

Emission Impossible? Measuring transport's GHG impacts

Amber Carran-Fletcher & Lewis
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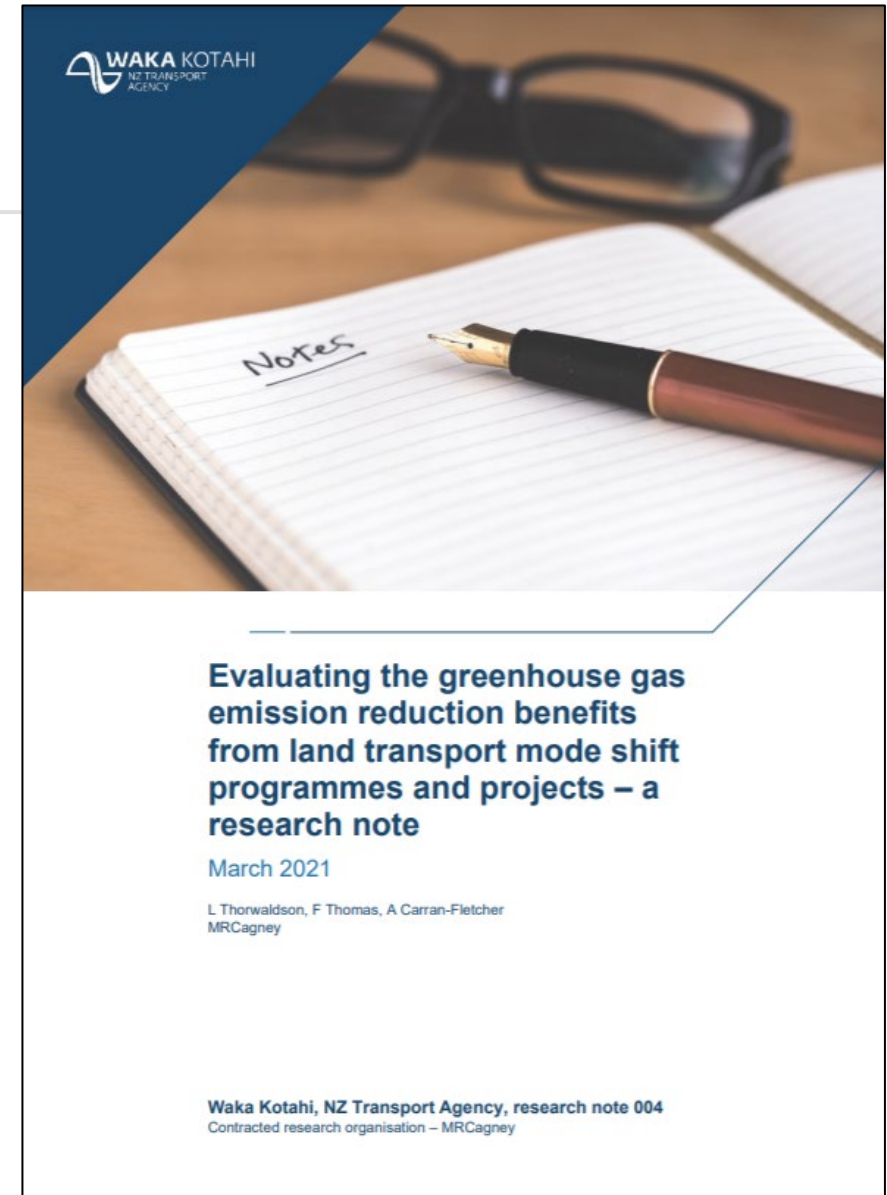
Transport Group Conference
May 2021



BETTER TRANSPORT • BETTER PLACES • BETTER CHOICES

Introduction

- Our research approach
- Case study highlights
- Relevance to New Zealand



Approach

Part 1: Are
reductions
being
measured?

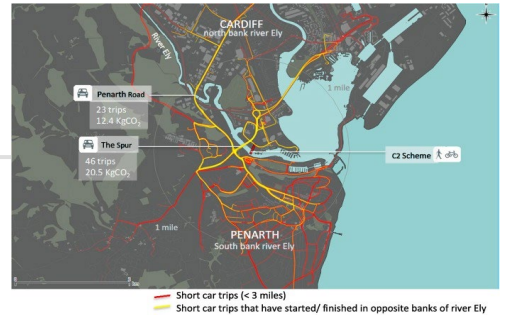
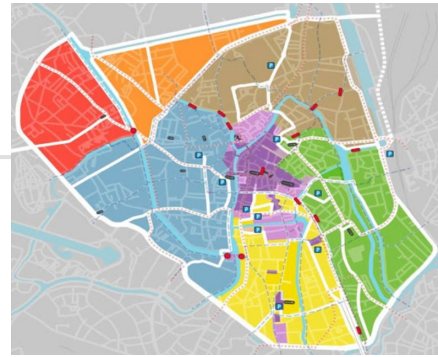
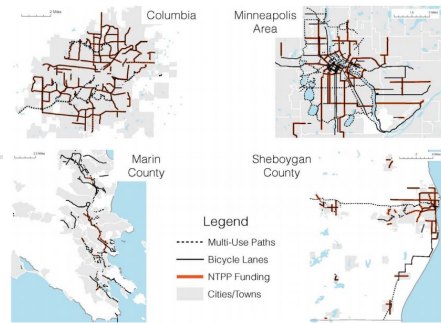
Approach

Part 1: Are
reductions being
measured?

YES!

(but VKT is the key)

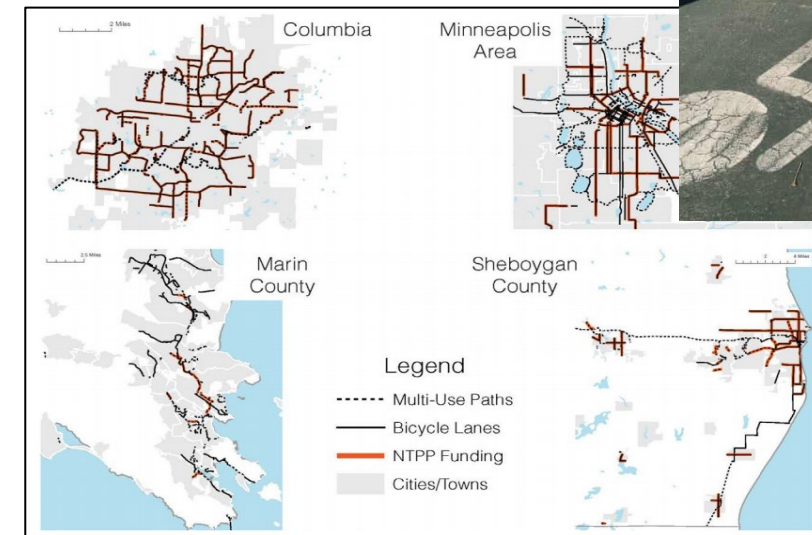
Part 2:
What are
the results?



16 Case Studies

Investment Types:

- Bus Rapid Transit
- Integrated transport and landuse Planning
- Transit Oriented Development
- Congestion Pricing
- Rapid cycle network rollout
- Demand responsive parking
- Parking cash out
- Urban logistics
- Walking and cycling programmes
- Commute Trip Reduction programmes



Key findings



- Varied measurement methods

Key findings



- Varied measurement methods



- Many interrelated factors affecting outcomes

Key findings



- Varied measurement methods



- Many of the case studies come from the United States



- Many interrelated factors affecting outcomes

Key findings



- Varied measurement methods



- Many of the case studies come from the United States



- Many interrelated factors affecting outcomes



- No New Zealand or Australian case studies

Case Studies

- What was the project?
- How did they measure emissions reductions?
- How can this inform New Zealand's decarbonization efforts?

Boulder, Colorado

1996: No long-term growth in vehicle travel over 1994 levels

- Public transport (bus)
 - Increased frequencies and services
- Active mode
 - Cycle facilities on 95% of arterial streets
- Parking management
 - Reducing drive alone rates



Boulder, Colorado - EcoPass

- Annual transit pass - unlimited rides on local and regional services
- Bulk discount only available through
 - employers
 - university
 - neighbourhoods



Measurement Methodolog

Modal Shift in the Boulder Valley

January 2019 1990 to 2018

Prepared for the
City of Boulder
Transportation Division

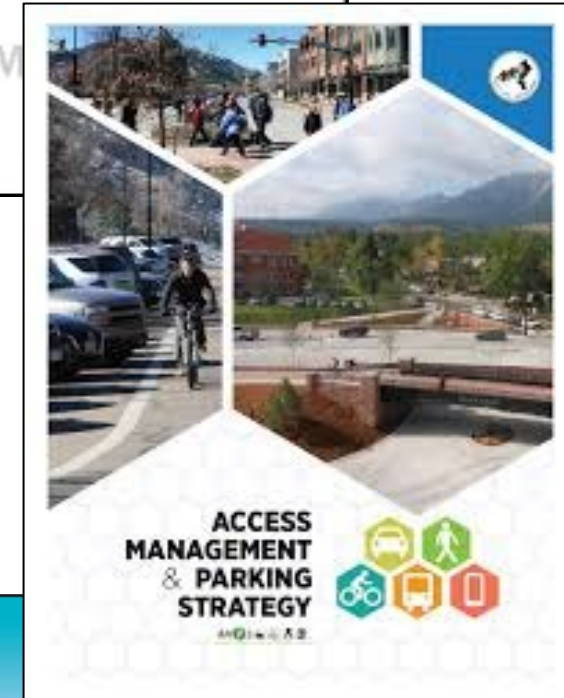
National Research Center, Inc.
2955 Valmont Road, Suite 300
Boulder, CO 80301
(303) 444-7863
www.n-r-c.com

Boulder, Colorado - outcomes

- Returned VMT to 1994 levels by 2009
- By 2016 GHG emissions estimated to be 30% lower than without interventions
- 19% reduction in annual VMT per capita 1990 -2018
- EcoPass holders demonstrated comparatively 40-55% fewer emissions

Relevance to New Zealand

- Bulk public transport passes
 - Universities
 - Employers
 - Neighbourhoods
- Strong target setting and monitoring programmes
 - Measuring VKT
 - “If you don’t count it, it doesn’t count”



Cargo bikes for urban logistics

Cambridge, UK



Nuremburg,
Germany



Brussels, Belgium



Cambridge, UK

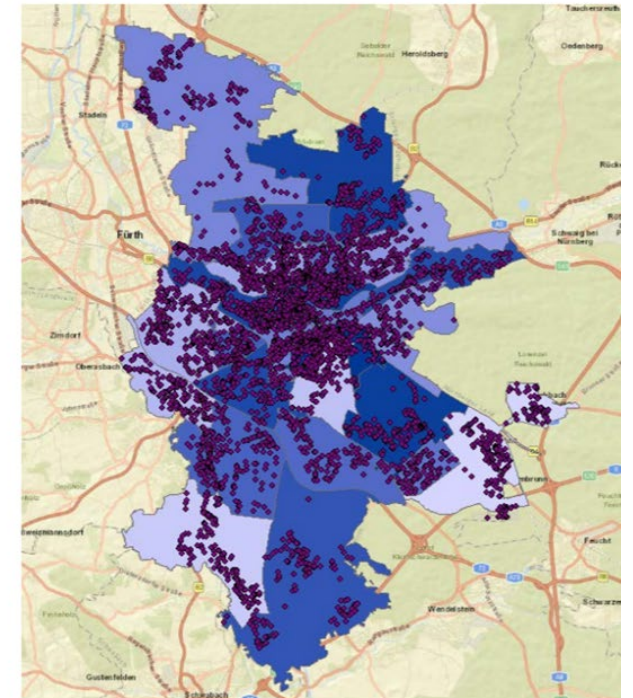
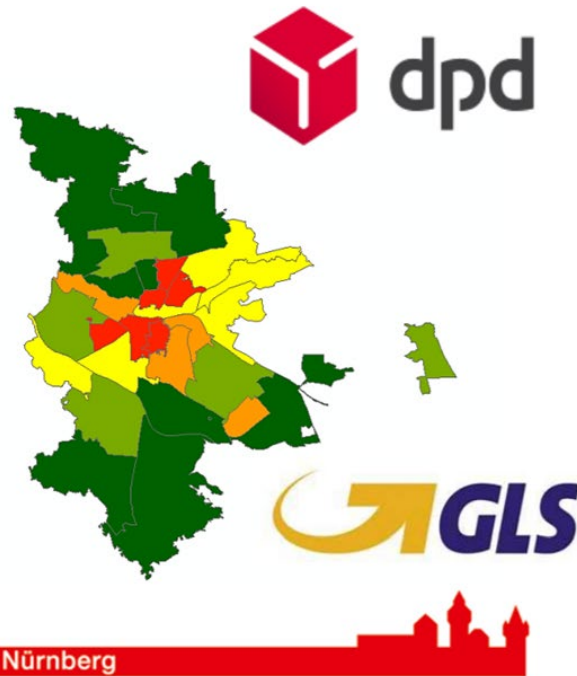
Saved an estimated 45 tonnes of CO₂



Nuremburg, Germany



Saved an estimated 56 tonnes of CO₂



Brussels, Belgium

24% reduction in CO₂ emissions

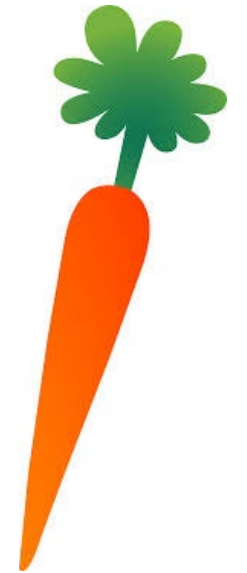


Policy levers

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



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



Relevance to New Zealand

- E-bike power regulations
- Infrastructure design
- Procurement
- Existing services



GOECO goeco.org.nz

SAME DAY
ZERO EMISSIONS
PICK UP & DELIVERY

Bike Delivery Service

\$5 INC GST

FOR STANDARD PICK UP AND DELIVERY AROUND THE CITY CENTRE

BOOK ONLINE **goeco.delivery**
Enquires to Felix@goeco.org.nz

The advertisement features a Goeco logo at the top left, a delivery person on a cargo bike in the center, and a yellow banner at the bottom with contact information. The background is black with yellow diagonal stripes.



Case studies continued

California TOD Study

OR

Stockholm Congestion
Pricing?

California TOD Study

- Household Travel Survey of 40,000 households across income groups.
 - **Extremely Low-Income (ELI)** – Households earning 30% or less of MFI
 - **Very Low-Income (VLI)** – Households earning 50% or less of MFI
 - **Low-Income (LI)** – Households earning 80% or less of MFI
 - **Moderate Income** – Households earning between 80% and 120% of MFI
 - **Higher Income** – Households earning more than 120% of MFI

Public Transport accessibility

- California Department of Housing and Community Development TOD Areas:
 - ¼ mile from frequent rail/ ferry station or frequent bus stop (10-min headways)
- High Quality Transit Areas (HQTAs):
 - ½ mile from any rail/ ferry station, or 15-min headway bus stop

Measurement methodology

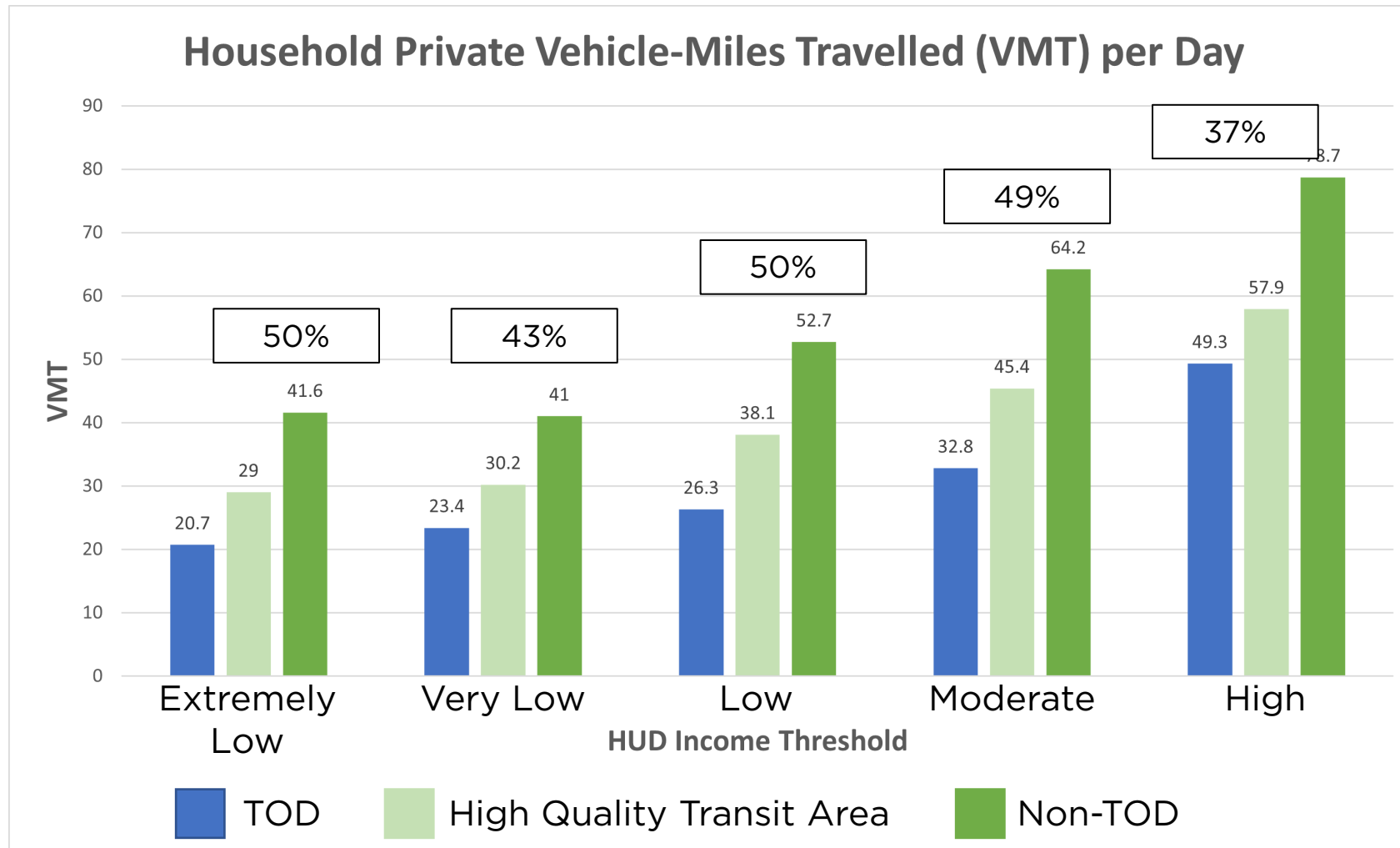


VMT FROM ONE-DAY
TRAVEL SURVEYS



BETWEEN FEBRUARY 2012
AND JANUARY 2013

Outcomes



% difference non-TOD to TOD

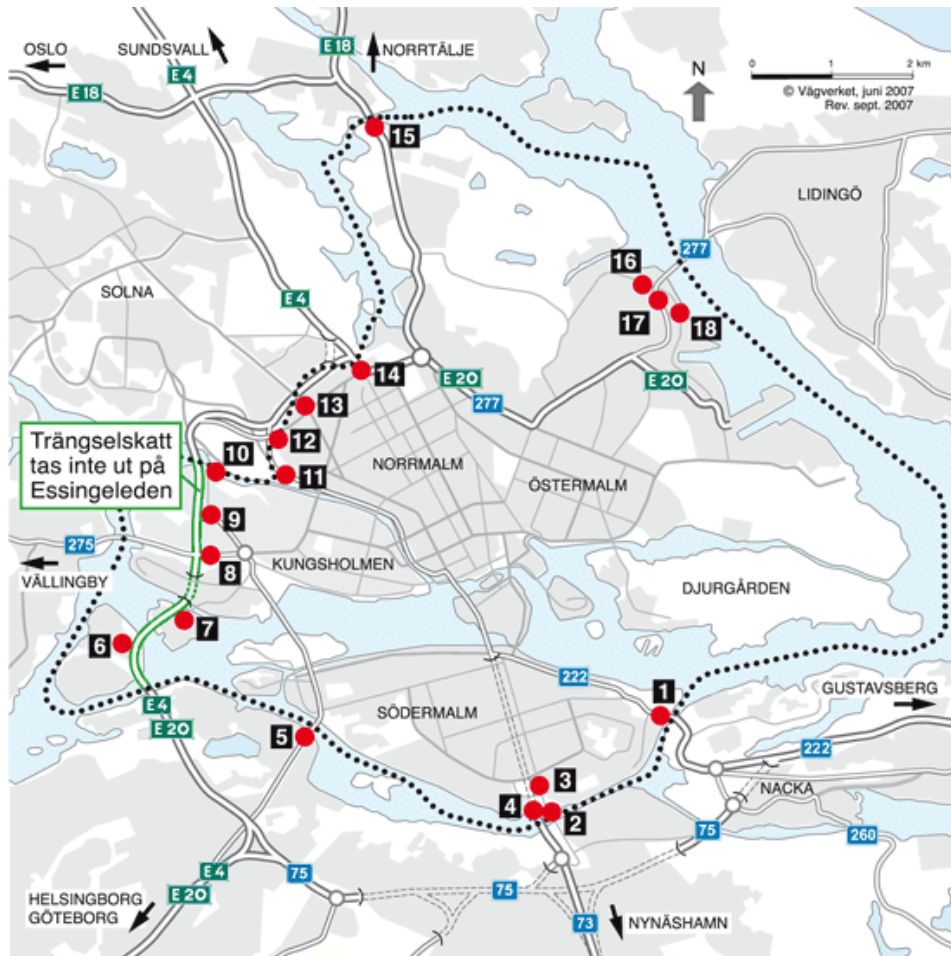
Relevance to New Zealand



Stockholm



What it was



Intervals Stockholm city centre as from 1 January 2020

Hours	Off-peak season tax amount in SEK	Peak season tax amount in SEK
6:00–6:29	15	15
6:30–6:59	25	30
7:00–8:29	35	45
8:30–8:59	25	30
9:00–9:29	15	20
9:30–14:59	11	11
15:00–15:29	15	20
15:30–15:59	25	30
16:00–17:29	35	45
17:30–17:59	25	30
18:00–18:29	15	20

Measurement methodology



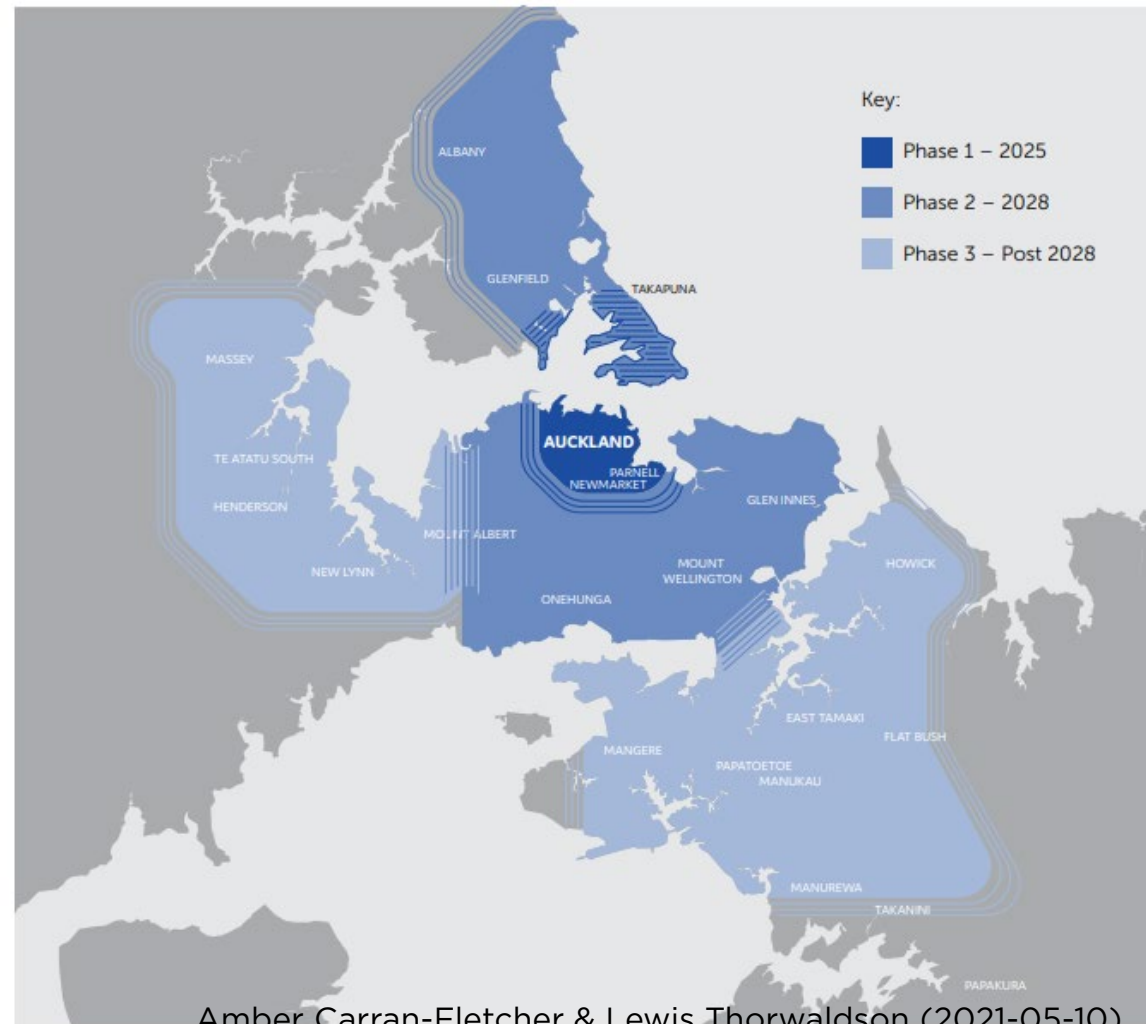
Outcomes



“Stockholmers,
where did you
go?”

20% reduction in
traffic crossing
the cordon

Relevance to New Zealand

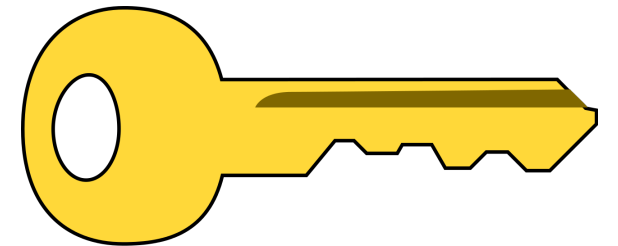


Indicative phases of Auckland congestion pricing scheme - The Congestion Question (2020)

Amber Carran-Fletcher & Lewis Thorwaldson (2021-05-10)
Decarbonising Transport Conference (Transportation Group NZ), Auckland

In conclusion...

- Secondary research only
- Direct comparison difficult
- Measured results for such a wide range of interventions
- Tie funding to measurement
- And remember – Measuring VKT is the Key!



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