

A Summary of the evidence for a dual choice cycle network

For further evidence, please read “Cyclist Infrastructure Choice and Dual Choice Network”. This summary is about cycle infrastructure in urban areas with 20mph or 30mph speed limits only.

- We face 4 emergencies over the next 10 years – climate emergency, increasing traffic congestion, air pollution and physical inactivity leading to premature death and illness – which demand urgent action
- Excessive use of and dependence on the car are major causes for each of the emergencies
- Cycling could be an effective solution to mitigate dependence and use of the car in urban areas. This is because cycling can vie with driving in journey time up to 5 miles (8km) in urban areas.
- Very few towns have succeeded in increasing cycling. The evidence shows that there are 4 major criteria important in increasing levels of cycling - first an existing cycling culture – it is a normative behaviour i.e. it depends on other people doing it, combined with 2) Council commitment to introduce 3) traffic management and 4) create a high quality cycle network.
- Increasing cycling depends on a cycling culture which depends on lots of cycle journeys which is dependent on lots of everyday cyclists. Everyday cyclists make up 80% of all cycle journeys.
- Everyday cyclists choose “quickest time” when asked the main reason they cycle. This encapsulates the Core Cycle Design Principle (CCDP) of “directness”. It means getting to your destination at your own pace. Typical cycling speeds vary but average 12-15 mph with a range around 8mph to 20 mph
- The other major factor on cyclists’ willingness to cycle is CCDP “comfort”. Comfort encapsulates psychological factors, such as ease, width, flow, security from attack, but one of the most important elements is feeling safe in relation to motor vehicles.
- Generally, cyclists prefer either to be away from traffic in kerb segregated cycle-only tracks or off-road cycle paths, or only to interact with traffic when it’s very low and very slow, such as in quiet residential roads especially when designated as cycle priority (Cycle Streets). Most cyclists are least comfortable sharing with traffic on busy main urban roads.
- The ideal would be to have excellent directness combined with excellent comfort. Cyclists choose main roads for directness, but main roads also serve pedestrians, cars, freight lorries, buses and taxis. In the real world, intelligent compromises need to be made, because there is not the political will/public acceptability/economic reality to remove all motor traffic from main roads and also not the space to provide a parallel best quality cycle track over the length of the route.
 - Pedestrians matter! Pedestrian comfort and perceptual safety is severely impacted by sharing with cyclists or being restricted to an operating space under 3 metres.
 - The physical width of 2 large vehicles passing means that you need 6 metres between kerbs.
- Briefly that means you need 18 metres width over the length of the route to provide a continuous parallel cycle track for cyclists. Trees, wider footways at shops, central refuges needed for crossing, bus stops, verges can all require more width.
- In short, there are no roads that can provide that width over their entire length in Oxford nor almost certainly in any other Oxfordshire towns. We need to make intelligent evidence-based compromises between directness and comfort.
- However, cyclists differ in their choice of the compromise. Everyday cyclists typically choose directness even at the expense of some loss of comfort. Casual cyclists typically choose comfort in terms of being away from traffic even at the expense of some loss of directness.
- If you cannot provide the best option for everyone, why not provide different options so that both groups can choose their preferred compromise option? Quick routes and quiet routes. And what is more, the different choice will depend on both people and journeys. Going to work each day, cyclists will likely choose a quick route. Going out for a ride with a child or a Sunday ride, cyclists may choose a quiet route.
- Research (**convincing evidence) shows that for everyday cyclists the best compromise are main roads with cycle lanes (in definite preference over sharing with traffic or sharing with pedestrians).

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- Research (**convincing evidence) shows that casual cyclists value cycle lanes equally to a kerb separated parallel paths sharing with pedestrians, but actually prefer to follow off road paths or residential roads even if they are not the most direct.
- The idea of the dual choice network is to provide the best highest quality experience for both groups. That means making the Quickways both quick and as comfortable as possible and Quietways both comfortable and as direct as possible.
- Quickways
 - Quickways should never have to share with pedestrians (directness)
 - Quickways should always be wide as possible so that cyclists can overtake other slower cyclists because of wide variability in cyclist speeds (directness)
 - Vehicle speeds should as far as possible be below 20mph by design, speed limits and enforcement (comfort)
- Quietways
 - Residential roads need to be “quiet”, so if they are used as rat-runs, they need to be filtered to remove traffic such as in a low traffic neighbourhood (comfort)
 - Off-road paths need to be wide and smooth as possible without barriers (directness)
- Cost and time: cycle lanes are much less expensive (by a factor of around 1:5 to 1:10) and quicker (around 2 years compared to 4 years) to install than cycle tracks. That means you can complete the cycle network much quicker with all the benefits of more cyclists much quicker, essential for us to meet our targets.
- Capacity and cultural change: Removing cyclists from the road inevitably restricts cycling and gives more space to cars. Reclaiming the roads for cyclists is a way of creating a cycling culture and the space essential for the scale of change needed (in Oxford from 20,000 to 40,000 cycle trips a day into the city).

Worries and queries:

- Why not just provide these 2 types of facilities and *not* call it a “dual choice network”? Answer:
 - In the same way that identifying B-roads or A-roads tells drivers what to expect in terms of provision and traffic speed limits and design, Quietways and Quickways let cyclists choose which compromise that they want to ride on. In essence, Quickways are A-roads for cyclists.
 - A hierarchical system of cycle networks is typical in Dutch cycle planning
 - To meet our targets, planners and engineers need to prioritise directness in their designs of main roads to ensure they are attractive to everyday cyclists (e.g. unlike Woodstock Road proposals).
- Are cycle lanes safe? Yes, in Oxford, at least, and probably most urban areas, cycle lanes are as safe for cyclists as cycle tracks. Both have low cyclist casualty rates of around 1.5 per 1000 metres over 5 years
 - The safety of cycle lanes and cycle tracks relies primarily on the low frequency of side roads
- Won't all new cyclists be cautious and choose comfort? The evidence (** reasonable) suggests that new and potential cyclists choose similar infrastructure to experienced cyclists. So new everyday cyclists are likely to choose directness in the same way as existing everyday cyclists
 - In fact the evidence (* tentative) is that most new cyclists are existing cyclists cycling more.
- There is lots of evidence (***) that cyclists and non-cyclists say safety is their main concern.
 - Yes, but frequent acceptable solutions in surveys are often cycle lanes. The main fear is sharing with traffic on main roads.
- But how can we encourage children and older people? They are vulnerable.
 - The safety evidence is that cycle tracks and cycle lanes are similar for all existing cyclists. Child or older risk in cycle lanes or cycle track (evidence TBA) is likely to be the similar.
- A super new off-road cycle track will encourage new cyclists, surely?
 - The evidence (**) is that new infrastructure does not encourage many new cyclists and that any increase in cycling is mostly due to existing cyclists detouring away from another route to use the new route. Whole cycle networks are much more effective.