National Propensity to Cycle Tool Project: Summary Report

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The National Propensity to Cycle Tool (NPCT) is a novel tool that aims to assist transport planners to prioritise investment in new cycle-friendly infrastructure. It does this by offering an online system for assisting the decision making process at local, city and regional levels. Funded by the UK's Department for Transport (DfT), the prototype tool has now been developped and implemented for three case-study cities in England (available at http://geo8.webarch.net/master/).We are now commencing the process of deploying the tool across all Local Authorities across England; this national roll-out will be completed by June 2016.

NPCT will be of interest to transport planners working on cycling due to its unique combination of features:

- Operation at the level of origin-destination 'flows', allowing identification of the 'desire lines' that have greatest potential for growth. The NPCT also provides outputs at the level of administrative zones.
- Route allocation, enabling the tool to estimate which specific segments of the road network have the greatest potential to facilitate cycling uptake.
- Online interactive interface. The tool can be operated via a user-friendly web interface, meaning that transport planners do not need extended training or advanced technical skills to use the tool. This also facilitates public engagement.
- The tool is completely open source, allowing it to be modified, extended and re-purposed by transport planners and others across the globe.

We have designed, developed and deployed a public-facing prototype for three cities in England. This prototype is now live at http://geo8.webarch.net/master/ for user testing. Initial responses from Local Authority transport planners and other key stakeholders have been very encouraging.

Building the prototype model has involved drawing on very recent advances in software, including the R packages 'leaflet' (which provides an interface to a Javascript mapping library) and 'shiny' (a web visualization package). In combination, these enable the user to select from a wide range of options and see the results up-dated in real time on an interactive map (Fig. 1).

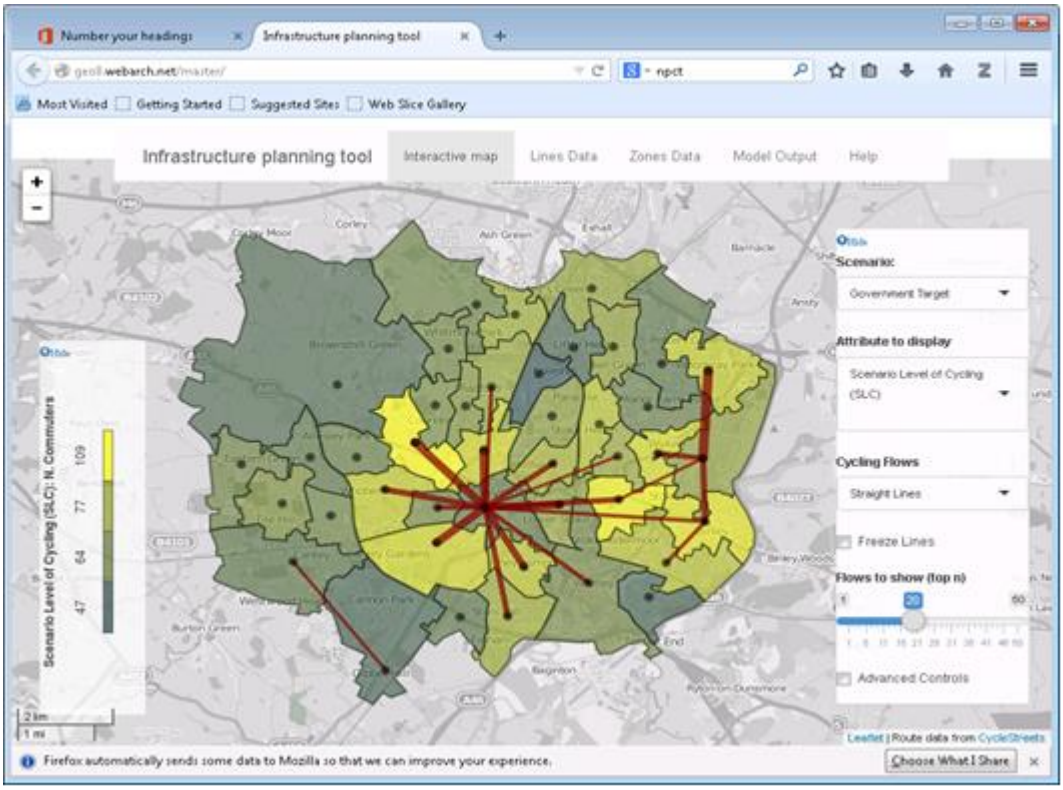

Figure 1: The National Propensity to Cycle Tool in action, showing potential growth in cycling in Coventry, UK.

Unusually for online transport planning tools, the NPCT also provides a 'model output' tab, with further details about how the scenarios were produced and with summary statistics about the current and potential future travel system in a particular area (e.g. See fig. 2).

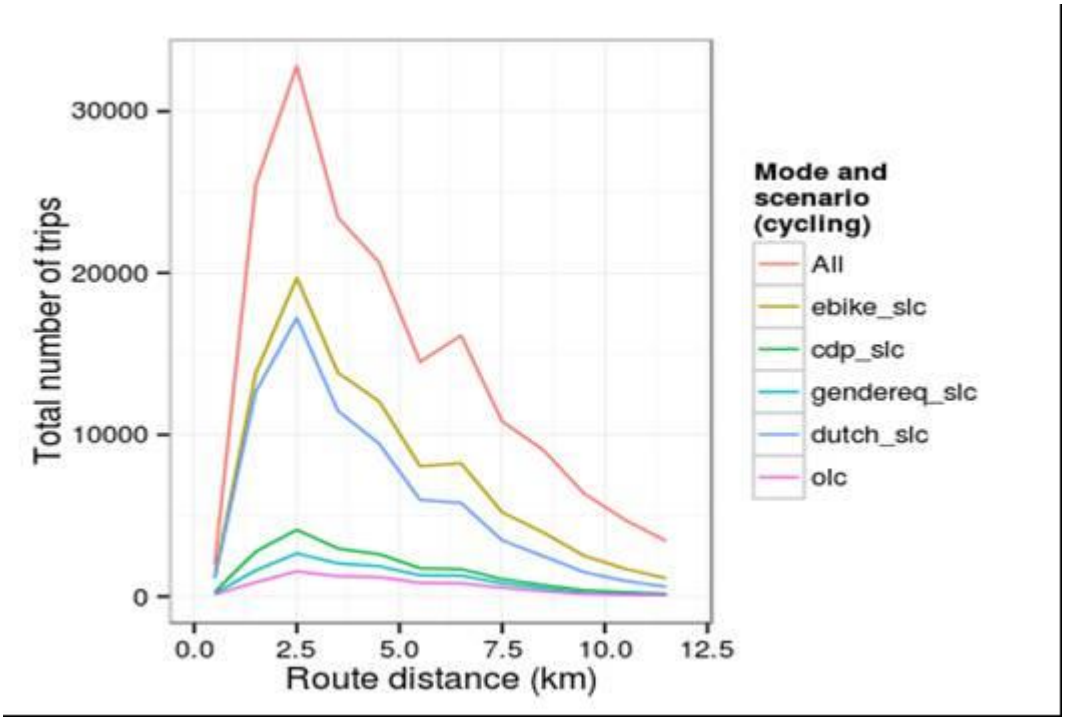

Figure 2: Model output on the rate of cycling by distance band, and under a range of scenarios, for Coventry

We would like to explore the possibility of applying the NPCT methodology in new regions, cities and countries outside the UK. The flow-level model used by the NPCT depends on flow-level data (also known as 'origin destination' or 'OD' data). Such data is commonly available from Census questions on work location. Increasingly such flow data can also be derived from mobile telephone service providers or other sources.

If you would like to explore the possibility of deploying the NPCT in a project or geographical area you are involved in, please feel to get in touch with r.lovelace@leeds.ac.uk. See http://www.cedar.iph.cam.ac.uk/research/modelling/npct-tool/ for more information.