



BICYCLE RESEARCH REPORT NO. 24

May 1992

ALLOT & LOMAX: CYCLISTS AND ROUNDABOUTS

Only “mini-roundabouts” are fair to cyclists. Large roundabouts are the scene of many cycle accidents

- The Key Facts** Experience with cyclists and roundabouts in England had shown that cycling round all the larger types of roundabout except the ‘mini’ is dangerous and unpleasant. Cyclists tend to avoid roads with roundabouts, choosing other routes or changing to other transport modes.
- Contents** This study was commissioned by the CTC, Britain’s National Cyclists’ Association, and evaluates various types of roundabout classified according to the British system (Fig 1). The smallest are the ‘mini-roundabouts’. Then there are the more common ‘small’ or ‘normal roundabouts’ which have an inner radius of 4 or 5 metres and wider approach roads, A larger type has an inner radius of 20 to 70 metres and parallel slip-roads.
- All the roundabout types with wider radii come off badly in the study. Except at the mini-roundabouts studied, the accident rate there is considerably higher than at right-angled that cyclists at small roundabouts are 14 times more often per journey involved in accidents than car drivers. According to the data in Fig 3, cyclists at junctions with traffic lights are involved in accidents 3.7 times more often than cars, at mini-roundabouts 7 to 9 times more often and at larger roundabouts 13 to 15 times more often.
- The reasons for the high accident risk to cyclists at roundabouts are the unfavourable angle at the point of entry to the circulating traffic, and the resulting visibility problems. The CTC’s report concludes that roundabouts are a much higher source of accident risks than other kinds of junction.
- Study** “Cyclists and Roundabouts - A Review of Literature” (in English). Report for the Cyclists’ Touring Club by Allott & Lomax, consulting engineers, Birmingham and Godalming, England 1991.
- Addresses** Allot & Lomax, Consulting Engineers, Sheldon Court, Wagon Lane, Coventry Road, Sheldon, Birmingham B26 3DU, tel +44-21-742 4477, fax +44-21-722 3782. Cyclists’ Touring Club CTC, Cotterell House, 69 Meadow, Godalming, Surrey GU7 3HS, England, tel +44-483 417217, fax +44-483 426994.

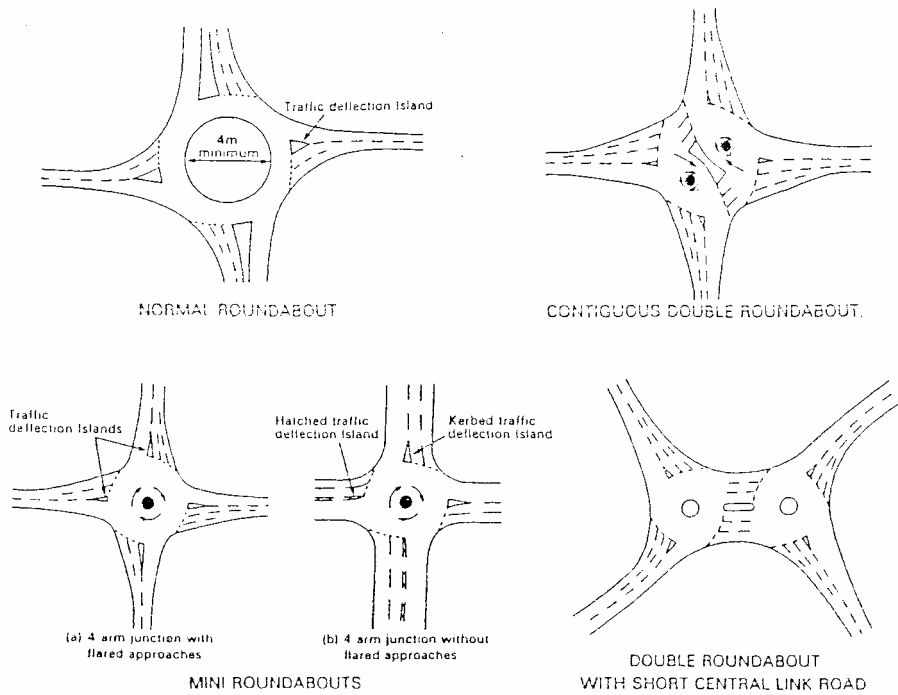
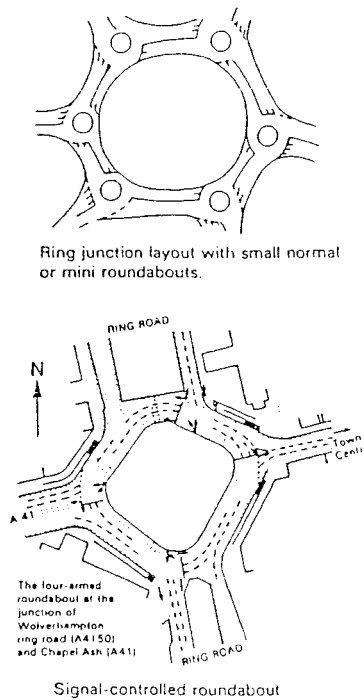
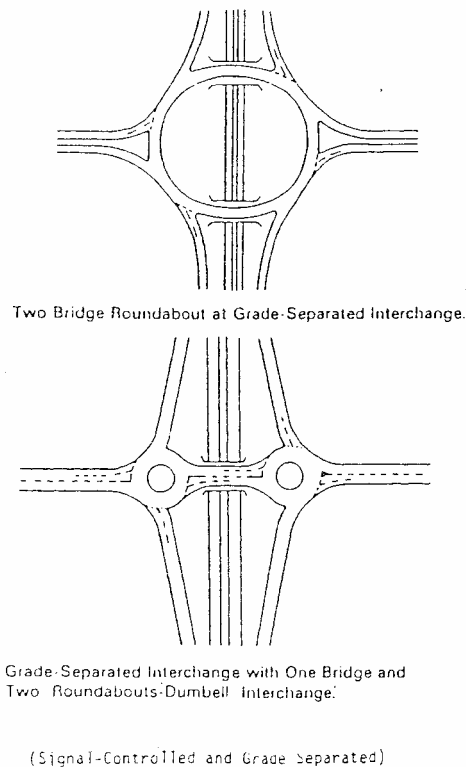


FIGURE 1

Figure 1 Types of Roundabout (Normal and Mini)

Extracted from "Roads and Traffic in Urban Areas"



Extracted from "Roads and Traffic in Urban Areas"



figure 2

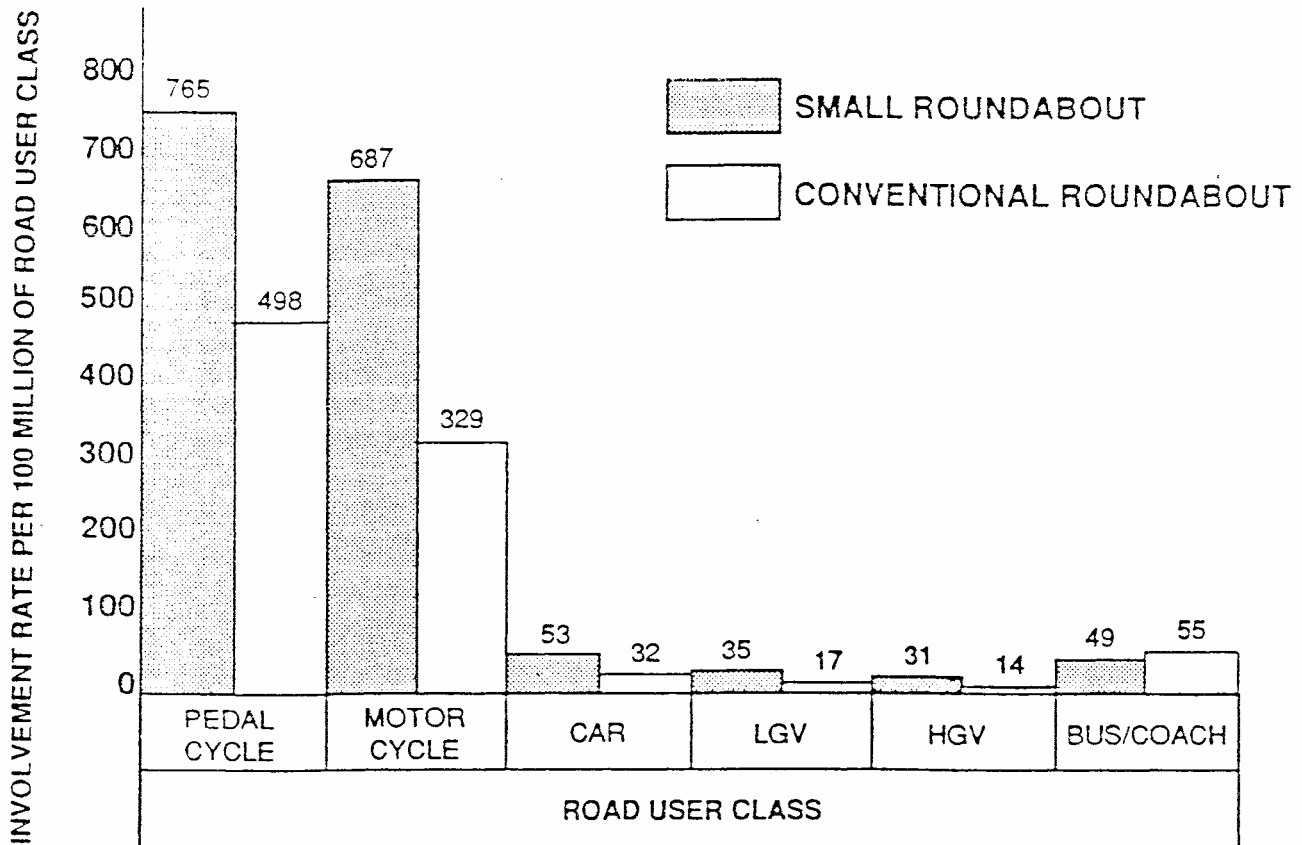


FIGURE 2: ACCIDENT INVOLVEMENT RATE BY ROAD USER CLASS

(Source : Maycock and Hall)

NOTE:

The accident involvement rates shown give the number of accidents occurring for every 100 million movements of each road user class through the roundabout



Vehicle involvement rates

Junction category	Number of arms	Speed limit (mph)	Involvement rate per 10 ⁸ of vehicle type					
			In brackets: (Ratio: vehicle involvement rate/car involvement rate)					
			Pedal cycle	Motor cycle	Car	LGV	HGV	Bus/coach
Small roundabout	4	30-40	785 (14.0)	663 (11.8)	56 (1)	31 (0.6)	43 (0.8)	62 (1.1)
	4	50-70	629 (14.6)	757 (17.6)	43 (1)	45 (1)	10 (0.2)	0 (0)
Conventional roundabout	4	30-40	291 (12.7)	267 (11.6)	23 (1)	11 (0.5)	18 (0.8)	45 (2.0)
	4	50-70	605 (14.1)	407 (9.5)	43 (1)	29 (0.7)	19 (0.4)	69 (1.6)
Traffic signals	4	30	175 (3.7)	240 (5.0)		48 (1)	32 (0.7)	126 (2.6)
T-junction	3	50-60	- (6.5)	- (7.0)	- (1)	- (0.7)	- (0.7)	- (1.3)
Mini-roundabout	3	30	104 (8.7)	129 (10.8)		12 (1)	22 (1.8)	78 (6.5)
	4	30	189 (7.0)	237 (8.8)		27 (1)	30 (1.1)	181 (6.7)

- Notes: 1. The vehicle involvement rate is the number of vehicles of the particular type involved in accidents per 100 million vehicles of that type entering the junction.
2. Involvement rates were not calculated for rural T-junctions, so the ratios have been calculated using the vehicle involvement proportions and the vehicle type flow proportions.

Fig. 3 Vehicle Involvement Rates

(Source: Summersgill, 1989)