INFRASTRUCTURE VICTORIA

4 July 2024

Department of Infrastructure, Transport, Regional Development, Communications and the Arts
GPO Box 594
Canberra ACT 2601

A National Urban Policy for Australia – Infrastructure Victoria Submission

Dear Secretary,

I welcome the opportunity to provide Infrastructure Victoria's submission to the Department of Infrastructure, Transport, Regional Development, Communications and the Arts on a National Urban Policy for Australia.

Infrastructure Victoria is an independent advisory body established by the Infrastructure Victoria Act 2015, and is responsible for:

- preparing a 30-year infrastructure strategy for Victoria, which we review and update every 3 to 5 years,
- advising the Victorian Government on specific infrastructure matters, and
- publishing research on infrastructure-related issues.

As Victoria's independent infrastructure advisory body, Infrastructure Victoria focuses on policy responses that address the economic, social, and environmental needs of all Victorians. Our evidence-based policy research and advice is also relevant for other Australian jurisdictions.

This submission is an overview of Infrastructure Victoria's work relevant to a National Urban Policy for Australia.

Victoria's infrastructure strategy 2025-2055

In 2023 we engaged with the community to shape objectives for Victoria's next infrastructure strategy 2025-2055. We worked with community members, First Peoples, regional Victorians, young people and sector stakeholders to understand their priorities. People told us they want us to focus on climate change, water, transport, doing more with less, and better social equity.

Based on this feedback, we developed 6 objectives to guide the update of the 30-year strategy. Many of these align with the goals and objectives outlined in the National Urban Policy. Our 6 objectives are:

- **Victoria has a high productive and circular economy**: Victoria has a high productivity economy that creates well-paid jobs, attracts investment and facilitates trade. It does so while also continually reducing the environmental impacts of production and consumption.
- **Aboriginal people have self-determination and equal outcomes to other Victorians**: Victoria's Aboriginal people have the power and resources to make decisions about their services,

infrastructure, communities and future. Victoria has closed the gap in outcomes between Aboriginal and Torres Strait Islander people and other Victorians. Victorian infrastructure reflects respectful engagement with Aboriginal communities, draws on their knowledge, and celebrates their history, culture and values.

- **Victorians are healthy and safe**: Victorians achieve and maintain good physical and mental health. They are safe from harm.
- **Victoria is resilient to climate change and other future risks**: Victoria can minimise the impact of adverse future events. Victoria's greatest future risk is the impact of climate change, but it also faces risks of economic, technological, geopolitical, health or other environmental disasters and crises.
- **Victorians have good access to housing, jobs, services and opportunities**: Victorians can access housing, jobs, services, and opportunities to develop their capabilities, support their wellbeing, connect with other people, and take part in civic, community and cultural life.
- **Victoria has a thriving natural environment**: Victoria's ecosystems are biodiverse and clean. Victoria does not pollute or put waste in the air, water, land, and natural ecosystems. This includes producing net zero greenhouse gas emissions that pollute Earth's atmosphere and contribute to dangerous climate change.

Future urban development scenarios research

Government projections imply around another 4 million people will live in Victoria by 2056. Our recent report, Choosing Victoria's Future, researched the consequences of different settlement patterns for these extra people. We wanted to show how different ways of growing might affect Victorians in the future. Each scenario represents a different way Victoria's cities and regions might change in the future. We estimated the effects on Victoria's economy, environment, Victorian's quality of life and agricultural land availability for each of these scenarios.

Each scenario has advantages and disadvantages. But overall, the results tell us that more consolidated or compact cities, which have more homes closer to their centre, usually perform better on many dimensions. These types of cities typically allow people more choices to find an affordable home in different places, more options to travel, and make it easier for people to get to important destinations, like work, study, or to access health and social services. They avoid building too many homes in places where people find it hard to reach the jobs and services they need.

Our research finds that more consolidated or compact cities in Victoria also have stronger economies. They offer businesses better opportunities to hire great staff and make more connections with potential customers and markets. They are more likely to create high-paid, secure work. And infrastructure in these types of cities is likely to be more affordable for governments. For example, our modelling shows infrastructure for each new home in a more dispersed city costs $59,000 more than in a compact city, with a total additional cost of up to $41 billion across Victoria.

The environmental impacts of more compact or consolidated cities in Victoria are less harmful. These city shapes produce fewer greenhouse gas emissions overall, especially because people have more chances to walk, cycle or use public transport. They use less land that might otherwise be used to grow food or provide habitats for wildlife. For example, we estimated a dispersed city might use an extra 30,000 hectares of land, compared with a compact city.

Our home choices research

We undertook research to look at how to shift housing demand from new suburbs to give more Victorians the choice to live close to jobs and services in our major cities. We examined why people are choosing homes in growth areas and the benefits of living in established suburbs closer to jobs, schools, hospitals and public transport. Our research included 22 focus groups, a survey of more than

6,000 people in Melbourne, Geelong and Ballarat, and analysis of more than 344,000 properties sold in greater Melbourne from 2017 to 2022.

We found that up to 1 in 3 households said they would trade a detached home in a new suburb for a townhouse or apartment at the same price, closer to a city centre. Families and first home buyers want more housing choices closer to existing infrastructure and family and friends. A lack of suitable housing in established suburbs pushes people further away from jobs, schools and public transport and locks them into more travel time in the car.

The 7 local government areas home to Melbourne's greenfield suburbs accounted for 50% of Victoria's total population growth over the last 10 years. Greenfield suburbs in Ballarat and Geelong also grew rapidly in this time. Greenfield homes are built in areas with little existing infrastructure, and residents often move in before schools, public transport, community centres and hospitals are in place. Our survey shows that Victorians who choose a new home in a new suburb are usually very happy with their choice, but they acknowledge it can take many years before their community has all the infrastructure it needs.

Implications for infrastructure over time

Building new infrastructure in these areas can be up to 4 times more expensive than adapting existing infrastructure in established suburbs that have the capacity to support growth. Paying for Victoria's growing infrastructure needs comes at a time when governments are dealing with multiple challenges, such as escalating construction costs and shortages of skilled labour and materials. And as Victoria grows, so does the pipeline of new infrastructure needed to meet the needs of rapidly growing communities. With competing interests and budget constraints, all levels of government must make difficult choices on how and where to invest.

It is likely to take some time to change the trajectory of growth for Australian cities. The current trend for continued outward expansion is unlikely to change in the short term given the amount of available land for residential development within the current Melbourne metropolitan urban growth boundary. In the immediate future there will continue to be growing demand for new infrastructure such as schools, health facilities, public transport, roads and social infrastructure in new suburbs.

All levels of government will need to work together to ensure infrastructure arrives in a timely way in these fast-growing suburbs. Infrastructure Victoria has two recent examples showing the need for improved bus services and for social infrastructure in Melbourne's growth areas. Our 2021-2051 infrastructure strategy also recommended extending rail services in Melbourne's western and northern growth areas and expanding and upgrading Melbourne's outer suburban road and bus networks.

Policy recommendations for a National Urban Policy

Governments will need to make changes to put Australia's cities on a trajectory to a fairer, more productive and more sustainable future. The department may wish to consider the following recommendations relating to the goals and objectives outlined in the draft National Urban Policy.

Our recommendations set out changes the Victorian government can make to help achieve a more consolidated or compact city shape and reduce some of the difficulties that might cause. The Australian government can use different tools to help do this.

- It can better plan its infrastructure, to help smooth the path to its desired city shape.
- It can reform its taxation policies and support states to change their planning rules to help build more apartments and townhouses in good locations.
- It can include regional cities in its future plans, and help them grow with enough jobs and infrastructure to support those communities.

The Australian Government can work alongside the Victorian Government to deliver these recommendations. Two particular recommendations from our 2021-2051 infrastructure strategy that the Australian Government could assist with include addressing regional Victoria's digital connectivity gaps and funding states to build more social housing.

We have also proposed 10 options to the Victorian government that give people more choices to buy homes in established suburbs rather than greenfield areas and promote better use of existing infrastructure by helping create more compact cities. These 10 options are:

- Reform infrastructure contributions to send the right price signals.
- Reform stamp duties that distort home choices.
- Remove home subsidies that encourage greenfield choices without improving affordability.
- Use government 'shared equity' schemes to encourage established suburb home ownership.
- Measure and incentivise progress towards new local housing targets.
- Prioritise and streamline approvals for urban renewal precincts.
- Develop better standards for low-rise apartments, then increase their supply by expanding use of a residential growth zone.
- Develop a dual occupancy and townhouse code.
- Allow homebuyers more parking options.
- Encourage child-friendly design in new apartments.

Summary of available resources

All of our relevant research and reports are available online via our website:

- Choosing Victoria's future – 5 urban development scenarios (2023)
- Our home choices – how more housing options can make better use of Victoria's existing infrastructure (2023)
- Opportunities to reduce the greenhouse gas emissions of infrastructure (2024)
- 2025-2055 Infrastructure strategy objectives engagement report (2023)
- Victoria's Infrastructure Strategy 2021-2051 (2021)
- Advice on recycling and resource recovery infrastructure (2020)
- Infrastructure priorities for the regions (2020)

If we can be of further assistance, please contact me or Llewellyn Reynders, Director of Research and Policy at llewellyn.reynders@infrastructurevictoria.com.au.

Yours sincerely,

[redacted]

Dr Allison Stewart
Acting Chief Executive Officer

Attachments:

Relevant Infrastructure Victoria reports

INFRASTRUCTURE VICTORIA

October 2023

Choosing Victoria's future

Five urban development scenarios

About us

Infrastructure Victoria is an independent advisory body with 3 functions:

- preparing a 30-year infrastructure strategy for Victoria, which we review and update every 3 to 5 years
- advising the government on specific infrastructure matters
- publishing research on infrastructure-related issues.

Infrastructure Victoria also helps government departments and agencies develop sectoral infrastructure plans.

Infrastructure Victoria aims to take a long-term, evidence-based view of infrastructure planning, and we inform community discussion about infrastructure provision.

Infrastructure Victoria does not directly oversee or fund infrastructure projects.

Acknowledgement

Infrastructure Victoria acknowledges the Traditional Owners of Country in Victoria and pays respect to their Elders past and present, as well as Elders of other First Peoples' communities. We recognise that Victoria's infrastructure is built on land that has been managed by Aboriginal people for millennia.

Contents

Summary

Summary

What will living in Victoria be like in 2056? Where will people live and work? And how will this affect the infrastructure they need, their quality of life, and the natural environment?

Government projections suggest around 11 million people will live in Victoria in 2056. That is about 4.5 million extra people compared to 2022. How and where Victoria builds homes and infrastructure for all these people has consequences for Victorians' quality of life, the Victorian economy, and the natural environment.

Governments, businesses and individual people make choices that shape our cities and regions. They choose places to build and buy homes, and where road and rail connections will go. They design infrastructure networks for electricity, water and telecommunications, and the locations of major facilities for people, like schools, hospitals, parks, sports grounds and community facilities. The combined effect of all these choices influences how people live, work, learn, socialise and move around Victoria.

Infrastructure Victoria explored 5 different scenarios to help better understand the consequences of these different choices. We wanted to show how different ways of growing might affect Victorians in the future. Each scenario represents a different way Victoria's cities and regions might change in the future. All of them have the same number of people, but each assume new homes and infrastructure are built in different places.

Our 5 urban development scenarios for Victoria

Infrastructure Victoria developed these 5 scenarios for this report:

- **dispersed city:** Melbourne's growth areas have many more detached homes
- **consolidated city:** Melbourne's inner and middle areas have many more medium-density homes
- **compact city:** Melbourne's inner areas have many more high-density homes
- **network of cities:** regional centres have many more homes
- **distributed state**: regional towns and rural areas have many more homes.

City shape choices have consequences

We analysed these different city shapes, to find out how each scenario performed on different measures. We looked at how many homes might be built in different places, the types of homes produced, and how expensive they might be. We looked at the performance of the economy, and what types of jobs people might work in. We estimated the quantity of greenhouse gas emissions that might be produced, and how much land each scenario might use. We also examined the types of infrastructure these different city shapes might need to function, and how much this infrastructure might cost.

Each scenario has advantages and disadvantages. But overall, the results tell us that more consolidated or compact cities usually perform better on many dimensions. These types of cities typically allow people more choices to find an affordable home in different places, more options to travel, and make it easier for people to get to important destinations, like work, study, or to access health and social services. They avoid building too many homes in places where people find it hard to reach the jobs and services they need.

Our research finds that more consolidated or compact cities in Victoria have stronger economies. They offer businesses better opportunities to hire great staff and make more connections with potential customers and markets. They are more likely to create high-paid, secure work. And infrastructure in these types of cities is likely to be more affordable for governments. For example, our modelling shows infrastructure for each new home in a more dispersed city costs $59,000 more than in a compact city, with a total additional cost of up to $41 billion.

The environmental impacts of more compact or consolidated cities in Victoria are less harmful. These city shapes produce fewer greenhouse gas emissions overall, especially because people have more chances to walk, cycle or use public transport. They use less land that might otherwise be used to grow food or provide habitats for wildlife. For example, we estimated a dispersed city might use an extra 30,000 hectares of land, compared with a compact city.

Victoria faces choices that involve compromise

No city is perfect. Governments and communities face choices between alternatives that will not always suit everyone. For example, unlocking the benefits of more consolidated or compact cities means building more townhouses and apartments. This means more people will live in these types of homes, and not everyone can live in a detached house. It also means established suburbs will change more quickly, and construction activities will generate more noise and disruption. Construction will also generate more greenhouse gas emissions, although these will be more than offset by fewer emissions from transport.

Similarly, while overall infrastructure costs are lower in more consolidated or compact cities, this is not true for every infrastructure type. Some costs might be higher, particularly for schools, community facilities and open space, because these would need to be built in established suburbs, where land and construction is more expensive.

Many people will still live in Melbourne's outer suburbs, new growth areas, and regional areas in any future. But making measured choices about our city shape will ensure that these residents can also be served with the infrastructure they need in a timely way.

A pathway to a better quality of life and more choices for Victorians

We did this research to show people how different choices might affect the lives of Victorians in the future. We hope it can help inspire governments, businesses and communities to coordinate their decisions to create a shared view of how Victoria might change in the decades ahead.

Victoria is already mapping out these pathways. *Plan Melbourne 2017–2050*, Melbourne's metropolitan planning strategy, includes an aspiration for 70% of new homes to be built in established areas. Regional cities including Ballarat and Bendigo aspire to achieve 50% of growth in their established areas.[1,2]

But governments will need to make changes to achieve these goals. We have used our research to develop recommendations for the Victorian Government to help put the state on a trajectory to a fairer, more productive and more sustainable future.

Our recommendations set out changes the government can make to help achieve a more consolidated or compact city shape and reduce some of the difficulties that might cause. The government can use different tools to help do this. It can better plan its infrastructure, to help smooth the path to its desired city shape. It can reform its planning and taxation policies to help build more apartments and townhouses in good locations and minimise the effects on other people. It can include regional Victoria in its future plans, and help regional cities grow with enough jobs and infrastructure to support those communities. And it can better incorporate climate change in the way we build our cities, to make sure Victoria grows sustainably and achieves its zero emissions targets.

Ultimately, Victorians will choose the type of cities and regions they want to live in. We think this research shows that they can have better lives, higher incomes, and a more sustainable environment if they choose to live closer together.

Recommendations

Use a new plan for Victoria to reinforce established area growth, set regional city urban growth boundaries, and include housing targets for the established areas of Victorian cities. Use these targets in land use framework plans, regional growth plans, and the Victoria Planning Provisions.

Develop and publish long-term plans for infrastructure sectors to meet the policies and targets set by a new plan for Victoria. Use these integrated land use and infrastructure plans to decide infrastructure project funding.

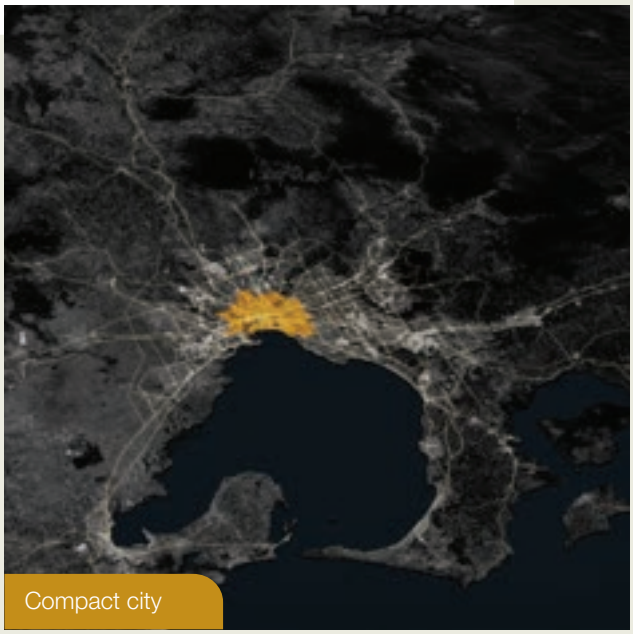
Reform infrastructure contributions, remove taxes and subsidies that fuel dispersed growth, and change planning rules to create more compact cities in Victoria.

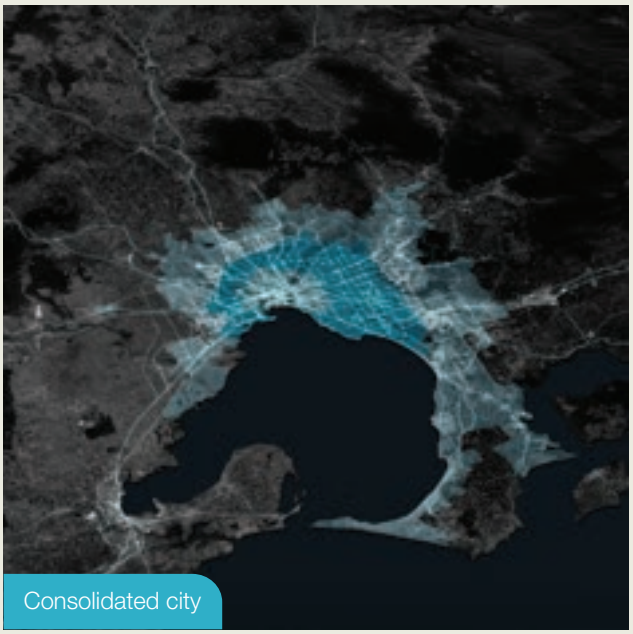
Plan for and deliver infrastructure that supports more people and jobs locating in established parts of major regional centres, including local transport, energy, water and digital infrastructure.

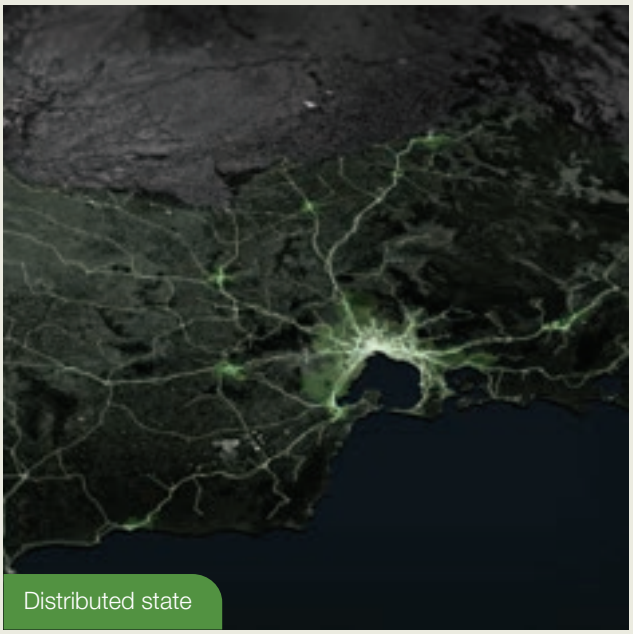
Plan for efficient and resilient electricity distribution infrastructure. Stimulate development and use of zero or low carbon materials and building construction and operation methods that reduce greenhouse gas emissions.

Choosing Victoria's future

Five urban development scenarios







By the numbers

11 million people

Victoria's population is expected to reach more than 11 million people in the next 30 years

56%

of metropolitan Melbourne's growth has been occurring in outer and growth areas, with greater proportions in regional cities

Benefits of more compact cities

$59,0000 per new home

Infrastructure cost saving for every additional new home in a compact city compared to a dispersed city

$52 to $105 billion

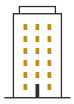
Housing benefits generated by more compact cities

25% more public transport use

in more compact cities

70% less time in congested conditions

in more compact cities



$43 billion

The total economic benefit to Victorians in a compact city than in a dispersed city

30,000 hectares

Amount of land saved in more compact cities, equal to over 12,000 times the Melbourne Cricket Ground

154,000 less cars

in a compact city than a dispersed city

17.3 million tonnes

Less emissions from trucks and cars in a compact city than in a dispersed city

INFRASTRUCTURE VICTORIA

Victoria's choices will shape its future

Victoria's choices will shape its future

Infrastructure Victoria has imagined 5 different futures for the places people might live and work. We used up-to-date data and undertook detailed modelling to compare the outcomes of these different scenarios to help Victorians understand the choices they face.

Nobody knows exactly what the future holds. But we can make informed estimates. The Victorian Department of Transport and Planning estimates 11.2 million people will live in Victoria by 2056, including around 9 million in Melbourne. Victoria's regions are also expected to grow to 2.3 million, with around half of regional growth projected to occur in the cities of Greater Geelong, Ballarat and Bendigo.[3]

These projections are informed by evidence, analysis and expert advice. But the COVID-19 pandemic demonstrated that reality can differ from projections. External factors can change where people want to live and work. So when people think about the future, they should not expect it will unfold exactly as predicted. If people, businesses and the government make different choices, the future will change too.

These choices have consequences. For example, if the government releases land for housing development far from jobs and services, the people living in those homes are likely to face long commute times and find it hard to access facilities and support.

Infrastructure is expensive. It takes time to plan, build and make it operational. It lasts a long time and is difficult to change or move afterwards. Decisions about the location of new homes affect choices about when and where to build new infrastructure. They also affect how much infrastructure the government might build, and how much it will cost. Ultimately, the Victorian community pays for this infrastructure, whether in the prices of their homes, the charges they pay for services, or the taxes they pay.

Inspiring coordinated urban policy choices

We undertook this research to generate insights and stimulate informed discussion on the shape of Victoria's urban growth and infrastructure. Current infrastructure and land use settings have produced rapid home building in Melbourne's outer growth areas, which has led to more dispersed development patterns. The Victorian Government's metropolitan planning strategy, *Plan Melbourne 2017–2050,* aspires to achieve more compact urban development, with 70% of growth occurring within established areas.

Constructing and analysing hypothetical scenarios can give decision makers an insight into the consequences of their choices, including the choice to 'do nothing'. Scenario analysis can also inspire governments, businesses and communities to coordinate their decisions to achieve an agreed urban structure, based on the outcomes different possibilities might generate.

We have used the findings of our scenario modelling to develop policy directions and recommendations for the Victorian Government to consider. We intend for this research to help state and local governments, decision makers and the wider community better understand the costs, impacts and trade-offs of different urban structures. It demonstrates how today's land use and infrastructure planning decisions can help achieve better future outcomes for Victorians.

We started this project 2 years ago, as a complementary piece of research to our report *Our home choices: how more housing options can make better use of Victoria's existing infrastructure*. The Victorian Government has recently published *Victoria's housing statement,* a plan to address housing supply over the next 10 years. In this, the Victorian Government committed to a new plan for Victoria, updating *Plan Melbourne* and expanding it to cover the whole state. We intend for this research to help inform the next stages of its development.

Many factors drive urban development

Many forces influence where people live, work and move around in urban environments, driving the shape of Victoria's cities and towns. Urban development in Victoria has faced unprecedented uncertainties and challenges in recent years. Population growth, climate change, the COVID-19 pandemic, construction industry capacity issues and housing affordability are some of these challenges.[4,5]

We researched historical patterns of urban development to gain insight into the drivers that influence different development patterns. We looked at examples of how other cities in the world make deliberate choices about the urban form they want, based on the outcomes that matter most to them.

Victoria can use these examples to identify the levers that make the biggest impact on where people choose to live and where businesses choose to locate.

Escalating home prices are one factor driving cities to keep expanding, because mostly the outer suburbs can supply an affordable housing product. Our previous report into greenfield housing demand, *Our home choices*, found that moderate income households in Melbourne had few affordable home options other than in Melbourne's growth areas.[6] This research provides further evidence of the challenges that Victoria will face in the future if we do not address them now.

We used scenario planning to assess different impacts

Scenario planning is a method of long-term strategic planning. It involves creating representations of multiple possible futures.[7] Policymakers and strategic land use planners often use scenario planning to analyse and compare potential outcomes of different decisions and actions, allowing them to make more informed choices.[8]

Our scenarios are stories about possible urban development outcomes.[9] They allow us to make comparisons and better understand the advantages and disadvantages of each outcome. For example, some more compact living options might have good access to services and facilities including public transport, while more dispersed living options in outer Melbourne might have good access to open space, but longer commute times.

Our 5 future scenarios

Infrastructure Victoria imagined what Victoria might look like in 2036 and 2056. We developed 5 different scenarios with growth occurring in different places across the state. We then estimated how these different scenarios affected people, the environment and the economy. This allowed us to investigate the advantages and disadvantages of each.

Our 5 urban development scenarios are:

- **dispersed city**: Melbourne's growth areas have many more detached homes
- **consolidated city**: Melbourne's inner and middle areas have many more medium-density homes
- **compact city**: Melbourne's inner areas have many more high-density homes
- **network of cities**: regional centres have many more homes
- **distributed state**: regional towns and rural areas have many more homes.

We developed the scenarios to reflect the most plausible way each pattern of development might occur. For example, we imagined that for regional cities to have many more homes, it would be more likely that Victoria's existing regional cities would grow, rather than new cities appearing and growing faster than existing ones.

The scenarios are not equally plausible, but each represents a possible future if many forces converged to shape Victoria's development on a particular path. We examined how our different scenarios might affect infrastructure provision, and their implications for Victoria's people, environment and economy.

We did not aim to select a 'preferred' or 'best' scenario. Instead, we wanted to explore and present the different outcomes and choices offered by each.

We specifically wanted to identify:

- the levers the Victorian Government might use to make scenarios more or less likely to emerge
- the ways the government might facilitate positive aspects of each scenario
- the ways the government might avoid or reduce negative impacts.

The different scenarios were chosen to compare divergent potential outcomes.

The research is not intended to be a cost-benefit analysis of the different scenarios. We have measured a range of impacts and costs which cover many aspects of urban development. In undertaking the modelling we found that all scenarios have different costs, impacts and trade-offs and this showed clear differences in outcomes for each scenario.

We used a mix of research methods for our analysis

To generate and compare our scenarios, we used different research methods to make realistic comparisons. We used the most up-to-date data and undertook detailed modelling to gain insights into what the future might hold under different conditions.

We used the Victorian Government's population and employment projections from 2021, *Victoria in Future*, to estimate the future size and composition of Victoria's population in 2056.[10] Since then new population projections have been released by the Victorian Government.[11] The slight differences between these forecasts over the longer term do not change the results of our modelling.

We commissioned SGS Economics and Planning to use these assumptions to estimate how population, dwelling type and employment would occur in each scenario. SGS analysed past development trends, drivers of future urban development patterns and state policy to inform the scenarios.

We commissioned The Centre for International Economics to estimate the amount of infrastructure required for each scenario and develop a detailed model to analyse the economic, social and environmental impacts of these scenarios.

The amount and location of infrastructure required varies by sector. Where infrastructure provision rates are directly linked to population, such as schools, kindergartens, open space and community infrastructure, the amount of infrastructure required was modelled based on maintaining the current level of accessibility, as population grows. This means that not all areas have the same access in future scenarios. Instead, we have modelled a reasonable infrastructure provision for each scenario. For example, in the distributed state scenario, it would be unreasonable to expect that every country town has a large scale aquatic centre.

This provided us with an order of magnitude cost to provide infrastructure to 2056 and an understanding of how costs varied across scenarios. Local infrastructure, such as utilities and local roads, that enable a new dwelling to be connected into existing infrastructure networks was costed based on data compiled by Infrastructure Victoria in 2018,[12] which varied based on dwelling type and location.

We used a different approach to model and cost the transport infrastructure needs in each scenario. We worked with Arup to model a consistent baseline scenario of transport projects and test its performance against the population and jobs distribution of each urban development scenario. Using the outputs from this first round of modelling, we adjusted the transport network in each scenario to provide reasonable, but not optimised, transport performance. We then costed the final transport network for each scenario.

The energy and water sectors are undergoing significant change to meet zero emissions targets and address climate change impacts. Our analysis provides an order of magnitude cost to provide infrastructure for these sectors to 2056.

Infrastructure sectors for which there is a limited connection between urban structure and infrastructure provision, or which have very large catchments were not costed. These include hospitals, courts, prisons, emergency services and ports. We also assumed that under all scenarios, social housing should be in areas of high accessibility and demand, rather than following population growth, so this has not been separately costed.

SGS Economics and Planning, Arup, WT Partnership and The Centre for International Economics each produced technical reports with more detail about our modelling and analysis. These are available to download on our website.

Case study: Australia's urban development

Historical patterns and drivers of urban development

Aboriginal and Torres Strait Islander peoples are known to have occupied mainland Australia for at least 65,000 years. It is widely accepted that this predates the modern human settlement of Europe and the Americas.[13]

Australia is now one of the most urbanised countries in the world.[14] However, this hasn't always been the case. At the beginning of the 20th century, regional Australia had a greater share of population than the capital cities combined. In 1901, just over 1 in 3 Australians (1.3 million) lived in capital cities.[15]

As the national economy transitioned to a service-based economy, more people were attracted to live in cities. By the mid-20th century, the previous pattern had reversed. In 2021, Australia's 8 capital cities accommodated 67% of the national population.

While the drivers of urbanisation had global origins, they were supported by government policy and infrastructure investment, which facilitated the concentration of jobs in the inner city and the suburbanisation of housing. Where the location of new housing had previously been anchored along tram and rail lines, cars unlocked opportunities for new development disconnected from existing public transit systems.[16] Investments in freeways over the 1960s and 1970s facilitated Melbourne's expansion, supporting much lower densities and creating car-dependent suburbs.[17]

Throughout the 20th century, Melbourne accommodated population growth by expanding outwards, while jobs became increasingly centralised in the inner city. In 2021, 73% of all houses in Victoria were detached, 14% were semi-detached including townhouses, and 12% were apartments.[18] Melbourne today has pockets of high density,[19] like Box Hill, where 53% of homes are apartments.[20] However, Box Hill has much higher density than suburbs a similar distance from Melbourne, such as Reservoir, where only 4% of homes are apartments.[21] In new suburbs, the share of detached homes is often much higher. For example, in Wyndham Vale, 96% of all homes in 2021 were detached.[22] Victoria's growing regional cities have similarly grown through low density urban expansion. In Geelong, Victoria's second largest city, 86% of homes were detached in 2021.

In the face of this prevailing pattern, metropolitan plans have sought to redirect more housing to established areas with mixed success. Current trajectories show that new growth area development has delivered more of Victoria's new homes. Just 44% of new homes in Melbourne were built in established suburbs in 2021. This compares with over 60% in 2016.[23] *Plan Melbourne 2017–2050* defines an aspiration for 2050 where 70% of new housing is built in established areas and 30% in greenfield areas.[24]

Stated urban policy objectives have not always been consistent with actual outcomes. Infrastructure Victoria's report, *Our home choices*, showed Victoria is not achieving the aspiration in Plan Melbourne. This is, in part, because policy decisions are not supporting achievement of this goal. For example, the Victorian Government has released large amounts of land in Melbourne's growth areas and offered a First Home Owner Grant that fuels demand for new homes in these areas.

Key findings

Key findings

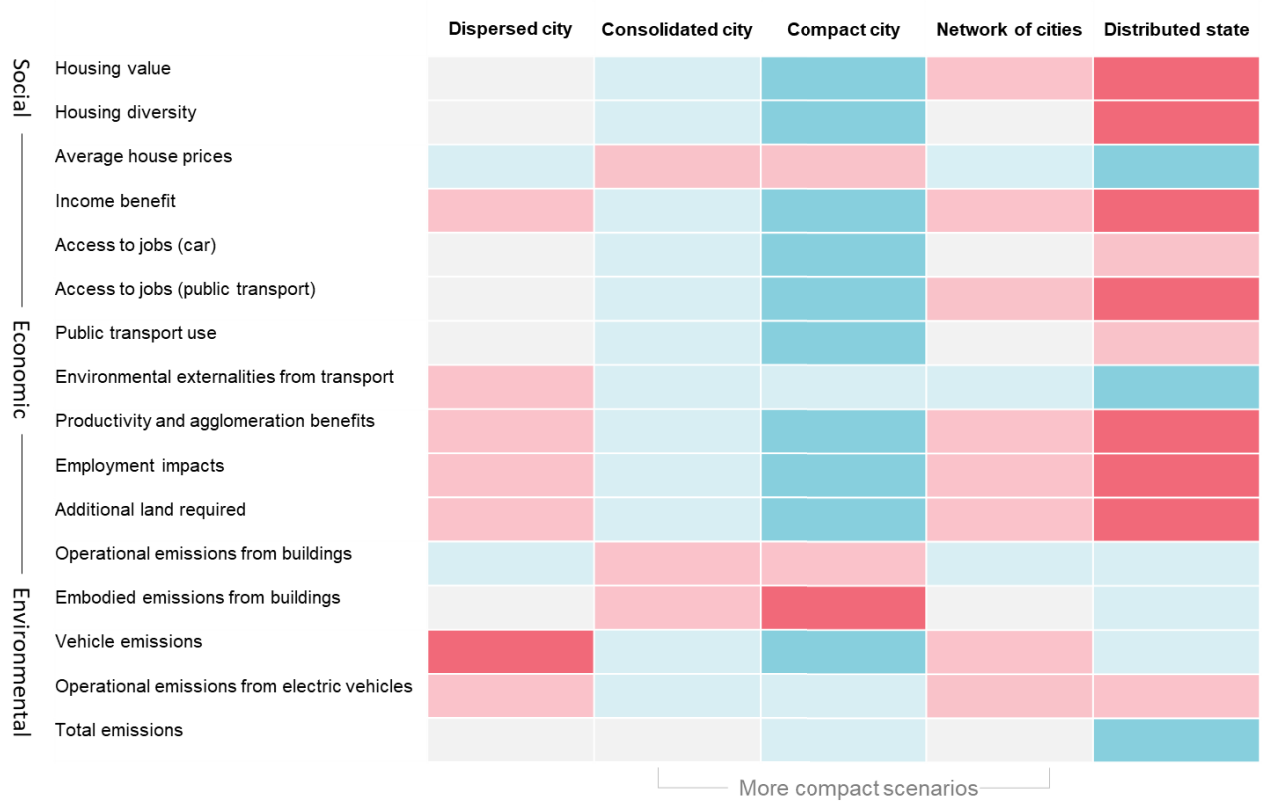
The future shape of Victoria's cities and regions will impact all Victorians

Our research assessed 15 social, economic and environmental and impacts across each of the 5 scenarios (see Figure 1) such as the housing types available, and the jobs that can be accessed. This served to test the potential differences of each scenario on the quality of life of Victorians, the economy and the environment. We found the impacts of urban form vary significantly across scenarios. No scenario is ideal and there are trade-offs within each. However, there are stark contrasts between scenarios with more compact development in established areas and those with more dispersed growth beyond current suburbs in Victoria's capital and major regional centres.

The Victorian Government can implement policies that make a preferred scenario more likely to occur. Our research suggests that deliberately pursuing more compact scenarios will help to achieve better outcomes for Victoria.

Figure 1 summarises our assessment of the indicators for each scenario across social, economic and environmental impacts.

Figure 1: Overall assessment of economic, social and environmental impacts by scenario



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

Note: blue shading indicates a more positive outcome and red indicates a more negative outcome, relative to all other scenarios. Grey shading means a neutral outcome.

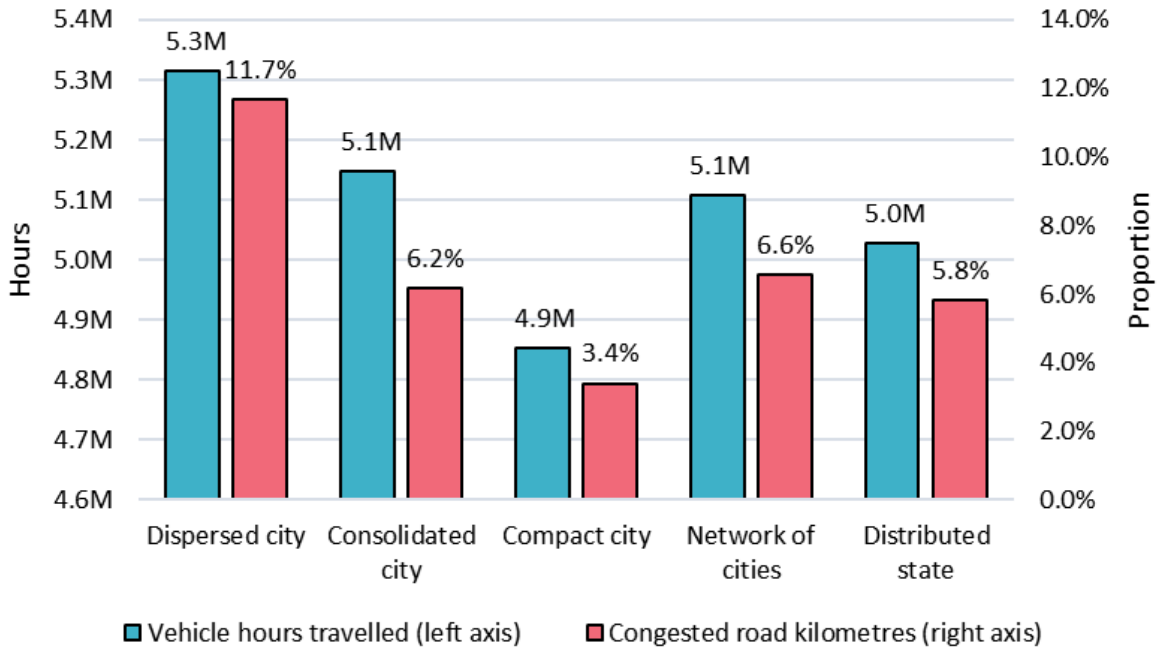
More dispersed development delivers worse outcomes

Our research shows that more dispersed scenarios would have worse impacts on the natural environment than more compact scenarios. This is because more people would drive longer distances, resulting in high transport emissions. Almost 30,000 more hectares of land would be required for residential development in a dispersed city, almost twice as much as is estimated for a compact city. This is over 12,000 times the field size of the Melbourne Cricket Ground. This would greatly reduce the amount of land currently used by agriculture and wildlife and impacts biodiversity.

Dispersed urban development would also result in lower social outcomes and economic benefits than more compact scenarios because population and jobs growth is dispersed. In a dispersed city, people live further from work, education, shops and services, so their level of accessibility would be much lower than in other scenarios. It would be hard for people to use public transport, cycle or walk to their destinations, so people would be more reliant on cars. As shown in Figure 2, our modelling shows that the total time spent travelling by car in the dispersed city scenario would be higher than any other scenario, as would congestion.

There would also be fewer high paying jobs available close to home, so people would have to travel further for work, or work in a job closer to home that does not match their skills. As a result, the total impacts on income would be up to $43 billion lower in this scenario by 2056 compared to the compact city scenario. In 2056, our modelling estimates that in a dispersed scenario 47% of Victoria's jobs would be in Melbourne's inner and middle suburbs, but only 30% of workers would live there.

Figure 2: Total time spent travelling by car and proportion of road kilometres congested in 2056



Data source: Arup, *Urban development scenarios, strategic transport modelling*, 2023

These findings suggests that government should plan to avoid a future where a high proportion of growth is accommodated at the urban fringe. While some more growth within the existing urban boundary will be required, the Victorian Government will need to radically change planning and services for growth areas if Melbourne keeps growing according to current trends.

More compact urban development scenarios deliver better outcomes

Our research shows that more compact urban development scenarios, such as the consolidated city or compact city, would have better overall outcomes for people, the economy and the environment. Focusing population growth in established areas makes better use of existing infrastructure.

To assess social outcomes, we measured housing values. Housing value reflects the value of the location of the home, and the type of home, such as a detached house, townhouse, or apartment. It captures whether the homes match people's desired home locations and home type preferences. We interpret higher housing values to mean the homes are better located, and better match people's preferences.

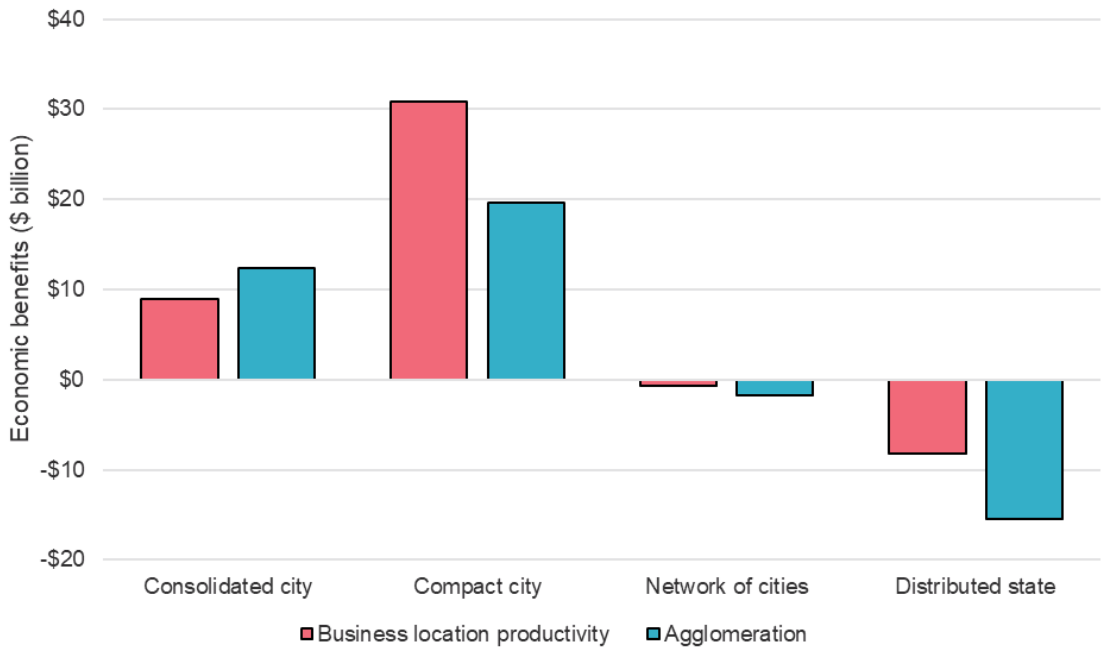
More compact urban development scenarios would provide more housing where people would like to live. Our modelling estimated that more compact scenarios would have much higher housing values than dispersed scenarios and would generate $52 billion to $105 billion more in housing value by 2056. Most of these differences are because different scenarios have different levels of accessibility to infrastructure, as Figure 3 shows.

Figure 3: Comparison of housing value between dispersed city scenario and other scenarios, 2056

Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

The ongoing consolidation of businesses and jobs in the central city and key precincts would result in greater economic and productivity benefits. Businesses would keep choosing locations in the city because they would be closer to other businesses, known as agglomeration, and would have a greater pool of employees to draw from. This would generate $12 billion to $20 billion more in agglomeration benefits in 2056 than compared to dispersed scenarios (see Figure 4). More people would have jobs and incomes would also be higher with more compact urban development because people have a greater variety of jobs available.

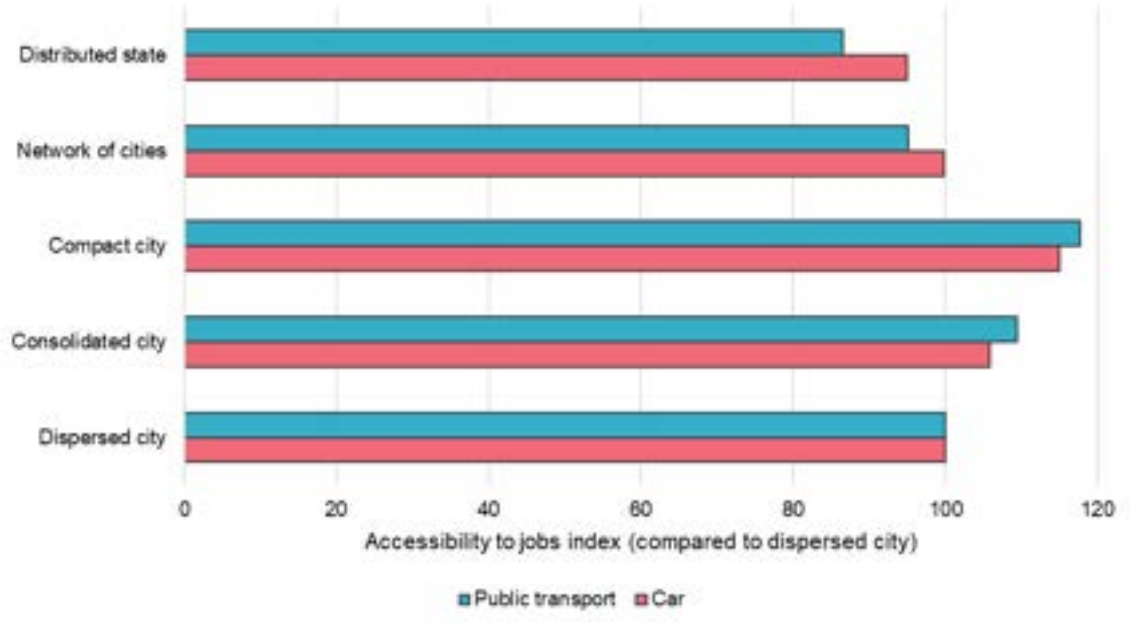
Figure 4: Comparison of productivity and agglomeration benefits between dispersed city scenario and other scenarios, 2056



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

More people living in established areas means Victorians would enjoy greater access to jobs, education, shops, services and existing transport infrastructure by both public transport and cars (see Figure 5). Over 25% more people would use public transport in the more compact scenarios (compact city and consolidated city), leading to less road congestion. The amount of time people spend driving in congested conditions would be more than 70% lower in more compact scenarios. As a result, there would also be much lower environmental emissions from transport, as people would not need to spend as much time driving.

Figure 5: Access to jobs index by car and public transport in 2056



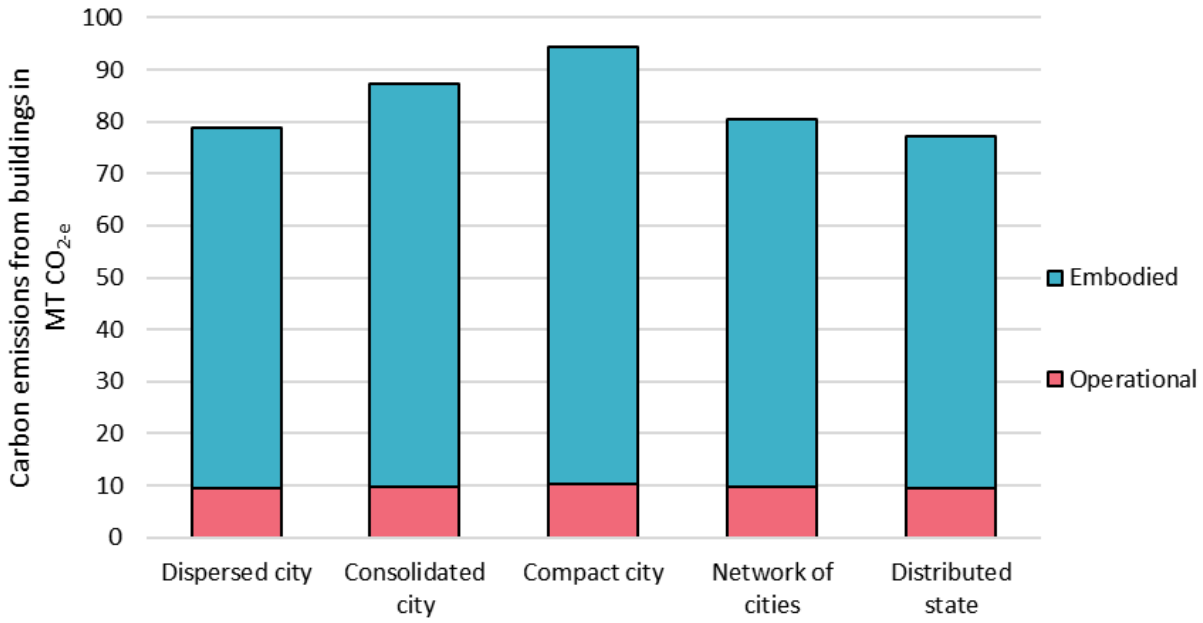
Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

More compact urban development would also have less impact on the natural environment. More compact scenarios would need less than half the amount of urban land than dispersed scenarios to accommodate more homes and infrastructure. This means that areas of biodiversity and natural habitats would be preserved, and agricultural land would remain in use.

However, our research also shows that more compact urban development could lead to higher embodied carbon emissions from the construction of buildings (see Figure 6). Embodied emissions are those produced by the construction, maintenance and disposal of infrastructure, including from the production and transport of the materials used in construction.

High-rise apartments have higher embodied energy than smaller dwellings because they have a higher concrete and steel content, which are currently difficult to produce without emitting carbon. Initiatives aimed at developing zero or low carbon materials and building methods in new buildings and infrastructure could help to reduce these impacts. Alternative construction methods used internationally provide examples for Victoria, such as using manufactured timber for high-rise apartments.

Figure 6: Estimated emissions produced by buildings from 2021–2056, by type



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

Infrastructure can serve more people in compact cities. But delivering infrastructure in established areas can also have higher construction costs. Because construction activities conflict with existing residents' activities, changes must be made to infrastructure that is already operating, and land costs more for new builds. The Victorian Government may need to redefine how it plans for infrastructure like community facilities and open space for more compact scenarios. These scenarios benefit from cooperation between government and industry, and a coordinated approach to achieving growth in key precincts. Government can also use different planning and policy levers to deliver more housing in established areas of Melbourne and regional centres.

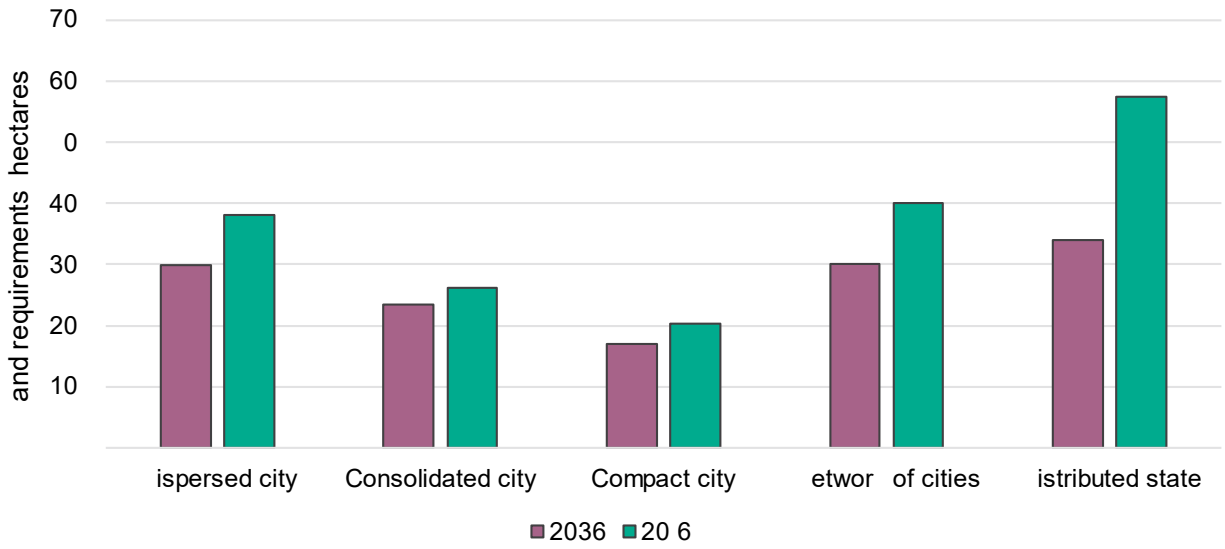
More compact living provides more housing choices to people. Building more compact cities does not mean that all new homes will be high-rise apartments. More compact cities could provide a broader range of medium density homes such as townhouses, terrace homes and low-rise apartments, as well as higher density apartments over 5 storeys. This would provide more options in the type of homes available to people, beyond detached houses.

Consolidating growth in regional cities offers better outcomes for regional Victoria

Our research shows that more compact scenarios in centres across regional Victoria would have better productivity, employment and environmental outcomes for residents than a widely dispersed population.

A dispersed regional scenario would have the greatest urban land requirements with people living across the state in low density housing (see Figure 7). This scenario would also have higher transport emissions as public transport would be used by less people per service, and more people would rely on their cars. Infrastructure would also need to have larger catchment areas, so people would need to travel greater distances to get to jobs and services compared to a regional growth scenario in which more people live in regional cities.

Figure 7: Land requirements for housing and local infrastructure



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

Residents in a distributed state scenario for regional Victoria would also be more susceptible to climate risk impacts, including bushfires and flooding. Victoria's climate has become warmer and drier in recent decades. This increases the risk of bushfires, particularly for rural and regional areas.

Regional growth scenarios would require big changes in where people want to live and how they work. In particular, a dispersed regional growth scenario would require a big shift in how people access government services, such as schools, or how they get their electricity and water. These services would need to serve people in larger catchment areas. There would be less of a shift if growth occurs within regional centres, as some economies of scale could be achieved by upgrading existing infrastructure to serve a greater number of people.

Housing affordability is a pressing issue for Victoria and Australia more broadly.[25] Housing affordability is influenced by many factors. Infrastructure Victoria's previous research *Our home choices: how more housing options can make better use of Victoria's existing infrastructure* investigated these issues and options to improve housing choice and affordability.[26] This research has considered the impacts of urban form on affordability for renters and for home buyers. It shows, unsurprisingly, that housing will still be more affordable in regional areas because the land is cheaper and people are more likely to be willing to accept lower access to services and facilities for a lower priced home. Housing is also more affordable in regional areas today. However, many people choose to live in Melbourne to be closer to jobs and services.

For the more compact urban development scenarios, like the compact city, housing also becomes more affordable. This is because a lot more apartments and more diverse housing options are being provided, which keeps house prices lower. Apartment living is not for everyone, but limited choices to serve different

housing needs at a range of prices in established areas are putting additional pressure on housing availability and prices in growth areas.

While we did not model a scenario with more compact growth in both Melbourne and regional cities, a combination of these scenarios is likely to deliver the greatest benefits for Victorians. The results suggest that regional development should be focused on consolidating in regional centres. To achieve this outcome, the Victorian Government would need to support more deliberate planning for population and jobs growth in these centres, including focusing on upgrading and expanding local transport, utilities and digital infrastructure.

Infrastructure capacity and service standards

It is important to consider both current capacity and service standards when estimating the cost of infrastructure.

Current infrastructure capacity is the extent to which it can accommodate future growth. For example, existing school facilities need to be evaluated to determine if they can accommodate the projected increase in student numbers.

Service standards refers to consistent levels of quality in the provision of services and ensuring that the infrastructure can accommodate the needs of the community. For example, a lower average class size in schools requires more classrooms to be built, representing a higher infrastructure service standard.

There is a trade off between existing capacity and service standards. owering a service standard allows existing infrastructure to support growth without modifications. For example, additional demand could be accommodated within existing school facilities through having larger class sizes. In this case the cost is the potential loss of value of smaller class sizes.

Our modelling approach has maintained current service standards across all scenarios. This is because it is difficult to place a value on changing service levels. Maintaining current service standards across all scenarios means that differences across Victoria in service standards remain in our scenarios in the future. For example, current service standards in growth areas are different to inner city areas and we assume these differences will remain in the future.

Source: The Centre for International Economics
Note: this relates to non-transport infrastructure only

Future population growth will need additional infrastructure under all scenarios

Over coming decades, many new homes will be in the same place regardless of the scenario. It is where we choose to locate some new homes in different places that drives the type and cost of infrastructure we will need.

Our previous research has shown that over the next decade, it is up to 4 times more expensive to provide infrastructure for new homes in greenfield areas than established areas where there is the capacity to leverage existing infrastructure.[27]

This research has also found that infrastructure costs are higher in more dispersed scenarios and lower for more compact urban forms. In particular, every additional new home in a dispersed city scenario would incur about $59,000 more infrastructure costs compared to a compact city as Figure 8 shows.

Figure 8: Cost per new relocated dwelling to 2056 compared to dispersed city scenario ($)

	Dispersed city	Consolidated city	Compact city	Network of cities	Distributed state
Local infrastructure	0	-18,000	-37,000	-4,000	3,000
Education	0	0	16,000	-3,000	-10,000
Open space	0	4,000	18,000	-2,000	-5,000
Community facilities	0	4,000	10,000	1,000	-6,000
Electricity	0	-9,000	-12,000	0	-3,000
Gas	0	0	0	0	0
Water and wastewater	0	-3,000	-6,000	6,000	10,000
Transport	0	-5,000	-47,000	-13,000	-18,000
Total	**0**	**-26,000**	**-59,000**	**-15,000**	**-29,000**

Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

Our research shows that the infrastructure required for each scenario is very different. But some infrastructure like major transport projects or electricity generation costs would be the same across all scenarios. This is because many Victorians already live in and around Melbourne and will continue to do so even with big changes in how the state grows.

The total cost for the infrastructure that is different across scenarios is shown in Figure 9. It shows that infrastructure for a more compact city could cost up to $41 billion less than for a dispersed city.

Figure 9: Infrastructure impacts across scenarios to 2056 ($ billions)

	Dispersed city	Consolidated city	Compact city	Network of cities	Distributed state
Local infrastructure	68	55	42	65	70
Education	23	23	34	20	15
Open space	6	9	18	4	3
Community facilities	6	9	13	7	2
Electricity	13	7	5	13	11
Gas	0	0	0	0	0
Water and wastewater	13	11	9	17	20
Transport	61	57	28	52	48
Total	**190**	**172**	**149**	**179**	**169**
Difference to dispersed city	0	-18	-41	-10	-20

Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

In more compact scenarios our modelling shows more people would use public transport and so demand on the public transport network would be much greater than the dispersed city scenario. The more compact scenarios would need investment in upgrading existing public transport including providing greater priority to trams and buses on existing roads. The dispersed city scenario would require greater investment in new roads, rail extensions and the bus network to serve growth areas.

The utility networks that would be required in more compact scenarios compared to dispersed scenarios are also very different. While electricity generation is required in all scenarios, demand on the electricity transmission and distribution networks is different depending on where growth occurs. More dispersed scenarios would require extension of distribution networks, while more compact scenarios would need more upgrades to existing infrastructure. In more dispersed scenarios, recycled water is likely to be considered for broader use across inland and regional areas where it will be difficult for existing water sources to meet demand.

Developing infrastructure to support a desired urban development scenario would increase the value of this investment. It would save costs by enabling works to support population growth to be integrated with other maintenance and upgrade works. This is particularly relevant for the electricity sector, which is changing significantly to achieve net zero emissions. It would also enable coordination of works to support population growth such as utility services upgrades and streetscape improvements, reducing cost and disruption to the community.

Having a strategic and consistent approach to infrastructure planning and delivery would also ensure that there is not a misalignment of infrastructure investment with urban development which could lead to excess capacity or unmet demand, or lower and less reliable service levels.

Local infrastructure is another significant cost. However, a portion of this cost is met by developers, rather than funded by government or shared user costs. Local infrastructure consists of streetscape, utility connections into the existing network, storm water and civil works on the development site. For development in inner precinct areas, there will be additional local infrastructure costs to address flooding risk and progressively convert streetscapes from industrial to residential. How this cost is shared between government and developers is dependent on infrastructure contribution plans adopted and has been assumed as a developer cost in this analysis.

Electricity infrastructure is the third highest cost across all scenarios. This is driven by high costs involved with providing new infrastructure to achieve net zero emissions and expanding electricity networks to support future population growth.

Social infrastructure and open space provision and costs varied across scenarios. More compact urban development scenarios have higher social infrastructure costs than dispersed and regional development scenarios. These differences are mainly driven by higher land costs and the lack of capacity to expand existing infrastructure in established areas that will become higher density in the future. However, the cost of social infrastructure only represents between 10 and 15%, and open space 5% of total infrastructure investment. While more funding will be needed for schools, kindergartens, open space and community infrastructure in more compact development settings, this cost would be offset by the greater benefits of these scenarios.

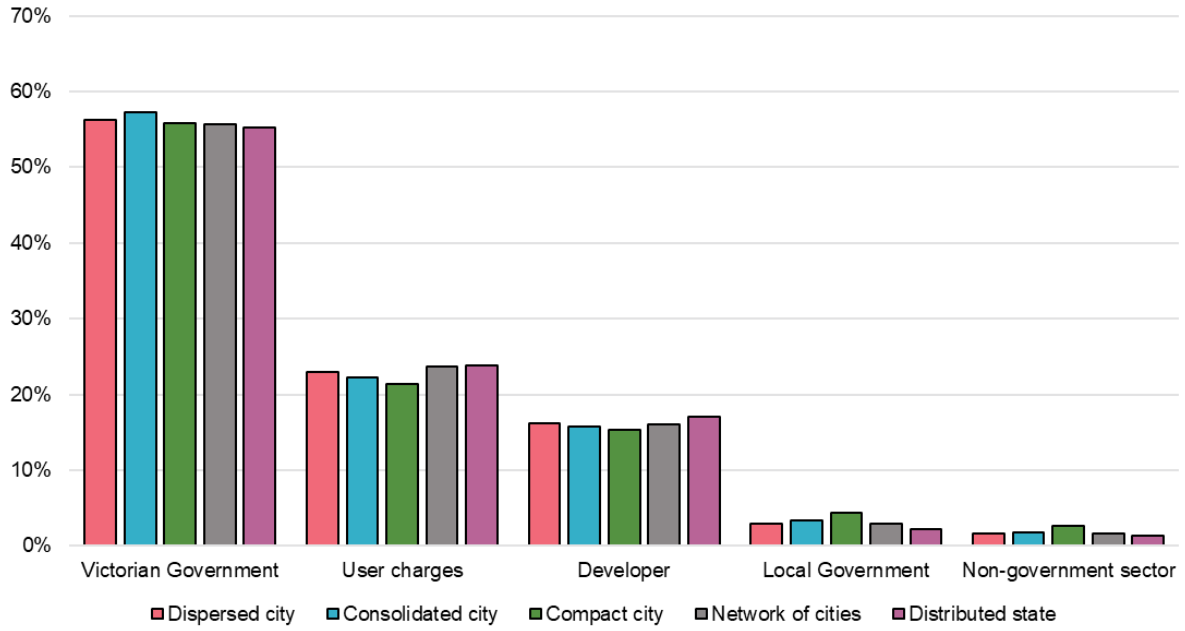
Local infrastructure costs, transport costs and utilities costs are lower for new dwellings in established suburbs compared to a greenfield area. Other costs, particularly for open space and education, are higher in established areas, but not enough to outweigh the lower costs for other infrastructure. We found that large transport projects are the highest cost driving urban development at 50% of infrastructure spend, so there is an important opportunity to make the best use of transport by locating new homes near existing services.

As we plan beyond the 2030s, the capacity of existing infrastructure in established areas to meet the demands of additional growth is likely to reach its limits. While more compact urban forms have lower transport infrastructure and utilities costs than dispersed cities, they will still require additional investment. And we will need to find new ways of providing schools and community facilities in established areas with high population growth where land is scarce.

The difference in value the community gets from infrastructure investment between dispersed and compact cities is significant. More compact urban development gets the most value from our infrastructure by underpinning achievement of better social, economic and environmental outcomes for Victorians. Infrastructure investment decisions should be prioritised to achieve better outcomes for the population, rather than pursuing cost savings.

Across all scenarios, we estimated the cost for infrastructure that varies with urban development, to be delivered by both the public and private sectors. Over half of the future infrastructure costs that we considered would be funded by the Victorian Government (see Figure 10). Our analysis showed that the cost to the Victorian Government under these scenarios was approximately $11 billion per year.[28] This is consistent with current and historic infrastructure spend, which is expected to average $15.4 billion annually from 2015 to 2027. Based on current policy settings, developers would be expected to provide funding for about 15% and user charges would provide funding for between 20 to 25% of the total cost.

Figure 10: Distribution of infrastructure costs by stakeholder that bears the cost



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

Note: some of the state and local government costs will be recovered from developers through the growth areas infrastructure contribution charge (GAIC) and other infrastructure contribution schemes, but as these are not uniformly applied across Victoria, we have reported them as government costs.

Comparison to previous Infrastructure Victoria research on infrastructure costs in different development settings

In 2018 Infrastructure Victoria released research into infrastructure provision in different development settings. The research considered the cost of infrastructure required to support new homes within metropolitan Melbourne, based on a 10 to 1 year outloo to 2030 and existing infrastructure responses.

Our previous research showed that over the next decade it is more expensive to provide infrastructure for new homes in greenfield areas than established areas where there is the capacity to use existing infrastructure.

This current project loo s further to 20 6 , when some existing infrastructure may have exceeded its capacity because of population growth. This research also considers how infrastructure delivery will change to achieve broader social and environmental outcomes, focused on how we will deliver infrastructure to achieve net zero carbon emission by 204 .

Unli e our 2018 analysis, this current analysis allows for increased use of renewable electricity as an energy source, increased demand for energy to power electric vehicles and increased use of recycled water.

The capacity of existing infrastructure to support growth varies by location for each infrastructure sector. More wor is required to determine the capacity of Victoria's existing infrastructure to support future population growth. In this research, we made assumptions based on current infrastructure capacity by sector. This research focused on sectors that were expected to have the highest costs, and areas where we should focus our long term planning.

Although the 2 research projects focused on different factors, the high level findings are consistent. These include:

- Trends in infrastructure costs across sectors and development settings are consistent between the 2 research pieces.
- Infrastructure to support new homes in more dispersed scenarios cost more per home than additional homes in more compact scenarios. This research found it could be about $ 9,000 more expensive per home in a dispersed scenario compared to a compact city. A dispersed city could be up to $41 billion more expensive than more compact one.
- Transport infrastructure is the highest cost item supporting urban development as it has both large capital and operational expenditure.
- Provision of new social infrastructure, such as schools and community facilities, is more expensive in higher density established areas. This is predominantly because a lac of surplus land leads to high land acquisition costs for new facilities. Options such as repurposing public land for social infrastructure, recycling existing facilities to ma e them fit for purpose, and the integration of shared use facilities, offer an opportunity to address this cost issue.
- We should plan our future urban growth to best use existing infrastructure. More wor is required to understand the capacity of our existing infrastructure.

Recommendations

Recommendations

We recommend that the Victorian Government take these actions. Our research suggests that Victorians will be better off if the government adopts them.

1 **Use a new plan for Victoria to reinforce established area growth, set regional city urban growth boundaries, and include housing targets for established areas of Victorian cities. Use these targets in land use framework plans, regional growth plans, and the Victoria Planning Provisions.**

Plan Melbourne 2017–2050 is the Victorian Government's metropolitan planning strategy. It guides Melbourne and Victoria's growth pattern for the next 30 years. It conveys Melbourne's challenges of housing more people and managing the speed and cost of building new suburbs. It includes an aspiration for 70% of Melbourne's new homes to be built in established suburbs. The government has committed to a new plan for Victoria, updating Plan Melbourne and expanding it to cover the whole state. A new plan for Victoria can better incorporate responses to climate change, housing affordability and transport priorities.

A new plan for Victoria should plan to build more homes closer to existing jobs, services and infrastructure within all Victorian cities. It should declare that all new homes must be built inside permanent urban growth boundaries around each Victorian city. The new plan should also set housing targets for the established areas of each city. This will encourage building new homes in places with good access to jobs, services and infrastructure, such as near public transport and commercial activity centres. The government should compel all other government strategic land use plans to reinforce the targets. This includes land use framework plans and regional growth plans.

Land use framework plans guide Melbourne's land use and infrastructure development. The Victorian Government has published draft land use framework plans with dwelling redistribution scenarios for each metropolitan region. The dwelling redistribution scenarios set out the number of extra homes each local government area must accommodate to achieve the aspiration for Melbourne to build 70% of new homes in established suburbs. The final versions should set numerical housing targets for local government areas, decided in collaboration with local governments.

Regional growth plans guide land use and development in regional Victoria. The Victorian Government should update the regional growth plans to include the housing targets for regional cities. The government should also work with regional local governments to set urban growth boundaries around each regional urban area. These should be incorporated into the Victoria Planning Provisions.

The Victoria Planning Provisions are the framewor for Victoria's planning schemes. The provisions contain mandatory rules that all local governments must include in their local planning schemes. The government should include the new local government area housing targets in the provisions. This means local planning schemes must also include the targets. It would also mean that local governments must consider the targets when they decide development applications.

The Victorian Government should also report annual progress on delivering on commitments in their new plan for Victoria.[29] This allows the government to show the community that the planned changes are happening as promised. It can also show whether the changes are a success.

This recommendation draws on, and further articulates, the findings of Infrastructure Victoria research report *Our home choices*. That report proposed an option for the Victorian Government to set and monitor housing targets in each Melbourne local government area, in collaboration with local governments.

The Victorian Government should deliver this recommendation through constructive and collaborative conversations with communities, stakeholders and organisations about their preferences and aspirations for Victoria's cities.

2 Develop and publish long-term plans for infrastructure sectors to meet the policies and targets set by a new plan for Victoria. Use these integrated land use and infrastructure plans to decide infrastructure project funding.

In this research, we found different city shapes need profoundly different amounts of each infrastructure type to function well. For example, a compact or consolidated city needs a different public transport network to a dispersed or regional city for people to move around easily. This is why governments should coordinate land use and infrastructure planning. But it requires governments to openly and transparently discuss future options, long before they make final commitments or budget decisions.

The Victorian Government should develop a plan for each infrastructure sector based on an agreed set of common, detailed, long-range population and land use forecasts. The forecasts should match the housing targets and other policies set by a new plan for Victoria. This resembles the approach that Queensland, New South Wales and the United Kingdom take. The infrastructure plans do not need to promise that the Victorian Government will build specific projects. Instead, they can show its strategic infrastructure intentions and options. Government agencies, businesses and not-for-profit organisations can then better align their decisions with the plans.

The government should require the plans to include the sequencing, assumptions, triggers and timelines for required decisions on investment over a 15- to 20-year period. They should support more compact future development in Melbourne and regional cities. Infrastructure Victoria made a similar recommendation in *Victoria's infrastructure strategy 2021–2051* to develop plans for priority infrastructure sectors.[30]

The government should use the sector plans to decide infrastructure funding. They can use the plans when considering infrastructure funding proposals during their annual budget deliberations. For example, a year or so before an infrastructure project needs funding, the agency responsible can re-check whether the assumptions behind the project are still accurate. If so, it can prepare a business case for funding in the next budget. Ultimately, the government will determine its spending priorities in any given budget, however plans must have influence in decisions to be useful. The Victorian Government combined the planning and transport portfolios in the same department on 1 January 2023. This gives the government a new opportunity to integrate land use and transport infrastructure planning to inform sector plans.

Many governments publish integrated infrastructure and land use plans

Some governments might avoid publishing integrated infrastructure and land use plans due to concerns that people might thin they are ma ing promises to build an inflexible future pipeline of infrastructure. But other governments show they can successfully publish integrated infrastructure plans.

The Queensland Government published consultation drafts of the *ShapingSEQ 2023 update*,[31] and the *SEQ infrastructure supplement*.[32] The draft infrastructure plans give South East Queenslanders a long term view of the housing and infrastructure that can support its future population. It lists newly built infrastructure, committed new projects, and infrastructure in planning stages in different sectors.

The ew South Wales Government publishes the Greater Sydney Region Plan.[33] The government prepares this plan at the same time as Infrastructure SW writes the State Infrastructure Strategy,[34] and Transport for SW drafts the Future Transport Strategy 20 6 .[35] These plans form S W's integrated long term plan to accommodate population growth. At a smaller scale, the government produces separate, more detailed district plans to help deliver the region plan. The district plans help local governments deliver more housing, and inform local environmental plans, community strategic plans and the assessment of planning proposals.

The United Kingdom Government has a *National infrastructure strategy*.[36] The strategy sets out the government's plans to improve the quality of the UK's infrastructure and achieve net zero greenhouse gas emissions by 20 0. The ational Infrastructure Commission conducts a national infrastructure needs assessment every years to inform the strategy.[37]

The UK government also publishes the *National infrastructure and construction pipeline 2021,* which sets out its planned infrastructure investments, and the wor force needed to deliver them. The pipeline signals the li ely timelines for major infrastructure construction and draws attention to any wor force shortfalls. This helps construction companies ma e longer term strategic plans,[38] and helps reduce wor er shortages that can delay projects or inflate their costs.

3 Reform infrastructure contributions, remove taxes and subsidies that fuel dispersed growth, and change planning rules to create more compact cities in Victoria.

Our research suggests that living in more compact cities will make Victorians better off. More compact cities in Victoria would use less land, make better use of infrastructure and have higher concentrations of jobs.[39] Schools, shops, workplaces and homes would be closer to public transport, so more people could use it. People could reach more destinations more easily, which would encourage them to walk or cycle more often.[40] This could keep people healthy. It could also reduce air pollution and greenhouse gas emissions.[41]

Our previous research report, *Our home choices*, showed that new homes built today in established suburbs are not always the type of homes Victorians want. That report set out 10 policy options for government to consider. The new research in this report supports many of those conclusions.

The Victorian and local governments collect infrastructure contributions on new development to help pay for infrastructure to support people living in new homes. But they only apply in Melbourne, and in some places and not others. They are collected through a complicated array of state and local government schemes. The Victorian Government should reform this convoluted approach to infrastructure contributions. A clear, efficient and transparent infrastructure contribution system can send a price signal that influences the location of new development. A revised scheme should consistently apply to all urban areas in Victoria, to fund any infrastructure upgrades needed to support people living in new homes, including in established suburbs.

The Victorian Government can also reform subsidies that distort people's choices when buying a home. First Home Owner Grant schemes do not actually increase home ownership or improve housing affordability. Homebuyers mainly use Victoria's First Home Owner Grant to buy homes in new suburbs. It is a subsidy that actively encourages urban sprawl. The Victorian Government should immediately end Victoria's First Home Owner Grant to remove any home price inflation it causes, which also distorts the housing market accurately reflecting the cost of providing different types of homes in different places.

Similarly, stamp duty discourages people from moving home and limits their housing options. To avoid paying stamp duty multiple times, they might buy a bigger home earlier than they need, rather than buying a small home first, and upsizing when their family grows.[42] Stamp duty concessions for first home buyers and properties valued up to $750,000 favour new suburbs rather than inner and middle Melbourne.[43] The Victorian Government should abolish stamp duty and replace it with a broad-based land tax.[44] This broad based land tax does not discourage people moving and can offer a more stable revenue stream for governments.[45] It could help incentivise more and denser residential development.[46]

The Victorian Government should also change planning rules to encourage building more homes in established suburbs. As we outlined in *Our home choices*, the government should rezone more land using the Residential Growth Zone in places that have good public transport and social infrastructure. Doing this in inner and middle Melbourne suburbs can allow more low-rise apartments to be built there. Better standards for building location, size and scale, and amenity features could reduce community concerns about effects on neighbourhood character and property values.[47] The government should provide guidance on good design for low-rise apartment buildings in the Victoria Planning Provisions.

The Victorian Government should also introduce a dual occupancy and townhouse code to encourage well-designed small-scale development in established suburbs. It should apply in areas close to the city centre in

Melbourne and regional cities like as Geelong, Ballarat and Bendigo. The code will allow more small-scale townhouse redevelopments in established suburbs, which more homebuyers can afford. It can speed up planning approvals, reduce housing costs by saving time in the planning process, and incentivise well-designed homes.[48]

The Victorian Government should reduce minimum parking requirements for developments located close to good public transport. Fewer parking spaces can boost the supply of homes in inner and middle Melbourne, reduce their cost and give developers more certainty. Parking spaces make homes more expensive and use up space that could otherwise be used for extra bedrooms.[49] Developers can always build more than the minimum parking requirements and home buyers can pay for more parking if they need it.[50]

All of these changes would encourage more homes to be built in established areas of Victoria's cities, and fewer in new suburbs.

4 Plan for and deliver infrastructure that supports more people and jobs locating in established parts of major regional centres, including local transport, energy, water and digital infrastructure.

We compared different development scenarios for regional Victoria. People will be better off if new homes are mainly built in established parts of major regional centres, rather than being spread across small towns and rural areas. It means people would be closer to more jobs, services, and infrastructure, and have more home choices. The regional economy would be larger. Concentrating home building in regional centres would use up less land, helping preserve farmland and natural habitats. People already living in these centres could also benefit, especially if these new homes bring better transport and social services.

The Victorian Government should undertake long term strategic planning to support more compact urban development in major regional centres across Victoria. This should include policies that give people more regional housing choices, produce more regional jobs and deliver better local public transport connections. The government should establish regional housing targets in collaboration with local governments so new homes are built in places with good infrastructure access.

The Victorian Government should update its regional growth plans to plan for more homes in the established parts of regional centres. Regional local governments can then change their planning rules in these places to achieve the updated plans. For example, local governments can identify priority places to introduce the Residential Growth Zone in their regional centres to allow for more low-rise apartment development.

If the established parts of major regional centres accommodate more homes, those places will need better connections to regional jobs and services.[51] Regional cities can benefit from better local public transport options. By collaborating with transport providers and local communities, the Victorian Government should help define regional public transport priorities. These can include travel around major regional centres, and for smaller communities to travel to them. It can then design and fund durable solutions, crafted specifically for the unique features of each location.[52]

The Victorian Government should also work with local governments, energy companies, and water corporations to measure the infrastructure capacity in major regional centres. It can use this information to plan for energy and water infrastructure upgrades, so established suburbs will have enough infrastructure to accommodate more homes. This may require a step change in infrastructure provision, such as producing water from alternative sources, or increasing capacity of electricity distribution infrastructure.

The Victorian Government should also prioritise improving regional digital and transport connections for businesses, jobs and services. Regional infrastructure can link businesses to markets, producers and customers. Regional rail freight and regional roads need ongoing, long-term maintenance funding to support efficient freight logistics, minimise transport costs, improve road safety and keep regional Victoria economically competitive.[53]

5 Plan for efficient and resilient electricity distribution infrastructure. Stimulate development and use of zero or low carbon materials and building construction and operation methods that reduce greenhouse gas emissions.

Victoria is transitioning to a zero-emissions energy system. We estimate that building new renewable energy generation and transmission networks will cost $42 billion by 2056.[54] Building new electricity distribution infrastructure is cheaper in more compact or consolidated cities. But to build most efficiently, the government should plan new electricity distribution network upgrades that account for an area's future new homes, the speed of electrification, and exposure to climate risks. Otherwise, it risks the networks repeatedly being upgraded incrementally, at much higher cost.

Higher density homes use emissions-intensive construction methods and contain building materials that emit more greenhouse gases during their manufacture. But more compact cities also produce fewer transport emissions because people travel shorter distances. The opposite is true for less compact cities. Cities with more dispersed homes use lower emission materials, but produce more transport emissions because more people drive further. This includes emissions produced by generating electricity to charge electric vehicles, until the electricity grid achieves net zero emissions.

The Victorian Government should help commercial companies to develop zero or low carbon materials and building methods that will result in lower embodied carbon and operational emissions in all new buildings and other infrastructure. This can include investing in research and development to support introducing new low carbon materials into the construction sector. The government could consider a dedicated fund to support research, development and pilot programs for low carbon building materials and techniques.

The Victorian Government can use low carbon materials in public infrastructure projects to demonstrate their feasibility. It can also help develop and enforce building standards that require new homes to use low carbon materials, generate renewable energy, and be more energy efficient. These standards might be different for houses and apartments, as each has different opportunities to reduce emissions.

In March 2023, the Victorian Government requested Infrastructure Victoria's advice on opportunities to reduce greenhouse gas emissions of future public infrastructure investments the government will plan, own, or manage. The request asked us to consider how policies and guidelines can better account for greenhouse gas emissions produced in the design, investment, construction, maintenance, and decommissioning of Victoria's infrastructure. Implementation of that advice's recommendations will help reduce the greenhouse gas emissions of infrastructure and buildings identified by this research.

Detailed scenario analysis

Our detailed analysis describes the main characteristics of each urban development scenario in terms of population growth, housing type, jobs growth, and transport options.

It tells a story about what people might experience in each scenario in the year 2056. It uses the research data and modelling results to better understand some of the advantages and disadvantages.

Scenario impacts comparison table

This table compares the indicators for each scenario across social, economic and environmental dimensions. We discuss them in more detail in each scenario.

Figure 11: Scenario comparison table of estimated metrics

Indicator	Unit	Dispersed city	Consolidated city	Compact city	Network of cities	Distributed state
Net value of housing	$b, present value relative to dispersed city	0	52	105	-55	-107
Of which: value of housing improved access to jobs	$b, present value relative to dispersed city	0	47	100	-37	-80
Net value of housing per dwelling	$000/relocated dwelling relative to dispersed city	0	75	152	-79	-155
Housing choice - share of all dwellings that are detached, 2056	Per cent	65	58	54	62	67
Share of dwellings for sale under $750,000 today's value)	Per cent	56	50	48	56	63
Share of dwellings available for rent under $500 per week	Per cent	73	68	69	74	79
Accessibility to jobs (car 2036)	Ratio to dispersed city	100	104	110	101	101
Accessibility to jobs (car 2056)	Ratio to dispersed city	100	106	115	100	95
Accessibility to jobs (public transport 2036)	Ratio to dispersed city	100	104	110	98	96
Accessibility to jobs (public transport 2056)	Ratio to dispersed city	100	109	118	95	87
Public transport mode share (AM peak)	Per cent of trips	12.1	13.4	15	12	11.3
Environmental externalities from transport	$b relative to dispersed city	0	-0.3	-0.5	-0.8	-1.5
Business location productivity	$b relative to dispersed city	0	9	30.8	-0.6	-8.2
Agglomeration benefits	$b relative to dispersed city	0	12.3	19.7	-1.8	-15.5
Employment impacts	$b relative to dispersed city	0	5	12.1	0.2	-2.6
Additional land requirements	Km^2 relative to dispersed city	0	-190	-313	20	241
Building operational GHG emissions	Million tonnes CO_2e relative to dispersed city	0	0.3	0.7	0.1	0
Building embodied GHG emissions	Million tonnes CO_2e relative to dispersed city	0	8	14.8	1.3	-1.8
Vehicle tailpipe GHG emissions	Million tonnes CO_2e relative to dispersed city	0	-7.6	-16.8	-1.5	-10.8
Operational emissions from electric vehicles	Million tonnes CO_2e relative to dispersed city	0	-0.2	-0.5	0	0.1
Total GHG emissions	Million tonnes CO_2e relative to dispersed city	0	0.5	-1.8	-0.1	-12.5

Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

Note: blue shading indicates a more positive outcome and red indicates a more negative outcome, relative to all other scenarios. Grey shading means a neutral outcome.

Dispersed city

Imagine that over the next 30 years, developers build many more large, detached homes on the outskirts of Melbourne. These new homes have plenty of open space nearby. But as the city expands into more new growth areas, road congestion increases, and people spend more time commuting.

Melbourne keeps expanding

In 2056, Melbourne is still a low density, dispersed city. Between 2021 and 2056, Melbourne accommodates over 75% of Victoria's population growth, or an extra 3 million people, with just over 2.3 million in its outer suburbs and new growth areas. There's also some population growth in Melbourne's inner and middle suburbs and in regional Victoria, as shown in Figure 12.

Melbourne reaches this scenario by keeping the policies of the early 21st century. Most new homes are built on the urban fringe, extending along Melbourne's road and rail corridors. Peri-urban towns around Melbourne rapidly build more homes.

Figure 12: Map of dispersed city scenario population growth

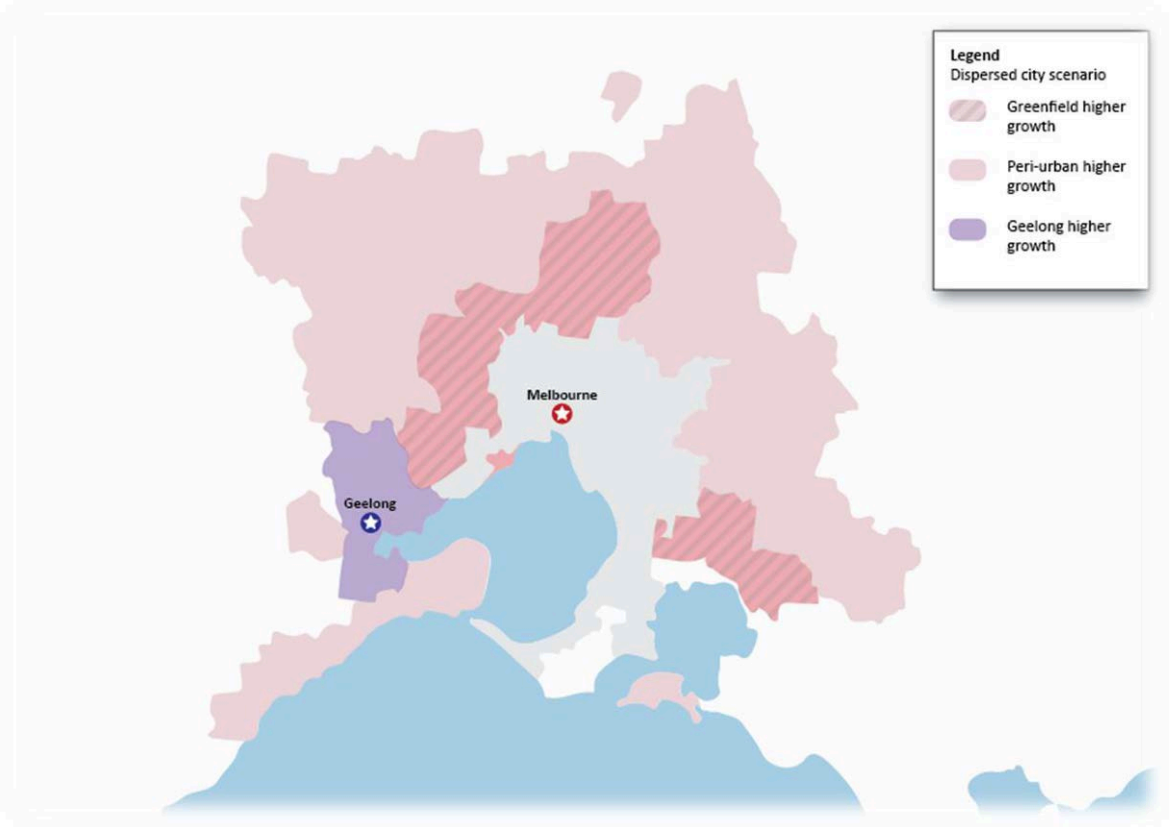
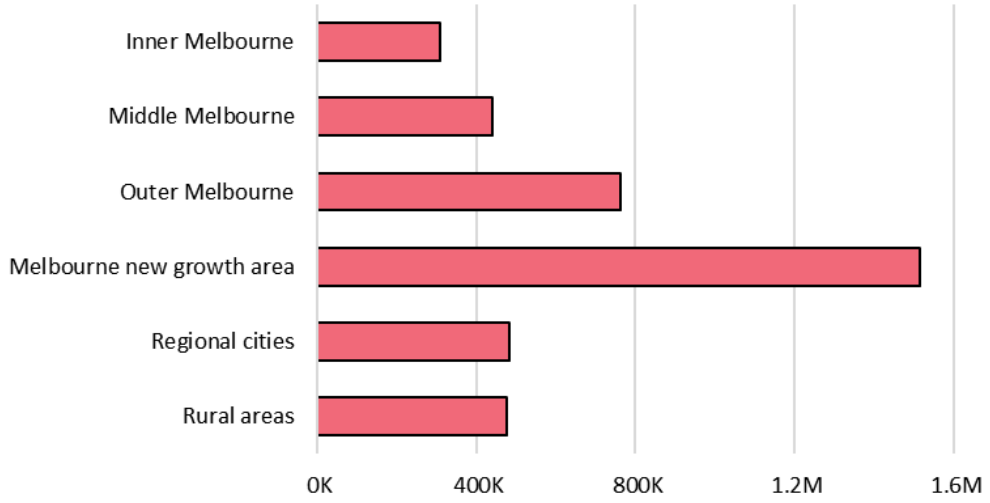


Figure 13: Dispersed city scenario population growth



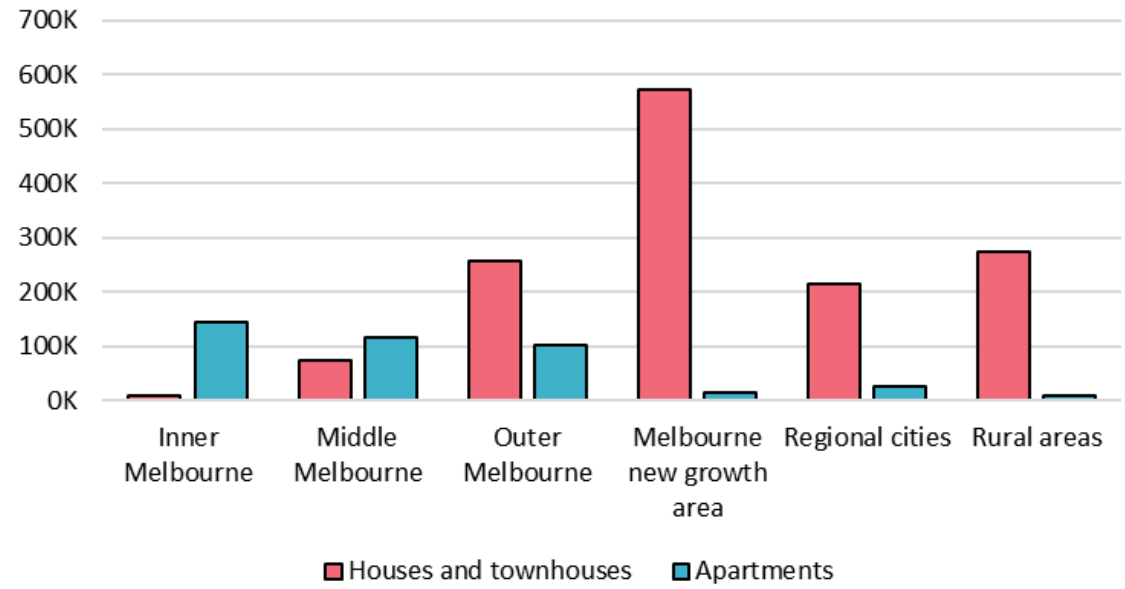
Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

Melbourne plans more growth areas for extra homes

By 2041, developers exhaust all the land zoned for new housing estates in growth areas. This forces the government to allow development beyond the urban growth boundary to build more homes. The government develops precinct structure plans for more new growth areas. Developers build 270,000 detached homes in these extra growth areas to accommodate the demand for more homes.[55] These new suburbs push further into flood plains and grasslands, exposing people to higher risks of flood and fire. Victoria builds very few apartments outside Melbourne's inner suburbs, as Figure 14 shows.

Developers also build more low density, detached homes in parts of regional Victoria close to Melbourne, primarily along road and rail corridors. Melbourne's inner and middle suburbs build new homes only incrementally, and the populations of Melbourne's outer suburbs grow rapidly. Regional cities and centres build more detached houses, meaning they also have more people, as Figure 14 also shows.

Figure 14: Dispersed city scenario forecast dwelling growth by type (2021 to 2056)

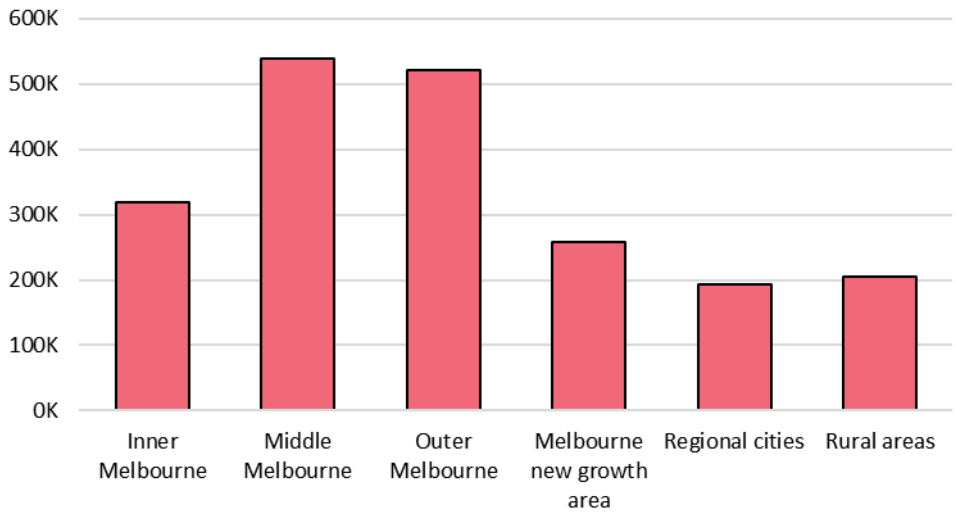


Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

Spread-out suburbs favour lower paid local jobs, and long car trips

As more people move into the burgeoning new suburbs on Melbourne's fringes and in nearby towns, the government and businesses start new services for them, creating local jobs. This includes many jobs where people directly interact, like education, healthcare and community services, and retail jobs like supermarket work. The spread-out city tends to produce extra courier, transport, personal services, recreation, and other local services work, although these jobs are often not highly paid.[56] Other jobs that do not rely on serving people face-to-face, like finance and some professional services, still cluster in Melbourne's inner and middle suburbs, as Figure 14 shows. In 2056, Melbourne's inner and middle suburbs have 47% of Victoria's jobs, but only 30% of workers live there. In a dispersed city, many workers must travel from Melbourne's outer and new growth areas to inner areas to get to work.

Figure 15: Dispersed city employment growth by functional urban area (2021–2056)



Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

Many office employees work from home a few days a week because their workplaces are so far from home. But certain businesses still strongly benefit from a central city location.[57,58] It is the easiest place for workers living all over Melbourne to meet in person and the best place to meet clients in other businesses. But it also means workers in these businesses still need to live within a reasonable distance of central Melbourne. If they move too far away, they cannot get to work in a reasonable time, even if only for a couple of days a week. A dispersed city means many people are still making long journeys, causing congestion and delays on the roads and on public transport.

In 2056, the proportion of people using public transport does not change much from 2021. Public transport cannot easily cater to their travel patterns because people are so spread out, and their destinations are dispersed. The long distances mean they do not find walking and cycling attractive.

Because so many people rely on cars for transport, wider roads can help reduce congestion. But the government can only build wider roads in places with enough space, li e Beveridge in Melbourne's north. The government cannot widen roads in built up areas, and wider roads also generate more traffic. The government also invests in longer metropolitan train services and new stations in growth areas to help people travel long distances to work.

Rural towns near Melbourne grow rapidly

By 2056, another 350,000 people live in peri-urban towns, each now a bustling community surrounded by new housing estates. They also attract new local service jobs, but not nearly enough for their whole population. Coastal and rural towns do not grow as much, because the rising threat of climate change creates more extreme weather events, and fewer people and businesses are willing to take that risk.

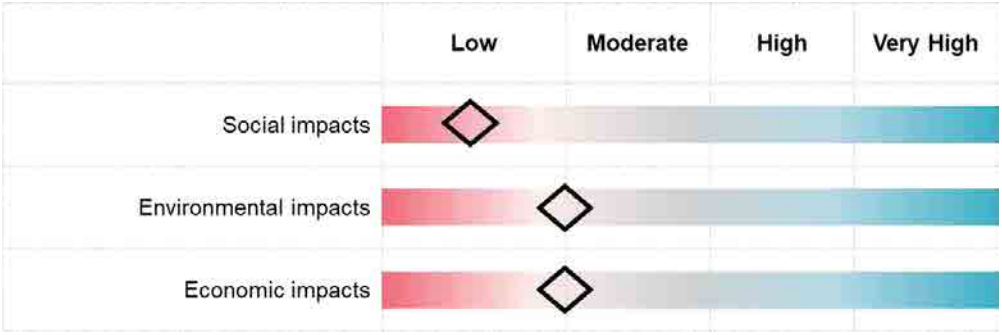
Impacts and costs of the dispersed city scenario

A dispersed city has worse social outcomes, less accessibility and people depend more on cars

The dispersed city has worse social impacts than our other scenarios, and moderate environmental and economic impacts.

We assessed different impacts, as presented in Figure 11 and described below. We gave scenarios very high scores when they performed better compared to other scenarios on the indicators in each social, environmental, or economic domain. We gave scenarios a low score when they performed worse compared to other scenarios. We gave scenarios moderate or high scores when they performed in between the other scenarios.

Figure 16: Dispersed city overall assessment



Note: blue shading indicates a more positive outcome and red indicates a more negative outcome, relative to all other scenarios.

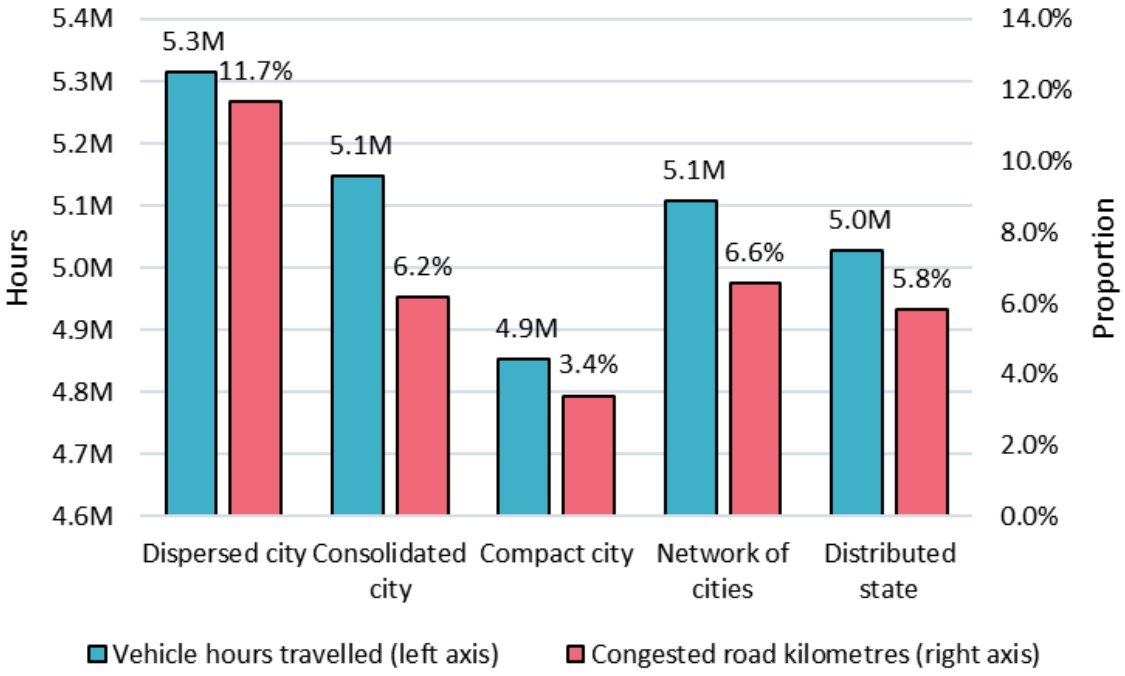
A dispersed city risks creating more disadvantaged places. People who live in neighbourhoods with inferior access to jobs, services and opportunities can experience locational disadvantage. This might mean they cannot get the help they need to change their life circumstances. It can lead to feelings of isolation and loneliness, particularly for people living alone.[59] In turn, this can affect people's mental and physical health.[60,61]

Melbourne's outer and growth suburbs more commonly have these disadvantaged places. A dispersed city shape means more people live in suburbs with less access to jobs and services.[62] This means more people might experience locational disadvantage and risks greater social inequality.

Of our 5 city shapes, a dispersed city has the highest car ownership. Our modelling forecasts it has 154,000 more cars than a compact city. This means people spend more time in their car (see Figure 17), the roads are more congested, and public transport is more crowded, than in any other city shape.[63] This risks producing a lower quality of life for people living in Melbourne's outer suburbs and growth areas.

A dispersed city makes it harder to get to work. People can reach fewer jobs within a reasonable commuting time, compared with more compact or consolidated cities. This also means a dispersed city has a less productive economy and lower wages.

Figure 17: Total time spent travelling by car and proportion of road kilometres congested in 2056



Data source: Arup, *Urban development scenarios, strategic transport modelling,* 2023

People get less value from their homes in a dispersed city

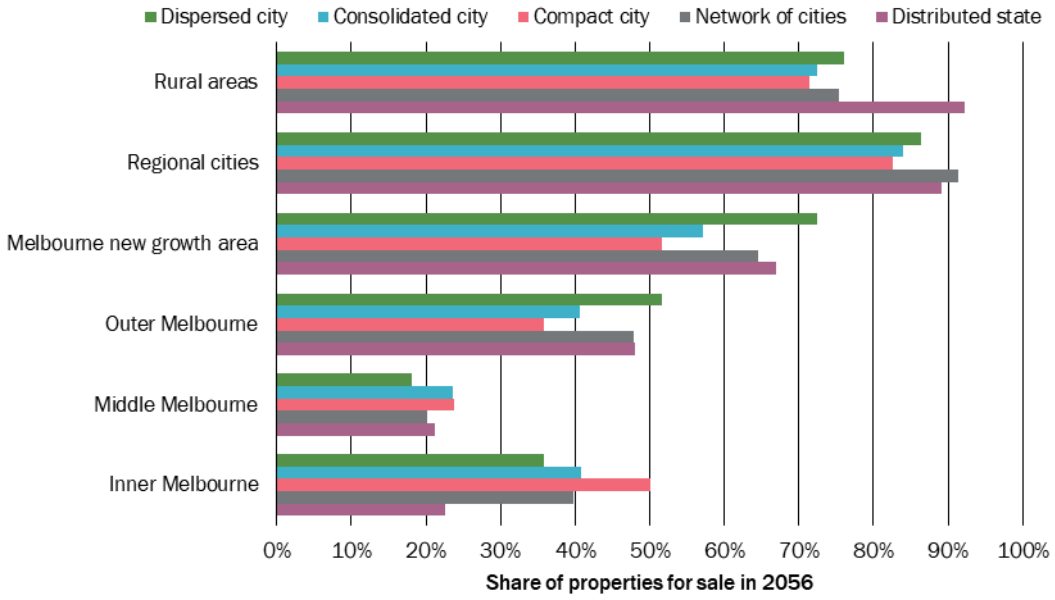
To assess social outcomes, we measured housing values. Housing value reflects the value of the location of the home, and the type of home, such as a detached house, townhouse, or apartment. It captures whether the homes match people's desired home locations and home type preferences. We interpret higher housing values to mean the homes are better located, and better match people's preferences.

People gain less value from their homes in a dispersed city than in compact or consolidated cities. We estimated that dispersed city homes produce $52 billion less value than in a consolidated city, and $105 billion less than in a compact city, in 2056.[64]

A dispersed city produces less valuable homes because they are further away from valuable opportunities, like jobs and services. Dispersed cities build homes on cheaper land, but the benefit of this lower-cost housing is outweighed by their inaccessible locations.[65] We used our modelling to estimate the effects of different housing values on housing affordability. We found that the total share of affordable housing in Victoria was about the same in every city shape.

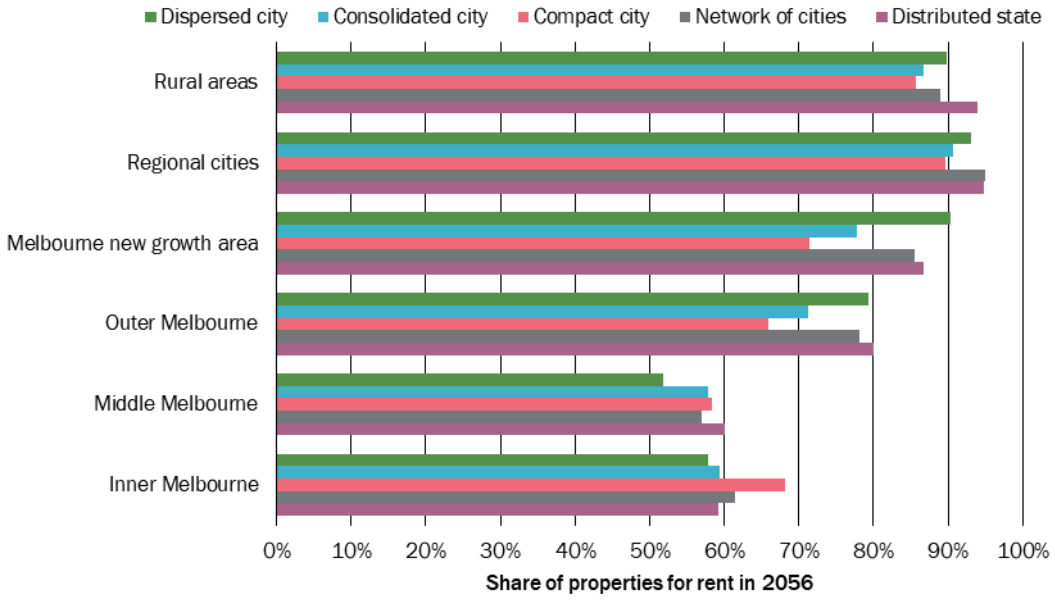
But city shape does affect where people can buy affordable homes. In a dispersed city, more of the available affordable housing is in the outer suburbs and growth areas, compared with other city shapes.[66] Of our 5 city shapes, a dispersed city has the lowest proportion of affordable homes available in the middle suburbs, and the second fewest in the inner suburbs. A dispersed city shape concentrates affordable housing in the outer suburbs and growth areas of Melbourne, which are the least accessible parts of the city. Figure 11, Figure 18 and Figure 19 show more detail about the location of affordable homes.

Figure 18: Share of properties for sale below $750,000 in 2056, assuming no price growth



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

Figure 19: Share of rental properties below $500 per week in 2056, assuming no price growth



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

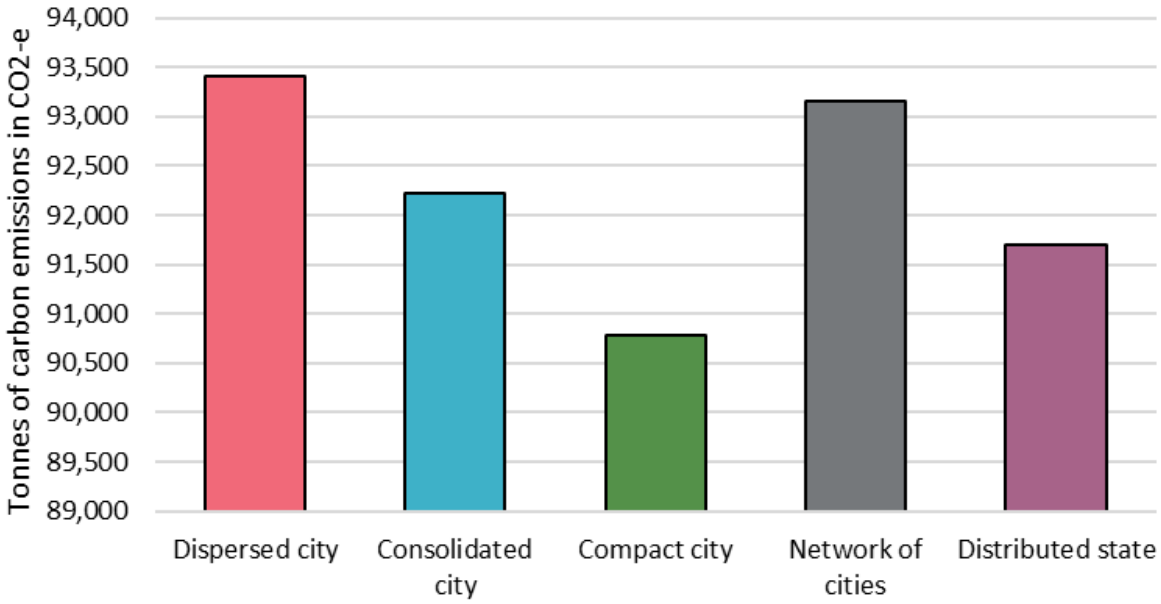
A dispersed city emits more greenhouse gases, and uses more land

The shape of cities can affect the environment. We measured different environmental impacts for our 5 city shapes. This includes the greenhouse gases emitted by homes and vehicles. We adjusted our measures to account for more people using electricity vehicles over time. We also measured the noise and air pollution transport vehicles produce, and the extra land used by different city shapes.

A dispersed city produces more greenhouse gases than any other city shape. Its transport emissions are higher because more people drive further, on more congested roads.[67] By 2036, a dispersed city generates

about 4 million more tonnes of greenhouse gas emissions from transport, compared to a compact city. For the same reason, the dispersed city also produces the most air and noise pollution.[68]

Figure 20: Total daily CO_2 emissions produced by transport from 2021–2036



Data source: Arup, *Urban development scenarios, strategic transport modelling,* 2023

In a dispersed city, new growth areas use up more land to build new homes. Our dispersed city scenario uses more than 70,000 hectares of land for new development. This is almost twice as much as the compact city scenario, which uses only about 40,000 hectares. More land for housing means less land for wildlife and biodiversity.[69] Larger growth areas to create new suburbs on the fringes of Melbourne also means less land for farming, nature or industry.[70]

Local infrastructure costs more in a dispersed city

By 2056, a dispersed city needs more local infrastructure because its new housing estates cover a much larger area. We estimated local infrastructure costs for a dispersed city at $160 billion, which is the second highest of our 5 city shapes. Local infrastructure includes building the streetscape and installing basic services to each home. It includes:

- earthworks and local roads
- civil works including drainage
- electricity, gas, water, sewerage, and telecommunications connections
- conversion of street scapes.[71]

But not everything costs more in a dispersed city. Educational infrastructure, open space and community infrastructure is cheaper to build than in a compact or consolidated city. This is largely because land is cheaper in new growth areas. We costed community infrastructure that serves local communities in our costing. It includes:

- health and wellbeing hubs
- sport and recreation hubs and more aquatic centres
- art and cultural hubs.

Policies that could enhance or mitigate dispersed city outcomes

These policy directions are not our recommendations to the Victorian Government. Rather, they advise on ways the government could achieve better outcomes if it chooses to pursue this urban development pathway.

Our modelling shows a dispersed city has worse social impacts, less access to jobs, higher greenhouse gas emissions, lower productivity, and uses up more land than more compact or consolidated city shapes. The Victorian Government faces risks if it pursues this city shape. To avoid these risks, the Victorian Government should consider policies that limit new suburban development and instead support building more homes in established parts of Melbourne.

But if the Victorian Government chooses a development pathway toward a more dispersed city, it should manage Melbourne's expansion in a more considered way. These 4 policy directions could make this scenario work better for Victorians, and lower some of the risks.

Prioritise planning for population growth in Melbourne's growth areas, peri-urban and surrounding regional areas

A dispersed city needs about 600,000 more homes in Melbourne's grow areas by 2056.[72] For the people living in these new homes, the Victorian Government can prioritise better planning and more infrastructure funding for the city's newest suburbs, and for peri-urban and surrounding regional areas.

To achieve a dispersed city, the government would need to expand the urban growth boundary, because the present boundary will not have enough room for all the new homes. The government can review its approach to identifying land for urban development,[73] including permanently protecting green wedge and peri-urban agricultural land from development.[74] The government can produce more Precinct Structure Plans (PSPs) for land use and infrastructure in new suburbs, peri-urban and regional towns. Growth Area Infrastructure Contributions (or other forms of developer funded infrastructure contributions) can apply to a larger geographic area and more transparently fund priority, strategic state infrastructure in these places.[75] Recommendation 3 to reform infrastructure contributions could help fund this new infrastructure.

It can take some time after people move into new suburbs for the Victorian Government, local government and businesses to build infrastructure, and provide social services, public transport, retail outlets, and other commercial services. This means people often must drive to nearby suburbs to reach them. For example, delivering bus services can take up to 10 or more years.[76] Establishing other services and facilities can take 4 or more years after the first residents move in.[77] To address this, the Victorian Government could offer financial incentives such as land tax relief to encourage retail and commercial development in new suburbs. Development Victoria could work in partnership with local government and the private sector to speed up commercial development by buying land for temporary shops and services or developing sites to sell for profit.[78]

Good planning for delivery of social services and infrastructure can make a dispersed city more successful. If the government were to pursue a dispersed city, it could update the land use framework plans. The updated plans could show the new areas proposed for extra suburbs, and the accompanying revisions to planned major infrastructure and land uses.[79] The government could then prepare new precinct structure plans for the new areas. These new plans could have more infrastructure detail than present ones, and include more types of infrastructure, like community centres, libraries, sports facilities, and kindergartens. This can identify appropriate places for these facilities and encourage early zoning of land for these uses. Precinct structure plans can also help the Victorian and local governments identify appropriate land to buy for future infrastructure. By delivering the long term infrastructure plans outlined in recommendation 2, the Victorian Government can have a clearer blueprint for development and infrastructure in these new suburbs.

The government might change the way it delivers social services in a dispersed city. For example, it might deliver more services digitally. It might deliver face-to-face services from multi-purpose community hubs, designed to meet many different community needs. Many of Melbourne's growth areas have a large Aboriginal and Torres Strait Islander population. For example, the local government areas of Wyndham, Casey and Whittlesea have the largest number of Aboriginal and Torres Strait Islander people in Melbourne.[80] The Victorian Government can co-design a plan for Aboriginal community-controlled infrastructure in growth areas to meet their future social, economic and cultural needs.[81]

Invest in more growth area transport infrastructure

A dispersed city has high car ownership, long trips, heavy road congestion and high public transport crowding.[82] For a dispersed city to have less transport congestion, the Victorian Government would need to invest in more transport infrastructure than we assumed for our modelling and costings. The government could also prioritise extending train lines into growth areas and invest in more bus services there.[83] It could deliver bus services earlier in new developments. It could give buses higher priority on roads, and improve other routes so buses are faster, more frequent, and reach more local destinations. It could also deliver bus rapid transit services as a cost-efficient mass transit in areas not well served by trains.[84]

To reduce people's reliance on cars in new suburbs, the Victorian Government could work more closely with local governments to provide alternatives for short trips, like high quality walking and cycling paths.[85] Other options, including car share, e-scooters, e-bike hire schemes and end of trip facilities at train stations, could also help people travel from train stations to their homes.[86] It could also consider cheaper off-peak public transport fares to encourage more people on to public transport, as outlined in *Victoria's infrastructure strategy 2021–2051*.[87] A distance-based road user charge could help shift people to alternative transport options, such as train or bus services.[88]

Work with the private sector to expand zero emissions vehicles' charging infrastructure

We estimate that a dispersed city will mean Victorians own at least 7.6 million cars by 2056, which is around 2.5 million more cars than in 2021.[89,90]

The Victorian Government could keep supporting initiatives that accelerate the uptake of zero emissions vehicles (ZEVs). As this scenario has so many extra cars, this could help reduce the amount of greenhouse gases they produce. This might include policies and incentives that support a faster uptake of ZEVs, such as expanding the ZEV charging network in Melbourne and regional Victoria.

Our previous *Advice on automated and zero emissions vehicles infrastructure* and our report *Driving down emissions: accelerating Victoria's zero emission vehicle uptake* offer more detailed guidance on improving uptake of ZEVs and the infrastructure needed to support their operation.[91], [92]

Address climate risks from using more urban land

The Victorian Government and community will face more hazardous climate risks in a dispersed city scenario. This scenario uses the most land for homes and local infrastructure in Melbourne's new suburbs.[93] Some of these areas are covered by the bushfire management overlay, meaning they have high bushfire risks.[94] As global warming escalates, Victoria's urban areas could experience around twice the number of very hot days[95] over 40 degrees each year by the 2050s, compared to the 1986–2005 average.[96] More frequent and intense heatwaves can lead to more illness and death, especially among at-risk and vulnerable people.[97] A dispersed city is more exposed to the repercussions of high temperatures and bushfires.

To reduce immediate bushfire risks, the Victorian Government could better manage vegetation, including by embedding Traditional Owners' cultural land management tools such as traditional fire management practices.[98] It can also support people at risk of heatwaves by working with local governments to deliver climate-adapted community facilities, which could be located in local libraries, leisure centres and town halls. These facilities are places that at-risk people can visit to remain cool during extreme temperatures when their homes are too hot, or to access filtered air to avoid breathing in smoke from large-scale or prolonged

bushfires.[99] The government could achieve this either by designing new facilities or upgrading and retrofitting existing ones.

New suburbs have less room for trees on private land, and those in Melbourne's north and western growth areas are on former grasslands that had little original vegetation cover.[100] More extensive tree canopy cover, including in public open space, can lower heatwave risks. Vegetation helps dissipate heat trapped in urban environments, contributes shade, and supports evaporative cooling. It also reduces water run-off, air pollution and ultraviolet radiation.[101]

Case study

International case studies of land use planning

Copenhagen's 'regional finger plan'

Copenhagen, Denmark is famous for its urban planning.[102] The city government emphasises sustainability and encourages use of public transport. Its 'five finger' or 'regional finger plan' was first sketched in 1947. Ever since, it has facilitated development of major new housing areas along public transport corridors, and preserves large wedges of green space between the growth 'fingers'.[103]

Copenhagen is an example of consistent urban planning producing beneficial outcomes for its people. For example, people cycle for over 40% of work and school trips, and they have good access to services, facilities and cycling infrastructure. Agricultural land uses are also encouraged in the green wedge areas between the fingers, which means farming produce is easily accessible from nearby urban areas.[104]

Source: Blekinge Institute of Technology

Singaporean precinct development

Source: Urban Redevelopment Authority Singapore

For most of the 19th century and the first half of the 20th century, Singapore's physical growth was haphazard and largely unregulated.

Singapore only really began to use urban planning in the mid-1950s.[105]

Singapore was planned as a series of partially self-sufficient precincts governed by 4 regional centres. This division of the region helps sustain Singaporeans high quality of life.

Singapore's government used strategies like providing quality affordable housing, integrating green spaces, enhancing mobility and transport services, sustaining a prosperous economy, and creating opportunities and room for growth for future generations.[106]

Consolidated city

Imagine that, by 2056, Melbourne's middle suburbs develop several high-density job precincts. The city builds many new homes in and around these precincts, often being townhouses or low-rise apartment complexes. People have good access to jobs and services within a reasonable distance from their homes.

Melbourne develops high-density precincts

Three new precincts emerge in middle Melbourne

By 2056, the Victorian Government strategically plans for and facilitates investment in 3 new precincts to the north, west and south-east of Melbourne's city centre. These precincts bustle with activity, with many new jobs, homes and services. Central Melbourne still functions as the main city centre and expands to include the nearby Arden and Fishermans Bend precincts. The government has completed the Suburban Rail Loop, which connects these new major growth precincts. In the consolidated city scenario, these precincts grow more than in any other scenario.

We chose these 3 specific precincts for illustrative modelling purposes, but we could have achieved a similar scenario by choosing different precincts. We selected the precincts to represent the general features of this type of city, rather than to propose that the government should prioritise these specific places.

Figure 21: Map of major precincts in the consolidated city

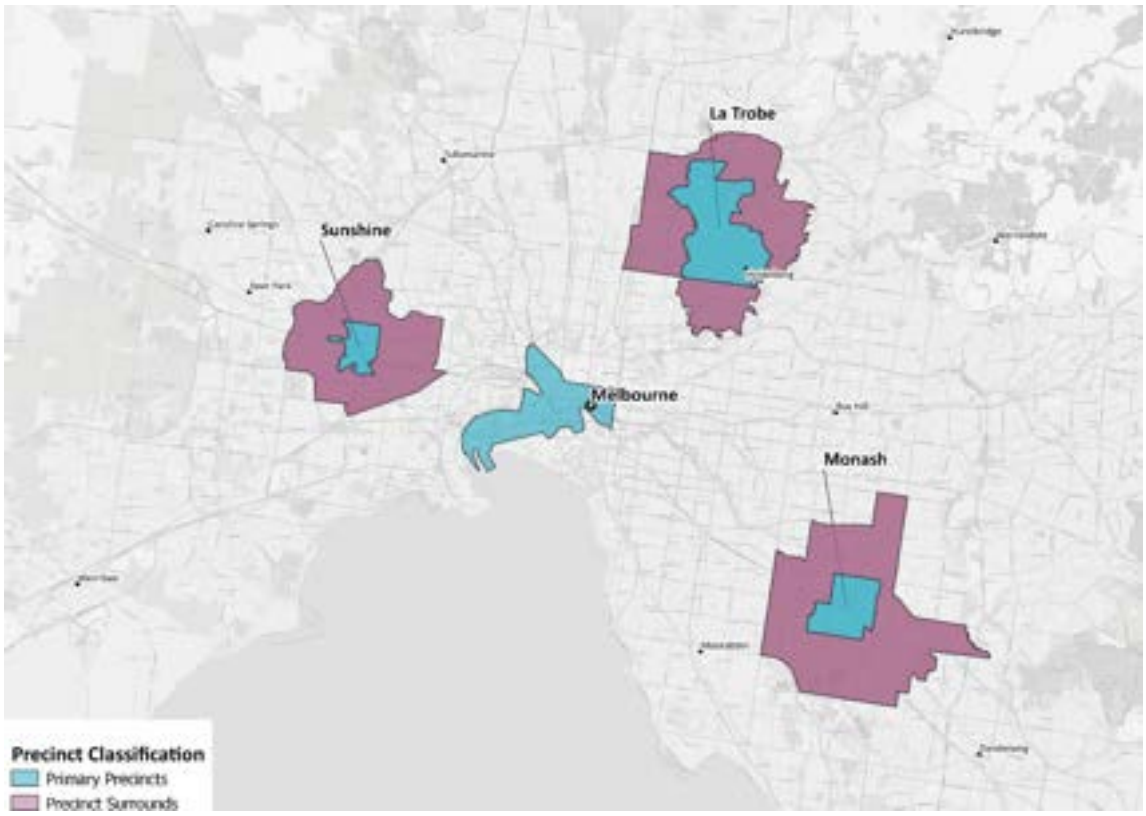
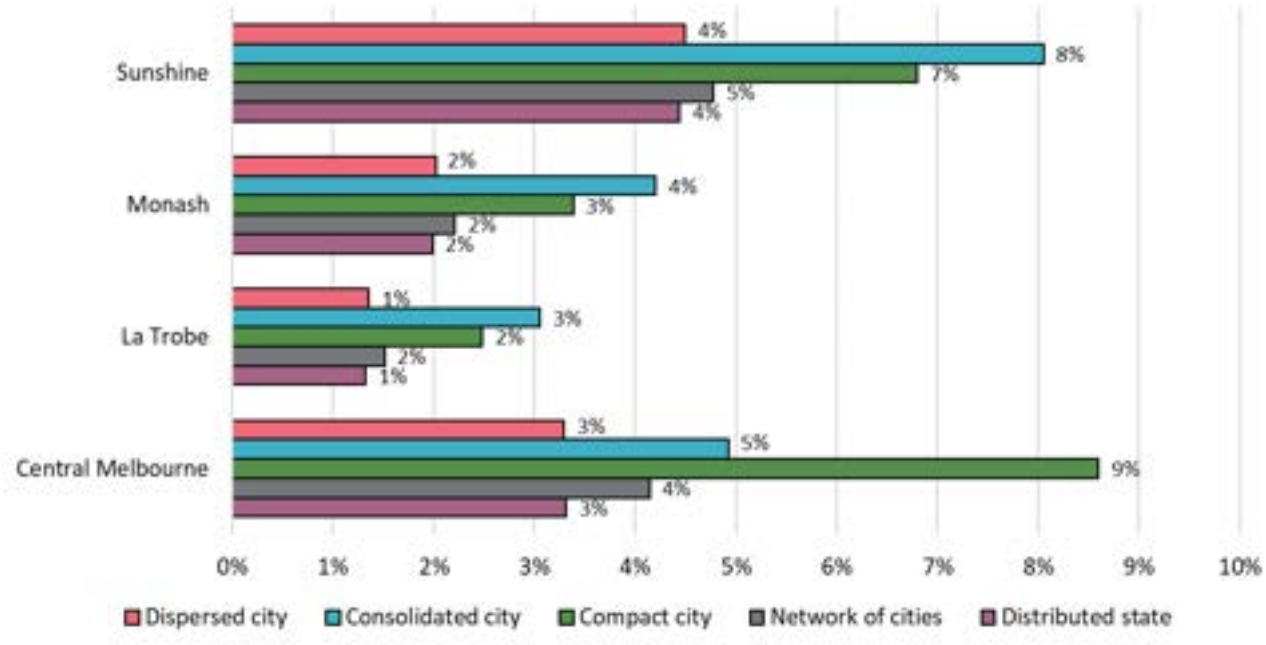


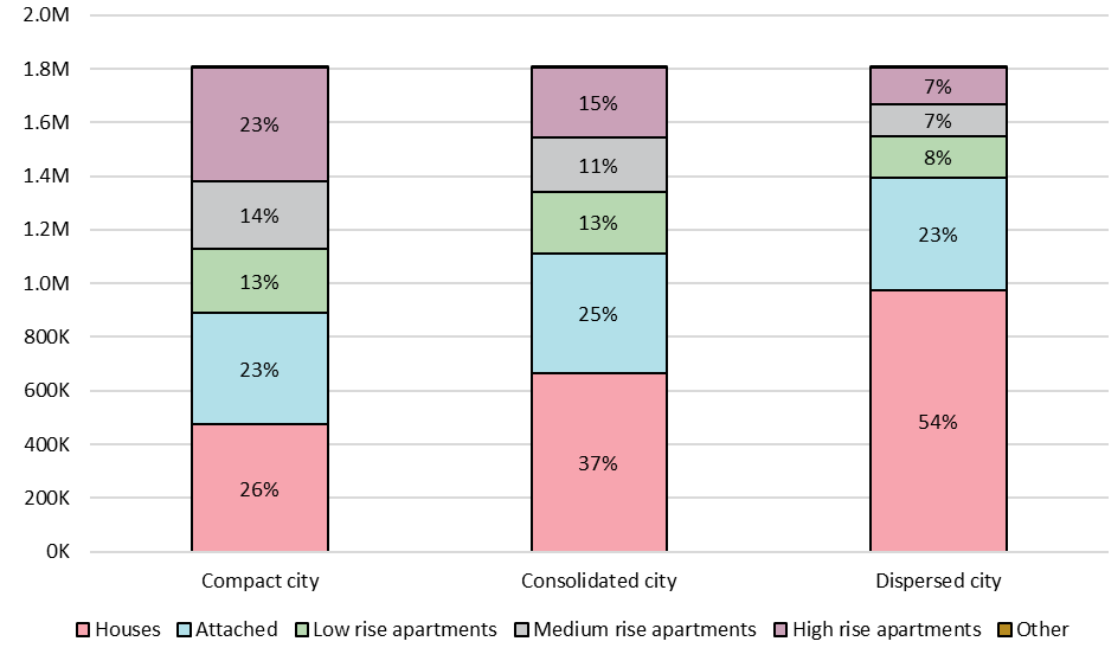
Figure 22: Annual population growth rates in precincts, 2021 to 2056



Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

In the consolidated city scenario in 2056, 37% of Melbourne's homes are detached houses. This contrasts with 26% in our compact city scenario, and 54% in our dispersed city scenario. Developers built high-rise apartments in inner Melbourne and built townhouses, low-rise and medium-rise apartments in Melbourne's middle suburbs, as Figure 23 shows.

Figure 23: Dwelling growth forecast for compact city, consolidated city and dispersed city scenarios, 2021 – 2056



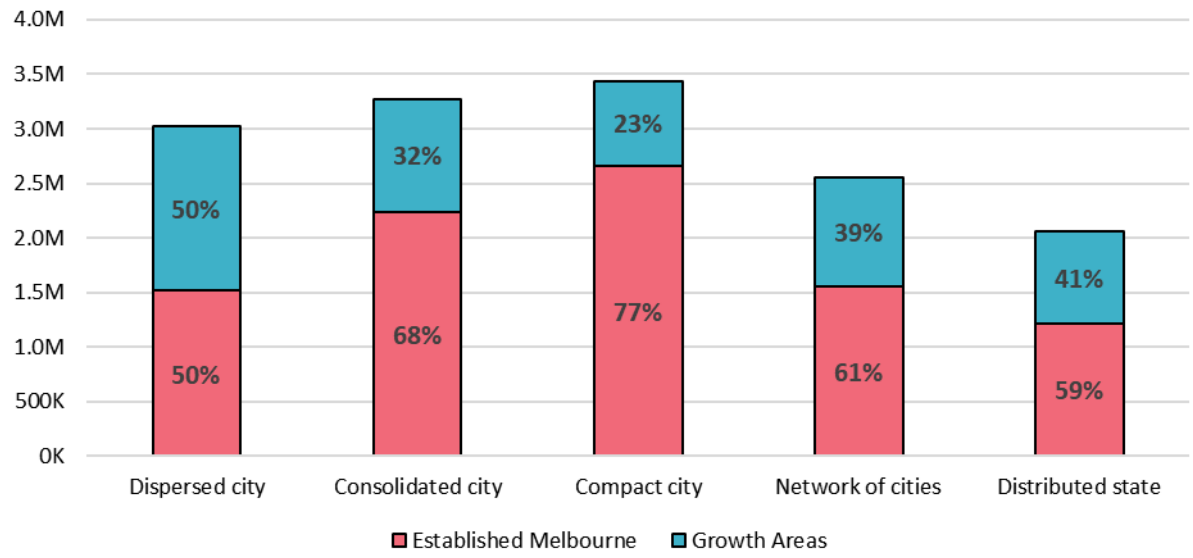
Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

Homes and jobs grow rapidly in Melbourne's new precincts

People and businesses benefit from locating in the new precincts. People living in them have good access to jobs and services. Businesses profit from their location in thriving commercial centres and can attract many productive workers and build strong commercial relationships there. Many major health and educational institutions are located in these precincts, and each precinct has its own identity and economic strengths.

In the consolidated city scenario, 68% of Melbourne's population growth is in its established suburbs, while 32% is in growth areas, as Figure 24 shows.

Figure 24: Population growth share of metropolitan Melbourne (2021–56)



Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

The precincts complement the city centre, which remains a major place for business, knowledge intensive services and related jobs. The precincts are knowledge hubs and thrive with successful new businesses built on advancements in clean energy, sustainability and healthcare. Melbourne's middle suburbs generate an extra 800,000 jobs by 2056, while the inner suburbs have an extra 400,000.

Fishermans Bend and Arden reach their planned population and employment aspirations. This creates a larger central city and means it has a greater mix of jobs and services. Fishermans Bend is Australia's largest urban renewal precinct, covering about 480 hectares. By 2050, it houses about 80,000 residents and offers jobs for up to 80,000 people.[107] The Metro Tunnel's Arden Station is the heart of the Arden precinct. The precinct is a thriving new neighbourhood that accommodates 34,000 jobs and 15,000 residents. Development has transformed the area, and delivered community facilities, a primary school, and around 8 hectares of new green space, including local parks.[108]

Each precinct has unique strengths

In 2056, the Monash precinct, in Melbourne's east, has more jobs than any place outside the central city. Monash University boosts the precinct's economic performance, as do the other health and research facilities nearby, including the Australian Synchrotron, Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Victorian Heart Hospital. It is also close to manufacturing businesses in Dandenong. Developers built medium and higher density apartments in the precinct and nearby, after the land was rezoned. The Suburban Rail Loop connects the Monash precinct to centres north of it, like Box Hill, and creates stronger demand for homes in it. Nearby suburbs attract many students and workers, helping stimulate demand for the many low-rise and medium-rise homes built there.

The northern La Trobe precinct (Heidelberg), is the main hub for jobs, education, research and health in Melbourne's north-east. The Darebin Creek and Yarra River border it, and it covers the largest area of our 3 major precincts. It contains La Trobe University, nearby parklands, and other green open spaces. People find the precinct attractive to live in, because it has a choice of townhouse and apartments for people seeking to live close to their jobs or the university.

In Melbourne's west in 2056, central Sunshine has transformed into a thriving precinct containing high-rise commercial offices and apartments. It has kept its culturally diverse communities and vibrant street life. The precinct centres on its railway station, which connects many different rail lines and bus routes. This means people living in Melbourne's western suburbs can easily get to it. People can also reach it using several regional rail lines or easily catch a train from the central city. Many new businesses locate in the precinct, especially because it is close to several large industrial areas that attract new advanced manufacturing businesses.

Melbourne builds a better connected public transport network

In 2056, Melbourne's has a busy train network, especially in the middle suburbs. The government completed Melbourne Metro Two, allowing cross-city trains to run from Werribee, through Fishermans Bend and the city centre, and out to Mernda. It also reconfigured the city loop to help more people travel more often across the city. Central Melbourne has more jobs and people, although not as many as in the compact city scenario.

Many people use the Suburban Rail Loop each day for many different purposes, not only to get to work. A larger, better connected train network means more people live in central Melbourne, and more business create jobs there. The government has also added more train and tram services that connect to Melbourne's suburban centres. It has added new bus lanes on arterial roads in Melbourne's middle and outer suburbs. The changes mean congestion increases on some roads, but many people use public transport instead of driving, because they find it is a great alterative. The Victorian and local governments have also improved walking and cycling infrastructure along major roads, which also helps people avoid driving in Melbourne's suburbs.

Impacts and costs of the consolidated city scenario

The consolidated city has many positive social, economic and environmental impacts, with good access to infrastructure, services and facilities and more affordable housing rental options.[109] Figure 25 shows our summary of the impacts of this scenario.

Figure 25: Consolidated city overall assessment

Note: blue shading indicates a more positive outcome and red indicates a more negative outcome, relative to all other scenarios.

People have more housing choices

People living in the consolidated city have more housing choices in more places. Melbourne has built many townhouses and apartments surrounding the central city and the 3 major precincts. This means people have more options for the type of home they can buy, and more locations in which they can buy one. People have good access, because these homes are closer to places with plenty of jobs and services. Home construction and land costs are higher in established areas, but people have a better quality of life because they can easily reach everything they need. The consolidated city scenario has a value of housing about $52 billion more than the dispersed city scenario.

A consolidated city uses less land and has fewer environmental impacts

In the consolidated city in 20 6, Melbourne's established suburbs accommodated many new homes. This meant building those new homes used less land, and the extra residents could use the infrastructure already in those suburbs. The consolidated city uses 190 km^2 less land than the dispersed city scenario.

It also produces fewer greenhouse gas emissions from running buildings, and from driving cars and trucks. The consolidated city emits about 7.9 million tonnes fewer greenhouse gas emissions (carbon dioxide-equivalent) directly from cars and trucks between 2021 and 2056, compared to the dispersed city. That is equal to the average annual emissions of about 260 commercial aircraft.[110]

But home construction emits more greenhouse gases in this scenario. It has more 'embodied emissions', meaning the home construction methods and the materials used in them cause more greenhouse gas emissions to be release. This is mainly because apartments need more steel and concrete. Our modelling shows that the consolidated city releases 8 million tonnes more greenhouse gas emissions from buildings than the dispersed city. Despite these extra emissions, the consolidated city generates fewer emissions overall than the dispersed city, because of the other emission reductions.

A consolidated city has a stronger economy

Victorians living in the consolidated city scenario have good jobs and a larger economy. By 2056 this city shape generates $9 billion (6%) more in economic activity, compared to the dispersed city. According to our

modelling, Victorians earn an extra $5 billion in wages and profits in this scenario than in the dispersed city, because more Victorians have jobs.

Our economic modelling calculated the 'agglomeration' benefits of the consolidated city. These calculations estimated the improvements in the city's economic performance associated with differences in accessibility and land use, which traditional cost–benefit analysis does not capture.[111] Agglomeration benefits arise from businesses locating closer together, either by being physically closer, or having better transport connections to one another.

The compact city and consolidated city scenarios have the most agglomeration benefits. We estimate that the consolidated city produces about $12 billion in agglomeration benefits between 2021 and 2056, compared to the dispersed city.[112]

People live closer to the places they need to go

Victorians living in the consolidated city can get to work more easily. As Figure 26 shows, people living in Melbourne's middle and outer suburbs can more easily get to work using public transport, compared to the dispersed city scenario. This is because people live closer to jobs and good public transport services.

Figure 26: Proportion of all jobs in Victoria accessible using public transport within 60 minutes (AM peak 2056)

Data source: Arup, *Urban development scenarios, strategic transport modelling,* 2023

Accessibility explained

In this report, accessibility is the ease with which people can reach valuable destinations. It accounts for transport availability, and travel time, distance and cost.[113] We included several indicators that relate to accessibility, such as:

- housing value
- access to jobs and services by car and public transport
- spatial distribution of housing affordability
- public transport mode share.

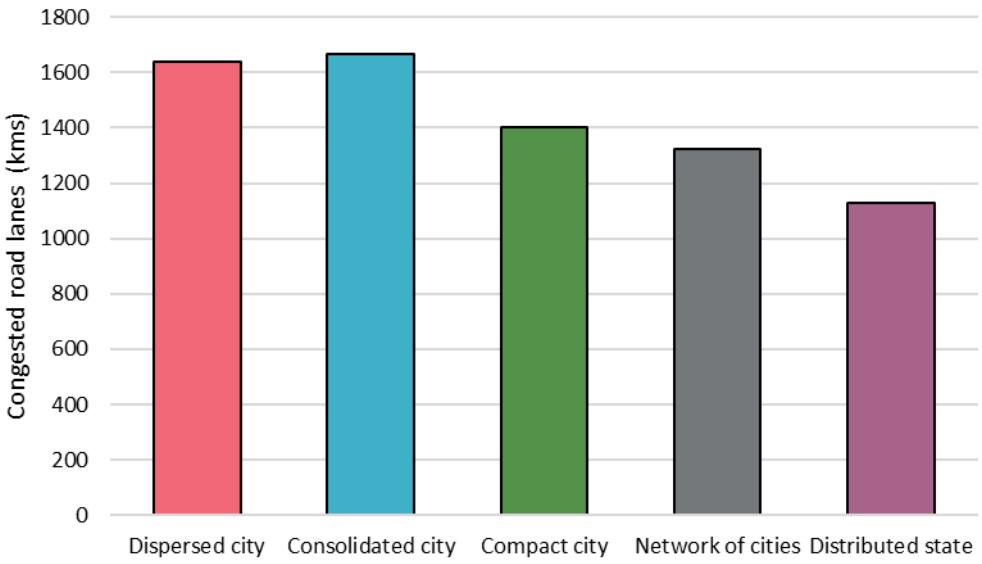
Better accessibility has other benefits. It encourages people to wal and cycle more often, including for local trips other than to their jobs. These trips include journeys to services, education, personal errands, and recreational and social activities, such as sport and shopping. They occur throughout the day, rather than just at pea times.[114] This also mean people do not have to solely rely on their cars for transport.

A more active lifestyle has health benefits. Heart Foundation Victoria research identified better accessibility in a '20 minute city' included encouraging people to wal and cycle, which improved their heart health.[115,116]

Research for *Plan Melbourne 2017–2050* identified that if people wal ed instead for just half of their short car trips, it would save about $16 m illion a year in congestion, health, infrastructure and environmental costs.[117]

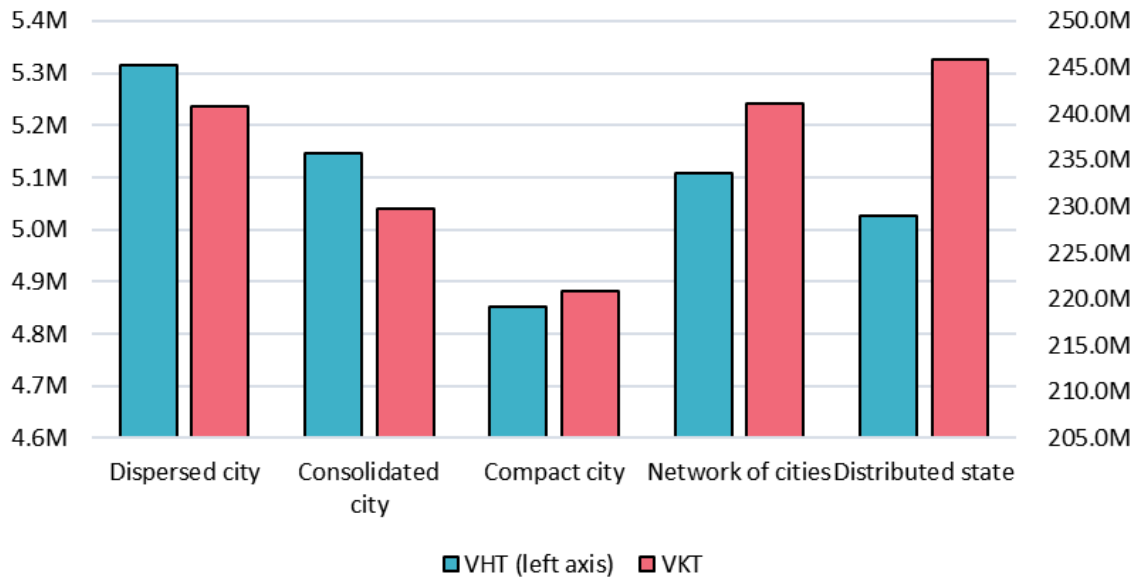
People live closer to the places they need to go in the consolidated city. Although it has more congested roads, because people live closer to work, they spend less time driving overall, as Figure 27 shows. People living in more consolidated or compact cities benefit from being located close to infrastructure, services, facilities, jobs and education, and spend less timing commuting.

Figure 27: Total kilometres spent in congestion in Victoria (daily)



Data source: Arup, *Urban development scenarios, strategic transport modelling,* 2023

Figure 28: Total hours and kilometres travelled in a private vehicle



Data source: Arup, *Urban development scenarios, strategic transport modelling,* 2023

Community and education infrastructure and open space cost more

In the consolidated city, community infrastructure costs $3 billion (or 18%) more, and open space costs $3 billion (or 22%) more, compared to the dispersed city. They cost more mainly because development is more complicated and land costs more in Melbourne's inner suburbs. But people also use this infrastructure more intensively.

Policies that could enhance or mitigate consolidated city outcomes

ote that these policy directions are not our recommendations to the Victorian Government. Rather, they advise on ways in which the government could achieve better outcomes if it chooses to pursue this urban development pathway.

Of our 5 scenarios, the consolidated city uses the second least amount of land.[118] It produces productivity benefits because jobs are closer together.[119] The Victorian Government can collaborate with local government and industry to help achieve this scenario. They can co-ordinate the planning for new homes and businesses and the delivery of new infrastructure in the major precincts.

If the Victorian Government chooses to pursue a consolidated city, these 4 policy directions could make it deliver more for Victorians and avoid some of its risks.

Build more homes in Melbourne's middle suburbs

Melbourne's middle suburbs would need to build 425,000 more homes by 2056 to achieve our consolidated city scenario. Almost 70% of them would be townhouses and apartments.[120] The Victorian Government can change planning rules and deliver financial reforms to help developers and landowners to build more homes in middle Melbourne. These places already have some community infrastructure, but the Victorian Government would need to work with local governments to upgrade or build new multi-purpose facilities as more people move in.[121]

Local planning schemes use the Residential Growth Zone to encourage density in areas with good access to services and transport.[122] If governments used it for more parts of Melbourne's inner and middle suburbs, it would allow construction of more low-rise apartments, closer to public transport, other infrastructure and services. By incorporating better standards for site layout, building massing and amenity could reduce community concerns about effects on neighbourhood character and property values.[123]

Communities want development to have good quality urban design, meaning that higher density buildings integrate well into their local neighbourhood.[124] If developers built more high-quality townhouses, people might more readily accept more home construction in Melbourne's inner and middle suburbs. Infrastructure Victoria has previously proposed a dual occupancy and townhouse code to speed up planning approvals. This could reduce housing costs by reducing planning process times and incentivising well-designed homes.[125] Badly designed townhouses can cause problems for communities by creating more stormwater runoff, reducing the amount of private open space and trees, and producing urban heat effects.[126]

Reducing residential car parking requirements can boost the supply of homes in inner and middle Melbourne, lower the cost of those new homes and provide more certainty for development approvals. Unnecessary parking spaces make homes more expensive and consume space that could home builders could use for other purposes, such as extra bedrooms.[127] The Victorian Government can reduce or remove parking requirements for new homes that are close to high frequency public transport services. Developers can build more than the minimum requirements and home buyers can pay for more parking if they need it.[128]

Taxes can incentivise development in different places and at varying densities. Stamp duties can discourage people from moving house. People might buy a bigger home earlier than they need, rather than move and upsize as their family grows.[129] Stamp duty concessions for first home buyers and properties valued up to $750,000 favour new suburbs rather than inner and middle Melbourne.[130] The Victorian Government can phase out stamp duties and consider a phased introduction of a yearly land tax. Land taxes do not discourage people moving and can offer a steadier income stream for governments.[131] It could help incentivise more and denser residential development.[132]

Stimulate precinct development in Melbourne's middle suburbs

Precincts are places with a mix of activities, businesses and public transport. Some places in Melbourne have room for more jobs, and more homes of different types and densities.[133] In the consolidated city scenario we modelled 3 suburban centres and central Melbourne including Fishermans Bend and Arden as examples of a small number of precincts where the Victorian Government can commit to infrastructure investment and precinct governance.

The Victorian Government can choose priority precincts for more residential projects, commercial development and upgraded community infrastructure. It can establish a prioritisation framework to identify the most suitable places for strategic and infrastructure planning. The government can focus its infrastructure investment in these places and pilot innovative, higher-density housing demonstration projects.[134] The Victorian Government can also work with local governments, energy companies and water corporations to measure the capacity of their infrastructure, and plan for upgrades to support more new homes and people in appropriate established suburbs.

Clear governance for precincts can include faster planning approval processes and an appropriate body to monitor infrastructure delivery.[135] These steps can help improve private sector confidence and catalyse the housing and office developments.[136] Major precincts are likely to be places with good access to health, social and economic support and services. This could make them suitable locations for new social housing. This housing could be funded in part by capturing the land value changes caused by precinct re-zoning.[137] Major precincts could also be priority locations for facilities and services identified in co-designed Aboriginal community-controlled infrastructure plans.[138]

ew r esidential and commercial development in Melbourne's precincts can be expensive and disruptive. It can also affect infrastructure immediately outside a precinct area.[139] We found that this scenario was the second most expensive in which to build extra community infrastructure. To help fund this, the Victorian Government could create a consistent and efficient contributions system for Victorian and local government infrastructure.[140] A broad-based infrastructure contributions system can better reflect true development costs in different development settings, such as major precincts.[141] It could also help fund infrastructure upgrades to support more intensive land use in the precincts.[142]

If the government provides infrastructure early in the cycle of precinct development, it can encourage developers and businesses to invest earlier and faster, meaning the precinct grows more rapidly, and delivers benefits sooner, like economic growth and job creation.[143] The Victorian Government can work with local governments and the private sector to plan the infrastructure needed to support economic activity in priority precincts.

Precinct development can also improve employment outcomes. Good transport connections to precincts can mean more people can access jobs, and boost wor force participation. People's education and skills also influence job outcomes.[144] The Victorian Government can build on the 2021 Victorian Universities Support Package to prioritise partnering with university campuses in a small number of precincts. It can evaluate the impact of Monash University and the Victorian Government's investment in the Monash Technology Precinct to show its relevance for other precincts.[145] Including local employers in these partnerships can more strongly connect the graduates from these educational institutions to the high skill job opportunities in the precincts.[146]

Boost public transport to serve a more consolidated city

Our consolidated city scenario had 20% more frequent tram services to middle suburban activity centres to meet extra demand.[147] Compared to the other scenarios, the Suburban Rail Loop was most heavily used in the consolidated city, in part because our 3 modelled suburban centres all have a Suburban Rail Loop train station.[148] The Victorian Government can improve other transport connections to the Suburban Rail Loop train stations. This could include accessible and safe connections to buses, trams, cycling paths, end of trip facilities and pick up and drop off points for rideshares and taxis. The government could also consider planning Suburban Rail Loop station precincts so people can easily walk to the shops, services and open space already there.[149]

The Victorian Government could consider supporting more medium density housing around the train stations on train corridors with capacity for more passengers. It can keep developing Suburban Rail Loop station precinct structure plans, using information and evidence from local communities about their priorities for housing density.[150]

Our consolidated city scenario had the second longest morning peak travel times and second most public transport trips, compared to the other scenarios.[151] To help manage demand on the public transport network, the government could provide faster and more reliable bus and tram services, to carry more people. Implementing tram and bus priority measures and bus rapid transit could also help. To support more cycling trips, the Victorian Government could deliver infrastructure for strategic cycling corridors,[152] particularly to middle Melbourne and major precincts. Reallocating road space to active transport could help deliver the government's target of 2 % of trips made by walking and cycling by 2030.[153]

Our consolidated city scenario had the most congestion in Melbourne's middle suburbs during morning pea , compared to other scenarios.[154] To manage this risk, the Victorian Government could consider introducing transport network pricing methods to manage demand across the network. *Victoria's infrastructure strategy 2021–2051* recommended cheaper off-peak public transport fares, cheaper fares for buses at all times, and a congestion charge toll on private vehicles that entered a city cordon during peak travel times.[155] This would help manage peak period public transport demand, discourage optional private vehicle trips and encourage more walking, cycling and public transport trips.

Build electricity infrastructure that supports decarbonisation and denser housing

Under all our scenarios, Victoria builds more electricity infrastructure to achieve the transition to renewable energy.[156] To maximise the benefits of this investment, the Victorian Government can make sure new electricity infrastructure capacity suits the proposed future housing density. For a consolidated city, this means building energy distribution networks to support more density in the central city and suburban centres or, alternatively, supporting development of new technology to generate power locally in medium to high density residential environments. This could include more local energy generation, such as solar panels on medium and low-rise apartments and townhouses, and battery storage to help offset the growth in electricity use.[157]

The Department of Transport and Planning is developing new environmentally sustainable development planning policies and standards.[158] The Victorian Government could consider fast tracking these policies and standards as part of pursing a consolidated city. This would support medium density homes and streetscapes with more trees, open space and green roofs. These help dissipate heat trapped in urban environments, contribute shade, support evaporative cooling, and reduce water run-off, air pollution and ultraviolet radiation.[159]

Compact city

Imagine that by 2056, most new homes are built in Melbourne's established suburbs. Melbourne becomes a far more compact, high-density city. Businesses benefit from economies of scale. The Victorian Government has made large investments in educational infrastructure, community facilities and open space in the inner suburbs to accommodate its far larger population.

Melbourne is a compact, high-density city

Most new homes were built near the central city

In 2056, Melbourne's urban areas cover a similar land area as in 2021. Instead of expanding into new growth areas, new homes were built in the established suburbs close to the central city. Urban renewal precincts like Fishermans Bend and Arden reached their planned number of new homes and jobs. New homes were built in places less affected by climate change. Victoria's regions did not grow much, because the government concentrated on strategic planning and investing in infrastructure in Melbourne's inner areas.[160]

In the compact city, more people live in townhouses and apartments. People chose to live in these homes because they were close to central Melbourne, and have great access to its jobs, shops, services and opportunities. They preferred this to living in large houses with a backyard and a garage, located far away from these valuable opportunities. The compact city offers more transport options for more people, including public transport, walking and cycling. People find these options more convenient because they live closer to their destinations, and so these trips are shorter and faster.

In our compact city scenario, the Victorian Government conducted extensive strategic planning in inner and middle Melbourne, and rezoned many places suitable for high density development. This generated many higher-density, mixed-use developments, which transformed Melbourne's inner suburbs. Many new homes are medium and high-rise apartments close to jobs, services and infrastructure.

Figure 29: Map of compact city scenario population growth

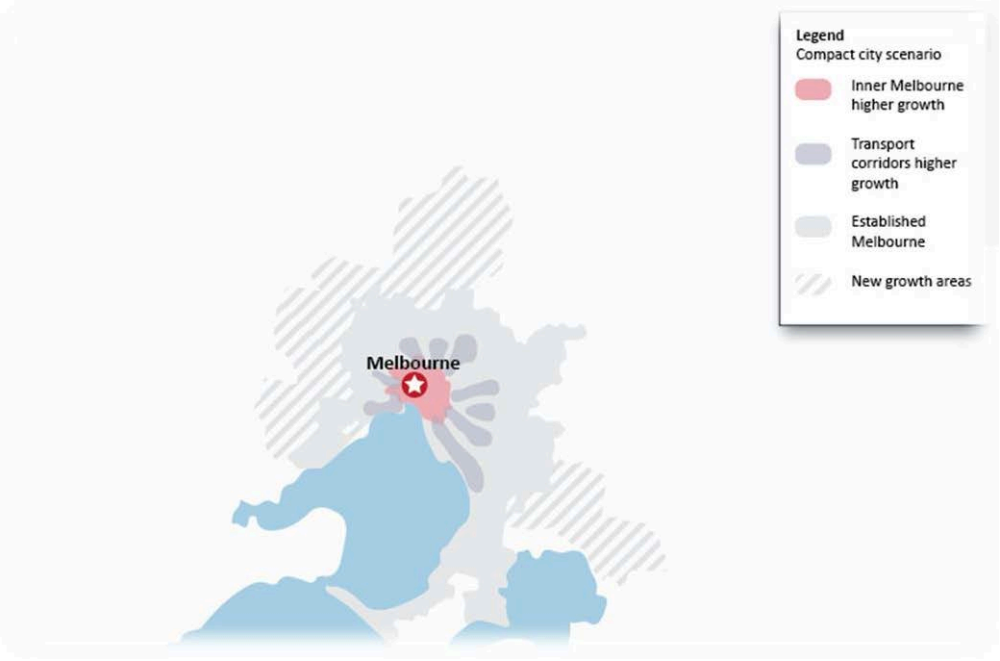
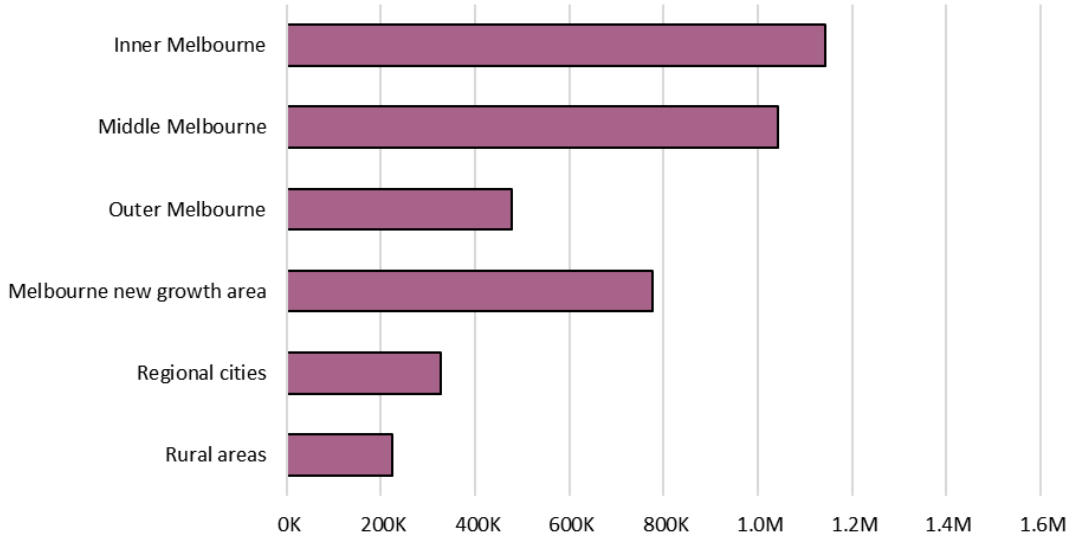


Figure 30: Compact city scenario population growth

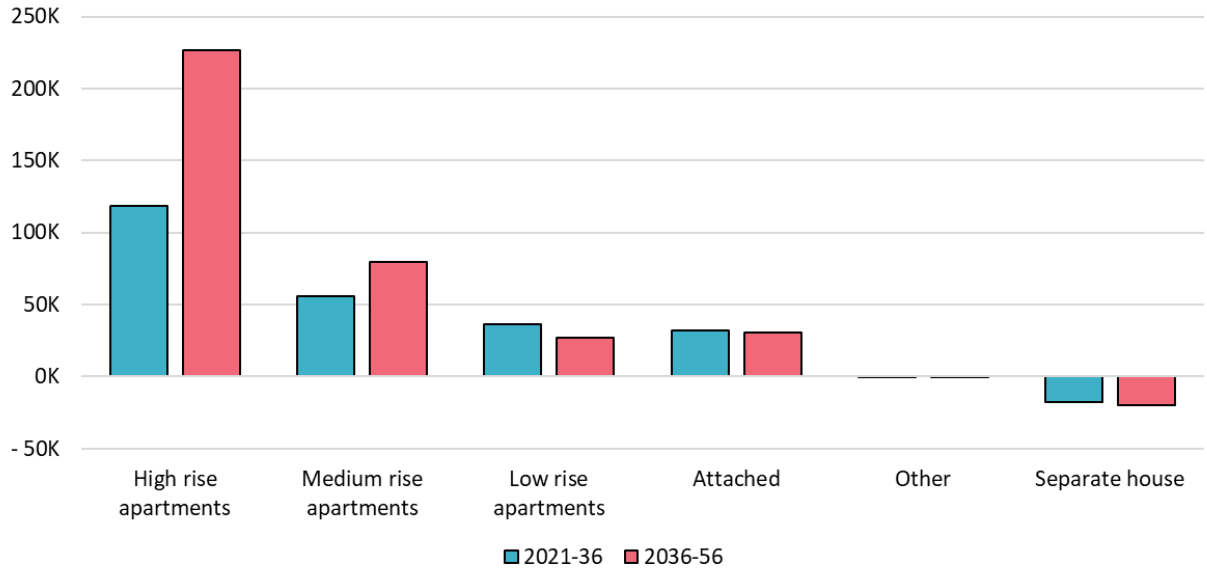


Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

Melbourne's established suburbs accommodate almost 80% of Victoria's extra people

In our compact city scenario, almost 80% of greater Melbourne's population growth is in established areas, and just over 20% is in new growth areas. Developers built more apartments in the inner suburbs, including many medium and high-rise apartments buildings, as Figure 31 shows. The central city has around 130 more high rise apartment buildings, and around 20 more medium rise apartment buildings. This is around double the number of medium and high-rise buildings in 2021. Architects designed more sustainable apartment buildings, which greatly enhances the quality of life for the people living in them.[161]

Figure 31: **Inner Melbourne dwelling growth 2021–56 by dwelling type**



Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

Inner Melbourne generates many new jobs

In the compact city, inner Melbourne produces an extra 10,000 jobs each year. Train lines through Melbourne's middle suburbs provide easy access to these job opportunities, especially because the government invests in extra train services. Developers build more office towers in the central city, because employers demand more office space in this location as highly skilled workers can easily commute there. The central city incorporates the Fishermans Bend and Arden precincts. These places host another 114,000 jobs.[162,163]

Knowledge intensive industries create many new jobs, such as in business and government services. Inner Melbourne has another 75,000 jobs in business and government services by 2056. The retail and hospitality industries add more than 95,000 extra jobs in inner Melbourne to support the extra people now living there. The concentration of jobs and people in inner Melbourne improves economies of scale for business. Governments have invested in better streetscapes and public spaces to support the additional population, helping make the inner suburbs more vibrant.[164]

Jobs in Melbourne's new growth areas and outer Melbourne grow by 1.0% per year, compared to 1.6% in inner Melbourne. This is because fewer new homes are built in the outer suburbs and new growth areas, which means fewer people want extra services like retail, hospitality and local government services.

Melbourne's tram and bicycle network will need to adapt

In the compact city, more people ma e good use of Melbourne's transport infrastructure. People use the transport networ heavily in Melbourne's inner and middle suburbs. The Victorian Government responded to this by increasing tram and bus services, which helps people commute to inner Melbourne. Governments installed separate bicycle lanes and footpaths in the inner suburbs to facilitate walking and cycling. They re-purposed some road lanes to be dedicated tram and bus lanes in inner and middle Melbourne. These changes help make walking, cycling and using public transport easy for people, which means they can move around conveniently and do not need to own as many cars.

Impacts and costs of the compact city scenario

The compact city has very positive social and economic impacts, and moderately good environmental impacts, compared with other scenarios. Figure 32 shows our summary of the impacts of this scenario.

Figure 32: Compact city overall assessment

Note: blue shading indicates a more positive outcome and red indicates a more negative outcome, relative to all other scenarios.

People have great access and valuable homes

In our compact city scenario, people find it easier to access jobs, infrastructure and services. People live closer to their jobs and can use nearby public transport to get to them. People walk and cycle more often, which reduces emissions from vehicles.[165]

People's homes are more valuable in this scenario, compared with all the others. This is partly because the value of good access is capitalised in land values. While home construction and land costs more, people are better off because they can access more opportunities. On average, people can reach more valuable opportunities from their homes more easily than in any of our other scenarios. Home values in our compact city scenario are $105 billion higher than in our dispersed city scenario.[166]

The compact city produces some affordable homes in inner Melbourne for renting and buying. This is because it produces more apartments and smaller home options. But some other scenarios, like the consolidated and dispersed cities, produce more affordable housing overall.

Fewer transport emissions, but more construction emissions

We estimate that the compact city produces the fewest greenhouse gas emissions from transport of all our scenarios. This is largely because more people use public transport and have shorter commutes. Cars and trucks produce 17.3 million fewer tonnes of greenhouse gas emissions (carbon dioxide equivalent) than the dispersed city by 2056.

All our scenarios assume that Victoria can generate electricity with near zero greenhouse gas emissions by 2056. This means that the emissions produced by running buildings show few differences between scenarios in 2056. But during this transition to renewable energy, the compact city scenario produced the fewest 'operational emissions' from running buildings.

Operational and embodied emissions from buildings

Operational emissions refers to the greenhouse gas emissions associated with energy used to run a building, such as for heating, cooling or producing hot water. This type of emission is recurring throughout the building's lifecycle.

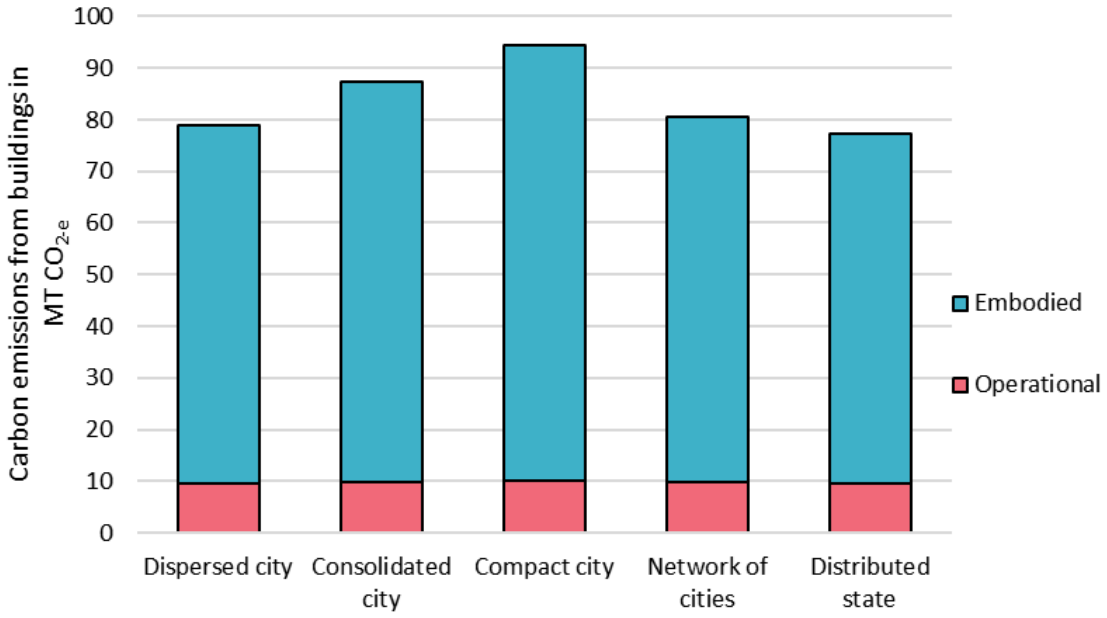
Embodied emissions refers to the emissions generated by the physical creation process of the building. This includes creation and transport and materials, the actual construction of the building, and demolition.[167]

The greenhouse gas emissions from building construction are higher under the compact city scenario because there are more high-rise apartments, as Figure 33 shows. High-rise apartments have more 'embodied emissions' than other dwellings because they contain more concrete and steel, which are difficult to make without emitting carbon. Our compact city scenario emits 14.8 million tonnes more greenhouse gases (carbon dioxide equivalent) in 2056 than the dispersed city scenario.

As Victoria generates more renewable electricity, and retires coal-fired power stations, operating buildings will produce fewer greenhouse gas emissions. But this does not necessarily apply to embodied emissions. Over time, they account for a larger proportion of greenhouse gas emissions from buildings, because electricity use is not their only source of emissions. Only by changing construction methods, using different materials, or changing manufacturing methods (such as making 'green steel' can construction reduce embodied emissions.

Government and industry initiatives that help develop and use zero or low carbon materials and building methods in new buildings and infrastructure now could help to decarbonise construction in the future.

Figure 33: Estimated emissions produced by buildings from 2021–2056, by type



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

The compact city uses less land

The compact city uses the least land of all our scenarios for residential and local infrastructure purposes, as Figure 34 shows. This means it leaves the most land available for other purposes, including agriculture and related industrial uses.

Figure 34: Total residential and local infrastructure land requirements by scenario 2021–2056 (hectares)

	Dispersed city	Consolidated city	Compact city	Network of cities	Distributed state
Residential and local infrastructure	67,963	49,534	37,275	70,041	91,292
Non-residential	1,549	939	735	1,782	2,533
Open space	2,789	2,841	3,031	2,451	2,566
Total hectares	**72,301**	**53,314**	**41,041**	**74,274**	**96,391**
Difference to dispersed city	**0**	**-18,987**	**-31,260**	**1,972**	**24,090**

Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

The compact city has a stronger economy and more people work

In the compact city in 2056, Victoria would have a stronger economy and more people can get jobs. This is because business and government service jobs consolidate more in central Melbourne. In the compact city, businesses are willing to pay extra for commercial office space in the inner city because they can attract more skilled workers and be closer to more clients and customers. This scenario would generate over $30 billion (20%) more in business location productivity impacts than in the dispersed city.

More people find a job in the compact city, because they can reach more workplaces from their homes. We estimated that this scenario generates an extra $12 billion by 2056 from higher labour force participation compared to the dispersed city scenario.

In the compact city scenario, governments have prioritised development of Melbourne's inner and middle suburbs. That means regional Victoria does not develop as quickly, potentially increasing the difference in job availability between Melbourne and regional Victoria.

More people take public transport, walk and cycle in a compact city

In the compact city, more people live closer to jobs, education and other facilities. This proximity helps support an efficient public transport system, because many people make similar trips, and can travel together on the same services. Similarly, this proximity makes walking and cycling a more convenient option for people. The compact city scenario has the highest proportion of walking, cycling and public transport trips of all our scenarios, as Figure 35 shows.

Because more people want to use public transport, our scenario presumes the Victorian Government has added more public transport services and reserved some traffic lanes specifically for public transport. This makes public transport journeys more time competitive compared to driving, which encourages more people to use it.

People, communities and the environment are healthier in the compact city, because they walk and cycle more, particularly in urban areas. Governments could develop and deliver many different strategies to

encourage people to walk, cycle and catch public transport.[168] For example, they can provide enough safe walking and cycling infrastructure and connect it to local destinations and facilities.

Figure 35: Car, public and active transport trips each day in 2056

Metric	Dispersed city	Consolidated city	Compact city	Network of cities	Distributed state
Absolute values					
Private vehicle trips	31,576,000	30,820,000	29,651,000	31,355,000	31,713,000
Public transport trips	2,757,000	3,097,000	3,493,000	2,758,000	2,577,000
Active transport trips	5,450,000	5,830,000	6,491,000	5,622,000	5,452,000
Proportions					
Private vehicle trips	79.4%	77.5%	74.8%	78.9%	79.8%
Public transport trips	6.9%	7.8%	8.8%	6.9%	6.5%
Active transport trips	13.7%	14.7%	16.4%	14.1%	13.7%

Data source: Arup, *Urban development scenarios, strategic transport modelling,* 2023

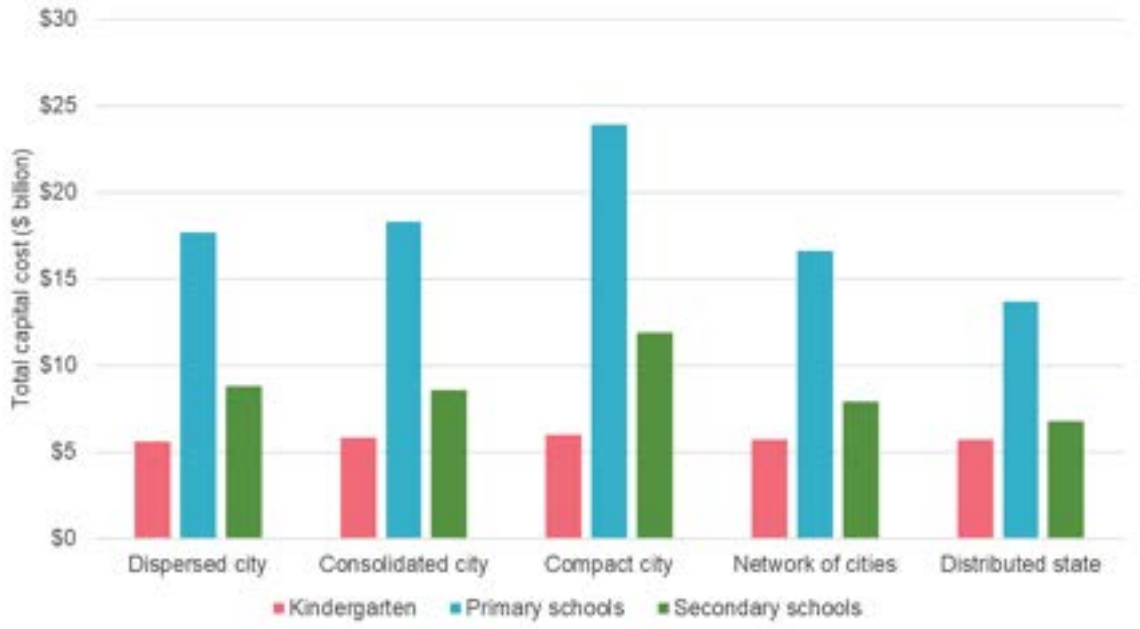
High land values make some types of infrastructure more expensive

Land is more expensive in a compact city. This affects the cost of providing schools infrastructure, community facilities and open space. For example, our modelling estimates that in the compact city, educational infrastructure costs $11 billion more, community facilities cost $7 billion more, and open space costs $12 billion more, compared to a dispersed city. In contrast, we expect local infrastructure to cost less, because new housing developments can use existing infrastructure. This remains true even after including a $21,000 premium for each new home in inner city development precincts to address flooding and convert industrial streetscapes into residential streetscapes.[169]

To manage the higher costs of some infrastructure, the government can change the way it plans for it, and consider options to deliver it using less land. For example, it can design multi-purpose community facilities, improve the quality of open space, and build vertical schools. In more compact or consolidated cities, that have better access and many transport options, people would use good infrastructure and facilities intensively.

We also estimate that a compact city would need more new schools compared to some other scenarios, as Figure 36 shows. This is largely because middle and outer Melbourne and regional schools would have spare capacity for more students, but inner city schools could not take more.

Figure 36: Total capital costs for kindergarten, primary and secondary school requirements by 2056 by scenario



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

Note this includes the total Victorian school requirements, including government and non-government schools. Total capital cost includes land costs.

Policies that could enhance or mitigate compact city outcomes

ote that these policy directions are not our recommendations to the Victorian Government. Rather, they advise on ways in which the government could achieve better outcomes if it chooses to pursue this urban development pathway.

People in the compact city have the best access to valuable destinations from its transport system.[170] But it would need more investment in education, open space and community facilities, compared to the other scenarios.[171] If people didn't support the construction of new high-rise apartments, pursuing a compact city risks not supplying enough homes. Similarly, if not enough people wanted to live in these apartments, the compact city could become unaffordable because too many people would try to buy fewer low-rise or detached homes. The Victorian Government would need to significantly intervene to achieve the rapid change this scenario requires.

If the Victorian Government decides to pursue a compact city scenario, these 5 policy directions could help this scenario function more effectively and reduce some of the risks.

Increase housing density in Melbourne's inner and middle areas

The Victorian Government could consider other ways to accommodate another 2 million people living in almost a million new homes in inner and middle Melbourne by 2056.[172] These could include reviewing planning zones and design standards for medium and high-density homes, reducing residential car parking requirements, and building more social and affordable housing. The Victorian Government can also work with local governments, energy companies and water corporations to measure the capacity of their infrastructure and plan to upgrade it so more new homes can be built in established suburbs.

Melbourne's planning zones and overlays affect the number of new homes that can be built in established suburbs. The Victorian Government can change zoning rules or their application to different areas. Infrastructure Victoria has proposed that the government could use the Residential Growth Zone in more places with good access to public transport, infrastructure and services.[173]

The Victorian and local governments have applied different land use planning zones to Melbourne's inner suburbs, which restrict the number of homes that people can build there. For example, the Neighbourhood Residential Zone allows very limited development. In contrast, the Residential Growth Zone allows low-rise apartment development, and the Capital City Zone allows much taller apartment buildings. The Victorian Government could use the Capital City Zone to allow the large number of high-rise apartments present in this scenario. Inner city neighbourhoods might need less restrictive zoning to accommodate the large number of new homes and jobs. The Victorian Government can also investigate using more of the Mixed Use or Commercial 1 zones in Melbourne's inner suburbs. Good strategic planning beforehand can help preserve places with significant heritage and character.[174]

Better apartment design can encourage more Melburnians to choose to live in high-rise apartments. The Victorian Government can keep monitoring and updating the Better Apartment Design Standards, and consider our option to extend the standards to make apartments more accessible, versatile and safer for households with children.[175] Our past research shows that more people would choose to live in apartments if they were available at a price similar to homes in new suburbs.[176] Changes to apartment building quality standards can improve people's willingness to buy apartments but might also make them more expensive.[177]

Requiring apartments to build unnecessary car parks also makes them more expensive.[178] The Victorian Government can reduce or remove off-street parking required for new homes that are close to public transport services in inner and middle suburbs. These places already have good quality and high frequency transport services, which means people are less likely to own cars.[179]

The Victorian Government can also consider other approaches to improving housing affordability. Our 30-year infrastructure strategy recommended that the government set targets to grow social housing, as evidence shows that Victoria has far too few to meet people's housing needs.[180] In inner Melbourne, social housing residents can access the health, social and economic support and services they need. Capturing the land value changes from re-zoning in inner Melbourne can help fund low-income housing. [181]

Slow residential development in Melbourne's newest suburbs

In a compact city, fewer people want new homes on the edge of the city. Reforming home subsidies that stimulate demand for these homes can help achieve a more compact city shape. If fewer people want to live in those suburbs, the Victorian Government can keep its urban growth boundary and consider slowing infrastructure projects and home building in Melbourne's growth areas.

Government grants influence people's decisions to buy a home.[182] The First Home Owner Grant's conditions means more people use it in areas where homes are less expensive. The top 10 postcodes for grant applications in the year to 30 June 2021 were all in new suburbs in Melbourne or Geelong.[183] Infrastructure Victoria previously proposed that the Victorian Government end this grant.[184] Instead, the Victorian Government could target the Victorian Homebuyer Fund to specific places to encourage people to buy homes in established suburbs. This can help stimulate supply in those places.[185]

Green wedges and agricultural land surround Melbourne's urban growth boundary. The Victorian Government can complete its work on permanently protecting those areas from urban development.[186] It can also tighten restrictions on urban development in Rural Conservation Zones to support the supply of new homes in established suburbs in Melbourne. These actions can help remove any pressure to relocate the urban growth boundary.

Melbourne's other 34 Precinct Structure Plans for growth areas can stage development and sequence to line up with delivery of major local and state infrastructure. Local governments can then decide if subdivision applications have enough infrastructure to support their development.[187] The Victorian Government can also prioritise funding for road upgrades, including building interchanges and duplicating arterial roads, in growth areas with existing rather than proposed development.[188]

o cal governments in Melbourne's growth areas can slow or stage their approval of residential subdivisions and building permits for completed Precinct Structure Plan areas. They can develop criteria for permit approvals in partnership with the Victorian Government, including considering the distance from public transport and the frequency of those services. Governments can prioritise infrastructure delivery over a 10 year horizon using development contribution plan implementation programs.[189] Local governments can also use these programs to show where they will not approve subdivisions if infrastructure does not exist for new residents.[190]

Invest in transport alternatives, and manage demand with transport pricing

A compact city scenario makes good use public and active transport. People take over 125,000 more public transport trips in Victoria during the morning peak, compared to a dispersed city.[191] People walked and cycled most in our compact city scenario. Walking and cycling comprised 16.4% of transport trips in 2056.[192] The Victorian Government can achieve these levels by prioritising investment in trams, buses, cycling and walking paths. This can include working with local governments to improve the amenity and connectivity of cycling and walking paths.[193]

If people chose to walk instead of drive for short trips (less than one kilometre), the Victorian economy could save about $165 million each year in fewer congestion, health, infrastructure and environmental costs.[194] The government could also consider prioritising investment in public transport, like buses and trams, to help people use alternatives for these shorter trips. It could also reduce off-peak public transport fares, which can also reduce public transport crowding and make public transport more reliable.[195]

A compact city has the least state-wide congestion in morning peak travel times, compared to other scenarios.[196] But for inner Melbourne, morning peak congestion was the highest in a compact city.[197] To

reduce this problem, the Victorian Government could consider a road user charge for inner Melbourne and reduce public transport fares in off-peak periods. *Victoria's infrastructure strategy 2021–2051* recommended trialling of a congestion charge or toll on private vehicles entering central Melbourne during peak travel times.[198] This would reduce congestion in inner Melbourne by discouraging people from driving into the central city during peak periods, and encourage them to use alternatives, like walking, cycling or public transport.

Governments can redesign inner Melbourne's streets to help people move around more easily. o ing this could speed up travel by tram, bus, scooter or bicycle. This means people could get to work faster and improve the reliability and efficiency of public transport services that use roads. It could also improve the vibrancy, character and inclusivity of the central city and inner suburbs. Cyclists and pedestrians would also be safer.[199]

Deliver more schools, open space, and community infrastructure

We estimated that our compact city scenario would need an extra $6.2 billion spent on new primary schools and an extra $3.1 billion on new secondary schools by 2056 compared to the dispersed city. Other scenarios need less investment because many schools can accommodate more students in their existing facilities, or can build extra classrooms on the same school site. A compact city also means more families with school-aged children live in inner and middle Melbourne. If the Victorian Government chooses to pursue a compact city, it will need to rapidly plan, design and build new schools in established suburbs. New schools in established areas are costly. Large blocks of land are expensive and difficult for government to buy.

A compact city will need an extra 3,000 hectares of open space across Victoria by 2056, if it was provided at current benchmarks.[200] This is almost equivalent to the entire land area of the City of Melbourne local government area.[201] Because more people live in apartments in a compact city, they have less outdoor space at home and need more public open space.[202] We measured the amount of open space needed purely by land area. But the form and quality of open space also matters. In *Victoria's infrastructure strategy 2021–2051*, we recommended that the Victorian Government create an interconnected open space network in Melbourne and extend the urban tree canopy. The Victorian Government can prioritise buying land for connections and use financial contributions for links and planting.[203]

In our compact city, community facilities are the most expensive, compared to the other scenarios.[204] Acquiring extra land can be complex and costly to build new schools, open space and community facilities.[205] The Victorian Government could consider incorporating schools, open space and community infrastructure into multi-use facilities on shared sites to reduce these costs.[206]

Accelerate decarbonisation as inner Melbourne becomes denser

Victoria needs significant new electricity infrastructure to transition to renewable energy.[207] As this is built, the Victorian Government could make sure the capacity of this infrastructure also suits the future housing density in inner Melbourne. This means building energy distribution networks to have the capacity for many more homes in inner Melbourne, or alternatively, supporting installation of new technology that generates power locally. This could include more local energy generation such as solar and battery storage to help provide energy to the extra homes.[208]

The Victorian Government could consider ways to reduce 'embodied emissions' in the construction of government-funded infrastructure including social housing, hospitals, vertical schools and transport infrastructure. This could include prioritising alternatives to building new infrastructure, such as better using existing infrastructure, or modifying it to meet the community's changing needs. The government could also consider supporting industry research, testing alternative materials, or adopting performance-based standards to help accelerate development and adoption of zero or low emissions solutions.

Network of cities

Imagine that Victoria's regional cities grew rapidly until 2056, including Ballarat, Bendigo and Geelong. They have more affordable housing and better access to jobs. But reaching this scenario would require people to be far more willing to live in regional Victoria, and might mean they do not receive the same quality of infrastructure.

Victoria's 3 largest regional cities grow rapidly

Regional cities accommodate more than a third of Victoria's population growth

In 2056, Ballarat, Bendigo and Geelong account for more than 25% of Victoria's population growth. Ballarat has reached 370,000 people and Bendigo's has 350,000 people. Geelong has reached about 720,000 people by 2056. Figure 39 shows the population growth in these 3 cities between 2021 to 2056.[209]

After the COVID-19 pandemic, people kept moving from Melbourne to regional cities for many decades. People were attracted to their amenity, with excellent access to cultural institutions, national parks and distinctive natural landscapes. In this scenario, Victoria's regional cities have good transport connections to each other, but governments have prevented new housing development occurring on agricultural and in cities' hinterlands. Instead, developers built some new townhouses and apartments close to the regional city centres.

Home builders constructed many detached houses in regional cities, towns and rural areas in this scenario. Between 2036 and 2056, regional cities build more than 15,000 homes each year. This is around 2,000 more than constructed in inner Melbourne during its recent building boom between 2016 and 2021.[210]

This scenario represents managed and contained regional growth. Governments strategically plan and extensively rezone the established parts of regional cities and centres to facilitate growth in appropriate locations, but still protect significant heritage and environmental sites.

For this scenario, we modelled rapid population growth in Ballarat, Bendigo and Geelong. But the scenario generally represents growth and consolidation in Victoria's regional cities. We only intend our selection to represents a 'network of cities' outcome. It does not predict regional growth patterns or indicate a preference for certain cities.

Figure 37: Map of network of cities scenario population growth

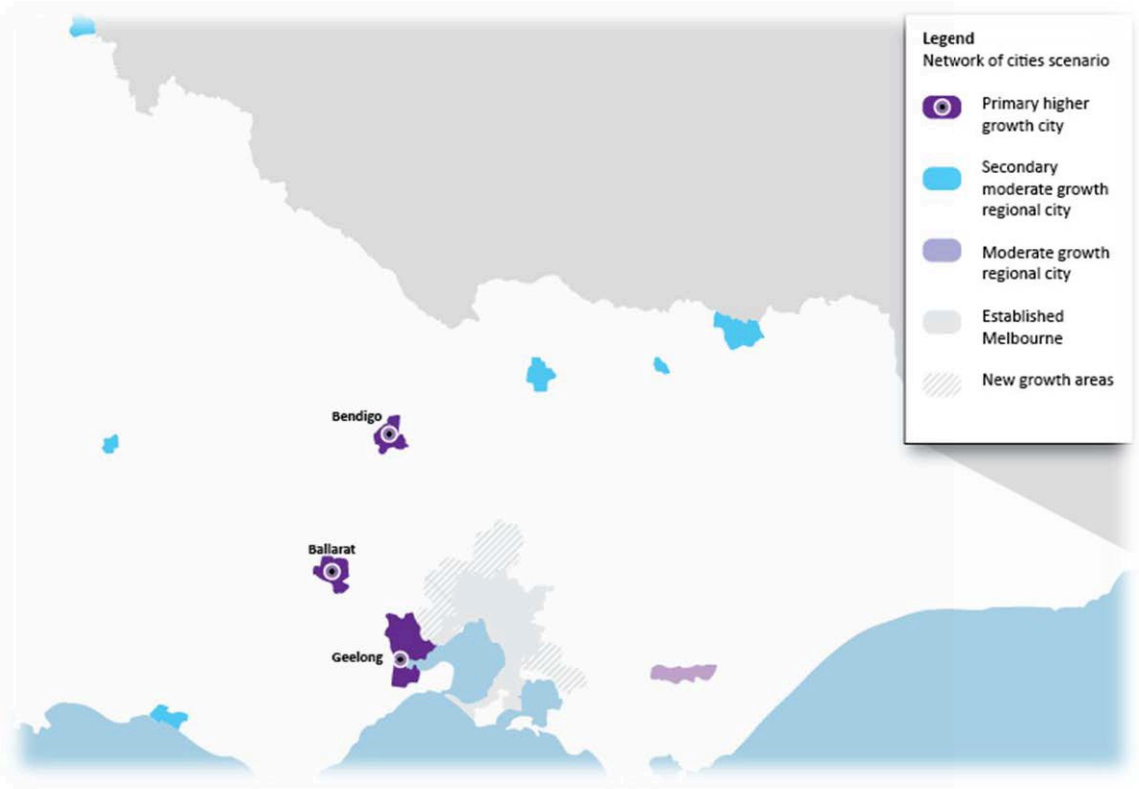
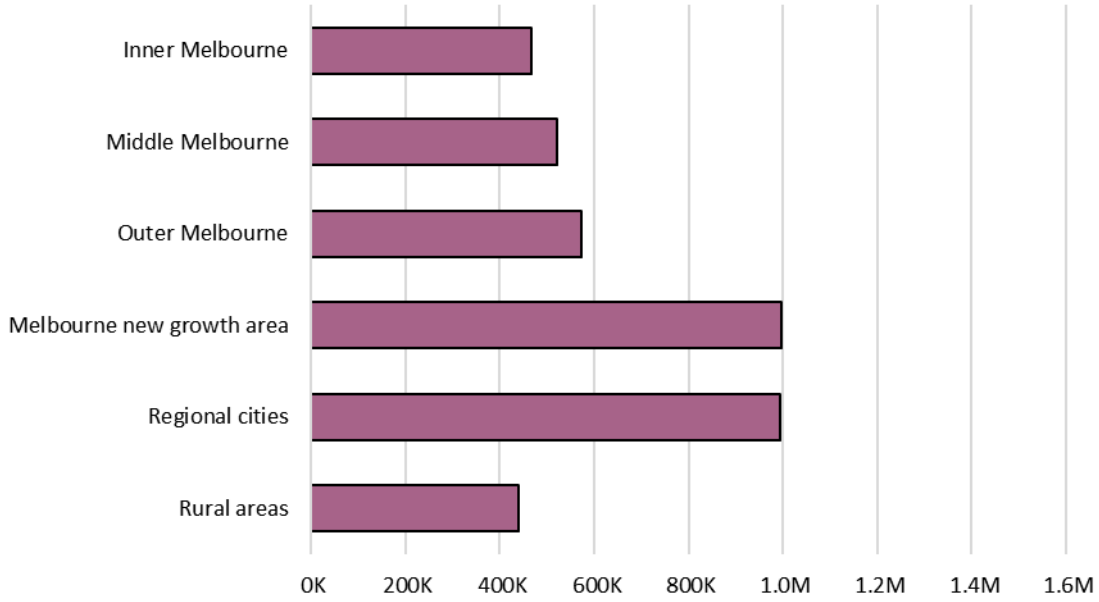
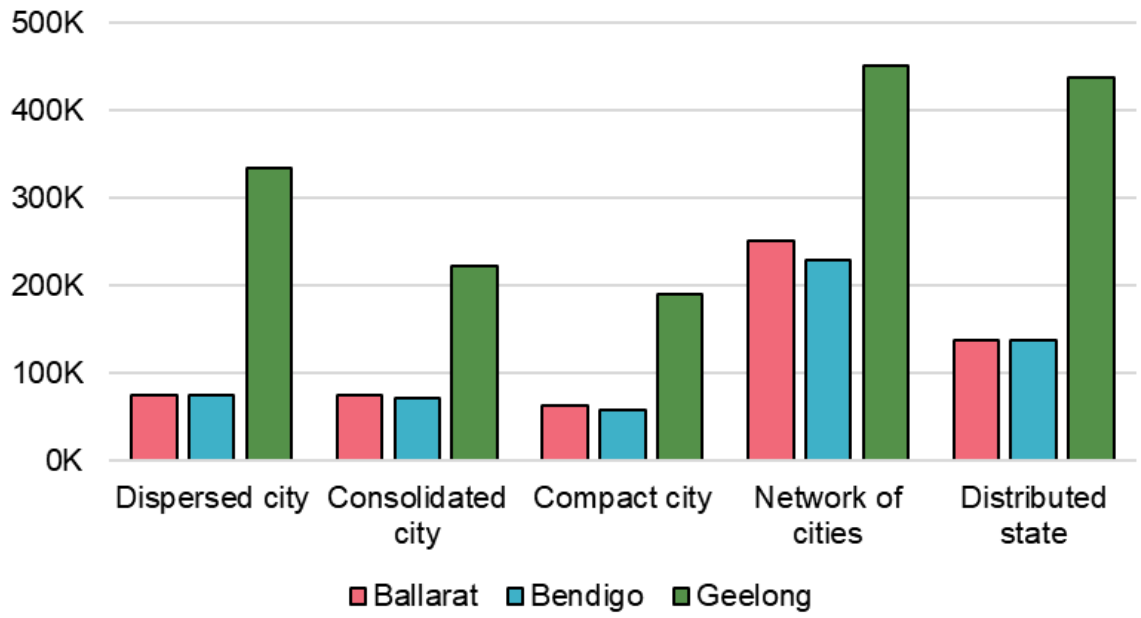


Figure 38: Network of cities scenario population growth



Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

Figure 39: Population growth in regional cities, 2021 to 2056



Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

Regional jobs growth matches the population increase

By 2056, the 3 regional cities have become diverse economic hubs, supported by major institutions like hospitals and universities, and have strong agricultural and clean energy sectors.

More students have chosen to study and live in the regions, which contributes to economic growth and helps create vibrant city centres. The network of regional cities has good transport connections between the 3 cities, and to Melbourne. Governments invest in sustainable transport infrastructure and services in each city, which means more people living there travel more often by cycling, public transport and walking.

This scenario has major growth in the agriculture, service and construction sectors. Employment began to grow in regional cities from the mid-2020s, at just over 2% per year between 2021 and 2056. This represents a much faster rate of job creation than historical trends. It is similar to growth rates in inner Melbourne between 2006 and 2021.[211]

In part, more people move to regional Victorian cities because they can often work from home. Many companies boost this incentive by establishing regional offices so workers can avoid commuting to Melbourne on occasions when they must be physically present.[212] In this scenario in 2056, few workers need to commute to Melbourne. Melbourne also achieves some jobs growth, albeit at a slower rate than in all our other scenarios.

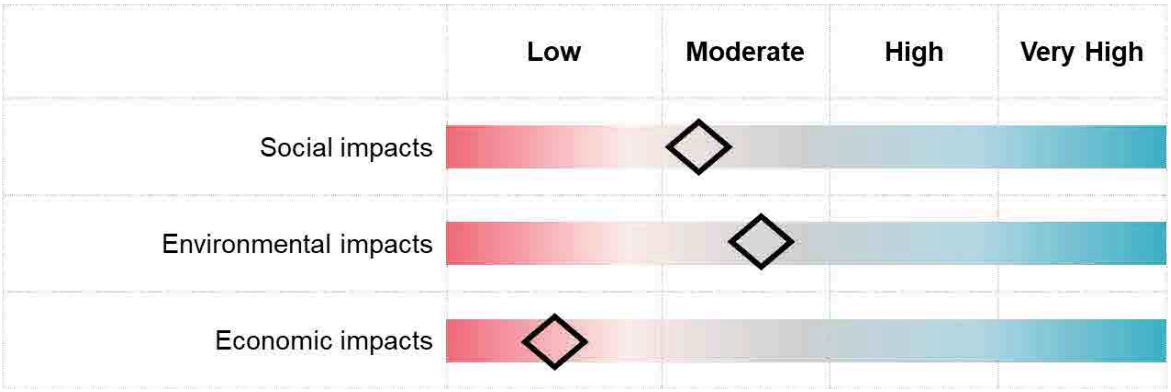
Regional cities have more train services to Melbourne

In our network of cities scenario, the government delivers extra train services between the major regional cities and Melbourne. We did not include building passenger rail services between Geelong, Ballarat and Bendigo, but included a more frequent inter-city bus network. The government also builds extra road lanes on outer suburban arterial roads of regional cities to reduce traffic congestion. It also runs more bus services, operating for longer hours into the evening, which gives people better access to jobs and services. The government builds more bicycle lanes in regional centres, which people use intensively.

Impacts and costs of the network of cities scenario

A network of cities scenario has worse jobs and transport access, and moderately good environmental impacts, compared to other city shapes. Figure 40 shows our summary of the impacts of this scenario.

Figure 40: Network of cities overall assessment



Note: blue shading indicates a more positive outcome and red indicates a more negative outcome, relative to all other scenarios.

Regional Victorians have better access to jobs and services

In the network of cities scenario, most Victorians cannot access jobs and services as easily as in the dispersed, consolidated or compact city scenarios. But it is better for people living in regional cities. As Figure 41 shows, in the network of cities scenario, people living in regional cities have the best access to jobs by both car and public transport, compared to any other scenarios. This is because Geelong, Ballarat and Bendigo have more people and jobs, located closer together.

Figure 41: Access to jobs index for regional cities

Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

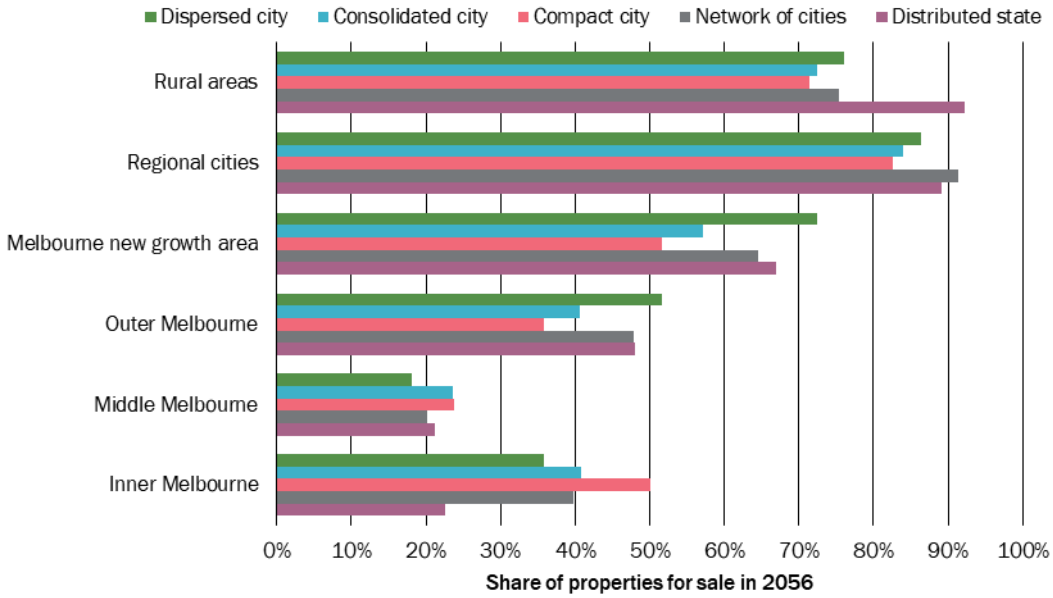
People can afford more homes in Victoria's regions

Cheaper land in regional areas, and building some apartments and townhouses there, keeps prices lower in a network of cities scenario. This makes housing more affordable in the regions.

The share of properties for sale under $750,000 to 2056 and for rent under $500 per week differs significantly across scenarios in today's dollars . A network of cities scenario offers more affordable properties both for sale and for rent in regional cities. This scenario produces nearly twice as many homes for purchase below $750,000 in regional cities compared to outer Melbourne, as Figure 42 shows.

But homes are more affordable because housing values are lower in the regions. More homes are in places where fewer people want to live, at least according to people's current preferences. The network of cities scenario has a housing value that is $55 billion lower than the dispersed city scenario in 2056.

Figure 42: Share of properties for sale below $750,000 in 2056, assuming no price growth



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

The Victorian economy is not as strong

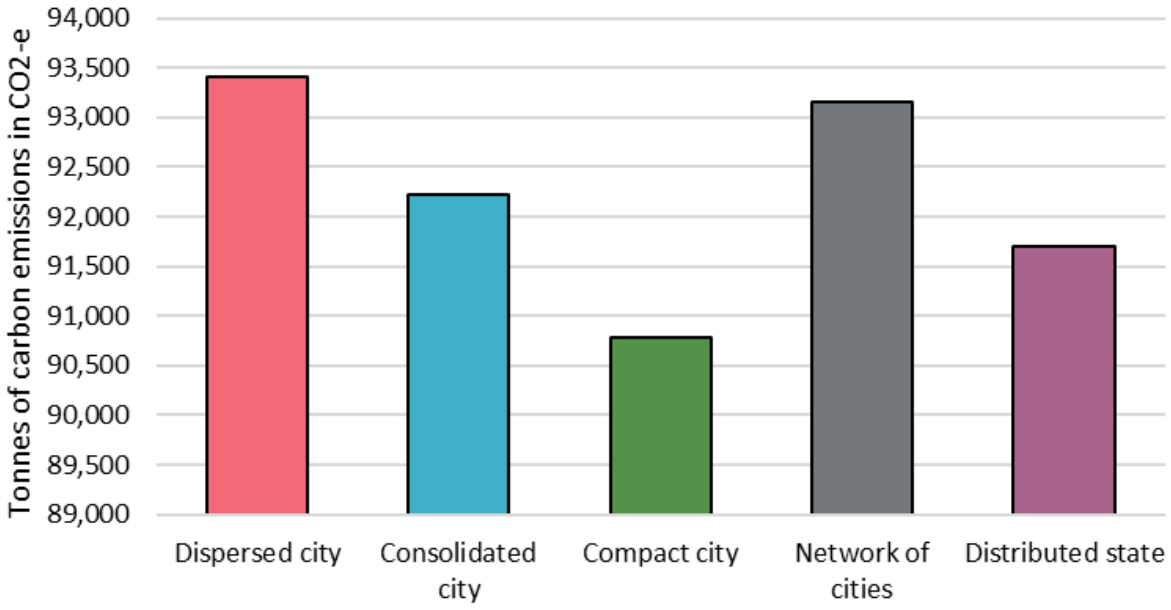
A network of cities scenario does not perform as well economically compared to our dispersed, consolidated or compact city scenarios. Businesses are not as productive, and we estimate this reduces total Victorian income by $0.6 billion in 2056, compared to the dispersed city scenario. If we compare the economies of the network of cities and the consolidated city, the effect is much greater. The network of cities generates $9.6 billion less in total Victorian income in 2056.

More greenhouse gas emissions from more car use

The network of cities scenario generates the second highest amount of greenhouse gas emissions from transport, as Figure 43 shows. Compared with the compact city scenario, a network of cities produces about 15 million more tonnes of carbon dioxide from transport by 2056. This is because more people travel longer distances by car.

The roads of regional cities are congested, as are the roads between Melbourne and the regional cities. It gets worse during peak hours.

Figure 43: Total daily CO_2 emissions produced by transport from 2021 – 2036



Data source: Arup, *Urban development scenarios, strategic transport modelling*, 2023

Land is cheaper but water infrastructure is more expensive

By 2056, open space infrastructure costs ($13 billion) are half of that the compact city ($26 billion). Education and community facility costs are also a quarter less than the compact city. Lower land costs and easier expansion of existing infrastructure explain these differences.

But other infrastructure costs more compared to other scenarios, including water, wastewater and local infrastructure. For the network of cities, water and wastewater costs are $6 billion higher, or 17% more than the consolidated city scenario. Investment in local infrastructure requires $10 billion or 7% more. Water and wastewater infrastructure costs are high because dammed water sources are unlikely to meet demand for water in inland areas. This means turning to other solutions, such as using more recycled water. We expect wastewater transport and treatment costs to be higher in regional areas because the water needs more intensive treatment for release into river systems.

The Victorian Government spends more on transport infrastructure in this scenario. They deliver rail and road projects to link the regional cities to Melbourne, and run more bus services in the regional centres, at a cost of around $30 billion.

Policies that could enhance or mitigate network of cities outcomes

ote that these policy directions are not our recommendations to the Victorian Government. Rather, they advise on ways in which the government could achieve better outcomes if it chooses to pursue this urban development pathway.

A networ of cities scenario dramatically changes some of Victoria's regional centres. Victorians living there will experience rapid development in their neighbourhoods. New people will move in for work and study, including interstate and overseas migrants and some former Melbourne residents. Government intervention alone cannot achieve this scenario. It would need changes in Victorians' housing, wor and lifestyle preferences. It would also need changes in the economy, including the willingness of the private sector to invest in regional areas.

More population growth in Victoria's regional cities brings complexities. In our previous research, *Infrastructure priorities for the regions*, we explored the unique character of each Victorian region and illustrated the extent to which different regions have similar infrastructure needs. In that work we documented each region's specific problems and opportunities. Governments cannot necessarily apply solutions designed for Melbourne or a single region to all the others.[213]

In the network of cities scenario, the Victorian Government would still need to plan for infrastructure in Melbourne, which keeps growing. It still has more than 60% of Victoria's population growth to 20 6 . The Victorian Government can consider policy directions identified for previous scenarios to achieve good outcomes in Melbourne.

Our policy directions for a network of cities scenario outline government actions that can make this scenario work more effectively and lower some of its risks.

Scale up planning for population growth in regional cities

The Victorian Government can do more regional strategic planning in partnership with local governments to prepare their major regional centres for more people and jobs. This can include developing infrastructure sector plans and changing planning zones to build more homes in suitable regional locations.

In the network of cities scenario, regional cities gain more than one million people. The Victorian Government can work with regional local governments to clearly define the locations of new residential and commercial development in cities like Ballarat, Bendigo and Geelong. New homes should be close to jobs.[214] Urban growth boundaries around regional centres would help to encourage more townhouses and apartments in suburbs that have plentiful open space and community infrastructure.[215] The Victorian and local governments should work together to upgrade infrastructure and build multi-purpose hubs where new facilities are needed.

Victorian infrastructure plans for priority sectors can also help identify the best locations for new development. The Victorian Government can update regional growth plans, conduct early engagement with local government and its agencies, and these organisations can work together to align infrastructure priorities and funding decisions.[216] For example, this can include planning for more social housing in regional centres, close to locations with good access to public transport and services. People experiencing poverty and unemployment need more social housing in regional Victoria, but it should be in accessible places like established suburbs in Ballarat, Bendigo and Geelong.[217]

The best places to build more homes are places that already have good local transport options, like bicycle paths, bus routes and footpaths. Our modelling shows local infrastructure improvements are expensive in this scenario. More people will use local roads and new homes need more drainage, sewerage and utilities. The Victorian and local governments can develop a townhouse code and use the residential growth zone to

guide residential development in places that already have this infrastructure.[218] In doing so, governments can protect any heritage or environmental sites.

Victoria's Aboriginal and Torres Strait Islander population is projected to grow twice as fast as the general population in the decade to 2028, with even higher growth in Ballarat, Bendigo and Geelong.[219] Our modelling did not specifically estimate Aboriginal and Torres Strait Islander population growth to 2056. But in a network of cities scenario, the Victorian Government can still make sure the needs of Aboriginal and Torres Strait Islander peoples are met by co-designing Aboriginal community-controlled infrastructure plans to meet future social, economic and cultural needs.[220]

Invest in utilities and facilitate digital connectivity in regional centres

A network of cities requires a different approach to infrastructure planning. Because more Victorians living in regional centres, utilities will need to be upgraded and expanded to meet higher demand.

Under all scenarios, our research estimates it will cost about $42 billion to install new renewable energy power capacity and transmission networks.[221] As Australia changes its energy networks to meet its net zero emissions targets, the Victorian Government should ensure energy capacity suits the planned housing density. For a network of cities, this means building energy capacity to support more density in Ballarat, Bendigo and Geelong.

Our research shows that the network of cities and distributed state scenarios would have higher water provision costs of $6 billion compared to other scenarios.[222] As current and future dams are unlikely to meet demand for water in inland areas, recycled water is likely to be needed.[223] It is currently only used for non-drinking purposes in Victoria,[224] but could change. The Victorian Government would need to plan for different water treatment infrastructure and help communities discuss the viability of alternative water sources.[225]

Communities distant from Melbourne have the most to gain from reliable digital connectivity. Many regional areas do not have reliable and cost-effective business-grade broadband.[226] Infrastructure Australia identified digital connectivity gaps for all of Victoria's regional areas in their *Regional strengths and infrastructure gaps 2022* report. The Barwon and Gippsland regions had an average digital inclusion index score of 64, well below the state average of 72.[227] The Victorian Government could keep delivering regional digital connectivity improvements, in partnership with the private sector and local governments.[228]

Prioritise investment in local transport connections within Ballarat, Bendigo and Geelong and between regional centres and Melbourne

People have better access to jobs, education and services in our network of cities scenario, compared to our distributed state scenario.[229] This is because the regional cities have bigger populations more local jobs nearby in the scenario. We included some transport projects in our model that increase frequency and capacity of regional rail and bus services, and added new road infrastructure. The Victorian Government could consider more local public transport infrastructure in Ballarat, Bendigo and Geelong. *Victoria's infrastructure strategy 2021–2051* recommended designing regional public transport for regional circumstances, and not simply replicating Melbourne's city-style model.[230]

Our modelling shows that people in regional cities had quicker public transport trips in the morning peak in a network of cities scenario compared to other scenarios.[231] This was because Geelong, Ballarat and Bendigo have more local job opportunities[232] and their buses run more frequently. The Victorian Government and local governments could also consider using modern technologies for integrated local transport options that respond to local needs, such as e-scooters and e-bikes or micro-mobility.[233]

Regional train services were the most crowded in the network of cities scenario, compared to the other scenarios.[234] More frequent rail services to Melbourne may make living in regional centres more attractive. The Victorian Government could consider decarbonising regional rail to achieve net zero emissions. Electrifying the V/Line network is a costly option. [235] The government can also look at hydrogen powered trains or other emerging technologies such as bi-modal or tri-modal powered trains. Bi-modal trains are

hybrid trains powered either by diesel and electricity or by batteries and electricity. Tri-modal trains are powered by diesel, batteries and electricity.

Higher population and job density in Ballarat, Bendigo and Geelong will require many new regional road upgrades not previously considered by the government.[236] To achieve a network of cities scenario, the government can plan increased capacity and improved safety on roads in regional centres. It will need to invest in more frequent road maintenance and upgrades to freeways and arterials which provide access to Ballarat, Bendigo and Geelong.

Lower the risk of lower economic growth

A network of cities scenario has fewer economic benefits than other scenarios. This scenario has the second worst business location productivity and agglomeration.[237] Business location productivity is estimated to be $9.6 billion lower in the network of cities scenario compared to the consolidated city scenario, and $0.6 billion lower than the dispersed city scenario in 2056. However, local employment opportunities can assist a regional centre's economic development. They provide opportunities for people, especially women, who experience underemployment because they face long commute times and have caring responsibilities.[238]

Our previous research highlighted the unique opportunities and challenges facing each of Victoria's regions.[239] Ballarat's economy is based on services li e health, education and manufacturing.[240] Bendigo is an agricultural processing and services hub for central Victoria.[241] Geelong is the main driver of regional Victorian economic activity, including the Port of Geelong and Avalon Airport.[242] In partnership with local governments, the Victorian Government could support regional cities to develop their own economic strengths and points of difference to make them more attractive. This could be based on their strengths or opportunities to develop emerging industries such as renewable energy and recycling.[243] They can build more regional TAFEs and university facilities to help create jobs and education opportunities. Knowledge economy jobs may also cluster around health facilities.

Increasing digital infrastructure in regional cities can also help achieve a network of cities scenario. *Victoria's infrastructure strategy 2021–2051* recommends reducing regional Victoria's digital connectivity gaps.[244] This would also increase virtual access to jobs and education that might otherwise be difficult to reach.

Distributed state

Imagine, in the year 2056, that many more people live in rural areas and in small towns dotted around Victoria. Many more people work remotely, and live close to nature, surrounded by trees and open space. But they have difficulty travelling to work when necessary and find basic services hard to reach. Victoria produces far less food and fibre, because rural housing developments have used much of the best land.

Many more people live in dispersed rural areas

Rural populations grow rapidly

By 2056, Victoria's rural population has ballooned dramatically, but Melbourne has grown only slowly. Victoria's population is now more dispersed, reversing the trend towards urbanisation that defined settlement patterns in the late 20th century. Regional areas have accommodated about half of Victoria's population growth.[245] Governments have not sought to manage this, producing dispersed, low-density development.

Regional towns and cities grew through the 2030s and 2040s, attracting young households, entrepreneurs and retirees seeking a quieter lifestyle away from the activity and congestion in the city. Developers build large new estates on the edges of regional cities, meaning places like Geelong and Ballarat expand beyond current urban areas. Smaller regional towns also accommodated some of the growth, because people wanted larger homes with access to open space.

Figure 44: Map of distributed state scenario population growth

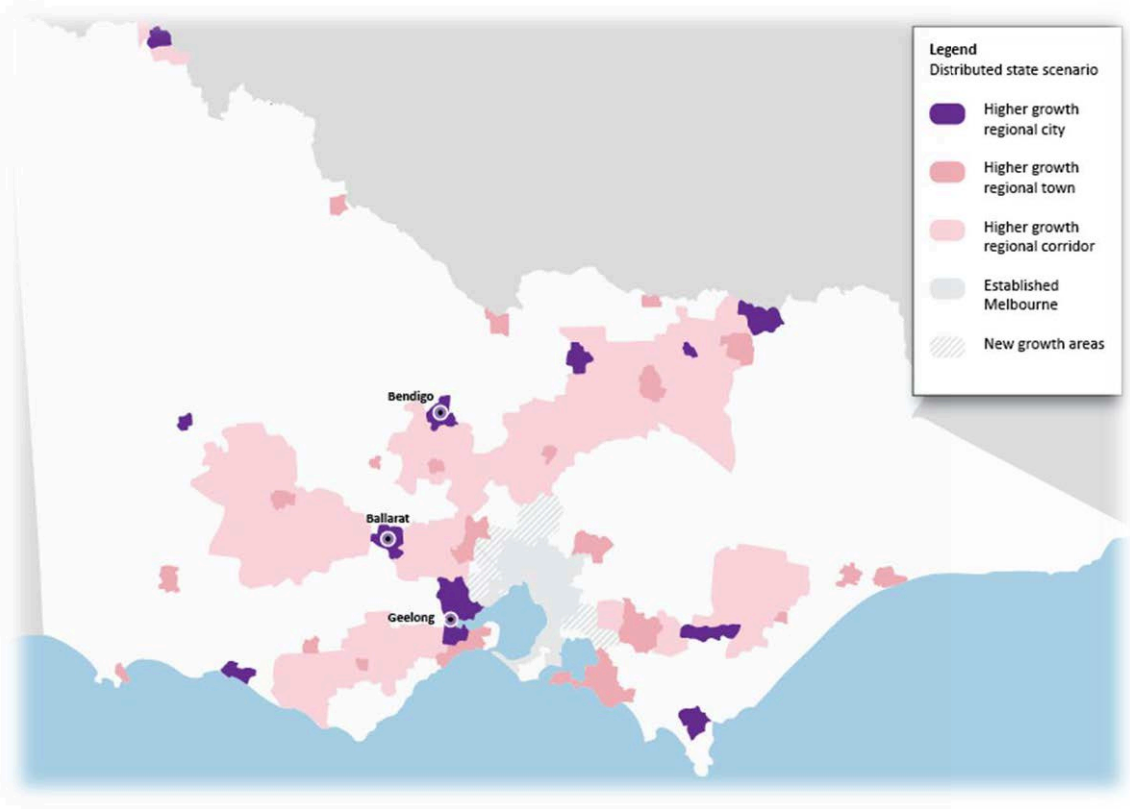
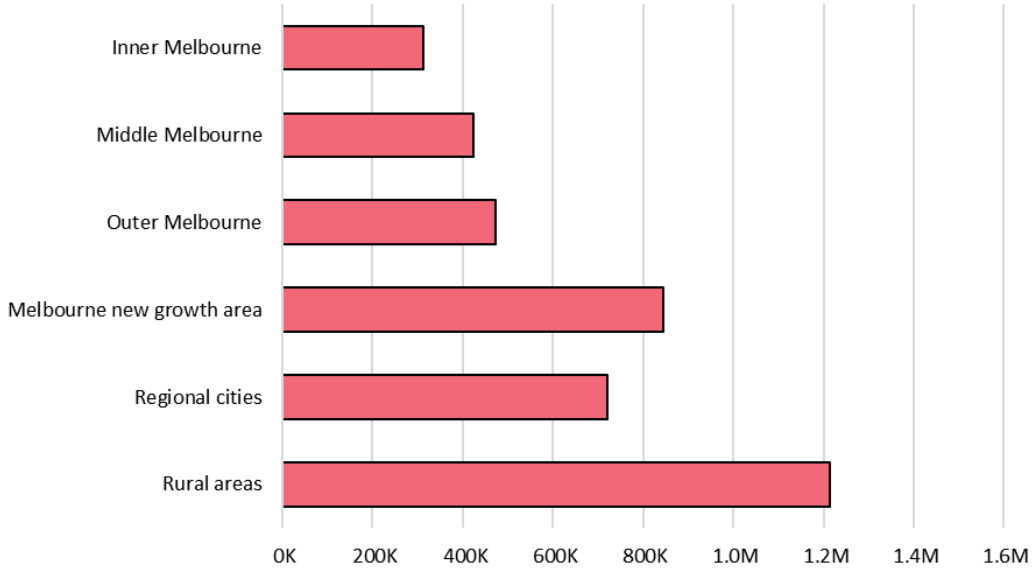


Figure 45: Distributed state scenario population growth



Data source: SGS Economics and Planning, *Urban development scenarios,* 2022

Jobs have been distributed throughout the state

Technology, communication advancements and working from home all supported this population dispersal. Many people who can work from home now choose to live further from their physical workplaces. Local produce and services boom in the distributed state creating new businesses and jobs in regional Victoria.

Central Melbourne is still the most desirable location for most knowledge economy jobs. Some people therefore still need to travel to access work. For some workers, this is a small trade off to access housing that meets their preferences for more open space and privacy. However, the government found it difficult to prioritise public transport investment in places where people lived far apart from one another. Another 167,000 people rely on cars for travel in this scenario compared to the compact city.[246] They make proportionally fewer trips using public and active transport. The dispersed nature of the population also reduces economies of scale for businesses.

Victoria's road network will need to adapt

The government built new road infrastructure to cater for this dispersed population. Motorists experience congestion on roads in major regional towns, as more people use them. This includes the Geelong Ring Road, the South Gippsland Highway and the Princess Highway towards Gippsland. This means the government must build extra road lanes and spend more maintaining them. In the distributed state scenario, the government must expend considerable effort minimising road safety risks to try to achieve zero deaths by 2050.[247]

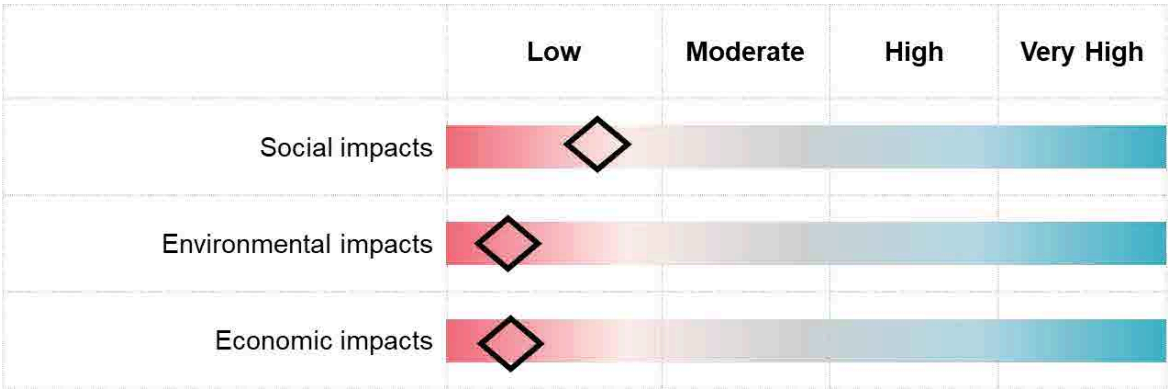
Regional Victoria has more rail and bus services between regional cities to cater for inter-regional trips, for example, between Warrnambool and Geelong. The number of passengers on the Warrnambool train line more than doubles in the distributed state compared to the dispersed city.

Because more people are reliant on travelling longer distances by car, this scenario may give an opportunity for the government to facilitate early adoption of automated vehicles to help people make these trips. Infrastructure Victoria's previous research on automated and zero emissions vehicles demonstrated that this would require the Victorian Government to update transport regulations to allow automated vehicle operation on the road network. It would also require our roads to have the right infrastructure to support the needs of automated vehicles, such as lines and signs and roadside information and communications technology.[248]

Impacts and costs of the distributed state scenario

Figure 46 shows our summary of the impacts of this scenario. The distributed state has fewer social, economic and environmental benefits when compared to the other scenarios.

Figure 46: Distributed state overall assessment



Note: blue shading indicates a more positive outcome and red indicates a more negative outcome, relative to all other scenarios.

People have less access to services and jobs but housing is more affordable

Because people are spread across Victoria, they find it hard to get to jobs, services and infrastructure, by both public transport and car. Figure 47 shows only 6% of jobs in Victoria are accessible within 60 minutes by car for people living in rural areas.

In the distributed state scenario, more people would need to travel further to get to work, increasing commute times. Although many people would live in regional centres and cities, some would still need to travel to middle and inner Melbourne for work.

The distributed state scenario could create significant locational disadvantage. Difficulty reaching jobs and services can be a source of disadvantage, as well as feelings of isolation and loneliness, particularly for older single people.[249] This, in turn, can affect people's mental and physical health.[250,251]

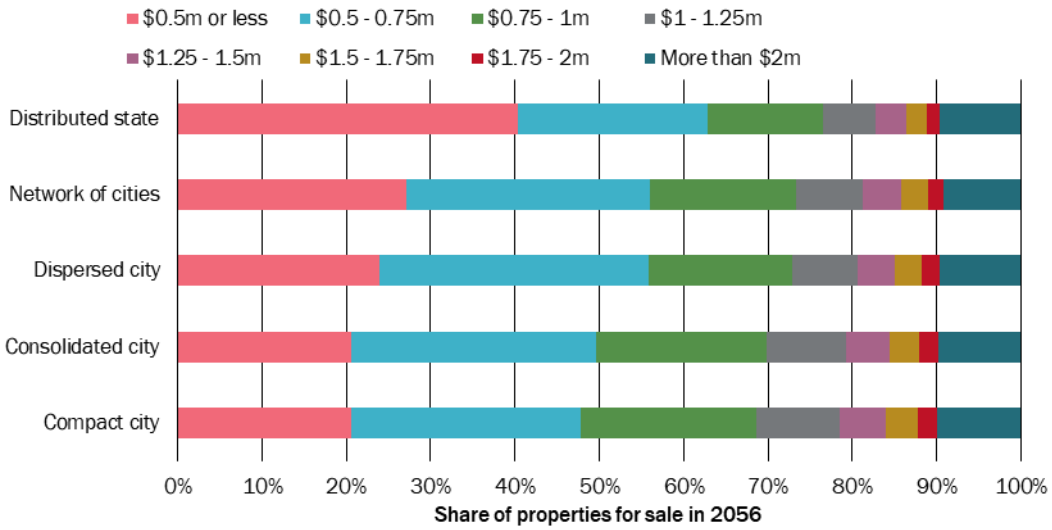
Figure 47: Proportion of jobs in Victoria that are accessible within 60 minutes by car (AM peak 2056)

Data source: Arup, *Urban development scenarios, strategic transport modelling,* 2023

Because people find it hard to reach jobs and services, this scenario has a much lower value of housing. More homes are in locations that people desire less. The value of housing in this scenario is $107 billion less than to the dispersed city, and $212 billion less than the compact city.

Housing is still more affordable in regional areas. The difference in housing affordability between scenarios is substantial in 2056. People can afford homes in regional areas because the land is cheaper and people are more willing to accept worse access to services and facilities. Almost twice as many dwellings would be available for sale under $500,000 in this scenario compared to both the compact and consolidated city scenarios, as Figure 48 shows. This scenario would also see almost twice as many properties for rent between $200 and $300 per week compared to the consolidated city.

Figure 48: Distribution of properties for sale by price in 2056 by scenario



Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023

More urban land is required for the distributed state

More land has been taken up to facilitate new development under the distributed state than any other scenario. This scenario will require 34,000 hectares, which is nearly twice as much land as the compact city scenario.

As the urban footprint increases, this reduces the land available for wildlife and biodiversity.[252] Land available for agricultural and related land uses in these rural areas is also reduced.[253] This is a dilemma for this scenario with many people seeking jobs in agriculture and related industries nearer to where they live.

Residents in a distributed state are also more susceptible to climate risk impacts. Victoria's climate has become warmer and drier in recent decades. This increases the risk of bushfires, particularly for rural and regional areas.[254] Such conditions and events are anticipated to become more frequent and severe with climate change. Such change also brings an increased threat to Victoria's water quality.[255]

Greenhouse gas emissions are lower for the distributed state

The distributed state generates fewer greenhouse gas emissions overall compared to all scenarios. We estimate it produces 12.5 million fewer tonnes of carbon dioxide equivalents than the dispersed city. This is because it constructs homes more slowly than other scenarios up until 2036. Other scenarios build more apartments and townhouses before the transition to net zero was complete.

Residents in this scenario would also experience the least noise and air pollution from transport because regional areas have less transport pollution, compared to scenarios with population concentrated in Melbourne. However, these aspects are largely offset by the environmental impacts from using large amounts of land for residential development.

Case Study

First Peoples' involvement in land use and infrastructure planning

Victoria's infrastructure strategy 2021–2051 acknowledges that the approach to planning infrastructure for First Nations Peoples needs to adapt. The Victorian Government has made self-determination the cornerstone of its Aboriginal and Torres Strait Islander policy. It has formally legislated a Treaty process between the Victorian Government and Victoria's First Peoples and is committed to supporting self-determination in decision making in the National Agreement on Closing the Gap. Applied to infrastructure, self-determination empowers Aboriginal and Torres Strait Islander peoples to own, design and control infrastructure for their communities' social, economic and cultural needs.[256]

Traditional owners in Victoria – Native Title considerations

Native title was first recognised in the Australian legal system in 1992 in the historic Mabo decision. The principles of this decision were then consolidated in the *Native Title Act 1993* (Cth). Native Title can exist where traditional connection to land and waters has been maintained and where previous activity by the government has not removed it.[257] Native Title requirements may need to be considered particularly for development scenarios that require more land.

Victoria currently has 5 determinations of Native Title which cover much of the state. These are the Yorta Yorta peoples; the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia and Jupagulk peoples of the Wimmera; the Gunditjmara peoples; the Gunaikurnai peoples; and the Gunditjmara and Eastern Maar peoples.[258]

Cultural Heritage Management Plans

A Cultural Heritage Management Plan is a written report prepared by a heritage adviser. It includes results of an assessment of the potential impact of a proposed activity on Aboriginal and Torres Strait Islander cultural heritage. It outlines measures to be taken before, during and after an activity to manage and protect Aboriginal and Torres Strait Islander cultural heritage in the activity area.

A Cultural Heritage Management Plan is required when a 'high impact activity' is planned in an area of 'cultural heritage sensitivity'. These terms are defined in the Aboriginal Heritage Regulations 2018.[259] For development scenarios that have greater land requirements, it is expected that relevant authorities would need to conduct a more detailed assessment before these areas were determined as acceptable for new development.[260]

The figure to the right demonstrates the extent of the Cultural Heritage Management Plan overlay through Craigieburn and surrounds north of Melbourne as an example.

A distributed state has lower productivity and employment outcomes

People will experience the negative effects of a weaker economy in the distributed state scenario, relative to the dispersed city scenario. It has less productive businesses, which we estimate reduces total Victorian income by $8.2 billion in 2056, compared to the dispersed city scenario. This is because population and jobs are very dispersed, which means that businesses do not get benefits from locating close together. Compared to the consolidated city scenario, the difference is greater. Total Victorian income is $24.8 billion less in 2056 compared to the consolidated city.

The distributed state has fewer economies of scale

This scenario produces fewer economies of scale, and hence does not enhance the productivity of businesses. For example, several factors influence the viability of recycling, such as the value of commodities, economies of scale, contamination and the total distance waste must be transported.[261] It is likely that recycling and other similar services would be more expensive or require alternative management options.

Figure 49: Economic indicators for scenarios, (2021–2056), relative to dispersed city

Economic indicators	Dispersed city	Consolidated city	Compact city	Network of cities	Distributed state
Business location productivity ($b)	0	9.0	30.8	- 0.6	-8.2
Agglomeration ($b)	0	12.3	19.7	-1.8	-15.5
Employment impacts ($b)	0	5.0	12.1	0.2	-2.6
Total impacts on income ($b)	**0**	**14.0**	**42.9**	**-0.4**	**-10.8**

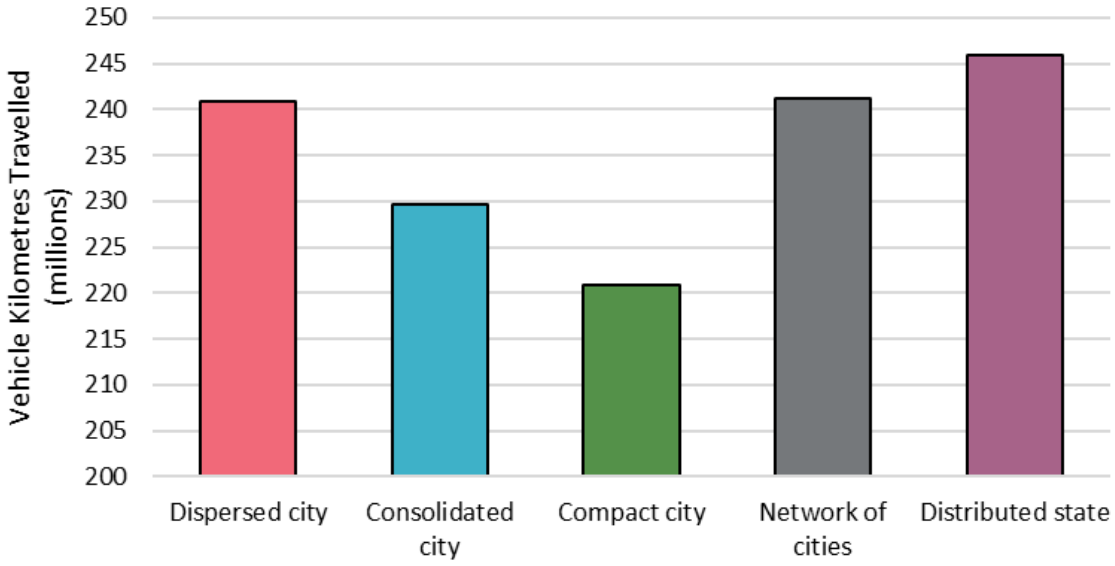
Data source: The Centre for International Economics, *Economic, social, and environmental impacts of alternative urban development scenarios for Victoria,* 2023. Note total impacts on income exclude agglomeration benefits as this measurement overlaps with the business location productivity measure.

People commute further, but encounter the least amount of congestion

In the distributed state scenario, vehicles travel the most kilometres of all scenarios, as Figure 50 shows. This is because jobs, education and other places of interest are further away from where people live. People collectively travel about 25 million more kilometres each day in the distributed state scenario, compared to the compact city. That equates to travelling around the earth about 625 times.[262]

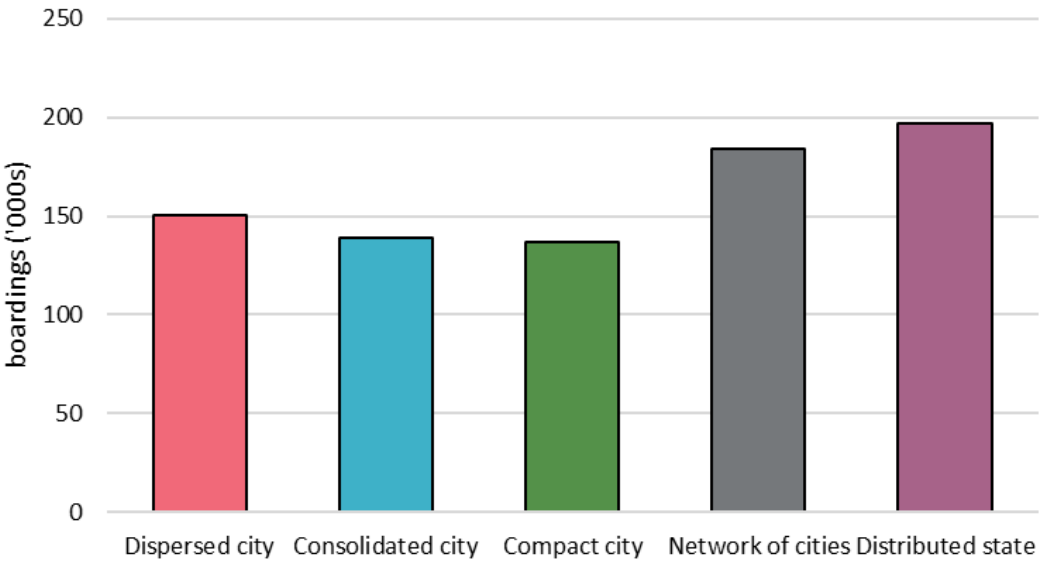
People use public transport least in the distributed state scenario. But V/Line services do have the most boardings, as Figure 51 shows. This shows that some people in this scenario travel to major regional cities and towns to access some services.

Figure 50: Vehicle kilometres travelled per day, state-wide total (2056)



Data source: Arup, *Urban development scenarios, strategic transport modelling,* 2023

Figure 51: V/Line train boardings in regional areas, daily state-wide total (2056)



Data source: Arup, *Urban development scenarios, strategic transport modelling,* 2023

Infrastructure costs are lower overall but people cannot reach facilities easily

Infrastructure delivery costs, including to build community facilities, open space and education are lower overall in the distributed state compared to other scenarios, because land is cheaper, and the community expects a lower standard of public services. People find infrastructure hard to access because they have few transport options and face long travelling distances.

Water and wastewater delivery costs would be expensive in regional areas because they require high levels of treatment. Wastewater treatment plants would need buffers from sensitive uses (residential land uses) because they process higher volumes of water.[263] Water authorities might need to consider alternative management options to facilitate this scenario effectively.

Local infrastructure would also be expensive. Because the extra population is distributed across the state, the government would need to build a lot of new infrastructure. Local infrastructure costs are significant and comprise about one fifth of the total infrastructure costs in this scenario.

Policies that could enhance or mitigate distributed state outcomes

ote that these policy directions are not our recommendations to the Victorian Government. Rather, they advise on ways in which the government could achieve better outcomes if it chose to pursue this urban development pathway.

The government would deliver services and infrastructure differently in a distributed state. Because more people are living in dispersed places, and assuming governments have a fixed budget and provide infrastructure in similar ways, then people will have less access to services and infrastructure will be less reliable. Like a network of cities scenario, government intervention alone cannot achieve this scenario. It requires a combination of changes in Victorians' housing, work and lifestyle preferences, the economy, private sector investment and government policies to occur.

More population growth in Victoria's regional areas has other complexities. In our previous research, *Infrastructure priorities for the regions*, we highlighted problems and opportunities specific to regional areas. Solutions designed for Melbourne do not always translate to the regions.[264]

The Victorian Government would also have to ma e sure that it plans for Melbourne's infrastructure as the city keeps growing. It can consider using policy directions from other scenarios to get good outcomes.

These policy directions outline infrastructure needs in a distributed state scenario and risks for the Victorian Government to be aware of, if pursuing this scenario.

Reform delivery of government services and infrastructure

The Victorian Government cannot deliver the same level of services and infrastructure for a distributed state as it would in other scenarios.[265] To achieve a distributed state, the growing population will have to be more self-sufficient, accepting less access to and reliability of services. This could include alternative service delivery models including more local networks for electricity, water and sewerage, and hub and spoke approaches to service delivery for health services and policing.[266] Hub and spoke models can also change how and where infrastructure in regional areas is used, such as more multipurpose facilities with high-speed internet access.

A distributed state scenario has less access to jobs, education and other people compared to the other scenarios.[267] For people who do not have access to a private vehicle and rely on public transport, less access can also lead to social exclusion. From our previous work we found the people most likely to experience social exclusion include young people, single parents and families with young children, older people, Aboriginal and Torres Strait Islander peoples and people with a disability.[268]

The Victorian Government could consider more targeted community infrastructure spending for community facilities and support services in remote areas. The government might need to be more creative about services for a dispersed population such as providing more digital access to services, rationalising and updating facilities,[269] and building more multi-purpose community hubs that have services that meet many community needs.[270] Community infrastructure can also be climate-adapted to help manage the health effects of extreme heat and bushfire smoke.[271]

Coordinate planning for rural living

In this scenario, there are larger regional urban areas and smaller regional towns grow as more people live in larger homes. This will affect land uses around those urban areas. The Victorian Government could work with local governments to update regional growth plans, and then identify land that is appropriate for more homes in regional Victoria. It can protect Melbourne's peri-urban agricultural land.[272] This could consider how close residential development can be to facilities like chicken farms, abattoirs, sawmills and renewable energy infrastructure such as wind or solar farms. The Victorian Government could use the new Buffer Area Overlay so noise, odours, dust or other hazards do not affect homes and other sensitive land uses.[273]

Local infrastructure costs are highest in this scenario. The Victorian Government could consider encouraging more new homes in the Township Zone where people can be closer to existing infrastructure in small towns.[274] This can lower infrastructure costs if people use existing local roads, sewerage and drainage.

Electricity and water treatment costs are relatively high in this scenario, but the Victorian Government could encourage decentralised approaches where individual homes have on-site responsibility for these services. The Rural Living planning zone defines site size and home setback requirements for on-site wastewater management where reticulated sewerage is not available.[275] This can make homes less affordable as they each need more land and equipment, but government's infrastructure and servicing costs are lower.[276]

More development in and around small towns in regional Victoria might also affect biodiversity. Land clearing for new homes can affect threatened species. The Victorian Government can restart its yearly progress reporting on *Protecting Victoria's environment – biodiversity 2037* and consider adding performance metrics that directly measure liveable and climate-adapted communities in regional Victoria.[277] It can consider more restrictions on new homes in the Rural Conservation Zone so this zone can better protect and enhance the natural environment.[278]

Prioritise transport investment in regional Victoria

A distributed state scenario depends more on cars. People take 80% of their trips using private vehicles in 2056.[279] Because more people drive on regional roads, road safety becomes an increasing challenge. Regional and rural roads have more deaths and serious injuries than other places.[280] The Victorian Government could consider better road maintenance and safety upgrades on high speed roads and intersections.

In a distributed state scenario people drive less in congested conditions each day, compared to the other scenarios.[281] This is positive for freight movements which collect and supply goods across a more distributed Victoria. To support the demands on the freight network, the Victorian Government could consider road and bridge strengthening to better use existing roads. It can also work with businesses and regional local governments to identify priority locations for distribution hubs, using its experience with Inland Rail intermodal hub development. [282]

A distributed state scenario also has the fewest public transport trips. It has 900,000 fewer daily public transport trips than in a compact city scenario. The Victorian Government can consider redesigning regional public transport services so different modes connect and have a source of sustainable funding.[283] This could include removing regulatory barriers to allow bus fleets to operate with innovative service models,[284] and more park and ride facilities near bus interchanges and train stations.

Because more people depend on cars and more freight transported on roads, the Victorian Government could support more rapid uptake of zero emission vehicles. Our previous *Advice on automated and zero emissions vehicles infrastructure* and our report *Driving down emissions: accelerating Victoria's zero emission vehicle uptake* offer more detailed guidance on improving uptake.[285,286]

Automated vehicles can help achieve a distributed state. They can bring faster travel times, safer roads and improved access to services in regional areas.[287] This can include freight and passenger vehicles. Our previous advice found that some proactive changes to machine-readable stickers or other solutions could help. Automating freight vehicles would not lead to increases in the weight of heavy vehicles and could be driven on existing roads.[288]

Deliver climate adaptation measures to reduce the impact of climate risks

The Victorian Government could respond to the significant climate risks that a distributed state creates. A distributed state uses the most land of any scenario.[289] More people live in areas prone to bushfires and flooding.[290]

The government can act to ease these climate risks. *Victoria's infrastructure strategy 2021–2051* recommended investing in protection and adaptation for Victoria's coasts to reduce the effects of further climate change.[291] Long term investment could deliver funding security and stability to safeguard coasts, homes and infrastructure.

The Victorian Government can also consider better fuel management planning and strategic bushfire management planning by private land managers and fire agencies.[292] It could clear vegetation near towns and communities to reduce the risks of losing homes and businesses. Because more people live in regional Victoria, the government could keep restricting new developments and subdivisions in areas with highest risk of flood and fire.[293]

In areas with existing homes with unacceptably high risk of bushfires, the Victorian Government can also consider a retreat and resettlement strategy that encourages people living in those areas to move.[294]

Facilitate investment in digital connectivity

Increasing digital infrastructure in regional Victoria can help achieve a distributed state scenario. This scenario assumes people are more self-reliant. This includes that more Victorians access work, education, shops and services online. This can only be done with reliable high-speed internet. *Victoria's infrastructure strategy 2021–2051* recommends closing regional Victoria's digital connectivity gaps.[295] The Victorian Government could also consider the Australian Government's role in digital connectivity. It could bring all levels of government together and support private sector investment.

Improving digital connectivity can improve safety and has social benefits. The 2019–20 summer bushfires showed that unreliable telecommunication infrastructure can cause real harm. It can prevent rapid information sharing with communities at risk and between government agencies in multiple jurisdictions. The Victorian Government can consider improving critical infrastructure information flows and embed resilience.[296] Improved digital connectivity in a distributed state also means people can remotely access jobs and services such as telehealth.

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INFRASTRUCTURE VICTORIA

March 2023

Our home choices

How more housing options can make better use of Victoria's infrastructure

Contents

Summary

People from around the world have chosen to make Victoria home, most of them in Melbourne. By 2051, Victoria will be home to around 3.7 million more people than today, with over 3.1 million more people in Melbourne alone.[1] Melbourne is expected to overtake Sydney as Australia's biggest city in 2031 or 2032.[2]

Population growth has fuelled Victoria's economic prosperity and created the vibrant, diverse community enjoyed today. But with more people Victoria also needs more homes. Melbourne will need about 1.3 million new homes between 2021 and 2051, or around 44,000 new homes every year.[3] The supply challenge is large, especially if new homes are to meet the needs and aspirations of Victoria's diverse and growing population at prices they can afford.

Understanding why homebuyers and renters choose to live where they do helps to plan for population growth and to shape Victoria's cities. In June 2022, we asked over 6,000 Victorian households about the type of home they would choose in Melbourne, Geelong or Ballarat if they had to move, factoring in current house prices and their household budget – the largest survey of its kind ever conducted in Australia.

Many people we spoke to share a similar vision of their ideal home: a detached 3-bedroom house in an established suburb, close to family and friends.[4] But this ideal is well out of reach for moderate income households in most Melbourne suburbs. People's preference for a large, detached home combined with household budget constraints is driving demand for homes in Victoria's new growth suburbs, or greenfield areas, where the median household income among new homebuyers is just over $90,000.[5]

Of the households we surveyed, 25% told us they would choose to live in a detached house in one of Melbourne's growth areas if they had to move.[6] Many people buying in greenfield areas are households with children, or who are planning for children. Greenfield suburbs, on average, attract higher numbers of first home buyers, households with young children and those intending to have children in future. They are also more likely to be moderate income earners. Most greenfield residents say that living in these new suburbs is their preferred choice. Greenfield homes offer the features these households want at a price they can afford, in a community where they feel connected and safe.[7]

The 7 local government areas home to Melbourne's greenfield suburbs accounted for 50% of Victoria's total population growth over the last 10 years.[8] Greenfield suburbs in Ballarat and Geelong also grew rapidly in this time.[9] Greenfield homes are built in areas with little existing infrastructure, and residents often move in before schools, public transport, community centres and hospitals are in place. Our survey shows that Victorians who choose a new home in a new suburb are usually very happy with their choice,[10] but they acknowledge it can take many years before their community has all the infrastructure it needs.[11]

Building new infrastructure in these areas can be up to 4 times more expensive than adapting existing infrastructure in established suburbs that have the capacity to support growth.[12] Paying for Victoria's growing infrastructure needs comes at a time when governments are dealing with multiple challenges, such as escalating construction costs and shortages of skilled labour and materials.[13] And as Victoria grows, so does the pipeline of new infrastructure needed to meet the needs of rapidly growing communities. With competing interests and budget constraints, governments must make difficult choices on how and where to invest.

Encouraging more people to live in established suburbs closer to existing infrastructure creates a more compact city with higher population density. Melbourne is one of the lowest population density cities in the world, even lower than Los Angeles and around half that of Paris, despite being roughly the same geographic size.[14] Compact cities offer good access to jobs, services, cultural and sports activities and public transport. They can support better health outcomes by encouraging more walking and cycling. They can improve the viability of infrastructure delivery and promote better use of existing infrastructure. They can also offer diverse housing options for many different sizes and types of households.

But our research shows that Melbourne's existing suburbs do not offer a choice of homes at a price that many households can afford. A household with a stable income of $88,000 a year and a deposit saved can currently buy a 3-bedroom house if they want one. But it will only be possible in a small number of growth

suburbs on Melbourne's fringe, some 30 kilometres or more from the city centre. And suitable options in many growth areas are already out of financial reach for a homebuyer with this income.[15]

The Victorian Government's metropolitan planning strategy, *Plan Melbourne 2017–2050*, aims to promote a more compact city. It includes an aspirational scenario for 70% of new homes to be built in established suburbs by 2051. The remaining 30% would be in greenfield areas.[16] This is a major undertaking, equivalent to 932,000 new homes in Melbourne's existing suburbs, or 8 times the number of homes in the whole of Geelong today.[17] But Victoria's capital city is falling short of these aspirations. The share of new homes built in established suburbs is declining, and in 2021 fewer than half were in Melbourne.[18]

Encouraging more people to buy and live in homes in higher density established suburbs will be a challenging task. Our research has found that high-rise apartments are not attractive to many people buying in greenfield areas, so increased density must come in many different forms including townhouses, villas and both low-rise and high-rise apartments.[19] Building more homes in established suburbs comes with its own challenges including high urban land and construction costs, some community opposition and uncertainty around the timeframe and outcome of development assessment decisions.[20] These and other factors influence which homes are built where, and the prices people must pay for them.

If the Victorian Government wants to increase the share of new homes built in established suburbs, it needs to understand what people are looking for when they buy a home and how these needs can be met in established suburbs. Our work aims to clarify these requirements and to propose policy options for government to help achieve them.

Many households told us they would choose to live in greenfield areas even if established suburbs were more affordable. The greenfield areas will continue to play an important role in Melbourne's future for the many people who prefer the features offered by these areas. However, we found that 1 in 5 would trade house and land size to live in an established suburb in a medium density home, such as an apartment or townhouse, if it was available at a more comparable price. These are the buyers and renters the Victorian Government must provide more choices for if it wants to rebalance the distribution of new homes between existing suburbs and new growth areas.[21]

But focusing on household demand will not be enough. The government can also facilitate private sector investment to build more homes that meet the needs and preferences of people who would otherwise choose a greenfield home. Established suburbs must accommodate many more new homes to create the scale of change aspired to in Plan Melbourne, including homes affordable to moderate income households who have, or are planning for children. Apartments make up most new homes in Melbourne's existing suburbs, and most of these are not designed to meet the needs of households with children (see **Option 10**).[22] More diverse new homes in all areas can give people more choices to suit their needs (see **Options 7** and **8**).

The Victorian Government has identified several urban renewal precincts in established suburbs to accommodate some of Melbourne's population growth, including in Fishermans Bend, Sunshine and Arden. These can be part of the solution and there are opportunities to streamline planning approvals for development in these areas (see **Option 6**). However, urban renewal precincts alone will not generate enough homes to meet projected population growth. For example, the 12 precincts connected by the Suburban Rail Loop will deliver around 15% of the homes needed to support an aspiration of 932,000 new homes in existing suburbs.[23]

Our policy options outline reforms for the Victorian Government to consider. They aim to give moderate income households more housing choices in established suburbs that are genuine substitutes for greenfield area homes. They include changes to existing financial incentives that distort home choices and favour greenfield development (see **Options 2, 3** and **4**), and planning reforms that can encourage more affordable homes in established suburbs (for example, **Options 5, 8, 9** and **10**). We also suggest reforming infrastructure contribution schemes to better reflect the costs of building infrastructure in different areas (see **Option 1**). Collectively, the options we propose can give communities more certainty about what to expect and developers more clarity in how to deliver well-designed, higher density homes in established suburbs.

Options for government

Established suburbs can accommodate more new homes in many different ways. This report presents a suite of policy options for the Victorian Government to consider. The options can give people more choices to buy homes in established suburbs rather than greenfield areas and promote better use of existing infrastructure by helping create more compact cities. The Victorian Government can make decisions on the policies it pursues.

Our research demonstrates the size of the challenge ahead will require many different approaches to resolve. We have identified 3 outcomes that the proposed options seek to address:

- Reduce price disincentives to buying in established suburbs.
- Build more homes in established suburbs near transport and services.
- Increase diversity and choice of homes in established suburbs.

The 10 options collectively suggest ways the government can offer more choice for moderate income households who might prefer to live in established suburbs. No single policy option will cause enough new homes to be built in established suburbs in Melbourne, Geelong and Ballarat. Instead, many of the options can be combined to achieve more impact and will need to work together to be effective in expanding the choice and diversity of homes available to Victorians now and in the years ahead.

We provide options for the Victorian Government to implement now and keep pursuing over the next decade. We outline our view of how to sequence them in Figure 1. The government should monitor progress and consider whether it needs more policy reforms to deliver the change required in the future.

Reduce price disincentives to buying in established suburbs

1: Reform infrastructure contributions to send the right price signals

Develop a clear, efficient and transparent infrastructure contribution system that better reflects the true cost of infrastructure in different development settings and supports better use of existing infrastructure.

2: Reform stamp duties that distort home choices

Remove the distortions created by stamp duty concessions and ultimately abolish stamp duties altogether, potentially by replacing them with a broad-based land tax.

3: Remove home subsidies that encourage greenfield choices without improving affordability

Avoid subsidies that inflate house prices and remove the First Home Owner Grant.

4: Use government ‘shared equity’ schemes to encourage established suburb home ownership

Over time, change the locations eligible for the Victorian Homebuyer Fund, to encourage people to buy homes in established suburbs.

Build more homes in established suburbs near transport and services

5: Measure and incentivise progress towards new local housing targets

Set targets for the number, type and size of new homes in each Melbourne local government area, in collaboration with local governments. Offer local governments incentives to meet the targets. Measure progress by closely monitoring new housing supply and publishing detailed statistics at least every year, including by home type and characteristics.

6: Prioritise and streamline approvals for urban renewal precincts

Prioritise urban renewal precincts for development, with streamlined planning approvals. Set targets in each precinct for the number, type and size of new homes. Develop suitable housing demonstration projects that specifically include 3-bedroom homes.

7: Develop better standards for low-rise apartments, then increase their supply by expanding use of the Residential Growth Zone

Develop better standards for low-rise apartments (4 or fewer storeys) in the Victoria Planning Provisions. Introduce more low-rise apartments by supporting local governments to rezone more residential areas near public transport and services to the Residential Growth Zone.

Increase diversity and choice of homes in established suburbs

8: Develop a dual occupancy and townhouse code

Give property owners as-of-right permission to bypass red tape and supply more diverse homes when they comply with the new dual occupancy and townhouse code. Give better visual guidance for well-designed dual occupancies and townhouses.

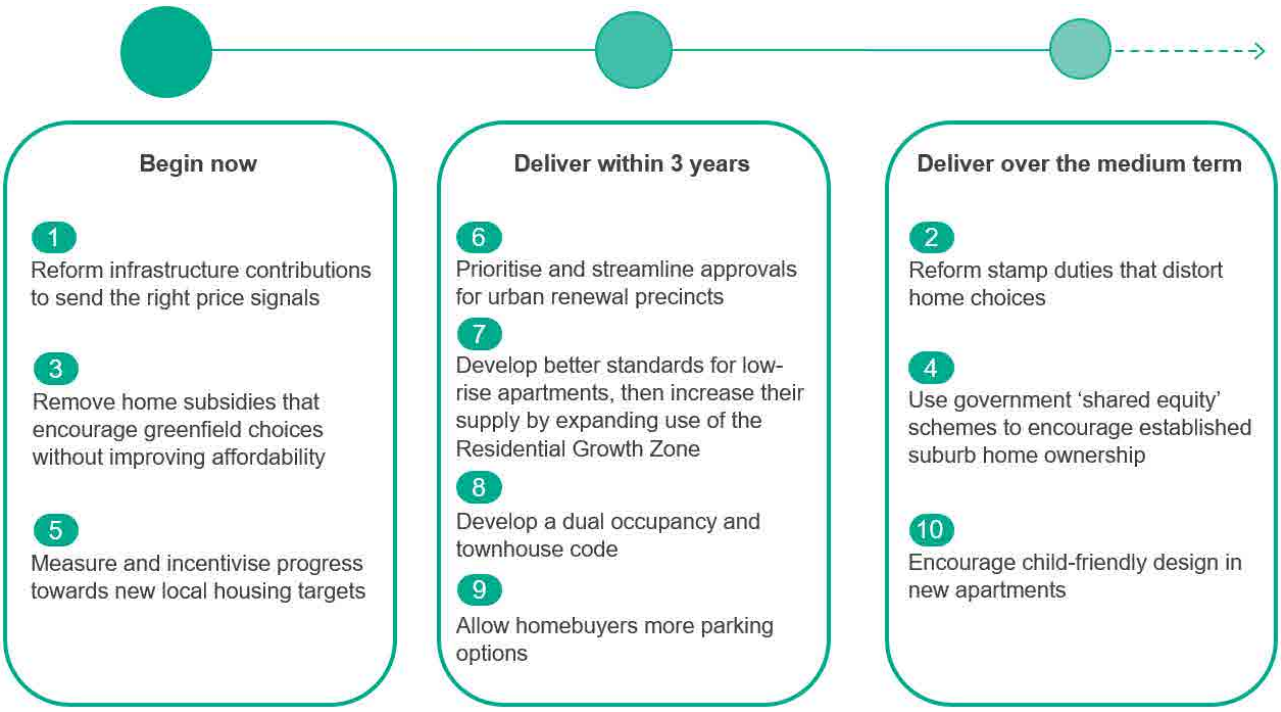
9: Allow homebuyers more parking options

Reduce or remove compulsory minimum parking requirements to improve choice and affordability of new established area homes, close to good public transport. Allow homebuyers to choose how much onsite parking they want to pay for above minimum requirements.

10: Encourage child-friendly design in new apartments

Update the Better Apartments Design Standards to specify better access, versatility and safety features so apartments are more attractive for households with children. Introduce voluntary design guidelines for best practice child-friendly apartment design.

Figure 1 Timelines for delivery



Guiding Victoria's future housing growth

Victoria grew rapidly in the decade to 2020, welcoming more than 1 million new residents to reach a population of 6.7 million.[24] This growth placed considerable demands on infrastructure as more people used Victoria's roads, trains, hospitals and schools.[25] It also increased the demand for housing.

Historically, Victoria accommodated population growth in new suburbs at the edges of Melbourne, contributing to the city's large urban footprint.[26] Melbourne has around 5 million people, making it the 102nd largest global city by population, but it has the 33rd largest built-up land area in the world.[27]

The COVID-19 pandemic interrupted Victoria's population growth. The population dropped by almost 45,000 people in the year to June 2021, and by over 80,000 in Melbourne. Despite this, more people kept moving to Melbourne's growth areas. The cities of Cardinia, Casey, Hume, Melton, Whittlesea, Wyndham and the shire of Mitchell, home to Melbourne's greenfield suburbs, all experienced population growth in 2021.

Some Victorians also moved to the regions during this time. Regional Victoria added 23,000 new residents in 2021.[28] Like Melbourne, regional cities face pressure to expand outwards into new suburban estates to meet rising demand for new homes.[29]

The pandemic changed the way Victorians live and work. For much of 2020 and 2021, anyone who could work from home did so. While its longer-term effects are unclear, a shift towards remote working might keep reinforcing strong population growth in outer suburbs as it becomes less important for people to live near their workplace.[30] Workers can save time and travel costs if they no longer need to travel to work every day.

More new suburbs put extra pressure on infrastructure

Planning decisions made now will affect the shape of Victoria's cities for decades to come. The places where new homes are built affects the amount and location of infrastructure Victoria needs.

People living in new homes in urban growth areas, or greenfield developments, require new infrastructure for their daily lives. This includes transport, utilities and social infrastructure such as schools, hospitals and childcare facilities. In rapidly growing new suburbs, people move in before much of the supporting infrastructure is in place.[31] Their access to services and infrastructure will improve over time, but in the interim new residents must rely on cars to access the services they need.[32]

Infrastructure can also be expensive to deliver. Labour shortages are contributing to delays in infrastructure delivery, and the costs of construction are rising.[33]

> Our previous analysis shows that infrastructure to support new homes can cost up to 4 times more in greenfield areas than in established suburbs that have the capacity to support growth.[34]

A larger urban footprint affects the environment. More expansion can lead to new homes being built in areas that are more vulnerable to the effects of climate change, which can expose residents to higher bushfire or flood risks.[35] It can also contribute to biodiversity, ecosystem and species loss, as homes and other development use up more habitat.[36]

Comparing Melbourne's low housing density with other global cities shows that many established suburbs can accommodate more people and homes while offering good access to existing infrastructure.[37] *Victoria's infrastructure strategy 2021–2051* explores ways to better use and manage existing infrastructure, and to plan the timing and delivery of new infrastructure where necessary. It recommends building more homes in

established suburbs with good access to jobs, services and transport, by integrating land use and infrastructure planning to deliver a denser urban form.[38]

Greenfield areas will continue play an important role in Victoria's future growth. But balancing their role with that of established suburbs is important to continue to provide a good quality of life with access to jobs, education, social and leisure opportunities for everyone in Victoria.

More compact cities offer social, economic and environmental benefits

Compact cities help slow down urban expansion by consolidating land use inside the existing city boundaries. They prioritise building new homes in established suburbs, near to jobs and activity centres.[39] Cities that are more compact promote public transport use by focusing population growth in places that already have good access, and encourage walking and cycling by reducing the distances people need to travel.[40]

More compact cities can provide opportunities for positive social interaction, and improve access to community services.[41] They can create vibrant and diverse suburbs while supporting shops and services, stimulating local economic development and job opportunities.[42] Higher density neighbourhoods can improve the viability of infrastructure delivery and promote better use of existing infrastructure.[43] Denser suburbs tend to have economic and productivity benefits due to higher concentrations of jobs.[44]

More compact cities can offer more transport options, including more public transport, walking and cycling, and can reduce trip lengths and travel times. A more active lifestyle can improve health outcomes.[45] People using more sustainable transport options can also reduce vehicle emissions.[46] Other environmental benefits include less land taken up by homes, meaning less development pressure on valuable agricultural and environmental resources.[47]

Other urban forms are possible, and each has its own benefits and drawbacks. The Victorian Government's land use and infrastructure planning decisions will help determine whether Victoria realises the benefits more compact cities can offer.

What we mean by low, medium and high density

We use the terms low, medium and high density often in this report to refer to different types of homes and developments. There are many definitions for these terms, but we generally mean the following:

- Low density – detached homes of any size.
- Medium density – townhouse and terrace homes, as well as low-rise apartments (up to 4 storeys).
- High density – apartment developments of 5 storeys and above.

Melbourne is a low density city by global standards. The city centre includes many high density homes, and some established suburbs have high density along major transport routes. These are interspersed with low density suburbs, many of which are dependent on cars because of sparse public transport. Growth area suburbs are, in general, low density and not as well served by infrastructure and transport as established suburbs.

Melbourne can increase its population density, with all the benefits that can bring, while remaining a relatively low density city. But it will need more diversity and choice in home types to achieve this.

Each density category has many different forms. Building higher density, more compact cities does not mean all new homes will be high-rise apartments. And apartments can be designed in different ways to incorporate open space and communal areas while offering good access to transport and services.

Victoria can build more well-designed, medium and high density homes, including townhouses and low-rise apartments, in established suburbs to offer an affordable substitute for greenfield homes. Figure 2 gives existing examples of these home types in Victoria.

Figure 2 Medium and high density homes in Ballarat, Doncaster and Richmond

Nightingale, *Nightingale Ballarat*, Mirvac, *Tullamore*, SJB, *8 Burnley Street*

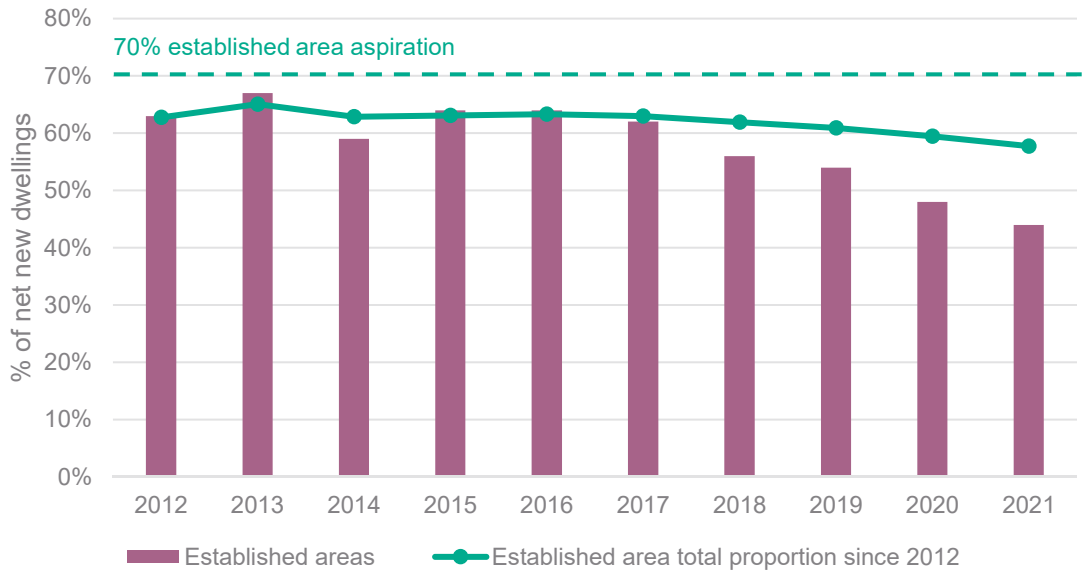
Planning strategies aim to build more homes in established suburbs

Plan Melbourne 2017–2050, the Victorian Government's metropolitan planning strategy, aims to increase the proportion of new homes in established suburbs. It includes an aspirational scenario for 70% of new homes to be built in Melbourne's established suburbs by 2051, compared with 30% in greenfield areas.[48]

Some regional cities also aim to increase the share of new homes built in established suburbs. The City of Greater Geelong has an aspirational target of 50% of new homes in established suburbs by 2047.[49] Likewise, the City of Ballarat is encouraging the housing market to move towards 50% of new homes in established suburbs between 2020 and 2040.[50]

However, current trajectories show that greenfield development increasingly delivers more of Victoria's new homes. Just 44% of new homes in Melbourne were built in established suburbs in 2021. This compares with over 60% in 2016 (see Figure 3).[51] In Geelong, 21% of new homes were built in existing suburbs in 2021, down from 32% in 2020.[52]

Figure 3: Share of net new dwellings in Melbourne's established suburbs, 2012 to 2021



Department of Transport and Planning, *Urban development program*

Building more homes in existing suburbs will be challenging

Melbourne will need an estimated 1.3 million new homes between 2021 and 2051 to accommodate expected population growth.[53] Reaching the 70/30 aspiration in Plan Melbourne by 2051 would therefore require around 399,000 new homes in greenfield areas and 932,000 in Melbourne's established suburbs. This is equivalent to building 8 times the total current number of homes in Geelong within Melbourne's established suburbs.[54]

Accommodating this growth in Melbourne's established suburbs means increasing housing density in suitable places. Plan Melbourne identifies over 130 metropolitan and major activity centres that can support higher density development.[55] However, challenges associated with building higher density homes in established suburbs include high land prices and construction costs, planning system risks, some community opposition, and uncertainty around the timing and outcome of development assessment decisions.[56] These and other factors influence which homes are built where, and the prices people must pay for them.

If the Victorian Government wants to increase the share of new homes built in established suburbs, it must understand what people are looking for in new growth areas, and how it can deliver this in established suburbs. This study aims to clarify these requirements and propose reforms to give people more home choices in more areas.

Gathering new evidence on housing preferences

Infrastructure Victoria undertook new research to gather reliable and up-to-date information about Victorians' home choices and preferences. Our findings can help decide which set of policy options can successfully influence the location of people's home choices.

In 2011, the Grattan Institute conducted the last major study into Victoria's housing preferences, summarised in their report *The housing we'd choose*.[57] Victoria's population grew by more than a million people after that research. The type and location of new homes being built also changed. Developers built many inner-city apartment buildings and produced more large homes in new growth suburbs. Melbourne's middle suburbs had less development.[58] At the same time, more new housing estates were built at the edges of Ballarat, Geelong and smaller regional towns near Melbourne.

Our research builds on the Grattan Institute's findings and gives new insights into the homes and choices available to Victorians today. We surveyed many more people, included Geelong and Ballarat in our research, and considered a greater variety of choices in more specific areas of Melbourne. We talked with people directly so they could tell us about the home choices they made. We also developed new models to explore how people value different types of homes and infrastructure. Our research highlights how people's housing preferences are different more than a decade later. It also gives us new insights into home choices as Victoria emerges from the COVID-19 pandemic.

We focused on people who choose to live in new growth areas as our starting point – people who live in greenfield estates or might choose to move there. Our research focused on better understanding their available home options, the choices they made, and what might influence them to live in established suburbs instead. We considered this question from the perspective of both housing demand (what and where people want to buy) and supply (what is being built where), as well as the choices and trade-offs people face when they buy their home. We also included many people who decided not to live in greenfield areas to understand how their preferences and choices differ from those who do.

We used our findings to help develop a wide suite of policy options for the Victorian Government to consider. If the government wants to offer more home options in established suburbs, it should consider substantial changes to many of its planning and financial policies. No single, isolated reform can deliver the massive scale of change required. This report outlines some options for the Victorian Government that can give people more attractive options to buy homes in established suburbs. By pursuing them, Victoria can maximise people's use of existing infrastructure and services in established suburbs, and integrate land use and infrastructure planning to guide urban development in good locations. Some of our proposals can be done quickly, but others might take longer.

Our research explores factors influencing home choices

We investigated the reasons people chose to buy homes in growth areas, and what might help change their mind. Our research objectives were to:

- identify the most important home, location or community attributes for households when deciding to live in Victoria's greenfield locations, and the trade-off decisions they make
- test whether they can meet these housing preferences in other places
- elevate the voice of households who feel they have few home choices outside of greenfield locations but would prefer a different location if their housing needs can be met elsewhere.

Our research explored whether households in new suburbs would accept a smaller house and land size to live in an established suburb in a medium density home, if it were available at a comparable price. Our primary research question in considering this choice was:

> What would be the necessary pre-conditions for a proportion of households living in new suburbs to have chosen a different residential location?

We focused on moderate income households in Melbourne, Geelong and Ballarat, defined under the *Planning and Environment Act 1987* (Vic) as households with an annual income range between $88,021 and $132,030.[59] These households are more likely to live in outer suburbs and growth areas where homes tend to be more affordable.[60] The median household income for new homebuyers in Victoria's greenfield suburbs between 1996 and 2021 was $90,977 a year.[61]

We analysed housing affordability for moderate income households to identify homes that might be a suitable alternative to growth area homes. Households buying in growth areas are more likely to have children or be planning for children in the near future.[62] They are unlikely to choose homes with fewer than 3 bedrooms.

Our research focused on moderate income households' available home choices. This means we did not attempt to solve the urgent wider housing affordability issues in Victoria, or explore issues related to overall housing supply shortages.

Our policy research focused on households seeking to buy rather than rent. Few homes are purpose-built for the private rental market,[63] and the Victorian Government has limited policy levers to increase the supply of rental homes, outside of providing more social housing. But we included renters within the scope of our qualitative research and choice modelling as they are a significant part of the overall housing market, and a source of future demand for homes.

The critical issue of social housing for low and very low income households was out of scope for this work. The Victorian Government released its *10-year strategy for social and affordable housing* in 2022.[64] In *Victoria's infrastructure strategy 2021–2051* we recommended that the Victorian Government set statewide targets to grow social housing, to reach at least the national average of 4.5 social housing dwellings for every 100 households by 2031.[65]

Our approach combined different methods to uncover new evidence

We took a robust, mixed methods approach to study greenfield housing preferences. We conducted new quantitative and qualitative research, stakeholder consultation, and policy research and analysis.

During our research we spoke to over 100 Victorians about their home choices and surveyed over 6,000 households living in greenfield and established areas of Melbourne, Geelong and Ballarat. They told us about the homes they live in, the homes they would choose and the factors that influence their decision.

This chapter summarises the different research components and the following chapters outline core research findings. We published technical reports containing full details of the research, including methodologies and findings, on our website.

Research into home and location choices

We commissioned Wallis Social Research to talk to 122 Victorians about their home choices and the trade-offs they made.[66] Wallis led 22 focus groups during June and July 2022, and captured perspectives from owner-occupiers and renters in greenfield suburbs in Melbourne, Ballarat, Geelong and Bacchus Marsh. We

contrasted these perspectives by talking to other groups, such as medium density home owner-occupiers in established suburbs, and residents in established suburbs who had decided not to live in greenfield areas.

We focused on young couples and households with young children in our focus groups, because this is the main household type buying in greenfield areas. But we also included some households with older children and people living in other types of households. We talked with them about their experience of making home and location decisions, and of accessing jobs, services, amenities, social and cultural connections, and infrastructure from their location.

Modelling relative prices for different homes

We built a hedonic price model to investigate how home features, location and access to infrastructure affect property prices in Melbourne.[67] We developed 3 different versions of the model for houses, townhouses and apartments, and used them to examine how people valued different home features (such as parking spaces and extra bedrooms) based on the prices of different homes.

Our analysis was based on real-world price data on homes sold in Melbourne. The model included more than 340,000 home sales over a 5-year period (January 2017 to June 2022). We combined this with data on transport, services and infrastructure, and with population and census data. We divided Melbourne into 13 geographic areas, which were broadly consistent with the areas used in our choice modelling, excluding regional Victoria (see Figure 4 for details).

This method allowed us to find how much people actually valued different types of homes by showing us how much they were willing to pay for them. We included infrastructure variables in the model to explore how much people would pay for homes located near different types of infrastructure, after controlling for other variables. We used the model to analyse housing affordability for moderate income households and find out the home types that might substitute for growth area homes at similar prices. We considered homes to be affordable if mortgage repayments were less than 30% of the household income (before tax). Repayments were estimated using an interest rate of 4.53%, offered in June 2022.

Choice survey and modelling to understand housing trade-offs

We commissioned the Centre for International Economics to develop a model of housing preferences in Melbourne, Geelong and Ballarat.[68] We used an approach called choice modelling. The choice model lets us predict people's home choices, and how they respond to housing market changes.

We surveyed over 6,000 households in Melbourne, Geelong and Ballarat to get data to build the model. We asked people to imagine they had to leave their current home and choose another one to live in, whether by buying or renting. The survey asked them to choose between different homes based on dwelling features (including type of home, number of bedrooms and car parking), location, and the home price or weekly rent. We also collected data about their current home, family, living conditions and attitudes to housing.

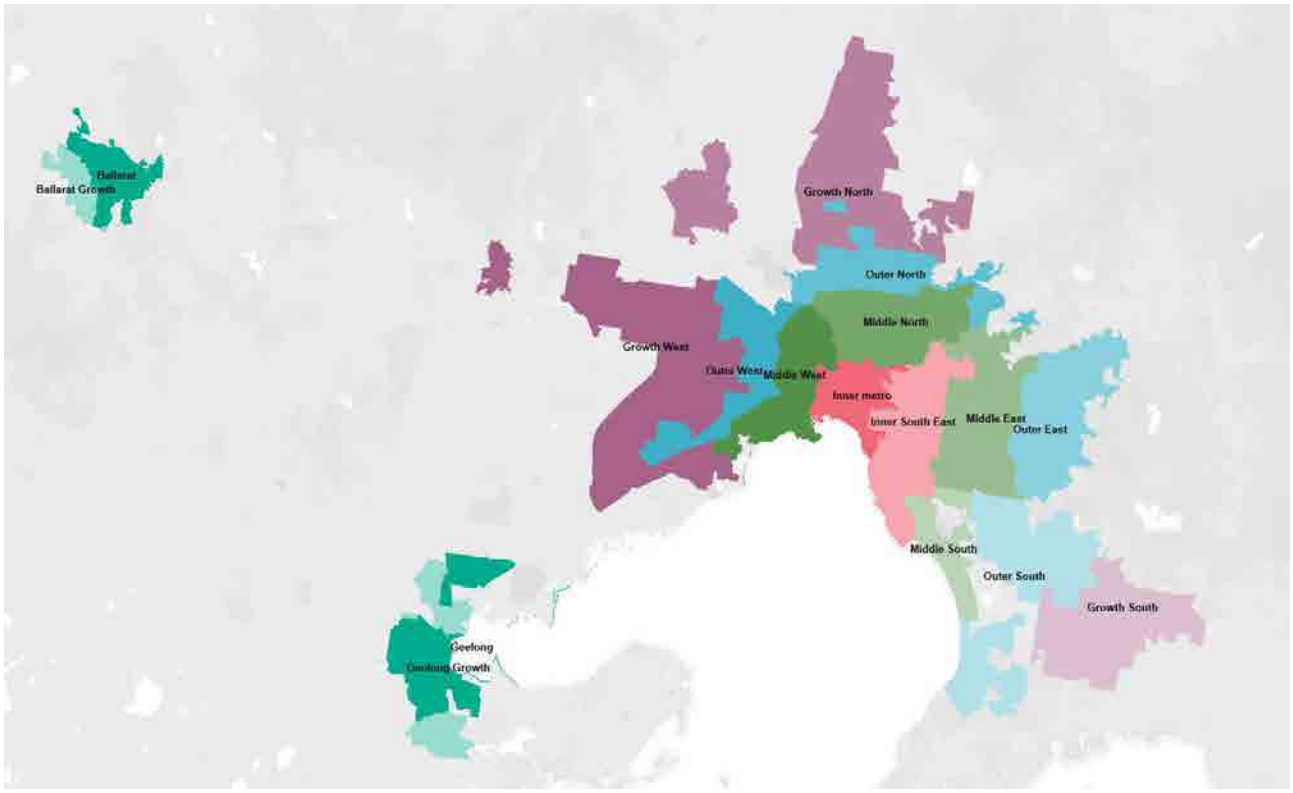
We used our choice model to:

- identify which housing features are most important in household decision-making
- determine under what circumstances households living in (or likely to live in) growth areas would choose to live in a different area
- identify the characteristics of households who are more likely to shift their home choice from growth to established areas.

We used 17 geographic areas in the choice model, focusing on inner, middle, outer and growth areas in Melbourne (including Bacchus Marsh), and established and growth areas in Ballarat and Geelong (see Figure 4). We did not include areas of environmental significance, such as the Mornington Peninsula or Yarra Ranges, as new residential developments are restricted.

Our survey sample was close to being representative, and we applied sampling weights to the data so our analysis can be generalised to the wider population in the cities we surveyed.

Figure 4: Geographic areas used in choice modelling



The Centre for International Economics, *Demand for housing in Victoria: stated preference research*, 2022

Analysing policy options that can influence home choices

Building on our findings from the focus groups and modelling, we reviewed reports and articles from academia, governments, industry and think tanks that explored ideas and barriers to delivering affordable, medium density homes in established suburbs. We also analysed Victorian housing and planning policies. This helped us identify potential policy options that can encourage more homes to be built in established suburbs, instead of building so many new homes in greenfield areas.[69]

We researched national and international case studies that encouraged more medium density homes in established suburbs. We also explored whether alternative housing models can offer more affordable larger-sized homes as part of a more diverse housing mix.

We evaluated possible policy options using a qualitative assessment framework. We used this to consider their effectiveness, ease of delivery, stakeholder acceptance and whether they can be scaled up to increase the supply of new homes over time. We used this to select the 10 options presented in this report from among the many potential policy levers available.

Stakeholder views informed our findings

We consulted many stakeholders during our research. They represented a diversity of views from organisations and individuals working in the housing and infrastructure sectors, including developers, industry organisations and government. We also spoke to academics, researchers and other industry experts.

We talked to stakeholders to identify relevant research about the trade-off decisions that greenfield residents made when they made their home choices, to seek feedback and advice about our proposed research methodologies and to find high quality sources of data. We also asked for feedback and advice on how the Victorian Government can help develop alternatives to greenfield homes in established suburbs, as well as

any supporting evidence. This helped us to focus the scope of our policy research on the areas included in this report, which are necessarily selective.

We shared our preliminary research findings and asked for feedback on the potential policy options for government. These were used to further develop and test the options presented in this report.

The feedback we received from stakeholders during this project gave us valuable insights on their priority issues and concerns. Their input helped shape our research questions, build our evidence base, test our findings, and determine potential options for the Victorian Government to consider. We would like to thank everyone who contributed to this work.

Factors affecting the choice of a greenfield home

The places in which new homes are built affects the amount and location of infrastructure that Victoria needs. Current trends suggest greenfield housing development rates will stay high in Melbourne, regional cities and peri-urban areas. If some of these homes can be built in established suburbs instead, it would create a different pattern of urban development and change the need and demand for infrastructure.

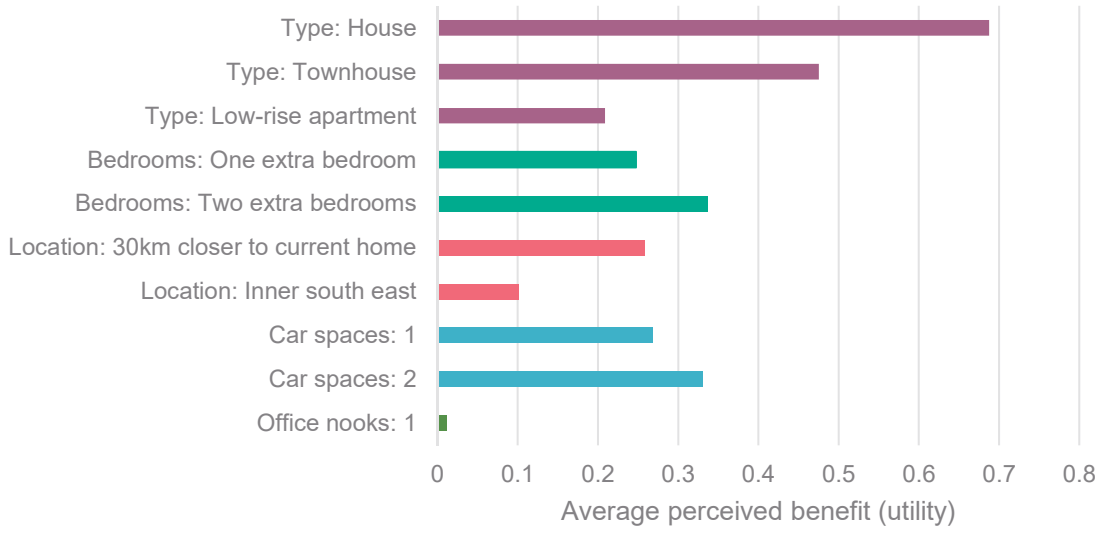
We explored the factors that influence households when choosing where to live, and the trade-off decisions they make. Victorians are giving us clear messages about what they want compared with what is available to them, given the prevailing home prices and their household budgets.

Victorians prefer large, detached homes close to family and friends

We identified a 'notional ideal home' shared by many households in our qualitative research. This was a large (3 or 4 bedroom) detached house with secure parking, in an established suburb close to family and friends. This is consistent with previous studies.[70] This ideal home vision is shared by residents in greenfield and established suburbs, and by renters as well as owner-occupiers.[71]

Our choice modelling confirmed this finding of a notional ideal home. Dwelling type has the biggest influence on home choice, on average. Most households strongly prefer detached houses over apartments (see Figure 5), particularly those who are looking to buy a home. Location, the number of bedrooms, and the number of car spaces also factor into housing decisions, but tend to be less important than the type of home.

Figure 5: Relative strength with which households value different housing features



Note: Relative to a hypothetical high-rise apartment in growth west, minimum number of bedrooms respondents would consider, zero car spaces, zero office nooks.
The Centre for International Economics, *Demand for housing in Victoria: stated preference research*, 2022

Sales data shows that since 2017, a typical home purchased in Melbourne's growth areas is a detached house with 4 bedrooms, 2 bathrooms, 2 car spaces and about 600 square metres land size. This is larger

than the average size of a new greenfield block, as it includes re-sold properties in older estates. Its average price in growth areas was $780,000 in June 2022.[72]

Faced with prevailing prices and budget constraints, over two-thirds of households (68%) would choose to live in a detached house if they had to move, compared with 14% for townhouses and 18% for apartments.[73] Over one-third of households (36%) would choose the notional ideal of a large, detached home (with parking) in an established suburb.

Mindset and value for money drive housing decisions

Unsurprisingly, our focus groups showed that affordability and perceived value for money are the constant around which all housing decisions are made. Owner-occupiers and renters consistently seek homes that they believe offer them the best value for money, and this underpins their housing and location choices.[74]

But mindset also affects people's home choice, and this can be very different between households. Factors include the household's:

- needs and preferences, including those associated with their age and family size
- aspirations, such as home ownership
- values, for example, the strength of family ties
- preconceptions and open-mindedness, such as an openness to greenfield areas, or to new versus old homes.

This mindset helps us understand that, for a given budget, one household can prefer to buy in an established suburb, while another with similar demographic characteristics will choose a home in a new suburb. We found that some people felt a strong pull to either location or home features. We surveyed people in June 2022, noting that Melbourne was still recovering from the effects of the COVID-19 pandemic. We found that most households looking to buy favoured the type of home and would compromise on location (a total of 61%). Households looking to rent were more evenly split. About half of households looking to rent would choose location over home type.[75]

Greenfield areas attracted households that prioritised home features, especially for a large, detached house with a garage. Those prioritising location traded home features for a more modest home in an established suburb, close to family and friends and with access to existing infrastructure.[76]

> 'I've got friends that sold up their massive … Cranbourne East house, they lived behind us actually, and moved to Patterson Lakes into a tiny house. And they are so much happier. Yep, they've got 2 young kids as well. And she's just said that the lifestyle is – you just can't compare it. I mean, I'm very happy where we are. But I completely understand what she means when she says the lifestyle is very different.'
>
> - Greenfield owner-occupier, living with husband and 2 children in Clyde North[77]

Some greenfield homebuyers might have preferred an established suburb if their housing preferences had been met, but home prices and perceptions of value for money were strong factors in their decisions. Many people perceived greenfield homes as better value for money than homes in established suburbs.

Most greenfield residents told us that living in these new suburbs is their preferred choice. To choose a home in an established suburb, their preconditions (in many cases, a detached house, minimum of 3 bedrooms and a lock-up garage) would need to be met for a similar budget, close to family and friends.[78] Our research demonstrates just how challenging this is to achieve.

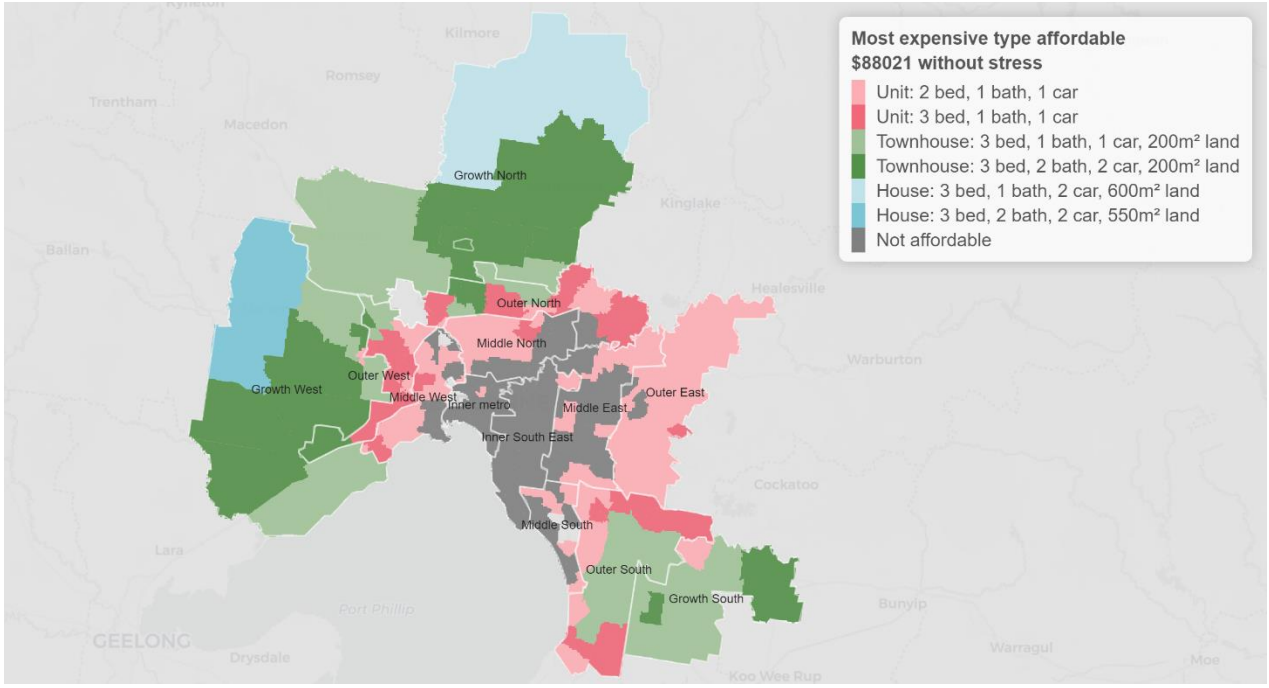
Moderate income households have few home choices

We modelled housing affordability for moderate income households to buy homes in Melbourne, using mortgage repayments as a proportion of household income to measure affordability.[79] We looked at affordability for moderate income households, spanning from the lower ($88,021 a year) to the upper end ($132,030 a year) of their income range, as of June 2022.

We found that moderate income households in Melbourne had few affordable home options. Households earning $88,021 a year and keeping their mortgage repayments to less than 30% of their income could afford to buy a detached house in certain new growth suburbs, a townhouse in growth areas or selected established outer suburbs, or an apartment in the outer suburbs or selected middle suburbs (see Figure 6).

These households could not afford to buy an average-priced home with 2 or more bedrooms almost anywhere in Melbourne's inner suburbs. Affordable options for a detached 3-bedroom house, the preferred type of home for many, are restricted to parts of Melbourne's north and west growth areas.[80] The notional ideal of a large, detached home in established suburbs is entirely out of reach.

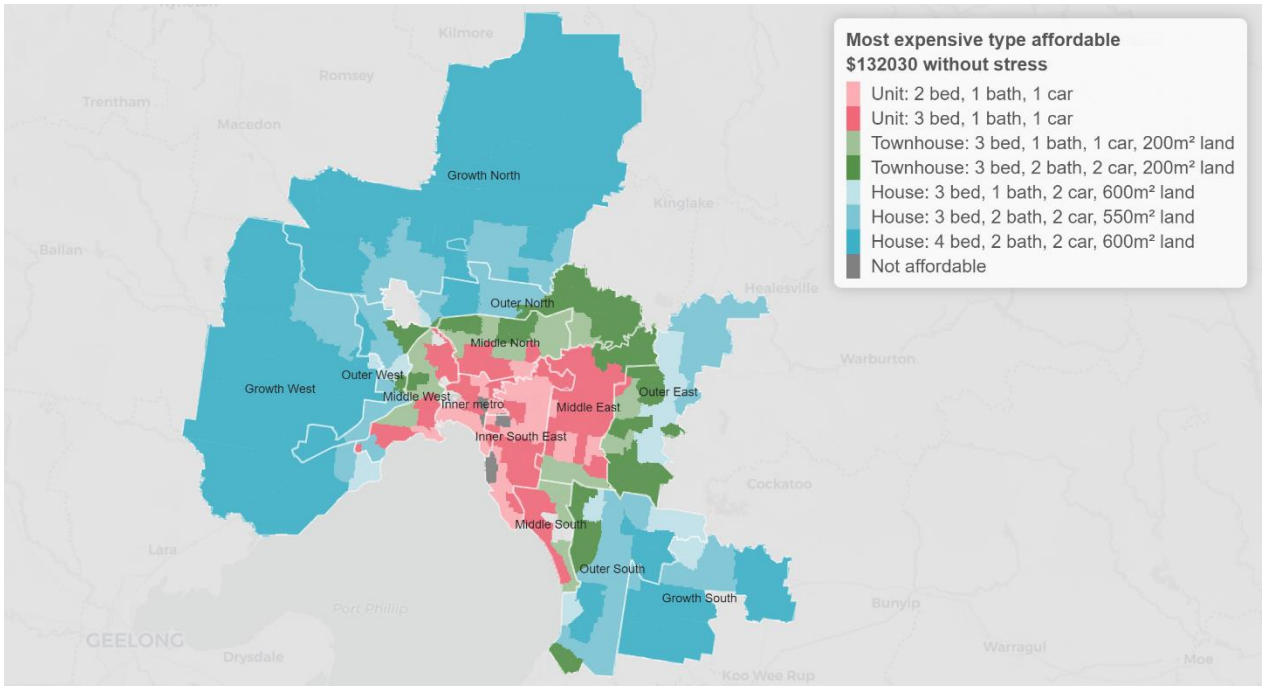
Figure 6: Housing affordability for households earning $88,021, June 2022 (spending less than 30% of income on mortgage repayments)



Infrastructure Victoria, *Measuring home price differences: how features, location and infrastructure affect Melbourne's home prices*, 2023

Moderate income households at the upper income end have a few more affordable options. Households earning $132,020 and keeping their mortgage repayments to less than 30% of their income could afford a larger detached house in most outer or growth suburbs, a townhouse in most middle suburbs, or an apartment in many of Melbourne's inner suburbs (see Figure 7).[81] The notional ideal home is affordable for households within this income group, but only in selected established outer suburbs.

Figure 7: Housing affordability for households earning $132,020, June 2022 (spending less than 30% of income on mortgage repayments)



Infrastructure Victoria, *Measuring home price differences: how features, location and infrastructure affect Melbourne's home prices*, 2023

Households at both ends of the moderate income range have few affordable options outside of growth areas if they want to buy a detached 3-bedroom house. Households willing to consider 3-bedroom townhouses or apartments as an alternative have more options. The notional ideal home in an established suburb is almost entirely unaffordable to moderate income households, but townhouses and apartments can substitute for growth area houses for some, provided supply is available.

Access to infrastructure influences where people live

People told us that the presence or promise of infrastructure played an important part in their decision making. Some greenfield residents accepted that they might need to wait for infrastructure to be delivered, and this was a part of their investment strategy. Some households chose places where available infrastructure, such as schools, matched their family's needs. Others were caught out, with facilities such as childcare lagging their immediate requirements.[82]

> 'I was more interested in the size of the land, the block and price for the block, that's all I was concerned about… I had to give up my job when we moved for childcare.'
>
> - Point Cook, lives with husband and 2 primary school aged children[83]

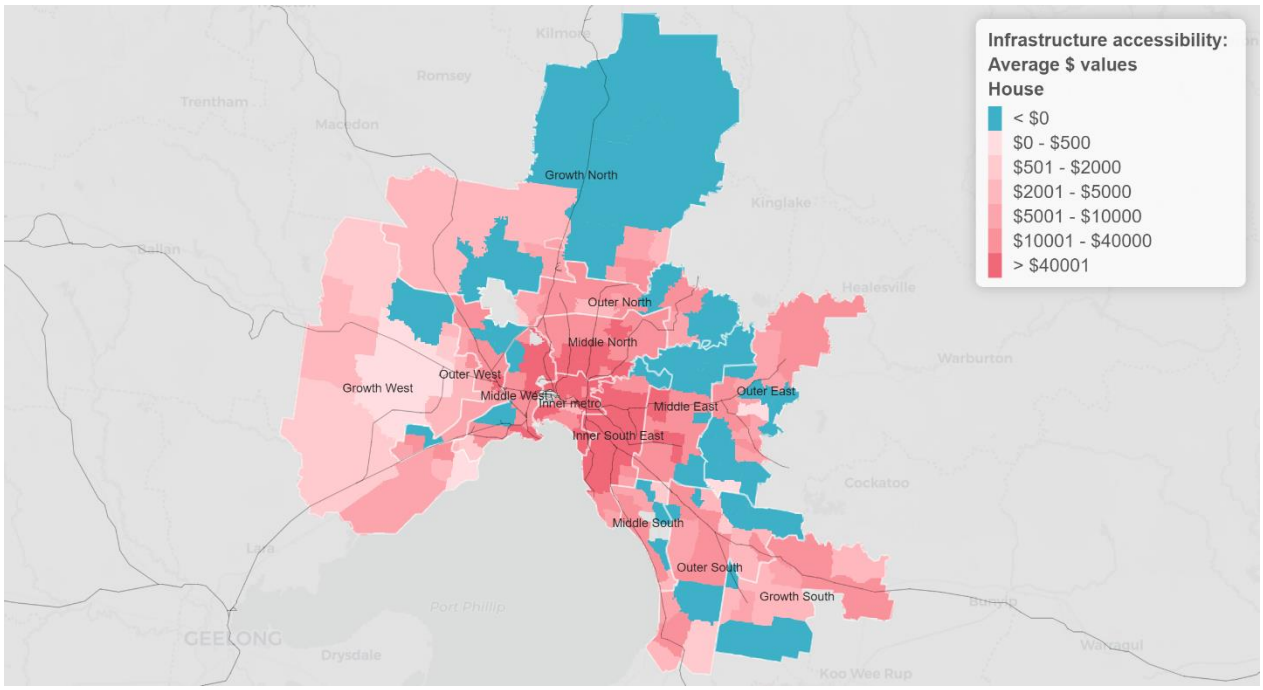
We investigated the influence that access to different types of infrastructure has on prices for homes in Melbourne. We looked at 10 different types of infrastructure, and assessed its relationship with prices for homes located near metro train stations, tram stops, arterial roads, major activity centres (suburban centres for jobs, services, homes and transport), metropolitan activity centres (larger hubs for public transport that offer access to jobs and activities for the surrounding suburbs), hospitals, secondary schools, police stations, cemeteries and landfill sites.[84]

Proximity to some types of infrastructure, such as train stations and activity centres, has a positive association with home sale prices while others, such as landfill, have a negative association. We used this analysis to estimate the combined economic value from all 10 infrastructure types for each property. We then

averaged this value over all houses in each area. We found much variation in the price effects for houses near to infrastructure in Melbourne (see Figure 8).

Most of Melbourne's inner suburbs have large price premiums associated with being close to infrastructure. Middle areas, including middle south, north and west also benefit to some degree from higher house prices due to infrastructure access, although price increases are lower than the inner suburbs. However, most established outer suburbs and new growth areas do not have access to some infrastructure, particularly public transport, and have low or negative infrastructure price premiums.

Figure 8 Combined average house price effects from access to infrastructure, Melbourne



Note: Data excludes townhouses and apartments.
Infrastructure Victoria, *Measuring home price differences: how features, location and infrastructure affect Melbourne's home prices*, 2023

Limited access to infrastructure is one reason established outer suburbs and new growth areas are more affordable than Melbourne's inner and middle suburbs, and greenfield households factor this into their decisions about where to live. Moderate income households looking for a more affordable home must trade off infrastructure access by choosing to live in outer suburbs or growth areas.

Greenfield developments need timely planning and delivery of essential infrastructure for residents to access the services they need. However, infrastructure is expensive to deliver, particularly in new suburbs when compared with established suburbs that have the capacity to support growth.[85] Early provision of infrastructure to new suburbs is more likely to meet the needs of residents but may also lead to increases in prices that can undermine housing affordability in these areas and further restrict the home choices available to moderate income households.

Growth area houses have strong demand

Many households want to combine the best of home and location features to get their notional ideal home, but find their choices are restricted by their available budget. Most households need to compromise to find an affordable home.

We asked people which home they would choose to live in, if they had to move now and select from homes in Melbourne, Geelong and Ballarat at prevailing prices.[86] Households' willingness to trade off location in

favour of the type of home contributes to a strong preference for homes in Melbourne's established outer suburbs and new growth areas.

Nearly 1 in 3 people would choose a home in Melbourne's established outer suburbs if they had to move, factoring in prevailing house prices and the amount they are prepared to spend. A similar number would opt for Melbourne's growth areas. Preferred combinations of home type and location, summarised in Table 1, are large, detached houses in new growth and established outer areas (24% and 20% of total choices respectively), and in Ballarat or Geelong (12% of total choices).

Table 1: The homes people would choose if they had to move in Melbourne, Geelong or Ballarat at prevailing prices, % total

	Inner	Middle	Outer	Growth	Regional	TOTAL
House (1-2 bed)	0.1%	1.0%	2.1%	1.2%	1.4%	**5.8%**
House (3+ bed)	0.9%	5.1%	20.1%	24.2%	11.8%	**62.2%**
Townhouse (1-2 bed)	0.3%	2.0%	3.2%	1.1%	1.2%	**7.7%**
Townhouse (3+ bed)	0.5%	2.0%	1.9%	1.9%	0.5%	**6.7%**
Apartment (1-2 bed)	8.5%	5.6%	1.6%	0.3%	0.2%	**16.2%**
Apartment (3+ bed)	0.5%	0.4%	0.3%	0.1%	0.0%	**1.3%**
TOTAL	**10.8%**	**16.1%**	**29.3%**	**28.7%**	**15.1%**	**100.0%**

The Centre for International Economics, *Demand for housing in Victoria: stated preference research*, 2022

People's life stage and background partly drive their choice for growth areas

We analysed characteristics and attitudes of people living in Melbourne's growth areas and those who would choose to live there if they had to move. People living in growth areas have diverse attitudes, preferences and behaviours,[87] but on average, they display some similar characteristics when contrasted with people who live in established suburbs.[88]

We found that the households most likely to choose a home in growth areas already live there.[89] These households already considered new versus established suburb options and are generally pleased with their choice of location and home.[90]

Greenfield homes attract first home buyers and households with children

Greenfield suburbs, on average, attract higher numbers of first home buyers,[91] households with young children and those intending to have children in future.[92] This means new suburbs have large and growing numbers of young children living there. Households with children make up almost 60% of Melbourne's growth area households, compared with 40% in established suburbs.[93] Melbourne's 7 growth area councils are home to 38% of metropolitan Melbourne's 0 to 4 year olds, and this is projected to increase.[94]

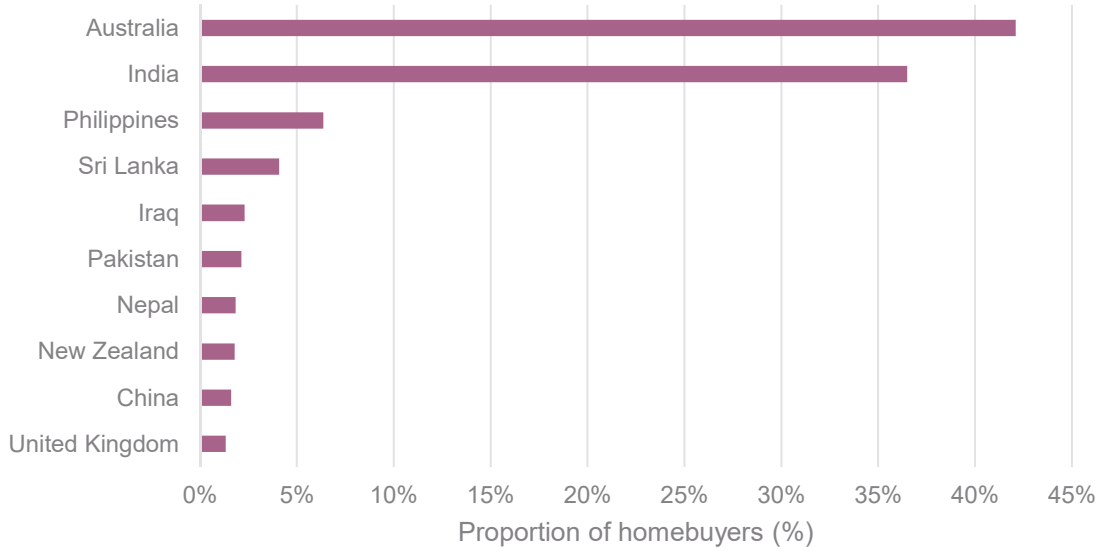
Greenfield developments in peri-urban and regional Victoria have a similar profile. Around two-thirds of households in Geelong and Ballarat's growth areas have children, for example, and young children make up a relatively high share of the population.[95]

This contributes to larger household size in greenfield suburbs relative to established suburbs.[96] It also influences the type of home greenfield households will choose. More than half of Melbourne's growth area homes have at least 4 bedrooms, compared with just one-fifth in established suburbs. Some growth area residents are prepared to consider a smaller house in an established suburb close to jobs, services and transport, and trade a bedroom to achieve this. But smaller homes in established suburbs will need to meet the needs of households with children to be a genuine alternative for many greenfield residents.

Cultural connection is an important driver of greenfield choice

Melbourne's greenfield suburbs are very culturally diverse. More than half of the population in suburbs such as Clyde North, Point Cook and Wollert were born outside of Australia, and this share is growing.[97] Buyer survey data indicates that people born in India are the largest cultural group buying in Melbourne's greenfield suburbs, after those born in Australia (see Figure 9).

Figure 9: Melbourne's greenfield homebuyers, top 10 countries of birth, %



RPM Group, *Buyer survey* data 2016–2021

Greenfield suburbs in regional Victoria are less culturally diverse than those in Melbourne on average, but this might be starting to change. Around one-quarter of Lucas (Ballarat West) residents were born outside Australia at the time of the 2021 census, for example, compared with one-fifth 5 years previously.[98]

We found that community and cultural connections are a big influence on the choice for greenfield homes, particularly for households coming from culturally diverse backgrounds.[99]

> 'We wanted to live in [the] west because of one main reason… friends mostly live in the area, and plus our community centre is in the west.'
>
> - Greenfield renter, living with partner and young children[100]

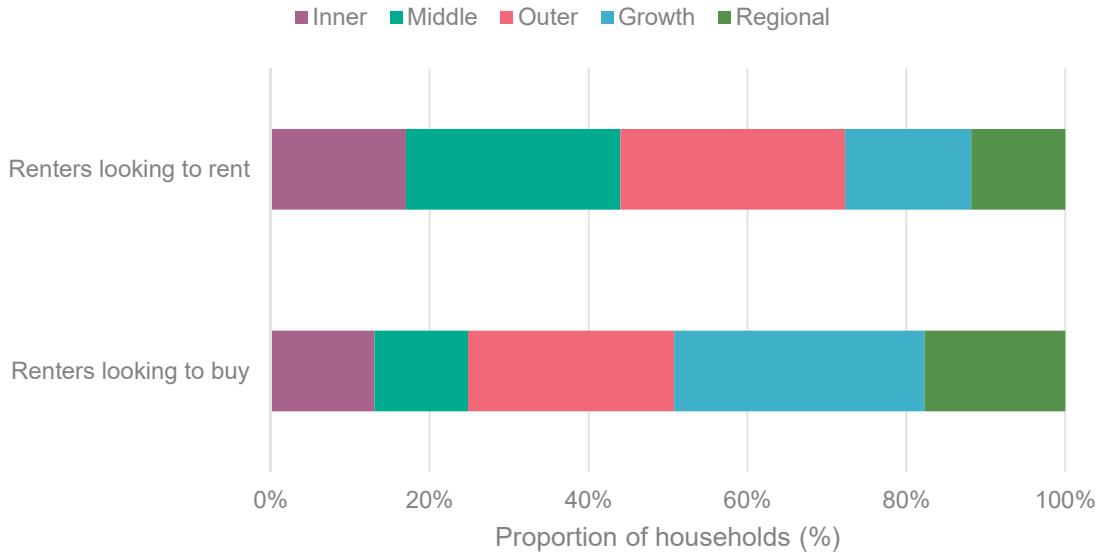
This sense of community was important for many greenfield residents to feel welcome and included. It meant their community shared their children's cultural background, and they could find culturally appropriate shops and restaurants. These factors are likely to keep influencing choices for greenfield homes. We included a representative sample of people born overseas in our focus groups and choice survey to help us understand how culture and cultural connection influence home choices.

Renters are a source of future greenfield demand

Renters make up a relatively small proportion of current greenfield residents (around one-quarter, compared with one-third of households in established suburbs),[101] but they are an important source of future demand for greenfield homes.

Around half of renters in our survey would consider buying a home if they needed to move, if they could find a home they liked that was affordable. These households are much more likely to choose growth area homes than those who intend to keep renting (see Figure 10). Budget constraints and a strong preference for detached houses mean around half of renters looking to buy would select homes in growth and regional areas.

Figure 10: Choice of home location by households currently renting, %



The Centre for International Economics, *Demand for housing in Victoria: stated preference research*, 2022

The number of renters is growing faster than owner-occupiers, particularly in Melbourne's growth areas.[102] Home ownership rates are projected to keep falling.[103] The number of households renting in growth areas increased by 42% between 2016 and 2021, compared with 12% in established suburbs.[104] Renters will likely be a growing source of demand in greenfield suburbs, regardless of whether they plan to buy or keep renting.

Policy options for the Victorian Government to consider

Our research highlights that Victorians value the size and features of their home highly, and that these factors can be more important than location for some households. But affordability has a large effect on people's housing choices, even when they are prepared to make trade-offs to get the home they want. Most 3-bedroom homes in Melbourne are unaffordable for moderate income households, outside of outer established suburbs and new growth areas.

If the Victorian Government wants to increase the proportion of new homes built in established suburbs, it will need make these homes affordable and appealing for the households who currently buy greenfield homes. This means generating more affordable options suitable for households with children.

We used our research findings as a starting point to explore policy options that can help increase housing supply and diversity in established suburbs, as a substitute for greenfield homes. We also considered ways to better use infrastructure, by making the most of what is already in place.

The scope of our research, on greenfield homes and households, and potential alternatives in established suburbs, means we considered affordability for moderate income households. This report does not seek to solve the issue of housing and rental affordability more broadly.

Our policy options explore ways the Victorian Government can influence the price, location and type of homes being built, to give more choice to moderate income households who might prefer to live in established suburbs. We identified 10 options for the government to consider which respond to one or more of these outcomes:

- Reduce price disincentives to buying in established suburbs.
- Build more homes in established suburbs near transport and services.
- Increase the diversity and choice of homes in established suburbs.

Increasing the supply of homes in established suburbs to meet Victoria's future population growth is a very large and complex challenge that will require several different policy solutions. Some of the reforms we propose are more straightforward to deliver than others. We are presenting these as options rather than recommendations, to offer government flexibility in its approach. In our view, all available tools will be needed.

We propose a combination of options, both to start now and to keep pursuing over the medium term as the impacts of any changes begin to be seen. We also suggest ways in which policy options can be packaged together for better results. We present these options alongside more findings from our housing research, to indicate how they can help deliver the type of homes Victorians told us they would choose.

In selecting our policy options we balance the need to achieve significant change against consideration of potential disruption to the housing market. We are suggesting policy options that are practical and proportionate to the challenge of increasing the supply of homes in established suburbs. There are a range of more drastic policies that can be delivered with more dramatic effect, such as the sweeping planning changes currently being considered in Auckland.[105] In our view, these 10 options present a good foundation for ongoing reforms to deliver the homes needed to support Victoria's future growth. However, government should closely monitor the success of any reforms implemented, and consider whether more significant reforms are needed in the future.

Combine options for more impact

This report lays out different policy options for the Victorian Government to consider that help build more homes offering an affordable greenfield substitute in established suburbs. The Victorian Government ultimately decides its policy positions, but this report demonstrates the scale of the challenges and opportunities available.

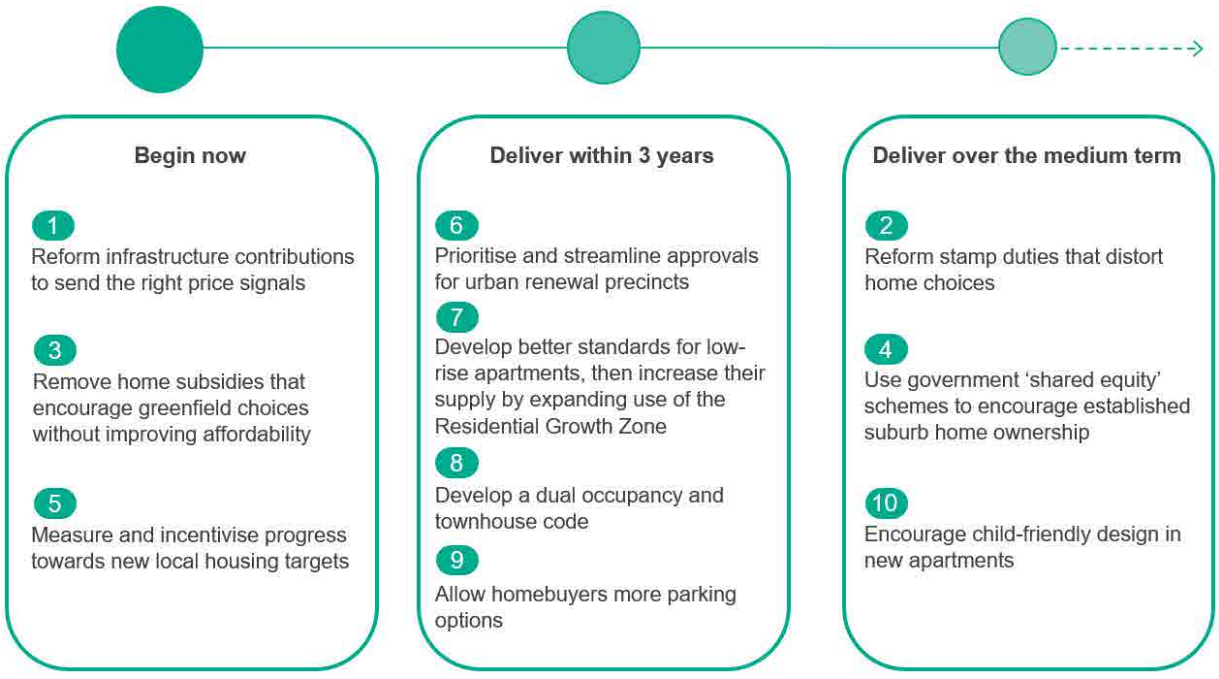
Our options outline interventions the Victorian Government can begin to deliver now, to prepare for further reforms in the decades ahead. We propose 3 combinations of reforms (see Figure 11), with policy options that will work together for larger effect.

Work on the first package of reforms (**Options 1**, **3** and **5**) can begin immediately. These options are complementary and will lay the foundation for subsequent reforms. A consistent approach to infrastructure contributions (**Option 1**) can give funding certainty for any upgrades needed to support new homes. Timely provision of infrastructure can reduce community concerns about development and growth.[106] The Victorian Government can prioritise measuring local infrastructure capacity to inform the size and location of housing targets (**Option 5**) and the contributions needed to achieve them. Reforms to home subsidies (**Option 3**) will work with infrastructure contributions to send a price signal to the housing market.

The second package of policy options (**Options 6**, **7**, **8** and **9**) is likely to require some lead time to prepare, but we estimate they can be delivered within 3 years. These are opportunities to increase the supply of greenfield substitute homes and together they would create a variety of new planning pathways for these homes to be delivered. Planning for priority precincts (**Option 6**) can nominate residential zones suitable for new low-rise apartments (**Option 7**), for example, and recommend the dual occupancy and townhouse code to increase supply of greenfield substitute homes (**Option 8**). Plans can also identify areas suited to lower minimum parking requirements (**Option 9**).

Our third package of policy options (**Options 2**, **4** and **10**) is important in the medium term once priority reforms are delivered. Changes to stamp duty (**Option 2**) will require a longer timeframe to plan and deliver. Work can begin in parallel with the second package of options, but delivery can be carefully phased to allow government to monitor any effects on the housing market and adjust the pace of reform as needed. The Victorian Government's shared equity scheme (**Option 4**) needs time to become established before changes are made to eligibility. More child-friendly apartment design (**Option 10**) will improve viability of apartments as greenfield substitute homes, but benefits are likely to be realised once other priority planning options are delivered due to current preferences of households with children to live in homes other than apartments.

Figure 11 Timelines for delivery



Reduce price disincentives to buying in established suburbs

Home choices respond to changes in price

We found that demand for new homes in greenfield areas is strong. One in 4 people we surveyed would choose a detached house in Melbourne's growth suburbs if they had to move, factoring in prevailing home prices and their household budget.[107]

Affordability is a major factor in people's home choices.[108] Our price modelling shows that few places in Melbourne are affordable for moderate income households looking for a detached house, outside the growth areas. We also found that homes located close to existing infrastructure are more expensive.[109] Faced with these trade-offs, more households are prioritising home features over location.

We modelled how price changes affected choices for different types of housing in different places, to test how this can change demand for greenfield homes. We looked at relative price drops for apartments and townhouses in established suburbs, and price rises for growth area homes.

Modelling changes to prices using the choice model we developed acts as a proxy to help us understand how peoples' decisions would change with different available options. We are not recommending that sales prices be increased or decreased directly for homes in either new growth or established areas.

Fewer people choose growth areas when prices in other areas are more competitive

We found that demand for homes in growth areas is sensitive to price. A modelled price increase of 10% reduced the number of households choosing growth area homes by 11% (see Figure 12). Most of these households shifted their choice to Melbourne's established suburbs, where demand grew by 5%. The number of households choosing regional homes increased by 3%. A 20% price increase shifted demand away from Melbourne's growth areas by 33%.

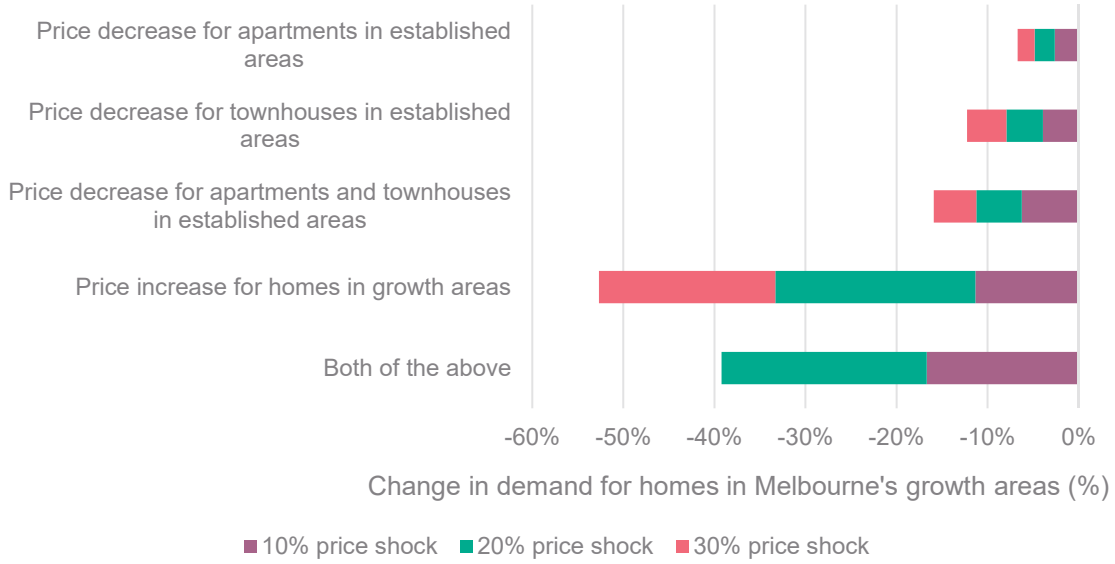
A 10% price drop for townhouses and apartments in established suburbs would lead to 6% fewer people choosing growth area homes, while increasing demand for established suburbs by 4%. If prices dropped 20%, 11% fewer would choose growth area homes.

> A combination of established area price drop and growth area price rise would affect demand for growth area homes the most. A 10% price drop for established area apartments and townhouses, combined with a 10% price rise for homes in growth areas would shift demand by around 17%.[110]

Many households will keep choosing growth area homes even when prices change. These households value larger homes which are more affordable in new suburbs and will still favour home features over location when deciding where to live. Greenfield suburbs will continue to play an important role in Victoria's future to accommodate households with these preferences.

The households who are most likely to change their housing choices from new growth areas in response to changes in price tend to be younger, have lower incomes, or be recent migrants to Australia. They are more likely to say they prefer being able to walk easily to most destinations and they believe in making the most of savings from government grants and tax incentives.[111] Policy options that aim to encourage demand for homes in established suburbs should focus on the households most likely to shift preference. These households are more flexible and place a higher value on living in areas with good access to services and amenities.

Figure 12: Effect of price shocks on home choices, % change



Note: 30% price shock for 'Both of the above' was not modelled, as it would be outside the range of levels used in the survey.
The Centre for International Economics, *Demand for housing in Victoria: stated preference research*, 2022

House prices respond to government policy settings

The Victorian and Australian governments have introduced housing policies to promote home ownership and tackle issues of housing affordability and supply over several decades.[112] These include Victorian Government schemes targeting home ownership among first home buyers and the Australian Government's Housing Accord to increase the supply of affordable homes.[113] We found that many people consider the availability of government grants, subsidies and tax incentives when buying a home.[114]

However, home ownership is becoming more difficult to achieve. Declining affordability is a contributing factor, as house prices have grown faster than wages.[115] Australia has a low rate of outright home ownership (without a mortgage) compared with other developed countries, 13% below the Organisation for Economic Co-operation and Development average and lower than comparable countries such as the United Kingdom.[116] With or without a mortgage, Victoria's home ownership rate was 68% in 2021, down from 70% in 2011,[117] and home ownership rates for younger Victorians fell further. A total of 51% of those aged 30–34 owned their home in 2021 compared with 56% in 2011.[118]

Our modelling shows that housing affordability and relative prices for different types of homes in different areas can influence demand for greenfield homes.[119] Government policies, including tax settings, influence the location and types of homes being built, what and where people want to buy, and how much it costs.[120] They inform the choices people make between home features and location. The right policy settings can influence the speed at which Victoria's cities keep expanding outwards.

Our previous analysis of *Infrastructure provision in different development settings* found that infrastructure, excluding transport, can be 2 to 4 times more expensive in greenfield areas than in existing areas with capacity for growth.[121] This cost difference is not reflected in relative house prices in new growth and established areas.[122] Delivery of expensive infrastructure struggles to keep pace with rapid population growth in greenfield suburbs.[123] Our price modelling suggests that cheaper greenfield home prices partially reflect this absence of infrastructure, attracting more people to the greenfields and adding to pressures on the infrastructure that is there.[124]

We explored policy options for the Victorian Government to consider that can reduce some of the price disincentives for people to buy homes in established suburbs, so that moderate income households looking for homes with 3 or more bedrooms have more choice in where to live.

Reform infrastructure contributions to send the right price signals

Option 1

Develop a clear, efficient and transparent infrastructure contribution system that better reflects the true cost of infrastructure in different development settings and supports better use of existing infrastructure.

Growing suburbs create more demands on infrastructure. Governments might need to upgrade existing infrastructure, or build new infrastructure, to support larger populations. Infrastructure contributions are one way to fund infrastructure for new and growing communities.

Victoria has several infrastructure contribution schemes. The Growth Areas Infrastructure Contribution is a one-off payment by developers towards essential state infrastructure in most of Melbourne's greenfield suburbs.[125] Other developer contribution schemes, such as Infrastructure Contributions Plans and Development Contributions Plans, are mainly used to fund local government infrastructure and can be complex to design and deliver.[126] Outside Melbourne's new growth areas, the Victorian Government has no consistent mechanism to collect development contributions for state infrastructure such as public transport or government-owned schools and hospitals.

Development contributions can encourage developers to account for the costs of building essential infrastructure when land is developed, helping to reflect infrastructure costs in the prices of new homes and promote more efficient use of infrastructure.[127] Victoria's various schemes operate in isolation rather than as an overall system, curbing their potential to influence where new homes are built.[128]

Small scale housing development in established suburbs can often use existing infrastructure, but large scale urban renewal might require considerable infrastructure investment. Urban renewal precincts offer opportunities for major increases in housing supply in established suburbs but the transformation can be expensive if infrastructure needs to be upgraded, or if contaminated soil needs to be removed. Inadequate infrastructure is often the reason why sites remain undeveloped.[129]

We analysed greenfield developments and confirmed that state and local infrastructure costs are higher than in established suburbs, where capacity exists to support more homes.[130] The Growth Areas Infrastructure Contribution is estimated to recover just 15% of these costs, meaning that most infrastructure will be funded by taxpayers.[131]

The Victorian Auditor-General and Better Regulation Victoria have also found that Victoria's infrastructure contribution schemes are not delivering the infrastructure growing communities need.[132] The Auditor-General called for a development contributions framework that sets a strategic direction, states its desired outcomes, and clarifies accountability and governance arrangements.

In *Victoria's infrastructure strategy 2021–2051*, we recommended that the Victorian Government create a consistent and efficient infrastructure contribution system for Victorian and local government infrastructure in established suburbs, growth areas, peri-urban areas and regional cities.[133] The government can start work to reform infrastructure contributions now, to send a price signal that influences the location of new development.[134] A broad-based infrastructure contribution system that better reflects true development costs in different settings can give more certainty to developers and distribute infrastructure costs more equitably, helping to stimulate new home building in established and urban renewal areas.

New South Wales recently committed to reforming its development contribution system. The proposed reforms introduce a broad-based system to fund regional infrastructure through a levy on development. Proposals include a structure-based charge which is higher for detached houses and a variable charge designed to contribute to the cost of major transport projects.[135] An evaluation of the proposed reforms found

that they would increase supply of homes, ensure timely delivery of essential infrastructure and build community support for development.[136] A Victorian infrastructure charge can be structure-based, similar to the New South Wales draft reforms, or area-based.

Infrastructure contribution reforms can complement work to develop housing targets (see **Option 5**). A consistent approach to infrastructure contributions can give more certainty to local governments about funding for infrastructure upgrades and improvements to support new homes.

Reform stamp duties that distort home choices

Option 2

Remove the distortions created by stamp duty concessions and ultimately abolish stamp duties altogether, potentially by replacing them with a broad-based land tax.

Our research shows that housing affordability and relative prices for different types of homes are a major factor in many people's decision to buy in a greenfield development. House prices are influenced by many factors, including government taxes and levies such as land transfer duty (commonly known as stamp duty) and negative gearing tax concessions.[137]

Stamp duty is a state government tax on the transfer of land ownership. It is calculated based on the value of the property, on a sliding scale that starts at 1.4% for properties valued at $25,000 and rises to a maximum of 6.5% for property values over $2 million.[138] Stamp duty is the major source of property tax revenue for the Victorian Government. It raised over $10 billion in the 2021-22 financial year, more than 10% of total state revenue.[139]

Stamp duty increases the cost of homes, particularly for households who buy multiple times. It can distort housing choices by incentivising households that plan to have children to buy a larger home earlier than they need, rather than upsizing gradually as their family grows.[140] This is likely to increase greenfield demand among moderate income households, as these suburbs offer more affordable 3-bedroom homes.[141] It can also discourage people from moving house, including those who might consider downsizing after children have left home.[142] Retirees can be further discouraged from downsizing by the Age Pension assets test, which excludes the family home from assessable assets.

The Victorian Government has introduced stamp duty concessions to reduce costs for some homebuyers. These include targeted measures for first home buyers, to remove stamp duty for homes that cost up to $600,000 and give a concession for properties valued up to $750,000.[143] These concessions favour greenfield areas, which are more likely to be below the price thresholds. Five of Melbourne's growth area councils recorded the highest number of waivers and concessions for first home buyers in the year to June 2020.[144] Our research shows that stamp duties and stamp duty concessions influence people's housing choices and decision-making.[145] People are more likely to choose a home that is eligible for a concession.

The Organisation for Economic Co-operation and Development and the Grattan Institute, among others, have advocated for a broad-based land tax to be used as an alternative to stamp duties.[146] Land tax is a yearly charge based on land value rather than a single upfront payment. It can offer a steadier income stream for governments, and does not discourage people from moving house.[147] Modelling suggests that replacing stamp duty with land tax can also increase home ownership rates, particularly among younger people.[148]

Land tax can influence growth patterns in different suburbs by incentivising higher density development.[149] Our research also suggests that a land tax can influence homebuyers' choices when it comes to deciding between a larger home in a growth area or a smaller home in an established suburb.[150] The Australian Capital Territory and New South Wales have already begun to switch from stamp duty to land tax systems.[151]

Sudden changes to property taxes risk causing instability in the housing market. Removing stamp duty can cause a significant increase in housing market activity and further reduce affordability if it is not replaced with an alternative.[152] The Organisation for Economic Co-operation and Development recommends a slow transition away from stamp duties towards land taxes to avoid making homes even less affordable.

The Victorian Government can phase out stamp duties and associated concessions over time to help encourage turnover and mobility in the housing market.[153] As a first step, the government can remove stamp duty concessions that encourage people to choose greenfield developments, while keeping those that encourage mobility in established suburbs such as the pensioner duty concession.[154]

The government can then consider an opt-in land tax model, similar to the approach adopted in New South Wales, to allow homebuyers to choose between upfront stamp duty or a yearly land tax. A phased approach over the long term will allow the government to monitor the effect on housing choices between new and established suburbs, and adjust the pace of reform as needed to avoid making housing affordability for moderate income households worse.

Full transition from stamp duty to a broad-based land tax would need careful phasing, and ongoing monitoring and adjustment to keep pace with property prices. Similar reforms in New South Wales and the Australian Capital Territory are expected to take several decades to fully deliver. This option can be packaged with other medium-term policy reforms, such as **Option 4: Use government 'shared equity' schemes to encourage established suburb home ownership**.

Experience in other jurisdictions indicates that replacing stamp duty with land tax can be revenue neutral, but that the transition can reduce government income in the short term.[155] The Australian Government could support the transition by making up some of the initial revenue shortfall, similar to payments made in exchange for economic reforms under the National Competition Policy.[156] The Victorian Parliament's 2023 inquiry into land transfer duties will consider the tax's impact on housing supply and development and government revenue predictability, as well as potential alternative mechanisms.[157]

Remove home subsidies that encourage greenfield choices without improving affordability

Option 3

Avoid subsidies that inflate house prices and remove the First Home Owner Grant.

People who attended our greenfield focus groups told us that government grants, including first home owner grants, can be a strong motivator in buying a home. For some, the availability of grants meant they could bring forward buying a home as it helped them qualify for a mortgage.[158] This was also reflected in the data we collected on attitudes to housing as part of our choice survey.[159]

The Victorian Government's First Home Owner Grant aims to tackle affordability for first home buyers. It grants $10,000 to people buying a first home for newly built dwellings valued up to $750,000.[160] Many people use the scheme. Around 17,000 Victorians benefited from the grant in 2021–22. The Victorian Government contributed over $213 million.[161]

While on face value this seems to be a good outcome, research suggests that first home owner schemes do not increase home ownership or improve housing affordability.[162] Home ownership rates have stagnated despite periodic government first home owner schemes, while rates among young Victorians are declining.[163]

Grants can drive up property prices in areas where first home buyers can afford to buy.[164] Sellers typically benefit from homebuyer schemes, by receiving higher sale prices that factor in the grant.[165] First home owner grants can make homes less affordable, particularly for those who are not eligible for assistance.[166]

Victoria's First Home Owner Grant is mainly used to buy homes in growth areas. The top 10 postcodes for grant applications in the year to 30 June 2021 were all located in growth areas in Melbourne or Geelong.[167] This is driven in part by the relative affordability of growth area homes, which are lower than the grant's $750,000 price cap.

Our modelling confirms that few Melbourne homes large enough for households with children are affordable for moderate income households outside of new growth areas.[168] However, high use of the First Home Owner Grant in growth suburbs is adding to demand for greenfield homes and can contribute to higher house prices in those areas.

The Victorian Government can end Victoria's First Home Owner Grant to remove any upward pressure on house prices in greenfield areas and more accurately reflect home preferences. The Productivity Commission agrees. It recommended that assistance to first home buyers should be removed, unless targeted towards people who are excluded from the housing market.[169]

Governments have previously moved to reduce or remove first home buyer grants quickly, to reduce speculation and disruption to the housing market.[170] Changes to the First Home Owner Grant can be announced with immediate effect. Victorian Government investment can instead be diverted to measures that encourage demand for homes in established suburbs (see **Option 4: Use government 'shared equity' schemes to encourage established suburb home ownership**). Australian Government initiatives such as the Home Guarantee Scheme, which supports eligible homebuyers to buy a home sooner, will keep supporting Victorians who are working towards a deposit for their first home.[171]

This option can be introduced alongside changes to infrastructure contributions (**Option 1**) and work to develop housing targets (see **Option 5**). A short lead time for delivery can help to reduce any sudden increase in homebuyer demand, if people try to buy homes before the grant is removed.

Use government 'shared equity' schemes to encourage established suburb home ownership

Option 4

Over time, change the locations eligible for the Victorian Homebuyer Fund, to encourage people to buy homes in established suburbs.

We explored how changes in house prices can shift home choices from greenfield towards established suburbs, and the attitudes of people who are more likely to shift. We found that people who change their choice from greenfield to established area homes are more likely to agree with the statement "My home choice must save on stamp duty and maximise government grants and other tax incentives".[172] These households are seeking value for money and are more responsive to financial incentives that aim to shift homebuyer preferences towards established suburbs.

Shared equity schemes can help improve access to home ownership for people who cannot afford it otherwise. The Victorian Homebuyer Fund helps people buy a home by contributing up to 25% of the buying price. It reduces the required deposit to 5% and removes the need for lender's mortgage insurance.[173] Participants in the scheme can buy back the government's share in the property over time. Applicants can earn up to $128,000 or $204,000 as a couple, while the maximum buying price is $950,000 in Melbourne and Geelong and $600,000 in other parts of regional Victoria.[174] More than 2,500 Victorians accessed the fund after it was launched in 2021, and there is capacity to support up to 10,000.[175]

Shared equity schemes can be an effective way of encouraging first home ownership.[176] They can help younger people get into the housing market, enable them to borrow less for their first home, or allow them to buy a larger home to accommodate children.[177] However, like the First Home Owner Grant, this program

likely stimulates demand for greenfield homes. Homebuyers who want to buy a larger home to accommodate children are most likely to find homes that meet their needs in greenfield developments under the current price cap of $950,000.[178] Four out of the top 5 postcodes in the scheme to date are in Melbourne's growth areas.[179]

The Victorian Homebuyer Fund currently has very few restrictions to its eligibility to encourage broad uptake. The scheme can be more tightly targeted. The Victorian Government can limit the locations eligible for the fund to established suburbs to encourage more people to buy in existing suburbs, while maintaining price caps to preserve equitable use of the fund. Shared equity schemes can incentivise more housing development in the places they apply.[180] A more targeted eligibility criteria can help stimulate the supply of homes in established suburbs and contribute to developing more compact cities.

The Victorian Homebuyer Fund is a relatively new initiative. Changes can be delivered over time, to allow the fund to first become established. This can also allow time for other policy options aimed at increasing supply to take effect, so that new homes will be available to meet higher demand. This option can be packaged alongside **Option 2: Reform stamp duties that distort home choices** and **Option 10: Encourage child-friendly design in new apartments**, as they have a medium-term timeframe for delivery and likely impact. The fund can in time help direct demand for better designed, child-friendly apartments in existing suburbs.

If the Victorian Government opts to remove the First Home Owner Grant (see **Option 3**), this policy option can become the primary mechanism to support home ownership in Victoria. Funding saved from phasing out the grant can be allocated instead to the Victorian Homebuyer Fund to increase capacity. The Victorian Government can recover its investment over time, as home owners buy back the government's share, meaning funding can be recycled to help many more people.

Build more homes in established suburbs near transport and services

Established suburbs can accommodate more new homes

Planning for new homes in the right places can offer more choice, improve affordability and ensure more efficient use of infrastructure. Plan Melbourne emphasises housing growth in established parts of the city, particularly in places with good access to jobs and services.[181]

Melbourne is a low density city by global standards. It has a bigger footprint than cities with much larger populations, such as London.[182] Average population density is less than half of Sydney's urban areas.[183] Melbourne's population is projected to grow by almost 3 million people by 2050 to reach more than 8 million people.[184] But even with this growth most Melburnians are likely to be living at densities lower than most Londoners today.[185] Melbourne can increase population densities while remaining a relatively low density city.

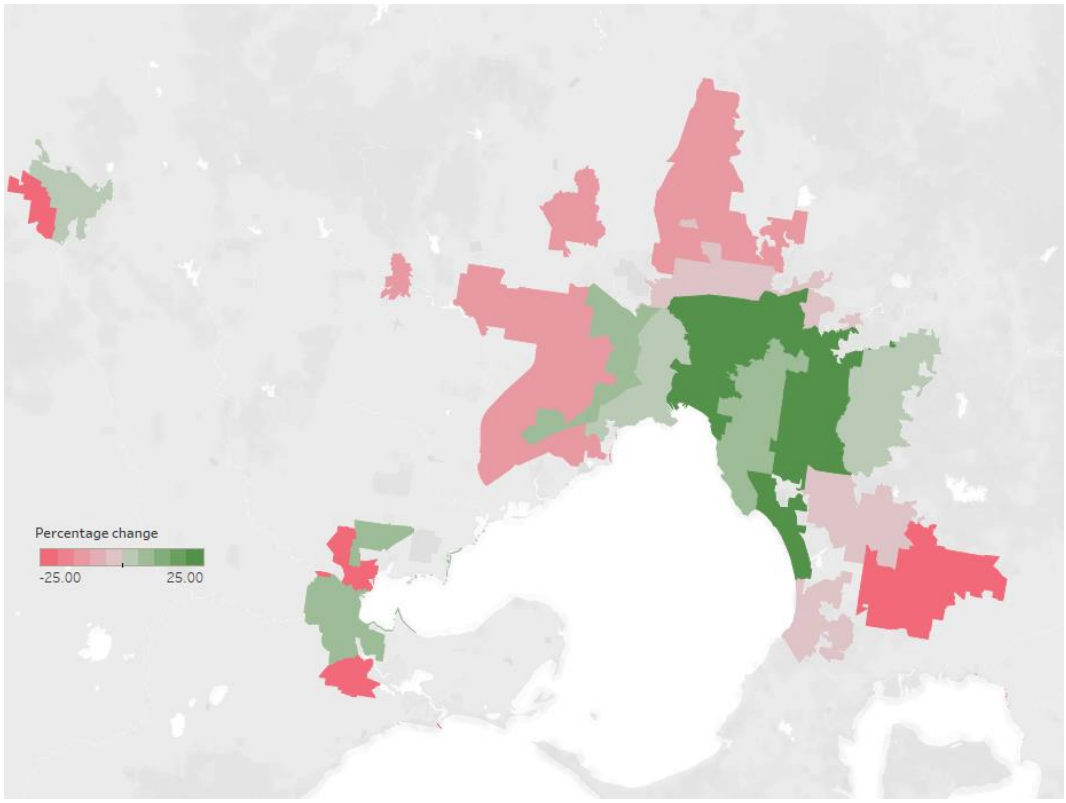
Melbourne will need more housing supply and variety in established suburbs to generate enough new homes to meet the diverse needs of renters and owner-occupiers. An increase in the supply of higher density homes, including townhouses, terrace homes, low-rise and high-rise apartments, can give households more choices.

More people choose established suburbs when house prices change

We found that changes in the price of homes will shift some demand for homes away from greenfield areas. Households shift their home choices to different areas in Melbourne or regional cities, depending on the nature and extent of the price change. For example, our research found that a 10% price drop for apartments and townhouses in established suburbs combined with a 10% price rise in growth area homes can reduce demand for growth areas homes by 17%. Many more people would choose homes in Melbourne's middle suburbs and the inner metropolitan area (see Figure 13).[186]

However, our modelling demonstrates that moderate income households have few affordable home choices, particularly in Melbourne's inner and middle suburbs.[187] Australia has fewer homes per person than most other countries in the Organisation for Economic Co-operation and Development. Inadequate housing supply and diversity affects affordability and reduces peoples' options for where to live.[188] Housing policies that aim to influence demand away from greenfield areas will need to be accompanied by measures to increase supply of affordable homes in good locations.

Figure 13: Change in demand due to a 10% price drop for townhouses and apartments in established suburbs and a 10% price rise for homes in growth areas



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Homes will be needed in all established suburbs

The aspirational 'ideal home' for both greenfield and established area residents is in suburbs close to existing friends and family. New homes will be needed in established suburbs in Melbourne and Victoria's regional cities to meet this preference, and to motivate households to consider medium density homes instead of greenfield houses.[189]

Melbourne has places with good access to existing infrastructure and services that are not accommodating population and housing growth.[190] Plan Melbourne identifies over 130 metropolitan and major activity centres that can support higher density development and deliver more homes closer to jobs and public transport.[191] However, these activity centres accommodated only one-fifth of Melbourne's new homes in the decade to 2018.[192]

Urban renewal projects are an important opportunity to increase the supply of homes in Melbourne's established suburbs. The Suburban Rail Loop project, for example, will invest in station precincts along the new train line to boost jobs and housing options. But precinct development alone will not be enough to deliver the homes in established suburbs that Melbourne's growing population needs. The 12 precincts in the eastern and northern sections of the Suburban Rail Loop are collectively expected to accommodate around 139,500 new households by 2056.[193] Fishermans Bend, Australia's largest urban renewal project, is expected to provide homes for around 37,000 households by 2050.[194] Population projections indicate Melbourne will need an estimated 1.3 million new homes between 2021 and 2051. Over 932,000 of these homes will need to be in existing suburbs to achieve the aspirational scenario in Plan Melbourne for 70% of new homes to be in established areas.[195]

Some areas are accommodating more new homes than others. Around 40% of Melbourne's residential building approvals were in 5 growth area councils in the 5 years to 2022 (Casey, Hume, Melton, Whittlesea and Wyndham). Some established area councils accounted for less than 2% of residential building approvals in Melbourne over the same period,[196] and many of the homes being built in established suburbs are not substitutes for greenfield homes. The proportion of 3-bedroom homes in Melbourne is falling, but this is the

preferred size for many greenfield residents who have, on average, larger households. New homes in Melbourne, Ballarat and Geelong's growth areas are more likely to have 3 or more bedrooms, and are more affordable than those in established suburbs.[197]

Progress towards denser housing has been slow.[198] Victoria will need a more coordinated approach to long-term urban planning and development, if it is to increase the supply of well-designed homes in established suburbs that can substitute for greenfield houses. Governments will need to reform existing policies, standards and regulations. Our policy options outline approaches for the Victorian Government to increase the supply of homes in good locations in established suburbs.

Measure and incentivise progress towards new local housing targets

Option 5

Set targets for the number, type and size of new homes in each Melbourne local government area, in collaboration with local governments. Offer local governments incentives to meet the targets. Measure progress by closely monitoring new housing supply and publishing detailed statistics at least every year, including by home type and characteristics.

In *Victoria's infrastructure strategy 2021–2051*, we recommended that the Victorian Government support more homes in priority established places, to increase housing density and better use existing infrastructure (recommendation 35).[199] Higher density areas can typically sustain greater levels of infrastructure and service provision as the costs can be shared by more people.[200] Encouraging housing growth in established suburbs can help reduce government spending on new infrastructure, and deliver social and environmental benefits.[201]

The Victorian Government currently has no mechanism to coordinate local housing strategies so that they will collectively deliver enough new homes to support Melbourne's growing population, in places that will deliver good outcomes.[202] The Productivity Commission recommends that state and territory governments set targets for new homes in major cities so that supply will meet future demand for homes, and work with local governments to achieve them.[203] Other cities, including Sydney and Vancouver, set housing targets that direct new development towards identified areas or specify the type of homes to be built.[204]

The Victorian Government can work with local governments to develop local area housing targets to increase the supply and diversity of new homes in good locations. Targets can help direct new homes to the most suitable areas and increase housing density in places with good infrastructure access, such as near activity centres. They can encourage a variety of home types and sizes, including larger homes that are suitable for households with children (see **Option 10: Encourage child-friendly design in new apartments**). Targets can give clarity to the housing sector, giving developers confidence that local governments will support more homes in their area.[205]

The government can support targets by assessing infrastructure capacity in places targeted for housing growth.[206] This work can start now, to inform the size and location of housing targets and any infrastructure investment needed to achieve them. Local government input can ensure that targets for each area reflect local context, existing housing stock and ideal densities. The Victorian Government's priority urban renewal precincts can also include housing targets and can pilot this approach (see **Option 6: Prioritise and streamline approvals for urban renewal precincts**).

The government is already developing *Land use framework plans* to guide land use and infrastructure development in Melbourne. They include housing distribution scenarios for each metropolitan region that can inform more detailed housing targets for local government areas.[207] The final plans can include targets, which can also be considered in any future updates to Plan Melbourne. The Victorian Government can

consider extending the approach to regional cities by including them in updated *Regional growth plans*, which guide land use and development in regional Victoria.[208] The Victoria Planning Provisions, the framework for Victoria's planning schemes, can also include the targets.

Local area planning for dwelling targets can be achieved by updating local government housing strategies to measure capacity, infrastructure needs, and preferred locations for medium and high density homes.[209] Local governments can be incentivised to meet housing targets and complete the necessary strategic and statutory planning,[210] for example by funding them to analyse existing infrastructure capacity and to develop strategies to achieve housing targets. The Victorian Government can also provide targeted access for programs such as the Growing Suburbs Fund, for local governments who meet their housing targets.[211]

The government must monitor the supply of new homes to accurately measure progress towards meeting targets and inform future target adjustments to reflect changes in supply and demand.[212] Current approaches to data collection do not support this. The Victorian Government can develop a housing supply monitoring system to assess progress in meeting targets, which includes collecting data on housing attributes such as type of home and number of bedrooms. A Victorian system can inform development of a national housing supply monitoring framework in the longer term.[213]

This policy option will complement **Option 1: Reform infrastructure contributions to send the right price signals**. A consistent approach to infrastructure contributions in established suburbs can give more funding certainty to local governments for infrastructure upgrades to support new homes. When infrastructure is delivered as more homes are built, communities are more likely to accept changes in density.[214] The Victorian Government can start work with local government on both options immediately.

Housing targets will only be effective if accompanied by other policies to stimulate the supply and diversity of new homes. A dual occupancy and townhouse code which streamlines planning approvals can help increase townhouse supply (see **Option 8**). Better standards and expanding zoning for low-rise apartments can result in more homes in established suburbs (see **Option 7**). These options can work together to support local government progress in meeting targets and increase home choices for moderate income households in established suburbs. They can form part of a second group of policy interventions once housing targets and reforms to infrastructure contributions and home subsidies are underway.

Prioritise and streamline approvals for urban renewal precincts

Option 6

Prioritise urban renewal precincts for development, with streamlined planning approvals. Set targets in each precinct for the number, type and size of new homes. Develop suitable housing demonstration projects that specifically include 3-bedroom homes.

Most households told us they prefer to live in a detached 3-bedroom house, but one in 5 households would choose to live in an apartment if they had to move house now. A majority of those would prefer to live in Melbourne's inner suburbs.[215] But only 1 in 10 Melbourne apartments have 3 bedrooms, meaning they do not offer a substitute for growth area homes.[216] We also heard that people who had lived in apartments with children before moving to greenfield areas felt that current noise and amenity standards did not provide a comfortable living environment for their needs.[217]

Precincts are areas in Melbourne that can accommodate more jobs and population growth. They typically have a mix of activities, businesses, good public transport and land suitable for redevelopment.[218] They are an important opportunity to deliver new homes in established suburbs. Precincts are well suited to more housing development, and can accommodate a range of home types and densities.[219] For example, high density developments can be located next to high frequency public transport, low-rise and medium-rise

apartments within 400 to 800 metres, and townhouses between 800 and 1,200 metres of train and tram stops. Plan Melbourne identifies more than 130 areas to be the focus of growth and development, but it does not prioritise precincts for Victorian Government action or specify the amount and type of new homes they can be expected to deliver.[220]

Precinct planning and delivery are challenging. They require ongoing monitoring and re-appraisal to measure whether long-term growth is producing desired outcomes for Victorians. Planning processes can be slow and complex. Reviews of previous urban renewal projects point to opportunities to improve performance monitoring, governance arrangements and cross-government coordination, and to clarify roles and responsibilities.[221]

Residential projects that require large capital investment and development financing are rare in established suburbs.[222] Developers want to be certain of the return on their investment, and they balance this against a project's risk and uncertainty. Projects in established suburbs can have more timing and cost uncertainties than greenfield development. Approval processes vary in length and can be subject to third party objections, and the timeline and cost of utility connections can be unclear.[223] Established suburb developments are more commonly small-scale projects built by small developers, but these do not deliver many new homes.[224] Precinct-scale renewal can build many more new homes than is possible in small projects.

The Victorian Government can establish a prioritisation framework and clear governance for precincts, to focus government investment and clarify the planning and decision-making mechanisms for these places. Identifying a pipeline of priority precincts can help streamline strategic planning and improve the timing of infrastructure delivery to support precinct development.[225] Streamlined planning and approval processes can give more certainty to developers and help catalyse housing development. The Victorian *Major Transport Projects Facilitation Act 2009* and *Suburban Rail Loop Act 2021* are 2 examples of legislation that seek to introduce streamlined planning for areas close to future infrastructure projects, but other important precincts identified by the government do not have access to the same provisions.

Housing targets can clarify the role for each precinct in delivering new homes (see also **Option 5**). They can specify housing diversity and density, such as a minimum number of 3-bedroom apartments to help generate potential substitutes for greenfield homes. Targets should vary depending on the development context and the intended role of the precinct.

The Victorian Government can pilot innovative and best-practice medium and high density homes using housing demonstration projects. These can test the feasibility and marketability of high quality design and help to address community concerns about density.[226]

Ideally, identifying priority precincts comes with an ongoing Victorian Government commitment to infrastructure investment and precinct governance. In *Victoria's infrastructure strategy 2021–2051* we recommended that the Victorian Government should publish plans for priority infrastructure sectors, including sequencing and timelines for investment (recommendation 32).[227] We also recommended that the government identify an appropriate body to monitor infrastructure delivery, including in precincts, and advise on sequencing and funding (recommendation 72).[228] Delivering these recommendations can help improve private sector confidence and catalyse market housing development.

Work to develop a precinct prioritisation framework and governance approach can begin within the next 12 months, to help guide future planning and development. We think this policy option will have more effect if delivered alongside other options to increase homebuyer choice in established suburbs, including **Option 7: Develop better standards for low-rise apartments, then increase their supply by expanding use of the Residential Growth Zone** and **Option 9: Allow homebuyers more parking options**. This package of policy reforms can be delivered within 3 years, following reforms to infrastructure contributions, home subsidies and housing targets.

Case Study

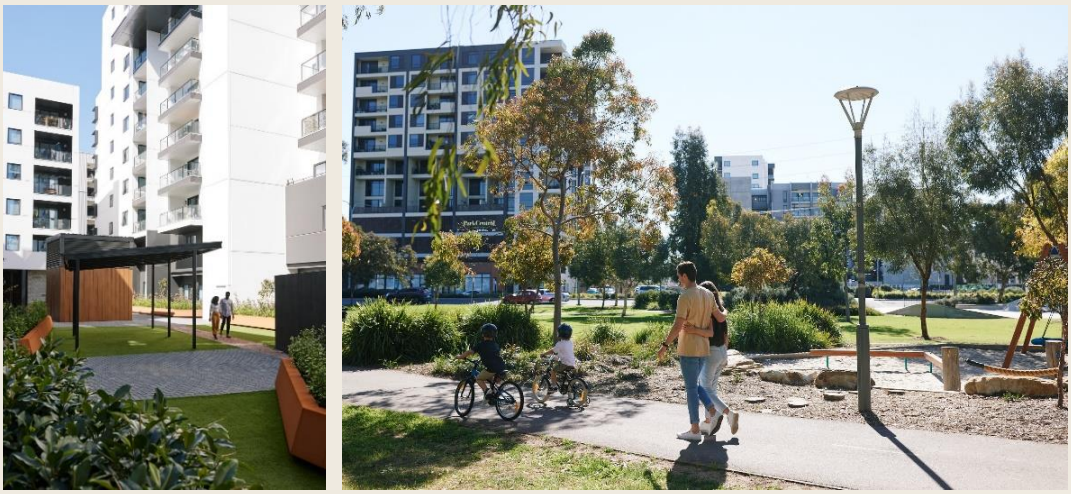
Urban renewal in South Australia

Renewal SA, the South Australian Government's urban development agency, is responsible for managing the redevelopment of Bowden, a 16 hectare site located 2.5 kilometres from central Adelaide, into the state's first high density precinct.[229] In 2008 and 2010, the government bought 2 parcels of former industrial land next to existing public transport. One year later, Renewal SA began soil remediation, planning and infrastructure construction. The government invested over $264 million in roads, open space and essential services.[230]

Private sector developers buy individual lots from Renewal SA. Design credentials are one of the buyer criteria. Renewal SA works closely with site owners by using the Bowden Design Review Panel and design guidelines to ensure high quality outcomes.[231] It aims to achieve a minimum of 160 homes per hectare by using a mix of medium and high density residential projects.[232] Bowden includes completed projects with 3-bedroom terraces, townhouses and apartments. It also has affordable apartments with "the much-loved attributes of a suburban home."[233]

Renewal SA uses strategic pathways and levers to partner with developers and builders to unlock innovative projects. It supported Nightingale Housing's entry into the South Australian market by committing to underwrite part of its Bowden development. To reduce Nightingale's risk in obtaining pre-sales, it provided certainty to the developer and secured the delivery of the state's first affordable zero-carbon apartment building. The project was ultimately so well received that all homes sold within 24 hours, and the underwrite was not necessary.[234]

Figure 14 Bowden, South Australia



Renewal SA, Bowden promotional photography.

Develop better standards for low-rise apartments, then increase their supply by expanding use of the Residential Growth Zone

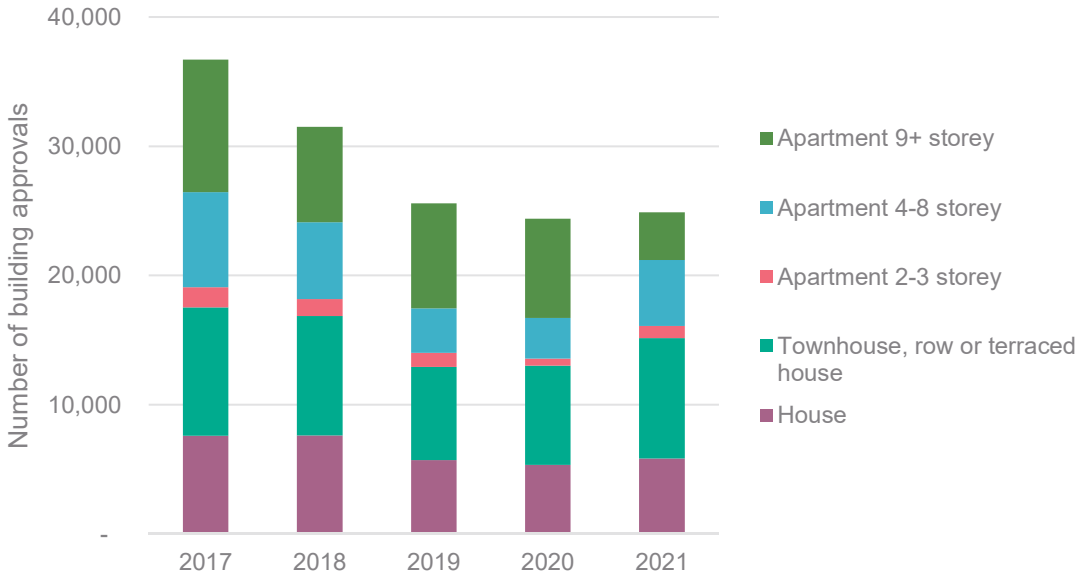
Option 7

Develop better standards for low-rise apartments (4 or fewer storeys) in the Victoria Planning Provisions. Introduce more low-rise apartments by supporting local governments to rezone more residential areas near public transport and services to the Residential Growth Zone.

While many households do not consider the current supply of apartments suitable for their needs, households who would choose apartments if they had to move now have a strong preference for low-rise compared to high-rise apartments. Around 60% of people who chose an apartment preferred 2 or 3 storeys compared with 20% who preferred an apartment of 11 storeys or higher.[235]

Low-rise apartments make up a very small proportion of new homes in Melbourne's established suburbs (see Figure 15). Apartments of 2 to 3 storeys accounted for just 4% of new dwelling approvals in established suburbs in 2021.[236] Melbourne's middle suburbs are traditionally low density neighbourhoods containing few housing options other than detached homes and townhouses.[237] Many homes in these areas have good access to public transport, and better access to other infrastructure, shops and services than established outer or new growth areas. However, much of the housing stock is ageing, and requires upgrades to bring it up to date with contemporary energy efficiency and sustainability standards.[238] This presents an opportunity to develop medium density homes when existing stock becomes available for development.

Figure 15: Building approvals by home type, established Melbourne, 2017–2021



Australian Bureau of Statistics, *Building approvals, Australia*, 2022

Established suburbs have the capacity to support higher density homes, but development is restricted by limited application of residential planning zones that support higher densities. For example, the Residential Growth Zone allows building heights of up to 13.5 metres, or 4 storeys, and applies to places suitable for more new homes with good access to services and transport.[239] Its purpose is to encourage increased density,[240] but it is applied inconsistently in places that are well served by infrastructure. Just 1% of

residential areas in Melbourne's middle suburbs are currently zoned for residential growth.[241] This hinders housing diversity and curbs the supply of new homes in good locations.

Developers have difficulty securing planning approval from local governments using the current residential guidance for low-rise apartments in the Victoria Planning Provisions.[242] Residential planning proposals are regulated by the residential development standards (ResCode) in planning provision clauses 55 and 56.[243] Local governments assess low-rise apartments (4 or fewer storeys) using ResCode metrics that consider developments in the context of their surrounding neighbourhoods, which are typically low density.[244] Assessments typically focus on neighbourhood character and community concerns, which can lead to more uncertain outcomes and development delays.[245]

The Victorian Government introduced the Better Apartments Design Standards in 2017 to improve apartment design.[246] They provide guidance for apartment developments of 5 or more storeys. Some of this guidance is included in ResCode (clause 55.07), resolving some earlier limitations.[247] However, the standards focus on general development quality and internal design issues such as layout and private open space, rather than the effect on neighbourhood character.[248] Low-rise apartments are still assessed using the same development standards as lower density townhouses and terraces.[249]

Community objections create extra uncertainty and risk that discourages apartment development in established suburbs. Some residents and local governments are concerned that building higher density homes will negatively affect neighbourhood character and existing property values.[250] Planning objections can add major time delays and costs to new developments, but rarely produce substantial changes to the outcome. In 2021–22, over 60% of cases heard by the Victorian Civil and Administrative Tribunal that related to development of higher density homes such as apartments were eventually approved.[251]

The Victorian Government can create specific objectives and residential development standards for low-rise apartments and include them in the Victoria Planning Provisions. Changes can customise existing ResCode guidance (including site layout, building massing and amenity impacts) for 3 and 4 storey buildings. New standards can support local government review of proposed low-rise apartments, give clarity, help developers with project design and increase the likelihood of planning approvals for medium density homes. This may also contribute to the potential for use of modular construction techniques by developers, which could in turn improve the affordability of these homes.

Use of the Residential Growth Zone can be expanded in established suburbs, to allow development of more low-rise apartments in locations with good access to public transport and services. The Victorian Government can develop criteria to identify priority places for expanded zones. These can specify appropriate levels of access to public transport, infrastructure and services that can support more low-rise apartments as a substitute for greenfield homes. The government can work collaboratively with local governments to make the zoning changes. Councils can benefit from funding to assess and update their residential zones and schedules, and to identify any infrastructure upgrades that might be needed to support growing communities (see also **Option 1: Reform infrastructure contributions to send the right price signals** and **Option 5: Measure and incentivise progress towards new local housing targets).**

The benefits of this policy option are likely to be realised over the medium term. More apartments will be needed for Victoria's growing population, but it will take time for households to accept apartments as a substitute for greenfield homes. This option will have more effect when packaged with policies to improve the supply of well-designed townhouses as a more immediate greenfield substitute (see **Option 8**). It will also complement precinct planning and delivery (see **Option 6**), as strategic master plans for priority precincts can nominate suitable places for residential zoning. Collectively these options can help increase housing supply to meet targets for the number, type and size of new homes (see **Option 5**) and can be delivered once housing targets are set.

Case Study

Victoria's Future Homes program

Future Homes is a Victorian Government initiative to encourage high-quality 3 storey apartments in established suburbs. It sets high design standards in exchange for streamlined planning approvals. The program offers ready-made architectural designs of 3 storey apartment buildings for development in trial locations.[252]

Applications will be assessed by the Department of Transport and Planning in collaboration with the Office of the Victorian Government Architect. The approval process will have limited third-party notification and no appeal rights. The program is currently in a 2-year pilot phase with the City of Maribyrnong.

The Victorian Government can draw on its experience in Future Homes to collaborate with local government and the development industry to improve development standards for low-rise apartments.

Figure 16 Future Homes designs

Designed by (from left to right): McGregor Westlake Architecture, Spiral Architects Lab, Strategy Architecture with IncluDesign and LIAN Architects.
Department of Transport and Planning, *Future Homes*

Increase diversity and choice of homes in established suburbs

Creating more housing options in established suburbs

Many Victorians would prefer to live in a large, detached home near family and friends.[253] Over two-thirds of households in Melbourne, Ballarat and Geelong (68%) would choose to live in a detached house if they had to move. This rises to over 80% for owner-occupiers.[254]

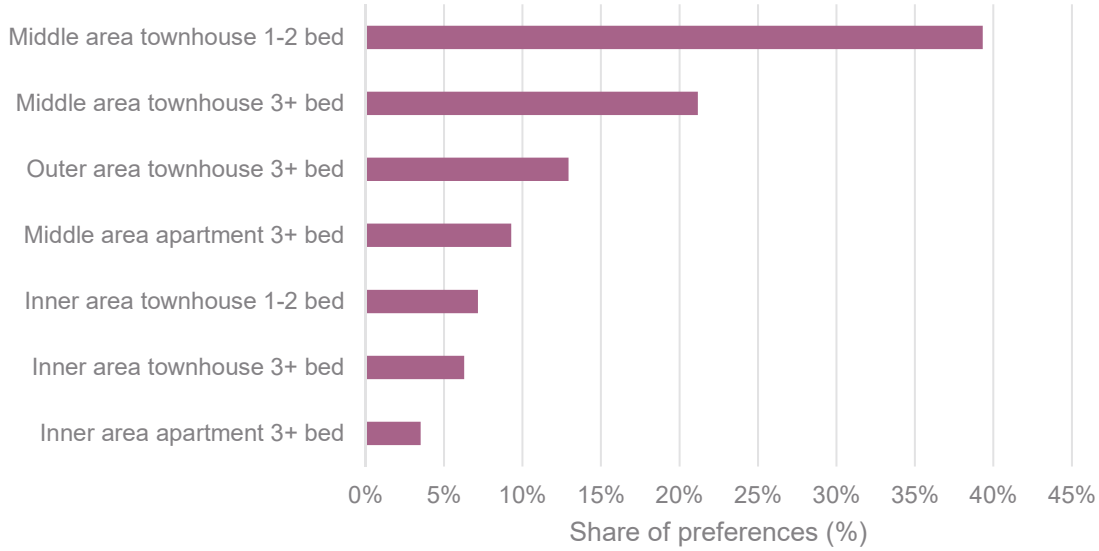
Some households are prepared to compromise on certain features of their future home to stay in their preferred location, particularly renters (50% compared with 39% of owner-occupiers).[255] But attributes such as the number of bedrooms and access to secure parking are important to many, particularly in greenfield areas where many households are planning for, raising or caring for children.[256]

We found that households perceive detached homes to be better quality, and better designed for raising children, compared with townhouses and apartments. This strengthens household preferences for detached houses. New homes in established suburbs must be able to meet peoples' expectations at an affordable price for households to consider them a substitute for greenfield houses.[257]

Households will consider higher density homes for the right price

We found that the home choices people make are influenced by price, and that some households will consider different types of home in the right circumstances. Some households who initially chose detached houses in growth areas would substitute to townhouses in established suburbs if they were cheaper (see Figure 17). They will also consider centrally located apartments with 3 bedrooms, but they would not substitute to smaller apartments with 1 to 2 bedrooms.

Figure 17: Share of preferences shifting from growth area houses when established area townhouse and apartment prices fall by 10%, by home type, %

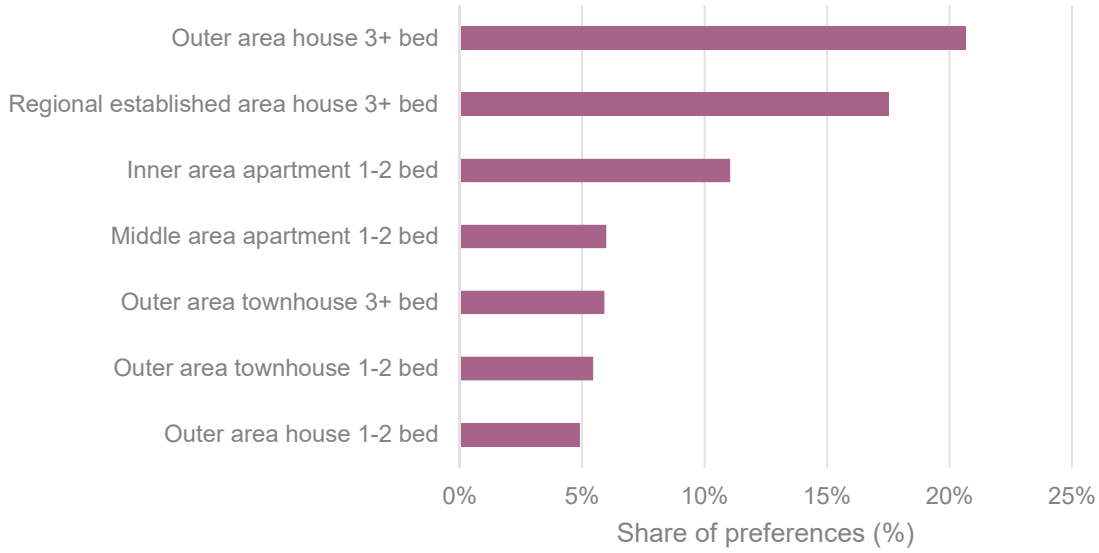


The Centre for International Economics, *Demand for housing in Victoria: stated preference research*, 2022

If homes in growth areas were to become more expensive, those who could afford it would switch their preference to Melbourne's outer suburbs, or to established suburbs in Geelong and Ballarat (see Figure 18).

Others would consider medium density homes instead of detached houses, including smaller apartments in Melbourne's inner and middle areas, and townhouses in outer areas.

Figure 18: Share of preferences shifting from growth area houses when growth area prices increase by 10%, by home type, %



The Centre for International Economics, *Demand for housing in Victoria: stated preference research*, 2022

For households to make these alternative choices, medium density homes in established suburbs will need to be available at a price that is affordable for those on a moderate income.

Homogenous housing restricts people's choices

While some growth area households would consider other places, few new homes in established suburbs meet their needs. Most new homes in Victoria's cities are delivered in the form of detached houses in greenfield areas and, to a lesser extent, high-rise apartments in established suburbs.[258] Detached houses accounted for just over half of all approvals for new homes in Melbourne between 2017 and 2021, and the majority (76%) were in Melbourne's 7 growth area councils (see Figure 19). New homes in regional areas have an even higher proportion of detached houses. Nine in 10 residential building approvals in Ballarat and Geelong were for detached houses over the same period.[259]

Figure 19: Building approvals by home type, greater Melbourne, 2017–2021

Australian Bureau of Statistics, *Building approvals, Australia*, 2022

More new homes are being built in Melbourne with 1, 2 or more than 4 bedrooms than 3-bedroom homes,[260] despite this being the preferred home type for many households. Increasing the supply of medium density, 3-bedroom homes in established suburbs can help to improve affordable options for households currently choosing greenfield homes, such as first home buyers and households with children. It can also offer an alternative to households looking to downsize.[261]

More housing diversity will help create affordable established area alternatives to greenfield homes. Our research indicates that townhouses are an immediate opportunity to substitute. They fulfil the requirements of many greenfield residents, such as number of bedrooms, secure parking and outdoor space,[262] and they are likely to be more affordable than detached houses in the same area.[263] Apartments can also be an alternative for some,[264] although most existing stock does not substitute for greenfield homes. For example, just 1 in 10 Melbourne apartments have 3 bedrooms.[265]

Limited flexibility in planning schemes can inhibit housing diversity and add to development costs, which are passed on to homebuyers.[266] Costly requirements such as compulsory minimum on-site parking influence developers' decisions about apartment size and bedroom mix. A one-size-fits-all approach can lead to homebuyers paying for dwelling features they do not value or need.

Offering people an affordable, established area alternative to greenfield homes will only be possible with many more well-designed, medium density homes that serve the needs of growth area households, including those with children. The diversity of homes available in established suburbs will also need to increase to achieve this goal.

We propose options for the Victorian Government that aim to increase the supply of townhouses in good locations as a priority, and that work towards improving the availability, diversity and design of apartments in established suburbs so that they become a more affordable substitute for greenfield homes.

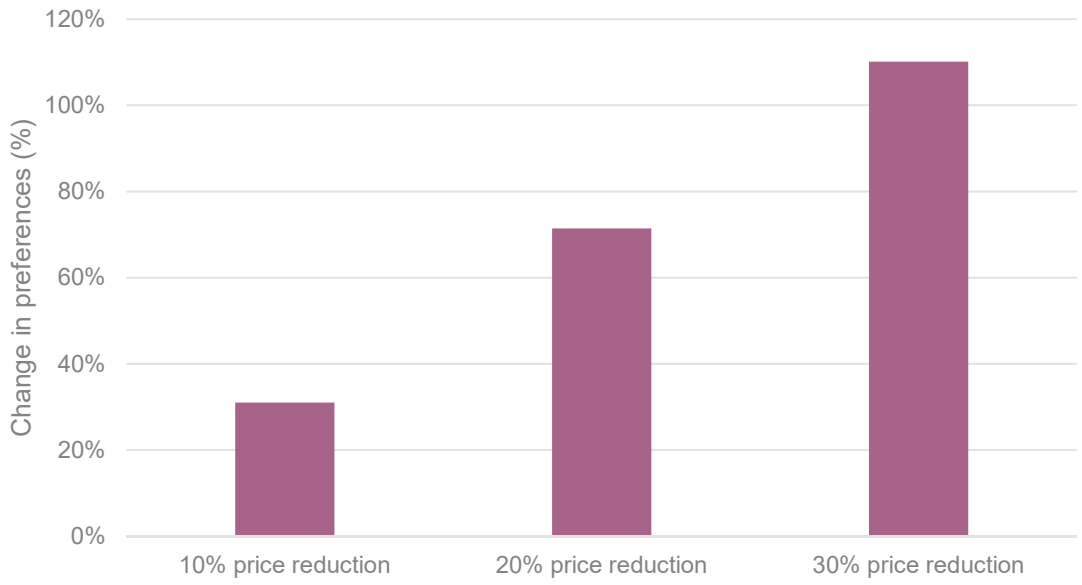
Develop a dual occupancy and townhouse code

Option 8

Give property owners as-of-right permission to bypass red tape and supply more diverse homes when they comply with the new dual occupancy and townhouse code. Give better visual guidance for well-designed dual occupancies and townhouses.

We found that medium density homes, particularly townhouses, can meet many of the requirements of households currently choosing to live in growth areas, particularly when they are more affordable. Our modelling indicated that a 10% price drop for townhouses in established suburbs would lead to an increase in demand of more than 30% (see Figure 21).[267] Some greenfield residents are reluctant to consider medium density homes due to concerns over noise, privacy, security and space.[268] Increasing the amenity, accessibility and design quality of medium density homes can increase their appeal as an immediate substitute for greenfield homes.

Figure 20: Change in townhouse preferences in established suburbs when prices are reduced, %



The Centre for International Economics, *Demand for housing in Victoria: stated preference research*, 2022

Poor townhouse design is restricting supply of greenfield substitute homes in established suburbs. Clause 55 of the Victoria Planning Provisions (ResCode) regulates developments of 2 homes (dual occupancy) or more on a single block, including townhouses.[269] It includes objectives and standards to address neighbourhood contexts, site layout, amenity and design. But while examples of good design exist, ResCode does not always produce high quality townhouses at an affordable price. Solar orientation, open space and environmental performance can all be inadequate.[270] Clause 55 includes some visual guidance to help developers meet the required standards, but more can be provided.

Delays and uncertainty in planning approvals add to development costs, which are ultimately passed on to home owners and renters.[271] Planning applications can take a long time to assess – over 10 months in some instances.[272] Community opposition adds to the assessment time. A 2018 review of planning permit applications by Merri-bek City Council found that 1 in 2 dual occupancy developments received objections from the community, even though most of them complied with planning requirements. Only 1 in 10 objections caused any change. Third party appeals added time, resources and cost to development approvals but had little effect on outcomes.[273]

In our community research to support *Victoria's infrastructure strategy 2021–2051*, we found that local communities are willing to support higher density homes under the right conditions.[274] Communities nominated quality urban design as the most important principle when considering density, including buildings that integrate well into the local neighbourhood. Better evidence of high quality townhouses can help to build community understanding and acceptance, and reduce concerns about potential effects on neighbourhood character.[275]

The Victorian Government can encourage well-designed small scale development by introducing a dual occupancy and townhouse code for established suburbs with good access to public transport. The code can first apply to dual occupancy and then expand to include 3 or more homes on a single block (townhouses). Use of the code can be incentivised by allowing compliant homes to choose a quicker assessment process than the standard planning permit system, offering developers faster approvals and more certainty. Evaluating proposed homes against a clear code supports a fast track approvals process and can improve choice, diversity and supply.[276] It can reduce housing costs by achieving planning process time savings, and by building homes on smaller lots that offer a greenfield substitute. It can also help improve townhouse design by incentivising well-designed homes,[277] and could provide opportunities for developers to use less expensive design and construction methods such as modular construction.

The code can consider how development accounts for neighbourhood character, amenity and infrastructure, for example, by minimising overshadowing and mitigating urban heat.[278] Site-specific heritage, environment and landscape controls play an important part in the planning system and should continue to trigger a planning permit application. The Victorian Government can invite local government and developer input in creating the code, to help build support for this approach.

New visual guidance can accompany the code to give clear direction to developers and the community on expected design, sustainability and accessibility outcomes, including environmentally sustainable design and universal access. Guidance can also specify functional layouts, based on the Better Apartments Design Standards and including new standards for dining areas and flexible spaces for home offices, storage and space to play.[279] The Victorian Government can also add visual guidance to ResCode to give clearer information about the desired outcomes for projects that do not take up the voluntary code, and discourage minimum compliance with ResCode standards.

Use of the code and eligibility for fast track approvals can be restricted to residential areas that present good opportunities for townhouse developments. The Office of the Victorian Government Architect identified suitable opportunities for medium density in middle suburbs (7 to 25 kilometres from central Melbourne) developed between 1950 and 1979, with good access to public transport.[280] The government can ensure that the code does not encourage underdevelopment close to public transport by introducing maximum lot sizes for each new home.

Some local governments, including Darebin, Glen Eira, Knox and Merri-bek, are already developing guidelines to improve townhouse development outcomes.[281] The Victorian Government's Future Homes program, which tested the development feasibility of its 4 design packages, can also offer useful insights.[282] The Victorian Government can build on these initiatives as a first step to increase the supply of well-designed townhouses that are affordable to moderate income households.

This option represents an immediate opportunity to increase the supply of greenfield substitute homes. It will require time to develop the code and pilot it with local governments, but this can occur within 3 years. The code can be developed and introduced alongside other policy options to increase home choice and diversity in established suburbs, including **Option 6: Prioritise and streamline approvals for urban renewal precincts**, **Option 7: Develop better standards for low-rise apartments, then increase their supply by expanding use of the Residential Growth Zone** and **Option 9: Allow homebuyers more parking options**.

Case Study

The NSW Government is encouraging housing diversity

New South Wales needs more housing diversity to meet its current and future housing needs.[283] The government introduced a Low Rise Housing Diversity Code in 2018 to encourage housing development in existing residential areas.[284] The code introduces fast track approvals for well-designed medium density developments such as townhouses, low-rise apartments and terraces. It is accompanied by a *Housing diversity design guide* to give consistent planning and design guidance for new development, including clear visual representation of the expected design outcomes.[285] Permits for compliant developments are issued within 20 days.

The code aims to increase housing diversity by encouraging more alternatives to greenfield detached houses and high-rise apartments. It has 4 main benefits: promoting choice and diversity, increasing supply, encouraging good quality design, and creating liveable communities.[286] It also has an affordability objective. The price of new attached dwellings is anticipated to be around 25% more affordable than a detached home in the same neighbourhood, by using more housing construction that is affordable by design.[287]

The code faced resistance when it was first introduced in 2018, including from some local councils. An independent review identified strong support for more housing diversity but found that the code was poorly understood.[288] Several amendments were made to clarify its intent and operation, and to give more certainty for councils, developers and the community. Following a staged introduction, the code was introduced in all local government areas in 2020.[289]

Allow homebuyers more parking options

Option 9

Reduce or remove compulsory minimum parking requirements to improve choice and affordability of new established area homes, close to good public transport. Allow homebuyers to choose how much onsite parking they want to pay for above minimum requirements.

Off-street parking provision adds to the cost of new homes. In central Melbourne, one parking space can add between $40,000 and $80,000 to the cost of development.[290] Our modelling confirms that more parking increases house prices, particularly for apartments. We found that apartments with 2 parking spaces were 34% more expensive than similar homes with no parking.[291] We also found that the number of car spaces is an important factor in home choices, and that some growth area households are open to trading off a parking space for a cheaper home in a more central location.[292]

Victoria's planning provisions require at least one on-site parking space for each 1-bedroom and 2-bedroom home, and 2 car spaces for homes with 3 or more bedrooms.[293] Developments that propose less parking require an extra planning permit. Changes to parking minimums can trigger community objections, particularly for apartment developments, due to concerns that parking will spill into surrounding streets.[294] However, research indicates that residents in detached homes are the greatest users of street parking. They generally have off-street parking but use it for storage or other purposes.[295] The City of Melbourne found apartments typically have too much on-site parking, and an average of 1 in 3 parking spaces sit empty overnight.[296]

Minimum parking requirements contribute to poor housing diversity in established suburbs,[297] by increasing construction costs and incentivising developers to build homes with fewer bedrooms to maximise their profits.[298] Planning permit requirements for parking exemptions add to assessment costs and introduce extra administration. Third party appeals can cause substantial delays, further adding to costs and uncertainty for developers.

Generous on-site parking provision combined with the widespread availability of street parking (that is often free) makes driving seem cheaper and easier.[299] The cost of providing parking is included in development costs and passed on in higher home prices, meaning households must still pay for car parking even if they do not need it.[300]

The Victorian Government can reduce or remove compulsory minimum parking requirements to increase certainty in development processes, improve affordability and boost the supply of homes in established suburbs. Reducing minimum parking rates can increase choice, by allowing households to pay for parking only if they need it (above any minimum requirements), and lower housing costs for households who choose other transport options. It can also increase development feasibility, lowering costs for developers by allocating space to homes rather than parking. This removes a disincentive to build 3-bedroom homes and can help improve home choices for greenfield households who are prepared to trade a parking space for a home with good access to public transport in an established suburb.

Research indicates that good public transport access can help reduce levels of car ownership, and that service quality and frequency affects ownership the most.[301] Minimum parking rates can be reduced or removed for new homes that are close to train and tram stops in the first instance. The government can also consider locations near good quality, frequent bus services, with ideal locations having a service frequency every 5 to 10 minutes.

Minimum parking requirements can be reduced in several ways. For example, parking requirements for 3-bedroom apartments can be reduced to one on-site car space, while compulsory parking minimums might be removed for smaller apartments located near good quality, frequent public transport services. Developers can provide more than the minimum requirements, or homebuyers can choose to pay for more parking if they need it. Changes can be phased in over a transition period, during which the government can support local governments to adopt better parking management practices to help manage any shifts in demand for street parking from new residential developments.

This policy option can be packaged with other planning options to increase the supply and range of homes available in established suburbs (see **Options 6**, **7** and **8**), and delivered within 3 years.

Encourage child-friendly design in new apartments

Option 10

Update the Better Apartments Design Standards to specify better access, versatility and safety features so apartments are more attractive for households with children. Introduce voluntary design guidelines for best practice child-friendly apartment design.

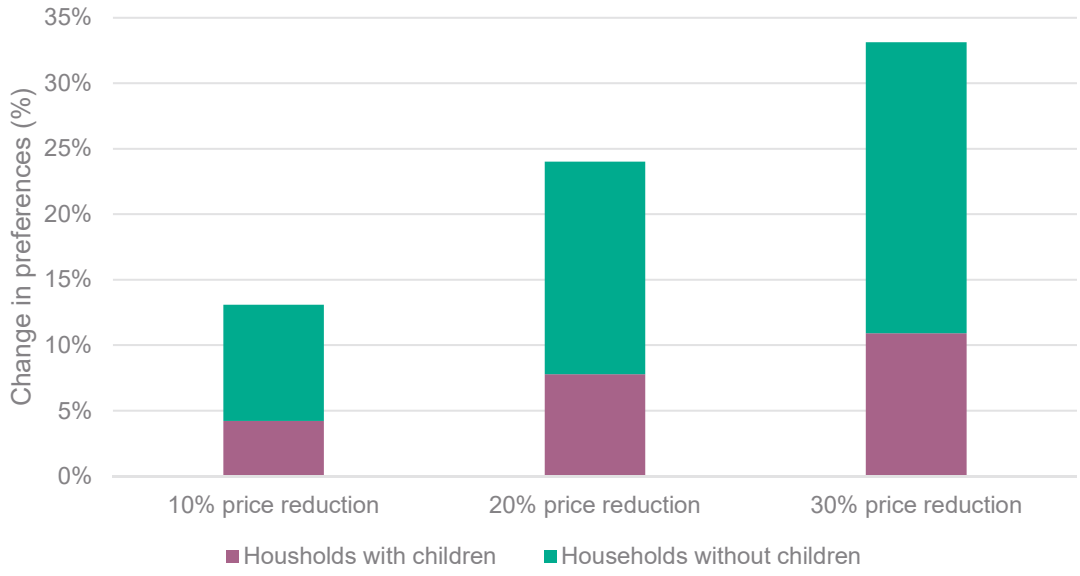
Greenfield homes serve a particular segment of the housing market. Households with children made up almost 60% of growth area households in 2021, compared to an average of 40% in Melbourne's established suburbs.[302] Many other growth area households are planning to have children. Some people at our focus groups told us that this was a factor in their decision to buy or rent a greenfield home. They valued access to private open spaces for play and enough bedrooms for each of their children.[303]

Most focus group participants living in a greenfield detached home would not consider moving to an apartment in an established suburb. However, apartments will be an important component of future diversity

for households with children. Concerns about apartments included anxiety around noise, space to play and ease of access to car parking. Others were concerned about design quality and safety.[304] Research into liveability for households raising children in apartments confirms our findings.[305] This work identified the lack of suitably sized apartments, communal play space, indoor and outdoor storage and soundproofing as design oversights that affect apartment liveability in inner city locations for households with children.

Despite these considerations, our choice modelling shows that more households with children would be prepared to live in apartments if the price is right. The number of households choosing an apartment in an established suburb increased by 13% when apartment prices were reduced by 10%. This rose to 24% when apartment prices dropped by 20% (see Figure 21). Households with children made up around one-third of those willing to consider apartments when the price was reduced, even with current apartment designs that do not cater for their needs.[306]

Figure 21: Change in apartment preferences in established suburbs when prices are reduced, %



The Centre for International Economics, *Demand for housing in Victoria: stated preference research*, 2022

These results indicate that well-designed, larger apartments can be an alternative to greenfield homes in some instances. Children and their parents can benefit from living in established suburbs that offer better access to infrastructure such as schools, childcare and public transport, but few alternatives to greenfield homes are built that meet their needs.[307] For example, our modelling indicates that households who prefer detached houses in growth areas will not substitute for apartments with less than 3 bedrooms,[308] but the supply of new 3-bedroom apartments is often confined to luxury apartments that moderate income households cannot afford.[309]

Design standards can help to make apartments a realistic and attractive option for households with children. Victoria's Better Apartments Design Standards were introduced in 2017 to improve the internal design of new apartments of 5 or more storeys and make them more liveable and sustainable. They were extended in 2021 to improve external design, for example to create more green space and attractive street fronts.[310] The Victorian Government can extend them further, to make apartments more accessible, versatile and safer for children.

Design solutions for apartments to appeal to households with children must include features that compensate for greenfield housing attributes such as private yards and extra living space.[311] They can also respond to the noise, safety and design concerns raised by greenfield residents.[312] Child-friendly amendments to the Better Apartments Design Standards can build on the 2022 *Inquiry into apartment design standards*, which proposed several recommendations for apartments to better meet the needs of households with children. These include new guidelines on accommodating households with children in apartments and updated guidance on open and communal spaces.[313]

The Victorian Government can also introduce voluntary design guidelines to go beyond the minimum requirements set in the Better Apartments Design Standards, to support developers to achieve best-practice child-friendly design without mandating uniform changes. These can be informed by a competition to produce child-friendly apartment designs that can be easily replicated, similar to the Future Homes design competition which sought designs for 3 storey apartment buildings.[314]

The government can encourage uptake of the voluntary guidelines with developer incentives, for example by streamlining assessments or using an accreditation scheme to demonstrate quality and enable fast track planning approvals. The Victorian Government can also establish design review panels to improve compliance with design standards while supporting design innovation, as recommended by the *Inquiry into apartment design standards*.[315] We recommended that the government establish design review advisory panels in *Victoria's infrastructure strategy 2021–2051*.[316]

The Victorian Government can also model best-practice child-friendly design in its own housing developments. Government demonstration projects can influence building industry and community acceptance of new and innovative designs by showing their feasibility and commercial appeal.[317]

We estimate that updating standards to achieve better apartment design outcomes for households with children can happen within the next 2 years, but changes to actual development projects will take longer. It will also take time for households with children to be more confident that apartments can be a genuine substitute for greenfield homes. This is therefore a medium-term option. It can be introduced alongside reforms to stamp duties and proposed changes to the Victorian Homebuyer Fund (see **Options 2** and **4**), which can in time help direct demand for better designed apartments in existing suburbs.

Case Study

Vancouver's approach to child-friendly density

Households with children historically made up around 35% of the City of Vancouver's population. New housing delivery in the city is shifting into higher density forms while affordability and availability of the 'traditional family home' is in decline. In response, the city has been introducing policies since the 1990s for new homes to meet the needs of households with children.

Vancouver's *High density housing for families with children guidelines* offer guidance on child-friendly design features such as play areas. The city also introduced a mandatory minimum for 'family-sized' apartments, including a minimum of 10% 3-bedroom units in new residential developments that are rezoned.[318] The family housing policy and guidelines are being modernised as part of the *Housing Vancouver strategy: three-year action plan (2018–2020)* to improve supply of family housing and the experience of children living in high density homes.[319]

Vancouver is making progress in increasing the supply of homes suitable for households with children. The city approved over 33,000 new apartment units between 2017 and 2021. Almost half (45%) were for family-sized homes.[320] The high density housing guidelines were well received by residents. A 2008 post-occupancy survey found that the apartment guidelines are largely successful, and that households with children enjoy the lifestyle of high density communities.[321]

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INFRASTRUCTURE VICTORIA

September 2023

Strategy objectives engagement report

Victoria's 30-year infrastructure strategy

Contents

Victoria's 30-year infrastructure strategy

Victoria's 30-year infrastructure strategy makes recommendations to the Victorian Government about infrastructure. Infrastructure Victoria develops the strategy and updates it every 3 to 5 years.

We are an independent advisory agency, and we make recommendations in the strategy based on evidence, discussions with stakeholders and the community, modelling and analysis, and other research tools.

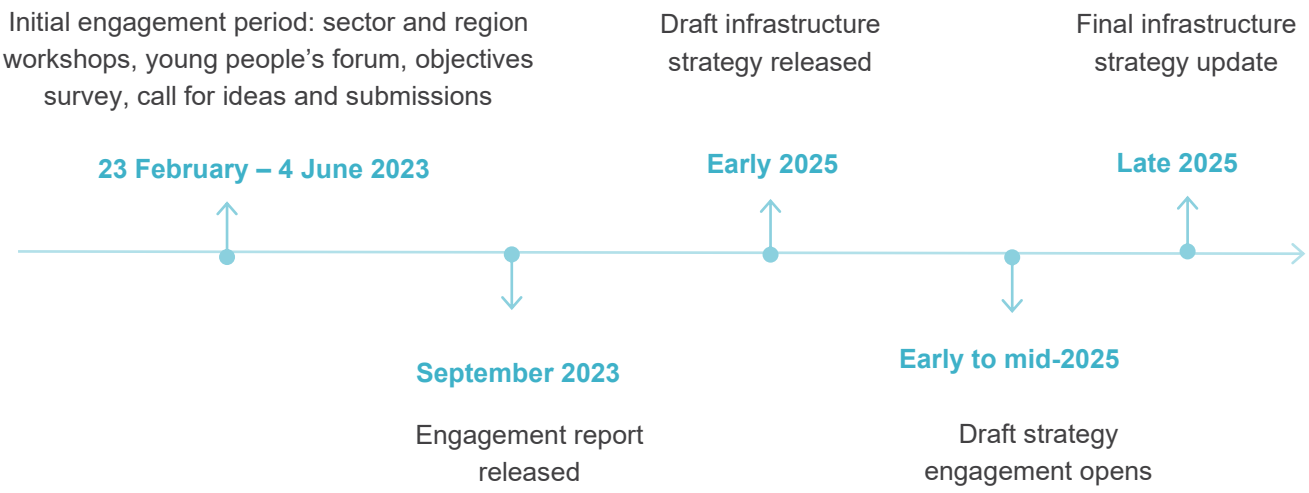
The statewide, evidence-based infrastructure strategy covers all types of infrastructure. We develop it in consultation with stakeholders and the community. We released the first infrastructure strategy in 2016 and updated it in 2021. The 30-year strategy is tabled in the Victorian Parliament and the government has adopted more than 90% of our recommendations.

We are now preparing the next update of Victoria's 30-year infrastructure strategy. We plan to deliver it in 2025 and the Victorian Government is required to respond to our recommendations.

The 2025–2055 infrastructure strategy helps answer questions such as:

- How and where should infrastructure be delivered to support fairer access for all Victorians?
- How can we better use our infrastructure and make it more productive?
- How can infrastructure help reduce the impacts of climate change, and be adapted to withstand more frequent and extreme weather events?
- How can infrastructure respond to change and disruption including population growth and new technology?

Timeline



Engagement summary

Infrastructure decisions affect everyone. Infrastructure Victoria used many different engagement techniques to reach different people and organisations in our first strategy engagement phase.

As we update the strategy, we want to engage with Victorians meaningfully and transparently. This report summarises the first phase of our strategy engagement program. It documents the different ways we engaged with people, and the core feedback people gave us.

Infrastructure Victoria used different methods to hear from Victorians during our initial strategy engagement program, held between February and June 2023. We asked Victorians to help set the objectives of the 2025 strategy, define the major infrastructure challenges and opportunities, and propose infrastructure options and policies that address them.

The outcomes of a 30-year infrastructure strategy will most impact today's young people during their lives. This meant we particularly wanted to hear from young Victorians. To do this, we ran a deliberative engagement forum which had 168 expressions of interest from people aged 18 to 25 years across Victoria. Our engagement partners randomly selected 39 people broadly representative of Victoria's young population. The forum gave them a chance to deeply consider infrastructure issues and tell us about their priorities for the future. It produced insights that will strengthen the strategy and help us refine its objectives.

We also wanted to hear from regional Victorians, who face distinct challenges and opportunities. We held regional stakeholder workshops to hear directly from local community representatives. Our young people's forum also included young people who live in regional areas.

We held discussions with First Peoples' representatives including Registered Aboriginal Parties and Aboriginal Community Controlled Organisations to hear their perspectives and understand the goals important to them. This is part of an ongoing conversation to integrate Victorian First Peoples' perspectives into the updated infrastructure strategy, and better understand First Peoples perspectives on all our work.

We gave Victorians many avenues to engage, including calling for ideas and submissions, asking people to complete an online survey, and hosting sector workshops to hear from infrastructure stakeholders. A diverse and extensive group of Victorians took part in these engagement activities and gave us feedback.

Victorians had many opportunities to take part in setting the objectives for the strategy, including:

Open call for ideas and submissions

Victorians could contribute to the strategy content and recommendations. Stakeholders sent us detailed submissions and evidence.

Objectives consultation survey

The survey helped us to understand community priorities for infrastructure. These will feed into strategy objectives that better reflect these priorities.

Young people's forum

On 17 and 20 May, we held a young people's forum for 39 Victorians aged 15 to 25 years. They answered the question: *what matters most to Victorians and how can infrastructure help achieve it?*

State of infrastructure assessment consultations

We consulted stakeholders from different sectors, regions and government departments to have accurate and contemporary information about Victoria's infrastructure.

Informed by the feedback we received from our engagement activities, Infrastructure Victoria developed the following 6 objectives to guide the update of Victoria's 30-year infrastructure strategy. These objectives lay out the goals the strategy will aspire to achieve:

We heard people's priorities

This first phase of engagement gave Victorians the chance to influence the objectives of the 2025 strategy and shape its direction. People told us they highly valued action on climate change, managing water wisely, access to public transport, using resources efficiently, and achieving better social equity.

We promoted our engagement opportunities using multiple channels, including social and mainstream media, the Engage Victoria website and our own website, and by directly contacting thousands of stakeholders and all Victorian councils by email.

People who chose to take part are likely to have a higher interest in, and awareness of, infrastructure and sustainability issues than the general Victorian population. When drawing conclusions from the engagement feedback, we kept in mind this self-selection bias where participants choose to participate rather than being randomly selected from a demographically representative group.

Climate change

Both stakeholders and community members strongly supported action on climate change. This includes mitigating the impacts of climate change, as well as adapting to the impacts of a changing climate.

In all our engagement activities, people reported that reducing greenhouse gas emissions was a priority for them. During specific regional and sector engagements, stakeholders said that while Victoria had a clear target of net zero emissions by 2045, they did not clearly understand the pathway to reach this goal.

People responding to our survey took a long-term view to the role of infrastructure and its impact on climate. For example, they prioritised reducing greenhouse gas emissions over keeping short-term energy costs low.

Water

In our objectives survey, young people's forum, and in the regional and sector workshops, people identified better water management as a priority. For example, young people attending our forum selected sustainable water management as a key idea. They noted the risks of water scarcity and the need for secure water supplies for communities and food growers.

In many of our engagement activities, people mentioned the 2022 Victorian floods. Stakeholders felt that the floods revealed problems with Victoria's resilience to disasters, water infrastructure management, and land use. Some stakeholders noted that climate change might mean Victoria experiences more extreme cycles of flood and drought.

Transport

The people we engaged with often discussed transport infrastructure. They thought transport infrastructure decisions could help reduce greenhouse gas emissions, and better connect people with opportunities.

Some stakeholders wanted transport infrastructure to support people to use public and active transport more often. They thought low density housing, low levels of infrastructure and services, and lack of integration between transport modes was preventing this change. Young people also raised issues of safety on public transport as a barrier. In our objectives survey, participants favoured more space for cycling lanes and walking paths over road space for cars.

People told us that transport services have not kept pace in areas experiencing high population growth. They thought this was creating barriers to accessing economic and community opportunities.

Doing more with less

Stakeholders observed the tension between infrastructure demanded by a rapidly growing population, constrained government budgets, and scarce natural resources.

Several submissions and feedback from the youth forum encouraged Infrastructure Victoria to consider circular economy principles, which prioritises reuse and limiting waste, to do more with less. Stakeholders in all infrastructure sectors raised the benefits of making the most of existing infrastructure. They proposed measures to get more out of existing infrastructure, such as managing demand, maintenance, and using technology.

Better social equity

When we discussed opportunities to improve fairness and social equity, people talked about a lack of affordable housing and not having access to opportunities. They highlighted increasing costs of living which have added further barriers.

Stakeholders in Melbourne's growth areas and regional Victoria reported residents had difficulties accessing services and opportunities, causing harm and negative impacts for their lives. People mentioned deteriorating housing affordability during all our engagement activities. People described how high housing costs had other negative consequences, especially for people experiencing disadvantage.

Many submissions provided links to relevant reports, research, and other sources of evidence. We will consider all the ideas, submissions and reports submitted. They will feed into the development of the draft updated strategy.

Call for ideas and submissions

We called for ideas from both individuals and organisations on the Engage Victoria website. People told us about their ideas to act on climate change, cater to growing populations, invest in housing and transport infrastructure, and improve their local communities.

We asked for ideas and submissions

From 23 February to 4 June 2023 Infrastructure Victoria put out a call for ideas from individuals and organisations to inform our next strategy. We used the Victorian Government's online platform, Engage Victoria, to invite community members to give us their ideas. They could use the detailed submissions form to include evidence and data to support their ideas. We welcomed short ideas and detailed submissions relevant to 4 areas we highlighted for the next strategy update:

- doing more with less
- navigating change and disruption
- improving social equity through access
- mitigating and adapting to our changing climate.

When sending us detailed ideas, we asked people to include:

- some information about who wrote the idea
- what mattered to them – the problems they hoped to solve, the opportunities they hoped to realise and the outcomes and benefits they believed the idea could provide
- what strategic ideas they were proposing that would achieve the desired outcomes
- why they thought the proposed ideas were better than other options
- what sources of information Infrastructure Victoria needed to consider when developing the 30-year infrastructure strategy for Victoria.

We heard about climate change, growing populations, urban change and local projects

We received 115 responses to our call for ideas and submissions. Detailed submissions made up 66% of the responses. Responses were fairly evenly split between individuals and organisations.

Many submissions called for urgent action on climate change, including both mitigation and adaptation measures. Several suggested valuing carbon emissions reductions during the lifecycle of infrastructure projects. For example, the Victorian Transport Action Group noted in its submission that modelling of infrastructure projects should *'prioritise modelling the whole-of-life emissions associated with the construction and operation of any new infrastructure projects. This modelling must include scope 1, 2 and 3 emissions and address the transport-induced changes in land use patterns'.*

Many submissions described the challenges of a rapidly growing population. They documented possible tensions between delivering infrastructure for a growing population, labour shortages and constrained government budgets. Some said this escalated the priority of doing more with less. The Victorian Council of Social Service submission highlighted: '*Delivering high-quality infrastructure and integrated services is getting more expensive, with ongoing labour shortages and rising material costs. Governments today and in the future will likely face increasing constraints in delivering infrastructure and services.'*

People also discussed the relevance of circular economy principles, such as reuse and minimising waste, for infrastructure policy. The Australian Academy of Technological Sciences and Engineering recommended that Infrastructure Victoria *'embed circular economy principles into the strategy'*.

Stakeholders believe that affordable housing, investment in public and active transport, and sustainable city development, could help improve social equity especially for areas of disadvantage. The City of Geelong's submission voiced this as '*Inequality and disadvantage must be key factors for prioritising investment in infrastructure and services, recognising areas of significant locational disadvantage*.'

Submissions from individuals included local ideas such as upgrades to specific roads, new bus, tram, and train services, urban greening, and upgrades to local park facilities. The themes emerging from the submissions have helped us in developing the objectives of the draft strategy.

We will further consider the detailed suggestions when we develop and evaluate recommendations for the strategy. Where appropriate, we will follow up with individuals and organisations to further discuss their ideas. All public submissions are published on our website.

Objectives survey

By understanding Victorians' priorities for infrastructure, Infrastructure Victoria can develop strategy objectives that reflect the community's preferences. For example, people strongly expressed their preference for action on climate change.

The infrastructure strategy objectives define the strategy's aspirations and help set its scope. They reflect the outcomes Victorians value.

In previous versions of the strategy, Infrastructure Victoria asked for feedback on a draft set of objectives. This meant people limited their feedback to the detailed wording of the objectives. By probing more deeply into Victorian's values, we hoped to better understand the community's preferences and attitudes.

We promoted an objectives survey using our website, social media and by directly emailing thousands of stakeholders. We told them about the consultation and explained how to take part.

We asked people about their choices and priorities

The survey first presented a series of scenarios and asked people to choose their preferred outcome. We wanted to challenge them to consider difficult choices that the Victorian Government needs to make within its budget. This helped us understand how Victorians assess different and competing future options.

The second part of the survey invited people to identify how they felt the Victorian Government should prioritise a set of outcomes when planning for and delivering infrastructure.

We also provided a chance for people to write their own responses to open-ended questions about how infrastructure should contribute to Victoria over the next 30 years.

We heard about transport, sustainable development, affordable housing, and timely infrastructure delivery

A total of 271 Victorians completed the survey between 23 February and 9 April 2023.

From the options presented in the survey, people most strongly preferred:

- More street space for public transport, walking and cycling over more street space for cars.
- Investing in infrastructure that is long-lasting and resilient over building infrastructure as quickly and cheaply as possible.
- Reducing greenhouse gas emissions quickly over keeping short-term energy prices low.
- Quickly reducing waste and encourage recycling over gradually progressing recycling reforms with lower cost increases.
- Keeping water for the environment over keeping water for people and businesses.
- Prioritising access to services for new social housing, even if it costs more, over new social housing being delivered as cheaply as possible.

When asked to prioritise possible outcomes for planning and delivering infrastructure, they ranked the following outcomes highest:

1 

Achieve net zero greenhouse gas emissions

2 

Keep the air and water clean

3 

Help protect people and nature from climate change and its impacts

4 

Help protect and repair natural environments and ecosystems

5 

Provide enough water for all

6 

Help everyone to have a quality education and learn during their lives

People most often discussed transport infrastructure, including wanting more public transport services across Victoria, less congestion and lower greenhouse gas emissions from transport. They also prioritised reducing emissions from the energy system. One respondent noted *'Electric cars will not save us, we must move away from personal cars towards shared transport.'*

People talked about their aspirations for their communities. They wanted smaller, sustainable communities, with more tree cover and open space. People were critical of urban sprawl and over-development.

They wanted infrastructure policy to focus on long-term outcomes, for infrastructure to be delivered when it was needed, and for infrastructure to support the development of social and affordable housing.

People rated environmental objectives very highly. They identified climate change, social equity and managing population growth as major areas of focus for the strategy. The following comment from a survey respondent captures this sentiment *'Climate change is the largest risk to our society and our infrastructure. Solutions should also address short-term and local issues and objectives, though the overall focus must be on protecting our communities and environments in the long term.'*

Our engagement partner, MosaicLab, put together a detailed report on the objectives survey.

Young people's forum

We hosted a young people's forum to hear their aspirations and ideas directly. Young people gave us their 10 big ideas on responding to climate change, using resources efficiently, and being inclusive and adaptable.

Infrastructure Victoria held a young people's forum over two sessions on 17 and 20 May 2023. Thirty-nine young people aged 15 to 25 came together to learn about and discuss the challenges and priorities for infrastructure over the next 30 years. Together, they formed ideas to address these challenges and presented a report to Infrastructure Victoria.

We selected the participants using an expression of interest process. We advertised the event on social media, and through schools and universities, councils and youth-focused organisations, from April to early May 2023. We received 168 expressions of interest, and Sortition Foundation randomised applications to reflect the diversity of Victoria's youth population as closely as possible.

The young people were paid $140 for their time, and we helped those coming from regional Victoria to pay for their travel costs.

We asked young people about their future aspirations

We asked these young Victorians about the challenges they think we should focus on and how they want to live now and in future. They thought about how we can make the most of our resources, improve social equity and be more adaptable in a rapidly changing world.

We recruited young people from every part of Victoria to work on the following task:

> 'What matters most to Victorians and how does infrastructure help achieve it?'

They met first in an online meet-and-greet session to hear more about the task and determine their rules for engagement.

The all-day in-person forum began with an activity to help participants understand the challenges of long-term infrastructure planning. Then, an 'infrastructure of the future' exercise gave participants the chance to step into the role of infrastructure planners. This helped them gain insights into the complexities and trade-offs involved in prioritising infrastructure projects. In groups, they were asked to think about a region assigned to them, and how they would prioritise their advice about future infrastructure needs.

In small groups, participants had the opportunity to speak with 7 experts across different infrastructure fields – from transport, roads and urban planning to policy and sustainability. They asked questions of each speaker on the following topics:

- doing more with less
- navigating change and disruption
- adapting to the impacts of a changing climate
- improving social equity.

Young people gave us their big ideas

These activities helped participants to think deeply about the challenges and opportunities for infrastructure in Victoria. In the afternoon, participants had a chance to think about what matters to them in the future, and how infrastructure could help achieve this. The young people collectively developed 10 big ideas by drawing on their lived experience and the knowledge they gained from questioning experts.

Sector workshops

In 2021, we assessed the state of Victoria's infrastructure and published our findings in *Victoria's infrastructure strategy 2021–2051 volume 2*. In 2023, we consulted with organisations to hear about recent major changes in each infrastructure sector.

The *Infrastructure Victoria Act 2015* requires Infrastructure Victoria to include an assessment of the current state of infrastructure in Victoria as part of the strategy update.

Over February to May 2023, we consulted with stakeholders working in each infrastructure sector to get accurate and contemporary information about Victoria's infrastructure. This included government and non-government stakeholders. For non-government stakeholders, we held 9 workshops in May 2023 covering each infrastructure sector.

Participants also helped us document the most significant infrastructure-related opportunities and challenges in each sector.

We consulted with stakeholders from these sectors:

Transport infrastructure including roads, public transport, and walking and cycling infrastructure

Energy infrastructure such as electricity and gas generation, transmission, and distribution infrastructure

Water infrastructure for example, the water grid and water treatment plants

Environment infrastructure such as waste management facilities, urban parks and tree canopy

Justice and emergency services infrastructure including courts, prisons, police stations, and fire and rescue stations

Culture, sport, and community infrastructure such as sport and recreation, cultural, and community facilities

Health, families, and social housing infrastructure including hospitals and social housing

Digital connectivity infrastructure including cable, fibre, wireless and satellite networks, towers, poles and data centres

Education and training infrastructure for example, schools, TAFE, and kindergarten facilities

We asked stakeholders about future challenges and opportunities

Our workshops brought together different people with an active involvement in each sector. Participants included independent policy analysts, infrastructure planners and operators, infrastructure users, consumer groups and government agencies. We wanted to understand:

- significant developments affecting the sector's infrastructure since 2021
- the main infrastructure challenges in the sector
- significant infrastructure opportunities to address these challenges.

Stakeholders told us about systemic challenges and the difficulty of reform

During the workshops, we heard that many changes since 2021 are affecting most sectors:

Cost of living pressures and higher interest rates

Ongoing effects of the COVID-19 pandemic

Workforce shortages and return of immigration to Victoria

Start of treaty negotiations between Victoria's First Peoples and the Victorian Government

More attention to achieving net zero, climate resilience and climate mitigation

Increased cyber security risk

Flooding in Victoria

The workshop participants told us about:

- their desire for more strategic planning
- the shortcomings of some governance arrangements
- changing the ways people use existing infrastructure
- finding approaches to deal with high-impact, low-probability events
- the effect of infrastructure decisions on industries and households.

Stakeholders proposed opportunities for Victoria and identified challenges.

Region workshops

Infrastructure Victoria held region consultation workshops to hear about challenges and opportunities from the perspective of people living and working in those communities. They told us that shared challenges can manifest differently in rural and regional Victoria compared to Melbourne.

In May 2023, we held 5 workshops. We grouped the regions using the Victorian Government's 9 regional partnership areas. We held 3 workshops for regional stakeholders, one for Melbourne outer growth areas and one for metropolitan Melbourne, as follows:

- Gippsland and Ovens-Murray regions
- Barwon, Great South Coast, Central Highlands regions
- Goulburn, Loddon Campaspe, Mallee and Wimmera Southern Mallee regions
- metropolitan Melbourne
- outer Melbourne growth areas.

Source: https://www.rdv.vic.gov.au/regional-partnerships/partnerships

We asked stakeholders about future challenges and opportunities

We wanted to explore 3 main questions in the region workshops:

- Tell us about infrastructure in your region and what has changed since our 2021 assessment?
- What are your ideas for updating the 30-year strategy?
- What is your advice for Infrastructure Victoria?

We heard about climate change, resilience, and population changes

We received over 100 ideas to help inform the 2025 update to the infrastructure strategy, and 85 pieces of advice for us to consider. The themes emerging from the workshops have helped us in developing the objectives of the draft strategy and will inform the state of infrastructure and recommendations of the draft strategy.

Participants reinforced major issues including climate change, achieving net zero greenhouse gas emission, resilience to natural disasters and population change. They told us the unique ways these problems manifest in local communities.

People attending the region workshops talked about transport, water, energy, health facilities and housing. They wanted to hear more about how communities can continue to do more with less and achieve better outcomes.

They also observed changes in the number of Victorians choosing to work, live and visit regional Victoria, and told us how infrastructure can support communities to address those changes. They wanted us to consider strategic, long-term issues, but also consider their effects and relevance for unique local communities.

Strategy objectives and next steps

Infrastructure Victoria is working towards the next update of the state's 30-year infrastructure strategy.

Strategy objectives

Informed by the feedback we received across engagement activities, Infrastructure Victoria developed the following 6 objectives to guide the update of the 30-year infrastructure strategy. These objectives are of equal weight and specify the ultimate goals the strategy will aspire to achieve. Infrastructure cannot accomplish them alone but can make a substantial contribution. We will expand on each of these objectives in the strategy.

Victoria has a high productivity and circular economy

Victoria has a high productivity economy that creates well-paid jobs, attracts investment and facilitates trade. It does so while also continually reducing the environmental impacts of production and consumption.

Aboriginal people have self-determination and equal outcomes to other Victorians.

Victoria's Aboriginal people have the power and resources to make decisions about their services, infrastructure, communities and future. Victoria has closed the gap in outcomes between Aboriginal and Torres Strait Islander people and other Victorians. Victorian infrastructure reflects respectful engagement with Aboriginal communities, draws on their knowledge, and celebrates their history, culture and values.

Victorians are healthy and safe

Victorians achieve and maintain good physical and mental health. They are safe from harm.

Victoria is resilient to climate change and other future risks

Victoria can minimise the impact of adverse future events. Victoria's greatest future risk is the impact of climate change, but it also faces risks of economic, technological, geopolitical, health or other environmental disasters and crises.

Victorians have good access to housing, jobs, services, and opportunities

Victorians can access housing, jobs, services, and opportunities to develop their capabilities, support their wellbeing, connect with other people, and take part in civic, community and cultural life.

Victoria has a thriving natural environment

Victoria's ecosystems are biodiverse and clean. Victoria does not pollute or put waste in the air, water, land, and natural ecosystems. This includes producing net zero greenhouse gas emissions that pollute Earth's atmosphere and contribute to dangerous climate change.

Next steps

We thank everyone who took part in this first phase of strategy engagement. In all our engagement activities, people came with goodwill, a shared understanding of the potential for infrastructure to improve the lives of Victorians, and a willingness to engage in difficult questions of trade-offs and priorities.

We will record and consider all the information we received through engagement. The feedback, ideas, and views from participants will help shape our next update of the infrastructure strategy. Where appropriate, we will continue to consult with stakeholders on specific issues.

We plan to deliver a draft of the next strategy in early 2025. Victorians will have the chance to give feedback on the draft strategy. We plan to finalise the strategy by the end of 2025.