forest

VERRA validated

Certified B Corporation

Modal Shift Numbers

Used Forest figures which fed into a wider CoMo UK report from 2023, London, based on a per journey basis

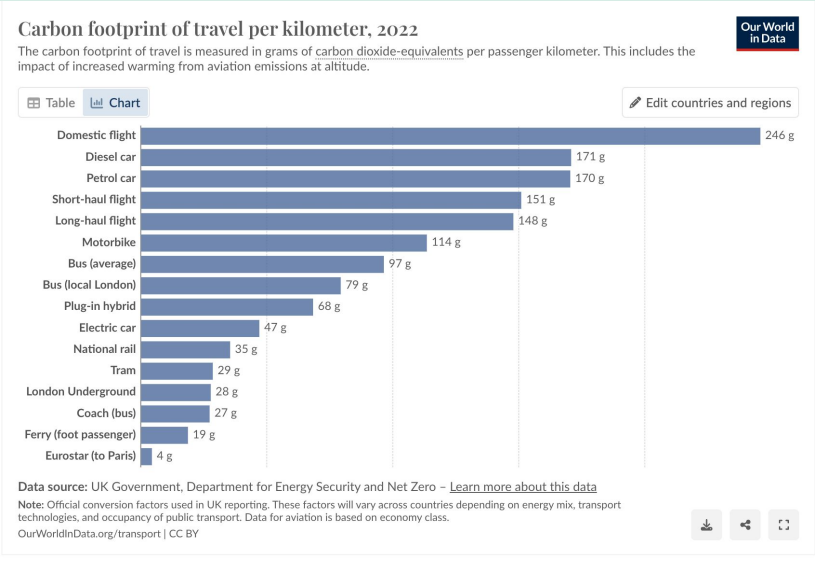
If Forest bikes weren't available, users would have used:

- 41% by underground, rail or tram
- 23% by bus
- 11% by foot
- 7% by train
- 7% by their own car as the driver
- 4% by taxi
- 3% by their own bike

Use Average CO2 emissions, all modes

Used [open source data] to understand every mode's DIRECT (non-lifecycle) emissions

This is based on per passenger numbers, and sense checked against the other sources also included below



Source	https://ourworldindata.org/travel-carbon-footprint
Mode	**C02e g per km per passenger**
Bus (London)	79
London Underground	28
National Rail	35
Petrol car	170
Diesel car	171
PHEV	68
Fully Electric	47

Other Sources for sense checking

https://www.greenmatch.co.uk/blog/uk-transport-co2

https://www.gov.uk/government/statistics/transport-and-environment-statistics-2022/transport-and-environment-statistics-2022

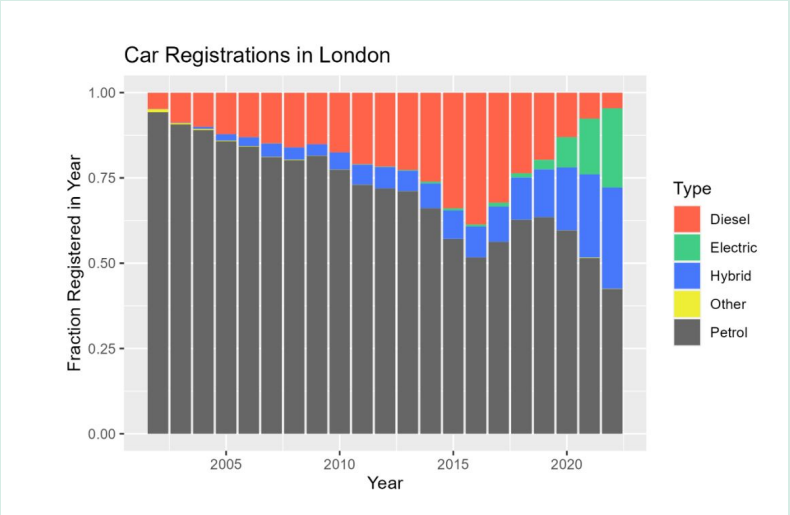
https://docs.google.com/spreadsheets/d/1yOz3ym09k3tFJVX9mHVsUyMnZ4HsfPK351xYyqT7Meg/edit#gid=0

Calculating the mix of emissions for private cars

Understanding the mix between different fuel types is important for cars.

For this we used, again, recent (2023) open source data to understand the average mix of cars in London and then took a weighted average of the emissions based on slide 3.

Mode	% of cars types in London	CO2e g per passenger per km	Average journey CO2e
Petrol	37.64%	170	103.1192
Diesel	4.08%	171	
Hybrid	22.68%	68	
Fully Electric	35.60%	47	



Calculating the mix of emissions for taxis & PHVs

Again, understanding the mix between different fuel types is important for taxis and private hire vehicles. PHV fuel mix turned out to be much harder to find, with none of the ride hailing companies having this information available so we decided to use the average car mix instead

We used open source data to understand the percentage mix in London between PHVs and taxis. And we used open source data to understand the taxi fuel mix in London.

Mode	% of black cabs in London	CO2e g per km*	Weighted Average
Petrol	0	170	102.056
Diesel	0.444	171	
Hybrid	0	68	
Fully Electric	0.556	47	

*Using same CO2e figures as cars

Proportion London taxis PHV v taxis	Numbers	%	Co2e g per passenger per km	Weighted Av all taxis & PHVs
PHV	80,500	84.65%	103.1192	102.9559748
Taxis	14,600	15.35%	102.056	
Total	95,100			

	London - March 2022 (thousands)	London - percentage change from March 2021	England outside London - March 2022 (thousands)	England outside London - percentage change from March 2021	England - March 2022 (thousands)
Total licensed vehicles	95.1	5%	165.5	3%	260.7
Taxis	14.6	9%	43.4	-3%	58.0
Wheelchair accessible taxis	14.6	9%	17.3	-5%	31.9
Private hire vehicles (PHVs)	80.5	4%	122.2	6%	202.7

Aggregating the data

Having found CO2e g per passenger per km for each different mode, we then found a weighted average of the CO2e in g per km per passenger for if a user hadn't ridden on a Forest shared e-bike: **45.3 g per km per passenger**

	Percentages taken by other modes	CO2e g per passenger per km	Weighted Average of the CO2e g per km from an alternative mode
Underground	41%	28	45.24644062
Bus	23%	79	
Foot	11%	0	
Train	7%	35	
Own car	7%	103.1192	
Taxi*	4%	102.9559748	
Bike	3%	0	

On average, a Forest rider avoids emitting 45 CO2e per km travelled