

# Perne Rd / Radegund Rd Roundabout Cambridge



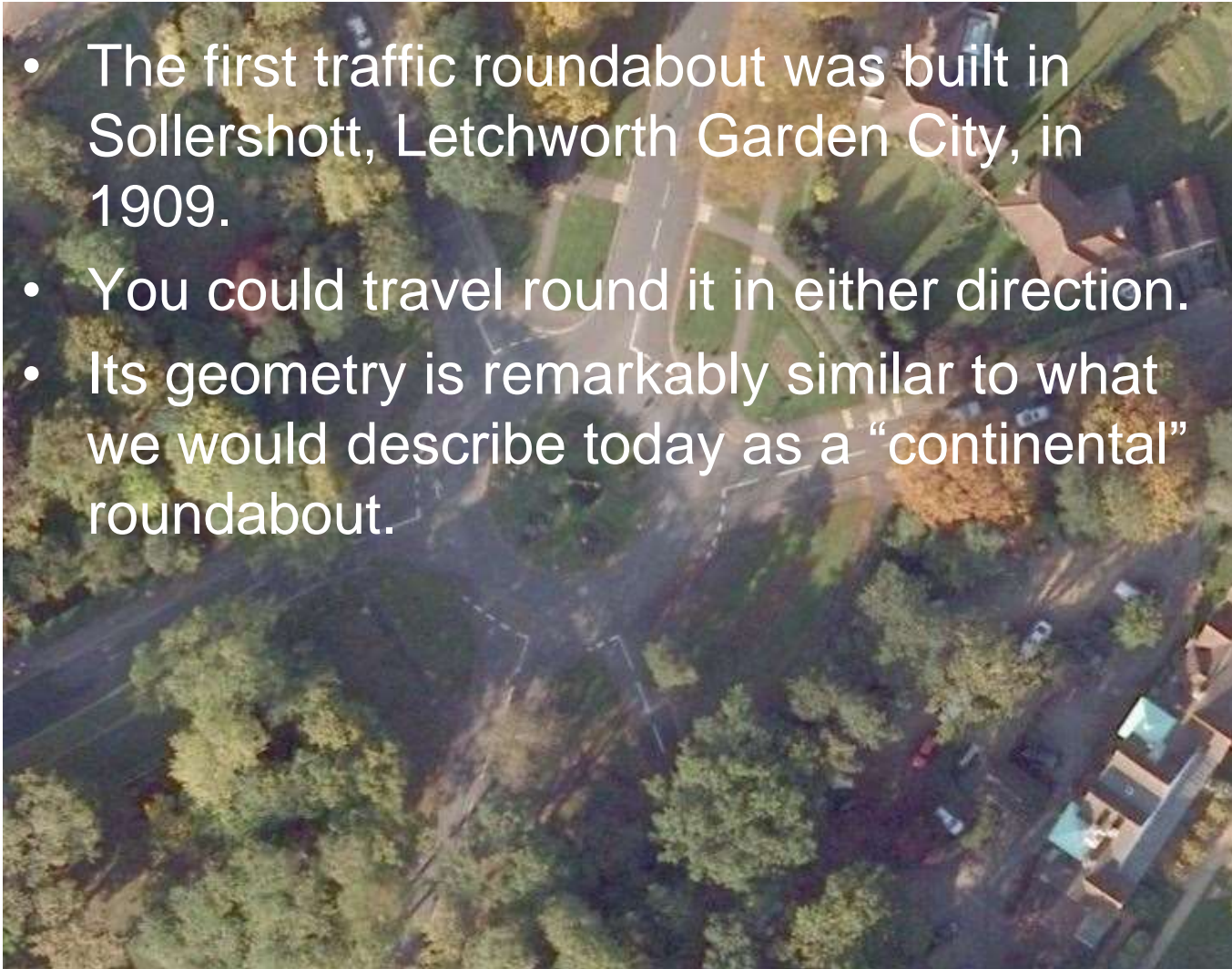
The conversion of an conventional urban  
roundabout to “continental” geometry





# A little bit of history

- The first traffic roundabout was built in Sollershott, Letchworth Garden City, in 1909.
- You could travel round it in either direction.
- Its geometry is remarkably similar to what we would describe today as a “continental” roundabout.



# UK roundabout design





# Dutch roundabout design



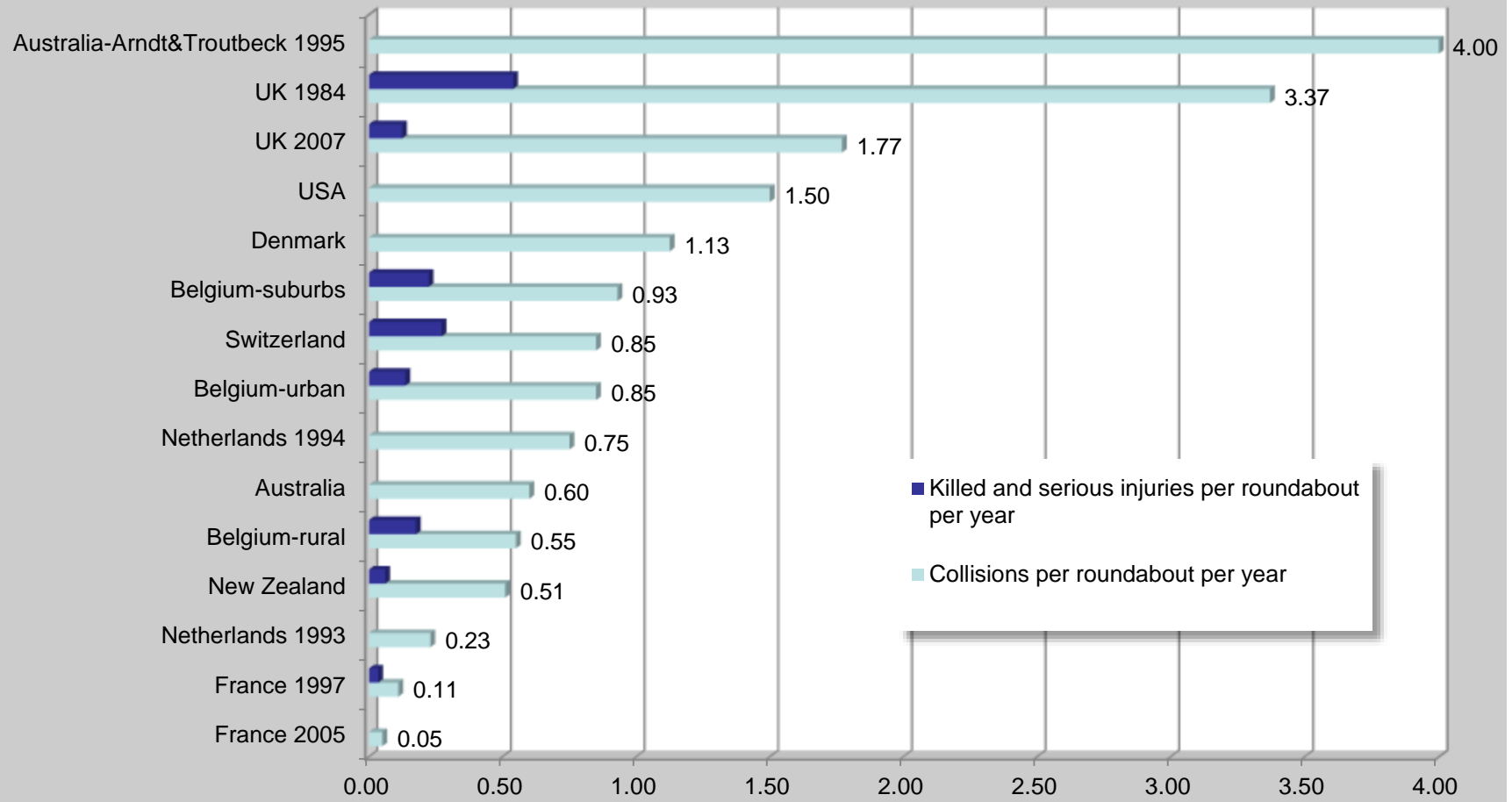
# History of “Continental” Roundabout design in the UK

- TRL 285 was published in 1997. Computer modelling of the impact of converting four UK roundabouts to “continental” geometry
- TRL 584 was published 7 years later. It reported on the performance of four real roundabouts, converted to “continental” geometry.
- The level of intervention varied and in some cases was minimal. Levels of cycling were low, making it hard to draw firm conclusions.
- TRL PPR206 was published in 2008 comparing UK roundabout design with other countries.



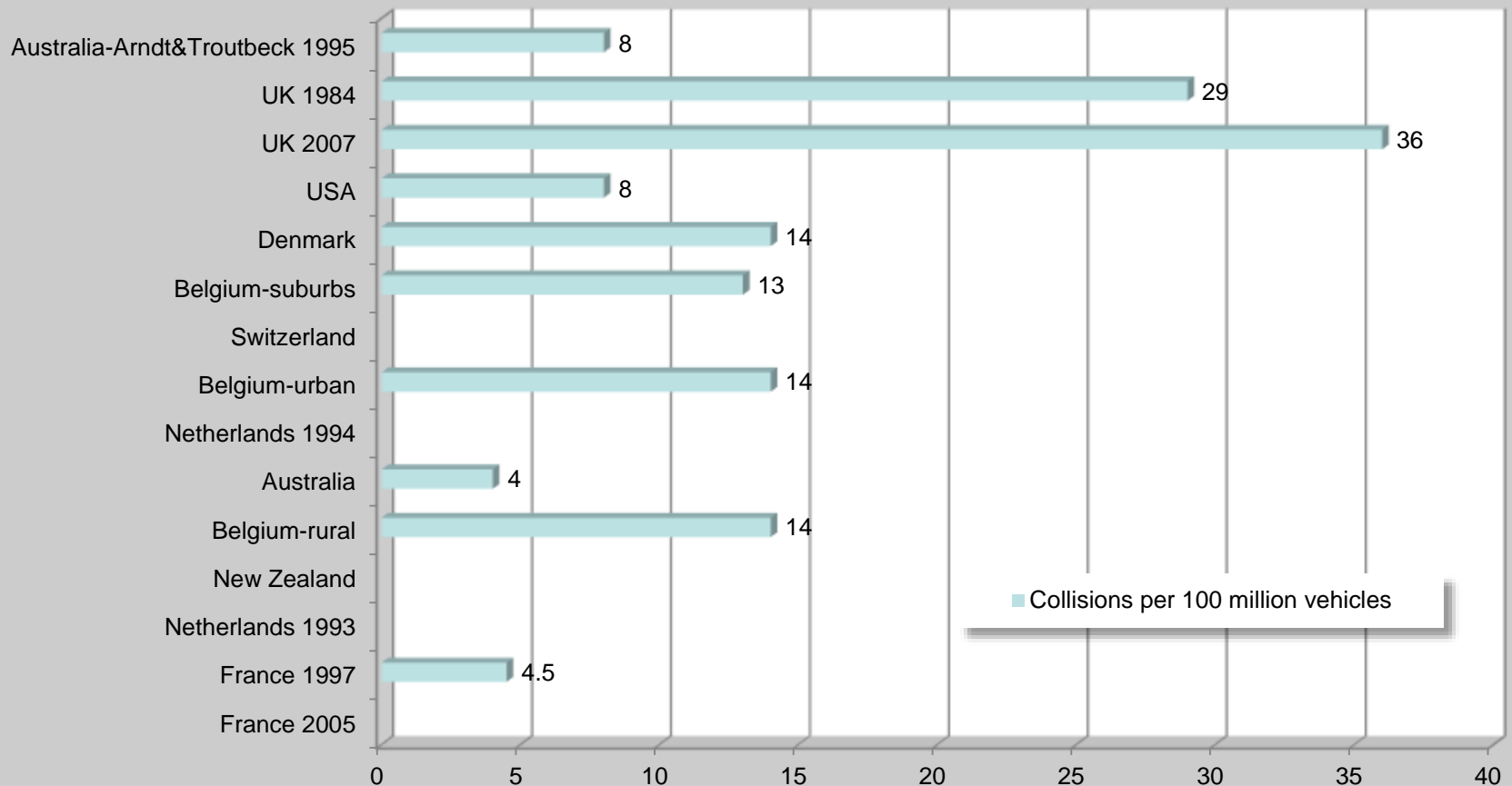
# UK vs the rest of the world TRL PPR 206

**Table 16 International comparison - collisions at roundabouts**



# UK vs the rest of the world TRL PPR 206

**Table 18 International comparisons - Collisions at roundabouts per 100 million vehicles**



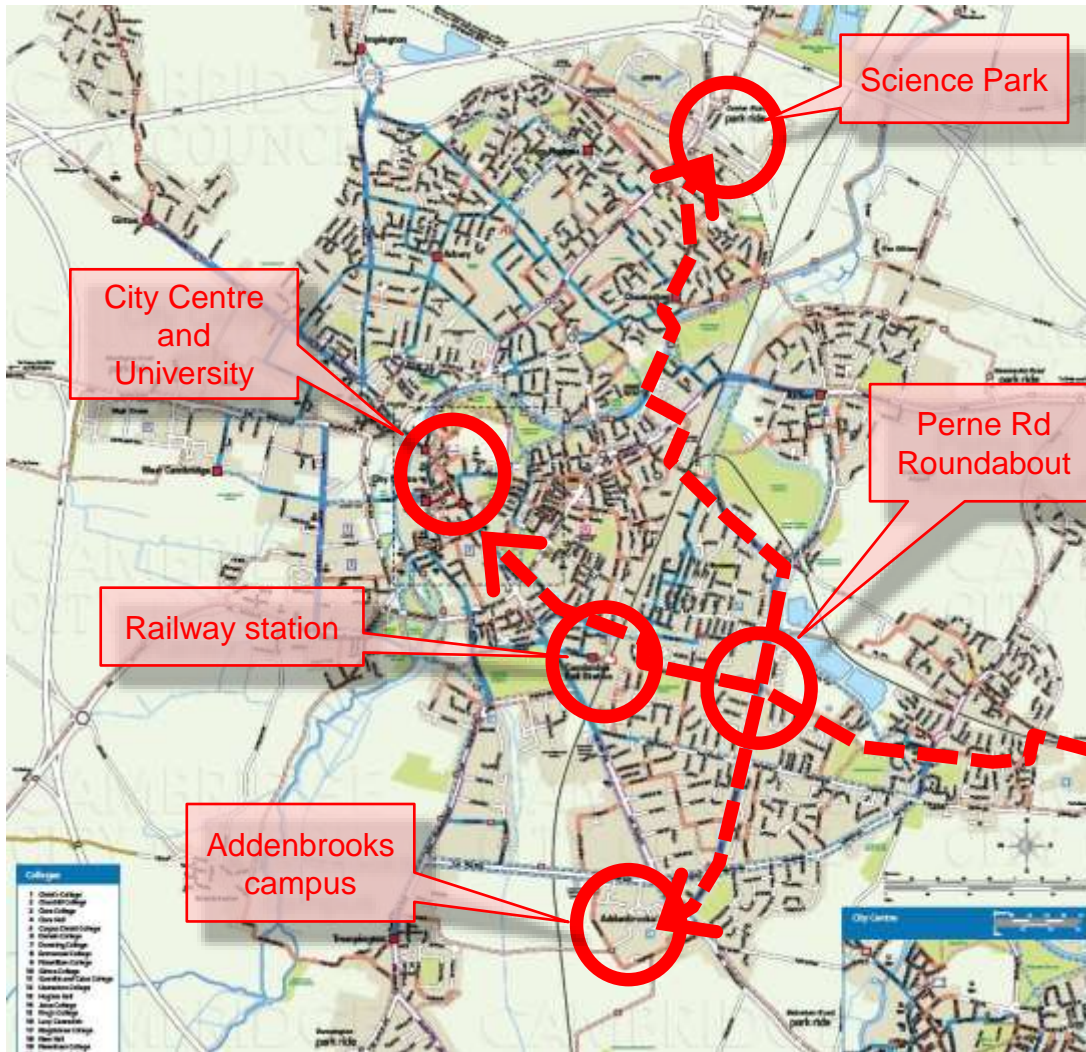
# Hannah Reed / PBA's involvement

- In 2011 Hannah Reed were asked to investigate the feasibility of converting the Perne Rd / Radegund Road roundabout in Cambridge to continental geometry.
- Our brief included the feasibility design, swept path analysis and layout drawings.
- Our brief did not include traffic modelling (ARCADY analysis), detailed design, consultation or supervision of construction.





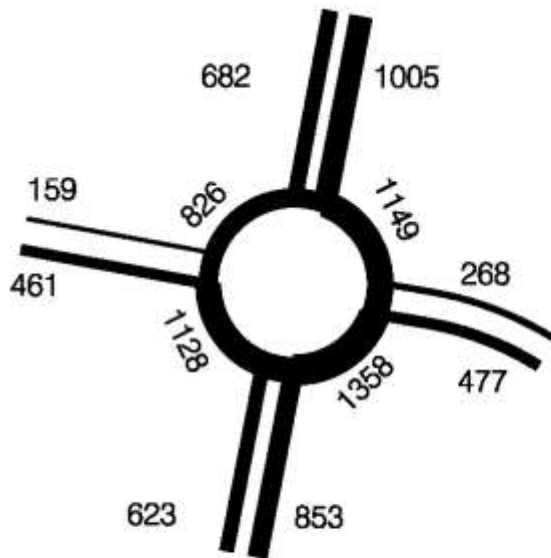
# Context



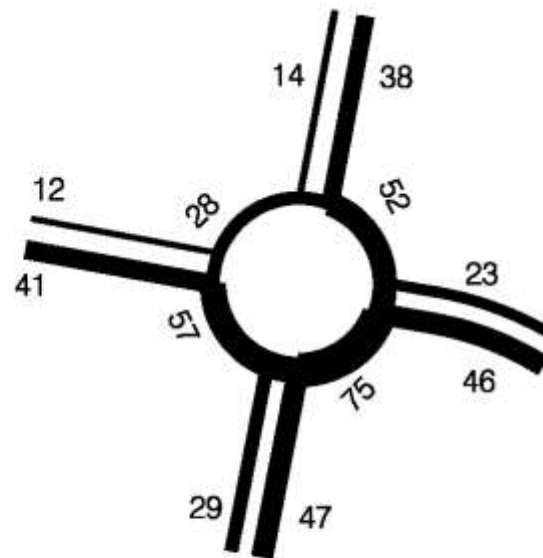
- Cambridge is a city of 124,000 people
- Major employers include the University, Addenbrooks Hospital and research campus, and the Science Park
- Cambridge has the highest levels of cycling in the UK with 25% of commuting in the city by bike.



# Context - Traffic



All Vehicles  
Peak hour flows vph



Cycles

- Perne Road (N/S) is an inner ring road with a maximum 2 way traffic flow of 1700 vph (76 cycles). It is a wide, residential road with cycle lanes in both directions
- Birdwood Road (E) and Radegund Rd (W) are residential streets with Secondary Schools. Radegund Rd is traffic calmed.
- Maximum total flow through the roundabout is 2264 vph (125 cycles = 6%)





# Context

Perne Road North



Radegund Road



Birdwood Road



Perne Road South





# Context - Casualties



- 28 Casualties between 2005 and 2013
- 22 were cycling
- 4 cyclists and one motorist received serious injuries
- All casualties were adults



# What makes “Continental” Geometry safer?

- Slower approach and circulating speeds
- Need to actively stop, give way and turn
- Little opportunity for passing / weaving
- Circulating cyclists are in a waiting driver’s field of vision
- Little flare makes the “conflict zone” much shorter
- Vehicle paths are constrained and easier to anticipate



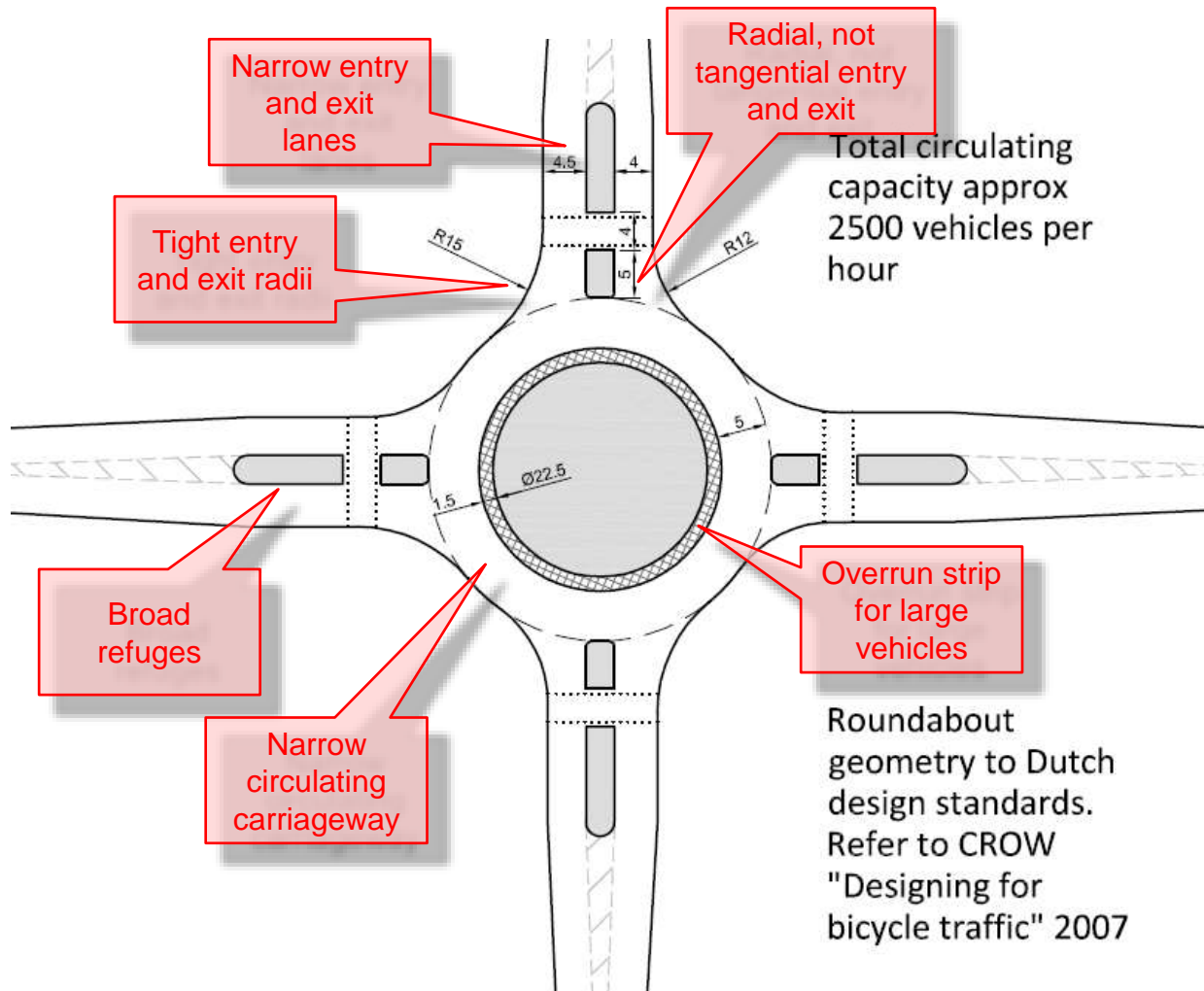
# How does it fit within the Hierarchy of Provision LTN 02/08 ?

🚲	Traffic Reduction	Particularly HGVs. Divert traffic, traffic calming, road closures.	Consider first
🚲	Speed reduction	20 mph zones, Homezones, shared surfaces, traffic calming	
🚲	Junctions and Traffic Management	ASLs, signalisation, re-engineering of roundabouts, freedom from banned turns, removal of dedicated vehicle left turn slip lanes.	
🚲	Carriageway Redistribution	Cycle lanes, bus lanes	Consider last
🚲	Off road provision away from highways	Railway paths, canal towpaths, paths across parks, new cycle paths, ROWIPs	
🚲	Roadside pavement conversions	Rarely satisfactory. Only appropriate for busy, fast rural roads with few side roads	

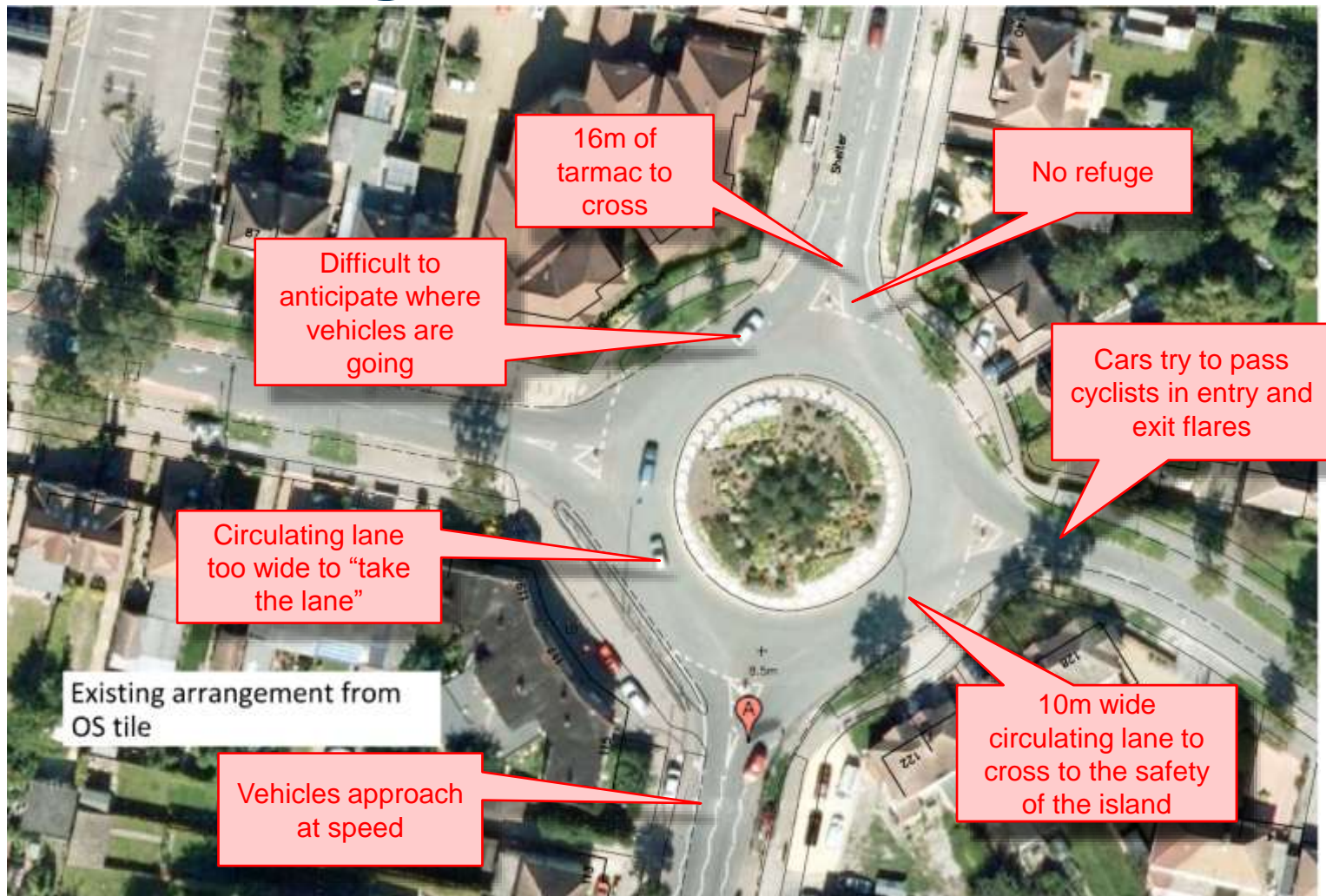




# How is this achieved in practice?

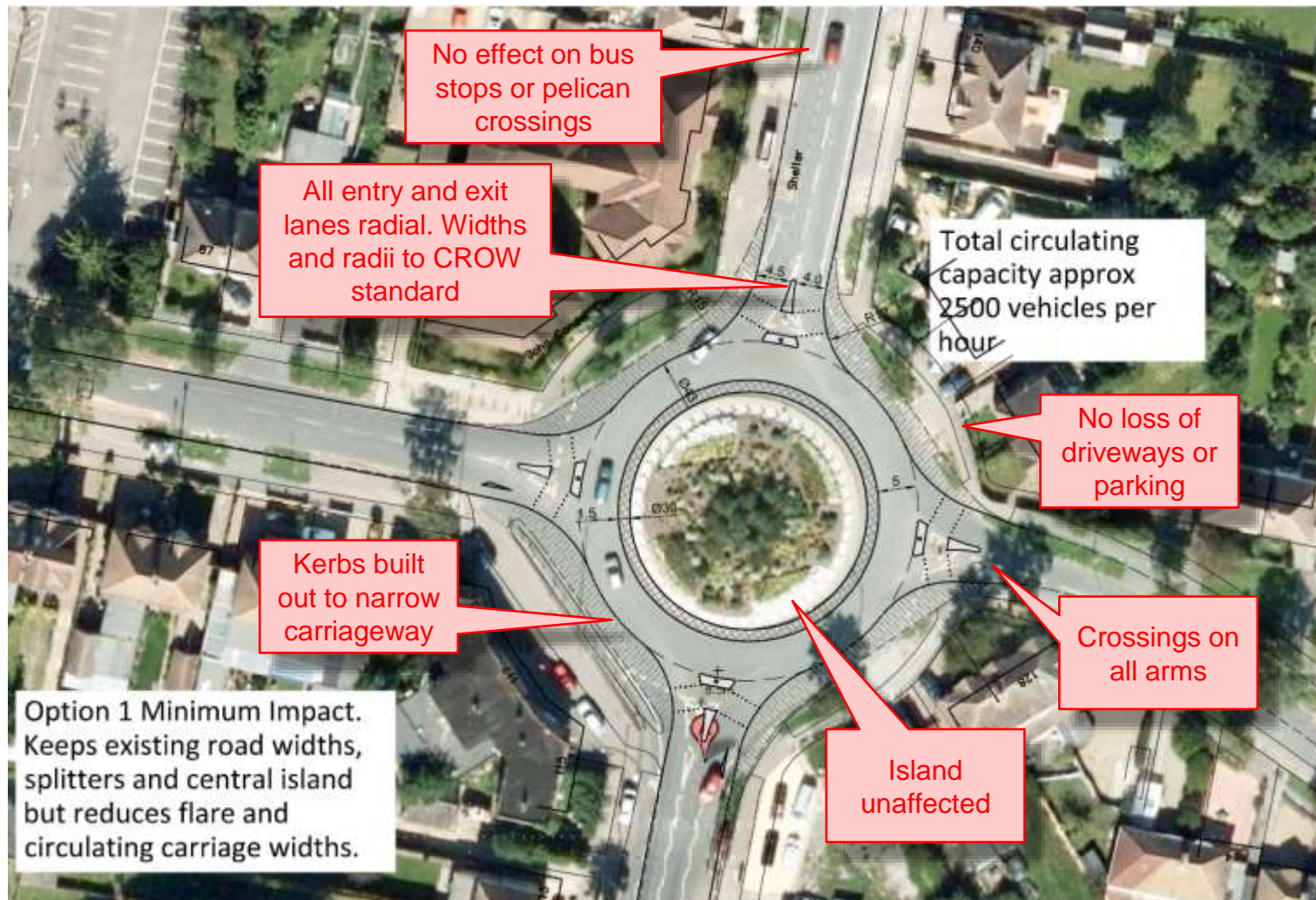


# The Existing Roundabout



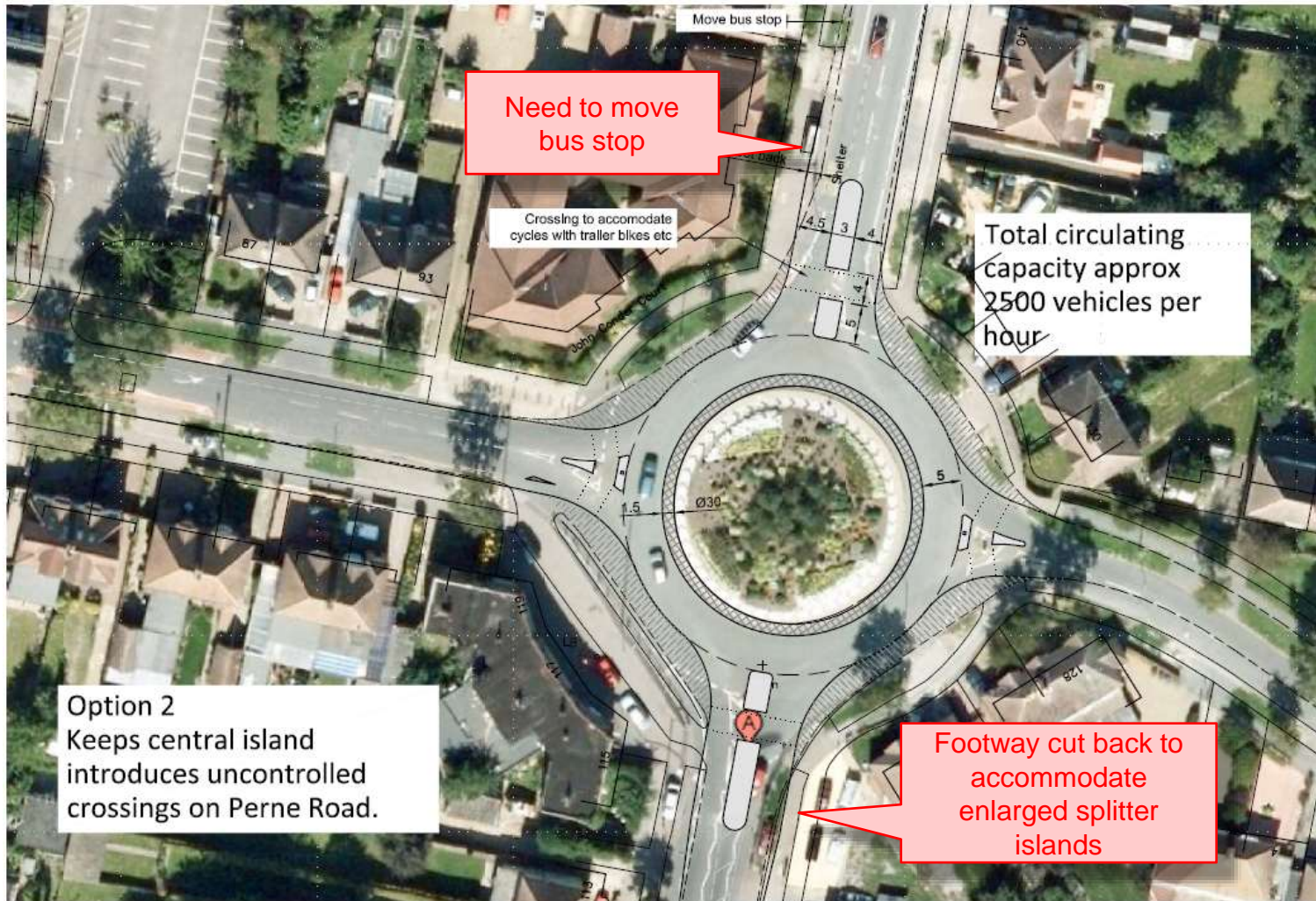


# Option 1 – Minimum Intervention





# Option 2 – Add wide refuges on Perne Rd



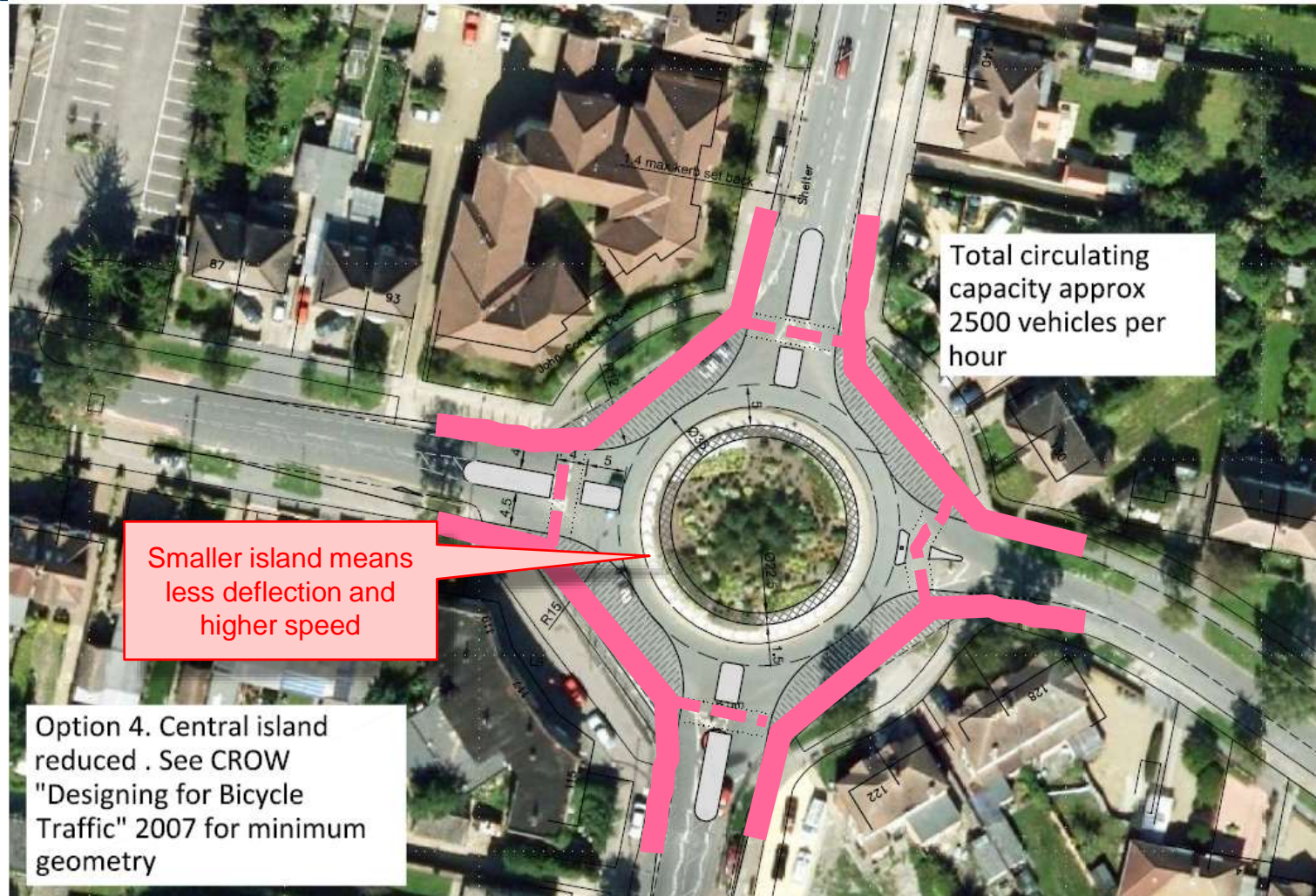


# Option 3 – Enlarged refuges on 3 arms





## Option 4 – Island reduced to accommodate peripheral cycle track





# Option 1 recommended because

- Minimises unwelcome pressure on cyclists to use off road infrastructure
- Minimises impact on local residents.
- Maximises deflection, therefore speed reduction
- Best value
- Best chance of being delivered



# Off road paths

- Our intention was to improve the crossing experience on foot as well as on a bike
- Providing direct “desire line” crossings was a priority.
- All of the safety improvements that help when cycling also help when crossing on foot (reduced approach speeds, short crossing distances)



# Off road paths

- There are no off road cycle paths on the roads feeding into the roundabout, and no future plans to create them
- Most people currently cycle in the carriageway
- However many people do cycle on the footways, particularly school children
- Our intention was to ensure that the new paths could accommodate footway cycling safely, without actively encouraging it.
- We were wary of creating any “cycle path” that might encourage people to harass cyclists who remained in the road.
- We were also wary of creating an area dominated by tactile paving



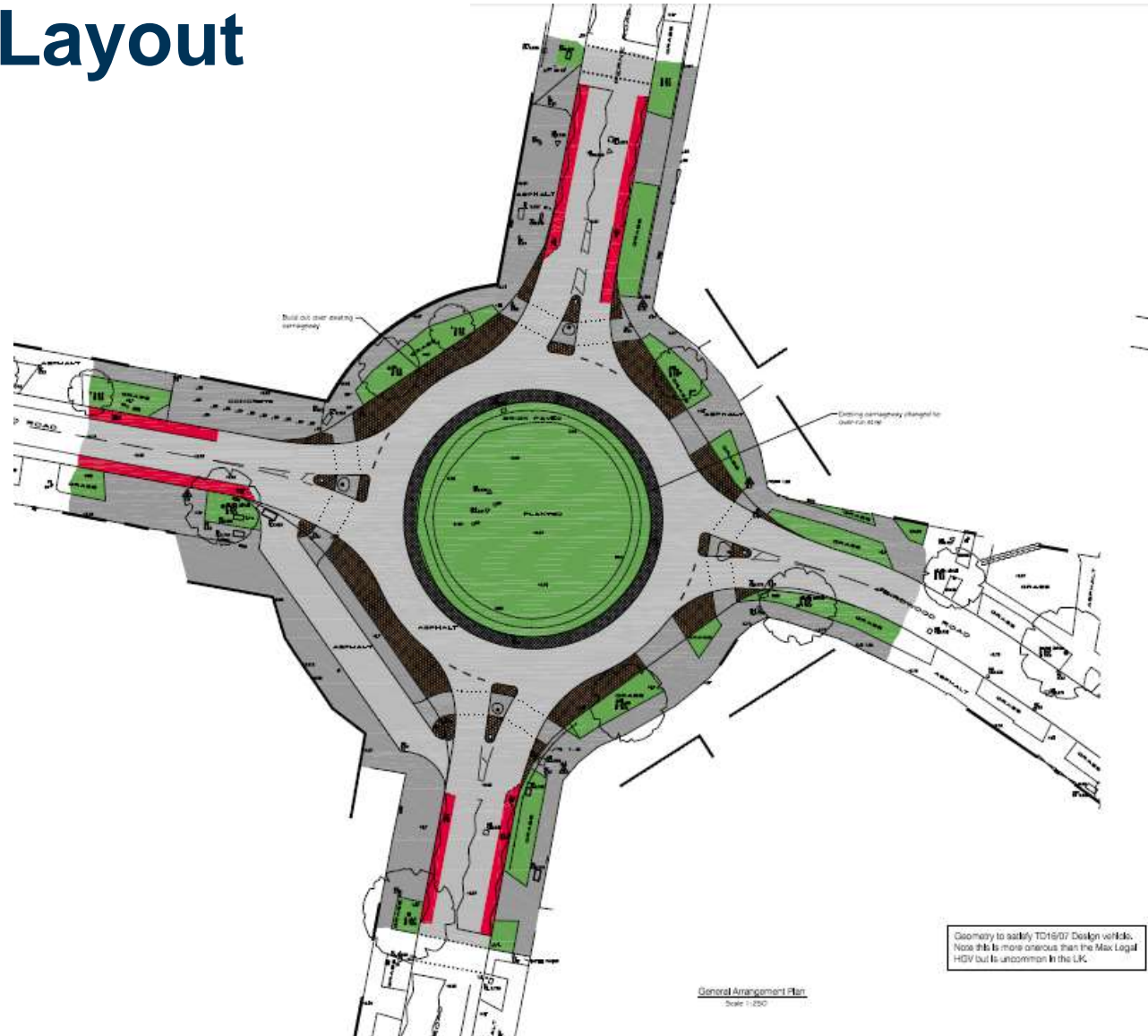
# Off road paths

- Our design did not contain any formal cycle paths but the paths were designed to be better than “normal” shared use – wide, good visibility, flush crossovers
- Following pressure during public consultation these were marked as shared use by painting cycle logos on the pavement
- Most criticism of the scheme has centred on the off road paths – whether or not they should have been provided, and to what standard
- Views are deeply polarised on the subject. There is little common ground and little chance of providing an off-road solution that would make everybody happy





# Design Layout



# Before



# Before





# After



# After





# After





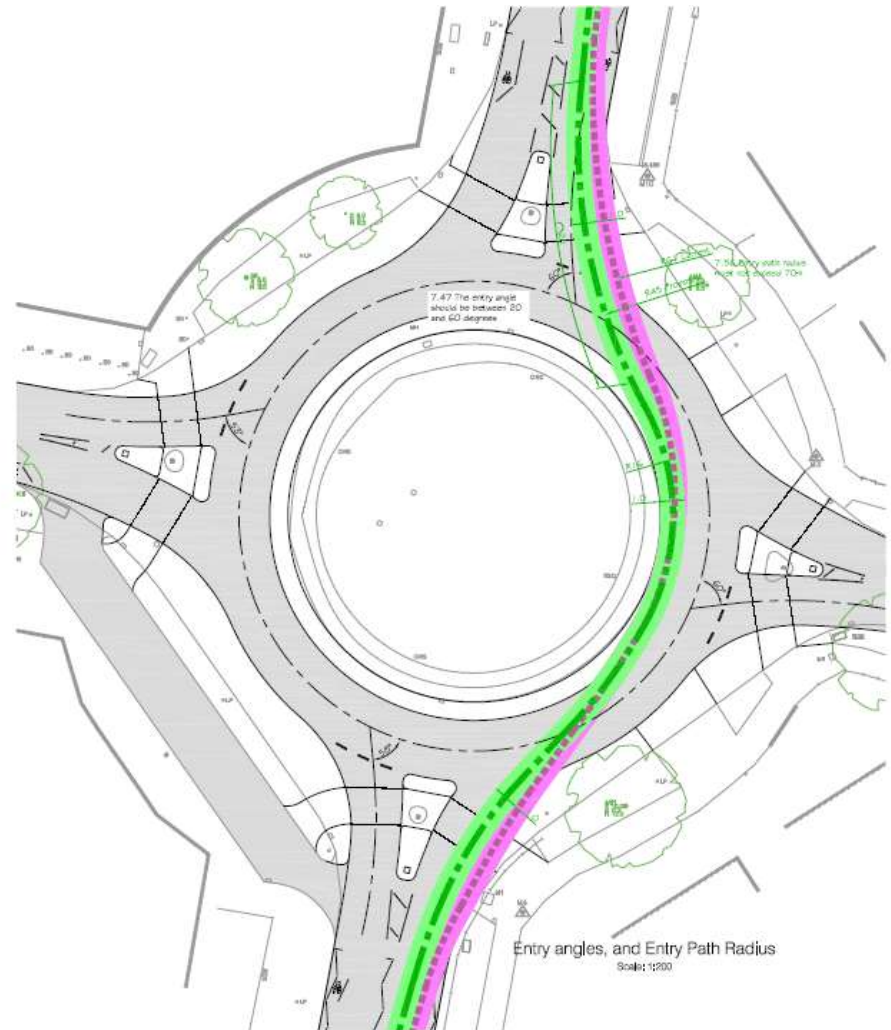
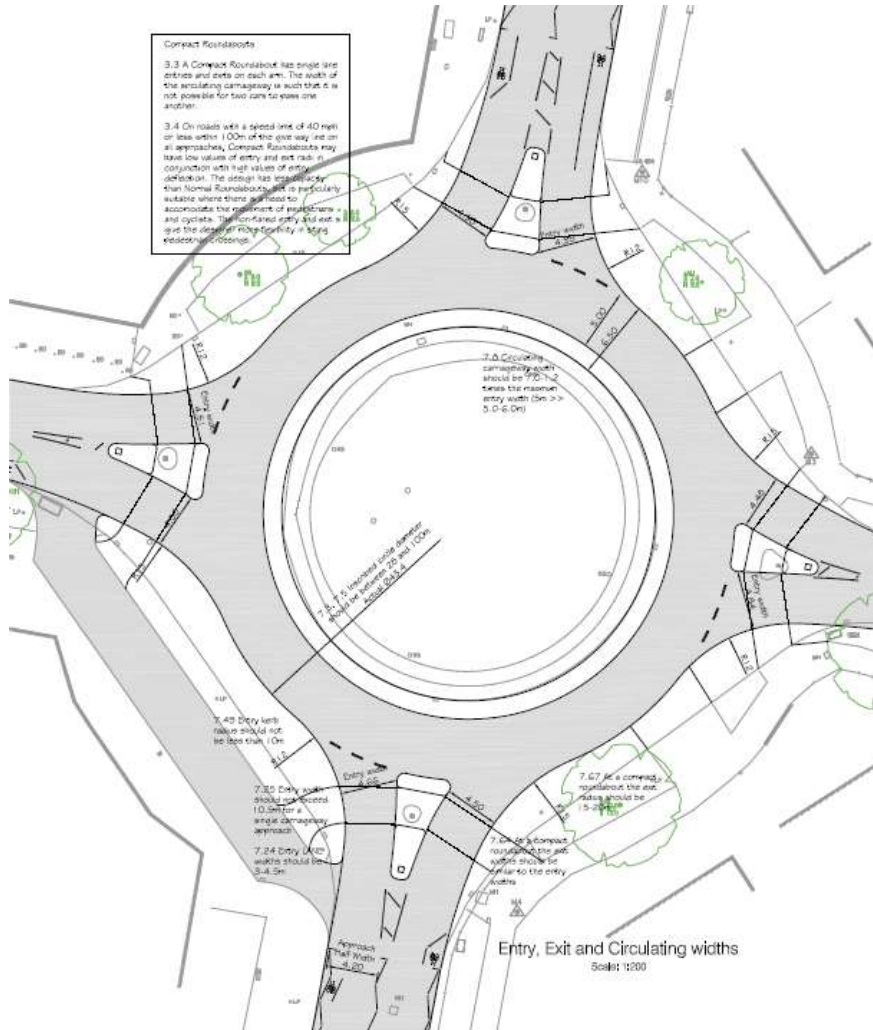
# After



# After



# Proving the roundabout to TD/16-07





# Merging off-road and on road provision



Note. This was not taken forward because of concerns that it could encourage harassment towards people who chose to ride in the road. This type of merge would be appropriate elsewhere on busier roundabouts where off road provision is more attractive