→ Member in the Spotlight

June 2011: Dublin

Cycle Design Manual in Dublin:
## Taking a universal approach to traffic

The need for technical guidance

As in many cities across Europe, Dublin has undergone a large shift in mobility patterns over the past decades. In the 1950s, the bicycle had a large role to play in the city, and all users got along with limited structure to the roads (for example: no traffic lights, and policemen directing at intersections).

As the dominance of the motor car grew, so space was designed for motor vehicles, and the design principles created to accommodate motor vehicle traffic were set in place. This legacy of a car-oriented design which looks at maximising the capacity and convenience for the car, means that providing for other modes of transport is not straightforward. When cycling infrastructure is put in place in this car-dominated infrastructure, there is a risk that it could done poorly: not just for the cyclists, but also – ironically – for the car drivers and other road users too.

In order to address this existing design philosophy, and create better cycling infrastructure, The National Transport Authority has released a genuine (and free!) on-line cycle design manual (www.cyclemanual.ie).

In Ireland, as elsewhere, there have been ongoing exchanges of opinion as to what the appropriate treatment and provision for cyclists should be. This approach led to opposing views on many issues, extending from detailed design of cycle elements through to broad issues surrounding the requirement for any cycling infrastructure at all.
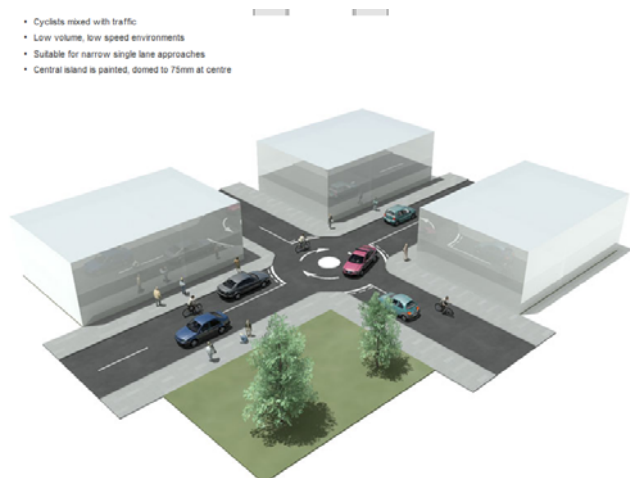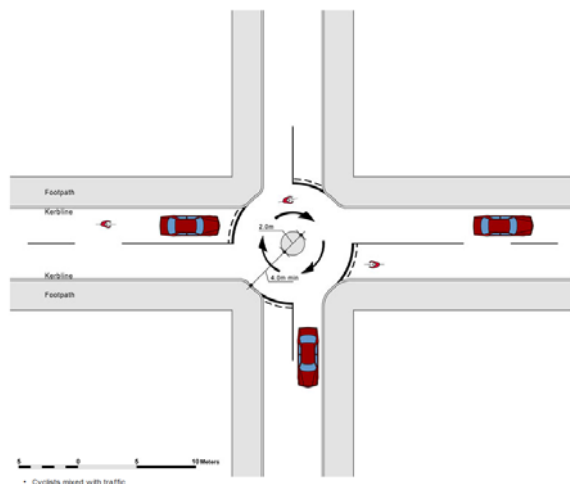
Mini-roundabout from the manual: 2D and 3D formats: design for the bike (and for the car).

It was realised that to resolve these issues the NTA therefore took two approaches:

(i)   a series of first principles would be used, from which all other advice in the manual would be based; and

(ii)   a cross-section of international expertise would be employed, to assist the NTA to provide the best possible advice for an urban situation.

A new vision: 5 principles for sustainably safe roads

The Principles used by the NTA are the *Principles of Sustainable Safety*. These principles were first developed in the Netherlands in 1992, and they are:

- **Functionality**: the road / street should be designed to fit its purpose(s), (e.g. bus priority, loading, cycling, bus stops, pedestrian access etc.), .

- **Legibility**: the road, junctions and conflicts should be obvious to all road users, and the resolution of conflict should be mutually understood by all road users.

- **Forgiving Environment**: if an accident should occur, the outcome is as benign as possible.

- **Homogeneity:** it is safer to mix traffic of similar mass, speed and direction.

- **Self Awareness:** road users should be aware of their competence and their ability to negotiate in the traffic design.

These principles are used as the determinant for the advice included in the manual.

Indeed, it became obvious that these principles pose a fundamental challenge to existing street design norms (in Ireland and the UK in particular), and provide key benefits to pedestrians and cyclists.

These principles should apply in designing cycling infrastructure, but more importantly, they should apply in designing *any* infrastructure. In other words, all users – including cyclists – should benefit.

Designing for cyclists should be normalised in the design process, and not included as an "add-on" to an existing car-oriented development. The cycle manual could be viewed as a "cycle-friendly" traffic manual, rather than simply a "cycle manual". This approach allows for a design with a "universal" approach to traffic.

Additionally, the manual encourages designers to cycle, in order to experience for themselves the five universal needs of cycling as explained in the manual, namely: c*oherence, directness, safety, comfort,* and *attractiveness.*

Online cycle manual, with international expert review

The Urban Cycle Design Manual provides up-to-date knowledge and guidance on planning and designing for cycling in the urban environment. The primary audience is public and private sector planners, designers, traffic managers and maintenance teams. The new Manual supports the objectives of the Irish Department of Transport's Smarter Travel document and National Cycle Policy Framework.

The manual has been developed by a technical group comprising the DTO, many local authorities, the Department of Transport, the NRA, transport agencies and An Garda Síochána. The technical content was independently reviewed by an international group of cycling experts, and issued for public consultation. The manual has been designed for Dublin, but approaches in it are not restricted to the Irish audience.

This manual is the first genuine on-line cycle design manual purpose-fit to the medium of the web. It includes text, technical drawings and photographs and other media. It brings a clear and fresh approach to designing for the bike, as follows:

- **It is highly graphic**

  The manual includes the latest three-dimensional rendered high quality annotated graphics, to give designers (many of whom are not cyclists) a "look-and-feel" around cycling provision. (Standard 2-d "engineering" drawings are also included). The new graphical models can be viewed from different angles and perspectives, to present the clearest possible advice to designers and builders. For example, below is a graphic of a new contra-flow cycle facility on a one-way street.

- **Common Tools**

The manual brings new clarity to key questions which designers continually raise. The new manual will have very straightforward tools to determine *inter alia:*

- what traffic speed and volume reductions are required for on-street cycling (i.e. without cycle lanes or tracks);

- what width a cycle lane or track should be – the manual has a simple "width calculator";

- how to design bus lanes and bus stops with cycling in mind; and

- how to review and plan a cycling network.

The manual is free to use. The National Transport Authority is hopeful that users will register, so that future changes and additions can be notified automatically. Indeed, the National Trabsport Authority is hopeful that many persons will register from outside Ireland, so that an on-line international community of users can contribute to future changes to both the website layout and its content.

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