Mode Shift to Micromobility

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2WALKANDCYCLE 2021

make
everyday
better.

Mode shift to micromobility

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What do we mean by Micromobility?

E-Scooter

Powered Transport Devices (Waka Kotahi Determination)

E-Bike

Powered Wheelchairs

E-Mopeds

Powered Transport Devices (Waka Kotahi Determination)

Figure 5.4 Distribution of the existing 'market' of trips for each major mode, by trip length

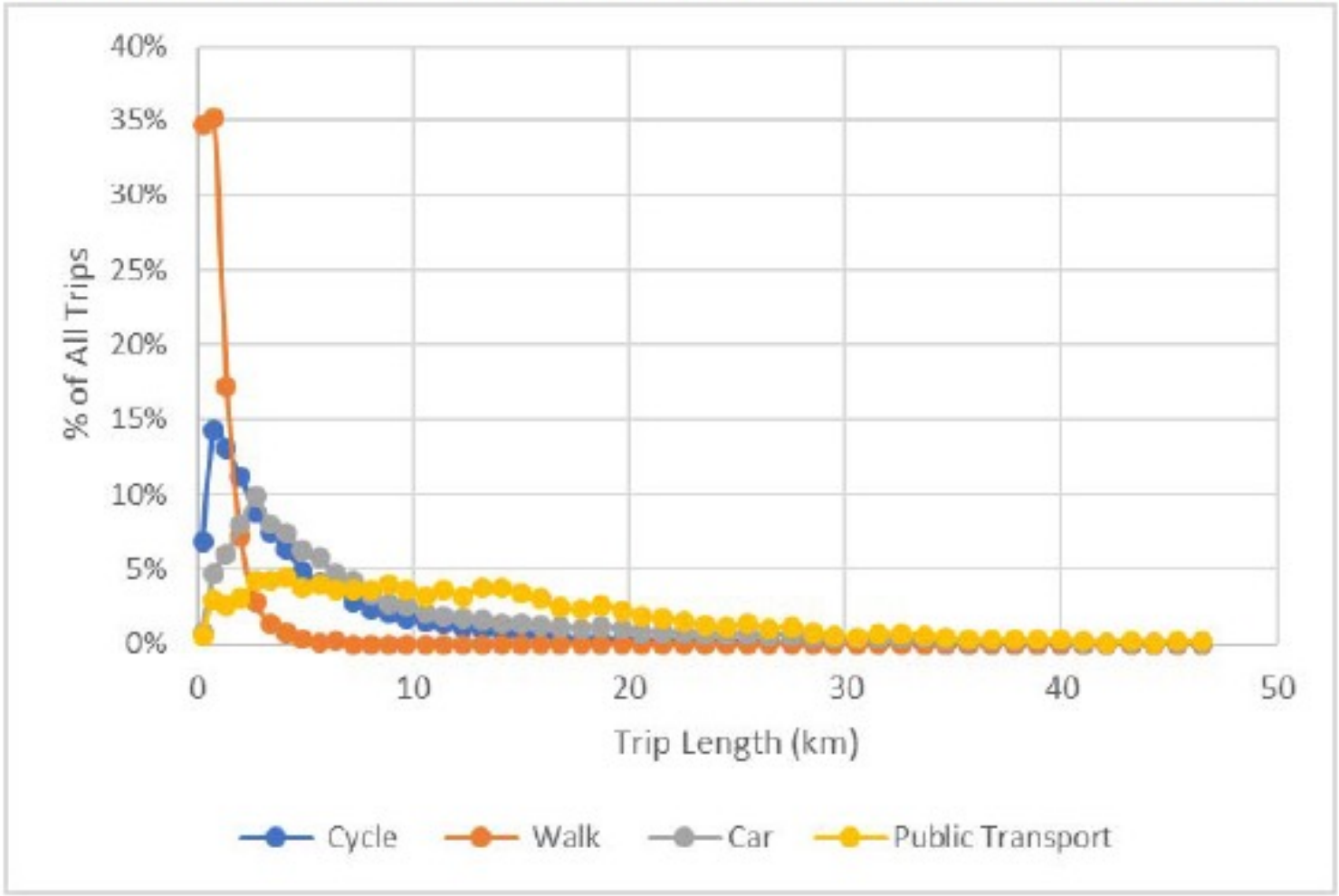

Table 5.3 Assumed proportion in which trips shift to a micromobility mode

	E-scooter	E-accessible	E-bike	E-moped
Mode share split	50%	2%	33%	15%

TALANOA

Table 5.4 Assumed travel range parameters ('typical maximum trip distance')

Assumed travel range (km)	E-scooter	E-accessible	E-bike	E-moped
Low	1.5	3	10	5
Medium	3	4	15	10
High	5	5	20	15

Table 5.5 Assumed uptake assumptions for four micromobility modes

Assumed uptake	E-scooter	E-accessible	E-bike	E-moped
Low	5%	5%	5%	5%
Medium	15%	15%	15%	15%
High	25%	25%	25%	25%

Table 5.6 Assumed source (initial mode) make-up of trips that shift to each micromobility mode

Initial mode	E-scooter	E-accessible	E-bike	E-moped
Walk	50%	10%	20%	30%
Cycle	0%	0%	20%	0%
Car	40%	70%	50%	50%
Public transport	10%	20%	10%	20%

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Figure 5.12 Mode share for e-bikes under various scenarios, by trip length

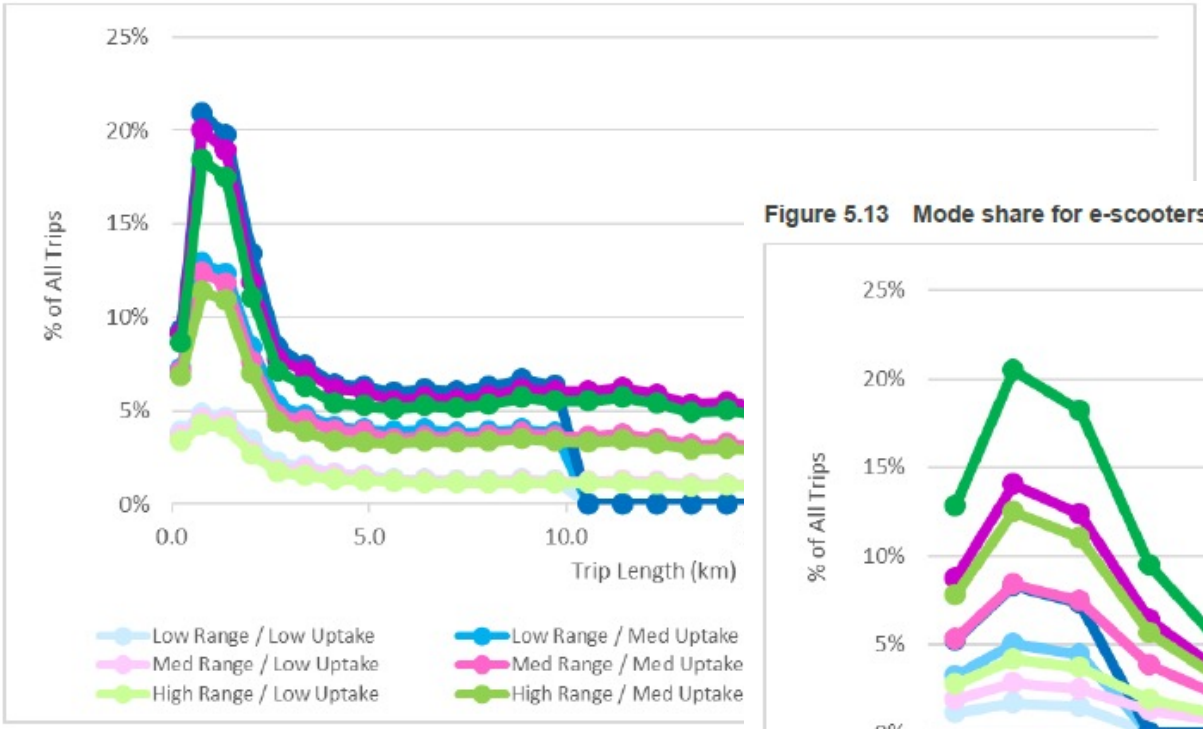
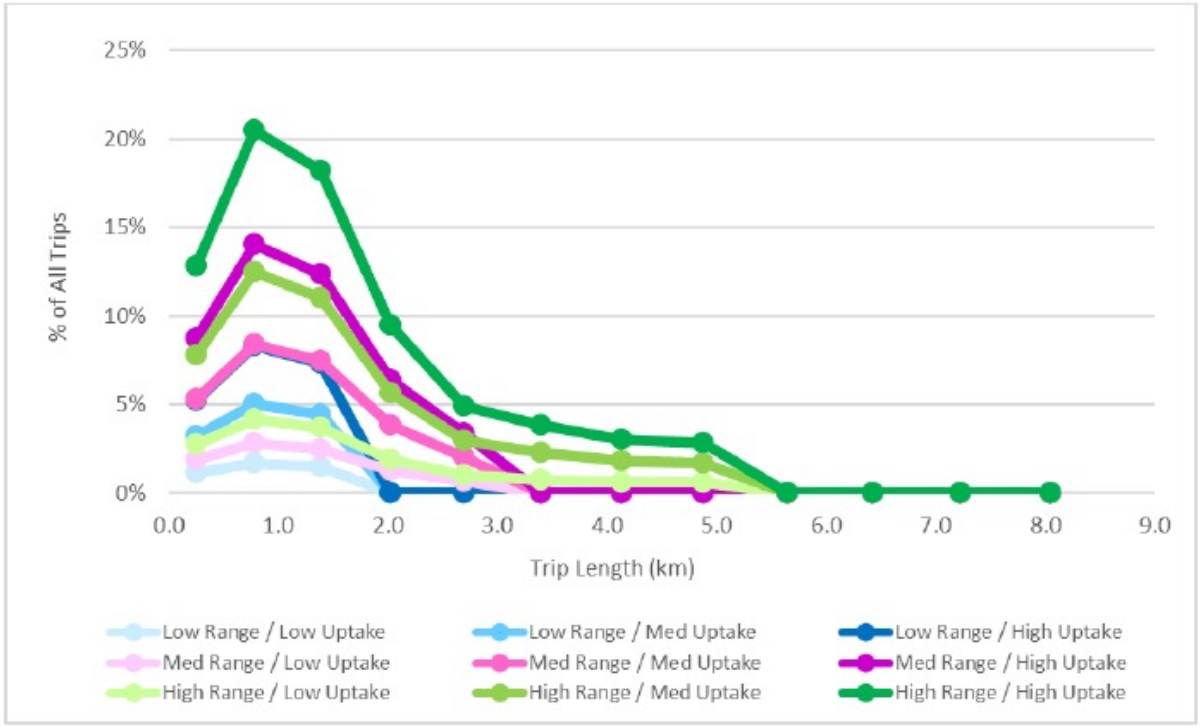


Figure 5.13 Mode share for e-scooters under various scenarios, by trip length



Mode Shift to Micromobility

Land-use	Modelled scenarios	Mode share range
Major city – CBD	• High uptake scenario for e-scooters • Medium uptake scenario for e-bikes	• E-scooter mode share: 1.6%–5.7% of all trips • E-bike mode share: 4.9%–5.1% of all trips
Major city – fringe (~5 km radius)	• Medium uptake scenario for e-scooters • High uptake scenario for e-bikes	• E-scooter mode share: 1.0%–3.4% of all trips • E-bike mode share: 7.7%–8.1% of all trips
Major city – suburban	• Medium uptake scenario for e-scooters • Medium uptake scenario for e-bikes	• E-scooter mode share: 1.0%–3.4% of all trips • E-bike mode share: 4.9%–5.1% of all trips
Regional city – CBD/fringe	• Medium uptake scenario for e-scooters • Medium uptake scenario for e-bikes	• E-scooter mode share: 1.0%–3.4% of all trips • E-bike mode share: 4.9%–5.1% of all trips
Regional city – suburban	• Low uptake scenario for e-scooters • Low uptake scenario for e-bikes	• E-scooter mode share: 0.3%–1.2% of all trips • E-bike mode share: 1.8%–2.0% of all trips

Table 5.7 Micromobility mode shift – percentage of trips (by initial mode) shifted to each micromobility mode

Initial mode	Micromobility mode	Mode shift
Walk	E-scooter	3%–15%
	E-bike	3%–16%
	E-moped	2%–9%
	E-accessible	< 0.2%
Cycle	E-scooter	< 0.1%
	E-bike	34%–46%
	E-moped	< 0.1%
	E-accessible	< 0.1%
Car	E-scooter	0.2%–1.2%
	E-bike	1.3%–6.1%
	E-moped	0.5%–2.1%
	E-accessible	< 0.1%
Public Transport	E-scooter	1%–3%
	E-bike	3%–10%
	E-moped	2%–5%
	E-accessible	< 0.3%

Up to **5.7%** mode share

Up to **8.1%** mode share

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Mode shift to Public Transport

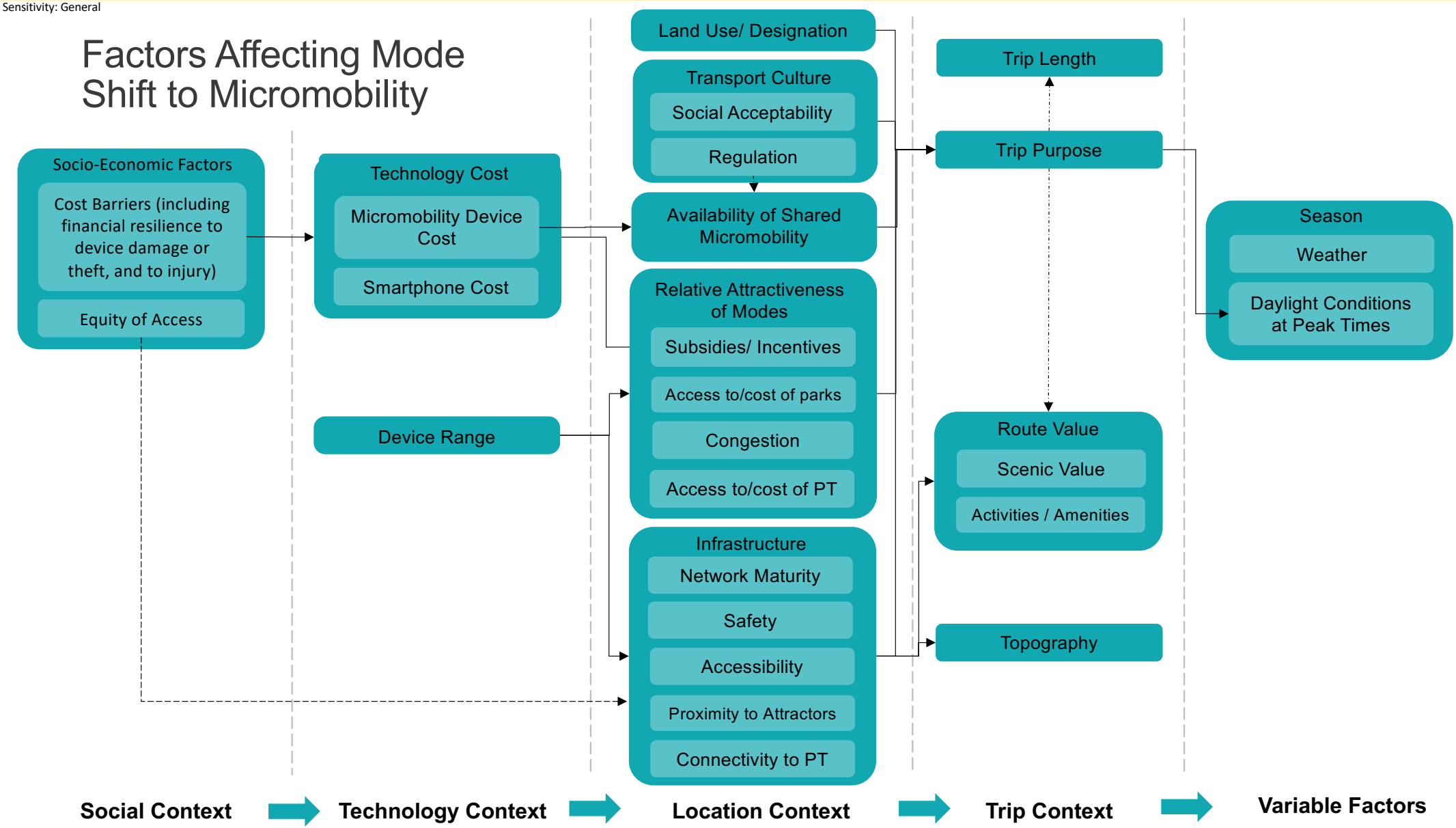
Scenario	Context	Effect
Central business district (CBD)/fringe (~5 km radius)	• High levels of public transport • High availability of micromobility	• 2% decrease in car trips • 6% increase in public transport patronage
CBD/fringe (~5 km radius)	• High levels of public transport • Low availability of micromobility	• 1.5% decrease in car trips • 3% increase in public transport patronage
Suburban	• High levels of public transport • High availability of micromobility	• 1% decrease in car trips • 9% increase in public transport patronage
Suburban	• High levels of public transport • Low availability of micromobility	• 0.5% decrease in car trips • 6% increase in public transport patronage
Suburban	• Low levels of public transport	• 0.5% decrease in car trips • 7% increase in public transport patronage

Mode Shift to Micromobility: Whole Trips

Up to a **9% increase** in PT trips

Overall, ‘first mile last mile’ use of micromobility in conjunction with public transport is expected to **increase public transport trips by up to 9%,** depending on a range of context factors, and **decrease car trips by up to 2%** .

Factors Affecting Mode Shift to Micromobility



Factors Affecting Mode Shift to Micromobility

Proximity of routes to ‘attractive’ destinations.

Quality and safety of route infrastructure.

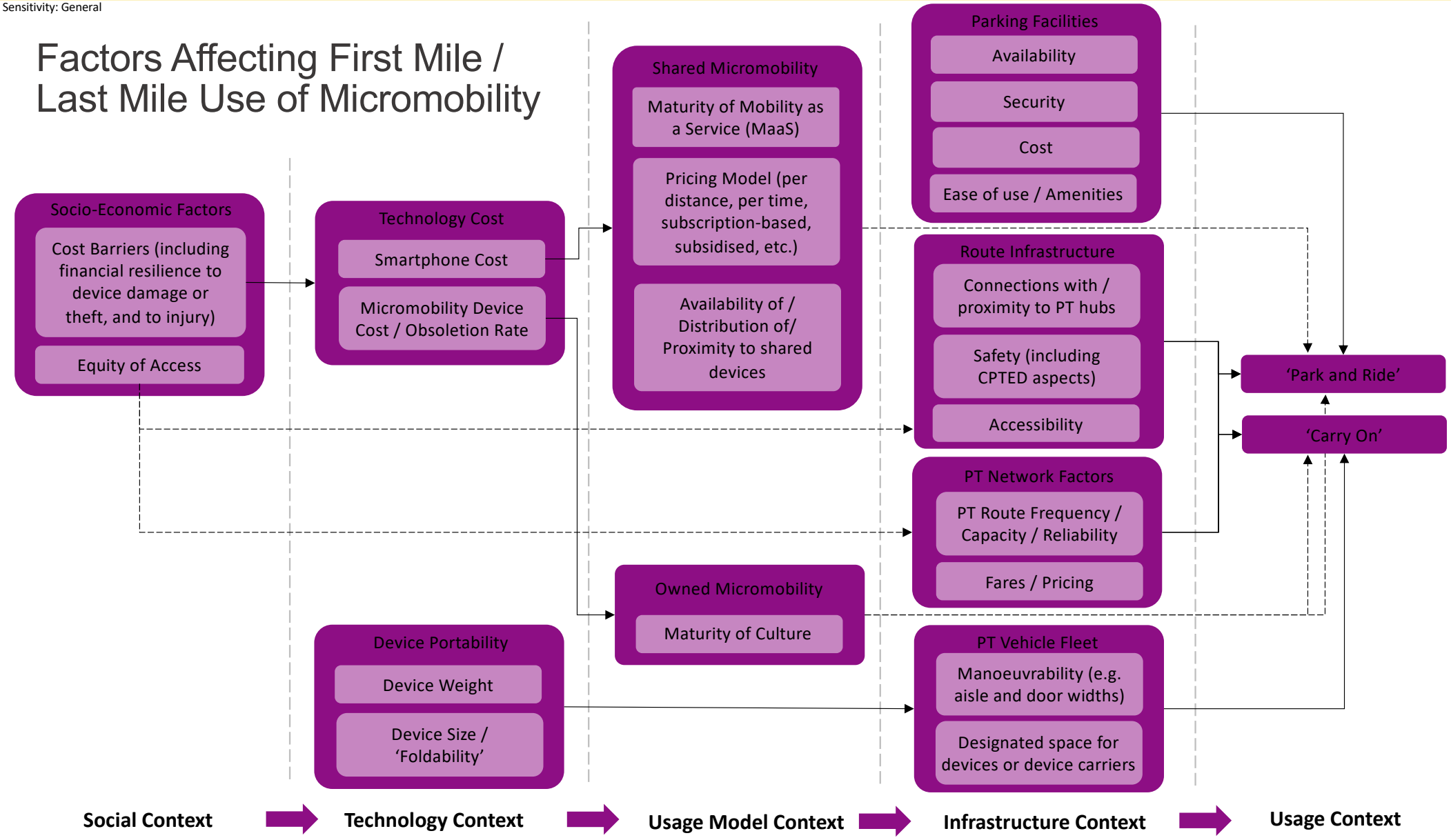
Attractiveness of mode alternatives.

Maturity of network / transport culture.

Amenity and aesthetic value of routes.

Socio-economic factors.

Factors Affecting First Mile / Last Mile Use of Micromobility



Factors Affecting First Mile / Last Mile Use Of Micromobility

Presence / maturity of mobility as a service (MaaS) .

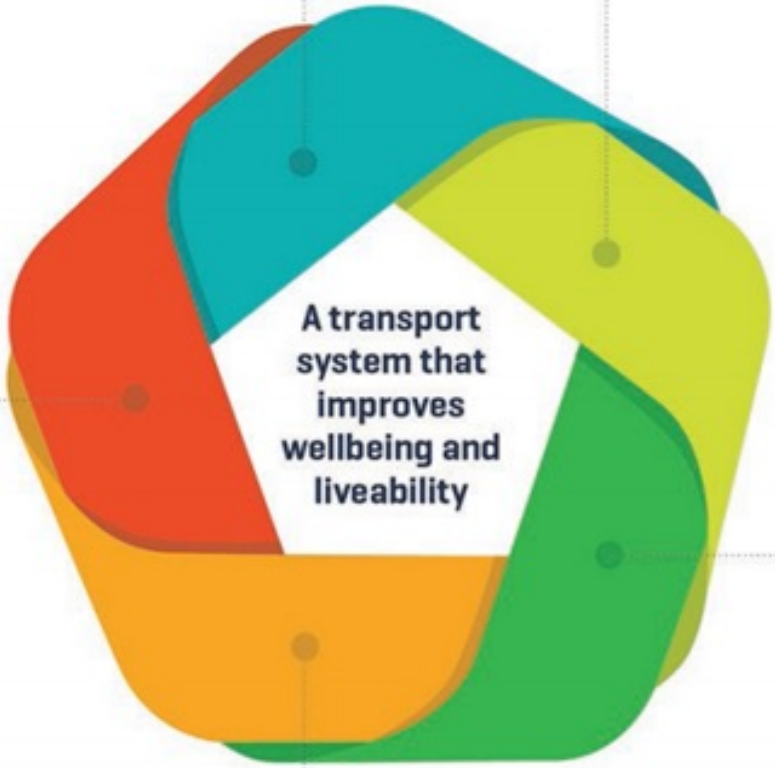
Quality of public transport provided.

Availability of shared micromobility.

Provision for micromobility parking at connection points.

Ability to take devices onboard public transport services.

Maturity of micromobility culture in the location of interest.



Inclusive access

Enabling all people to participate in society through access to social and economic opportunities, such as work, education, and healthcare.

Healthy and safe people

Protecting people from transport-related injuries and harmful pollution, and making active travel an attractive option.

Economic prosperity

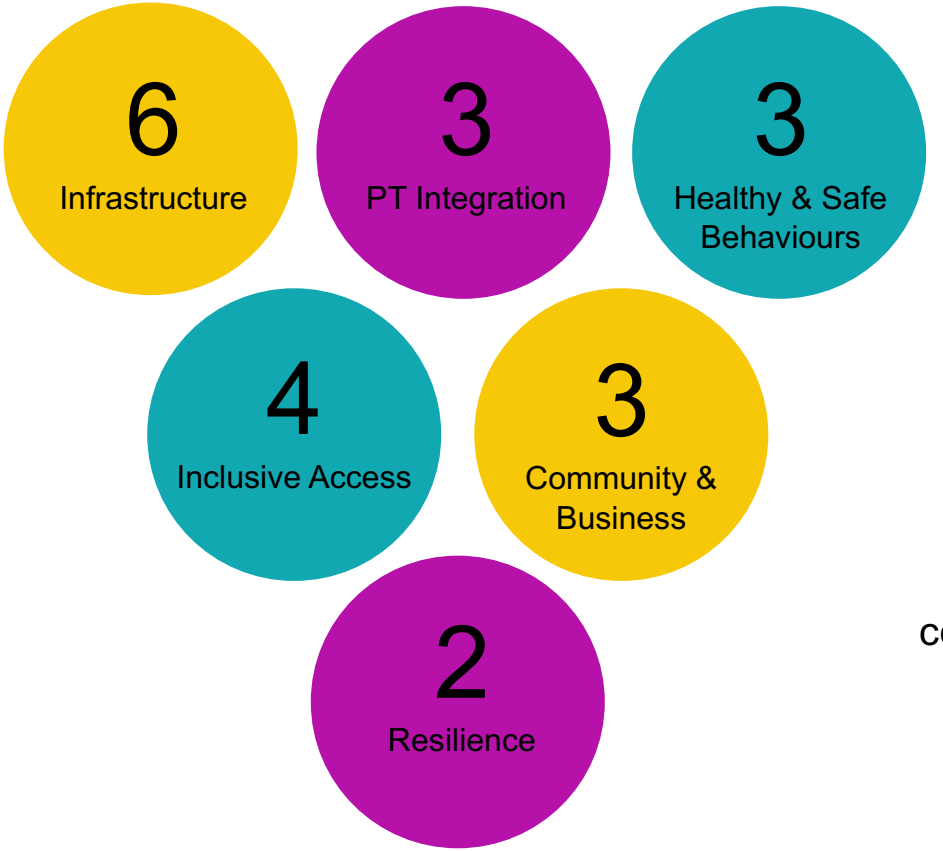
Supporting economic activity via local, regional, and international connections, with efficient movements of people and products.

Environmental sustainability

Transitioning to net zero carbon emissions, and maintaining or improving biodiversity, water quality, and air quality.

Resilience and security

Minimising and managing the risks from natural and human-made hazards, anticipating and adapting to emerging threats, and recovering effectively from disruptive events.



To maximise the overall contribution of micromobility to wellbeing and liveability, **21 interventions** have been developed for practitioners to consider when planning micromobility initiatives.

Recommendations for Practitioners:
Infrastructure

1. Offer high quality, separated paths.

- Provide or upgrade shared path and cycleway infrastructure to offer high quality pavement, comfortable and safe path widths, and physical separation or separators from other transport modes. Consider reallocating carriageway space to support this outcome.

2. Facilitate access to destinations of interest.

- Provide sufficient path/route infrastructure to facilitate access to destinations of interest (schools, business districts, leisure destinations, transport hubs, etc) across a wide range of locations, with consideration given to equity of access. Encourage consideration of the 'network effect' in infrastructure planning, that is, the potential value of paths as components of a (future) fully connected network, rather than as stand-alone corridors.

3. Ensure infrastructure meets CPTED principles.

- Design and/or upgrade shared and cycle path infrastructure to meet CPTED principles, especially in relation to lighting and 'natural surveillance'.

Recommendations for Practitioners:
Infrastructure

4. Provide clearly demarcated parking spaces.

- Provide parking space for micromobility devices near retail and businesses, with destination parking facilities in CBDs and significant destinations; giving consideration to security issues. Provide and clearly demarcate parking zones for shared devices, and work with shared operators to incentivise or require safe parking practises. Where appropriate, prioritise micromobility parking to maximise use-of-space on transport corridors.

5. Prioritise routes with high aesthetic appeal.

- Prioritise infrastructure on routes where there is high aesthetic value (eg scenery) and/or good supporting amenities (eg cafes, services). Leverage the 'placemaking' potential that micromobility offers for retail and hospitality destinations, through tactical urbanism initiatives and streetscaping work.

6. Review project evaluation procedures.

- Review planning and consent processes, including transport project evaluation procedures, to ensure these reflect the changing needs of households and businesses and support sustainable transport activity.

Recommendations for Practitioners:
Integration with PT

7. Provide secure storage at PT hubs.

- Provide secure, affordable storage space for micromobility devices at public transport hubs/stations.

8. Provide space on trains/buses for devices.

- Provide additional and/or clearly demarcated spaces on trains and buses for storage of micromobility devices as well as push bikes/kick scooters.

9. Support the development of Mobility-as-a-Service (MaaS).

- Develop or support the development of Mobility-as-a-Service (MaaS) platforms that facilitate integrated journey planning and payment.

Recommendations for Practitioners:
Inclusive Access

10. Support tailored access to shared path facilities.

- Support priority or tailored access to shared/cycle path facilities at destinations for those with differing needs or abilities.

11. Clearly separate micromobility from pedestrians.

- Clearly separate micromobility users from pedestrians, physically or using signage, to support the visually- and hearing- impaired public. Require devices to be fitted with bells or other sound-producing functionality.

12. Manage impacts on assistance dogs.

- Investigate and manage implications of micromobility for assistance dogs.

13. Introduce grant and/or subsidy schemes.

- Introduce grant schemes for device purchase and/or subsidies for micromobility, especially for socio-economically disadvantaged groups.

Recommendations for Practitioners:
Healthy & Safe Behaviours

14. Support a culture shift through education/ad campaigns.

- Support culture shift through local government/agency messaging, including targeted education/ad campaigns to promote safe behaviours and encourage use of micromobility, especially in dense or congested areas. Included in this, publicise the evidence of the physical health benefits of riding e-bikes.

15. Introduce posted speed limits on shared infrastructure.

- Introduce posted speed limits on shared infrastructure, and work with operators to require shared mobility devices to have software-imposed speed limits in high-risk zones.

16. Minimise night-time use of shared devices.

- Minimise night-time use of shared devices on weekends or high-risk dates (eg New Year), especially in the vicinity of bars and venues, through management of fleet placement and/or time restrictions for operators.

Recommendations for Practitioners:
Community & Business Partnerships

17. Support micromobility-adjacent small businesses in New Zealand.

- Support businesses involved in micromobility, including those who sell or service micromobility devices, and support the growth of New Zealand-based micromobility manufacturing capability. Encourage or incentivise the manufacture and sale of devices whose design prioritises recyclability, upgradability and/or longevity, especially in relation to batteries.

18. Include data collection/sharing as a condition of licensing for shared operators.

- Include targeted data collecting/sharing as a condition of licensing for shared micromobility operators, with appropriate consideration given to privacy and data security. Consider longer-term partnerships between shared operators and local authorities to support stable provision of shared micromobility services.

19. Grow the micro-delivery economy.

- Support businesses to develop and grow ‘micro-delivery’ capability. Prioritise goods movements via micromobility through CBD and retail precincts.

Recommendations for Practitioners:
Resilience

20. Develop procedures for corralling and redeploying devices during PT outage events.

- Develop procedures for corralling shared micromobility devices and redeploying at key locations during public transport network outages or strikes; support this by actively encouraging micromobility use during disruptions and raising awareness of the value of keeping micromobility devices charged during extreme weather events.

21. Plan for installing temporary micromobility lanes in emergencies.

- Plan for installing temporary lanes for micromobility and clearing lanes for micromobility during disasters, as a way to keep/get people moving.

Discussion is welcome.