

Measuring GHG emission reductions from land transport

City logistics – cargo bikes

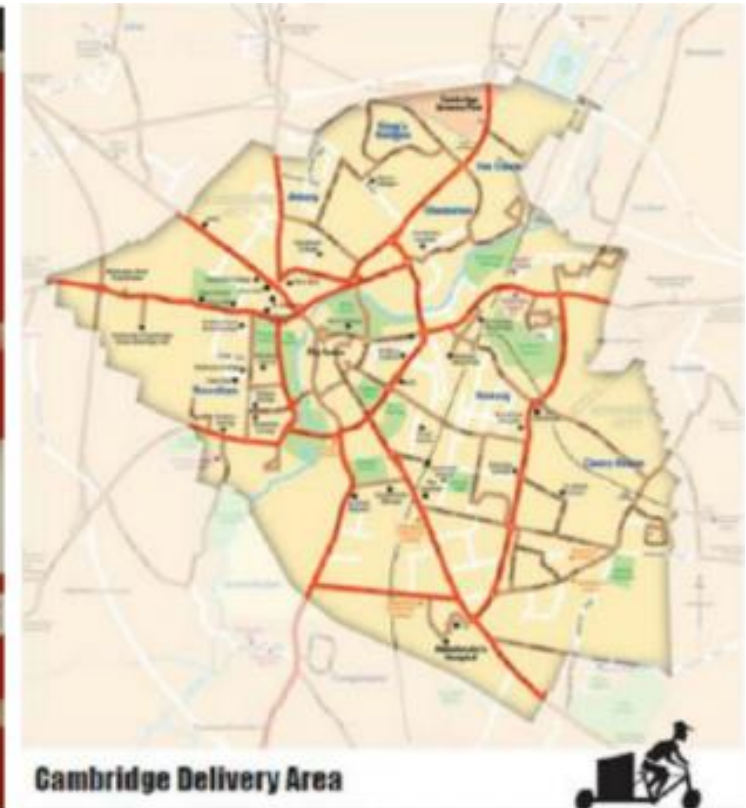
Amber Carran-Fletcher, MRCagney



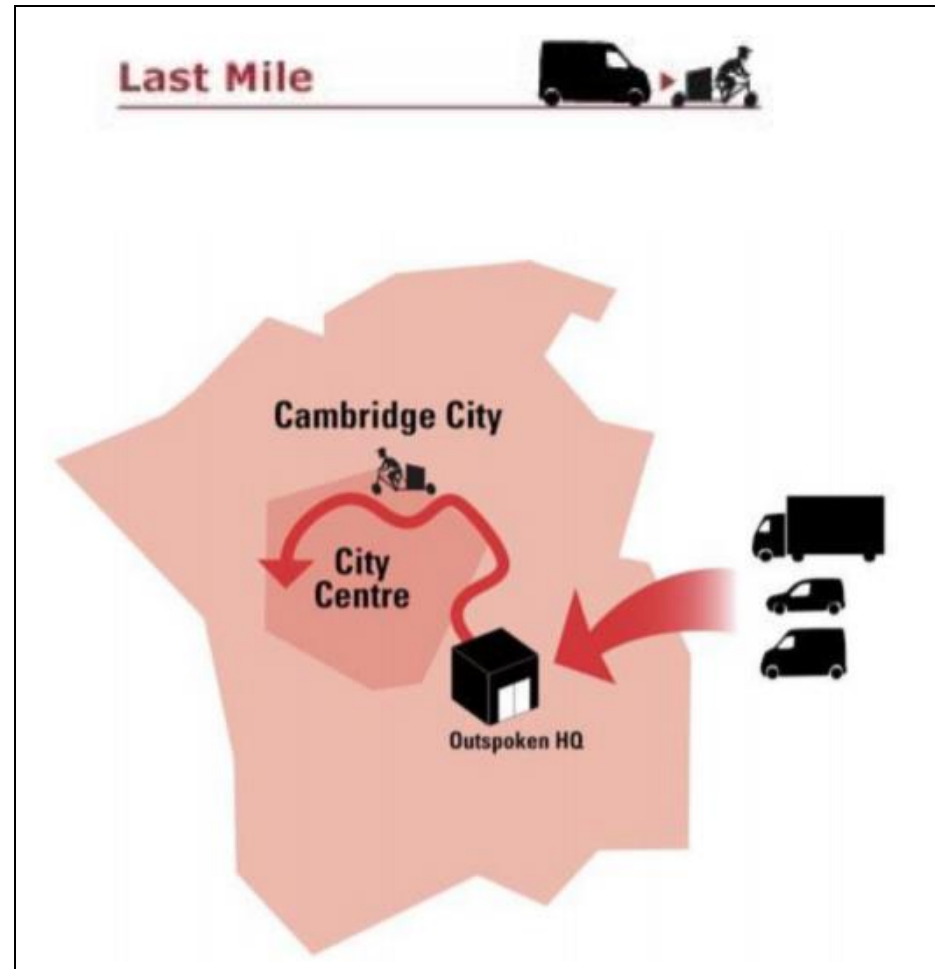
Cambridge, Nuremburg, Brussels



Cambridge, UK



Cambridge, UK



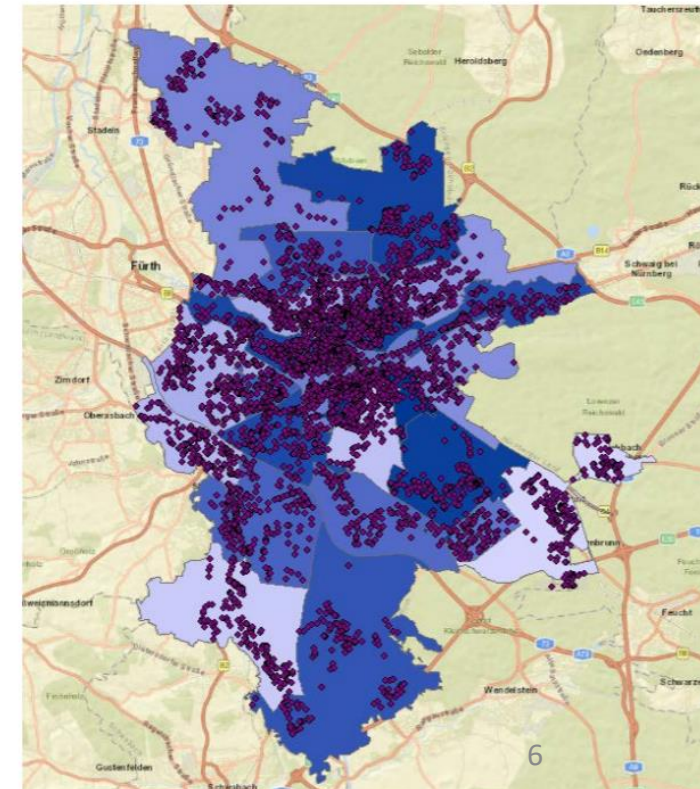
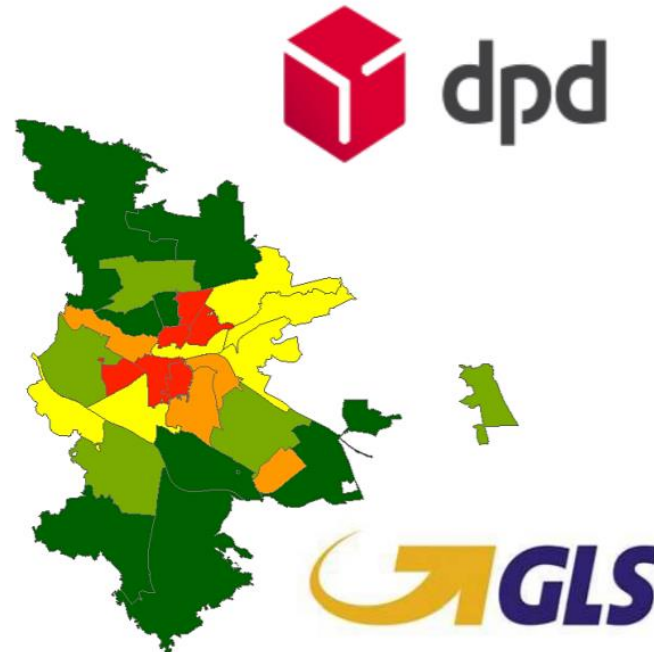
Cambridge, UK

- 2014 couriers cycled 100,000km
- Avoided 45 tonnes of CO2
- Inclusionary public sector procurement



Nuremburg, Germany

Project stage	Cargo bikes (#)	Standard truck (#)
So far		10 trucks
Pilot phase	5 bikes	6 trucks
Maximum capacity	8 bikes	3 trucks



Nuremburg, Germany

- Pilot phase avoided:
 - 65kg NO_x
 - 8kg PM₁₀
 - 56 tonnes CO₂



Brussels, Belgium

- Mobile depot with cargo bikes for first mile/last mile deliveries
- STRAIGHTSOL (Strategies and measures for smarter urban freight solutions)



Brussels, Belgium



STREAM – representative emission factors per mode

Mode	Vehicle/Vessel	Type of freight	CO ₂ (g/tkm) (WTW)	PM _c (g/tkm) (TTW)	NO _x (g/tkm) (TTW)
Road	Large van	Med.-weight	1,153	0.148	5.03
	Truck, medium-size	Med.-weight	259	0.017	1.75
	Tractor-semitrailer	Med.-weight	82	0.003	0.29
Rail	Electric, medium-length*	Heavy	10	0	0
	Diesel, medium-length*	Heavy	18	0.005	0.19
Inland shipping	Rhine-Herne canal (RHC) vessel	Heavy	38	0.017	0.46
	Large Rhine vessel	Heavy	21	0.008	0.23
Short-sea	General Cargo 10-20 dwkt	Heavy	15	0.005	0.25

Brussels, Belgium

- Less space required for deliveries
- Positive survey results from employees and public



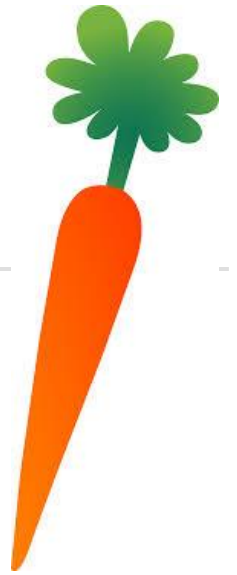
	Business As Usual	Mobile Depot	Impact MD
CO ₂ (g/vkm)	340	258,5	-23,97%
SO ₂ (mg/vkm)	2,6	1,97	-24,23%
NO _x (g/vkm)	1,25	1,85	+ 47,78%
PM _{2,5} (mg/vkm)	145	59,73	-58,81%
PM ₁₀ (mg/vkm)	30,5	23,77	-22,07%

Policy levers

- Low emissions zones
- Vehicle size and weight restrictions
- Congestion charges
- Parking restrictions
- Time restrictions



- Coordinated pro-cycling policies
- Cycling infrastructure
- Micro-consolidation centres
- Cycle logistics friendly tenders

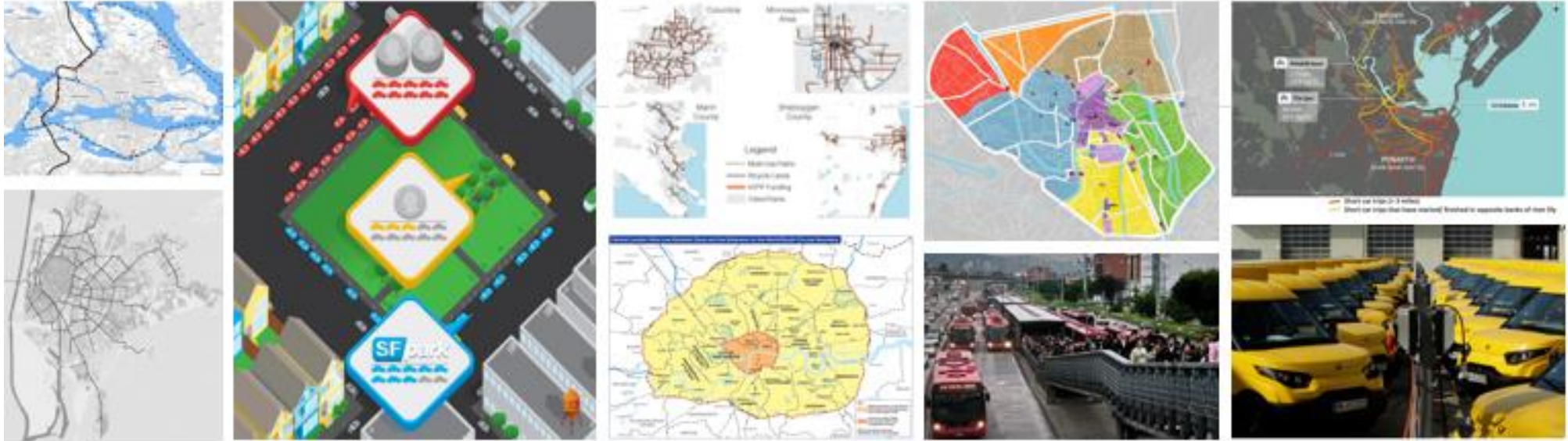


Relevance to New Zealand

- E-bike power regulations
- Infrastructure design
- Procurement



16 Case Studies



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