

- If the design of a street creates the perception that it is safe to travel at higher speeds drivers will do so, even if this conflicts with the posted speed limit.

By eliminating risk and promoting free-flowing conditions, drivers feel more inclined to drive at higher speeds. Furthermore if speed limits are perceived as not being appropriate to the environment, it can undermine the speed limit system as a whole.<sup>6</sup> The extent to which speeding in urban areas is a problem has been identified in successive surveys carried out by the Road Safety Authority, with 3 out of 5 drivers on urban streets driving in excess of the posted speed limit.<sup>7</sup>

The Buchanan Report concluded that pedestrians and vehicles were 'fundamentally incompatible' and that segregation would lead to a safer road environment for all users. However, the envisaged segregation of the motor vehicle and pedestrian is not feasible in an urban environment. It is inevitable that pedestrians and vehicles will interact in urban environments. By creating larger, free-flowing roads which prioritise vehicle movement, where this interaction occurs it is likely to happen at a much higher speed, thus increasing the severity of an accident (see Figure 2.15).

Pedestrians have little tolerance for delay and studies have found that significant numbers of pedestrians will not comply with the detour/delay created by diversions, such as those enforced by guardrails.<sup>8</sup> Pedestrians tend to follow desire lines (i.e. take the shortest route), even if this conflicts with the location of formal crossings and pedestrian control measures (see Figure 2.16). The use of guardrails may be counter productive as:<sup>9</sup>

- It may increase vehicle speeds and aggressive driver behaviour.

<sup>6</sup> Refer to *Circular RST 02/2011 Guidelines for the Setting of Special Speed Limits* (2010).

<sup>7</sup> Refer to the *RSA Free Speed Survey* (2008), (2009) and (2011).

<sup>8</sup> Refer to the UK Parliament Inquiry into *Walking in Towns and Cities* presented to the European Transport Conference (2011).

<sup>9</sup> There are several publications that further discuss the use of guardrails, including Section 4.4 of the *National Cycle Manual* (2011); UK Department for Transport *Local Transport Note 2/09 Pedestrian Guardrails* (2008); *Guidance on the Assessment of Pedestrian Guardrail* (2012) and Section 12.4 of the *Manual for Streets 2* (2010).



Figure 2.15: Large free flowing roads and junctions may result in pedestrians taking greater risks in front of faster moving traffic.



Figure 2.16: Measures which divert and/or delay pedestrians may reduce safety as pedestrians walk/cross in locations which vehicles may not anticipate.

- Create a false sense of safety for both drivers and pedestrians (guardrails will only stop vehicles travelling at very low speeds).
- Block intervisibility between drivers and children.
- Result in pedestrians/cyclists being trapped on the carriageway or found in locations that are not anticipated by drivers.
- Reduce the width and capacity of footways and crossings.
- Create a collision hazard for cyclists where built in close proximity to cycle lanes.<sup>10</sup>

### Updesigning

Many of the issues highlighted above have been exacerbated by a process of 'updesigning', where roads are designed to standards in excess of their movement function. This often occurs due to:

- The inappropriate application of the *National Roads Authority Design Manual for Roads and Bridges* (NRA DMRB) on streets and roads in urban areas.<sup>11</sup>
- Catering for the ease of movement of large vehicles, which only occasionally frequent a road/street.
- Enabling greater capacity and vehicle flow based on excessive demand forecasts and/or the assumption that private vehicle usage will increase unabated.

The continued assumption of growth in private vehicle usage is not sustainable and is contrary to the targets contained within *Smarter Travel* (2009). Updesigning also places a significant financial burden (both capital and maintenance) on local authorities (see Figure 2.17). These outcomes represent poor value for money and a simpler, more integrated approach can achieve advantages in terms of sustainability, placemaking and traffic movement.

<sup>10</sup> Refer to Section 4.4.1.3 of the *National Cycle Manual* (2011).

<sup>11</sup> The NRA DMRB was primarily intended for use on roads of national/regional importance. Such roads generally carry significant volumes of traffic at higher speeds over longer distances. NRA TD 9 of the NRA DMRB has been superseded by the TII publication DN-GEO-03031 Rural Road Link Design (2017).



Figure 2.17: Examples of updesigning which provide little cost benefit. From top to bottom, large splayed junction, complex junctions, ramps on wide carriageways, noise walls and repetitive signage.