

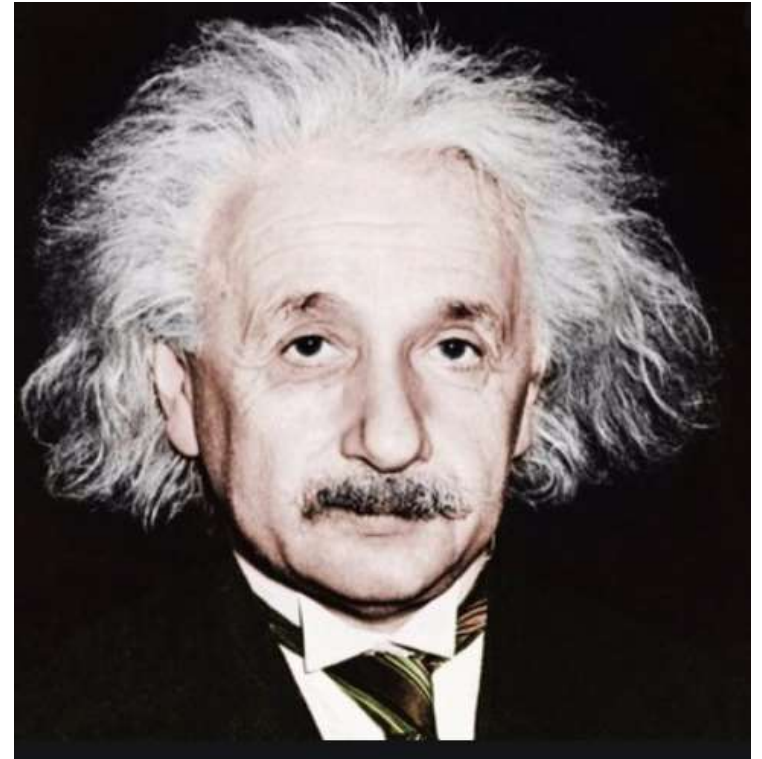


MICRO MOBILITY TO DECARBONISE TRANSPORT

TOA GREENING

*We cannot solve our problems
with the same thinking we used
when we created them.*

Albert Einstein



OVERVIEW

- What is Micro Mobility
- Problem, analysis and solution
- Traffic congestion funding
- Microcars
- Impact on Carbon footprint

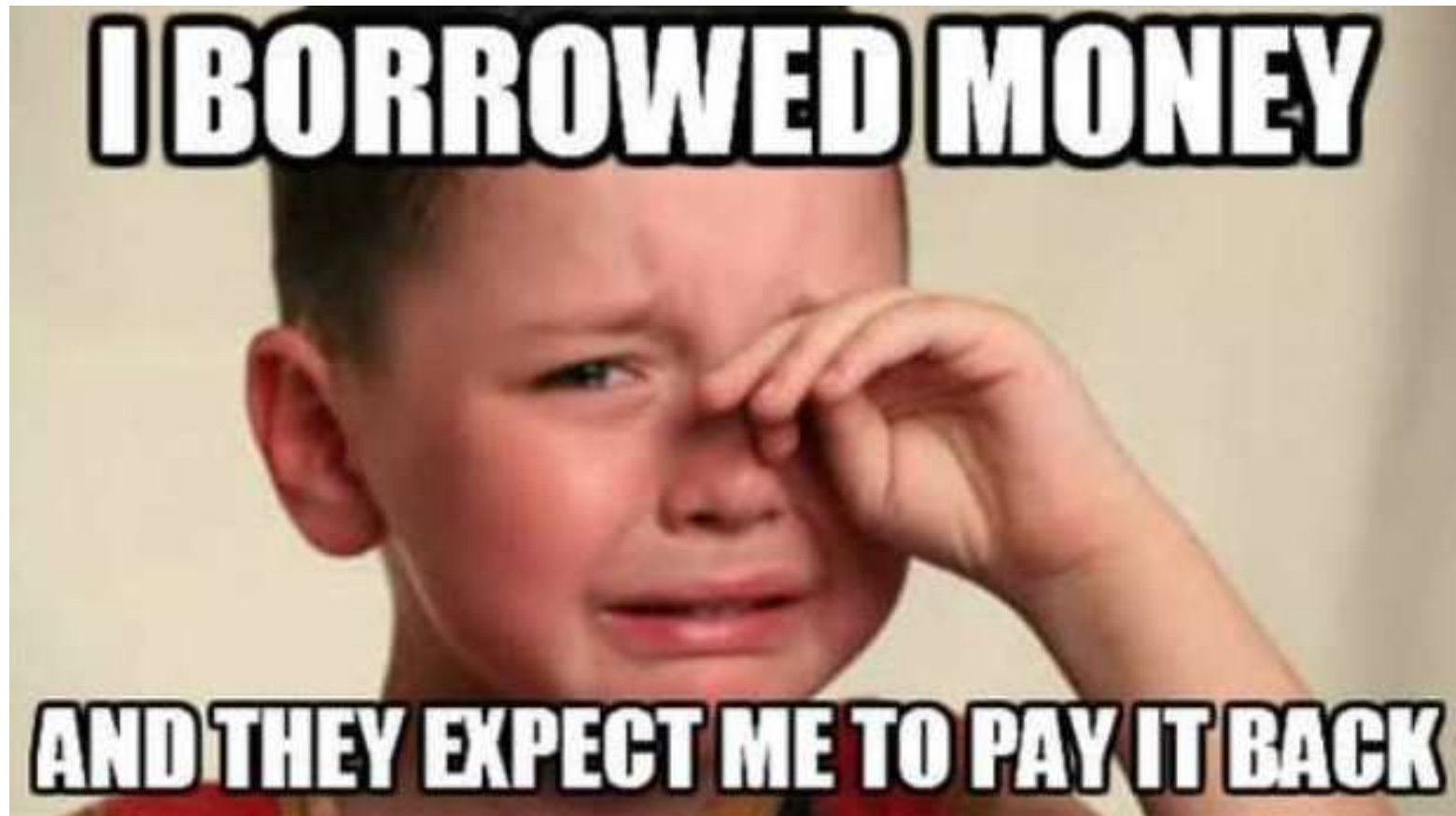
WHAT IS MICRO MOBILITY



WHAT IS MICRO MOBILITY

- Small, lightweight, low speed, single person vehicles, motorised and non-motorised
- Optimal use of road and footpath infrastructure for transportation needs
- Motorcycles – Optimal road use
- Microcars – Designed for optimal road use

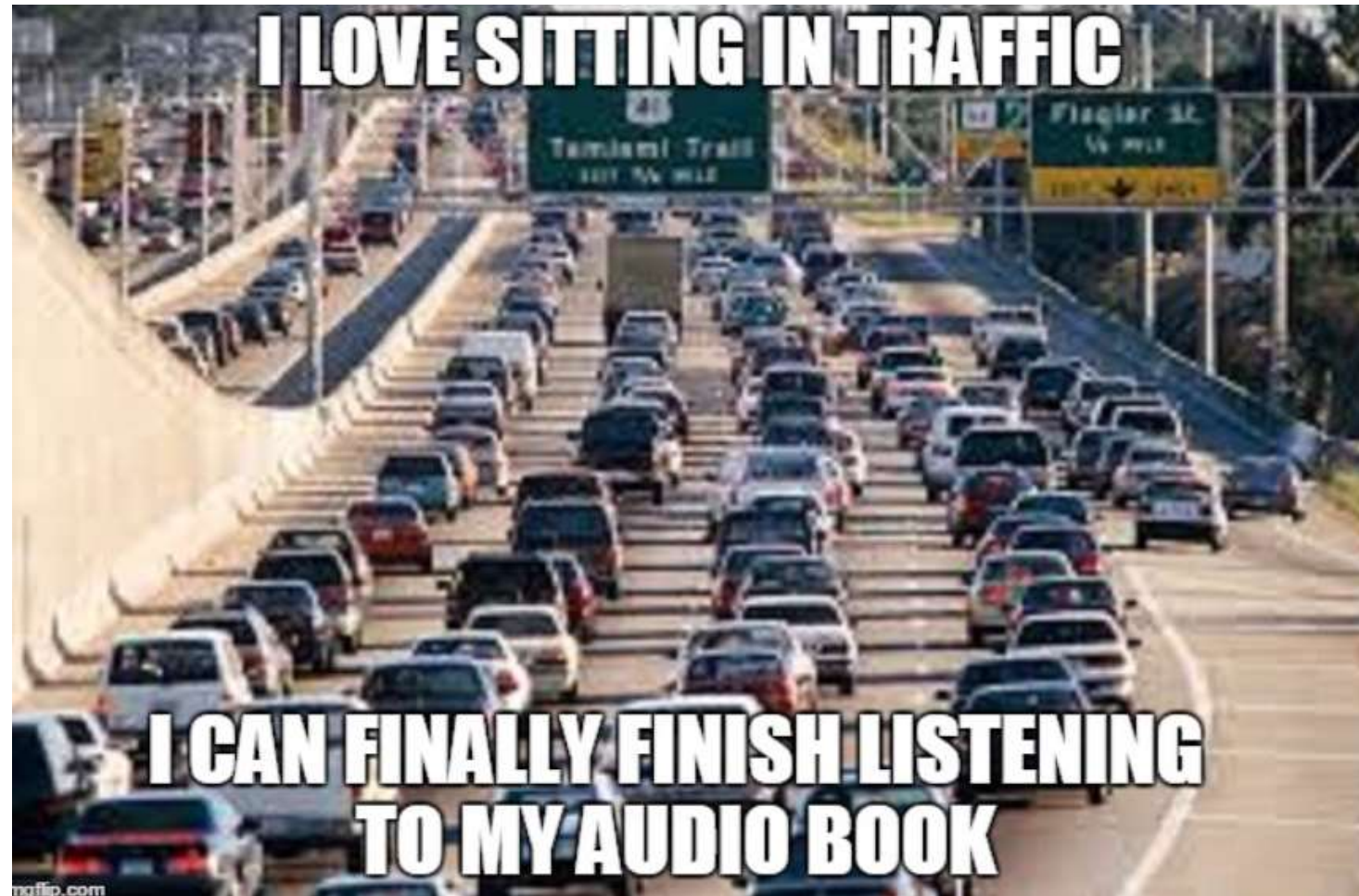
TRAFFIC CONGESTION FUNDING



TRAFFIC CONGESTION FUNDING

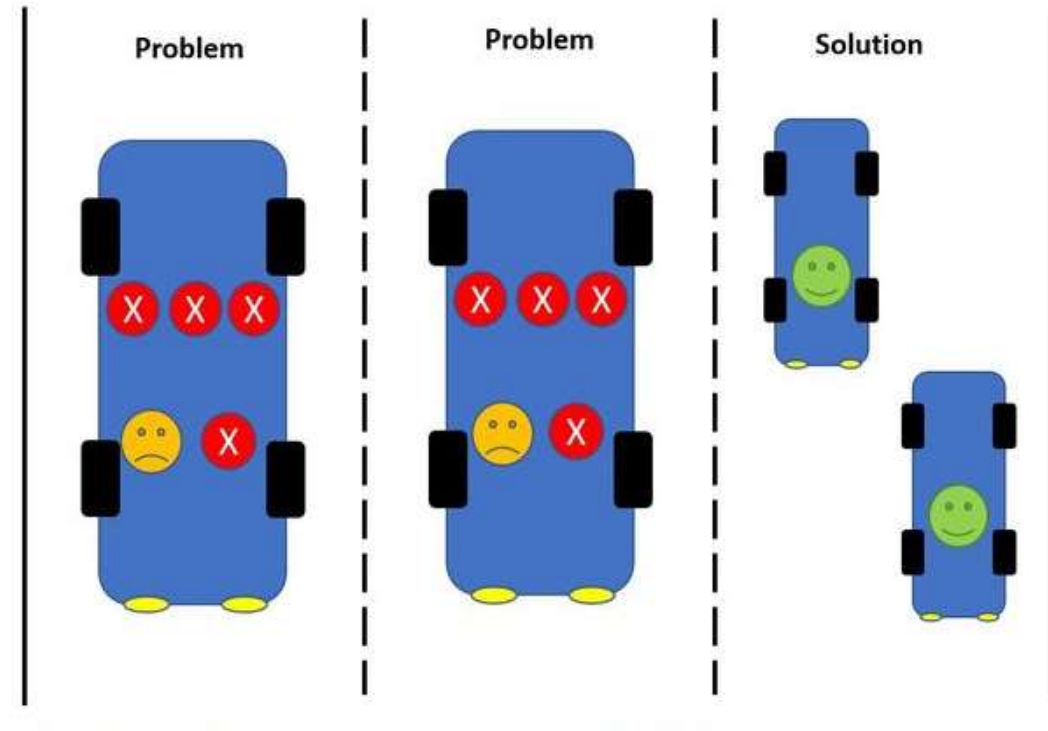
- \$60B for known transportation projects
- Excludes Intensification and Greenfields
- Debt levels at capacity, new funding/taxes
- Always in catchup mode with population growth
- Innovation for funding and transportation

PROBLEM



ANALYSIS

- PT/Roads at capacity
- Investment/time required
- Funding and Debt crises
- Wide single passenger car
- Microcars potential to optimise road usage



SOLUTION



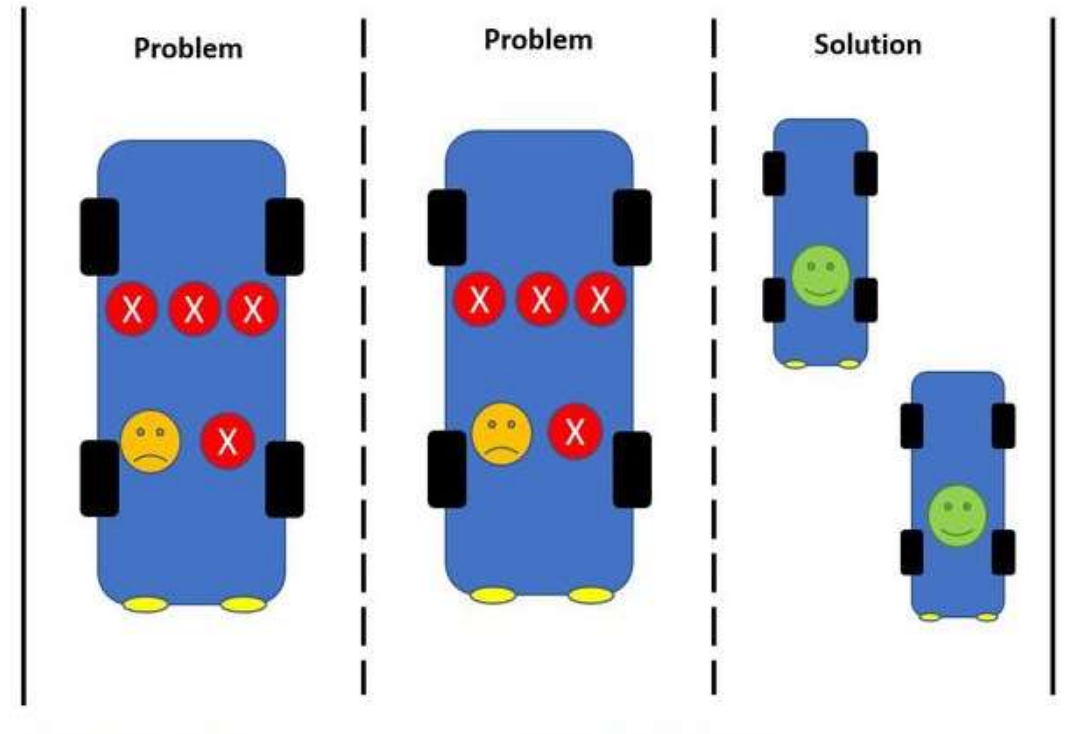
MICROCARS

- Definition
- Toyota
- Commuter Car
- Smart Fortwo
- Carver



MICROCARS

- Belgium Motorcycle study, 25% reduced congestion
- Narrow profile microCAR EV, reduces congestion
- Reduced carbon two-fold, EV modal shift and congestion



MICROCARS

- Motorcycle congestion studies - 25% modal shift
- Road capacity studies - 1800 cars/hr – 4 hrs
- Kyber pass 9 congested lanes – 64,800
 - $9 \times 1,800 \text{ cars per hour capacity} = 16,200 \times 4 \text{ hours} = 64,800$
- microCARs to relieve congestion - 16,200
 - $25\% \text{ of peak congested traffic} = 0.25 \times 64,800 = 16,200 \text{ microCARs required to relieve congestion}$

IMPACT ON CARBON FOOTPRINT

- Congestion adds 20% Carbon Emissions
- ICE modal shift to EV removes 4.6 tn of CO₂
- AKL Motorway 161,920tn of CO₂
- AKL All Roads 2,082,903tn of CO₂
- 60% reduction due to free flowing traffic

IMPACT ON CARBON FOOTPRINT

- \$375M in offshore carbon credits
- 2 Mt CO₂ meets nearly a third of the 6.3 Mt CO₂ emission required for NZ NDC

	Price (\$/tonne)		
1.8 Multiplier for Trade Price/tonne x 1.8	\$54 (\$30 x 1.8)	\$90 (\$50 x 1.8)	\$180 (\$100 x 1.8)
AKL Motorway Price/tonne x 161,920tn	\$8.7M	\$14.5M	\$29M
AKL Roads Price/tonne x 2,082,903tn	\$112.4M	\$187.4M	\$375M

Table 5 - Possible economic savings for offshore mitigation used to meet an enhanced NDC

REVIEW

- CO₂ reduced two-fold mode shift and 60% flowing
- \$375M/yr carbon credits
- Meets a third of NZs NDC
- Decarbonise NZ with microCARs

