

The Propensity to Cycle Tool



For England, Wales and beyond

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TII Safety Webinar, 2020-11-13



WWW.PCT.BIKE
PROPENSITY TO CYCLE TOOL



How the PCT works

The first prototype of the PCT

- 1st prototype: Hackathon at ODI Leeds in February 2015
- We identifying key routes and mapped them
- For description of aims, see Lovelace et al. (2017)

- Launched in 2017 with the Cycling and Walking Investment Strategy (CWIS)

<https://www.leeds.ac.uk>

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Cutting-edge transport research showcased to Secretary of State

ENVIRONMENT /// THURSDAY 2 MARCH 2017

Photo: demo of the PCT to Secretary of State for Transport (March 2017)

The important of open access models



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Transport Policy

Volume 97, October 2020, Pages 47-54



Open access transport models: A leverage point in sustainable transport planning

Robin Lovelace ^a , John Parkin ^b, Tom Cohen ^c

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<https://doi.org/10.1016/j.tranpol.2020.06.015>

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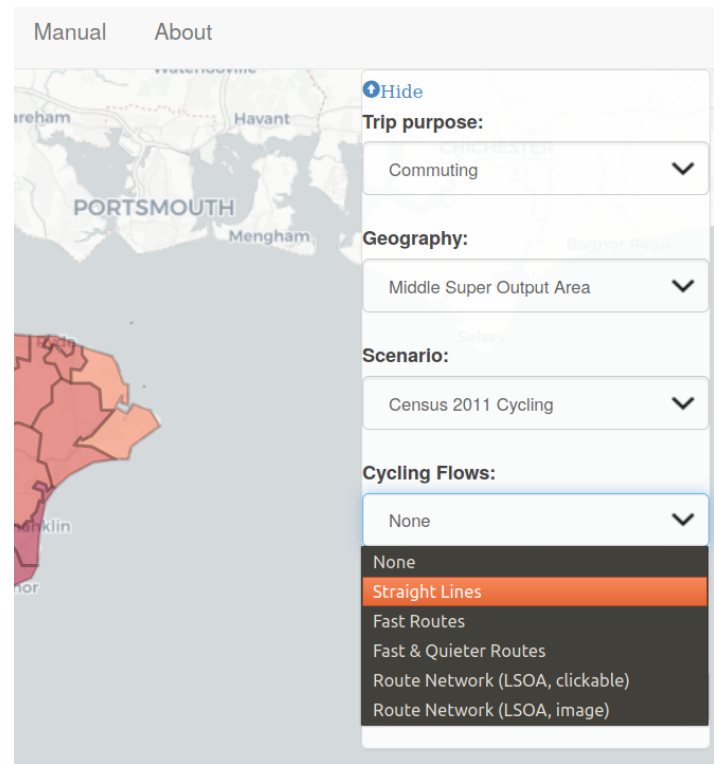
open access

The PCT in 2020

- Now the go-to tool for strategic cycle network planning in England and Wales, used by most local authorities with cycling plans ([source](#)).

Geographic levels in the PCT

- Generate and analyse route networks for transport planning with reference to:
 - Zones
 - Origin-destination (OD) data
 - Geographic desire lines
 - Route allocation using different routing services
 - Route network generation and analysis

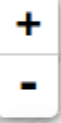


See these levels at www.pct.bike

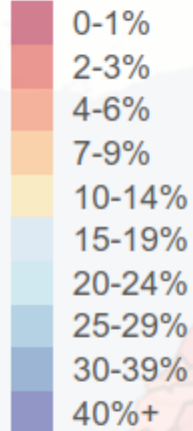
Live demo of the PCT for Bristol

See <https://www.pct.bike/>

Map Region stats Region data National data Manual About



% cycling to work



Hide

Trip purpose:

Commuting

Geography:

Middle Super Output Area

Scenario:

Census 2011 Cycling

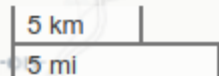
Cycling Flows:

None

Show Zones

Map Base:

Roadmap (Black & White)



Uses of the PCT

- Visioning
- Planning strategic cycle networks
- Identifying corridors with high latent demand

Uses that were not initially planned

- Pop-up cycleway planning
- LTN planning?

For further info, see the training materials at [itsleeds.github.io](https://github.com/itsleeds)

Many use cases on the PCT website: pct.bike/manual.html

Deploying in new contexts

- Requires survey based or synthetic OD data, to be processed by software developed at Leeds (Lovelace and Ellison, 2018)
- For more on methods, see the [transport chapter](#) (available free online) (Lovelace, Nowosad, and Muenchow, 2019)
- Can also be used for specific contexts (e.g. cycling to school, cycling to public transport) (Goodman, Rojas, Woodcock, Aldred, Berkoff, Morgan, Abbas, and Lovelace, 2019)

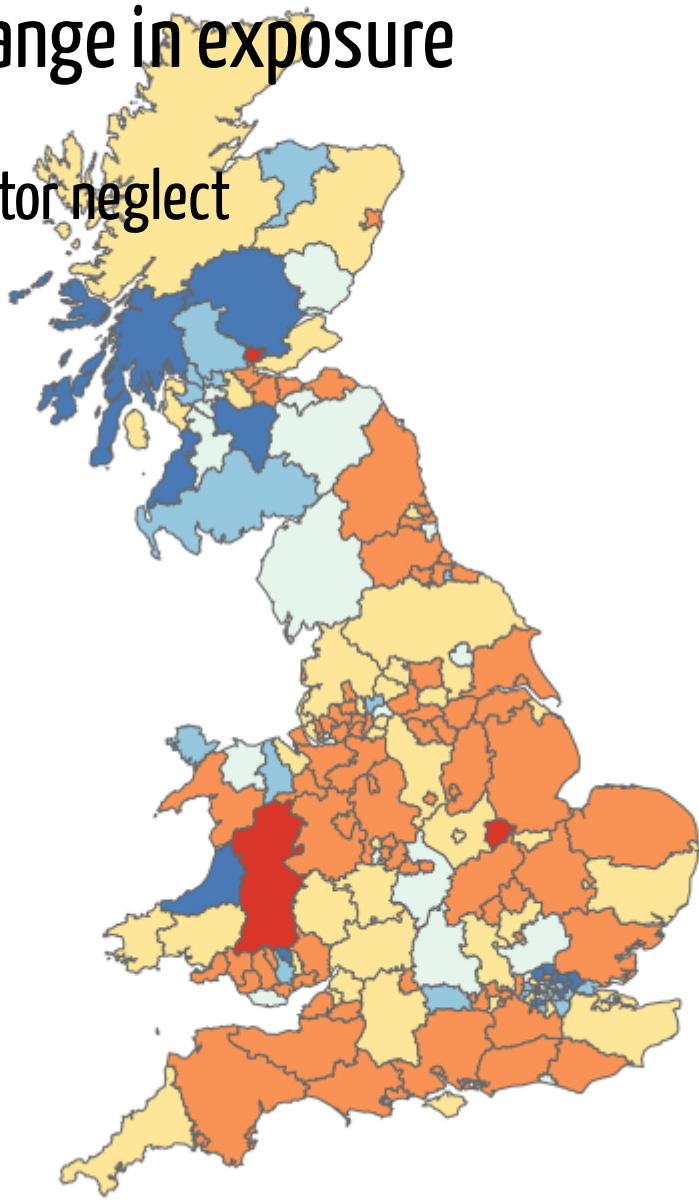
New possibilities in the PCT approach

See web.tecnico.ulisboa.pt for interactive map

2010

Estimating change in exposure

Tackling denominator neglect



Estimating safety levels in KSI/bkm at high resolution

Estimating health benefits of cycling uptake with the PCT

- The PCT uses a modified version of the HEAT methodology to calculate health benefits of scenarios of change
- Based on the DfT's TAG methodology
- The scenarios are **what if** scenarios not forecasts
- See the PCT manual for further information: pct.bike/manual.html
- See the DfT's **AMAT tool** also

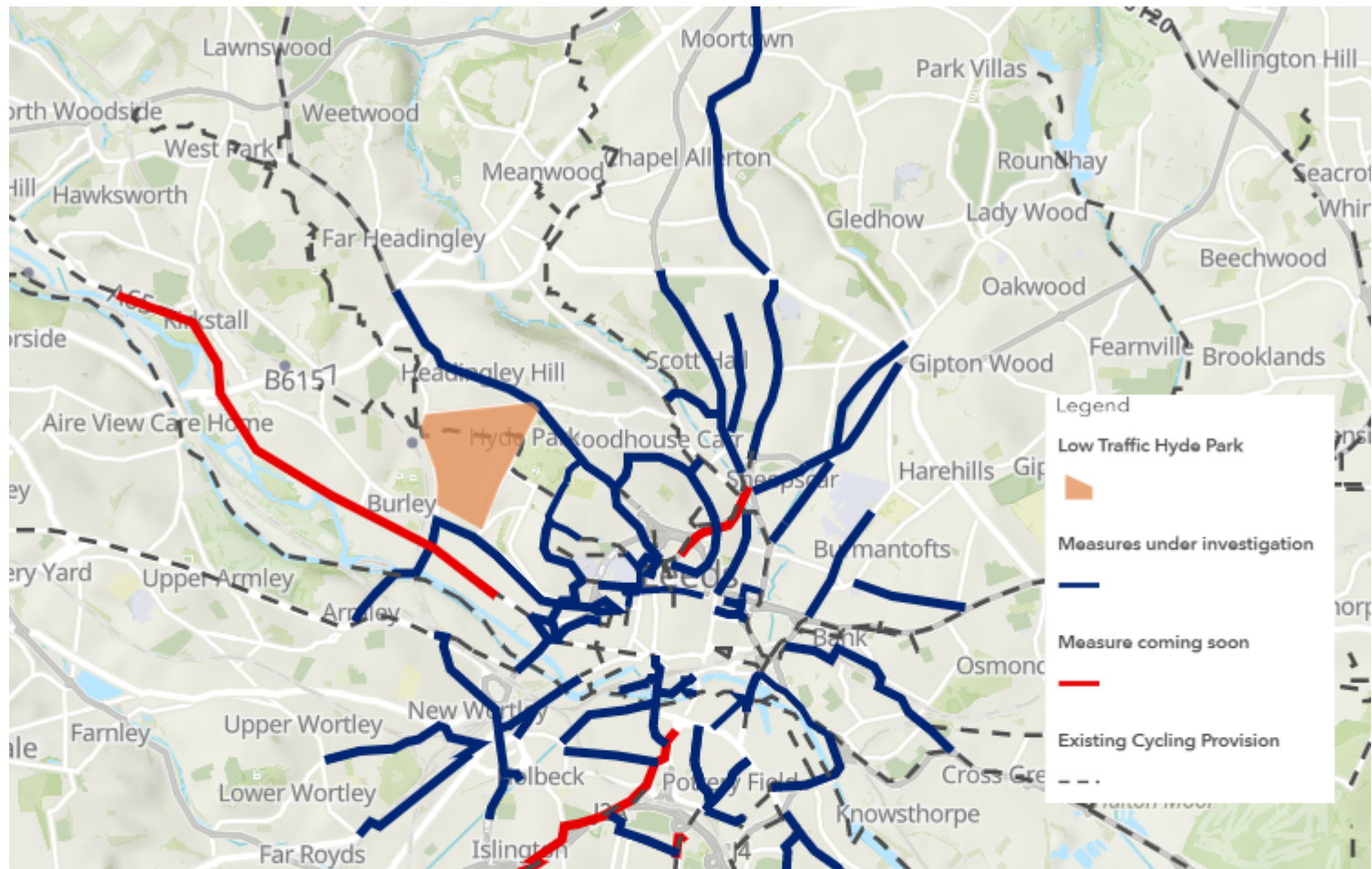
Table 2: Health and carbon impacts at baseline and in the scenarios among 478,028 commuters living in Avon

Scenario	Comparison	Change in YLLs/year	Change in person-years sick leave/year	Value of YLL+sick leave changes (million pounds)	Change in tonnes CO2e/year
Census 2011	'No Cyclists'	-147.3	-67.6	11.87	-4040
Government Target (equality)	Census 2011	-75.3	-33.0	6.00	-1975
Government Target (near market)	Census 2011	-83.5	-34.7	6.55	-2285
Gender Equality	Census 2011	-59.9	-36.5	5.27	-1688
Go Dutch	Census 2011	-315.5	-146.7	25.51	-8456
Ebikes	Census 2011	-409.5	-196.3	33.41	-16149

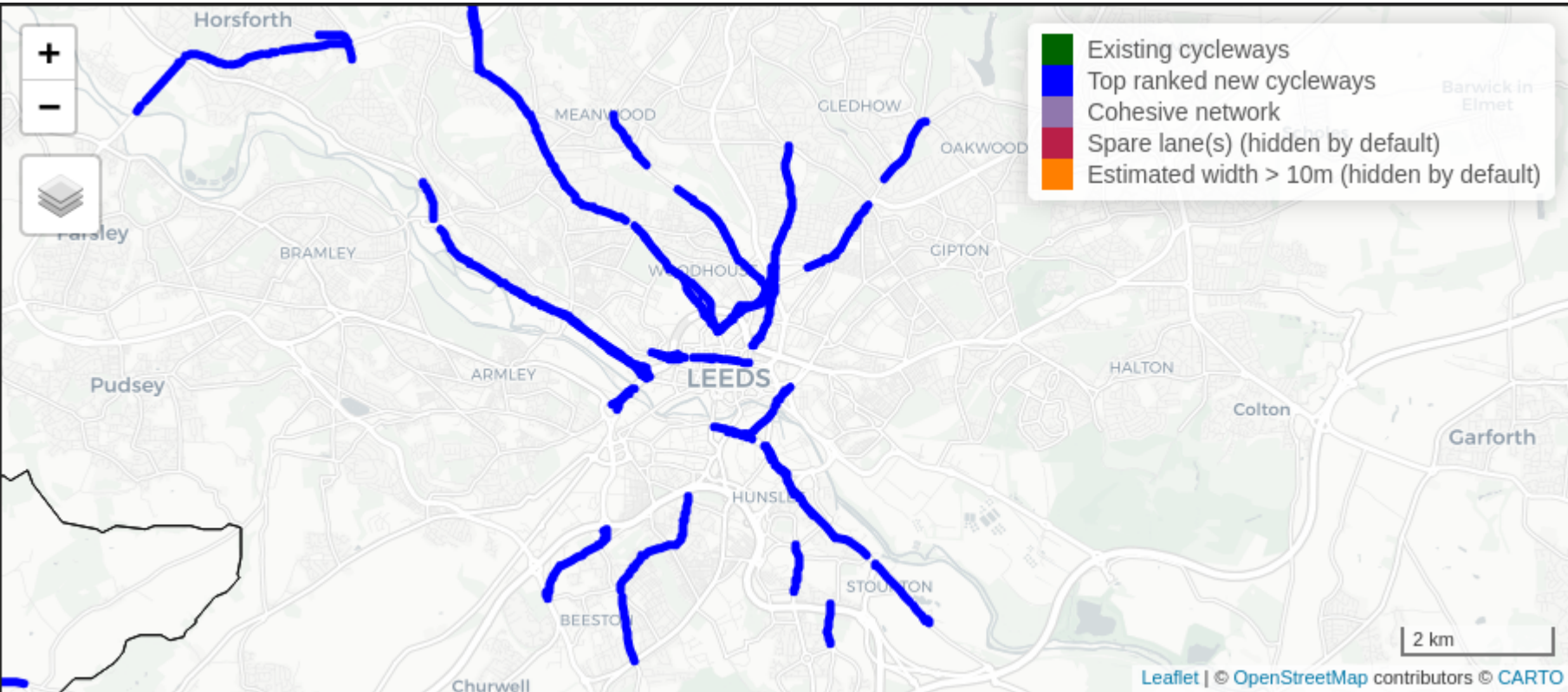
YLL = Years of Life Lost

From evidence to network plans

Plans from Leeds City Council responding to national **guidance** and **funding** for 'pop-up' cycleways (image credit: **Leeds City Council**):



The Rapid tool - see cypit.bike/rapid



References

- [1] A. Goodman, I. F. Rojas, J. Woodcock, et al. "Scenarios of cycling to school in England, and associated health and carbon impacts: Application of the 'Propensity to Cycle Tool'". In: *Journal of Transport & Health* 12 (Mar. 2019), pp. 263-278. ISSN: 2214-1405. DOI: 10.1016/j.jth.2019.01.008. URL: <http://www.sciencedirect.com/science/article/pii/S2214140518301257> (visited on 03/04/2019).
- [2] R. Lovelace and R. Ellison. "stplanr: A Package for Transport Planning". In: *The R Journal* 10.2 (2018), pp. 7-23. DOI: 10.32614/RJ-2018-053. (visited on 11/24/2016).
- [3] R. Lovelace, J. Nowosad, and J. Muenchow. *Geocomputation with R*. CRC Press, 2019. ISBN: 1-138-30451-4. URL: <http://robinlovelace.net/geocompr> (visited on 10/05/2017).