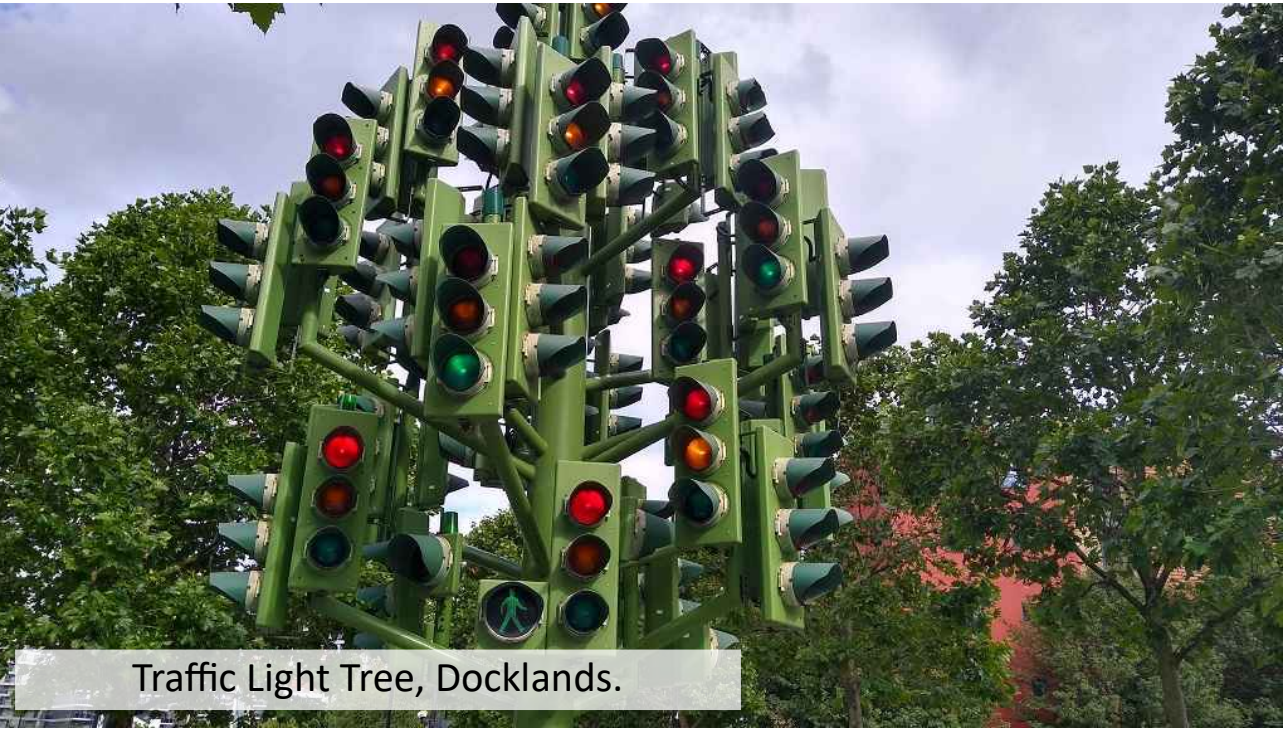
What makes good cycle routes?

cyclox
the voice of cycling in Oxford

CITY INFINITY

Designing for active urban travel
www.cityinfinity.co.uk

Welcome



Traffic Light Tree, Docklands.

Mark Philpotts
Civil engineer with over 25 years experience in areas as diverse as bridge management, development management, utility installation, traffic engineering, highway engineering and highways maintenance.

Main interest now is designing for active travel and especially those small-scale, local schemes which can make a big difference.

Cargocyclist and member of Beyond the Bicycle Coalition. Blogs as The Ranty Highwayman.

Introduction

Blackfriars Bridge, Southwark.

Two topics to cover in 30 minutes;

- The Five Principles
- Low Traffic Neighbourhoods

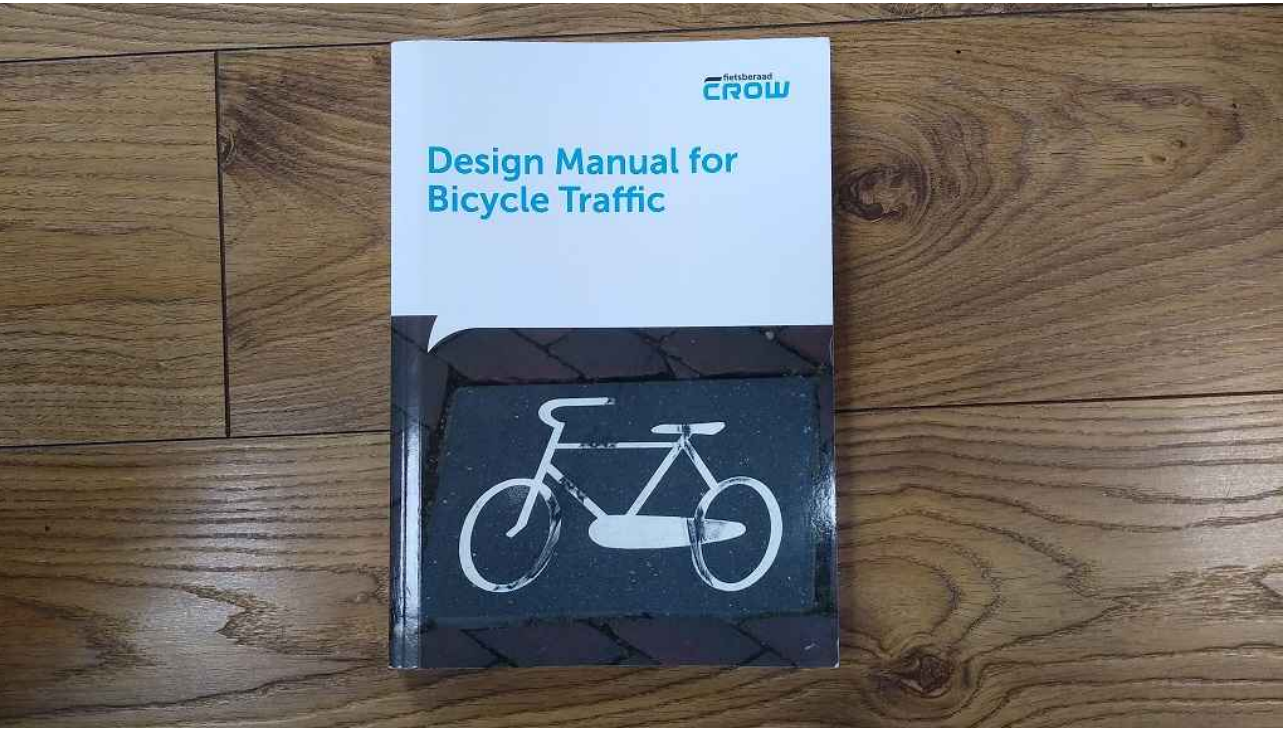
The Five Principles

Lea Bridge Road, Waltham Forest.

Lots of guidance out there, but it boils down to just five principles;

- Coherence (Dutch use Cohesion)
- Directness
- Safety
- Comfort
- Attractiveness

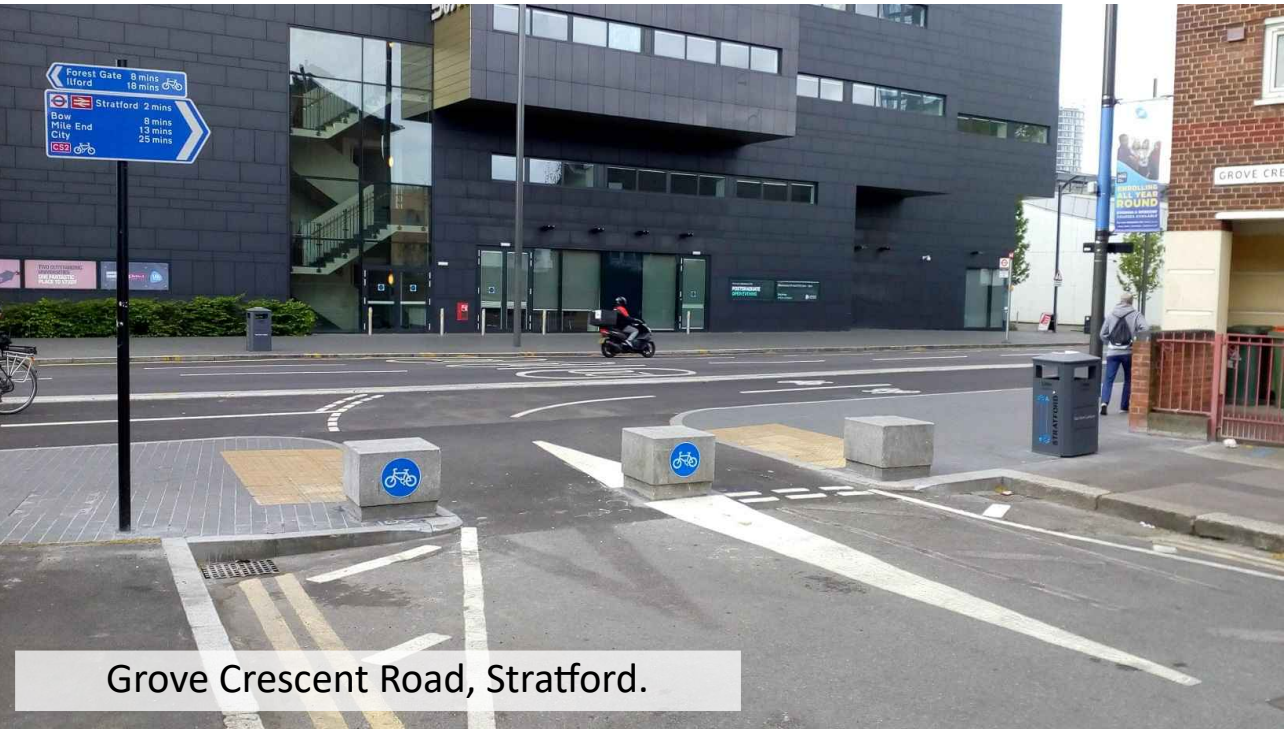
The Five Principles



The Dutch CROW Design Manual for Bicycle Traffic says;

"In general it holds that if the minimum level cannot (or can no longer) be met for one (or more) of the five main requirements, then the infrastructure will need to be modified."

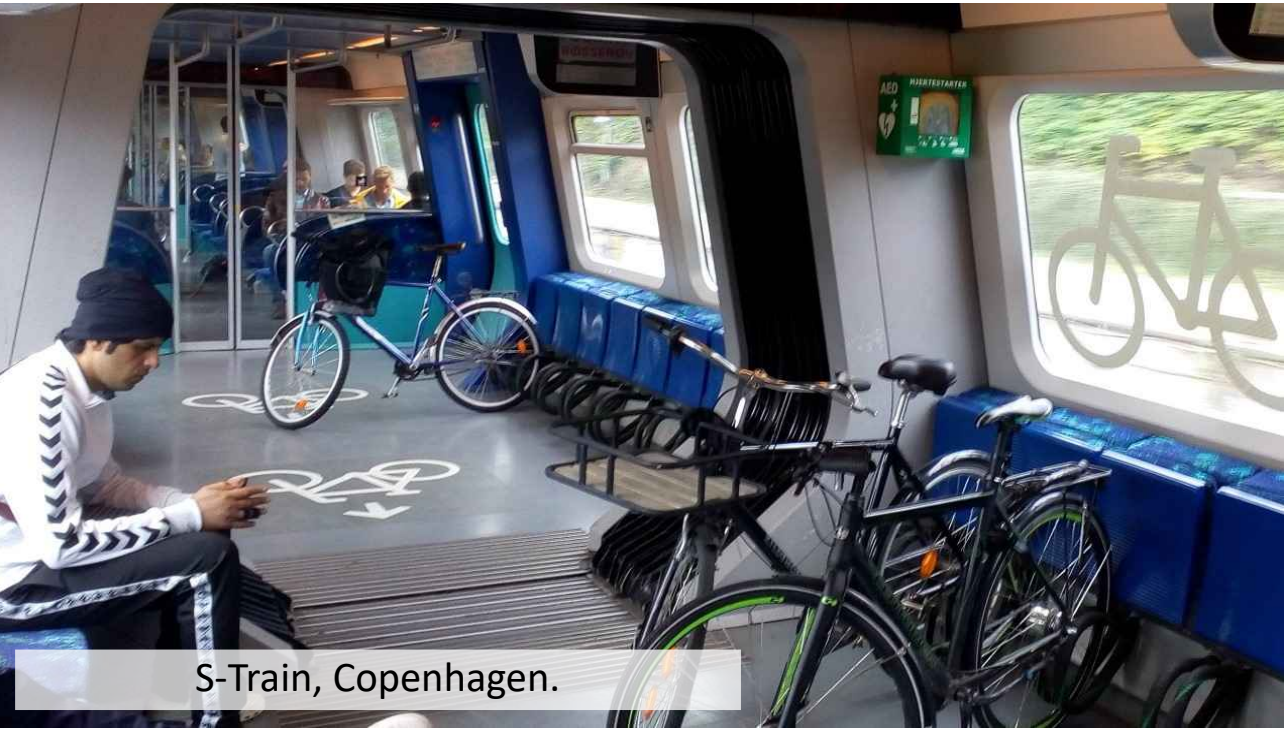
The Five Principles - Coherence



Grove Crescent Road, Stratford.

The cycling infrastructure forms a coherent whole and links all origins and destinations.

The Five Principles - Coherence



S-Train, Copenhagen.

- Destinations are everywhere.
- Side street and main roads are both needed as part of a network.
- Large gaps reduce cohesion.

The Five Principles - Coherence

Whitechapel Road, Tower Hamlets.

- Significant barriers have to be tackled.
- Seamless integration with other transport networks.
- Street works can impact coherence.

The Five Principles - Directness

Schützenallee, Freiburg im Breisgau.

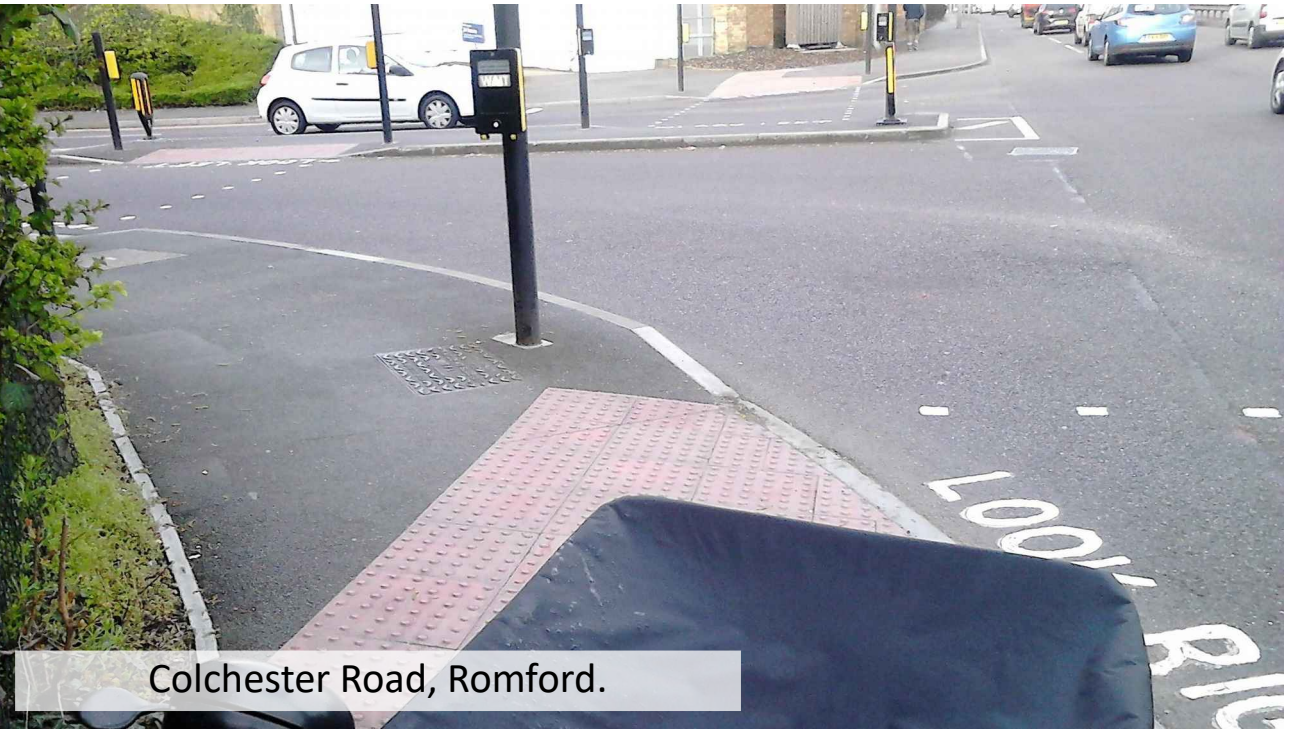
The cycling infrastructure always offers the cyclist as direct a route as possible (detours kept to a minimum).

The Five Principles - Directness

Judd Street, Camden.

- Affects the macro and micro level – for example a route across a city or the route through a complex signalised junction.
- Directness can be measured in time as well as distance – a longer route might avoid long waits.

The Five Principles - Directness



Colchester Road, Romford.

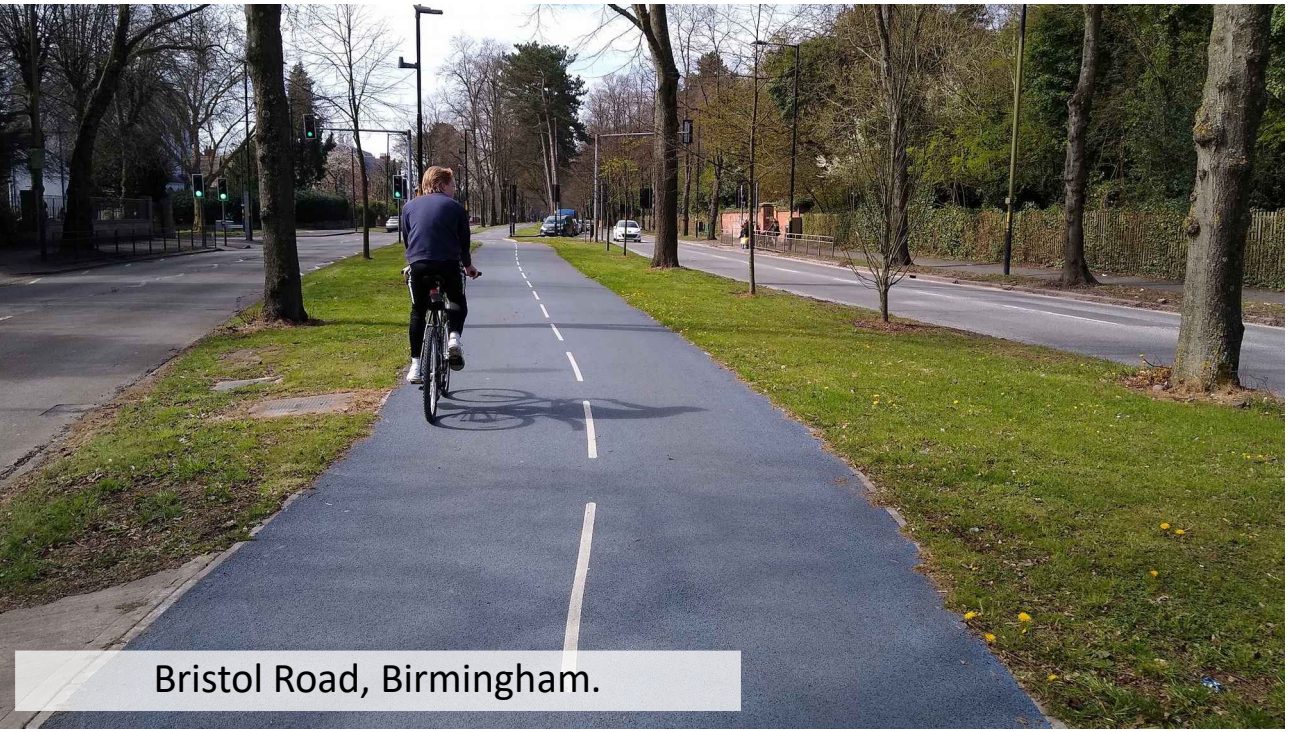
- Quicker than the car. Cycling has to be the quicker mode to be competitive.
- Junction priority. Traffic management is a product of motorisation. Cycle traffic doesn't need traffic signals!

The Five Principles - Attractiveness

Adinda-Flemmich-Straße,
Freiburg im Breisgau.

The cycling infrastructure has been designed and fitted in with its surroundings in such a way that it is appealing or attractive.

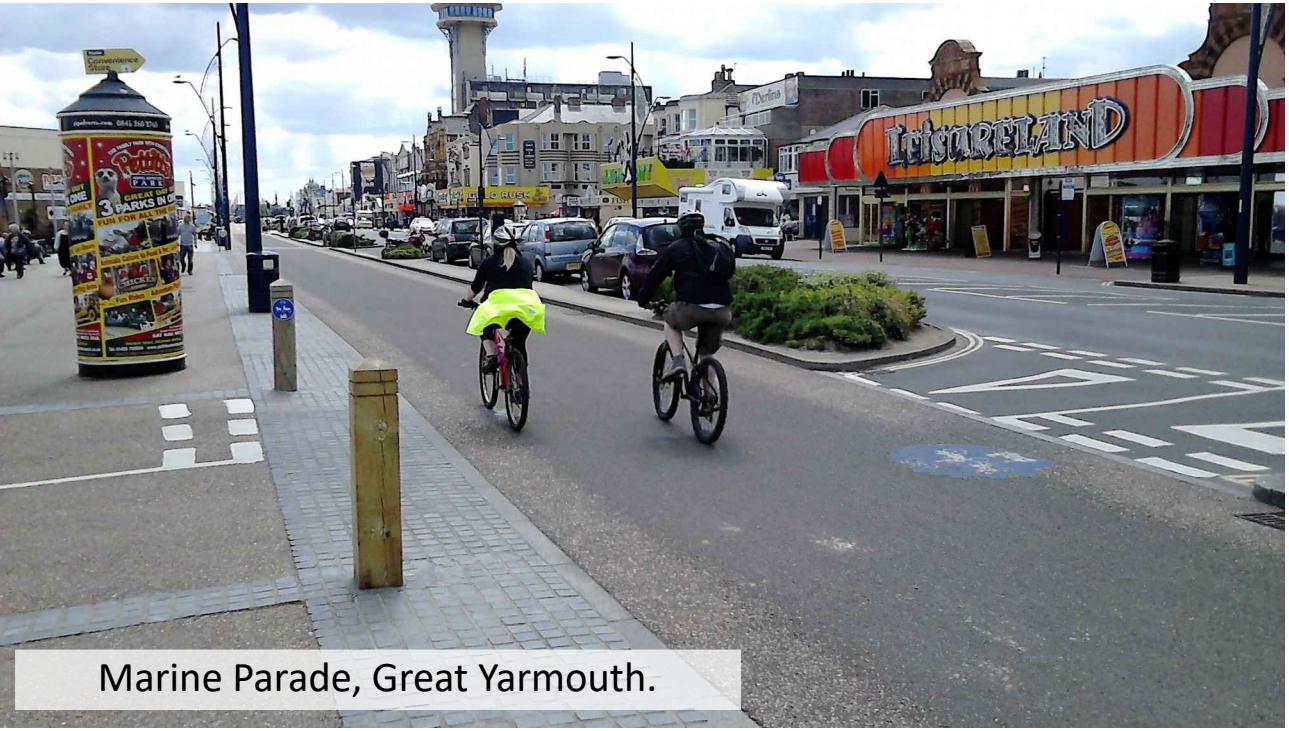
The Five Principles - Attractiveness



Bristol Road, Birmingham.

- A bit more subjective?
- Smooth asphalt surfaces help to make riding effortless.
- Legible routes through junctions help people make decisions as they arrive.

The Five Principles - Attractiveness



Marine Parade, Great Yarmouth.

- Direct access at destinations. Can you cycle right up to the building entrance to park?
- Escaping monotony. Is the route green? Are there interesting things to look at? Does cycling make people smile?Don't forget the lively – people like to have people around.

The Five Principles - Safety

Cedar Road, Romford.

The cycling infrastructure guarantees the road safety and health of cyclists and other road users.

The Five Principles - Safety

Main Road, Romford.

- Objective – collision risk; designing out interactions with fast/ heavy traffic. Design details which don't create risk to people cycling.
- Subjective – how does it feel? Differences between day and night. Social safety.

The Five Principles - Safety

Provincialeweg, Vogelwaarde.

- Low exposure to pollution, either through being away from traffic or having decent buffers.
- Junctions are the highest risk, so there needs effort to make them safe and legible to all users.
- Focus on not mixing modes – part of Sustainable Safety where modes with speed differentials are separated.

The Five Principles – Safety – UK Roundabouts

Buckden Road, Cambridgeshire.

- Designed for capacity with high entry and exit speeds.
- Often wide lanes or multiple lanes to cross.
- Crossing near circulatory area.
- Subjectively unsafe.

The Five Principles - Comfort

Gaasperpark, Amsterdam.

The cycling infrastructure ensures that cyclists experience minimal nuisance.

The Five Principles - Comfort

Exhibition Road, Kensington & Chelsea.

- Away from other traffic. Mixing with busy traffic is tiring. How can be minimise interactions?
- Avoiding stops – CROW suggests 75m to 100m worth of effort to get going again. A 3km route with 10 stops could feel like 4km.

The Five Principles - Comfort

Storgatan, Malmö.

- Legible wayfinding & landmark use – people worry about getting lost. Routes are designed to enable a cycling mind map to form.
- Smooth, all weather surfacing is crucial to enabling cycling all year round by everyone to wants to.
- Minimising turns because they create the potential to get lost at as well as the energy losses.

The Five Principles – The Balance

Gunnels Wood Road, Stevenage.

The balancing of competing demands is the stock-in trade of planners and engineers. It is pushed by time, space and politics.

However, dropping below the minimum standard for one or more of the five principles can create network gaps.

Where do we compromise?

The Five Principles – The Balance

Royal Mint Street, Tower Hamlets.

A short section of reduced comfort and attractiveness might acceptable if it remains safe, direct and coherent (people can understand and see the end of the compromise).

A slightly longer route to avoid a large junction (including grade separation) might have reduced directness, but the other principles are enhanced.

The Five Principles – The Balance

Bradford Street, Birmingham.

Sacrificing safety will discourage people. If it's a route, we've a weak link and no work around.

People walking should not have to be drawn into compromises. If something has to give, it should be space for motors and then cycling space (subject to the other considerations).

If it doesn't work at the local level, the solution is at the network level.

The Five Principles – The Acid Test

Victoria Embankment, Westminster.

- People of all ages cycling.
- People using non-standard and adapted cycles.
- People cycling side by side having a chat.
- Mistakes by all road users are forgiven.
- Children being children in perfect safety!

Low Traffic Neighbourhoods

Francis Road, Waltham Forest.

Low Traffic Neighbourhoods (LTNs) are nothing new and they are not cycling infrastructure.

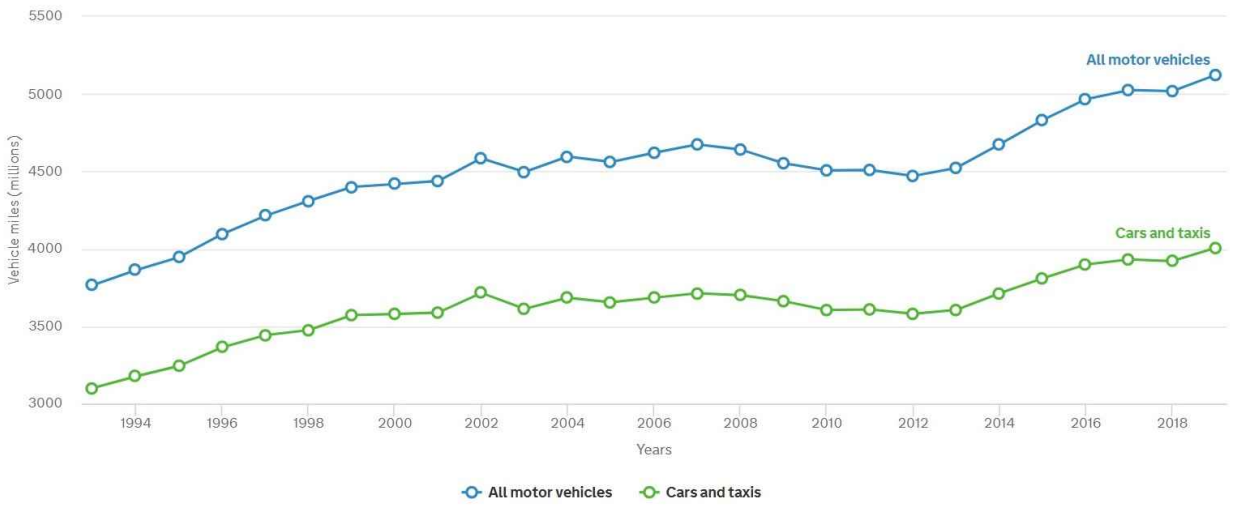
They can be part of cycling networks and cycle routes. If designed well, they become a seamless part of the cityscape which meet the five principles.

Low Traffic Neighbourhoods – The Case

5.12 billion vehicle miles were travelled on roads in Oxfordshire in 2019.

Annual traffic by vehicle type in Oxfordshire

Traffic in Great Britain from 1993 to 2019 by vehicle type in vehicle miles (millions)



- Is National policy to grow motor traffic?
- The forecasts are always that traffic grows.
- Forecasts are based on policy.
- Can we break the spiral?

Source: Department for Transport

Low Traffic Neighbourhoods – The Case

Bold measures needed to tackle growth in car journeys

More than 60% of all journeys into Oxford are presently done by car, with the trend of car-dependency likely to continue as more jobs are created by the city's thriving local economy. Unless steps are taken to change how people travel this increased demand for travel will overburden the transport network leading to more congestion for Oxfordshire commuters.

The latest figures show that the number of journeys is on track to increase as predicted by a quarter (25%) between 2011 and 2031 unless steps are taken to reduce car-based traffic. In the first half of 2019, there were 65 days – half of all weekdays - when speeds on at least one major road into Oxford fell to under 5mph during the morning rush hour.

- Oxford City Council recognises the problem.
- Are the City's plans bold enough?
- Are the City's plans being supported by the County Council as highway authority?
- Is there action – 3 ETRO LTNs in Cowley which have had some tweaks since February this year.

Source: Oxford City Council

Low Traffic Neighbourhoods

Whitney Road, Waltham Forest.

LTNs make use of modal filters which allow walking and cycling through a point or part of a street with restrictions on some or all motor vehicles.

For cycling, this should mean seamless transitions between cycle tracks on main roads and quiet side streets.

Low Traffic Neighbourhoods

Maidstone Road, Enfield.

Types of modal filter		
Heavy	**Medium**	**Light**
Fixed bollards	Fire gate	Weight limit
Fixed barriers	Lockable bollard	Class limit
Physical obstructions	Collapsible bollard	Camera enforcement
Pedestrianisation	Rising bollard/ barrier	Long traffic through route
Height restriction	Over run area	Bus gate
	Bypass	
	Width restriction	
	One-way traffic	

Low Traffic Neighbourhoods

Odessa Road, Waltham Forest.

Things to think about.

- Heavy or medium filters will physically deal with traffic. Medium filters can allow emergency access (fire brigade in general).
- Light filters can use ANPR cameras to permit emergency vehicles, buses, refuse vehicles, blue badge holders and permit holders. Can also be varied with time of day.

Low Traffic Neighbourhoods

Oldchurch Rise, Romford.

Things to think about.

- ANPR has a long term revenue cost liability and it is politically tempting to provide resident permits which waters down the point of having LTNs.
- Gates and lockable bollards/ posts are vandalism risks.

Low Traffic Neighbourhoods

Twijnstraat, Utrecht.

As part of an overall network strategy, LTNs can help reduce motorised traffic as some people can switch their trips.

- Less “friction” at minor junctions.
- Reductions in short trips by car.
- Heavy traffic sticks to the roads which are structurally designed for them.
- Traffic network control easier and more predictable using signals.

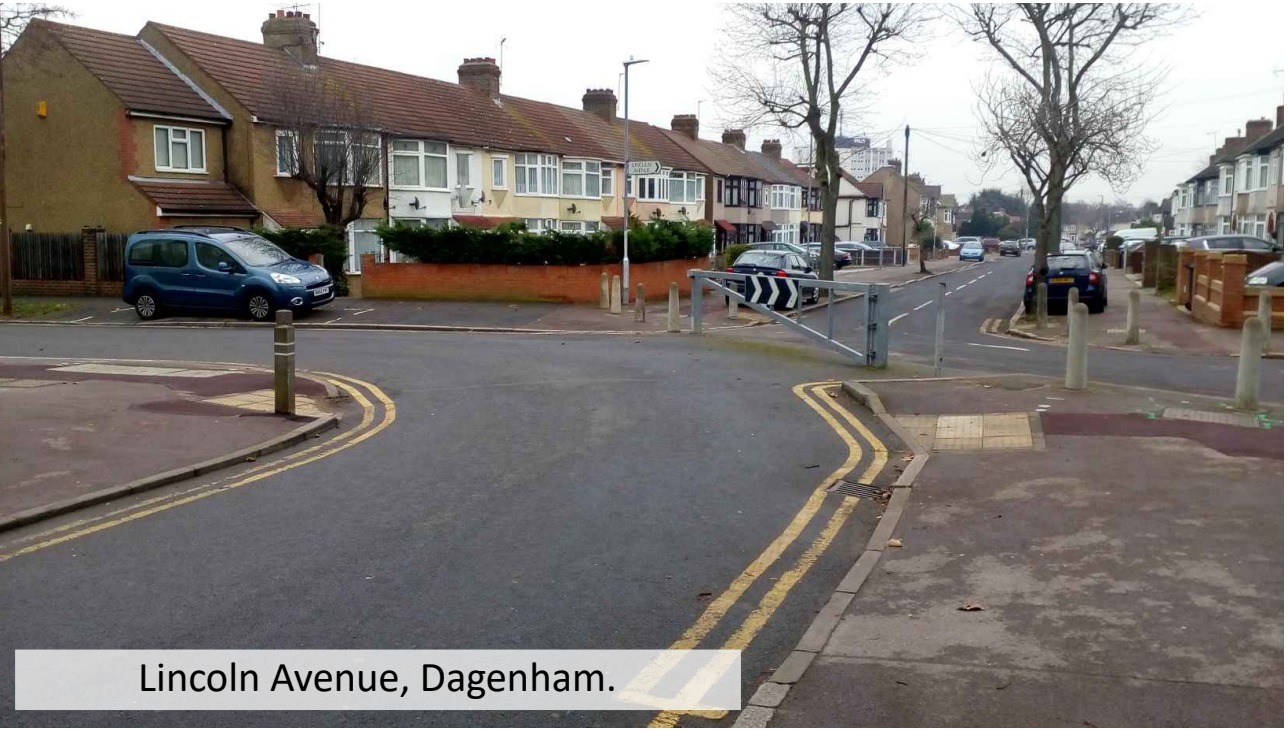
Low Traffic Neighbourhoods

Lower Tower Street, Birmingham.

Two main ways to develop LTNs.

- Experimental Traffic Orders which allow schemes to be established, adjusted, measured and consulted on as people try them for size with a decision on keeping them made within 18-months.
- Permanent Traffic Orders which require full design and consultation with a decision taken to proceed.

Low Traffic Neighbourhoods



Lincoln Avenue, Dagenham.

Filters and traffic cell size need thought. Some tips;

- Filters within neighbourhoods can be used to create traffic loops which make it easier for deliver drivers to turn around without reversing.
- If filters are at boundary roads, they need to be close to the junction to avoid drivers turning in.

Low Traffic Neighbourhoods

Upper Tichborne Street, Leicester.

- Try to develop traffic cells which broadly have a similar homes per access junction to avoid putting too much pressure in one place.
- In general, cells which are more than around 1km across will be more likely to have residents driving from the far reaches – people just act like people!
- People like quieter streets, even if they don't know it yet!

Low Traffic Neighbourhoods

Narroway, Hackney.

- Ultimate goal must include overall traffic reduction which includes reclaiming main road space for walking, cycling and buses. Some streets may not need a traffic function in the future.
- Modal filters should eventually provide space for street enhancements such as parklets which can enhance attractiveness.

Low Traffic Neighbourhoods

Newcomen Street, Southwark.

- LTNs can provide key parts of a cycle route, but remembering coherence, they need to connect people to their destinations and leaving people to fend for themselves on a main road won't cut it.
- Apply the five principles more widely where LTNs are part of cycle routes. If they don't follow them, then the LTN may not be the best route.

Questions & Discussion

Oosterkade, Utrecht.

- What is the context for Oxford?
- Who is doing the driving?
- How can relatively narrow main roads be treated?
- Is the leadership and ambition there?

Slides can be downloaded at;

https://cityinfinity.co.uk/community