



Victorian
Forest
Products
Association

INFRASTRUCTURE VICTORIA 30-YEAR STRATEGY

VFPA Submission

4 June 2023



Contents

| | |
|---|----|
| Victoria's Forest Products Industry | 3 |
| List of Recommendations | 4 |
| Executive Summary | 5 |
| Victoria's Infrastructure Strategy 2021-2051 | 5 |
| Challenges | 5 |
| Population growth..... | 5 |
| The circular economy..... | 9 |
| Responding the climate change..... | 10 |
| Build resilience..... | 11 |
| Infrastructure to Support Victoria's Forestry Sector | 12 |
| The Built Environment..... | 12 |
| Build a circular economy for waste, recycling and biofuels..... | 15 |
| Transport..... | 17 |
| Telecommunications..... | 27 |
| Fire towers..... | 29 |

About VFPA

VFPA is the peak industry body representing the forestry products value chain in Victoria from those growing, managing and harvesting our sustainable plantations and multiple use natural forests to the primary and secondary processing of timber, the manufacture of pulp, paper and bioproducts, and the value-added timber and pulp and paper products supply chains.

Victoria's Forest Products Industry

The Victorian forest products industry uses a mix of hardwood (eucalypt) and softwood (pine) resources supplied from multiple use public forests and private plantations. Victorian forest products are manufactured into a wide range of timber products including sawn timber products, engineered wood products, pulp and paper manufacture, and high-quality wood chips.

Wood is beautiful and functional, renewable, biodegradable, and recyclable. Wood is used for new homes, buildings, furniture, architectural joinery, paper, toiletry and sanitary products, and fuel for green energy. With over 5000 known uses for wood, wood is simply an essential part of life and the ultimate renewable. All parts of the harvested tree are used to its highest value use – there is simply no waste.

The Victorian forest products industry is highly regulated with sustainable forest management practices across private and public land tenures including ecological restoration for the benefit of Victorians. 0.034 per cent of Victoria's native forests are harvested annually and all harvested areas are re-established. Each year, approximately five per cent plantation trees are subject to final harvest with these areas replanted.

Forestry in Victoria has a significant role to play in the move to a net-zero carbon future. Research (Ximenes, et al., 2012) demonstrates that plantation trees capture three times more carbon than environmental plantings over 100 years. Carbon is sequestered in trees and the subsequent harvested timber products for the life of that product.



List of Recommendations

| | |
|--|----|
| Recommendation 1 In order to reduce sovereign risk, and to meet Victoria's current and future timber demand (including for housing), the Victorian Government co-invests with the forestry industry to expand the plantation estate "infrastructure" across the Gippsland, Green Triangle and Murray Forest Industry Hub regions..... | 9 |
| Recommendation 2: That the Victorian Government establishes a Wood Encouragement Policy to prioritise the use of Victorian wood fibre for Government projects and public infrastructure such as social housing. | 14 |
| Recommendation 3: That the Victorian Government prioritises the use of Victorian wood fibre for the Commonwealth Games built infrastructure..... | 15 |
| Recommendation 4: That Infrastructure Victoria places wood fibre at the centre of Victoria's circular economy through initiatives such as increased recovery of paper and cardboard waste streams and the use of wood waste in biofuels..... | 16 |
| Recommendation 6: That the Victorian Government establishes a consistent and systematic approach across all levels of Government and across state borders to optimise the use of high-performance freight vehicles..... | 19 |
| Recommendation 9: That the Victorian Government increases investment in roads and bridges to expand the HPFV gazetted network that will facilitate the use of HPFV..... | 26 |
| Recommendation 11: That the Victorian Government works with the telecommunications industry to close out black and grey spots in the telecommunications network, prioritising investment in forestry hub regions..... | 29 |
| Recommendation 12: That the Victorian Government, in conjunction with the Victorian plantation sector, prioritises investment to upgrade Victoria's fire towers with digital camera technology..... | 31 |

Executive Summary

Victoria Forest Products Association (VFPA) welcomes the opportunity to make a submission to Infrastructure Victoria's Infrastructure Strategy 2021-2051. This planning horizon aligns closely with the time it takes to grow a tree suitable for use in Victoria's built environment.

The Victorian forestry industry supports Infrastructure Victoria's vision of enhancing productivity, building resilience, responding to climate change, and meeting the social and economic needs of Victorians so they can build flourishing, meaningful, and prosperous lives. This is particularly important as Melbourne becomes Australia's most populous city, and as outlined recently by the Government, this requires rethinking how Government delivers infrastructure needs for all Victorians.

This submission outlines the key infrastructure needs that will support Victoria and Victoria's forestry sector over the coming decades. Forestry requires adequate and functional infrastructure to grow the sector and to be seen as a resilient grower and processor in a globally competitive market. This requires a sound and robust infrastructure agenda that will benefit and advance all Victorians.

Victoria's Infrastructure Strategy 2021-2051

The current Infrastructure Victoria 30-year strategy made ninety-four recommendations across ten core objective covering areas such as population change, communities, disadvantage, workforce, productivity, economy, consumption, environment, climate change and resilience¹. The strategy delivers these objectives across four broad categories covering long-term challenges, managing urban change, harnessing infrastructure for productivity and growth and developing regional Victoria.

The VFPA submission will look at some current and future challenges before moving towards the infrastructure that support and grow the forestry sector and its regional communities.

Challenges

Population growth

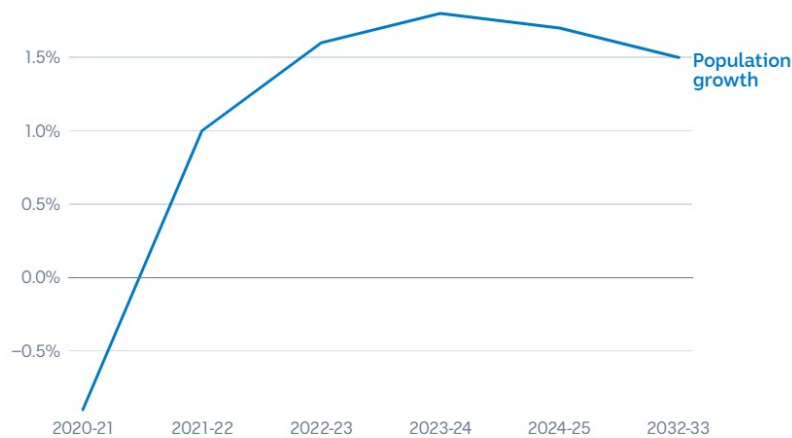
The Federal Government's Centre for Population forecasts suggest the nation's population growth will remain steady, rising from twenty-six million now to nearly thirty million people by 2032-33.

Due to the lack of overseas migration and thousands of Victorian residents moving interstate to escape lockdown laws, Melbourne's population growth declined during COVID (Figure 1). However, by 2031-32 forecasts suggests Melbourne's population will reach 6.1 million with the expectation that Melbourne will overtake Sydney to be the nation's most populous city.²

¹ [1.-Victorias-infrastructure-strategy-2021-2051-Vol-1.pdf \(infrastructurevictoria.com.au\)](#)

² Dunstan, Joseph "After pandemic population disruptions, here's where Australia's cities are headed", ABC News, January 2023 <https://www.abc.net.au/news/2023-01-05/australia-population-forecast-melbourne-sydney-brisbane-perth/101826412>

Figure 1 Victoria's population growth³



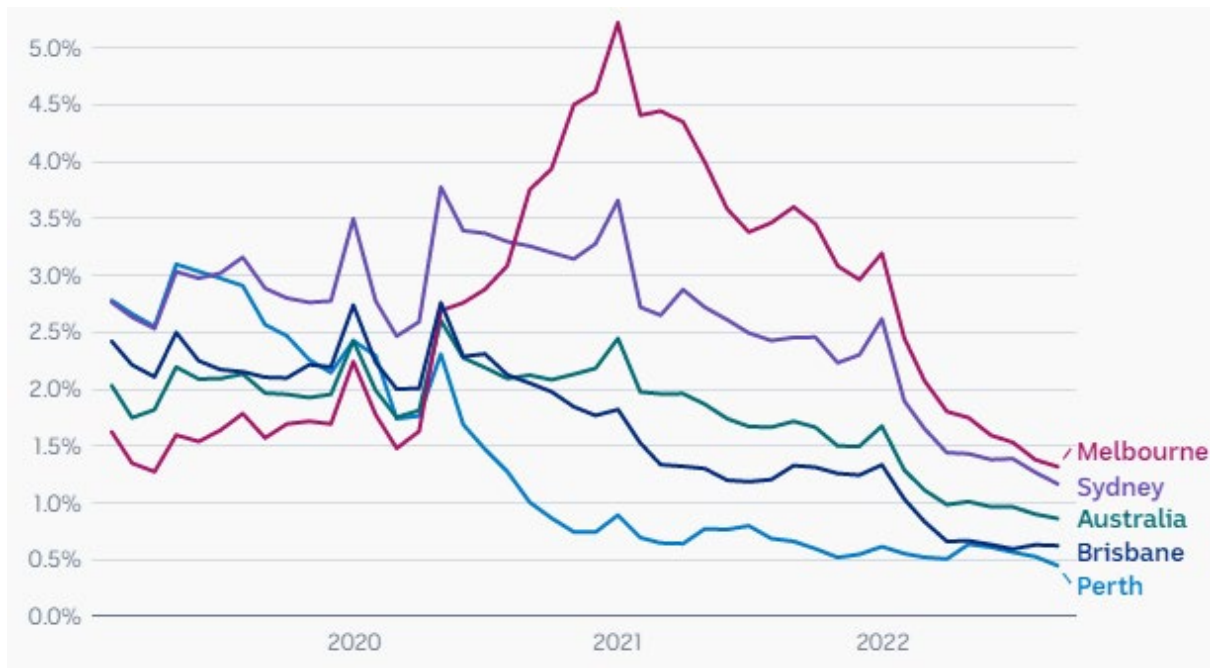
Melbourne had Australia's worst capital city vacancy rates during COVID, pushing up rents that is still being felt now, and triggering the worst rental and social housing crisis in living memory. Seven key factors were at play:

1. The race for space has seen average household size shrink, creating the need for more housing
2. Chronic undersupply of social housing has pushed higher numbers of vulnerable Australians into the private rental market
3. Australians are renting for longer because they cannot afford to buy. This worsened during the pandemic, which sent property prices soaring.
4. Investment weakened throughout the pandemic. Some investors cashed out during the pandemic price boom, reducing the supply of rental properties
5. International students and overseas migrants are beginning to return, adding pressure to an already strained rental market
6. Some landlords may be passing the cost of higher interest rates onto tenants (although this is made possible by low vacancy rates), and
7. As tourism recovers, more investors are leasing their properties on short-term letting sites such as Airbnb.⁴

³ Source: [After pandemic population disruptions, here's where Australia's cities are headed - ABC News](#)

⁴ Ting et al "Australia's runaway rents, ABC News, September 2022, [How the pandemic triggered Australia's worst rental crisis - ABC News](#)

Figure 2 Capital city vacancy rates⁵



Victoria's population increase will put another element of pressure on the state's housing system, particularly on the residential construction industry, which is currently in crisis with an increasing number of builders declaring bankruptcy or going into administration. This situation will only exacerbate the time it takes to build houses.

Despite the industry ramping up softwood supplies over recent years, Australian builders are struggling to find timber to build homes. The Associate Dean of School of Business and Law at Edith Cowan University, Mr Flavio Macau, who confirmed the timber shortage has been caused by four factors:

1. Government stimulus for the building industry – for both new houses and renovations
2. Increasing reliance on imported lumber
3. Pressure placed on global shipping by the pandemic, and
4. The effect of Russia's invasion of Ukraine on the world market.⁶

VFPA would add that during COVID households who could not travel spent surplus cash on new houses or renovations.

Mr Macau stated in his report, domestic plantation production has plateaued and unable to keep up with demand which was made incredibly challenging due to Eastern Australia's 2019-20 bushfires where the forest industry lost 130,000 ha of commercial plantations.⁷

The current situation will only increase as Victoria tries to accommodate its growing population by 2050. Unfortunately, the Victorian softwood estate has remained static since the early 1990s (Figure 3). That is at odds with new house builds that have increased 71% between 1990 and 2021⁸, while the softwood estate, which is critical to construction, increased by only 7% over the

⁵ Ibid

⁶ Macau, Flavio, "Timber shortages look set to delay home building into 2023. These 4 graphs show why" The Conversation, June 2022 <https://theconversation.com/timber-shortages-look-set-to-delay-home-building-into-2023-these-4-graphs-show-why-185197>

⁷ Ibid

⁸ New "other dwellings" increased by 709% over the same period resulting in total "all builds" being an increase of 125%

same timeframe. Victoria is increasingly reliant on softwood imports, what are now around 40% of the nation's total imports and this volume will need to increase further to accommodate Victoria's growing population as local demand outstrips supply (Figure 4) and increases supply uncertainty and volatility.

Figure 3 Victoria's softwood estate and new house builds 1990-2021⁹

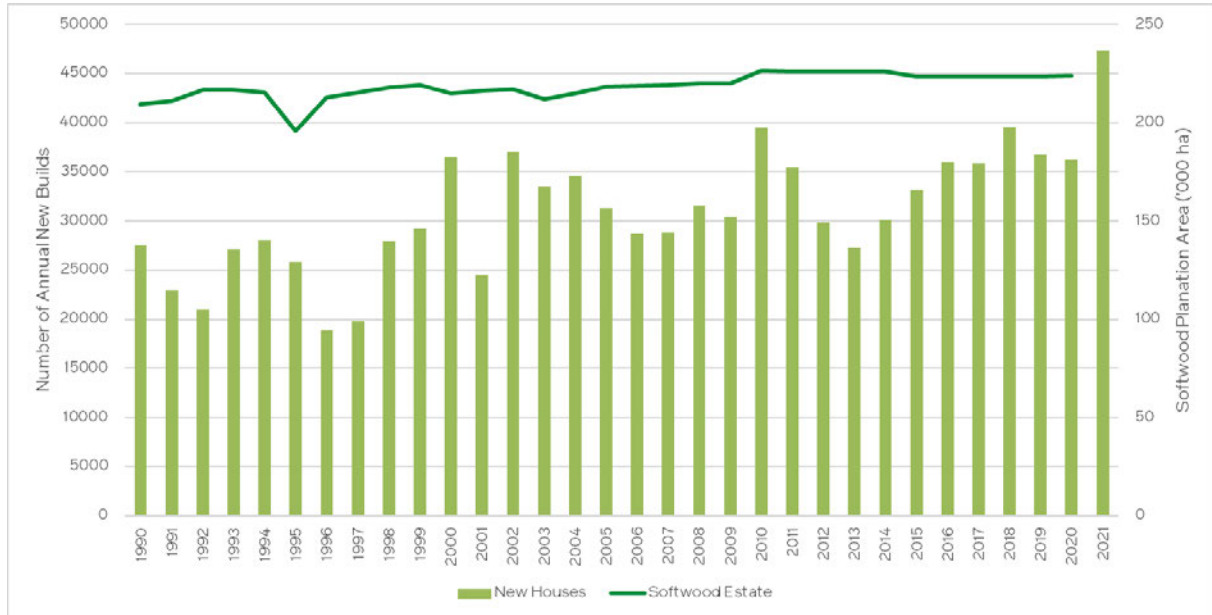
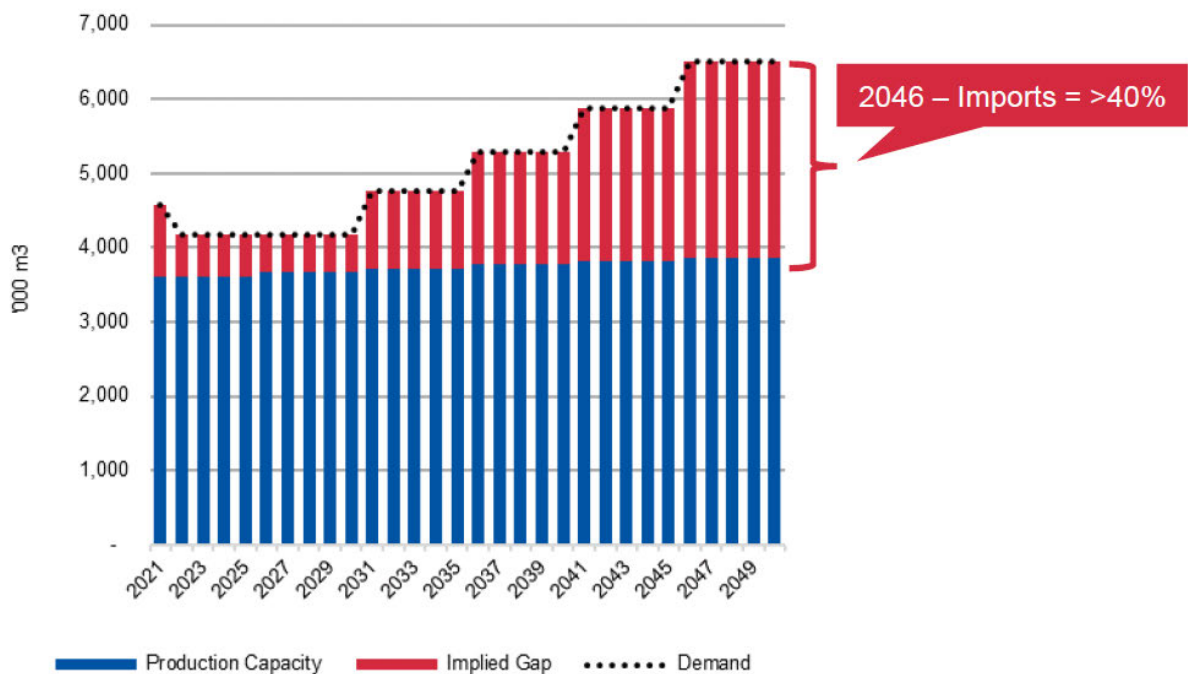


Figure 4 Australian Sawn Softwood Demand, Local Production and Implied Gap 2021-2050 ('000 m³ per annum)¹⁰



To meet the housing demands, there are two options: expand the plantation estate or increase imports. The former is limited by the availability and access to land, while the latter means that

⁹ Data sourced from ABARES forest & wood datasets

¹⁰ Source: Industry Edge

Victoria is subject to the vagaries of international trade, its disruptions and prices. As an example, North America incurred a COVID driven housing boom resulting in record price spikes for timber and increased imports¹¹, impacting global timber trade and exacerbated by the shortage of containers in the international supply chains.

Recommendation 1 *In order to reduce sovereign risk, and to meet Victoria's current and future timber demand (including for housing), the Victorian Government co-invests with the forestry industry to expand the plantation estate "infrastructure" across the Gippsland, Green Triangle and Murray Forest Industry Hub regions.*

While the above discussion focussed on the recent and current challenges, these will continue as global demand will continue to outstrip supply over the coming decades. Mid-century, demand will outstrip supply by four to one¹² while new research suggests that significant investments in afforestation, forest restoration and forest management is required to meet this global demand¹³. Australia – and Victoria – can no longer rely on imports to fill the shortage of timber in the decades to come.

As it takes up to 32 years to grow a pine tree for structural timber, there is a critical need to ramp up domestic production now to improve our sovereign timber supplies. For these reasons VFPA encourages the Government to co-invest in plantations now to grow the homes of tomorrow.

The circular economy

Forestry is renewable and sustainable. Every tree harvested from native forests or plantations is regenerated, and there is no waste. Every part of the tree is used – even the harvest "slash" from provides the ideal fertiliser for the next crop of trees. Through to mill where every bit of the log is used, through end uses such as wood chips for landscaping and wood fines for animal bedding. Figure 8 on page 6 shows the interconnectedness and complexity of the wood fibre supply chain.

The Government has invested in initiatives (e.g. the Circular Economy Infrastructure Fund) designed to improve the circular economy. Initiatives such as improving recovery and reuse of paper and cardboard, which research now shows can be recycled over twenty times.

Victoria has capacity to recover additional paper and cardboard resources that are currently exported or that go to landfill (Figure 5), albeit local recovery has improved since 2019. The data supports a reduction exports derived from kerbside recovery¹⁴ by 65% since 2015-16. This being in line with the Australian Government ban on paper waste exports from 1 July 2024¹⁵ that was precipitated when the Chinese Government announced a ban on imports of waste in 2017.

¹¹ For example, [Lumber and Timber Price Trends Analysis During the COVID-19 Pandemic \(tamu.edu\)](#)

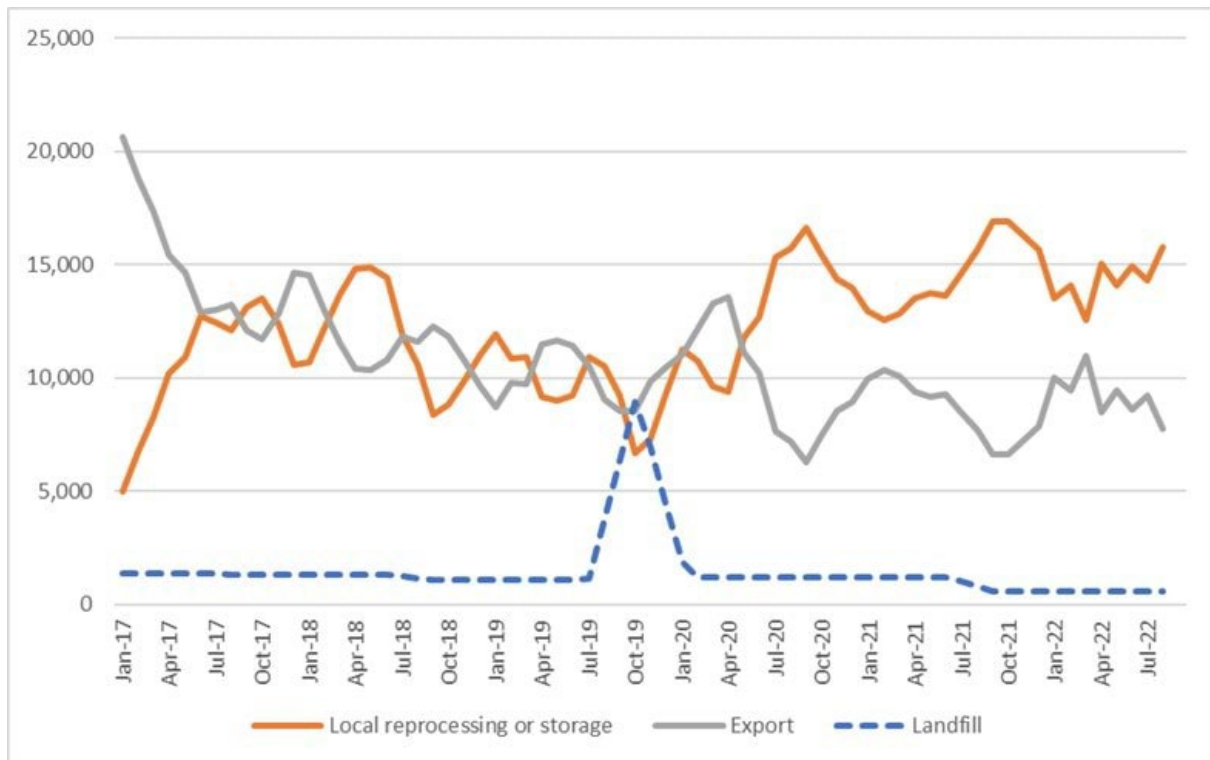
¹² World Bank forecasts [Global demand for timber could grow fourfold by 2050 - Global Wood Markets Info](#)

¹³ [Study: Afforestation - Key to Boosting EU Wood Output | Wood Central](#)

¹⁴ [RV Market-Insights-Reports Recovered-paper-and-paperboard-packaging.docx \(live.com\)](#)

¹⁵ [Waste exports - DCCEEW](#)

Figure 5 Destination of Victorian material recovery facility outputs (tonnes/month) – kerbside paper and cardboard¹⁶



Responding the climate change

The Victorian forestry sector supports the Government's legislated target of net-zero greenhouse gas emissions by 2050, and forestry is an industry that can support the Government, and other industries, in achieving those results.

Reducing emissions is a critical pathway to meeting our greenhouse gas reduction targets but so too is greater emissions capture, both natural and technology based. Australia's forest products sector is making a major contribution via carbon sequestration through tree growing and via the creation of sustainable and renewable products. Net Zero Australia notes that biodiversity plantings sequester on average 7.7 t-CO₂/ha/year while plantations sequester 30.3 t-CO₂/ha/year¹⁷.

It is worth highlighting that several international and national organisations and thought leaders have shared these exact insights, supporting forestry as one of the core industries to assist the nation and the globe in addressing climate change. For example:

- 🌱 Intergovernmental Panel on Climate Change
- 🌱 CSIRO report to the Climate Change Authority and Clean Energy Regulator, titled, "Australia's carbon sequestration potential"
- 🌱 Launched at COP27 in November 2022, Dalberg Advisors released a report, "*The growing roles of forest products in climate change mitigation*" recommending a call to action for countries to take nationally determined approaches to grow sustainable forest industries

¹⁶ [Paper and paperboard packaging | Victorian Government \(www.vic.gov.au\)](http://www.vic.gov.au)

¹⁷ [Downscaling – The role of forestry in enhancing the Australian land CO₂ sink \(netzeroaustralia.net.au\)](http://netzeroaustralia.net.au)

- 🌳 The Independent Review of Australian Carbon Credit Units prepared by Professor Ian Chubb AC, and
- 🌳 Most recently, Net Zero Australia final modelling results released in April 2023.

As highlighted in Professor Ian Chubb's review, it was confirmed that trees and forestry is nature's way of addressing climate change through the process of photosynthesis, and is the only effective, immediate, and guaranteed processes to carbon sequestration. As explained by Professor Chubb:

"...the only pathway known to science that has the immediate capacity – immediate capacity – to remove greenhouse gases, particularly CO₂, from the atmosphere at scale is photosynthesis, the means by which plants absorb CO₂ and water to create energy to fuel their eventually growth. So to start CO₂ removal, at scale, well before 2050, as the IPCC urges, the land sector will have to carry much of the immediate load."¹⁸

If Infrastructure Victoria is serious about creating climate change mitigation and adaption, then forestry is the industry that needs to be empowered to deliver on the state's net zero targets.

Not only will using the forest products sector help Australia fight climate change, but it will also reduce emissions through carbon sequestration, which can be increased through the plantation of more trees.

Build resilience

Resilience is the ability to successfully adapt to difficult or challenging circumstances. For the forestry sector, this could include weather, pests and diseases, climate change, fires, supply & demand and more. The key threat to Victoria's forestry industry are fires, and this is covered later in this submission.

For infrastructure, this means building infrastructure that is resilient to challenging circumstances. This will very much depend on the infrastructure and its nexus to the Victorian forestry sector. The recent past has shown that Victoria's road infrastructure has suffered with wet weather impacting roads across the state, while flooding in some areas has destroyed roads and bridges. This can be seen one bridge (Figure 6) now unfit for forestry trucks as the substructure and running deck is old (wooden deck) and deteriorating.

Figure 6 Tanners Road bridge, Calignee South Road, Gippsland



¹⁸ Chubb, Professor Ian, *Independent Review of Australian Carbon Credit Units*, December 2022
[Independent Review of Australian Carbon Credit Units - DCCCEW](#)

For buildings, reducing the risk to Australians from earthquakes is paramount, especially as mass timber products are increasingly used for residential and commercial construction.

Architects and builders are leaning towards the use of engineered timber due to the multiple benefits of this structurally sound material such as cost-effectiveness, efficiency of construction and the environmental benefits it delivers.

And, for this submission, it is important to highlight the case studies investigating into the resilience engineered timber has against earthquakes and shocks.

In April 2023, the University of California San Diego tested a 10-storey cross-laminated timber building on one of the world's two largest earthquake simulators. Reported by Science Blog, the experiment is known as TallWood Project, and will be the tallest full-scale building to ever undergo testing on an earthquake simulator or shake table. According to the blog, the simulator will cover a range of earthquake magnitudes on the Richter scale from magnitude four to magnitude eight¹⁹.

The results of this investigation will be incredibly beneficial for Infrastructure Victoria to examine, particularly as Australia experiences on average one hundred earthquakes a year of magnitude three or more, as advised by Geoscience Australia.²⁰

Knowing the outcome of this study will provide further confidence in utilizing mass timber products for our commercial and residential construction.

Infrastructure to Support Victoria's Forestry Sector

The Built Environment

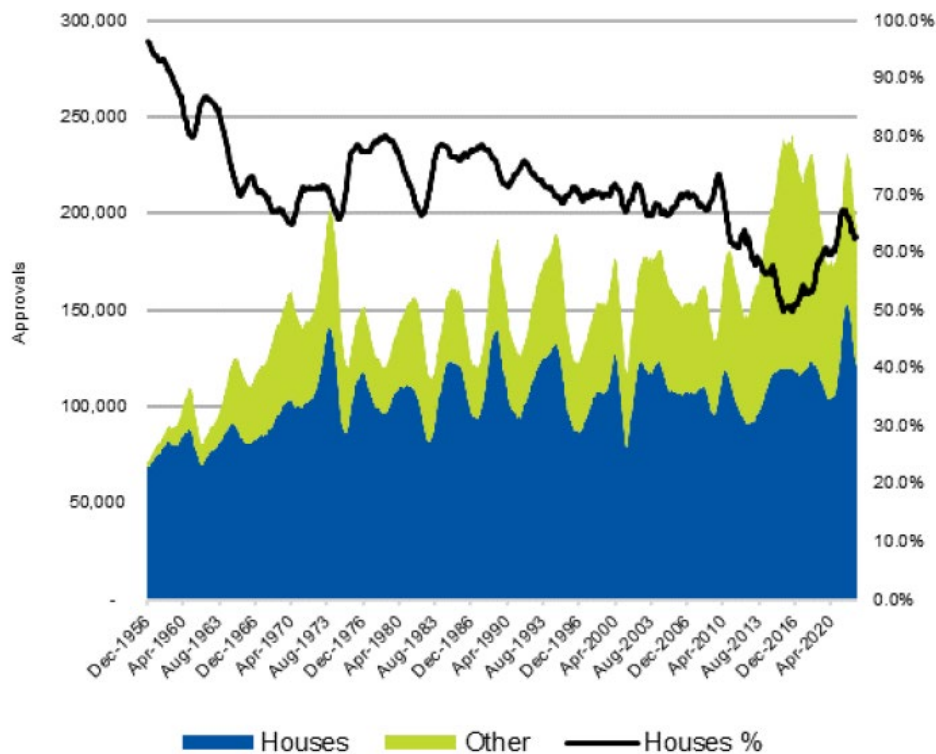
Over recent years, there has been a marked shift in building construction, and even renovations (rather than demolish). In the housing market, the ageing population is influencing a move away from large to smaller dwellings. In the 1950's houses comprised 96% of building approvals while in 2014 it was just 50% of building approvals before recovering to 65% in 2022²¹.

¹⁹ Science Blog, " *Tallest Full-Scale Building Ever Built on an Earthquake Simulator Put to the Test*", UC San Diego, April 2023 [Tallest Full-scale Building Ever Built on an Earthquake Simulator Put to the Test - ScienceBlog.com](https://www.sciencelog.com/2023/04/10/tallest-full-scale-building-ever-built-on-an-earthquake-simulator-put-to-the-test/)

²⁰ Geoscience Australia, Australian Government, *Earthquake* <https://www.ga.gov.au/education/classroom-resources/hazards/natural-hazards/earthquake#heading-3>

²¹ Source: Industry Edge

Figure 7 Dwelling approvals 1956-2022²²



The dwellings of the future are smaller, more engineered (mass engineered timber) and factory built, with the advantages being:

- 🏠 Smaller land and building footprint
- 🏠 Uses less resources
- 🏠 More potential for offsite fabrication
- 🏠 Cheaper to operate
- 🏠 Less embodied energy and emissions, and
- 🏠 Cheaper to build

Residential and Commercial Construction - Mass Timber Buildings

Mass timber construction is ideal for volume building such as for social housing²³, government and commercial sectors delivering site efficiency and reduced build times while delivering an elegant building solution. Commercial buildings are already moving towards more offsite manufacturing ahead of houses²⁴.

Internationally, engineered timber products is experiencing a renaissance in the construction industry, and Australia is beginning to follow suit with several major buildings incorporating mass timber into their architectural designs.

Cross Laminated Timber (CLT) and Glue Laminated Timber (GLT) are the mass timber building materials of the 21st Century and is a product being embraced by leading international

²² Ibid

²³ For example, [New 9 storey X-Lam social housing | WoodSolutions](#)

²⁴ For example, [Oakleigh South Child Care Centre – XLam](#)

architects, builders and designers to replace carbon-manufactured materials like concrete and steel.

In 2018, CLT was used to build Norway's tallest timber building standing at 85.4 metres, and Australia is now constructing some of the world's notable engineered timber buildings. For example, La Trobe University in 2021 built a new student accommodation at its Bundoora campus, delivering Victoria's largest mass timber project with most of the entire structure utilising cross-laminated timber (CLT) and glulam beams and columns.²⁵

Plus, there are additional nationally acclaimed timber buildings that have used CLT and GLT in their construction, such as Forte Living - Australia's first multi-residential CLT building, 25 King Street in Brisbane, Adelaide Oval Hotel, NIOA headquarters expansion and Atlassian's new headquarters in Sydney, just to name a few.

From high strength to a lighter environmental footprint than concrete or steel, the benefits of mass timber buildings are proven to be visionary, carbon-neutral and the future of the construction industry.

According to the Clean Energy Finance Corporation (CEFC), Australia's \$65 billion construction material industry is responsible for 30-50 million t CO₂-e each year, equating to 5-10 percent of the national greenhouse gas emissions. Therefore, by replacing concrete and steel with a carbon neutral building material not only plays into the Infrastructure Victoria's narrative of advancing climate change mitigation, but also addresses the Government's legislative commitment of achieving a net-zero economy by 2050.

A report by Planet Ark, "Wood: Nature Inspired Design", on the use of wood in buildings found that:

*"The use of wood in the interior of a building has clear physiological and psychological benefits that mimic the effect of spending time outside in nature. The feelings of natural warmth and comfort that wood elicits in people has the effect of lowering blood pressure and heart rates, reducing stress and anxiety [...]."*²⁶

Wood's other superpower is that it is the only building material that removes carbon from the atmosphere and stores it for its entire lifecycle. Victorian wood is sourced responsibly - every tree harvested is certified under one or both of two global certification schemes meaning every tree harvested is replaced.

Mass timber buildings are the future of the residential and commercial construction industry, not only in reducing carbon emissions but it is a sustainably sourced natural building material that has multiple benefits for the state, economically, socially and environmentally.

Recommendation 2: *That the Victorian Government establishes a Wood Encouragement Policy to prioritise the use of Victorian wood fibre for Government projects and public infrastructure such as social housing.*

Furthermore, for the forestry sector to support the demand for Victoria's timber and wood fibre needs, it requires the Victorian Government to create right policy settings that will facilitate additional wood through the supply chain over the coming decades.

²⁵ Multiplex, *Multiplex completes Victoria's Largest Mass Timber Project at La Trobe University*, March 2021 <https://www.multiplex.global/au/news/multiplex-completes-victoria-s-largest-mass-timber-project-at-la-trobe-university/>

²⁶ Planet Ark, *Wood: Nature Inspired Design* 2017 [Make_It_Wood_-_Nature_Inspired_Design_Report.pdf \(ctfassets.net\)](#)

Commonwealth Games – Mass Timber Buildings

With Victoria hosting the 2026 Commonwealth Games, it is expected to generate more than \$3 billion to the State's economy, it will attract 7,000 participants ranging from athletes, supporting staff and visitors, and will be an opportunity for Victoria to be promoted on the global stage.

For insight, the 2022 the Birmingham Commonwealth Games made a commitment to deliver a carbon neutral Games, and recently the Queensland Government confirmed their ambition to deliver a climate positive 2032 Olympic and Paralympic Games.

Victoria has the same opportunity in delivering a Commonwealth Games that is carbon neutral, and the State's forestry sector can execute this aspiration through mass timber buildings for the Games built infrastructure.

Knowing the influx of visitors, accommodation will be required to house athletes and their support staff, especially within the regions, and the construction of housing and buildings using mass timber will not only deliver on the accommodation needs of the Commonwealth Games, but also to meet current disaster, social and regional housing deficits, by using modular (temporary and thus relocatable) and permanent housing facilities.

***Recommendation 3:** That the Victorian Government prioritises the use of Victorian wood fibre for the Commonwealth Games built infrastructure.*

Wood Encouragement Policy

The Government's decision to import wood from the EU for the new ANZAC Station floating timber canopy was disappointing given the availability of Victorian wood and businesses that could deliver these²⁷.

Consequently, leading up to the 2022 State Election, VFPA advocated for a Wood Encouragement Policy, which recommended the implementation of sustainably sourced Victorian wood in Government procurement, particularly for new buildings and refurbishment projects.

This policy initiative would ensure that Victorian grown wood is considered as a key component across architectural designs. It is a policy that encourages the Government to lead by example and showcase Victorian wood in government projects and illustrate to industry leaders the versatility of wood across our state's infrastructure.

Build a circular economy for waste, recycling and biofuels

The circular economy is the systemic approach to longer and more efficient use of resources it seeks to minimise waste and maximize the efficiency of natural resources. Forests can support a circular economy by sustainably supplying wood and wood-fibre to create renewable, recyclable, and biodegradable materials.²⁸

²⁷ [Imported wood use at Metro's new Melbourne station is a slap in the face to Victoria's renewable forest products industries - Victorian Forest Products Association \(vfpa.com.au\)](https://www.vfpa.com.au/news/imported-wood-use-at-metro-s-new-melbourne-station-is-a-slap-in-the-face-to-victoria-s-renewable-forest-products-industries)

²⁸ Yao, Dr Yuan, *Yale Forest Forum: Planted Forests and Circular Economy*, October 2022
<https://yff.yale.edu/event/planted-forests-and-circular-economy#:~:text=The%20circular%20economy%20is%20an,%2C%20recyclable%2C%20and%20biodegradable%20materials>.

Wood fibre products are the ultimate in circularity and sustainability which need to be embraced as the state moves towards net-zero targets and the removal of single-use plastics from our community.

There is a growing global trend of companies transitioning to fibre-based packaging material, such as Mars Wrigley Australia who are moving to paper-based wrappers for its chocolate bar lines. This is just one example of how company innovation is modernising and embracing greener practices to benefit the environment and circular economy.

Another incredible example of company innovation is building and construction supplier, Boral Timber, who turned wood waste into biodiesel and renewable bitumen. In 2018, Boral Timber undertook a feasibility study to convert hardwood sawmill residues into renewable products.

The study proved successful, confirming that through the Mechanical Catalytic Conversation process (MECC), wood waste can be converted into renewable products such as transport grade Renewable Diesel, a renewable bitumen product that is blendable with fossil fuel bitumen for production of asphalt, plus a range of saleable by-products.²⁹

The diversity of wood and wood-fibre across the circular economy is truly inspiring and can transform the State's infrastructure landscape and address net-zero targets.

Timber should be an obvious beneficiary of the circular economy given the positive attributes it exhibits.

Recommendation 4: *That Infrastructure Victoria places wood fibre at the centre of Victoria's circular economy through initiatives such as increased recovery of paper and cardboard waste streams and the use of wood waste in biofuels.*

Renewable Energy

Plantations may be a suitable option for the state's new renewable energy projects because there is already existing infrastructure in place, such as roads and powerlines, and are often some distance from neighbouring houses. Such an approach has already seen international success with wind farms already operating in forests in Canada, Germany, Sweden, Wales, Scotland and Ireland.³⁰

Wind farms can co-exist with plantation forests without having any long-term impact on tree growth or plantation operations, as the wind turbines are situated well above the top of the trees.

Recently, the 33-turbine Delburn wind farm – one of Australia's first to be built within an established plantation – received the green light from Victorian planning authorities. The project is proposed for a site within the Strzelecki Ranges, to the south of the Latrobe Valley in Victoria. The height of the turbines will allow them to operate above the plantation, allowing the wind farm to be co-located with the pine forest.³¹

²⁹ Boral Timber, *Hardwood Residue Bio-Refinery Feasibility Study: Technical and Financial Feasibility Report*, July 2019 – pg 4 <https://arena.gov.au/assets/2018/08/hardwood-residue-biorefinery-project-feasibility-study.pdf>

³⁰ Forestry Corporation, *Renewable Energy; Information for community and Stakeholders* <https://www.forestrycorporation.com.au/sustainability/renewable-energy/information-for-community-and-stakeholder>

³¹ Mazengarb, Michael, *Renew Economy: Victoria approves first pine plantation wind farm, but big battery will need to wait*, March 2022 <https://reneweconomy.com.au/victoria-approves-first-pine-plantation-wind-farm-but-big-battery-will-need-to-wait/>

By consulting with the forest and timber sectors in Victoria, establishing more wind farms on plantation estates could be a future pathway to generate more renewable energy whilst advancing core infrastructure values of our Government's objectives, particularly in reducing greenhouse gas emissions.

Transport

To understand a discussion on forestry sector freight, it is important to understand the sector's complex and highly interconnected supply chains (Figure 8) as product can move from a mill to another plant (e.g. paper mill), the location of plantations (Figure 9), Victoria's wood processing plants and ports (Figure 10) and the transport networks (Figure 13 and Figure 14).

Figure 8 Forestry Supply Chain (Source: Industry Edge)

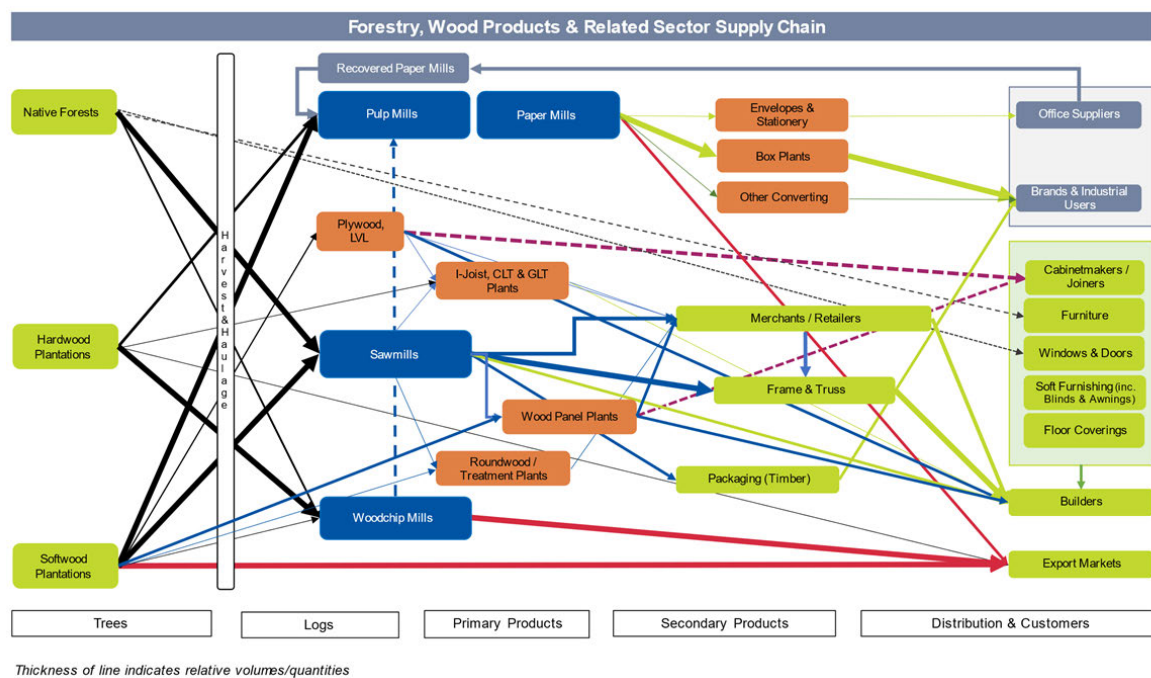


Figure 9 Commercial plantations (Source: ABARES)

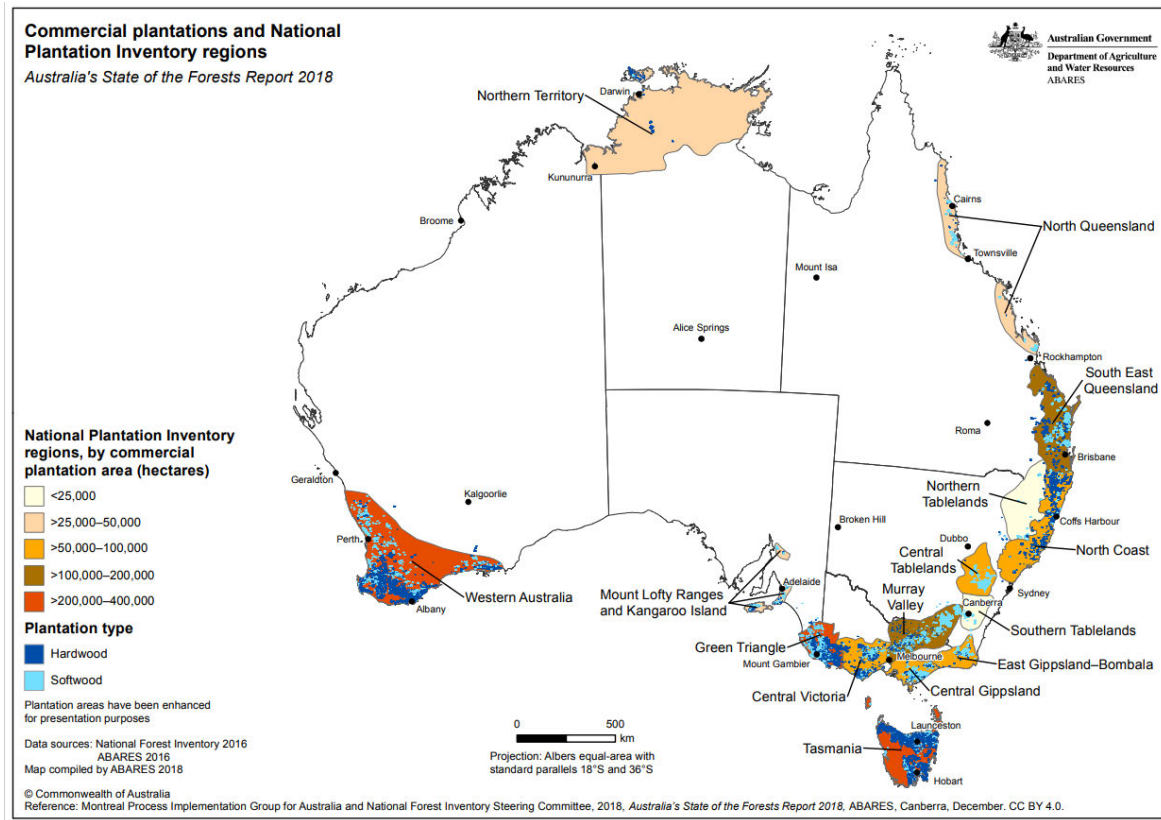
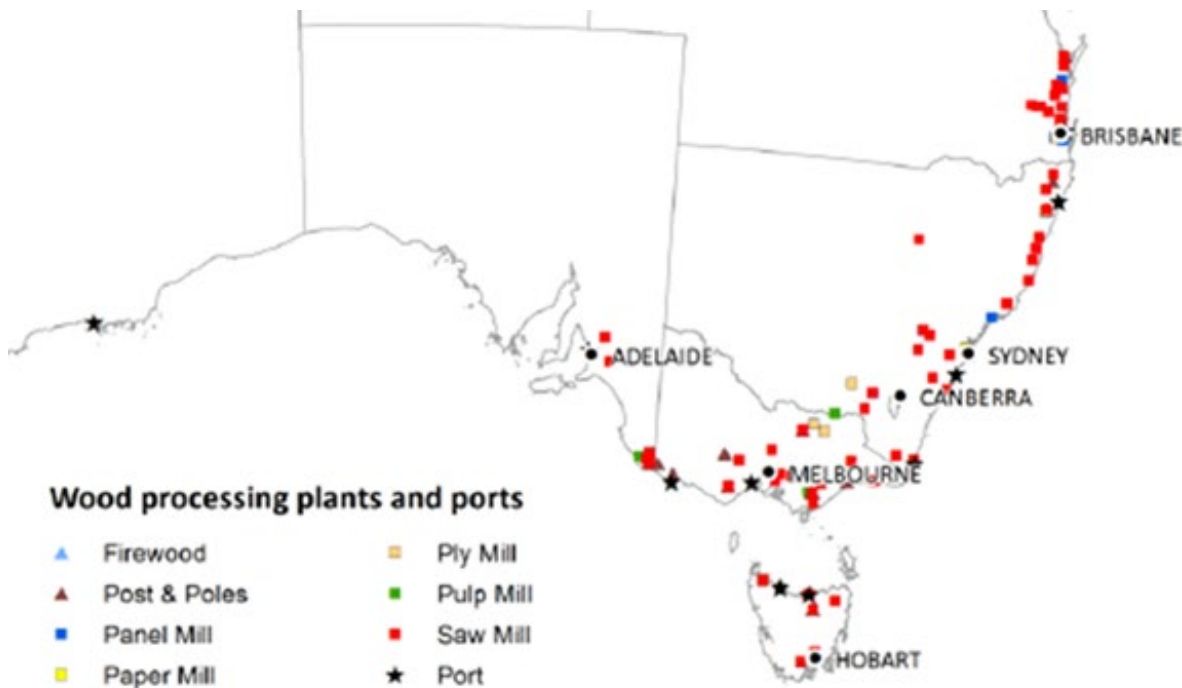


Figure 10 Wood processing plants and ports



Roads

The Victorian forestry sector has different requirements for inbound (from forest to processor either a mill or port for export) and outbound freight, including from processor to supply chain

(including other processors) and consumers. Logs are transported using specialist log trucks, while wood chips destined for export are largely chipped in-field and transported in bulk trailers like grain trucks (Figure 11).

Figure 11 Wood chip and logging trucks



Processed timber uses numerous freight vehicles, with movement towards high performance freight vehicles (HPFV) such as A-Doubles, and more recently the move toward e-trucks. The move to more efficient freight vehicles is limited by the available network and the state of local and regional roads.

As a case study, a VFPA member has taken the proactive approach of investing in their plantation road infrastructure to A-Double standard to minimise the number of truck movements required to uplift produce as efficient as possible, which in the long-term will reduce fuel consumption, emissions and improve the company's productivity.

Yet, A-Double transportation routes are unfortunately not approved in the 'last mile' of the delivery route to manufacturers, meaning the company is unable to use these high production vehicles to their fullest extent, creating double handling and lack of productivity.

There is also a lack of consistent approach when it comes to cross border freight movements. Most sawlogs in south-west Victoria move from Victoria into South Australia with the processed timber being freighted back to Melbourne and other further processors. This requires consideration by both Governments on aligning the road networks for HPFV.

There are also significant differences in the regulatory environment and road network for HPFV when freight moves across state borders, which is relevant to movements of product between Victoria, South Australia and NSW. The Cross Border Commissioner is critical to assist with these jurisdictional negotiations.

Recommendation 5: *That the Victorian Government establishes a consistent and systematic approach across all levels of Government and across state borders to optimise the use of high-performance freight vehicles.*

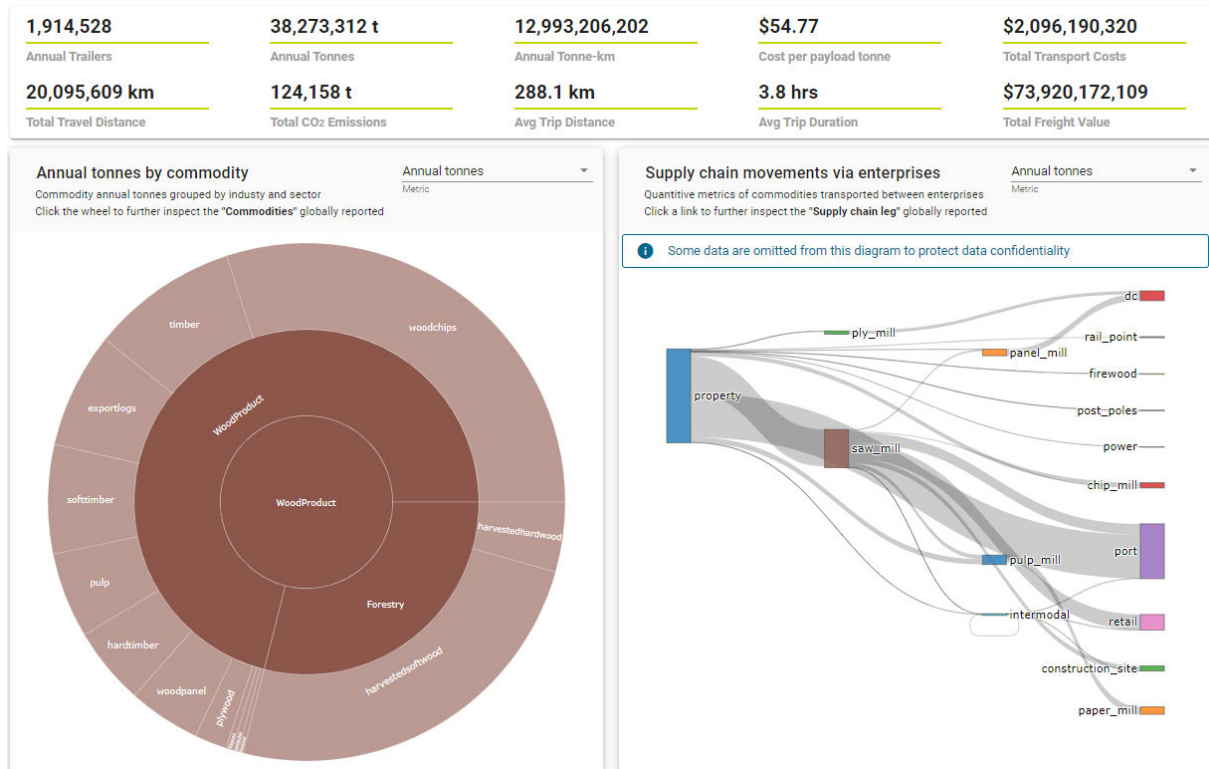
Good road infrastructure is essential to transport products across the nodes of the supply chain and is essential to moving large log volumes from plantations to a multitude of processing plants and export ports – and from mills through to the supply chain and consumers.

The 2017 CSIRO TraNSIT report notes there is a total of 180,000 unique origin to destination paths, representing twenty-eight million vehicle trips (semi-trailer equivalents) across Australia over 25 years, transporting a total of eight hundred million m³ of timber.³²

³² Higgins, Andrew; Marinoni, Oswald; Pinkard, Libby; McFallan, Stephen; McKeown, Adam; Bruce, Caroline, *CSIRO. TraNSIT: Modelling the Supply Chain of Australia's Plantation Forestry*, April 2017, pg 16

The TraNSIT Dashboard provides a unique ability to interrogate data according to a range of factors such as annual tonnes, CO₂ emissions, freight costs and value, trip distances and so. Figure 12 portrays the total annual tonnes, which shows wood chips and harvested wood comprise the largest volumes, travel durations, freight costs and highest emissions.

Figure 12 TraNSIT Wood Products Freight Task (Source: TraNSIT)



The graph highlights the high density of forestry transport through Victoria and illustrates how imperative it is to have high-quality road infrastructure to sustain the transportation of forest and timber products (Figure 13) and particularly the high density of forestry transport travelling through Victoria's regional roads (Figure 14) noting inbound (Colac, Latrobe and NE Victoria) and outbound freight across much of southern, eastern and NE Victoria (Figure 15). These show the importance of the freight network from Mount Gambier to Melbourne, Melbourne to Wodonga and Melbourne to Gippsland.

Figure 13 Baseline of transport density (number of semi-trailer equivalents on roads) for plantation timber over 25 years (2016-2041)³³

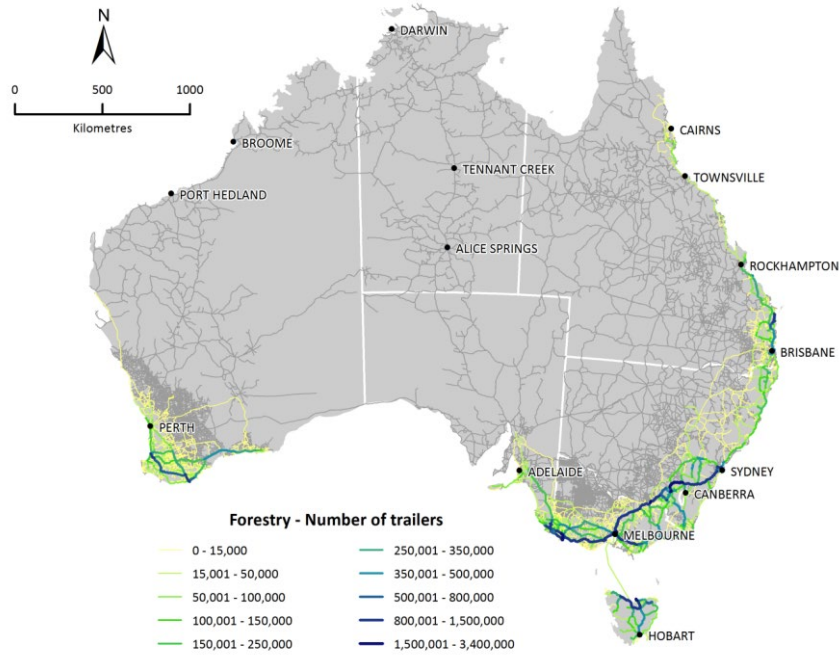
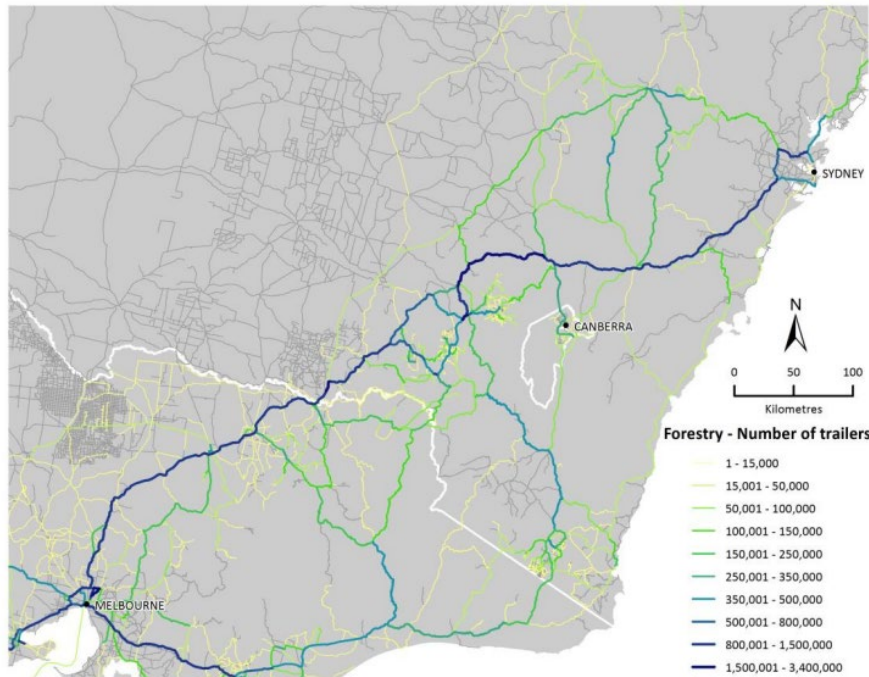


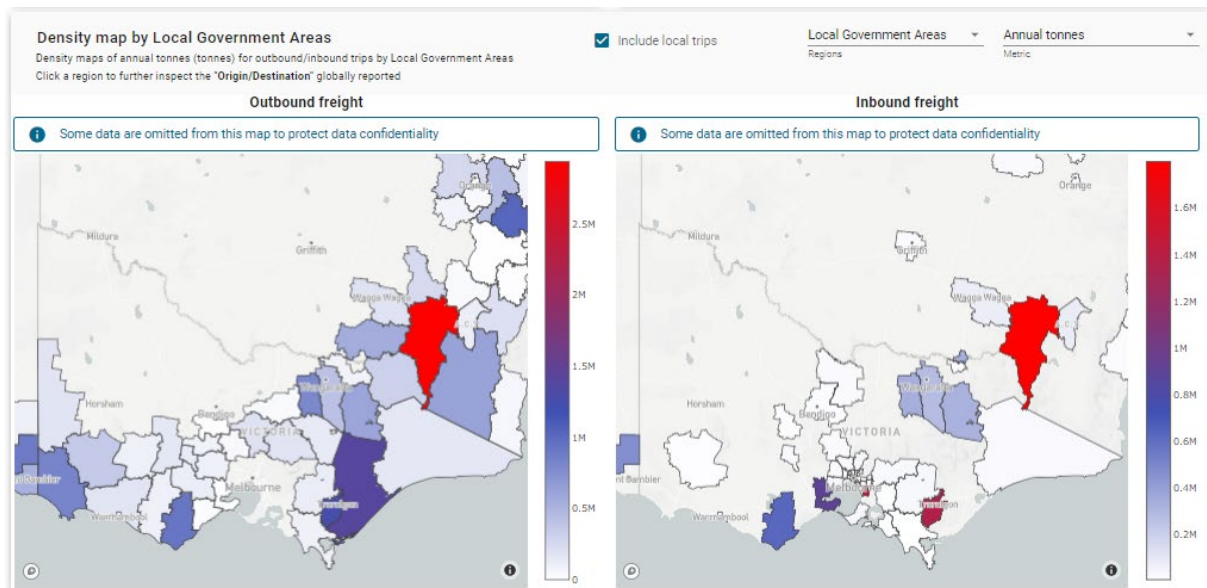
Figure 14 Baseline of transport density (number of semi-trailer equivalents on roads) for plantation timber over 25 years (2016-2041) – south eastern Australia³⁴



³³ TRANSIT: Modelling the supply chain of Australia's plantation Forestry (2017) pg 17

³⁴ Ibid

Figure 15 Annual Volume Victorian Inbound and Outbound Wood Products³⁵



Unfortunately, poor road conditions substantially reduce average travel speeds and increase the maintenance costs of heavy vehicles. This was evident in the Green Triangle Freight Action Plan confirming urgent upgrades were needed to key freight routes, particularly arterial roads including the Princes Highway, Henty Highway, Portland-Nelson Road and Portland-Casterton Road.

With thanks to State Government, key stakeholders and regional community members, \$40 million worth of investment was allocated to address these critical freight road works. With more than 200,000 heavy vehicles moving to the Port of Portland each year, carrying on average 7.5 million tonnes of cargo, largely log and woodchip products.

An upgrade to these roads has been vital to the workflow and safety of freight workers and the forestry sector in the Green Triangle.

Rail

The Gippsland Forestry Hub Innovation and Infrastructure report states rail freight is an unlikely freight solution for the industry due to the short travel distance, the low volume of product in the Gippsland region, and the issue of double handling. The report notes that “*with truck access to Melbourne Ports and increasing congestion through the metropolitan area, it’s a growing concern for interregional road freight operators*”.³⁶ Meanwhile, the Green Triangle Freight Action Plan has prioritised the development of key rail networks to move freight off roads to ease the pressure on the road networks, reduce congestion and improve road safety.

The Victorian Government is investing in rail developments to replace road transport with dedicated rail freight services, including the Gippsland rail line and the Fenning’s Intermodal Freight Terminal at Bairnsdale.

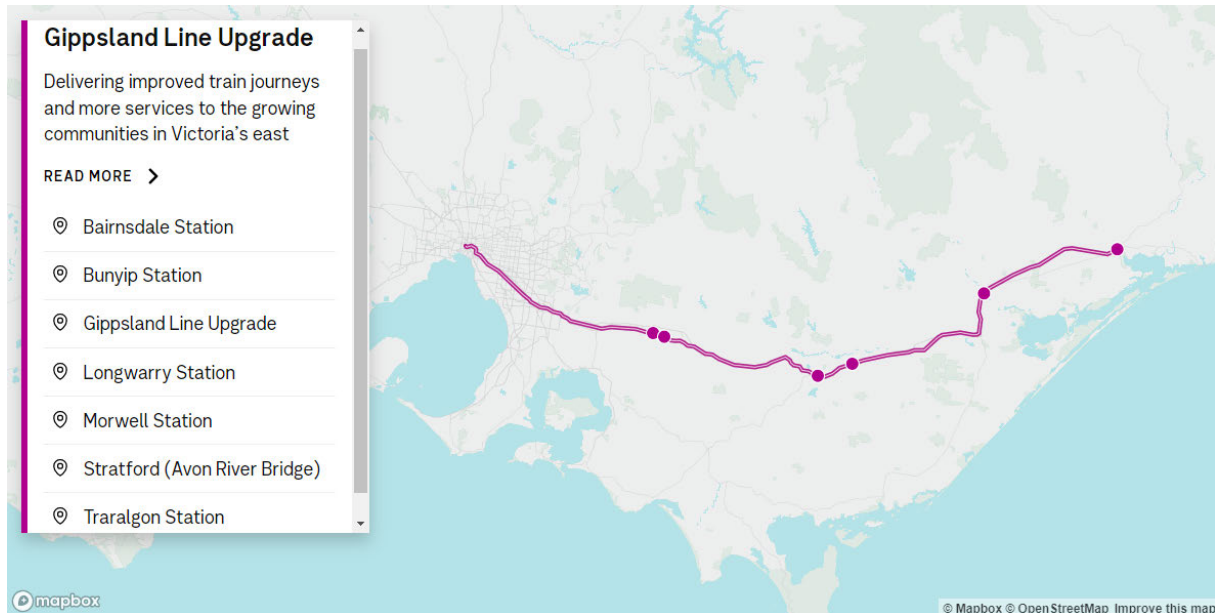
The Fenning’s Intermodal Freight Terminal Stage 1 is a commercial light rail precinct supported by \$700K in state government funding. Stage 1 includes an upgrade to the siding and existing

³⁵ [TraNSIT Supply Chains \(csiro.au\)](https://www.csiro.au/traNSIT-Supply-Chains)

³⁶ Greenwood Strategy and Department of Agriculture, Water and the Environment, *Gippsland Forestry Hub: Innovation and Infrastructure*, 2022, pg 50 <https://gippslandforestryhub.com.au/wp-content/uploads/2022/07/GFHub-Innovation-Infrastructure-June2022-final-web-2.pdf>

infrastructure and improvements to refuelling, parking and access. This freight terminal is expected to support three freight trains per week of timber, resources, food and other bulk items – or 10,000 containers per annum – and remove 6,000 truck trips from regional roads. Stage 2 will focus on expanding the Terminal's footprint and building additional warehousing and storage facilities.

Figure 16 Victoria's Big Build: Gippsland Rail Upgrades



There are several issues that impede rail as an attractive freight option for logs or timber products:

- 🔧 The shorter freight distances and volumes mean that road transport is far superior (time and cost)
- 🔧 Rail freight contractual arrangements means rail freight is a prohibitive cost, which disincentivises smaller freight volumes across shorter distances, and
- 🔧 Double or more handling to get freight onto and then off rail from source to destination.

If the Victorian Government is serious about reducing road freight and increasing the use of rail freight, these key issues must be overcome. However, for logs and timber freight, rail is not a high priority.

Ports

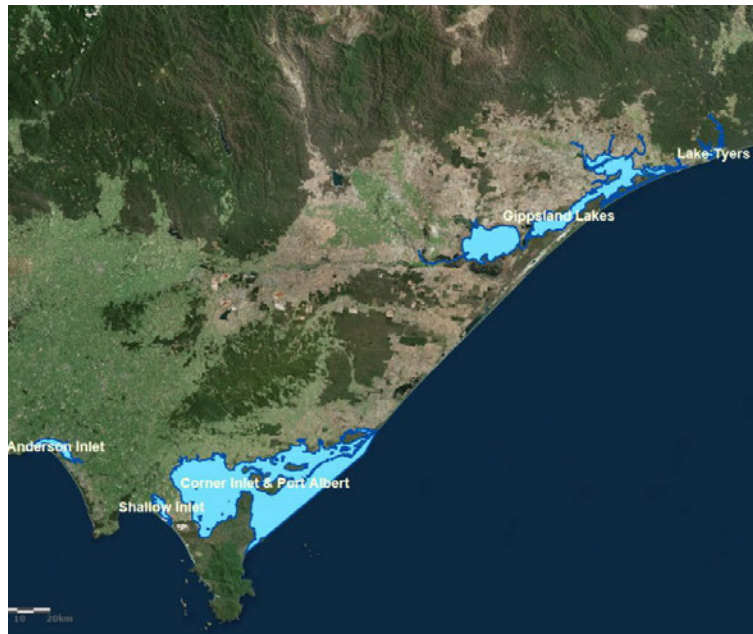
Victorian ports are an essential infrastructure for the sector, particularly the Ports of Portland and Geelong, and therefore the maintenance of ports and the supporting road network is vital for the industry to continue trading domestically and internationally.

For example, the Port of Portland is one the largest exporters of woodchips in Australia, with more than 145,000 truck trips annually, with chips sourced across the Green Triangle region, including South Australia.

Furthermore, the Geelong Port, is one of Australia's premier bulk ports and the second largest port in Victoria, handling close to 11 million tonnes of product annually, with woodchips contributing more than 600,000 tonnes to that figure.³⁷

While Gippsland has five ports (Figure 17), these have not been used for wood fibre freight. With the closure of the native forestry sector in 2030, and litigation severely impacting native hardwood harvesting, wood fibre is now coming from both NSW and Tasmania to mills in Gippsland. In future, the use of the Gippsland ports may increase should domestic sea freight become a viable and cost-effective option.

Figure 17 Gippsland Ports



Bridges

The upgrade of bridges and culverts are important infrastructure requirements for the transportation of log and woodchips across regional Victoria. As mentioned earlier, damage because of wet weather and flooding must be repaired to facilitate transport of wood fibre to and from mills.

As shown in Figure 18 and Figure 19, the B-double network in Victoria is far superior to that for HPFV. The move from B-double trucks to High Performance Freight Vehicles (HPFV) such as A-doubles are imperative to reduce emissions and increase freight efficiency. A limitation to the uptake of HPFV is the road network, bridges and rail crossing, where the gazetted roads for these vehicles is limited.

³⁷ Geelong Port, *Trade Statistics* <https://geelongport.com.au/port-operations/trade-statistics/>

Figure 18 Victoria's B-Double Network (red is restricted, orange conditional, green approved)³⁸

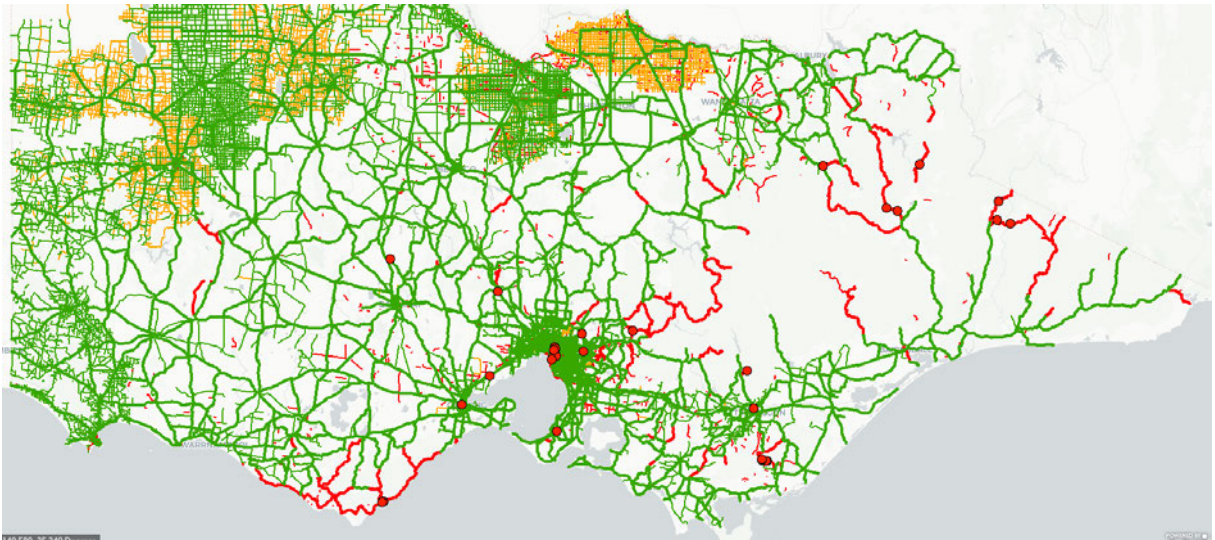
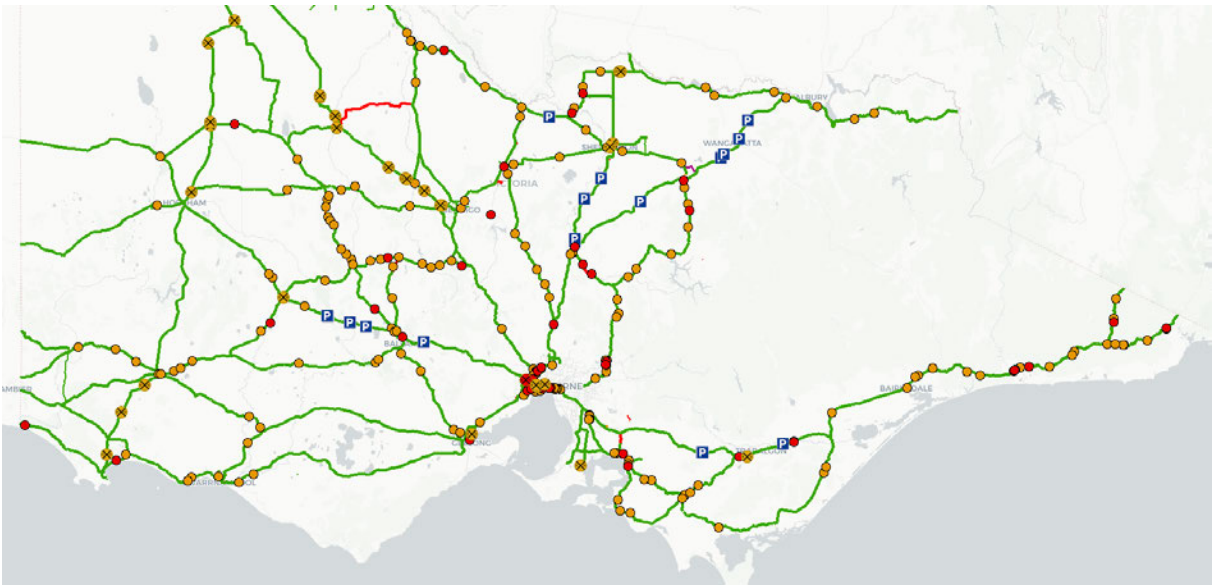


Figure 19 A-Double Road Network³⁹

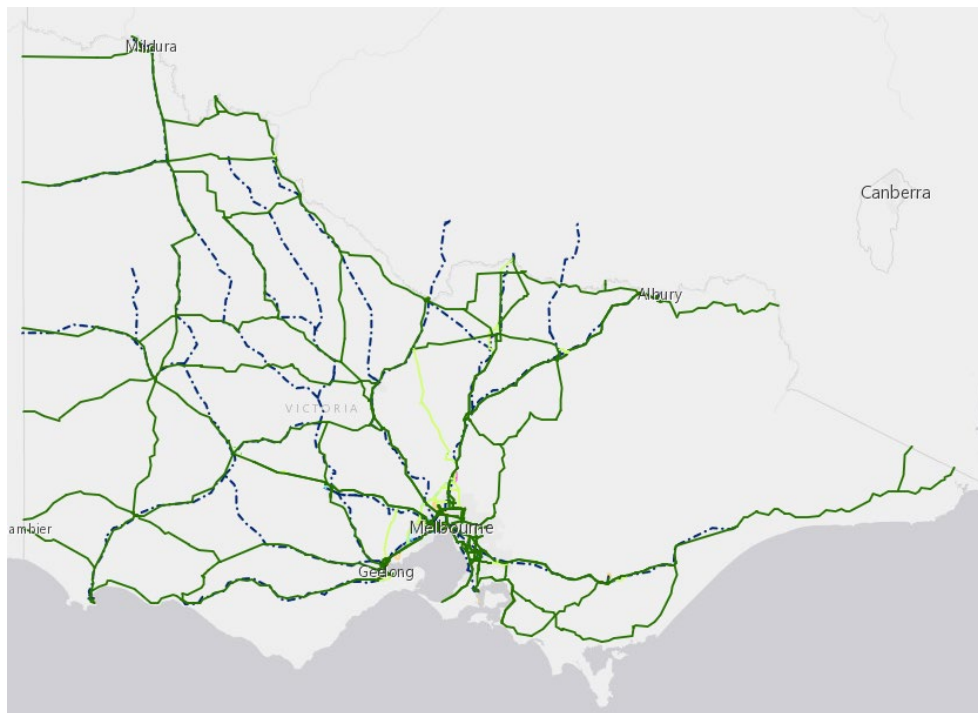


These freight networks can be compared to Victoria's principle road and rail freight network (Figure 20).

³⁸ [Victoria's Gazetted B-Double Network \(arcgis.com\)](http://arcgis.com). Lines relate to roads, while dots relate to structures. Red indicates restricted, orange conditional, green approved roads.

³⁹ [Victoria's PBS Level 3A \(up to 36.5m\) for Reference Vehicle 1 \(tandem-axle dolly, 6.2-5.2-6.2\) \(arcgis.com\)](http://arcgis.com). In addition to the above legend, dots with crosses relate to rail crossings.

Figure 20 Victoria's Principle Road & Rail Freight Networks⁴⁰



Understanding \$10 million across regional Victoria has been allocated as part of the \$124 million Building Works package, it is imperative the bridges are upgraded to withstand the next generation of heavy vehicles. More recently, the Federal Government has approved \$250 million across Australia's local governments for road upgrades.

Recommendation 6: *That the Victorian Government increases investment in roads and bridges to expand the HPFV gazetted network that will facilitate the use of HPFV.*

Carbon Emissions: Electric Trucks

Transport is one of Australia's largest source of emissions, and it is pleasing that Australia's first electric log truck arrived earlier this year and will provide a realistic carbon reduction solution for the heavy transport industry.

A single diesel-powered log truck produces more than 500 t CO₂ each year, and converting to an electric engine and battery system will slash this number to zero – contributing a huge reduction in emissions for the planet and a step closer to reducing greenhouse gas emissions.

The forest industry is leading by example with investment in electric trucks⁴¹. For other companies and commodities to follow suit it would be highly beneficial for the Government to develop policies and infrastructure to support and incentivise accelerated uptake of electric trucks.

⁴⁰ [Principal Freight Network | Department of Transport and Planning \(dtp.vic.gov.au\)](http://Principal%20Freight%20Network%20|%20Department%20of%20Transport%20and%20Planning%20(dtp.vic.gov.au))

⁴¹ For example, see [Electric vehicle logging truck launches for Green Triangle trial in South Australia - ABC News](http://Electric%20vehicle%20logging%20truck%20launches%20for%20Green%20Triangle%20trial%20in%20South%20Australia%20-%20ABC%20News)

Other Infrastructure

Telecommunications

Telecommunications to regional Victoria is critical infrastructure for communities and businesses of those regions. Residents, businesses and visitors should be able to enjoy the benefits and opportunities of improved mobile coverage and digital connectivity.

Digital connectivity is an essential part of how we work, learn, stay healthy and remain in contact with loved ones. Without sufficient coverage, essential services such as telehealth and education become increasingly difficult for regional communities to access, leaving these towns disconnected and separated from others.

Like most businesses, foresters and processors want to grow their businesses and improve the operations of their day-to-day schedule. Only technology can do that with improved telecommunications.

Connectivity is important for worker safety, industry productivity and regional growth. Victoria has over 400,000 ha of plantation forests and over 8 million ha of public forests. Many workers spend considerable time in forests with little or no connectivity, creating health and safety risks. Poor connectivity impedes the rollout of innovative technology or hinders investment in modern technologies.

After our people, the next highest priority is our trees. As much as practicable, we aim to ensure every seedling planted today, can be harvested tomorrow. The single biggest threat to achieving this is fire. Reducing the threat of fire requires identifying ignition points as soon as possible to activate air and land resources to contain and put out fires. And this is where the nexus between technology and connectivity is critical.

Advances in technology are critical to protecting the plantation estate. Satellites that allow on-orbit fire processing to detect and send fire notification alarms within three minutes once the satellite has passed the affect area⁴² – down from 90 minutes resulting in faster response times. Such advances will be for naught if our regional telecommunications systems do not facilitate real time deployment of resources to respond to the fire.

While fires are a significant threat, this is not the only use of telecommunications. Advances such as “airforestry”, while futuristic, is now well advanced (Figure 21) across silviculture applications such thinnings and selective harvesting to applications such as capturing data to support certification along the supply chain, image recognition using artificial intelligence, remote/automatic loading, driverless trucks and harvesting, precision forestry, use of UAVs for pest and disease monitoring, and digital inventory⁴³.

⁴² [On-orbit fire detection technology launched | ForestTECH](#)

⁴³ Other examples [The precision forestry revolution | McKinsey](#)

Figure 21 Airforestry⁴⁴



Victoria has a real opportunity to deliver wood value chain optimisation and lead the nation through the industry adopting technologies that will collect and broadcast real time data to assist foresters in making quicker and informed decisions whilst out in the plantations.

Not only is productivity a concern for the sector through the lack of connectivity, but mobile black spots and poor network coverage is incredibly dangerous during the fire season and critical in the case of accidents in remote locations.

As outlined in Bushfire Recovery Victoria's submission to the 2021 Regional Telecommunications Review, mobile "black spots" and extremely poor network coverage ("grey spots") was consistently raised as an issue and future concern amongst key stakeholders and community members.

The report continues:

"This was also heard loud and clear in recent discussions with Forest Fire Management, CFA and volunteer firefighters at the February 2021 East Gippsland and Towong Complex Site Taskforce sessions.

Both the Ovens Murray Digital Plan and the Gippsland Digital Plan have raised the issue of mobile blackspots and grey spots as a priority issue in the region. The Ovens Murray has identified 294 blackspots across its regional footprint and Gippsland has recorded a staggering 496".⁴⁵

The lack of digital and technological solutions is a major concern for the industry and the regional communities they reside, and unfortunately, past events especially the 2019-20

⁴⁴ [A 6.2m electric drone for forest thinning | ForestTECH](#)

⁴⁵ Bushfire Recovery Victoria, *Submission to the 2021 Regional Telecommunications Review Final Version*, September 2021, pg 3 <https://www.infrastructure.gov.au/sites/default/files/documents/rtr2021-submission-no-506-pt-2-bushfire-recovery-victoria.pdf>

bushfires has exposed the vulnerabilities and limitations of the infrastructure and network coverage that these communities so heavily need.

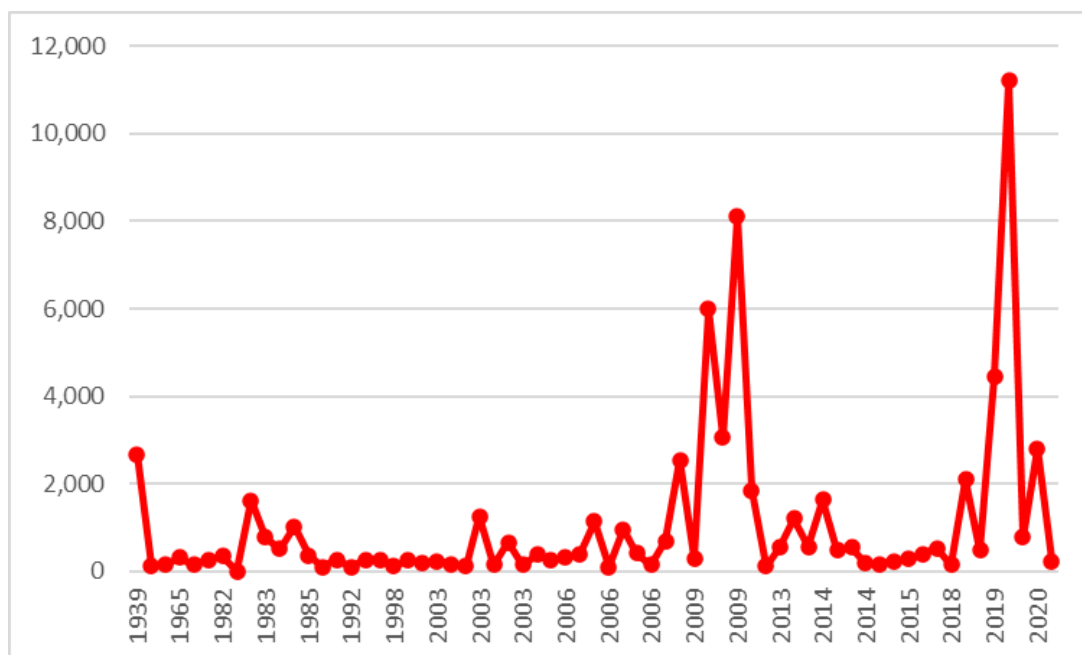
For the state's forest and timber products sector to thrive, it is imperative that there is improved digital connectivity not only for everyday business productivity, but for the protection of our community against any future natural disasters. This is not just a commercial imperative; it is essential to save lives.

Recommendation 7: *That the Victorian Government works with the telecommunications industry to close out black and grey spots in the telecommunications network, prioritising investment in forestry hub regions.*

Fire towers

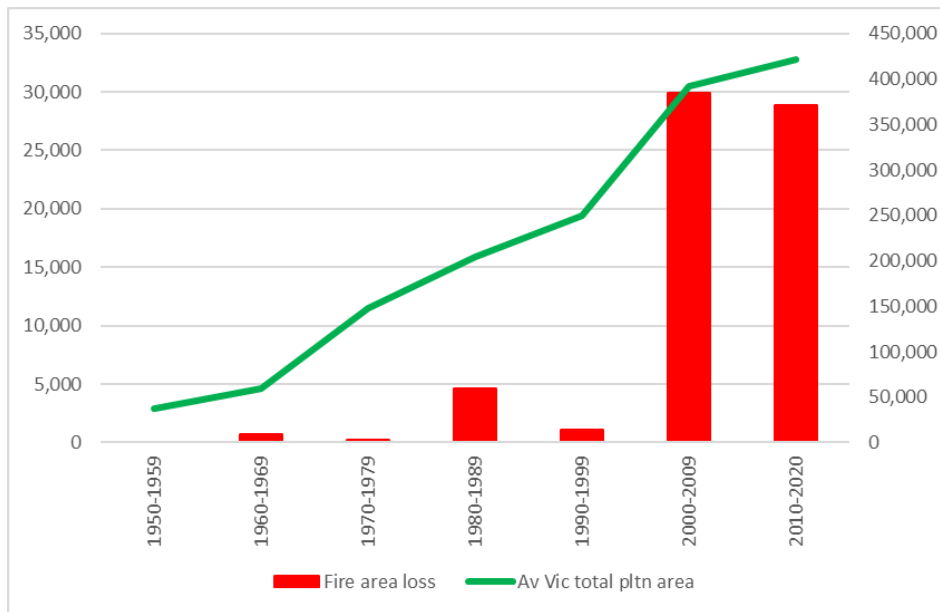
In Victoria, plantation losses of more than 1,000 ha have occurred regularly over the past century with the most significant of these being the 2009 and 2019-20 bushfires (Figure 22 and Figure 23). There has been an exponential increase in plantation loss from bushfires since 2000. Of the sixty-five fires that burnt more than 1,000 ha, 68% have started outside the plantation from natural causes (e.g. lightning strikes 23%) to failed infrastructure (power lines) to a range of other causal factors such as campfires, escape burns, arson, vehicles and some are even unknown. While climate change has increased the number and severity of fires, the increasing movement of people across the landscape also increases the industry's fire risks.

Figure 22 Individual plantation fires area burnt (ha) 1939-2020⁴⁶



⁴⁶ Source: Forest & Wood Products Australia

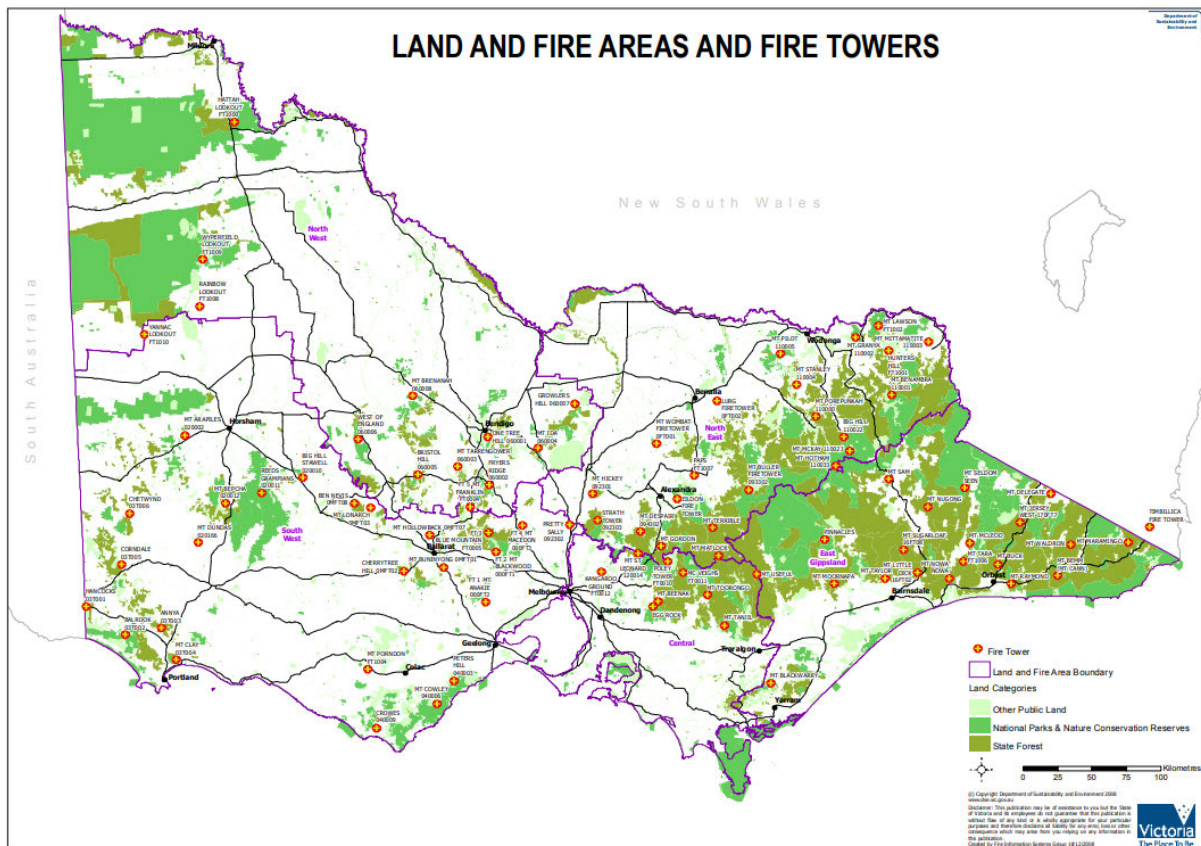
Figure 23 Decadal average plantation area and plantation area burnt (ha) 1939-2020⁴⁷



Fire towers were mostly built following the 1939 bushfires to spot smoke, flames or potential bushfires. Early detection remains the key to a fight a fire, especially on catastrophic fire days, and today roughly 74 towers (Figure 24) are strategically placed throughout the state. These towers need to be sound structures to protect forestry plantations and the livelihood of 21,000 employees who depend on a thriving industry – and importantly regional communities and the public land estate.

⁴⁷ Ibid

Figure 24 Victoria's Fire Towers 2008⁴⁸



As the 2009 Bushfire Royal Commission aptly states “*the most effective way of reducing bushfire damage and protecting human life is to prevent fires from starting*”. Yet the Victorian public appears to have forgotten the impact of bushfires. During 1 July 2022 and 3 May 2023, 800 fires were recorded across Victoria’s public land of which 412 were unattended campfires⁴⁹, which peak during key holiday periods of January and April.

Victoria’s fire towers should be modernised and retrofitted with the most technologically advanced digital cameras designed to spot fires⁵⁰. It allows the towers to move to remote management given that some may no longer be safe and expand fire tower use across the entire fire season. Such cameras rotate every two minutes with images remotely monitored by artificial intelligence systems.

Given the Green Triangle Hub plantation members have already invested in fire tower upgrades in South Australia, this is an opportunity for industry and government to collaborate to further expand the investment opportunities across fire towers located within Victoria’s forestry hub regions.

Recommendation 8: *That the Victorian Government, in conjunction with the Victorian plantation sector, prioritises investment to upgrade Victoria’s fire towers with digital camera technology.*

⁴⁸ Source: Bushfire Royal Commission [DOC.VGS.002.0001.pdf](https://www.royalcommission.vic.gov.au/DOC.VGS.002.0001.pdf) ([royalcommission.vic.gov.au](https://www.royalcommission.vic.gov.au/))

⁴⁹ Unpublished data, Office of Conservation Regulator

⁵⁰ [Fire camera installed on Centenary Tower - The Border Watch](#)



Victorian
Forest
Products
Association

VFPA is the peak industry body representing the forestry products value chain in Victoria from those growing, managing and harvesting our sustainable plantations and multiple use natural forests to the primary and secondary processing of timber, the manufacture of pulp and paper, and the value-added timber and pulp and paper products supply chains.

