

## Nicolas Palominos

Researcher in Urban Morphology and Geospatial Data Science

*Interested in the potential of urban data for the creative and strategic spatial analysis of urban systems to inform urban design and city planning.*

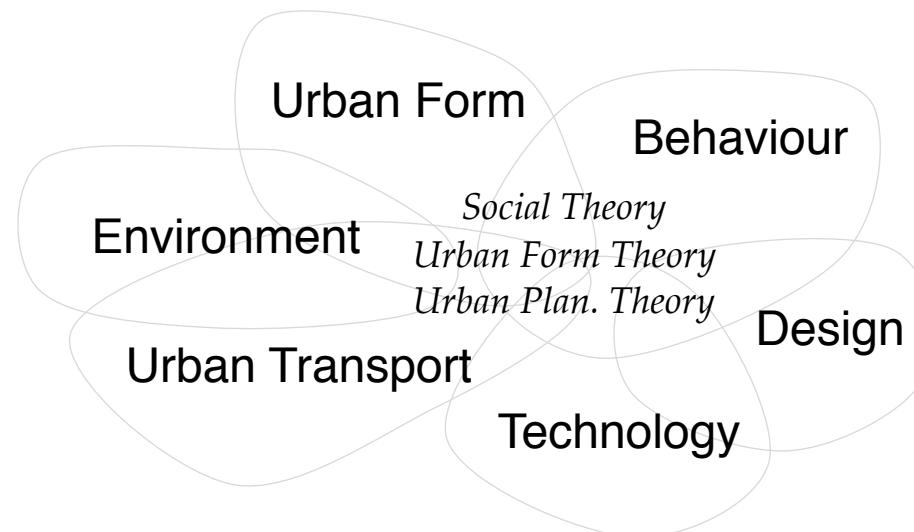
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Rethinking Streets: a study of streetspace allocation metrics and street networks in London

(PhD thesis submitted Oct '20)

## Urban Analytics

- *Quantitative*
- *Computational*
- *Visual*
- *Design*



*(Batty, 2018; Tonkiss, 2015; Lynch, 1984)*

“Quantifying and Mapping Streetspace: a Geocomputational Method for the Citywide Analysis of Pedestrian and Vehicular Streetspace”

(PhD Thesis Chapter and Working Paper)

<https://www.ucl.ac.uk/bartlett/casa/publications/2019/sep/casa-working-paper-212>

“Identifying and Characterising Active Travel Corridors for London in Response to Covid-19 Using Shortest Path and Streetspace Analysis”

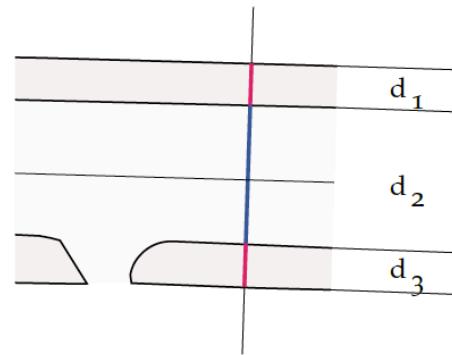
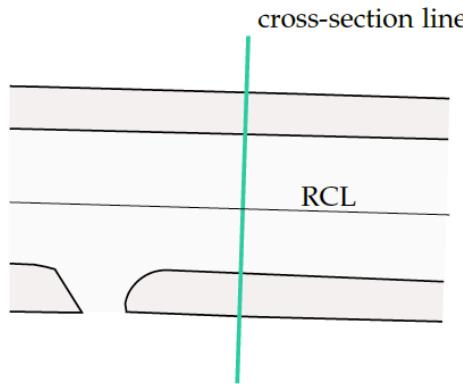
(PhD Thesis Chapter and Working Paper)

<https://www.ucl.ac.uk/bartlett/casa/publications/2020/may/casa-working-paper-222>

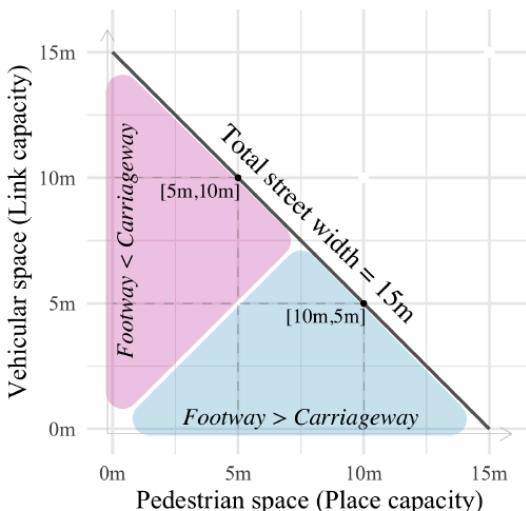
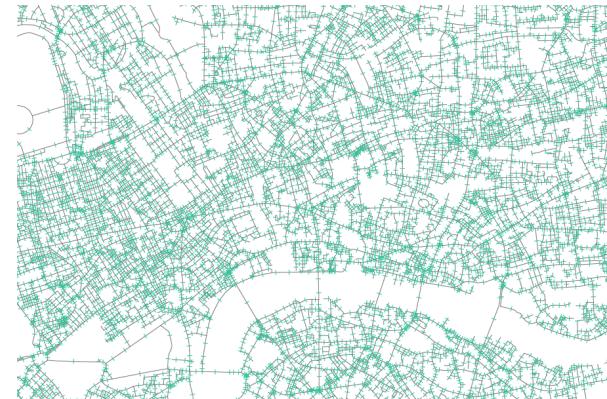
Rethinking Streets: A Study of Streetspace Allocation Metrics and Street Networks in London

(PhD Thesis submitted Oct '20)

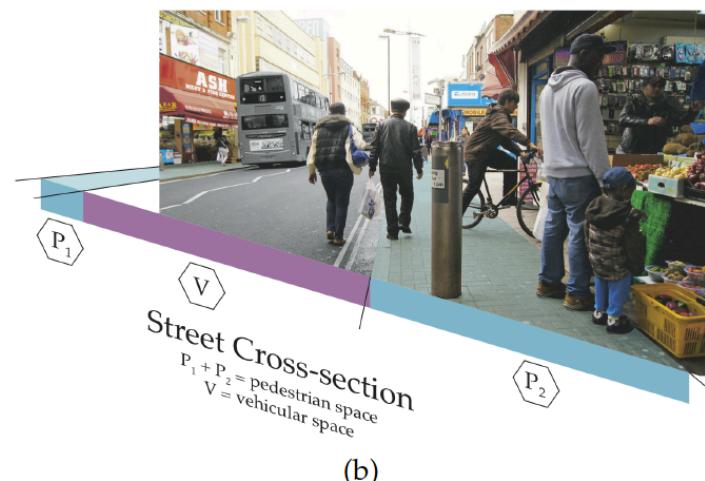
## Street environment topographic data



## Drawing cross-section programmatically



(a)



(b)

Figure 1.8: (a) Share of Streetspace diagram based on Jones et al., 2008, (b) schematic cross-section

Figure 1.0 Functional Street Type matrix



Street Types (TfL)  
Street Management and  
Urban Design

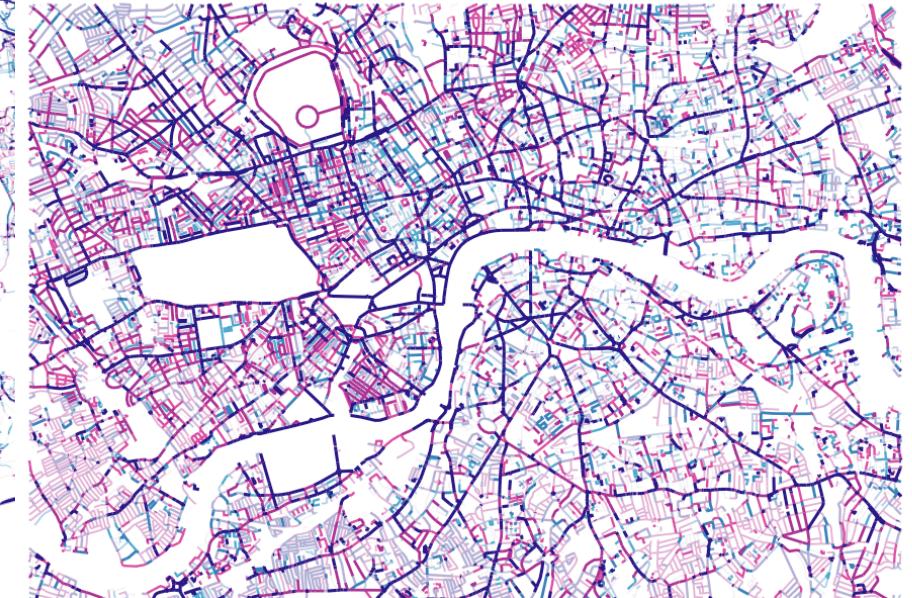
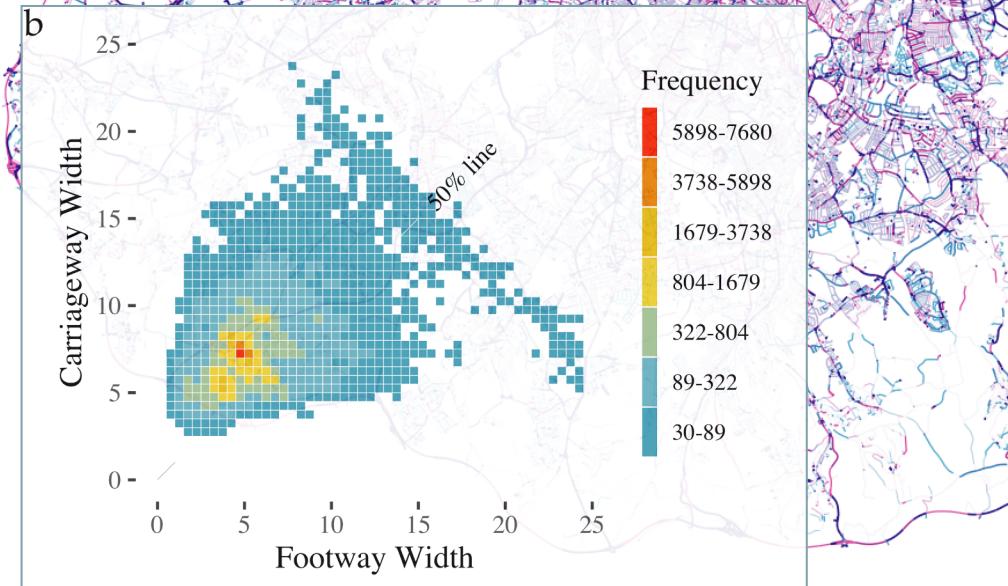
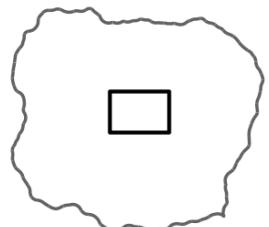
# STREETSPACE ALLOCATION DESCRIPTIVE MODEL



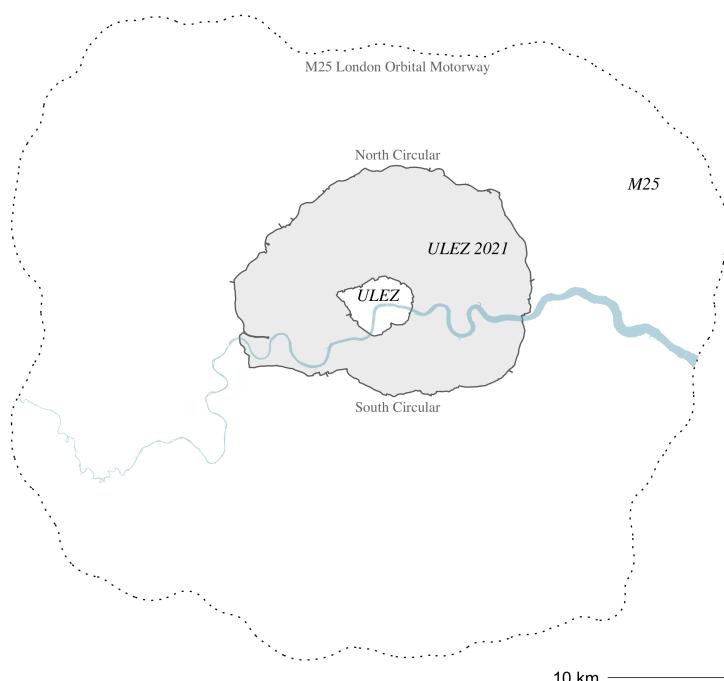
Vehicular space



Pedestrian space

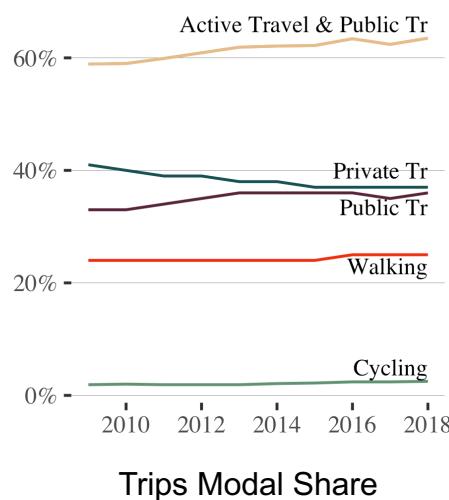


# INNER LONDON MICRO-MOBILITY NETWORK

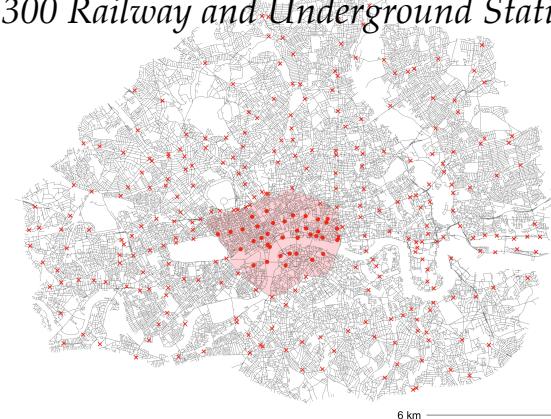


Total street length  
CCZ 2009 = 370 km  
ULEZ 2003 = 370 km  
ULEZ 2021 = 4440 km

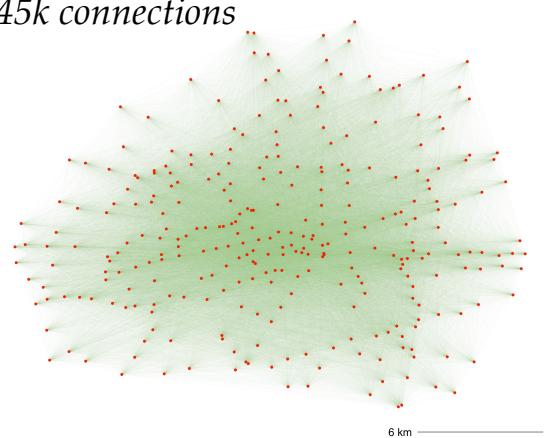
By 2041, 80% of trips are on foot, cycle or public transport.  
(*Mayor Transport Strategy, 2019*)



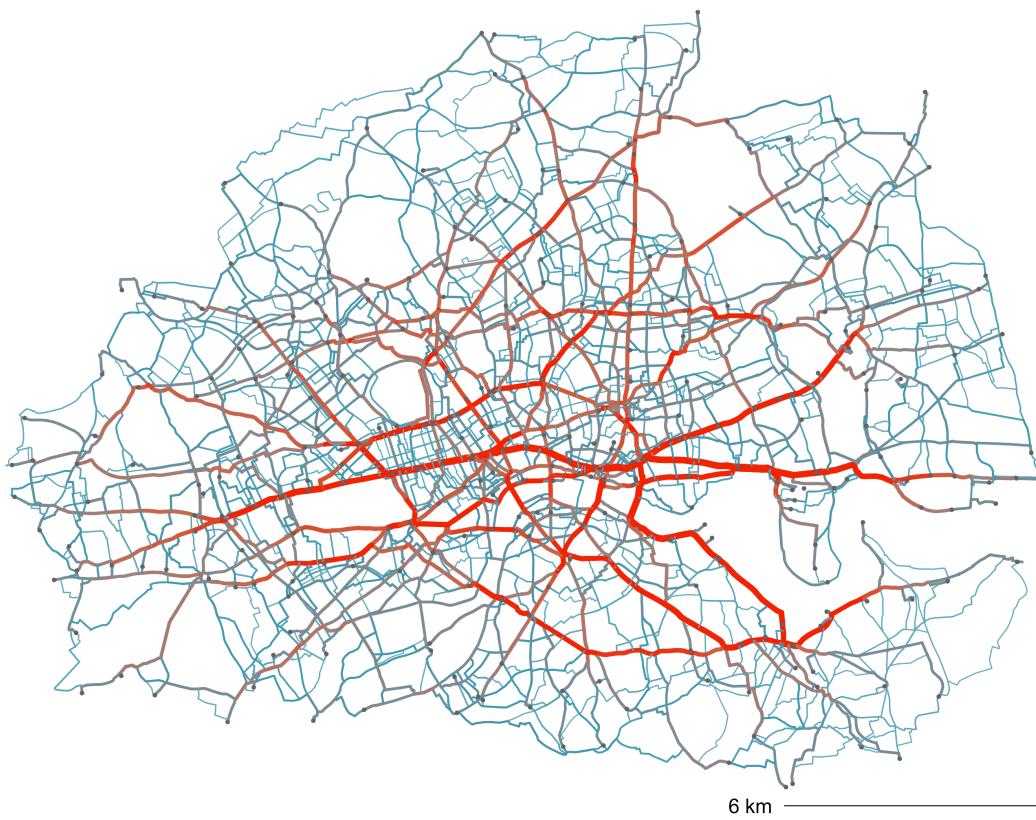
~ 300 Railway and Underground Stations



~ 45k connections



"Transit oriented development (TOD) proposes to organize settlements around transit nodes as centers of urban life ... "  
(Ibraeva, 2020)

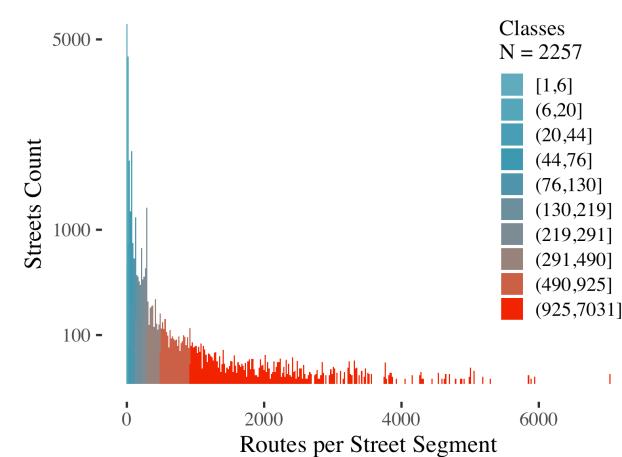


### Transport flow

Critical Streets

Rank

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10



	Km	Perc
Total ULEZ 2021	4784	100
Network	1434	30

Table 4: ULEZ 2021 and Network total street length

To investigate the potential streetspace re-allocations needed to create a micro-mobility network in inner London which prioritises space for active travel and public transport.

*Which street segments/pathways should be prioritised for intervention?*

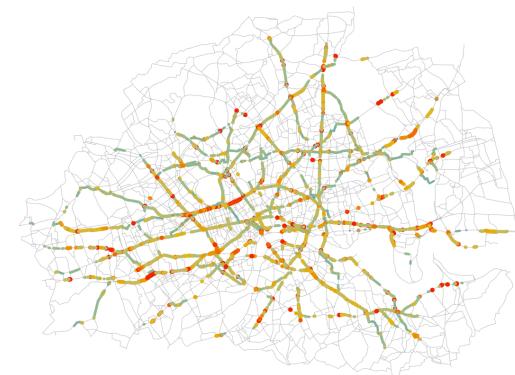
# EXISTING CYCLING INFRASTRUCTURE



i

## Cycle lane type

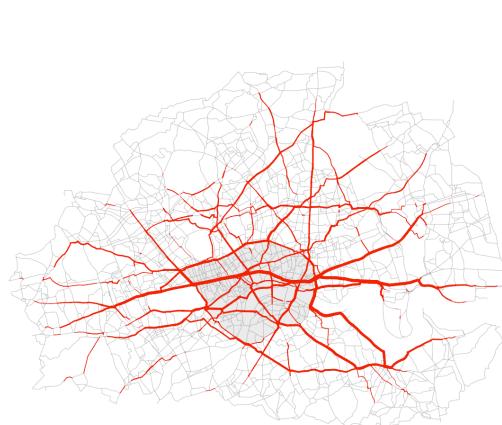
- Physically segregated (a)
- Signs and markings (b)
- Mixed (incl. a)
- Mixed (excl. a)
- Shared on carriageway. No priority (c)



iii

## Total width

- 10
- 20
- 30
- 40
- 50



ii

## Carrying load (transport flow)

- Highest 20%

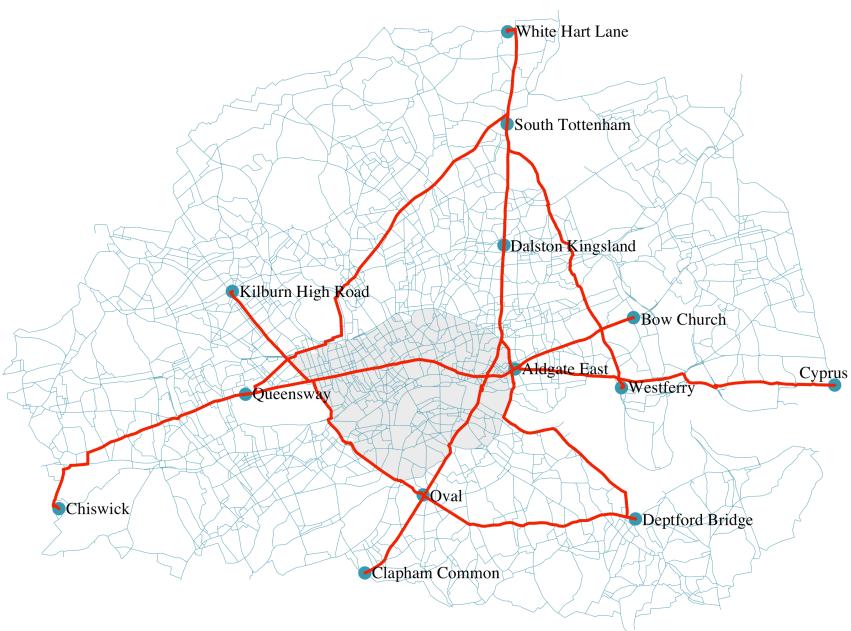
	Physically segregated (a)	Signs and markings (b)	Mixed (incl. a)	Mixed (excl. a)	Shared on carriageway. No priority (c)	Total length
Cycle lanes (km)	85.60	177.70	47.10	33.30	117.20	460.90
pc	0.19	0.39	0.10	0.07	0.25	1.00

Carrying load (transport flow)	Total length
	261.3

total width breaks (m)	(0,10]	(10,20]	(20,30]	(30,40]	(40,50]	Total length
Missing connections (km)	2.5	76.3	68.0	31.5	5.7	184.0
pc	0.01	0.41	0.37	0.17	0.03	1.00

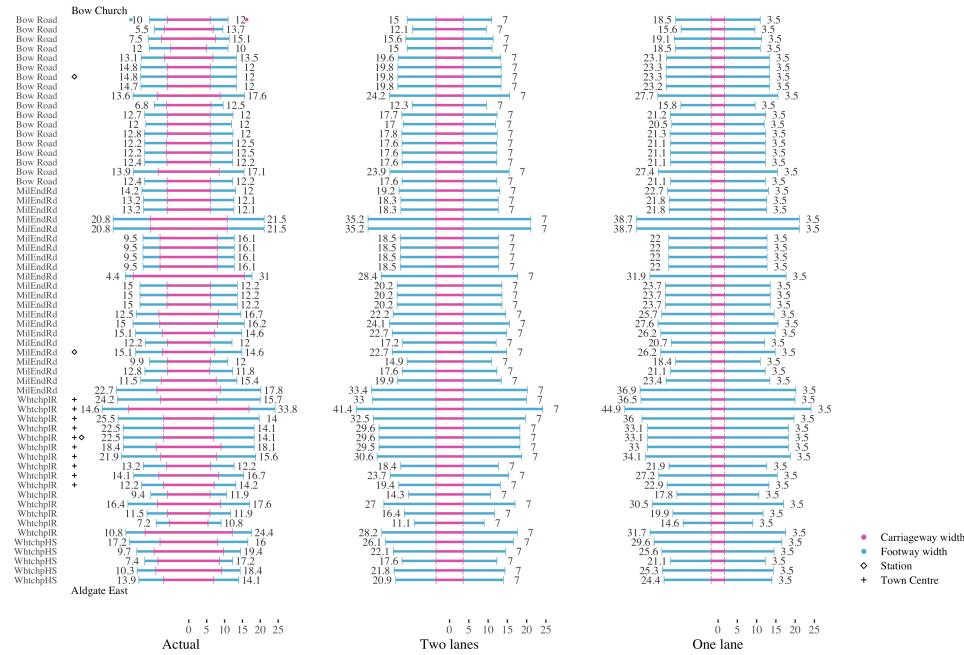
Table 3: Summary of Figure 6

# 8 PATHWAYS MINIMUM NETWORK



Total street length  
8 pathways = 96 km  
Network = 1434 km  
ULEZ 2021 = 4784 km

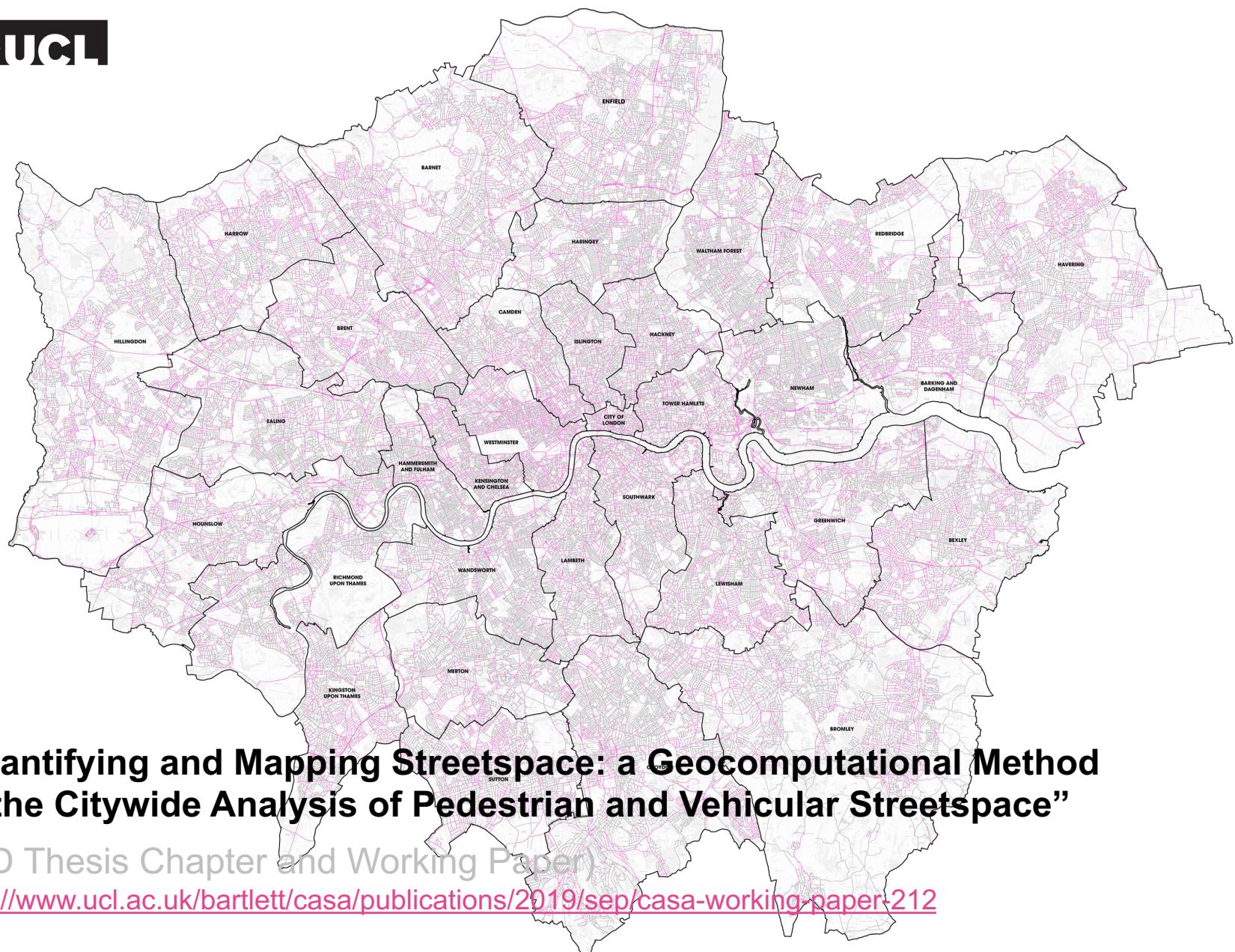
38% of total carrying load (total flows)



Pathway	Actual total app. area (sqm)		Two lanes			One lane				
	Footway (fo)	Carriageway (ca)	fo	var	ca	var	fo	var	ca	var
Ald_Bow	55160	55829	84008	0.52	26981	-0.52	97498	0.77	13490	-0.76
Cla_Whi	184071	266856	325389	0.77	125538	-0.53	388158	1.11	62769	-0.76
Ova_Dep	58183	89514	100829	0.73	46868	-0.48	124263	1.14	23434	-0.74
Chi_Cyp	264531	366850	451512	0.71	179868	-0.51	541447	1.05	89934	-0.75
Kil_Ova	89563	143317	170651	0.91	62228	-0.57	201766	1.25	31114	-0.78
Que_Sou	116806	171064	198263	0.70	89607	-0.48	243066	1.08	44804	-0.74
Wes_Sou	77411	125812	138954	0.80	64269	-0.49	171088	1.21	32134	-0.74
Dep_Dal	99214	145390	168361	0.70	76244	-0.48	206483	1.08	38122	-0.74
Mean	118117	170579	204746	0.73	83950	-0.51	246721	1.09	41975	-0.75

Table 8: Summary of pathways two lane and one lane scenarios

7m Carriageways = +73% pedestrian/active travel space, -51% veh. space  
3.5m Carriageways = +109% pedestrian/active travel space, -75% veh. space



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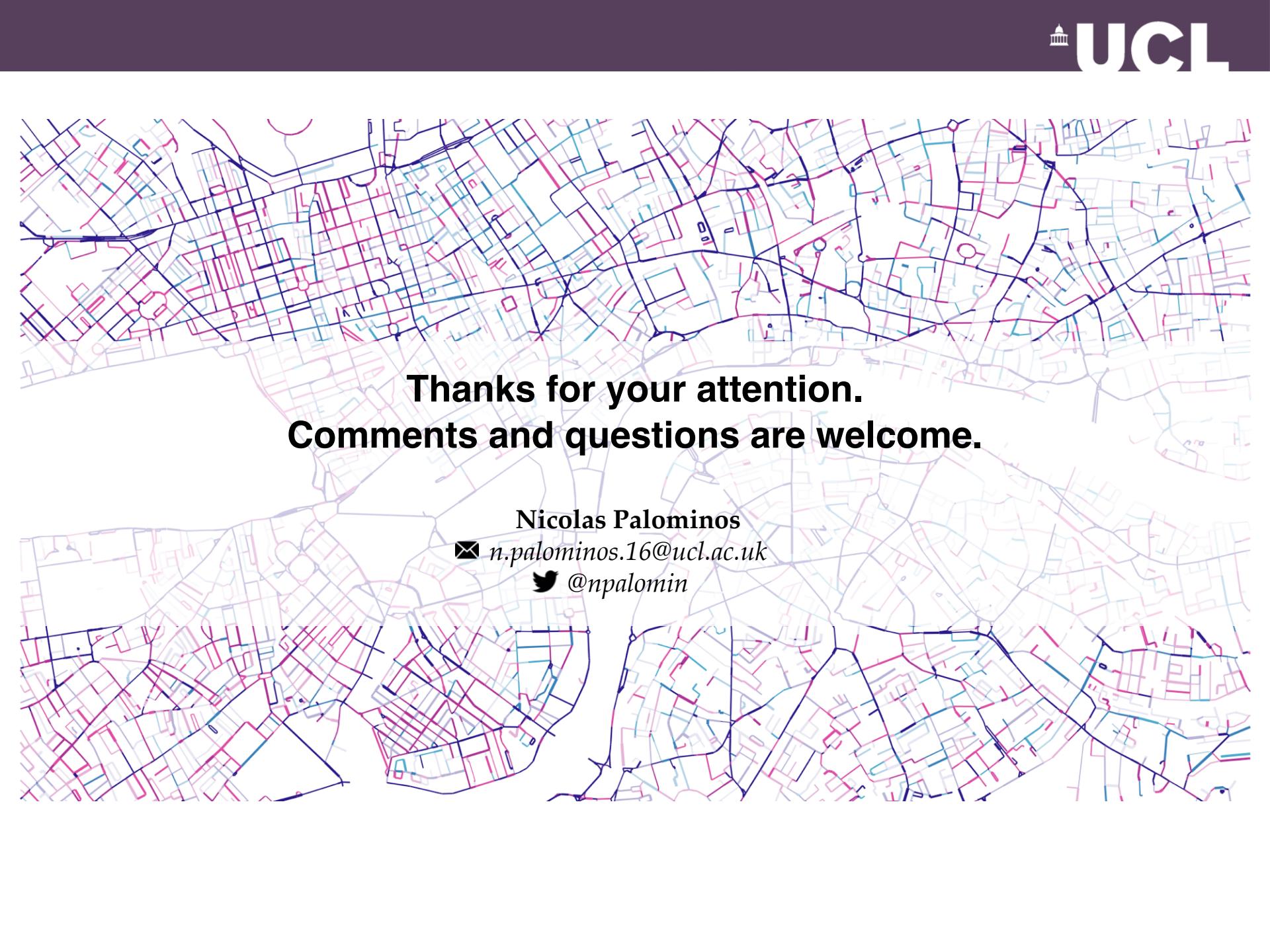
<https://www.ucl.ac.uk/bartlett/casa/publications/2019/sep/casa-working-paper-212>

### Street space for social distancing

This map shows all the **streets** in London where there are 6 metres or more total non-road space. These streets on average have enough space on both sides for people walking to stay 2 metres apart.

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**STREETS**  
underscoresstreets.com



**Thanks for your attention.  
Comments and questions are welcome.**

Nicolas Palominos

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