Traffic Engineering with a human touch: Going Dutch

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Transport for London
@bricycle
Inspiration
GOING DUTCH

Campaigning

Thursday 18 October
9.30am – 5pm
Church House
Conference Centre

LOVE LONDON
GO DUTCH

EVERY JOURNEY MATTERS
Translating Dutch ideas into UK practice
Filtered permeability
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Cycle streets
Cycle tracks
Bus stop treatments
Adopting Dutch Principles

2005 - 2012
- Fast
- Safe
- Comfortable

2012 - present
- Direct
- Safe
- Comfortable
- Coherent
- Attractive
- Adaptable
Legislation and interpretation

Common Dutch Techniques – Junctions

J1 - Advanced stop-lines
J2 - Cycle-specific signals
J3 - Two-stage opposed turns
J4 - Measures to minimise ‘left hook’
J5 - Cycle exemptions at red signals
J6 - Simultaneous greens for cycles
J7 - Cycle-friendly roundabouts
J8 - Parallel pedestrian & cycle crossings

Rule 178: Do not unnecessarily encroach on the cyclists’ waiting area

Rule 25: Toucan crossings can be used by both cyclists and pedestrians

INTERNATIONAL CYCLING INFRASTRUCTURE BEST PRACTICE STUDY

LONDON CYCLING DESIGN STANDARDS

EVERY JOURNEY MATTERS
Before and after, before going Dutch
Cycle specific signals
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Two stage opposed turns
Measures to minimise left hook (EU right hook)
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Cycle exemptions at red signals

Not currently possible under UK regulations
Simultaneous green for cycles
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Cycle friendly roundabouts
Parallel pedestrian and cycle crossings
Potential Universal Principles
Cycling should be treated as a serious mass transportation option
...and not just an occasional leisure pursuit
Cycles are vehicles capable of speed
...and so characteristics such as design speed and turning circles need to be incorporated into street design.

Table 2.2.3 Design Speed for Off-Carriageway Cycle Routes

<table>
<thead>
<tr>
<th>Circumstance</th>
<th>Design Speed (kph)</th>
<th>Absolute Minimum Design Speed (kph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On down gradients of 3% or greater</td>
<td>40</td>
<td>N/A</td>
</tr>
<tr>
<td>All other off-carriageway cycle route provision</td>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design Speed (kph)</th>
<th>Minimum Stopping Sight Distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>47</td>
</tr>
<tr>
<td>30</td>
<td>31</td>
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<tr>
<td>20</td>
<td>17</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Design Speed (kph)</th>
<th>Minimum Horizontal Radius (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>57</td>
</tr>
<tr>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td>20</td>
<td>14</td>
</tr>
</tbody>
</table>
Cycling requires human power generation

\[ W = \frac{C_v}{\eta_{\text{mech}}} \left\{ \sum mg \left[ C_r + \frac{s}{100} + \frac{a}{g} \left( 1 + \frac{m_w}{\sum m} \right) \right] + 0.5 C_D A \rho (C_v + C_w)^2 \right\} \]
...and so designs should attempt to minimise the forces acting against momentum and acknowledge that cyclists come in different shapes and sizes.
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Cycling is a social activity that should relieve stress
...and so anxiety should be reduced through clarity and side by side cycling accommodated wherever possible
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