

Cycle potential to Bedfordshire rail stations



STARS Phase 2

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Aims of STARS:

- Establish the potential for cycling to stations in the STARS study area
- Inform investment decisions regarding cycle infrastructure and cycle parking at stations
- Feed into monitoring and evaluation of cycling levels

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LETTER

Urban form strongly mediates the allometric scaling of airshed pollution concentrations

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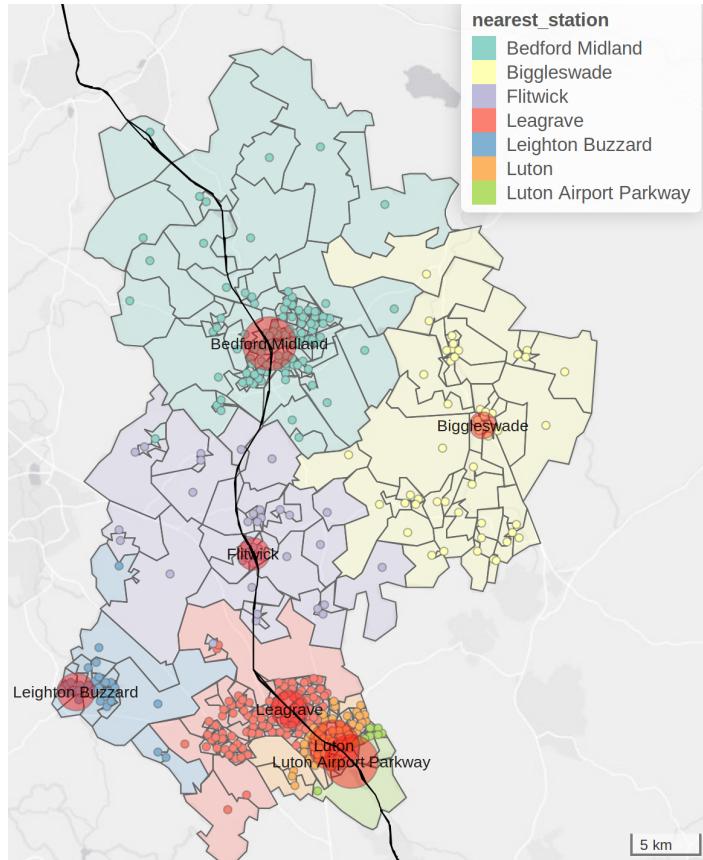
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Supplementary material for this article is available [online](#)

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Case study area - zone analysis



664,000 people in 1,200 km²

Moderate population density (~500 ppl/km² vs ~400 in England)

Relatively even distribution of stations

For interactive map see [here](#)

Cyclable distances (~3.5 km population-weighted mean to stations)

"train is the only practical method for getting to work for many people"
(Phase I report)

Mode split for commuting - LA

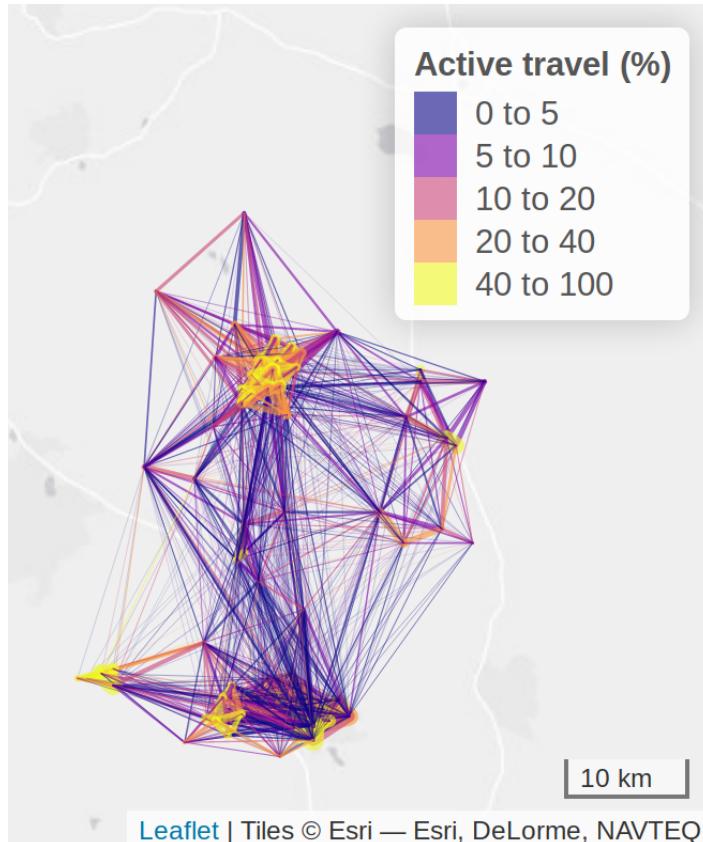
lad_name	Commuters	% drive	% rail	% cycle	% active	% Go Dutch
Central Bedfordshire	117753	74	7	2	10	14
Luton	83350	59	7	1	15	20
Bedford	68205	67	5	4	15	25

- This is without taking into account cycle-rail integration

Mode split by station catchment

nearest_station	Commuters	% drive	% rail	% cycle	% active	% Go Dutch
Bedford Midland	66203	67	5	4	15	25
Leagrave	64661	68	5	2	12	20
Luton	37973	55	7	1	17	18
Leighton Buzzard	21511	71	9	2	12	14
Flitwick	21109	76	9	1	8	11
Arlesey	17960	76	7	2	9	13
Biggleswade	11770	73	8	3	11	16
Sandy	11202	76	7	2	9	14
Luton Airport	10279	63	6	1	15	15
Harlington	6640	79	8	1	6	10

Intra-region travel - OD data analysis

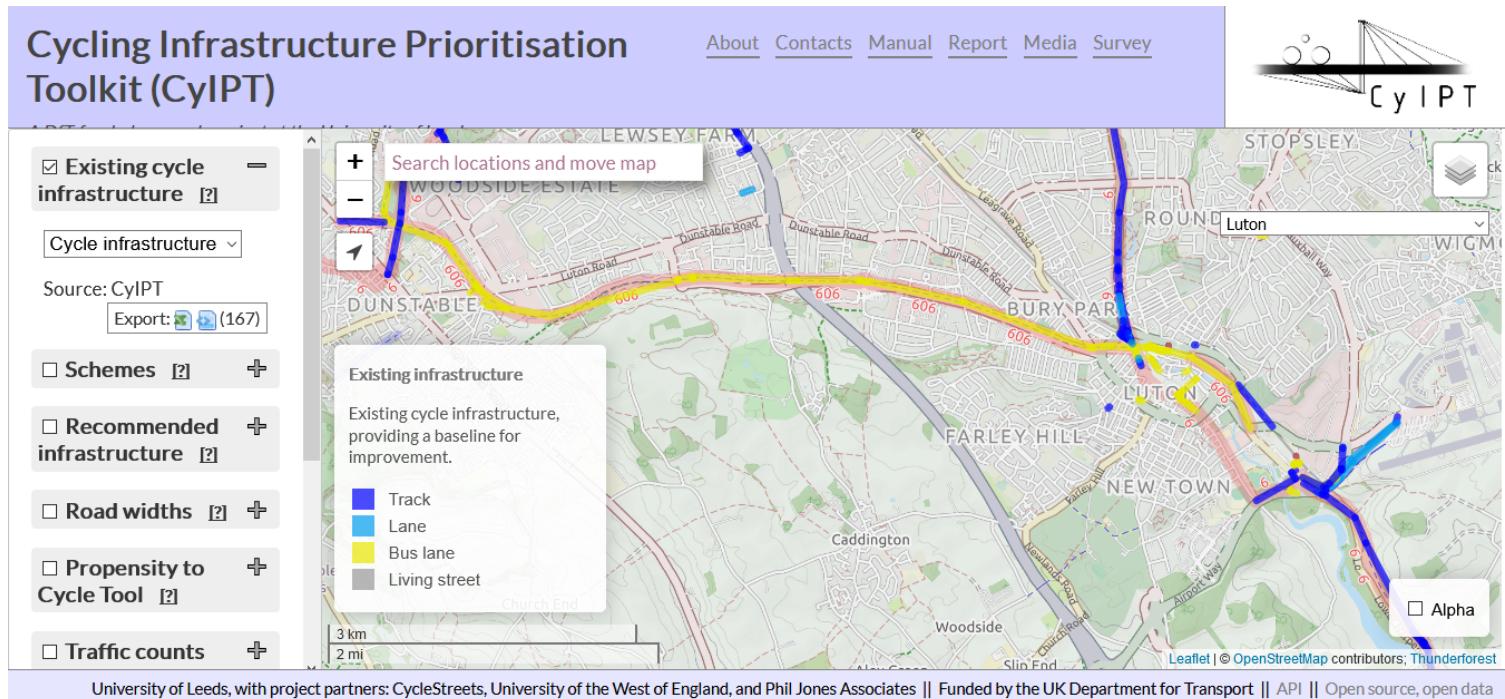


See [here](#) for interactive map

Around half of all commutes are within Bedfordshire

The majority of these are to the nearest town centre, but there is some inter-town travel

Existing infrastructure



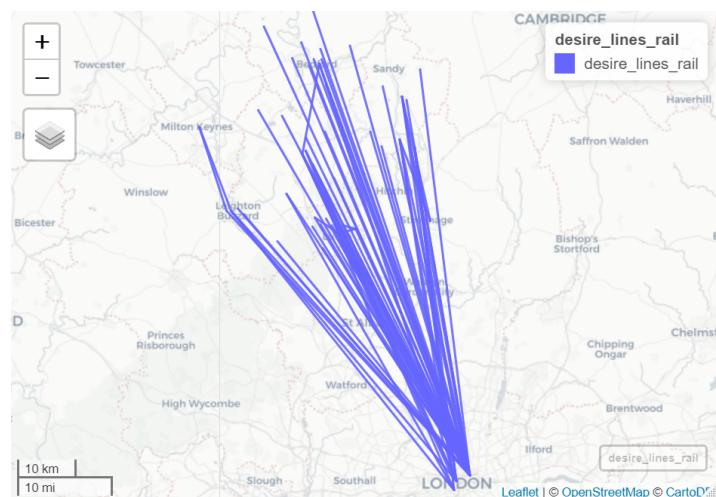
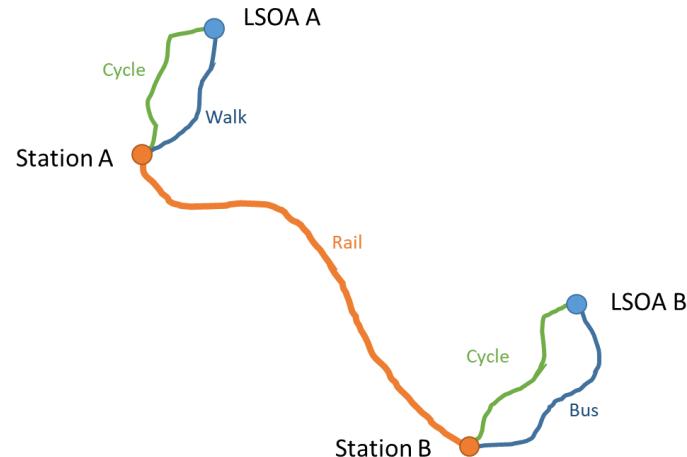
See <https://www.cyipt.bike/> for full map

Data sources

- 2011 census data
- Cyclestreets routing API
- Transport API
- PCT travel to work scenarios
- CyIPT street level cycle infrastructure data
- 2017-18 ORR Estimates of Station Usage
- National Rail data on cycle spaces at stations

Methodology

- Use 2011 Census data on mode of travel to work
- Identify trips that could be made by cycle/PT combination
- Estimate travel to individual stations
- Estimate the potential for those trips to be cycled
- Visualise results to inform decision-making process



Identification of public transport trips

Phase I

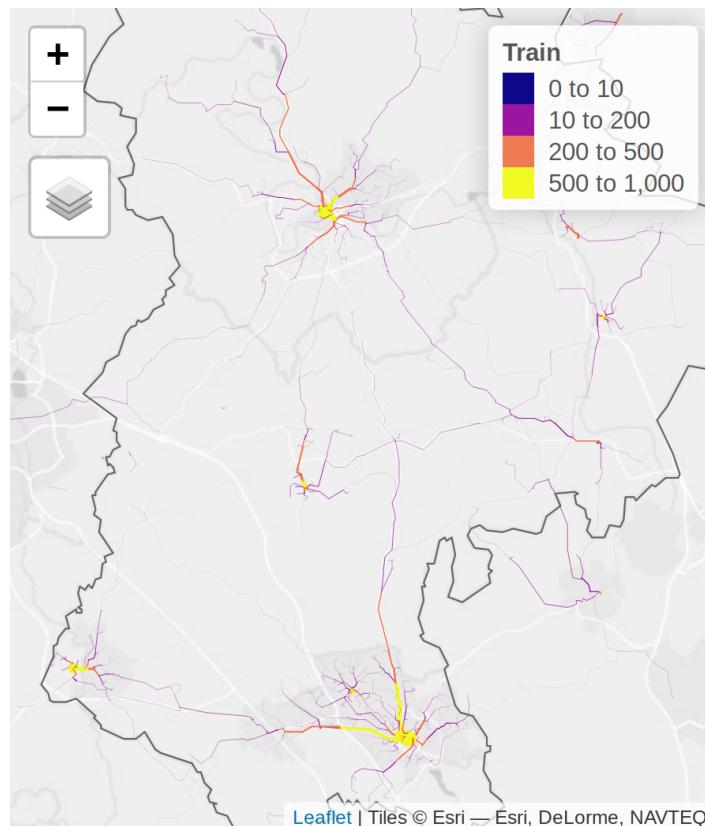
- Start with rail commutes both to and from Bedfordshire
- Use Transport API to identify the 3 fastest options to arrive by 9:00 AM
- Fastest train journey used (see [here](#))
- Not simply routing cyclists to the nearest station, but takes account of their final destination
- Based on home-rail trip, estimate potential for trip to be cycled

Phase II

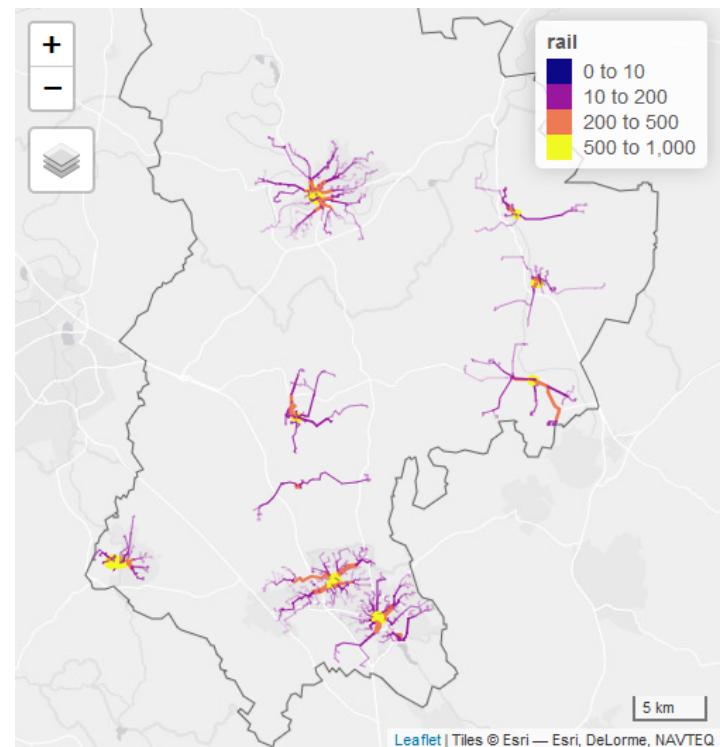
- Start with rail commutes by Bedfordshire residents
- Only include those who live within 5 km of one of ten mainline rail stations
- Use CycleStreets API to identify shortest on-road distance from home to station
- Route all journeys to the nearest station
- Based on home-rail trip, estimate potential for trip to be cycled

Current trips to stations

Phase I estimates

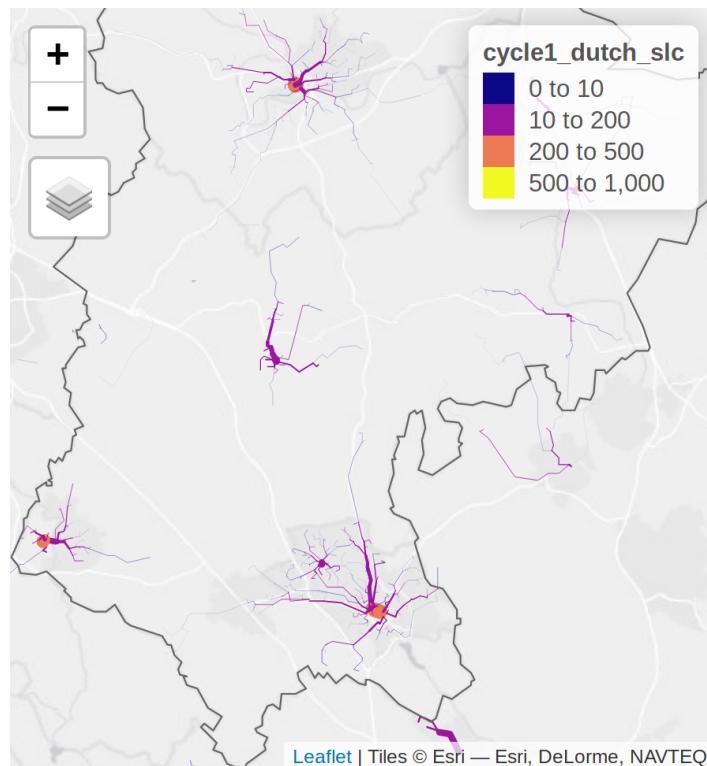


Phase II estimates

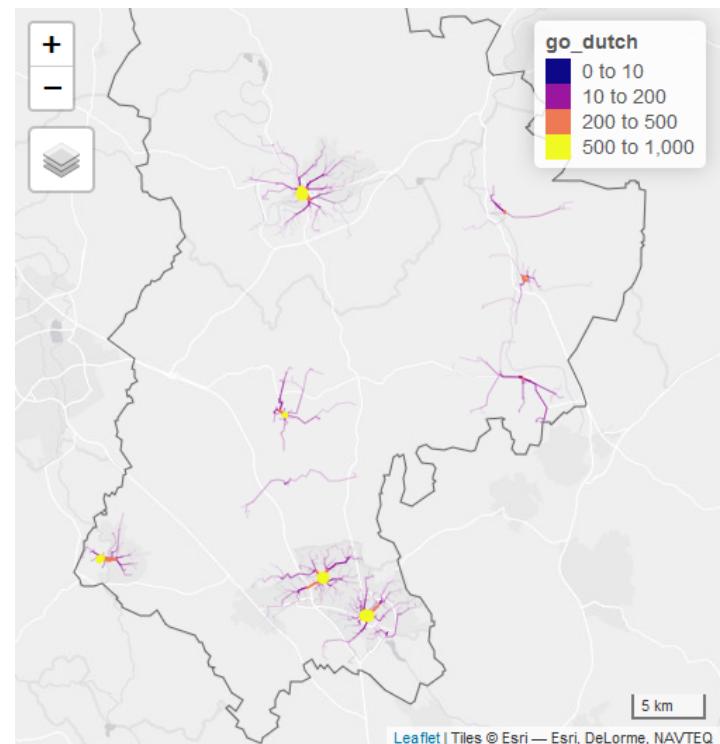


Cycling potential estimates - Go Dutch

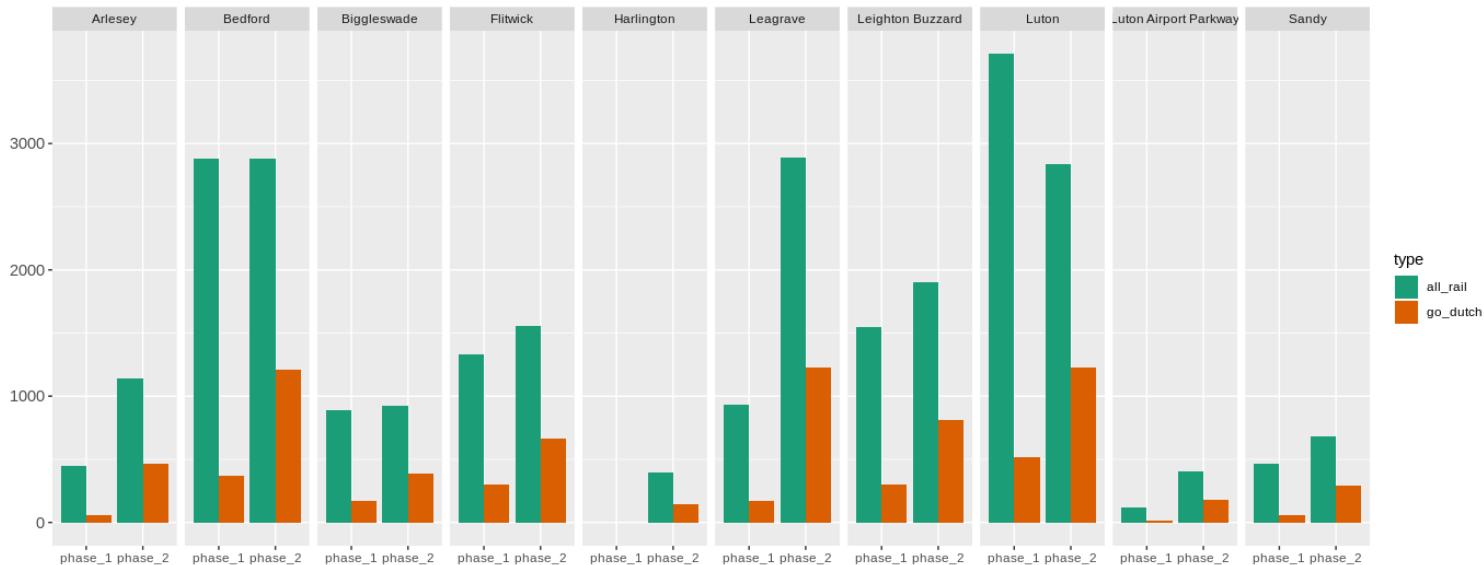
Phase I estimates



Phase II estimates

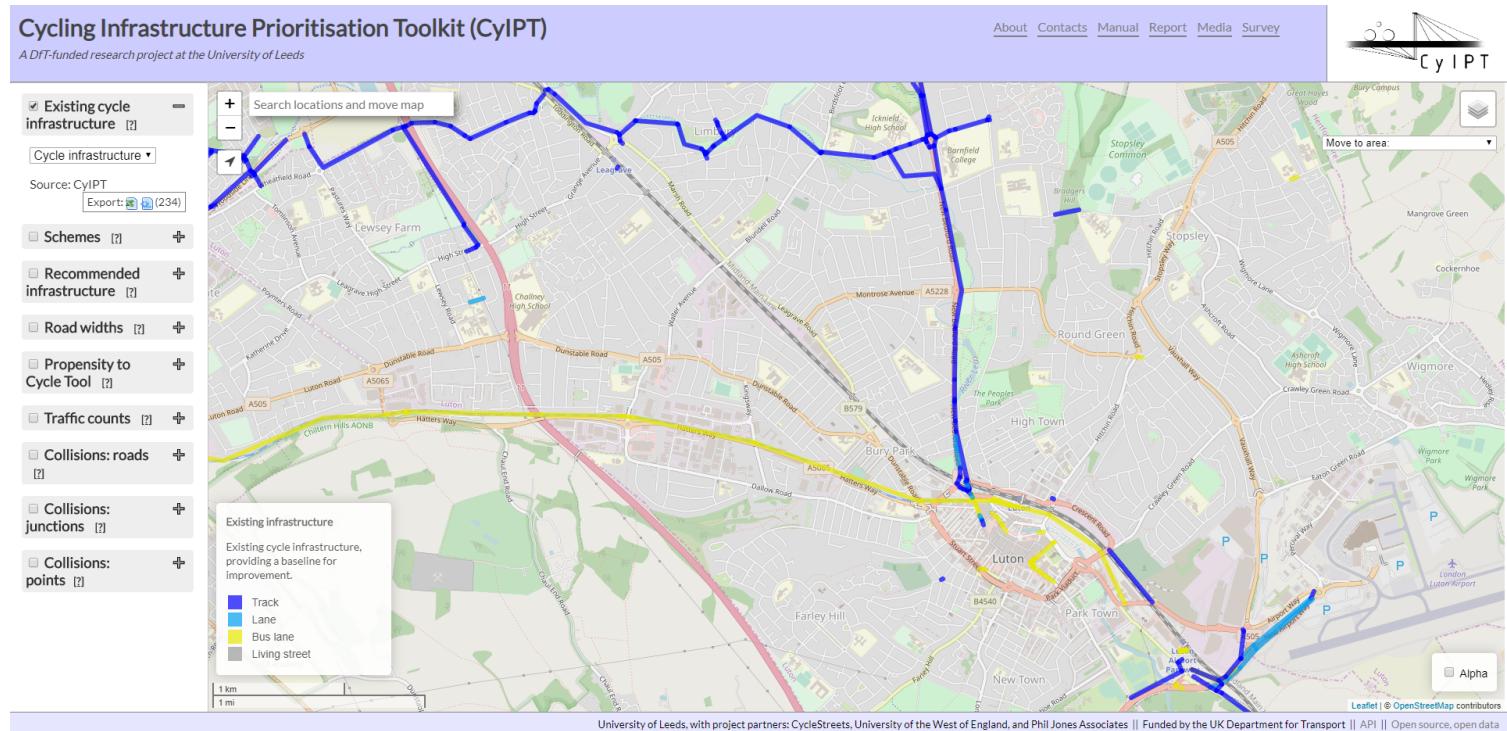


Cycling takeup rates



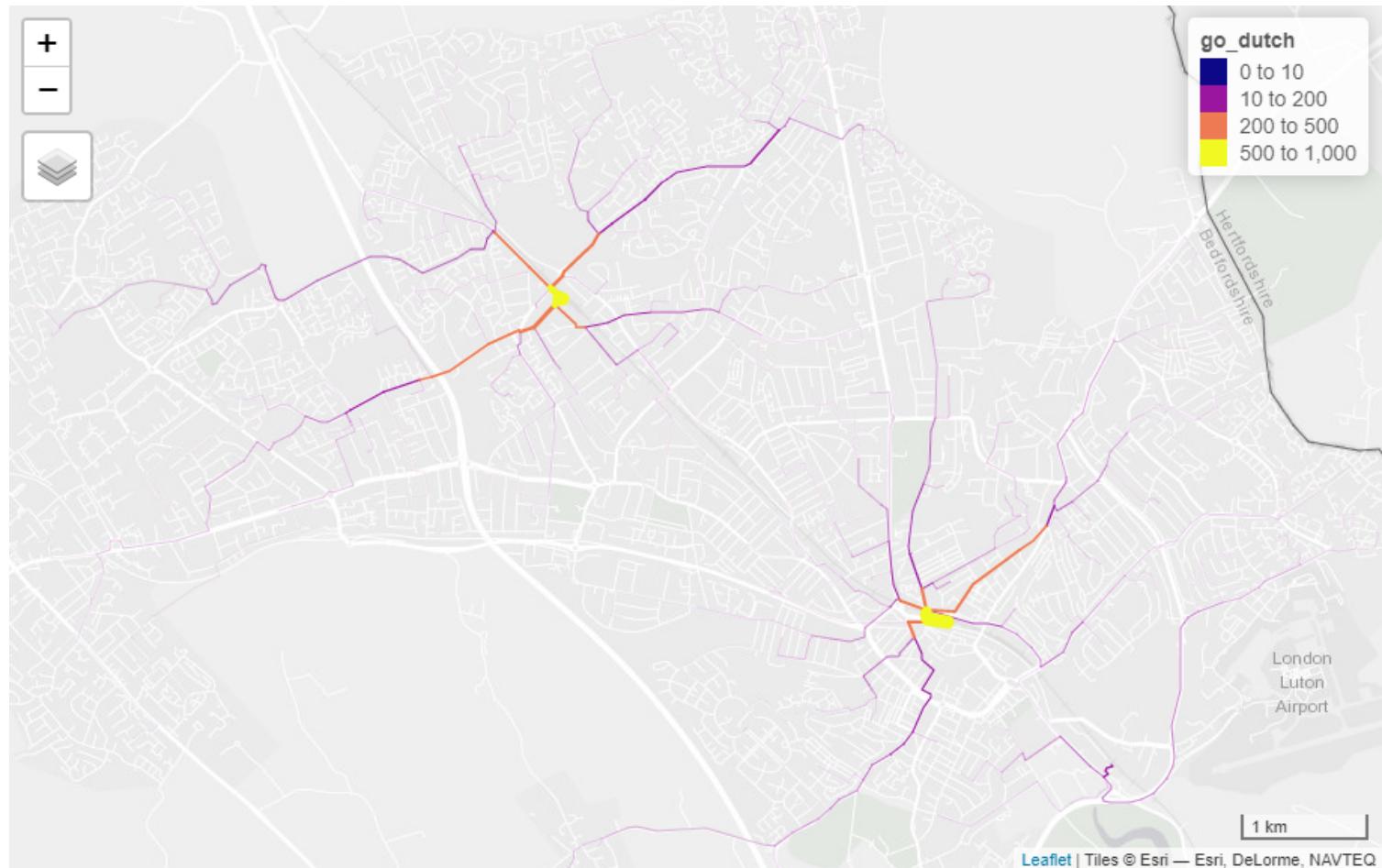
- Our Phase 2 results pick up 89% of current rail commutes
- Phase 2 sees more journeys from most mainline stations, except Luton
- Potential cycle takeup is 11-23% under Phase 1; 38-42% under Phase 2
- Some stations could have >1200 cycle commuter journeys

Phase 2 suggestions: Luton



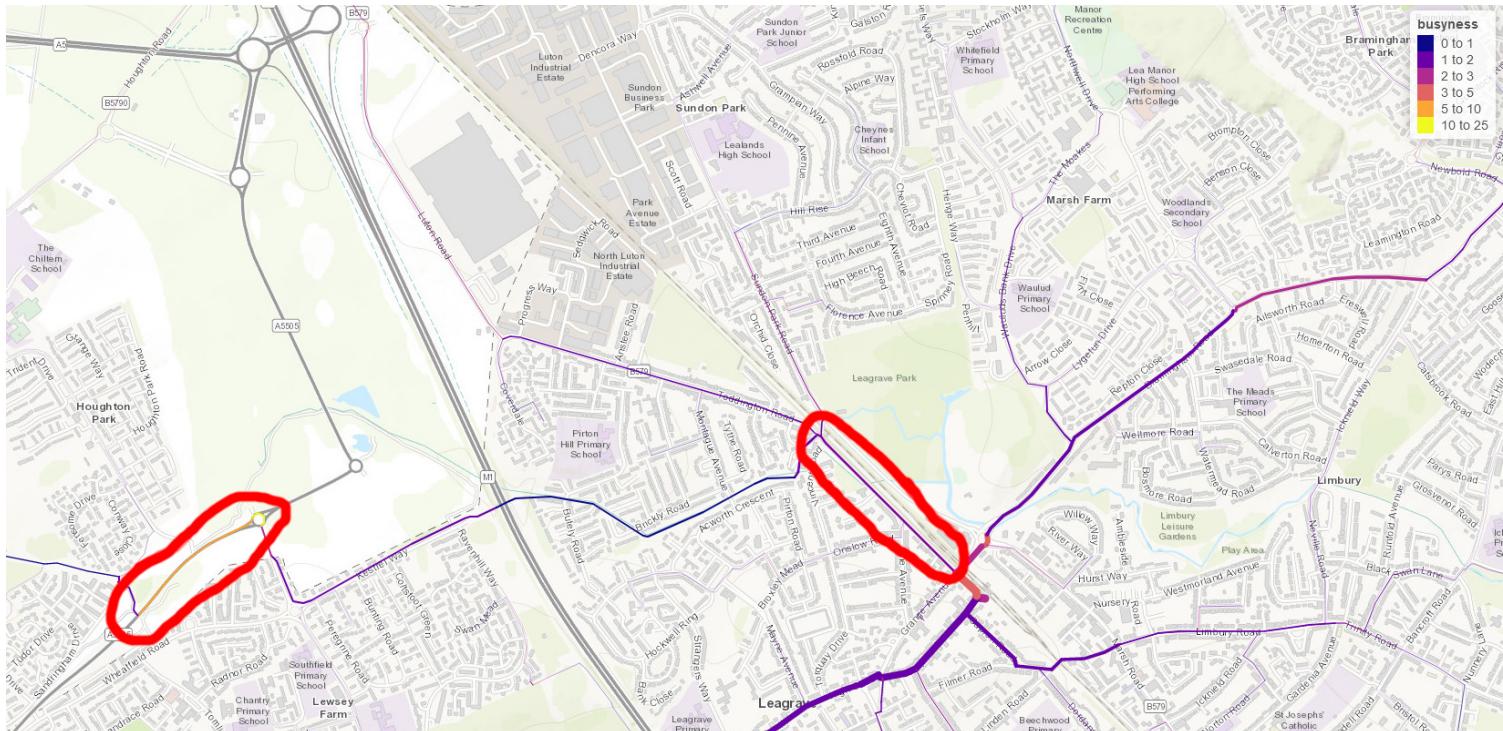
- Existing cycle infrastructure around Luton and Leagrave is relatively limited; our results support route development here
- Close agreement with several of the cycle routes proposed in the 'Luton Cycling Opportunities' report

Phase 2 suggestions: Luton



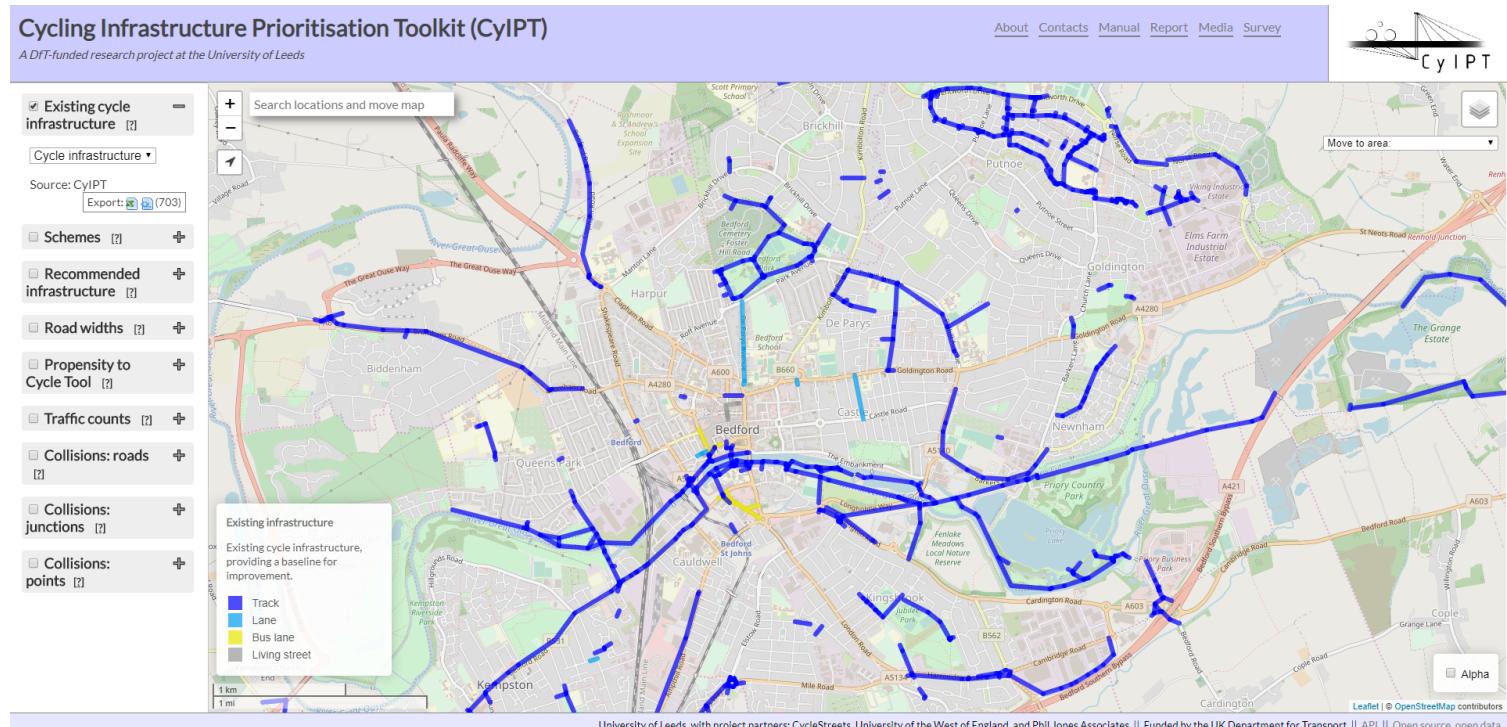
Leaflet | Tiles © Esri — Esri, DeLorme, NAVTEQ

Route busyness



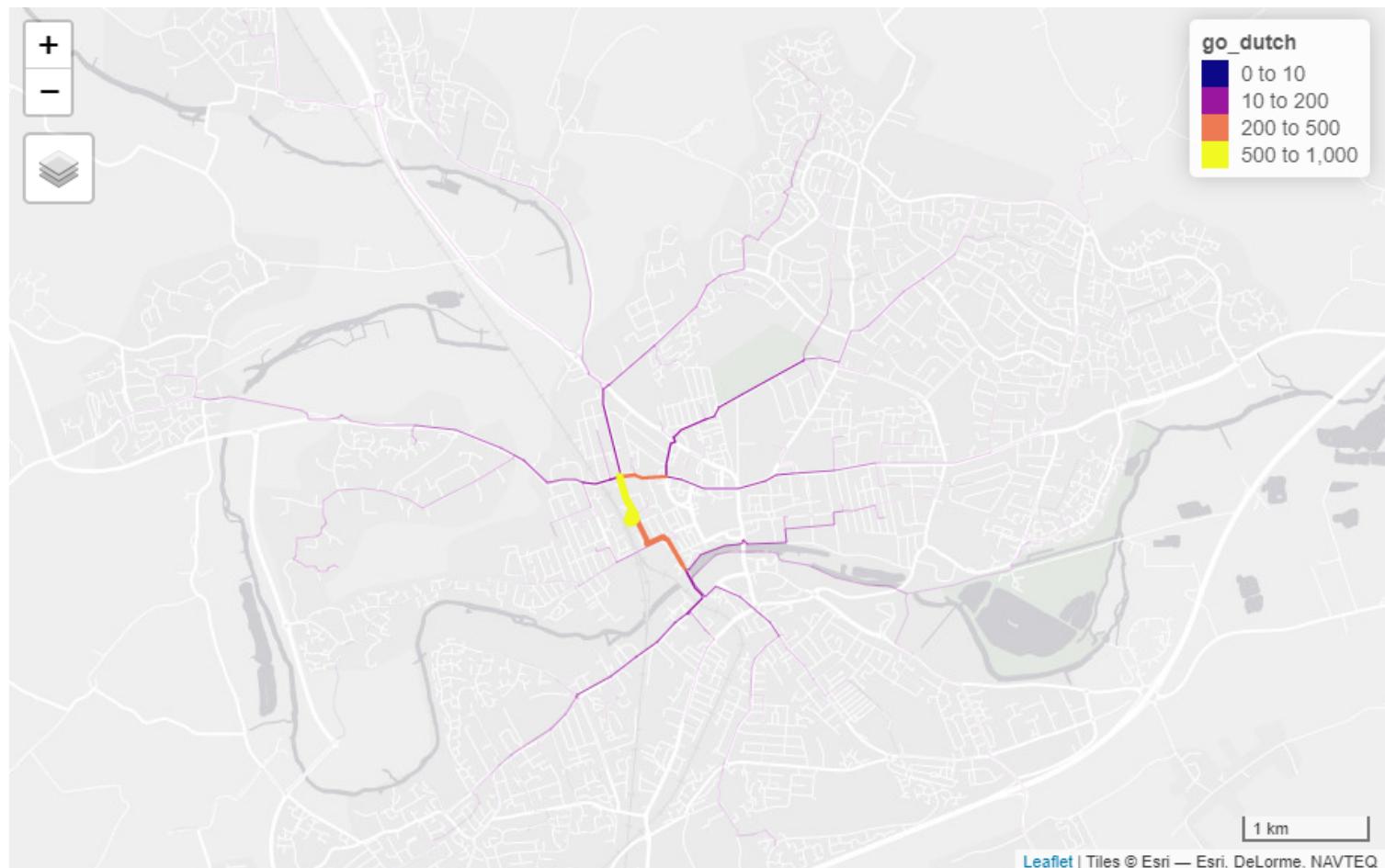
- There may be particular route segments or dangerous junctions that act as barriers preventing cycling

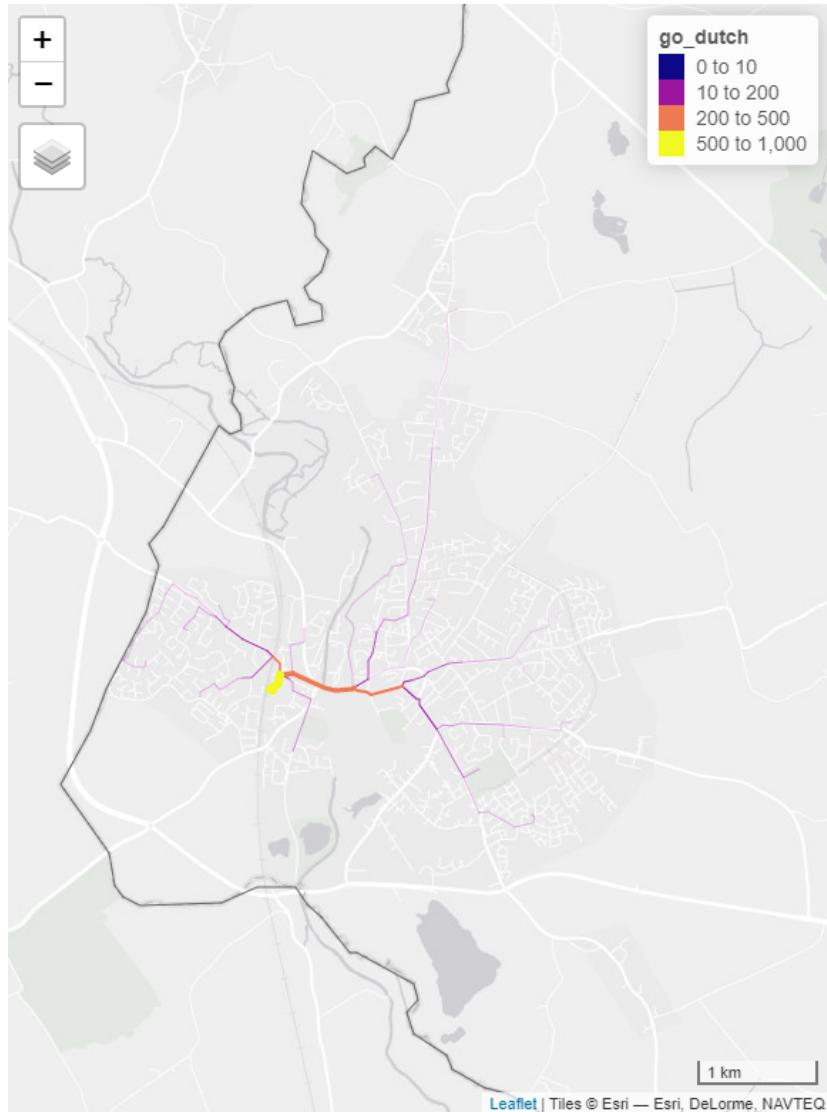
Phase 2 suggestions: Bedford



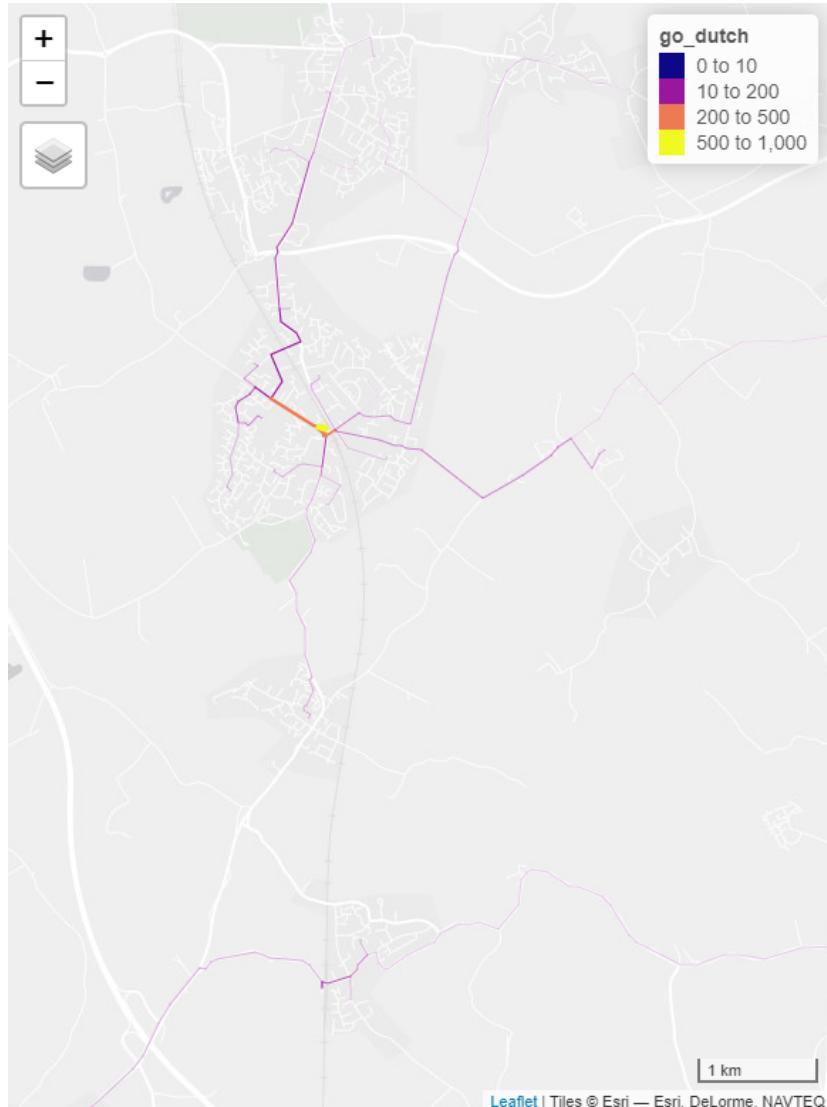
- Bedford appears to have fairly extensive cycle infrastructure, but not in the immediate station vicinity
- Develop routes from the station entrance to enable links southwards across the River Great Ouse, eastwards through the town centre, and north to link to existing cycle provision

Phase 2 suggestions: Bedford





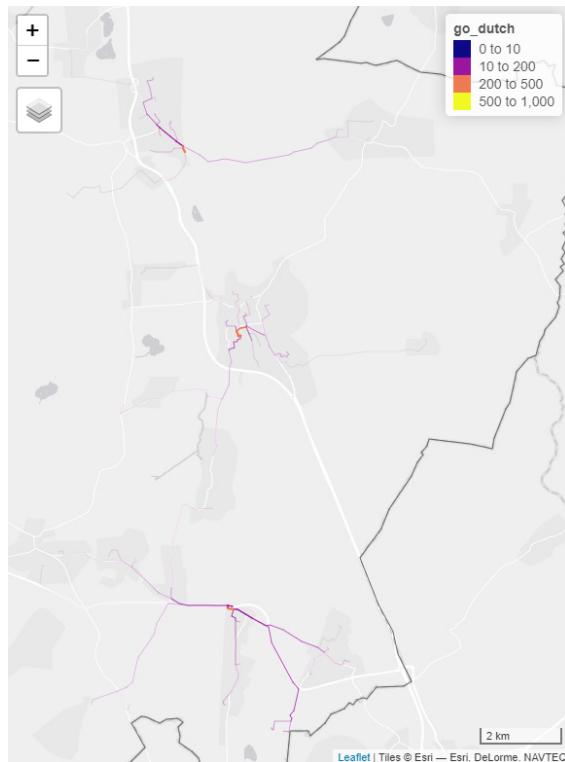
Phase 2 suggestions: Leighton Buzzard



Flitwick and Harlington

Phase 2 suggestions: Central Bedfordshire

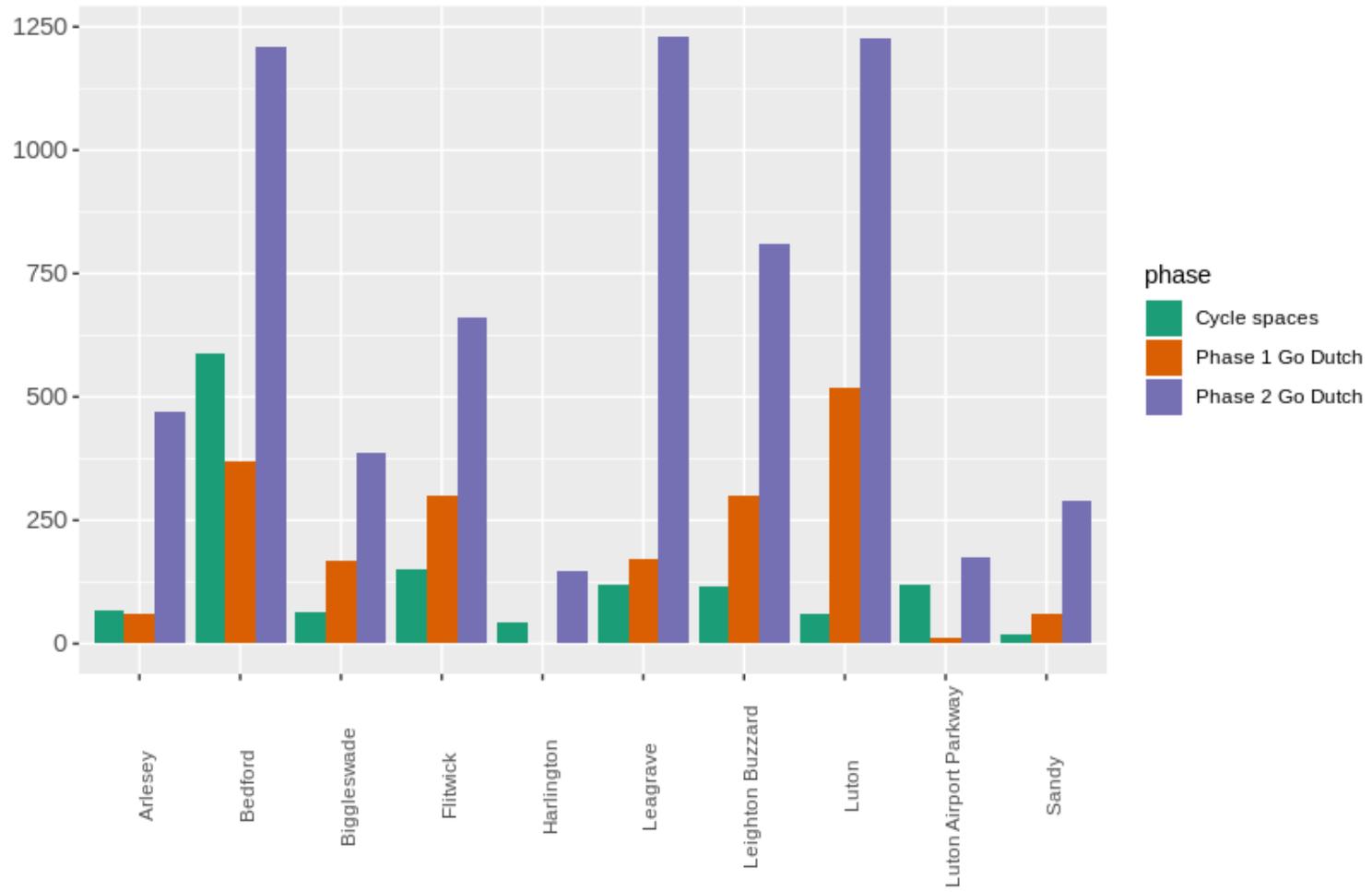
Arlesey, Biggleswade and Sandy



Central Bedfordshire suggestions

- route between Leighton Buzzard station and the town centre
- route between Ampthill and Flitwick
- routes from Arlesey station to nearby towns and villages
- the B1042 between Potton and Sandy

How many cycle spaces do we need?



Potential future work



- Combine with cycling potential for other trip purposes, to create integrated cycle potential layer
- Overlay with commuter and educational trip potential
- Estimate travel-to-station levels for non commute trips
- Account for multiple station entrances
- Use local survey data
- Assess specific interventions
- Training / workshop
- Either improve the existing methods to better represent certain journey types (E.g. travel to Bedfordshire), or develop a Phase 3 method that directly models cycle-rail journeys.

Our Recommendations

- All mainline Bedfordshire stations could see substantial increases in cycle commuting; Luton, Leagrave and Bedford stations could all see >1200 cycle commuters per day
- Luton station is especially under-used by cyclists at present, and there is also a particular need to reduce air pollution here
- Bedford, Leagrave and Leighton Buzzard could all benefit from safe cycle routes in the immediate vicinity of the stations
- Use these results to guide future surveys, and examine monitoring programme outputs to identify barriers that may prevent cycling in certain areas
- Consider investing in cycle routes to stations as part of a wider network of routes that are convenient, high-quality and safe for all to use
- Consider investing in improved cycle facilities at stations

Thanks + further info

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For more on the PCT, see www.pct.bike

www.cyipt.bike for the Cycling Infrastructure Prioritisation Toolkit (CyIPT)