians must navigate. They also allow vehicles to take corners at higher speeds, exposing pedestrians and cyclists to greater danger. Where a large number of turning movements occur, left turning lanes (right) with tighter corner radii should be used.