DECARBONISING TRANSPORT

The impact of EV uptake on our networks

Maximising the decarbonisation benefits while managing potential unintended consequences of electric vehicles

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Summary

The Australian Government's Long-Term Emissions Reduction Plan has a goal of achieving net zero emissions by 2050. In support of this objective, the Australian Parliament approved legislation committing to reducing carbon emissions by 43 percent below 2005 levels by 2030 and reaching net zero by 2050. The plan focuses on using a technology-driven approach to transition to a net zero economy, while safeguarding relevant industries, regions, and jobs. This emission reduction strategy is built upon a technology-led framework, encompassing a Technology Investment Roadmap and associated Low Emissions Technology Statements.

The appeal of electric vehicles

Electric vehicles (EVs) (and other zero/ low emission vehicles) are key to decarbonising road transport. With support from government policies to encourage adoption, EVs are gaining popularity as a sustainable and cost-efficient alternative to traditional Internal Combustion Engine (ICE) vehicles in Australia. As EVs become more accessible, they will provide numerous advantages, such as decreased emissions, lower fuel expenses and enhanced comfort. With the growing availability of EVs, the transport sector in Australia is starting to acknowledge their potential to transform the way we travel while reducing our carbon emissions.

EVs have the potential to significantly alter travel behaviour by making private vehicle travel more sustainable and cost-effective. EVs may also offer a smoother and quieter ride, making them more comfortable for passengers. If not managed appropriately, EVs have the potential to undo years of transport and land use policy aimed at reducing private vehicle mode share.

It is expected that EVs could induce additional private vehicle travel by attracting trips from alternative modes (such as public transport) and encouraging longer trip lengths. This potential increase in private vehicle travel could negatively affect road congestion, increase travel times and reduce travel time reliability. In turn, this could cause economic losses, decreased productivity, and increase costs for moving freight. Increased congestion will also increase fuel consumption and consequential emissions for the remaining ICE vehicles on the roads.

Measuring future EV impact

To gauge the potential impact of EVs on travel behaviour, KPMG developed future scenarios of EV uptake using the KPMG Electric Vehicle Insights and Analytics Platform (EVIAP) and estimated the transport network and economic impact of these scenarios on transport users. KPMG's analysis indicates that across Australia, economic benefits of around $280 billion in present value over a 50-year period could be realised through the uptake of EVs. However, the analysis also found that the resulting increase in road network congestion could reduce these benefits by around $80 billion, bringing the benefits down to an estimated $200 billion.

Complementary transport and land use policy levers are required to ensure the benefits of EVs are maximised, and that EVs contribute to achieving sustainable, productive and vibrant cities across the country.

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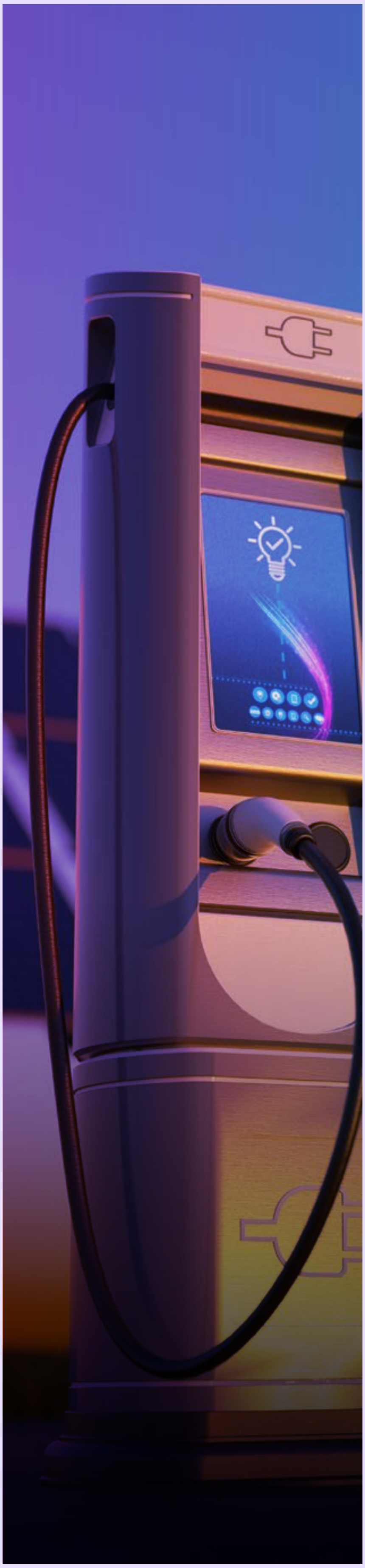


Introduction: impact of electric vehicles

In 2022, Australia's transport sector made up nearly 20 percent of Australia's carbon emissions.[1] Of these transport emissions, 60 percent were from passenger cars and light commercial vehicles.

There is a clear imperative to accelerate the decarbonisation of the transport sector through the uptake of electric vehicles (EVs). However, without complementary policy or planning interventions, the widespread adoption of EVs could lead to unintended consequences that may counteract progress towards a sustainable and productive transport network.

These consequences result from the significantly lower vehicle operating costs of EVs compared to Internal Combustion Engine (ICE) vehicles, and include:

- a mode shift from public transport to EVs
- an increase in trip lengths
- an increase in road congestion due to extra road travel
- an increase in the per kilometre emissions produced by ICE vehicles due to the increased road congestion
- increased urban sprawl as the lower per kilometre travel costs encourages people to live further from our social and economic centres.

We have tested and gauged the impacts of the first four behaviours for metropolitan Melbourne, using transport and economic modelling tools.

Our analysis considers the impacts of adopting EVs under the current policy environment. This examination aims to encourage discussions about other necessary interventions and integrated approaches to optimise the transition to net zero transport, such as demand management, integrated land use and transport planning, and the promotion of active, public and shared transportation.

[1] Reducing transport emissions – DCCEEW

Projecting the uptake in EVs

Various state-level EV targets have been established, with New South Wales, Victoria, and Queensland aiming for 50 percent of new car sales to be electric vehicles by 2030.

While all state governments have embraced EVs as the future of private transportation, localised and consistent projections remain limited. State-level projections can help us understand certain implications and requirements in an aggregated context, but since EV adoption depends on personal conditions and preferences, it is essential to analyse market patterns and trends at a more granular level.

KPMG has created the Electric Vehicle Insights and Analytics Platform (EVIAP), which offers an overview of the most recent developments in EVs and predicts future fleet shares based on observed trends and significant technology and policy commitments.

KPMG's EVIAP tracks EV volumes, technology, socio-economic trends, and policy efficacy at a local level in major cities. Our model estimates annualised EV registrations for different postcodes in Sydney, Melbourne and Brisbane, taking into account the socio-economic characteristics of each postcode and the state of the technology at any given time. We then combine these results with generalised commuting patterns and vehicle replacement rates to determine fleet share proportions.

Melbourne's projected uptake of EVs by 2031

The inner-city suburbs of Melbourne are expected to see strong uptake of EVs. However, there are large parts of the outer suburbs where EV uptake is expected to be low. **Figure 1**, on the following page, shows the projected distribution of EV uptake by 2031. This indicates that inner suburbs and high-income suburbs will be the early adopters of EVs. Beyond 2031, the distribution of the EV uptake becomes more even across the Melbourne metropolitan area.

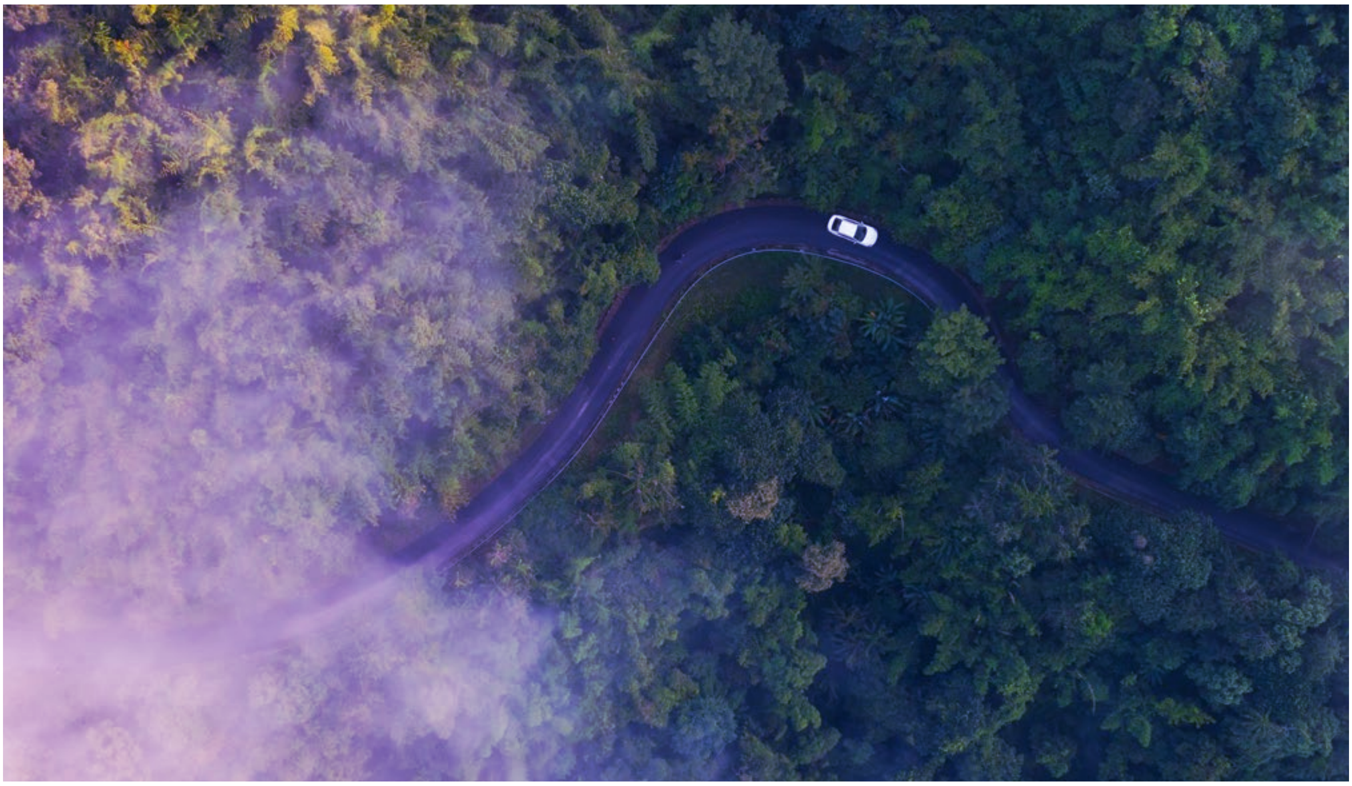
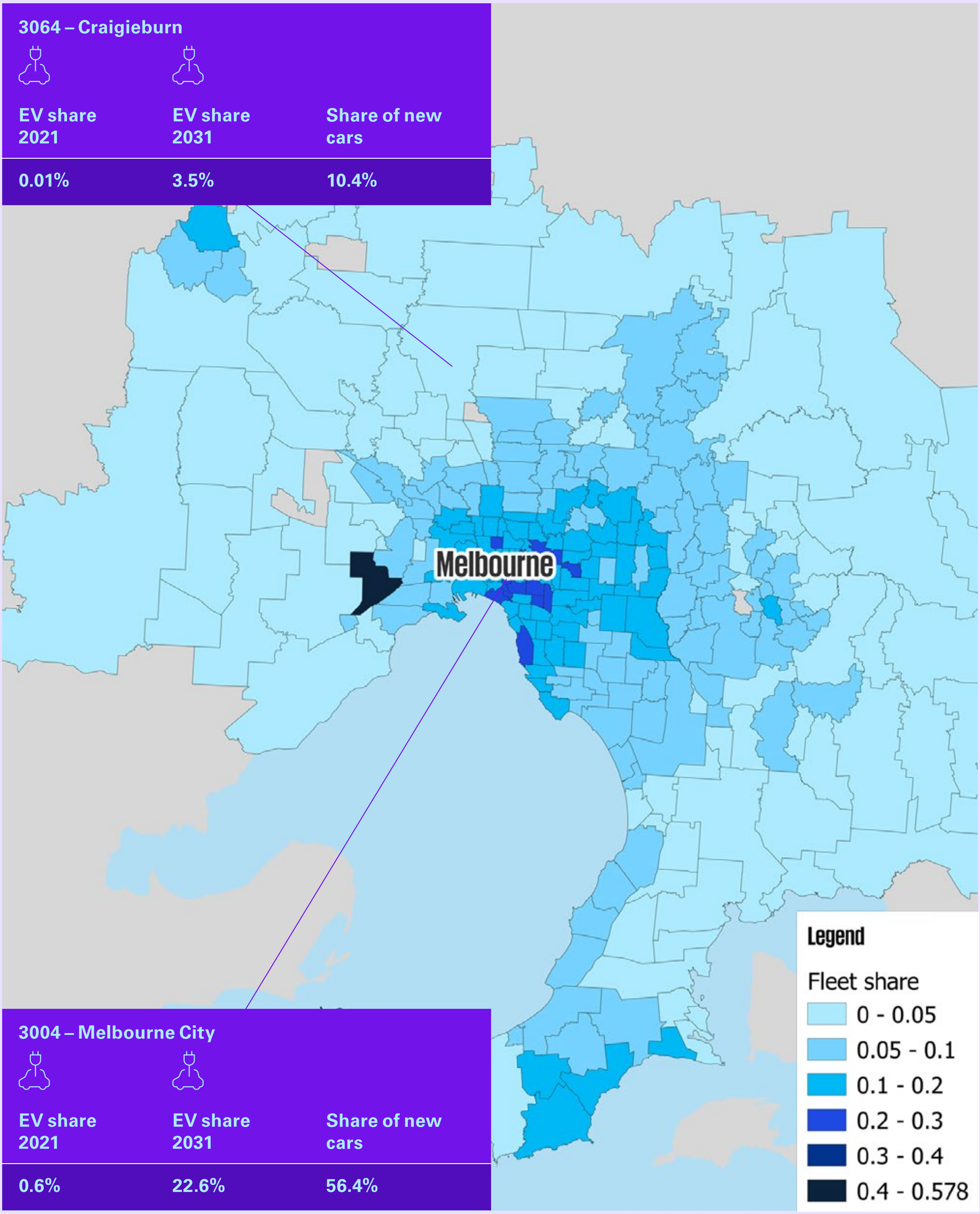


FIGURE 1: PROJECTED UPTAKE OF EVs BY 2031



Source: Accelerating Australian electric vehicle uptake – KPMG Australia

EV operating costs

According to the Electric Vehicle Council[2], EVs are on average $1,913 cheaper to operate per year than conventional ICE vehicles. This is based on an average of 15,000 kilometres travelled annually, and equates to a saving of 12.9 cents per kilometre.

Our modelling has assumed a 4.0 c/km EV operating cost. We note that road user charges for EVs vary from state to state, and that in some instances the total per kilometre vehicle operating cost may exceed this amount.

Table 1 provides a summary of the estimated vehicle operating costs (VOC) for EVs, showing a range between 3.3 c/km and 5.0 c/km.

TABLE 1: OPERATING COSTS OF EVs

VALUE (C/KM)	COMMENTS	SOURCE
5.0	For a medium passenger vehicle	Transport for NSW[3]
3.3	For a small passenger vehicle	Transport for NSW[4]
5.0	For a typical passenger vehicle	Infrastructure Victoria[5]
4.0	For a typical passenger vehicle	Electric Vehicle Council[6]

It is expected that the reduced operating costs will be a major motivation to replace current ICE vehicles to EVs. Once people own an EV, we expect that the reduction in VOC will subsequently result in an increase in total kilometres travelled via private vehicles, as private vehicle travel becomes more attractive compared to other modes such as public transport and non-motorised travel (such as walking, cycling and e-scooters). Reduced VOC could also encourage longer trip lengths as people can now travel further for the same cost.

Modelling the impact of EVs

Using KPMG's EVIAP, the future EV share of total fleet has been predicted at transport zone level for metropolitan Melbourne in 2036 and 2051. This allows us to model EVs in a strategic transport demand model as a new class of vehicle. EVs can be represented as a vehicle class like ICE vehicles, but with greatly reduced VOC.

KPMG used the Victorian Integrated Transport Model (VITM), to gauge the impact EVs may have on vehicle travel patterns. VITM is a multimodal strategic transport model developed and owned by the Victorian State Government and used to assist with strategic transport planning, including assessing major transport projects or policies. Future year scenarios were run through VITM, where different EV uptake rates were compared against no-EV futures. The six scenarios tested were:

- 2031 with no EVs
- 2031 with 40 percent EV uptake
- 2036 with no EVs
- 2036 with 80 percent EV uptake
- 2051 with no EVs
- 2051 with 95 percent EV uptake.

2 FAQs - Electric Vehicle Council

3 Transport for New South Wales, 2022, Technical Note on Calculating Road Vehicle Operating Costs, Table 9

4 ibid

5 Infrastructure Victoria, 2018, Automated and Zero Emission Vehicle Infrastructure Advice, p99

6 FAQs - Electric Vehicle Council

These EV uptake rates, as projected by the KPMG EVIAP, are broadly consistent with the March 2023 Independent Expert Panel for Victorian 2035 Emissions Reduction Target,[2] which recommended that Victoria phase out new sales of emitting road vehicles by 2035.

VITM covers the entire state of Victoria, however, for this analysis we have focused on the impacts within metropolitan Melbourne – where the largest uptake of EVs is expected to occur.

The VITM modelling indicates that EVs attract some mode shift away from public transport (increasing private vehicle demand). **Table 2** shows that for metropolitan Melbourne, by 2031 the uptake of EVs will result in a 2.4 percent reduction in public transport trips, which grows to a 6.2 percent reduction in trips by 2051.

TABLE 2: CHANGE IN WEEKDAY TRIPS BY MODE (METROPOLITAN MELBOURNE)

	NO EVs	EV UPTAKE	CHANGE	% CHANGE
2031				
Private vehicle	17,202,000	17,250,000	48,000	0.3%
Public transport	1,734,000	1,693,000	-41,000	-2.4%
2036				
Private vehicle	18,517,000	18,653,000	136,000	0.7%
Public transport	1,965,000	1,851,000	-114,000	-5.8%
2051				
Private vehicle	22,725,000	22,913,000	188,000	0.8%
Public transport	2,547,000	2,389,000	-158,000	-6.2%

In addition to the modest increase in projected private vehicle trips, there was a pronounced impact on trip lengths. **Table 3** shows that the average distance travelled by private vehicles is projected to increase by 3.3 percent in 2031 and 9.2 percent by 2051, due to the uptake of EVs. This increase in travel distance is related to the reduced VOC.

The combined impact of the increase in total private vehicle (EV) trips with the increase in trip length, is projected to increase the total Vehicle Kilometres Travelled (VKT) by 3.7 percent in 2031 and by 10.2 percent in 2051 (**Table 4**).

TABLE 3: AVERAGE DISTANCE TRAVELLED BY PRIVATE VEHICLES (METROPOLITAN MELBOURNE)

AVERAGE DISTANCE TRAVELLED (KM)	NO EVs	EV UPTAKE	CHANGE	% CHANGE
2031	10.6	10.9	0.4	3.3%
2036	10.5	11.4	0.8	7.7%
2051	10.2	11.1	0.9	9.2%

[7] Parliament.vic.gov.au/file_uploads/Victorias_2035_Climate_Action_Target_Driving_Growth_and_Prosperity_WHpQMPvf.pdf

TABLE 4: TOTAL VEHICLE KILOMETRES TRAVELLED PER WEEKDAY (METROPOLITAN MELBOURNE)

VEHICLE KM	NO EVs	EV UPTAKE	CHANGE	% CHANGE
2031	128,054,000	132,728,000	4,674,000	3.7%
2036	137,825,000	149,635,000	11,810,000	8.6%
2051	163,396,000	180,123,000	16,727,000	10.2%

Our modelling indicates that the increase in VKT will increase road congestion, particularly during peak periods. **Table 5** shows that the average speeds for the morning peak are projected to decrease by 3 percent due to EVs in 2031 and by 10 percent in 2051.

By way of context, VicRoads' Traffic Monitor report records a 9 percent drop in average AM peak speed on the metro monitored road network over the 10-year period between 2002 and 2012. The VicRoads result only includes major roads and would likely be a smaller decrease if minor roads were included as they are in VITM, demonstrating the significance of the modelled EV induced speed decrease.

TABLE 5: AVERAGE MORNING PEAK ROAD SPEED (METROPOLITAN MELBOURNE)

AVERAGE MORNING PEAK SPEED	NO EVs	EV UPTAKE	CHANGE	% CHANGE
2031	35.6	34.5	-1.1	-3.0%
2036	35.4	32.3	-3.1	-8.7%
2051	32.6	29.3	-3.2	-10.0%

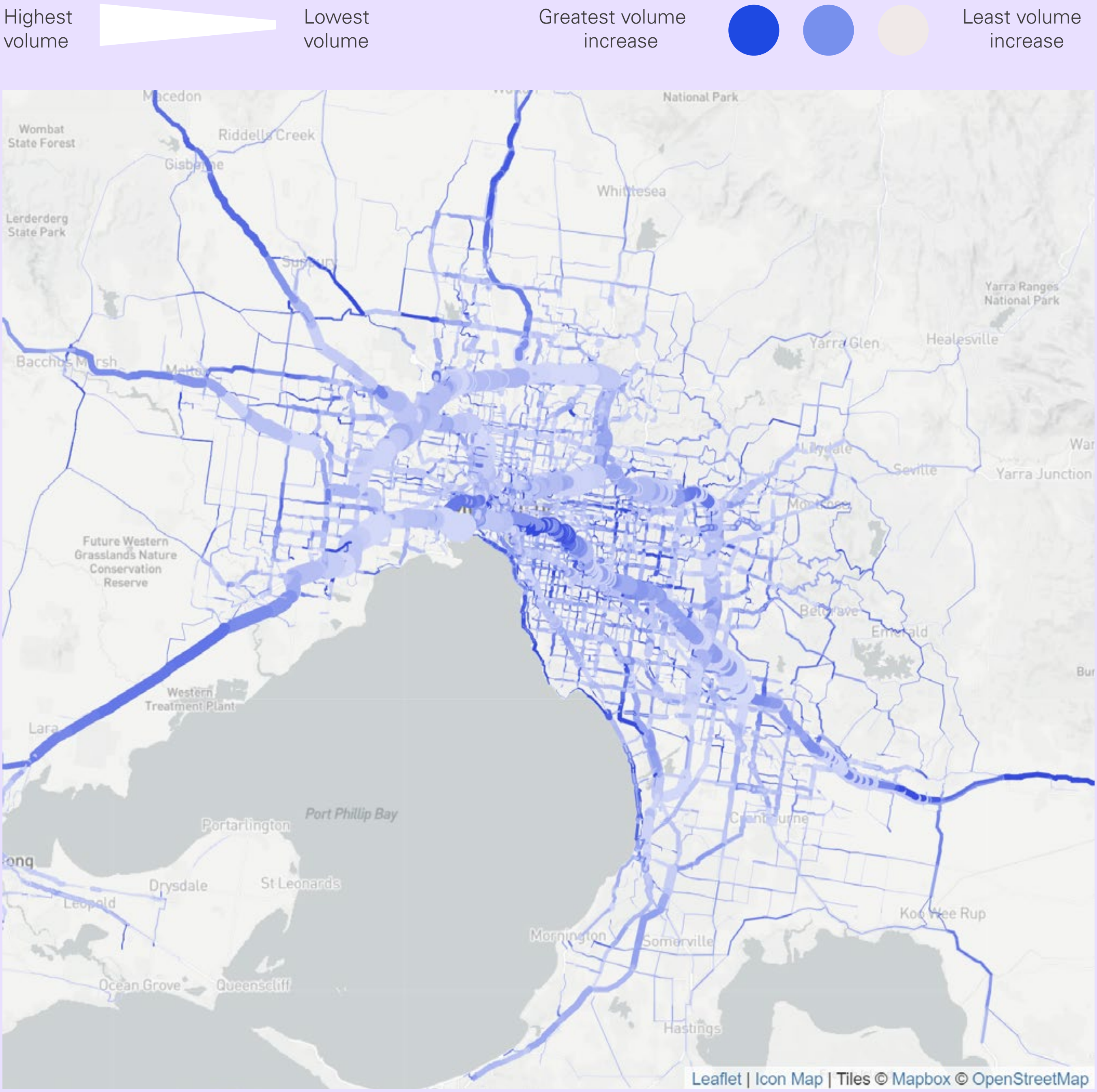
The combination of increased private vehicle trips, increased trip lengths and reduced speeds attributed to the uptake of EVs is projected to increase the total vehicle hours travelled across metropolitan Melbourne. **Table 6** shows the increase in Vehicle Hours Travelled (VHT) over all weekdays in a given week. The increase in VKT and VHT will have a considerable detrimental impact on the performance of the road network.

TABLE 6: TOTAL WEEKDAY VEHICLE HOURS IN METROPOLITAN MELBOURNE

VEHICLE HOURS	NO EVs	EV UPTAKE	CHANGE	% CHANGE
2031	2,909,000	3,069,000	160,000	5.5%
2036	3,139,000	3,591,000	452,000	14.4%
2051	3,975,000	4,683,000	708,000	17.8%

Figure 2 depicts the expected percentage change in demand in the 2031 morning peak period due to the uptake of EVs. The width of lines on the map are proportional to the level of demand on each link, while the colour indicates the percentage change in demand. This chart indicates that regional highways such as the M1 between Geelong and Laverton, M1 between Pakenham and Drouin, the Hume Highway between Wallan and Craigieburn and the M79 between Gisborne and Sunbury exhibit the largest relative change (approximately 5 percent). This further demonstrates how the lower per kilometre VOCs offered by EVs incentivises longer distance trips.

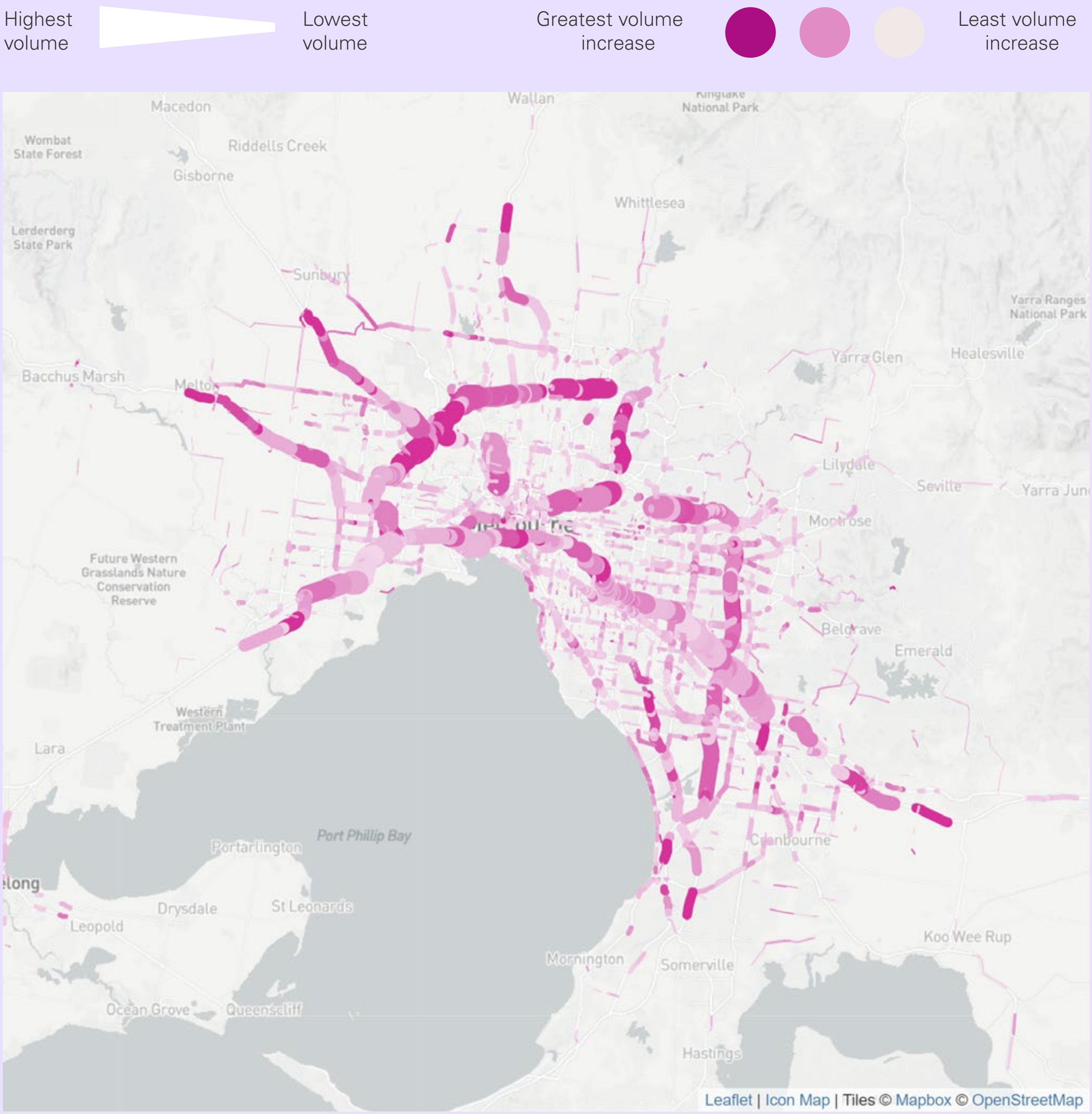
FIGURE 2: PROJECTED PERCENTAGE INCREASE IN VOLUME ON NETWORK IN METROPOLITAN MELBOURNE IN 2031 MORNING PEAK



Source: KPMG analysis of ABS data

It is also notable that the largest relative increases in demand occurs in less congested sections of the network, a trend investigated further in **Figure 3**. This figure shows the modelled percentage decrease in speed in the 2031 morning peak due to the uptake of EVs. The most significant decreases in speed are projected to occur in metropolitan Melbourne, rather than on the regional highways. These inner routes are already experiencing significant congestion, and a small increase in demand has an outsized impact on speed. This speed decrease affects all road users, including freight users who (all else constant) will experience a decrease in productivity.

FIGURE 3: PROJECTED PERCENTAGE DECREASE IN SPEED ON METROPOLITAN MELBOURNE NETWORK IN 2031 MORNING PEAK



The economic impacts of EV uptake

To further measure the impacts of the projected uptake in EVs, KPMG undertook an economic appraisal of EVs on road users. To simplify the analysis, we focused on direct user benefits and a selection of externalities. These were narrowed down to:

– benefits of reduced vehicle operating costs
– disbenefits of increased travel times
– benefits of reduced tailpipe CO_2 emissions.

This analysis doesn't explicitly measure the wider economic benefits, which could accrue due to improved economic efficiencies such as improved business-to-business or business-to-employee access.

Table 7 shows the economic benefits measured in generalised minutes. That is, travel time savings are measured in minutes and the VOC savings are converted from dollars into minutes using monetary values of time. The travel time and VOC benefits and disbenefits are calculated using consumer surplus theory and the rule of half for variable demand, in line with Australian Transport Assessment and Planning (ATAP) guidelines, and the Victorian State Government guidelines using the VITM Economic Module as the analysis tool.

TABLE 7: ECONOMIC BENEFITS DUE TO EV UPTAKE PER WEEKDAY IN GENERALISED MINUTES

ECONOMIC BENEFITS (MINUTES)	2031	2036	2051
Travel time savings	-5,295,000	-16,377,000	-28,166,000
VOC savings	21,892,000	57,071,000	80,219,000
Total benefits	16,597,000	40,694,000	52,053,000

The economic analysis shows that the very large reduction in VOC for EVs can generate considerable economic benefits. The analysis also confirms that the increase in travel time (due to road congestion) greatly reduces the potential overall benefits. In fact, the overall benefits could be 40 percent higher if the negative impacts due to induced demand could be mitigated.

Only EV users experience VOC savings, however, both EV and ICE users will experience an increase in travel costs due to increased travel times. In fact, ICE users will experience increased VOCs due to more congested driving conditions, as shown in **Table 8.** This has the potential to worsen the socio-economic divide and put communities from lower socio-economic background who might not be able to afford EVs at a disadvantage.

TABLE 8: ECONOMIC BENEFITS PER WEEKDAY BY VEHICLE TYPE

ECONOMIC BENEFITS (MINUTES)	VEHICLE TYPE	2031	2036	2051
Travel time savings	ICE	-3,177,000	-3,275,000	-1,408,000
	EV	-2,118,000	-13,102,000	-26,758,000
VOC savings	ICE	-3,068,000	-925,000	-395,000
	EV	24,960,000	57,996,000	80,614,000
Total benefits		16,597,000	40,694,000	52,053,000

Impact on CO2 emissions

The EV adoption rate is not proportional to the reduction in CO2 emissions. That is, a 95 percent EV adoption rate does not equal a 95 percent reduction in CO2 emissions. This is due to the impact of induced demand on the road network performance, which increases the emissions per kilometre of the remaining ICE vehicles.

As outlined in **Table 9**, the emissions generated by ICE vehicles on the road network (with no EVs) would be estimated to grow from around 60,000 tonnes per day in 2031 to around 80,000 tonnes per day in 2051. Following the projected uptake to EVs, the daily emissions would be reduced to around 40,000 tonnes per day by 2031, reducing further to around 6,000 tonnes per day by 2051.

An additional 10 percent emission reduction could be achieved if the induced demand was able to be mitigated, with even further reductions possible through policies that encourage higher public transport mode share.

This highlights the need for further policies, incentives and measures to accompany EV uptake, in order to maximise the benefits of EVs within Melbourne's integrated multimodal transport system.

TABLE 9: EMISSIONS REDUCTION PER WEEKDAY DUE TO EV UPTAKE

DAILY CO2 EMISSIONS (TONNES)	2031	2036	2051
No EVs	61,200	64,600	79,900
EV uptake	41,600	14,700	6,300
Emission impact	-19,600	-49,900	-73,600

The projected road user benefits can be converted into present day benefits in dollars using a 7 percent discount rate (as recommended for transport appraisal). **Table 10** shows the present value benefits for the travel time, vehicle operating cost and emission reduction impacts for Victoria due to EV uptake across a 50-year appraisal period.

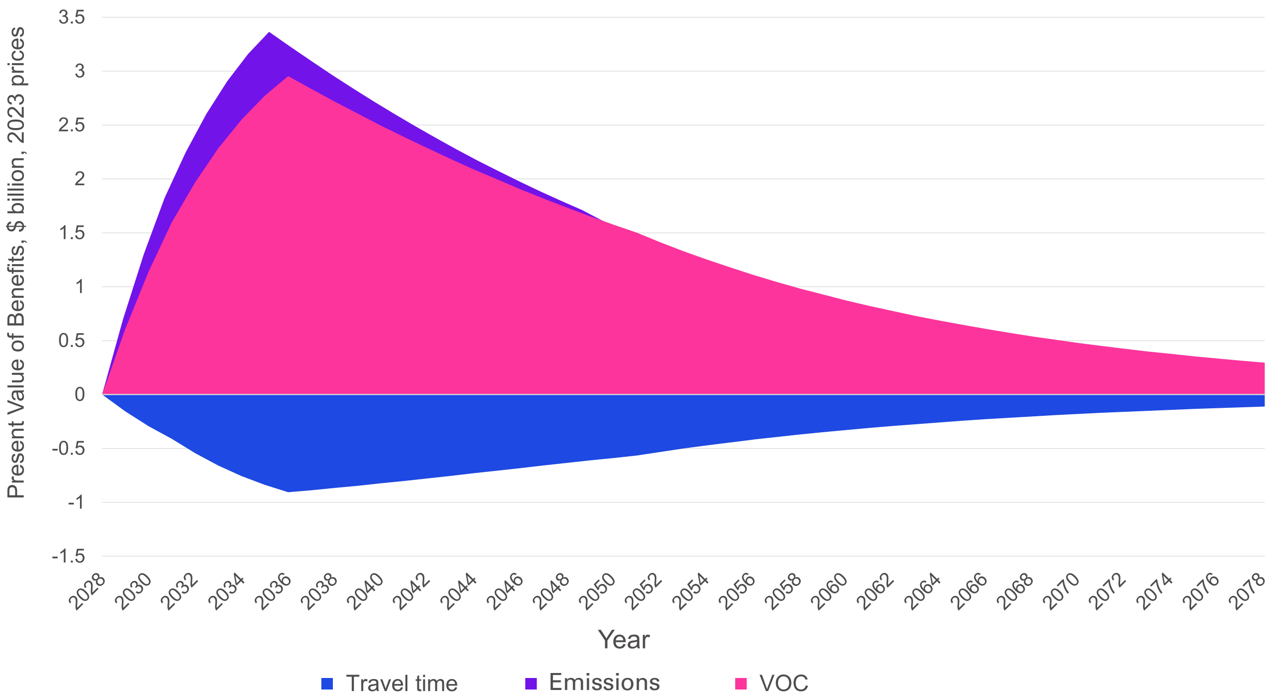
Note: For the purpose of the appraisal we assume that EV uptake is held constant beyond 2051 at 95 percent, however, acknowledge that in reality there may be a full fleet transition during this period.

TABLE 10: CONVENTIONAL ECONOMIC BENEFITS OF EV UPTAKE

ECONOMIC BENEFITS	PRESENT VALUE AT 7% DISCOUNT RATE
Road user benefits	
Travel time	-$22b
Vehicle operating costs	$67b
Emissions	
CO2	$9b
Net present benefits	$54b

Figure 4 shows the present value of the three economic benefit streams across a 50-year appraisal period. The relative proportions of each stream can be clearly seen with the travel time disbenefit approximately one-third of the size of the VOC benefit. The third benefit stream captures the reduction in tailpipe emissions.

FIGURE 4: PRESENT VALUE OF HIGHWAY BENEFITS AND EXTERNALITIES, ANNUAL TIME SERIES, 7% DISCOUNT RATE



This equates to approximately $54 billion in present day benefits over 50 years (at a 7 percent discount rate). However, there is a further potential $22 billion of benefits, which could be realised if the negative impacts due to induced traffic can be mitigated.

The carbon price used in the calculation of externality benefits is the value recommended in the ATAP guidelines. The price used is constant in real terms, however the appropriateness of this assumption is debatable under the heightened climate change context.

Literature suggests that cost of carbon should increase over time as the marginal abatement cost increases. This approach is being adopted by other agencies across Australia. We recommend ATAP consider reviewing the current appraisal values.

Other economic impacts

A number of additional economic benefits have been quantified through this work and are shown in **Table 11.** They have not been included in the above results due to their relatively small impact.

TABLE 11: OTHER ECONOMIC IMPACTS

BENEFIT	PRESENT VALUE AT 7% DISCOUNT RATE
Public transport user benefits	$0.4b
Public transport fares resource cost correction	-$1.1b
Road accidents externality	-$3.3b
Health externality	-$0.5b

Public transport user benefits are attributable to a reduction in crowding on the public transport network, due to shifts towards road use. This effect also explains the public transport fares reduction, with fewer public transport trips leading to reduced fare revenue for government.

Road accidents and health externalities are both estimated based on a change in total vehicle kilometres travelled across the highway network, and are negative given the expected increase in road travel due to the uptake of EVs. It is not clear whether current relationships between vehicle kilometres travelled and these externalities will hold as the private vehicle fleet transitions to EVs and vehicles become much safer – meaning the current quantification methodology for this externality may not be suitable.

The following potential economic impacts of the uptake of EVs have not been considered in the analysis:

- The costs of purchasing and insuring an EV, which may be higher than a comparable ICE vehicle due to either (as the market for EVs becomes more competitive and mature these effects should weaken):
  - higher costs of production for this emerging technology
  - potentially lower competition between manufacturers, which may allow them to charge a premium for their product and capture some of the surplus realised over the life of the vehicle by consumers through lower operational costs.
- The carbon intensity of the electricity used to power EVs (only tailpipe emissions have been considered when calculating the reduction in CO2 emissions). The impact of this will reduce over time as Australia's electricity production is decarbonised.
- The embodied carbon and the CO2 emissions generated during the manufacturing of ICE versus EVs.
- The reduction in other harmful emissions produced by private vehicles (both ICE vehicles and EVs) such as nitrogen oxides (NOx) and particulate matter. There are likely to be significant additional benefits of EV uptake through reduced NOx emissions (a by-product of the combustion of fossil fuels). The relationship between propulsion technology and particulate matter emissions is less clear, with brake and tyre wear being factors for both ICE vehicles and EVs.

National impacts

Victoria accounts for approximately 27 percent of the total vehicle kilometres travelled in Australia. Therefore, extrapolating the projections from the Victorian modelling to a national level produces potential vehicle operating cost savings of around $280 billion in present value over a 50-year period through the uptake of EVs. However, the increase in road network congestion could reduce these benefits by around $80 billion, bringing the national benefits down to an estimated $200 billion.

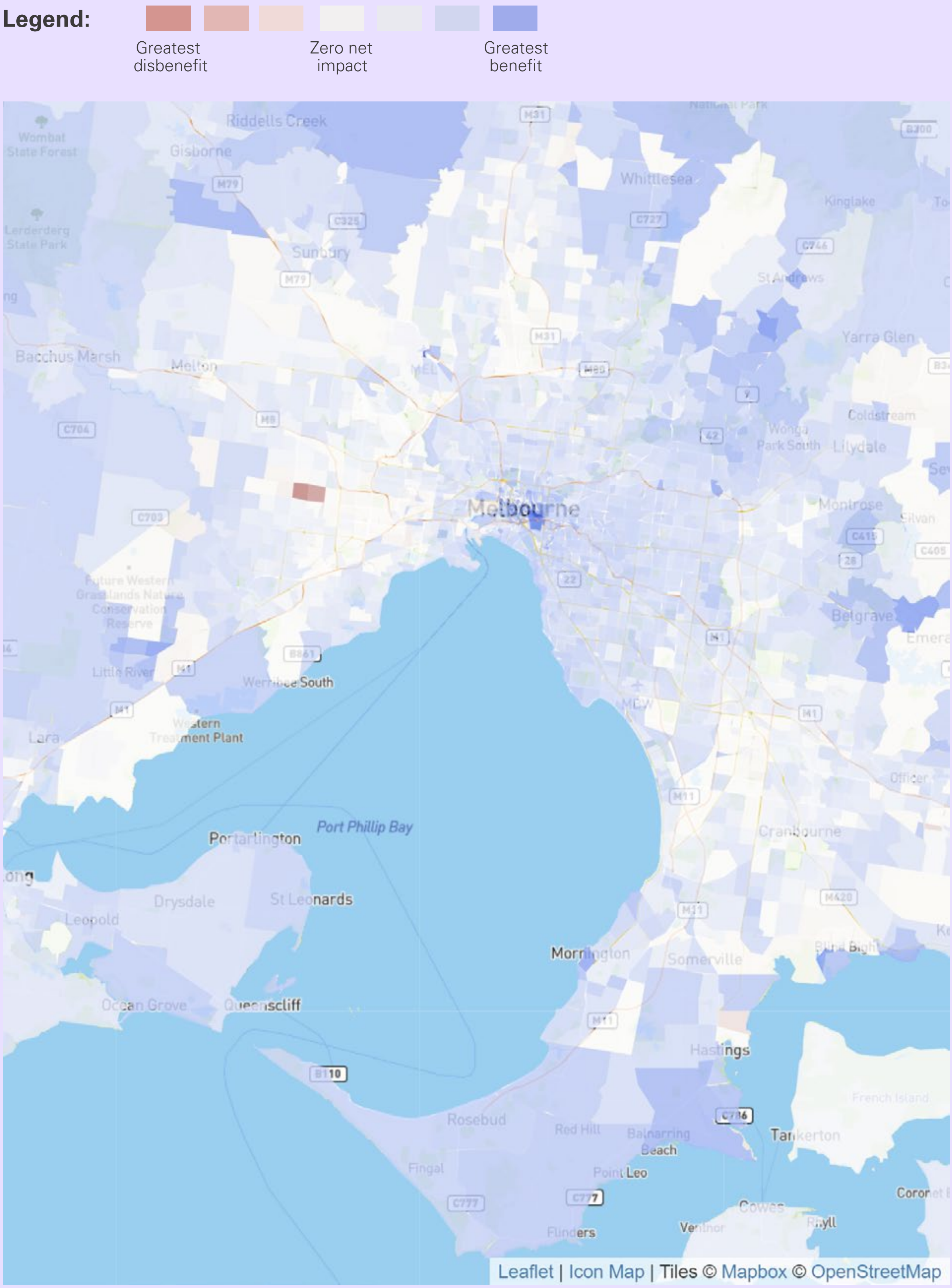
Geographical analysis of road user benefits

The road user benefits summarised above can be analysed geospatially to understand how they are distributed across Greater Melbourne. Road user benefits in the morning peak period are presented by origin in **Figure 5**. The morning peak period has been selected, as trips made in this period tend to originate at the place of residence of the traveller (e.g. travel to work or school). This means the benefits can be interpreted as accruing to households living in these areas (or businesses, in the case of freight trips).

Across all model years, the outer ring and regional suburbs experience greater benefits from a reduction in perceived vehicle operating costs relative to other areas across Victoria. This demonstrates that longer trips originating in less congested areas experience a considerable benefit from a reduction in costs. For instance, trips originating in Ocean Grove would accumulate these benefits across the relatively uncongested proportion and majority of their trip to the Melbourne CBD. Meanwhile, trips originating in inner and middle-ring suburbs would begin in an already congested network, reducing the potential benefits these trips can accrue. It is expected that transition of heavy vehicles to zero emissions would lag the passenger vehicles, which is demonstrated in the figure by the disbenefits present in primarily industrially zoned SA2s.

[8] Statistical Areas Level 2 – areas defined by the Australian Bureau of Statistics that represent communities that interact together socially and geographically.

FIGURE 5: CONSUMER SURPLUS BY TRIP ORIGIN SA2 IN MORNING PEAK – 2031



Recommendations

It is clear we need EVs and other zero emission vehicles to decarbonise our transport sector. Therefore, this discussion is not about whether to transition to EVs or not. Rather, it acknowledges that without complementary policies and initiatives, the lower operating costs of EVs may result in adverse economic, social and environmental outcomes and undo years of transport and land use policies aimed at reducing private vehicle mode share.

The transition to EVs will occur over the coming decades. We need to consider complementary policy levers required to ensure that the benefits of EVs are maximised, and that EVs contribute to achieving sustainable, productive and vibrant cities in Victoria and across the country.

We encourage governments and the wider transport planning and management community to actively consider policies and initiatives, such as:

- continuing to invest in public transport – through improved access, frequency, reliability and comfort – so it becomes a highly competitive and attractive transport option
- continuing to implement urban planning policies that encourage mixed use development around transit stations to encourage convenient walking, cycling and public transport use
- continuing to explore the appropriate policy settings to support effective and safe adoption of micro-mobility
- developing and instituting policy measures to manage private vehicle demand (such as road pricing and parking policies)
- considering the spatial implications of any initiatives designed to increase EV uptake so they encourage uptake by people living in outer metro suburbs or those from lower socio-economic backgrounds, and do not just become another middle-class welfare.

How KPMG can help

Electric vehicles are critical for Australia to meet its net zero ambitions. Federal, state and territory governments have set important targets for our transition and have developed policies to support Australia's journey to successfully decarbonising transport.

However, this paper has shown that if not managed appropriately, EVs have the potential to undo years of transport and land use policy aimed at reducing private vehicle mode share.

KPMG is able to combine data from the KPMG EV Insights & Analytics Platform, which provides a comprehensive understanding of current and future EV uptake trends, with insights from transport demand and economic models, to empower policymakers to make informed policy and planning decisions in the face of a rapidly changing world and increased uncertainty.

KPMG's Planning & Infrastructure Economics team, part of our Infrastructure, Assets & Places group, help develop, plan and prioritise policies and infrastructure to successfully decarbonise the transport sector, whilst minimising any potential adverse impacts.

Acknowledgements

KPMG would like to acknowledge the support given by the Forecasting and Evaluation team from the Victorian Department of Transport and Planning for providing us with access to the Victorian Integrated Transport Model (VITM).

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September 2023 1161986730IAP