4.2.2 Priority Intersections

**Background**

Priority intersections are the most common form of intersection. Control is by a ‘Give Way’ or ‘Stop’ sign on the minor road with no restriction on the major road. Priority intersections fall into two basic categories: namely T-junctions and crossroads, with crossroads usually having the worst safety record for similar traffic patterns.

**Problems**

Crossroads often have a poor safety record because of minor road traffic failing to stop for main road traffic either because of driver indiscipline or because the driver is not aware that there is a major road ahead. If the stop-line is in the dip at the edge of the major road camber it can be invisible from a distance on the minor road. The major accident types at priority intersections are accidents where side road vehicles fail to stop, implying inadequate visibility of the intersection from the minor road, and accidents with emerging vehicles, which suggests inadequate sight lines along the major road.

For all types of priority intersection, the problem of delay exists for minor road traffic which has to give way. If the delays are excessive, emerging drivers may take undue risks in order to enter or cross the main stream.

Multiple lane approaches place greater demands on the emerging driver and tend to be more hazardous locations.

Slow moving or stationary vehicles turning into a side road across a main road stream of traffic are often the cause of serious accidents, particularly at night. Problems can also be caused in urban areas by inadequate kerbs which give an unclear layout and make little or no provision for pedestrians.

**Summary**

Although simple priority intersections are common, the number of such accesses onto main roads should be limited so as to concentrate the hazards involved at well located and designed intersections. Substantial studies have been undertaken in developed countries to identify particular accident problems and remedies. Good practice includes providing adequate visibility and ...............
Possible Solutions/Benefits

- Priority intersections should only be used where flows are relatively low (up to around 5,000 AADT on the major road and only 3,000 AADT on the minor road).

- Where space permits, staggered intersections are preferable to crossroads on safety grounds. The same effect may be achieved by the use of offset central islands at the entries. The stagger or offset should always allow minor road crossing vehicles to enter the intersection by crossing the nearest traffic stream and to leave the intersection using an unopposed turn.

- Multiple lane approaches should be avoided where possible. On fast dual carriageways the median should be built wide enough to accommodate the longest heavy vehicle found, otherwise part of the vehicle will overhang into an overtaking lane as the vehicle is waiting in the centre of the carriageway to complete the manoeuvre.

- Ghost island width should be a minimum of 3.5m in width. Where space allows and the major road has high flows and/or speeds, then an offside diverging lane can be of use. The length and taper of these depend on the design speed of the major road. Local widening may be required to create such facilities.

- The minor road approach must be designed to show clearly that a major road is ahead and that drivers must yield priority. Deflection islands, bollards and clear signing are necessary to achieve this. If visibility is in any way inadequate additional advance warning signs must be used. Sight distances must not be blocked by vegetation growth.

- The minor arm of a T-junction should be sited on the outside of a horizontal curve, if possible, and not on overtaking sections of single carriageways.

- Other possible safety measures include: restriction of turning movements, provision of skid-resistant surfaces; provision of pedestrian/ cycle facilities, good direction signing; and in urban areas, replacement by roundabout or signals.

Fig 4.72
Typical Layouts of priority intersections showing UK practice and road markings
(ref 3)

............sight distances, clear road marking and signing, and the provision of islands and bollards to guide and protect drivers. Side road drivers must be aware that they are approaching a major road and, for crossroads, views from one minor road to the other should be broken by staggering the opposing arms or by offset islands at the entries. Local widening at the intersection can allow protected waiting areas to be provided for turning traffic.