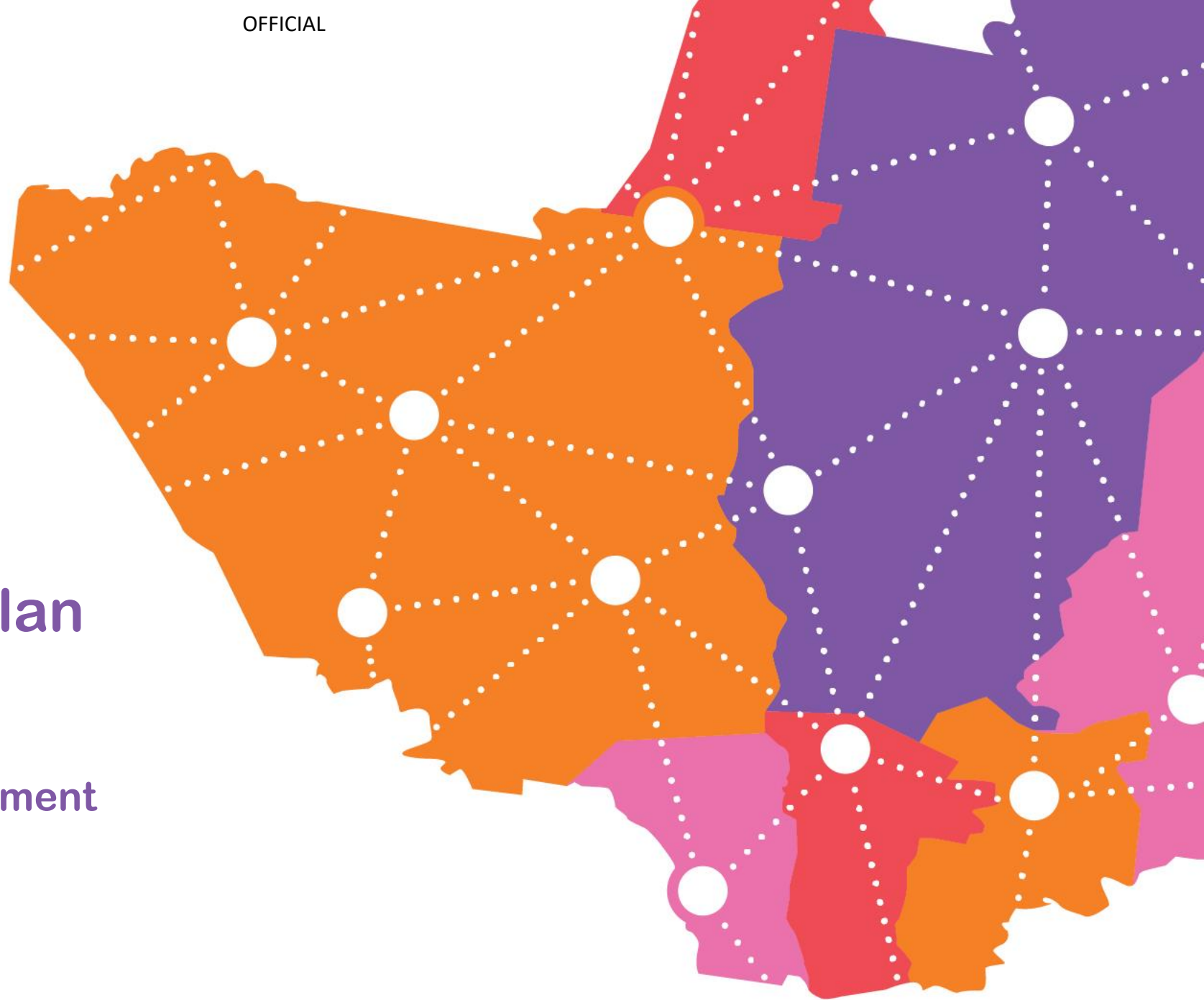




# Community Electric Vehicle Transition Plan

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City of Whittlesea





# Acknowledgement

This project was coordinated by the Northern Councils Alliance and the Northern Metropolitan Partnership and was resourced through the Metropolitan Partnership Development Fund.

It aligns with the Northern Metropolitan Partnership priorities for the Northern region of Transport Connectivity and Environment Sustainability.

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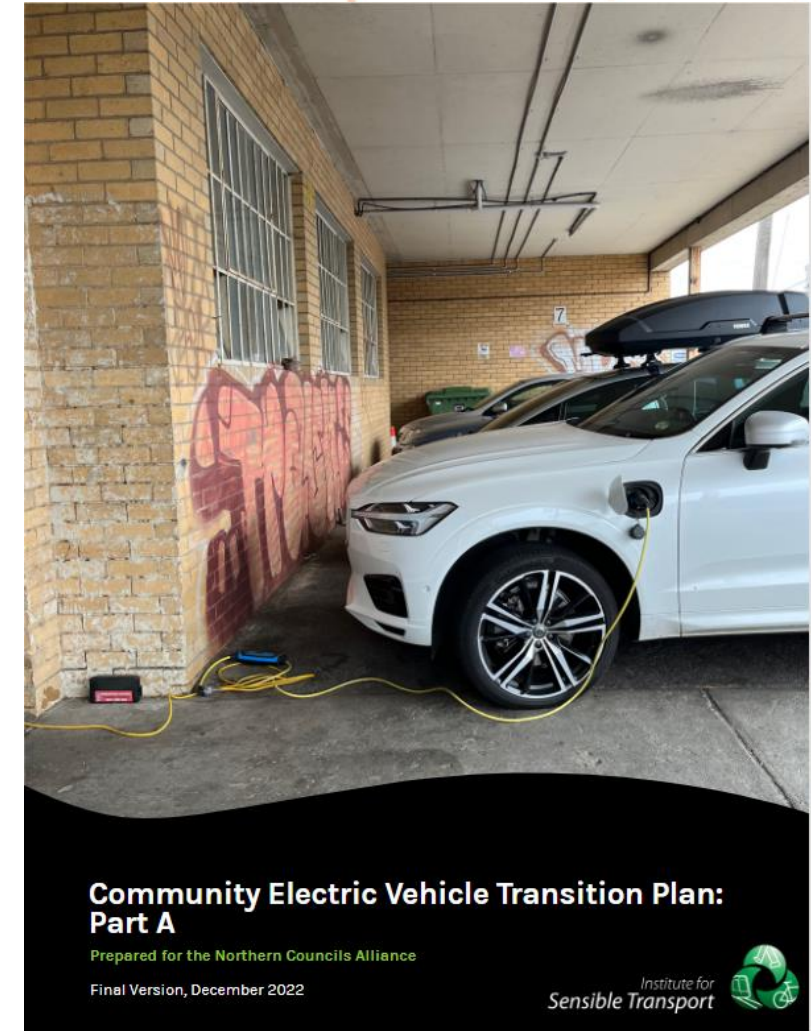


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# Community Electric Vehicle Transition Plan

- Assessment of the future demand for EVs and charging infrastructure
- Characterisation of the different EV charging markets and charger types
- Prioritisation framework to assist NCA understand which activity centres are likely to have the highest demand for charging
- Recommended roll out plan for EV chargers across the NCA region
- Recommendations designed to bring about wider improvements in the sustainability of the transport system in Melbourne's north





Transport is a major source of greenhouse gas emissions in Australia, including in the northern region of Melbourne. This project provides a planned response to facilitate the community's transition to lower emission forms of transport.

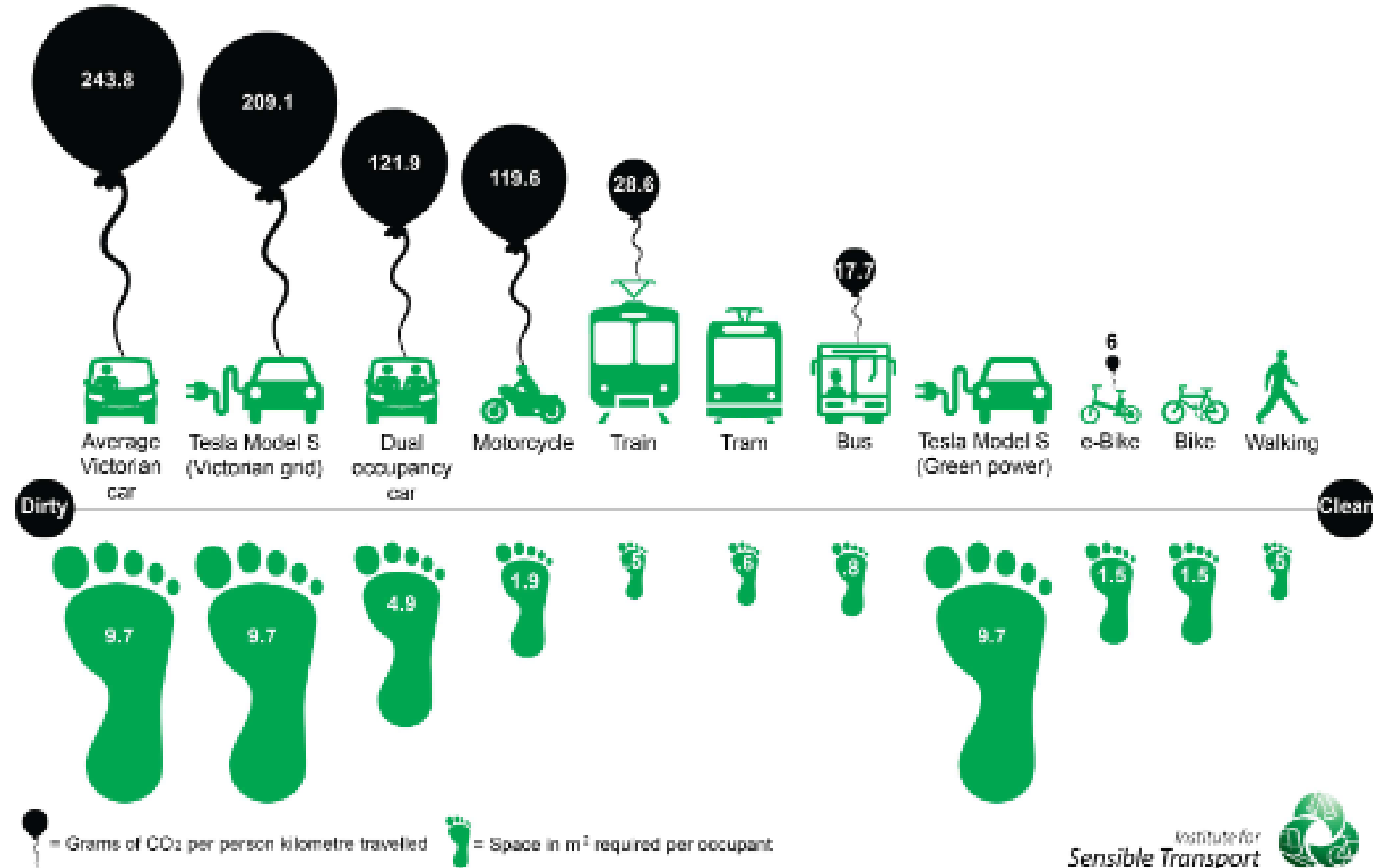


Figure 18 E-bikes provide an efficient mode for short to medium trips

## The challenge of meeting our emissions target

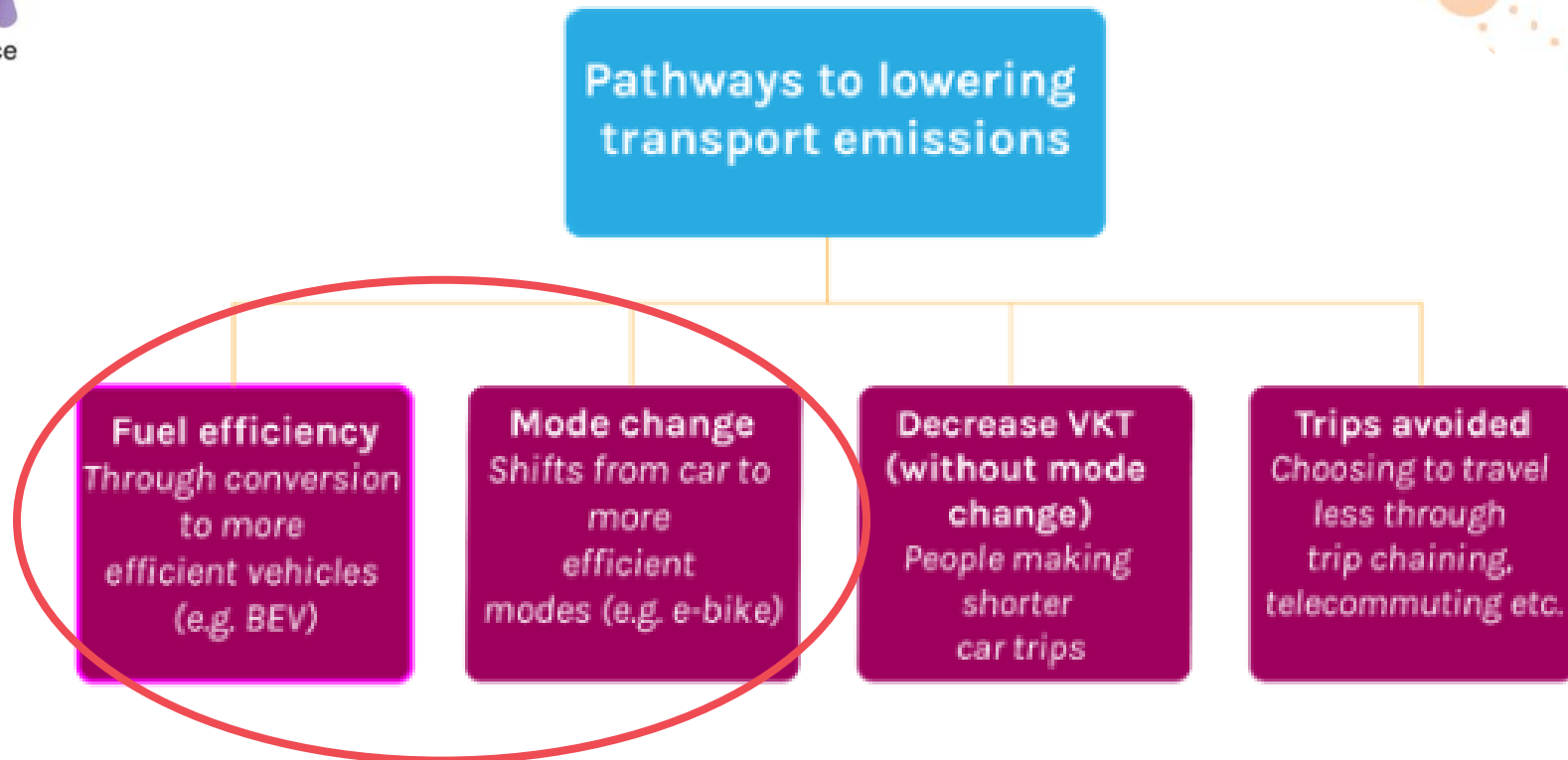
Australia has legislated a 43% emissions reduction target by 2030. Transport is the fastest rising source of emissions, having grown 60% since 1990. New vehicles sold today have higher emissions than those sold in 2016, due to the growth in large, petrol and diesel utes and SUVs.

The average vehicle in Australia has a lifespan of around 20 years. Last year, 98% of all new vehicles sold were petrol or diesel. Even if all new vehicles purchased from 2023 onwards were zero emission, Australia would not be able to meet the 43% target within the transport sector.



Note: These figures are specific to Melbourne, Australia. Trams are 100% off-set by renewable energy.

Figure 4 Emissions intensity and space consumption of different transport modes

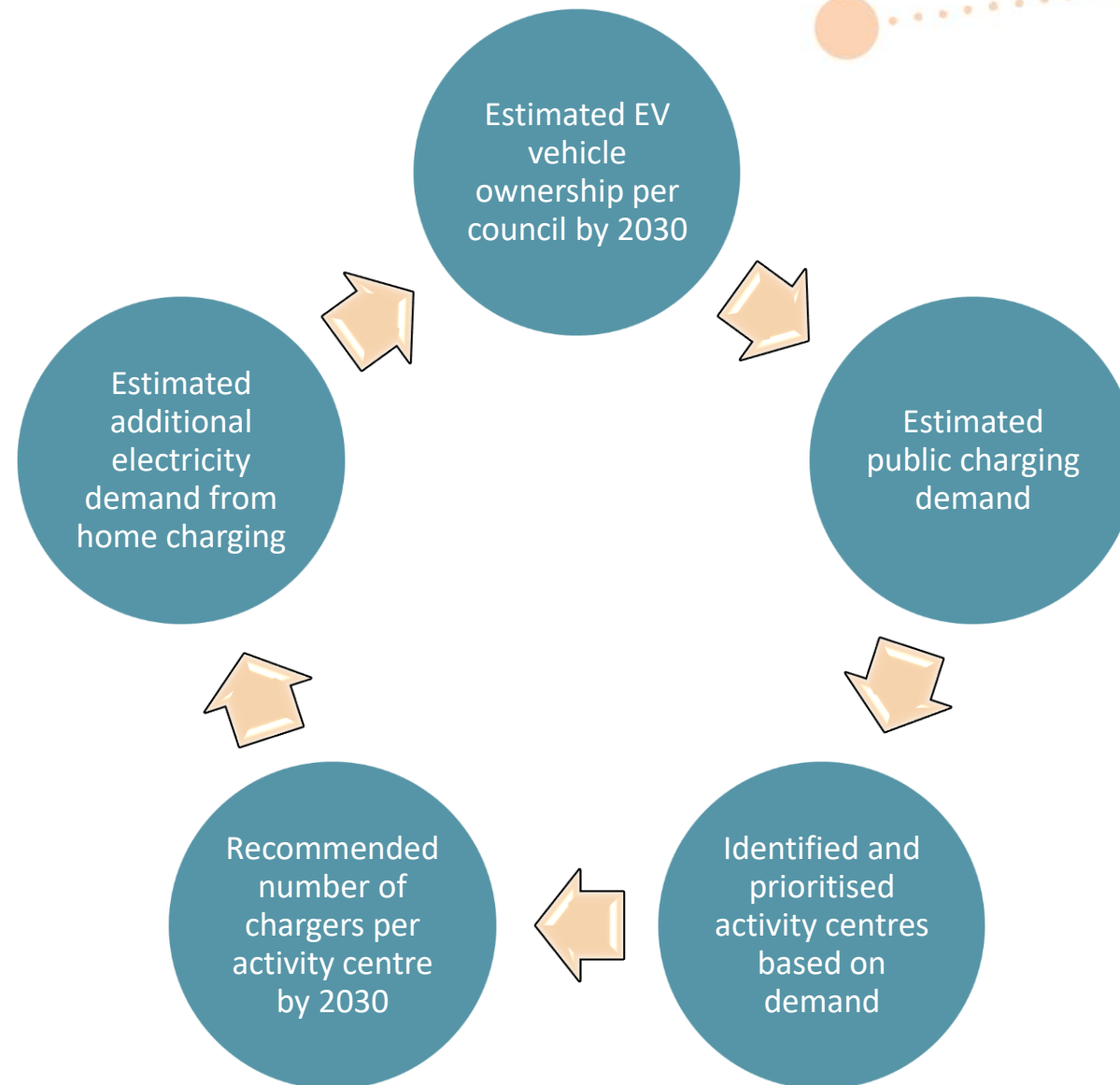


**Figure 3 Pathways for lowering emissions**

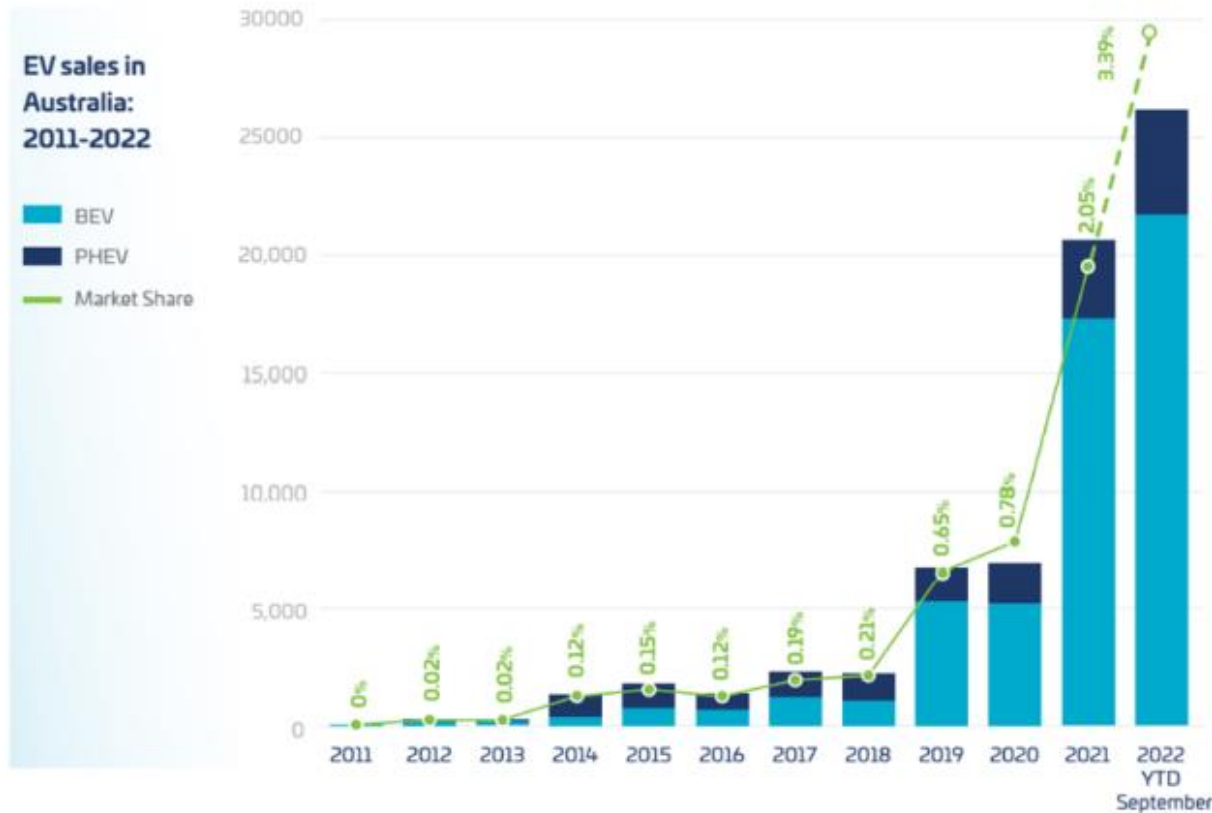
NB: VKT stands for Vehicle Kilometres Travelled

Source: Institute for Sensible Transport

# Designing the future public charging network for the NCA region

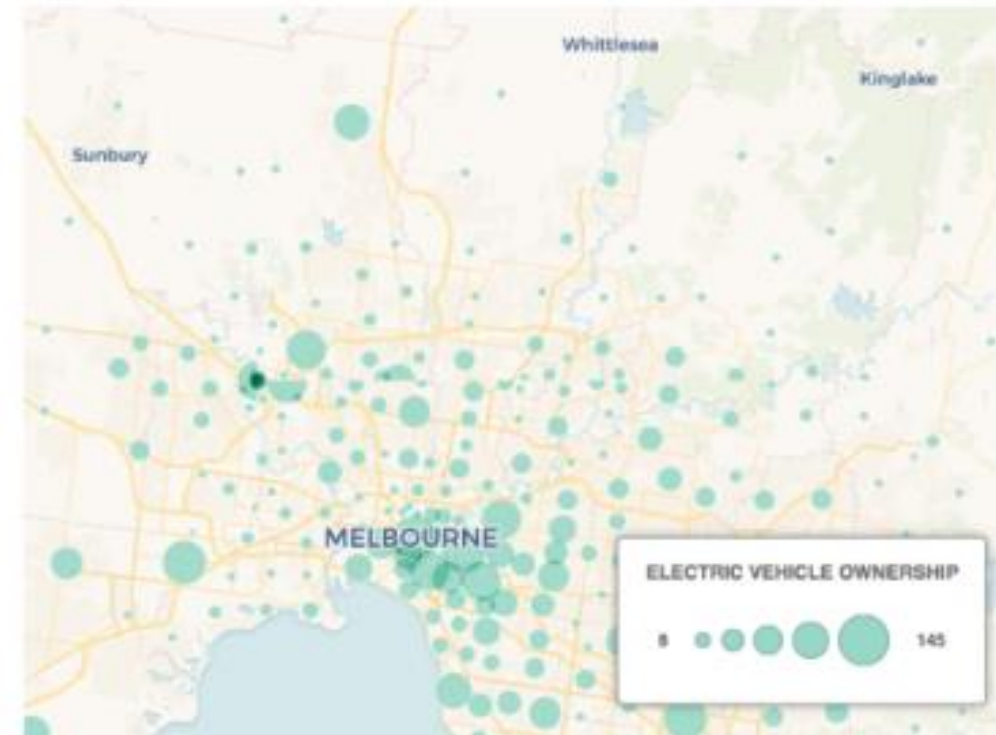


# Electric Vehicles Ownership



**Figure 6 EV sales in Australia**

Source: Australian Electric Vehicle Council



**Figure 7 EV ownership in northern Melbourne**

Source: Institute for Sensible Transport, using ABS data



# Electric Vehicles Ownership

EV sales in  
Australia:  
2011-2022

BEV  
PHEV  
Market Share

Around half of consumers are considering an EV for their next vehicle purchase.

September

Figure 6 EV sales in Australia

Source: Australian Electric Vehicle Council





Source: Institute for Sensible Transport, using ABS data

## EV Chargers

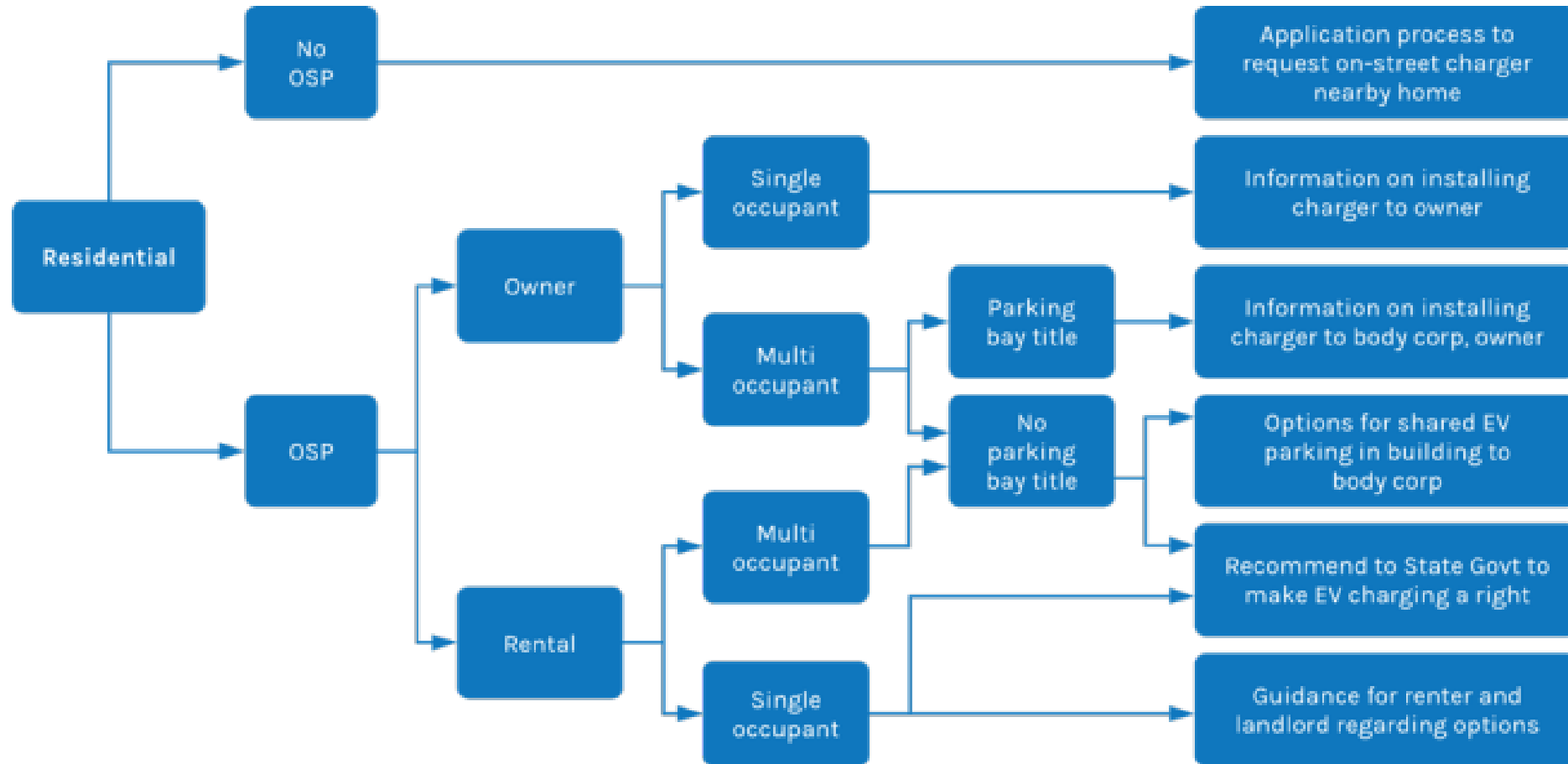
Over 90% of EV charging occurs at home or work.

There is also an implication related to land use - streets with a predominant residential form that lack off-street parking will result in EV owners being more dependent on the public charging network

Table 1 EV Charging types<sup>5</sup>

				
	Power	Range added per hour	Charging Time	Typical Application
Level 1 - single phase (domestic)	2.4 - 3.7kW	10 - 20km range / hour	5 - 6 hours	Home
Level 2 - slow single phase (domestic or public)	7kW	30 - 45km range / hour	2 - 5 hours	Home, work, shopping centres, car parks
Level 2 - fast three phase (public)	11 - 22kW	50 - 150km range / hour	30mins - 2 hours	Urban roadside
Level 3 - fast charge (public)	50kW	250 - 300km range / hour	20 - 60 mins	Activity centres, and near highways, motorways and key routes
Level 4 - super-fast charge (public)	120kW	400 - 500km range / hour	20 - 40 mins	Highways, motorways and key routes
Ultra fast charge (public)	350kW	1,000+ km range / hour	10 - 15 mins	Major highways and motorways

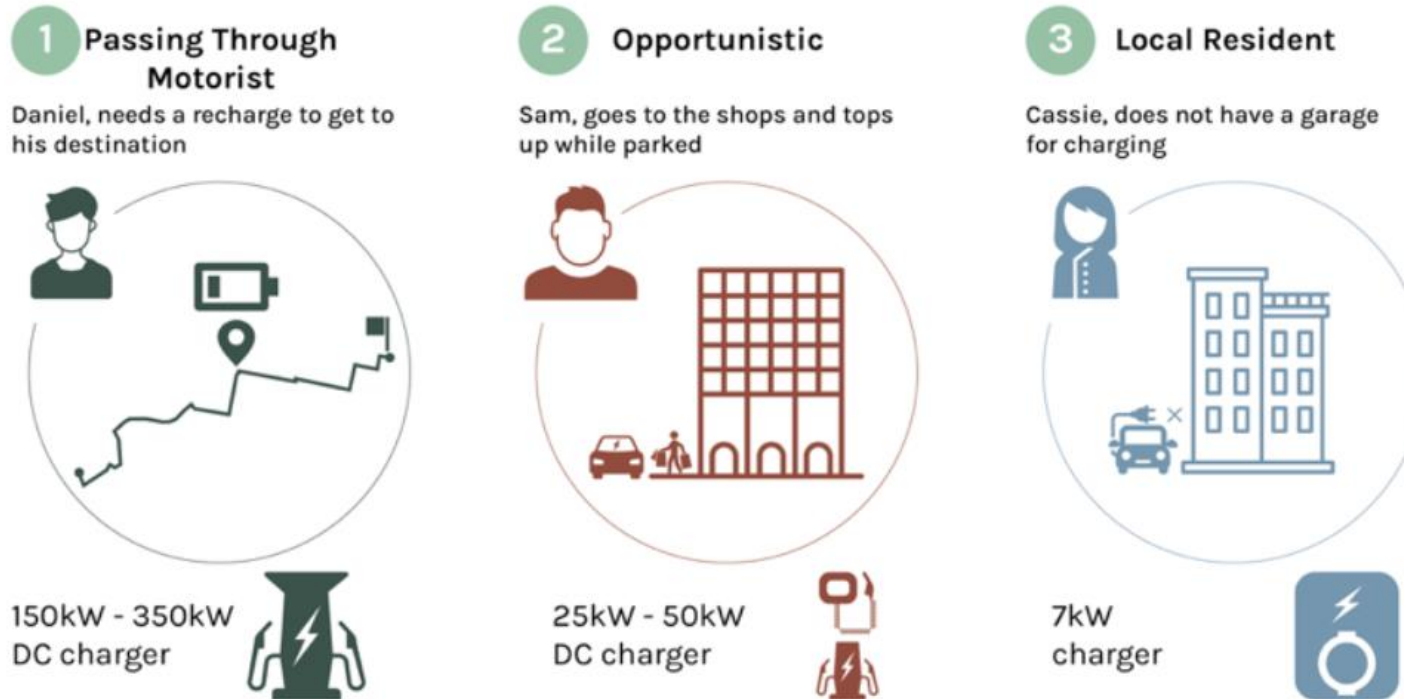
# Resident EV Charging Flow Chart



**Figure 21 Residential EV charging**

NB: OSP is Off-Street Parking

# Development of the Public Charging Network







## Public EV Charging Market

- The current public EV charging market has grown substantially in the last 12 months.
- EV charging operators expressed a willingness to invest in a charging network, provided there is long-term financial viability
- Need to work with local government to deliver the network ahead of time, to reduce range anxiety of prospective EV owners
- Access to council land and off-street car parks
- Reduced cost to access the Council land compared to privately held land
- Long-term stability of council-owned land retaining its same use
- Charging operators noted their willingness to enter into lease or profit-sharing agreements with councils to access land

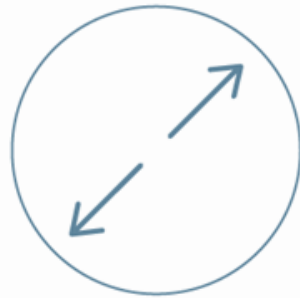
# EV Prioritisation Framework

## Opportunistic Charging



Significance of  
activity centre

+



Size of  
activity centre

+



Diversity of  
activity centre

+

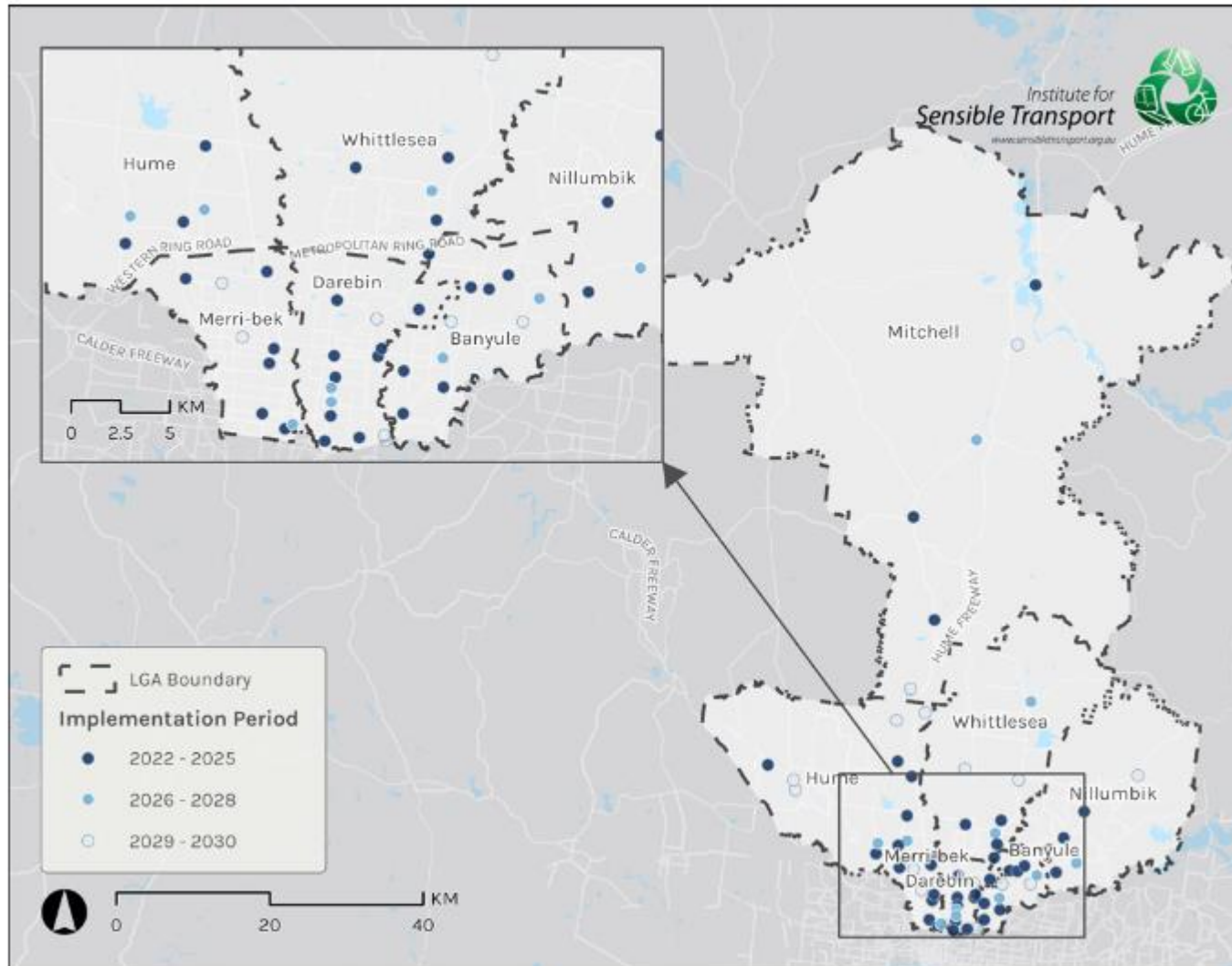


Proximity to  
roads with  
high traffic  
volume

+



Proximity to  
existing or  
planned  
charging  
infrastructure



Within the 64 activity centres 548 charging ports recommended to be installed by 2030



# Development of the Public Charging Network

## Council role - Multiple approaches for different contexts

- Option A – 100% council owned, built and operated
- Option B - 100% council owned, build and operation outsourced under council direction
- Option C – Council sets project standards outsources build and operation and leases access out, does not own asset
- Option D – Council offers access to its assets (lease) and external parties bid

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Regardless of the level of involvement councils wish to have on a future charging network, councils should apply scrutiny to bids/expressions of interest from the commercial sector.

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# Charging Bay Design

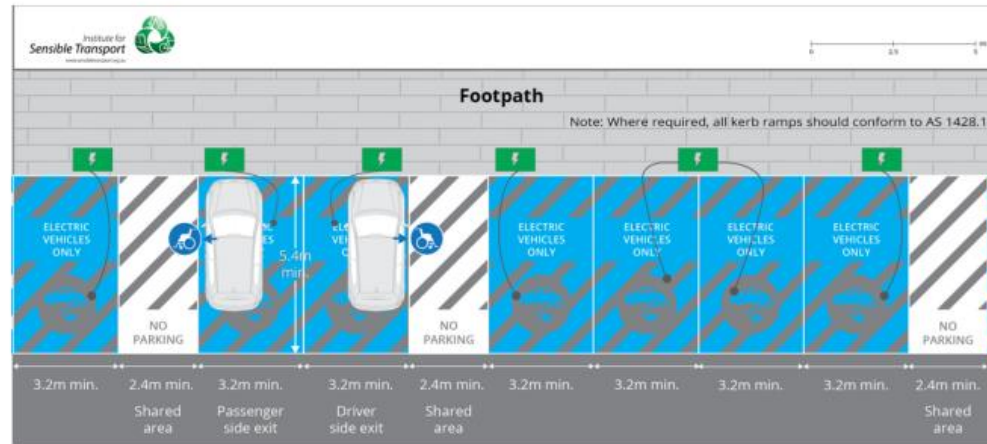


Figure 44 Proposed charging bay design for 90 degrees parking

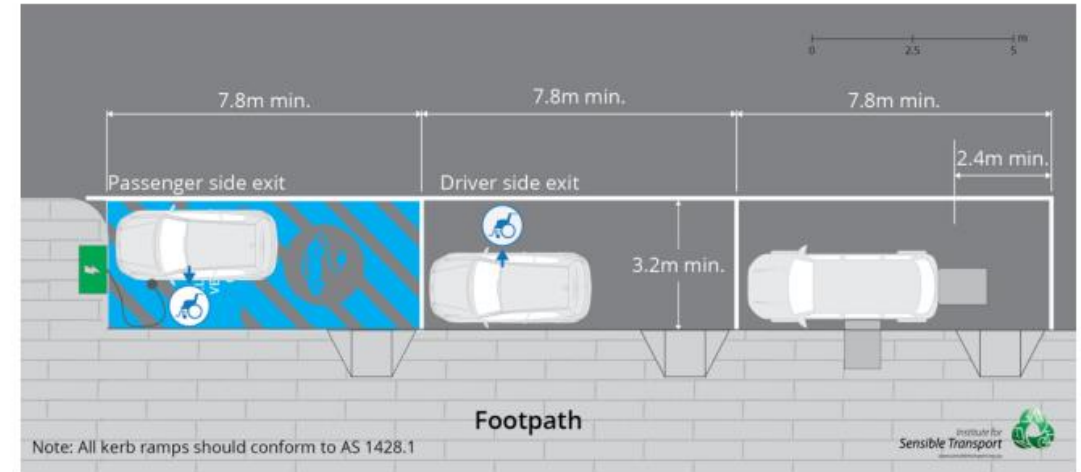


Figure 45 Proposed charging bay design for parallel parking

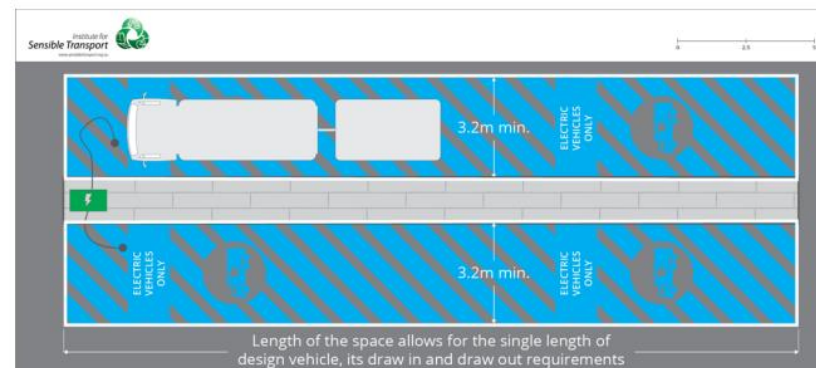


Figure 46 Proposed charging bay design for drive thru charging

Source: Institute for Sensible Transport

# Safety and Disability

## Protecting footpath accessibility

In instances where kerbside charging is installed, it is essential that they are designed in a manner that minimises any potential disruption to foot traffic. This includes avoiding installs in areas where the footpath is already narrow (i.e. less than 1.2m). Installing the charger in the furniture zone (i.e. where bins, utility poles, benches) are already located, eliminates the charger taking up additional functional space for the pedestrian.

## Box 6 Minimising pedestrian obstruction

### Electric vehicles and road safety risks

In addition to the well-established risks to road safety by conventional (ICE) motor vehicles, there are potentially some added risks associated with EV use. These may be associated with the lower noise levels at low speeds, and the faster acceleration, which other road users may not anticipate. Additionally, EVs tend to be heavier, and this can result in greater injury severity for other road users.

Shared spaces, where speed limits are often at 10km/h, may be perceived as more dangerous and therefore less desirable for visually impaired people. EV chargers, when located on the kerbside, is another addition to street furniture that adds to the complexity of navigating footpaths for the blind and visually impaired.



## Distributed Network Providers

Working with DNSPs is one of the most challenging aspects of EV charging installation. High application fees, costs for advice, and opaque decision-making processes all pose barriers to increasing public EV chargers.

Many councils also share community concern around growth in energy demand from EVs and electricity capacity constraints.





## E-Bikes, E-Cargo Bikes and E-Scooters

It is a little-known fact that around 95% of all EVs are actually e-bikes.

Given that around 50% of all trips in Greater Melbourne are under 5km, and some 30% are under 3km, there is considerable capacity for e-bikes and other forms of e-micro mobility to meet a greater portion of trips within the NCA region.

Key to enhancing opportunities for electric micro mobility will be the development of a network of protected bicycle lanes and paths



Figure 18 E-bikes provide an efficient mode for short to medium trips





## Recommended actions and next steps for Councils

- Form a cross-Council EV working group to advance outcomes and share learnings
- Draft local EV policy when and where different charging approaches are considered suitable
- Incorporate EV charging bay design into engineering manuals
- Trial street EV charging for residential areas without resident access to off-street parking
- Advocate for EV planning scheme amendments for new developments
- Advocate to improve processes for assessment/approval of new chargers into the grid
- Train and develop staff who intersect with EVs

## Recommended actions and next steps – for Councils (cont.)

- Develop up-to-date green travel plans for each Council site
- Review salary sacrificing options to ensure low and zero-emissions options are available
- Support the development of e-bike and e-scooter fleets for staff
- Deliver EV fleet transition of council operations
- Change procurement processes to reduce Council contractors' transport emissions
- Increase community awareness of sustainable transport options
- Promote and advocate for investment in walking and cycling networks



## Recommended actions and next steps – for Councils (cont.)



- Encourage the car share industry to include EVs in their fleets
- Initiate and support public awareness campaigns of e-bikes and e-scooters
- Facilitate economies of scale in terms of EV purchasing (e.g. bulk buys)
- Support business to transition to EVs, in particular charging infrastructure and solar panels
- Embed emissions reductions in municipal transport strategies
- Seek opportunities for Council-branded EV vehicles to increase community confidence
- Review existing Council buildings and lands to earmark locations where future charging stations need to be delivered.



## Recommended actions and next steps for Victorian Government



- Ensure all police reports involving crashes on Victorian roads note if a crash involved an EV
- Provide specific support and reduce barriers for renters who want to install EV chargers
- Develop a project to retrofit buildings (particularly multi-dwelling units and multi-level buildings) with offsite street parking to effect EV transition
- Support Councils to develop collaborative procurement arrangements for installation of public place and fleet charging
- Support the elevating targets planning scheme amendment that Councils have commenced
- Undertake a review of all planning schemes to ensure new developments, including areas inside precinct structure plans, have sufficient charging opportunities
- Deliver a commercial fleet EV expo for Victorian businesses to encourage them to switch





## Recommended actions and next steps for Victorian Government (cont.)



- Support the development of EV chargers at key employment hubs
- Work with distribution network service providers to drive innovation in public charging
- Fund initiatives to increase uptake of active transport (such as Northern Regional Trails Strategy)
- Support delivery of charging stations across Council depots and offices by 2025
- Support purchase of EV vehicles for Council light fleet by 2025
- Facilitate trialling of heavy fleet replacement vehicles to support Council fleet transition
- Assist Councils to rapidly transition their fleet to net zero
- Plan to upgrade power networks to deal with increased demands created by EV transition
- Encourage importation of heavy fleet vehicles that support Council and community needs.



## Recommended actions and next steps for Australian Government (cont.)



- Develop a Green Car Guide tool for businesses to support EV transition
- Provide increased investment to Councils, business and not-for-profit sectors for charging ports across 64 activity centres in Melbourne's north
- Implement for mandatory EV sound generation at speeds below 30km/h
- Encourage importation of electric heavy fleet vehicles that support Council and community needs
- Work with distribution network service providers to drive innovation in public charging, improve processes and deliver a public charging EV network in conjunction with the Victorian Government
- Plan for upgrading the power networks to deal with increased load and demands created by EV transition.



# Questions and Thanks

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