

TRANSPORT AUSTRALIA

# Valuing Australia's Transport Network

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# Transport lifts Australia

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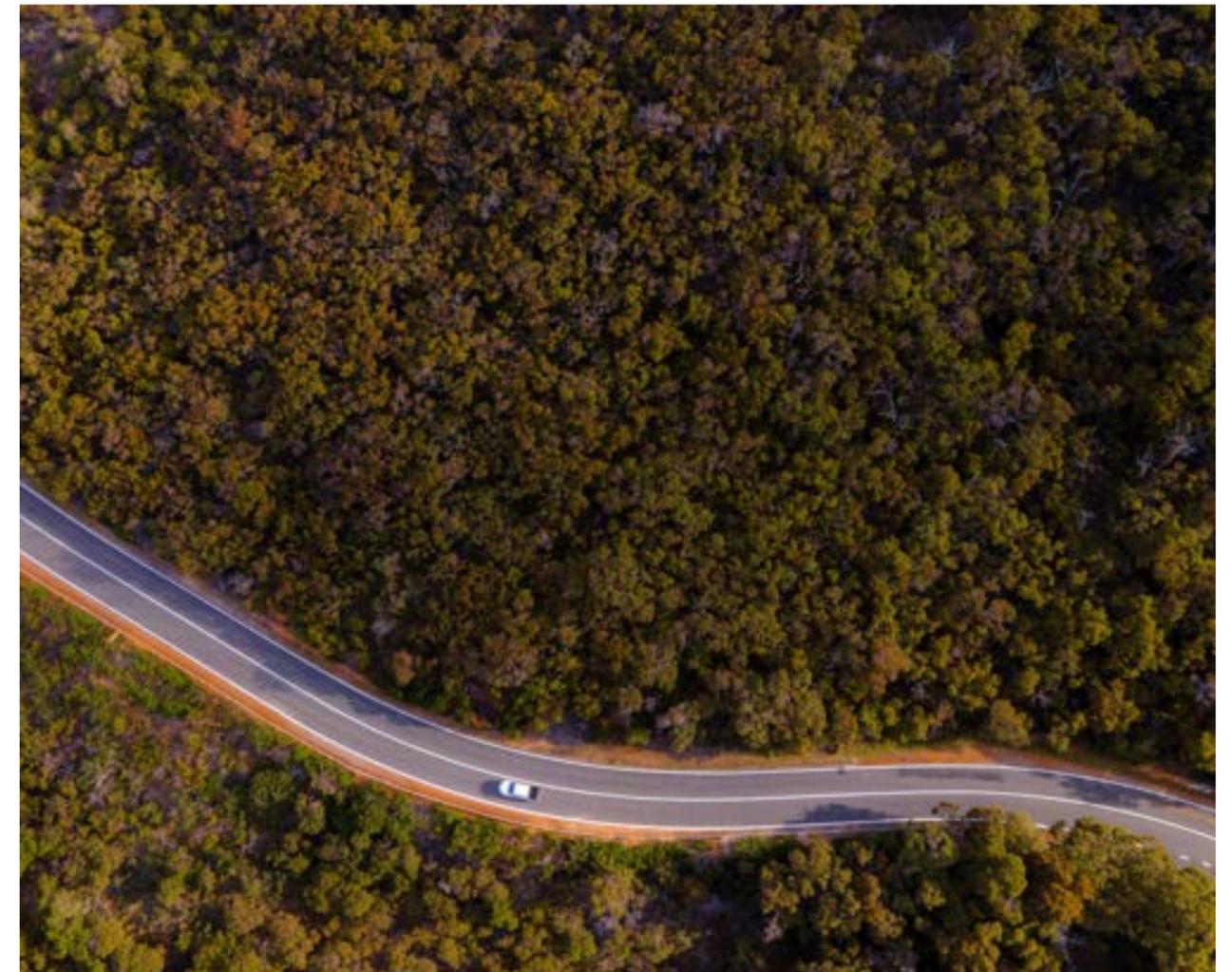
# Valuing the transport network

Australia's land transport network is one of the country's largest, most complex and highest value assets. The transport network is critical to economic activity, is the backbone of social inclusion and wellbeing, and underpins everyday productivity.

The sheer scale of the network and its importance to our everyday life cannot be underestimated, but it is often undervalued. It is typically considered by mode or asset type – roads, rail, public transport, freight, cycle ways and the like – misunderstanding and misrepresenting its value as a single integrated system.

This report seeks to lift the understanding of the value and enormity of the transport network:

- From an **asset perspective**, Australia's land transport infrastructure would cost in the order of ~ \$10 to \$22 trillion to replace – reflecting generations of investment in a vast and diverse network.
- From an **economic perspective**, the transport sector constitutes 9 per cent of Australia's GDP, or \$189 billion annually, through its value-add to the economy and its underpinning of supply chains, labour mobility and essential services.
- From a **user perspective**, Australians spend around 5 billion hours each year travelling across the network, implying an annual value of around \$100 billion using standard value of time methods.



While significant, these valuations do not fully capture the value enabled by transport. The transport network creates the places through which we experience and interact with towns and cities. Further, almost every economic activity depends on moving people and goods, with roads and railways being Australia's backbone of mobility. As this report will explore, **almost all of Australia's \$2.1 trillion of GDP is, in some way, dependent on the land transport network.**

We are so reliant upon it that we rarely stop to think of transport's role in almost every aspect of the economy and our daily lives.

Beyond the numbers, distinct from the projects delivered, and agnostic of the road, rail and active transport modes that constitute the transport network, its true value is in what it enables – **access to everyday essentials, a promoter of social equity and participation, an engine of productivity, and a policy lever to enable change.**

It is this value of the transport network that underpins a need for long-term planning and investment, ensuring we continue to realise the value from investment to date and respond to emerging and future demands on the network.

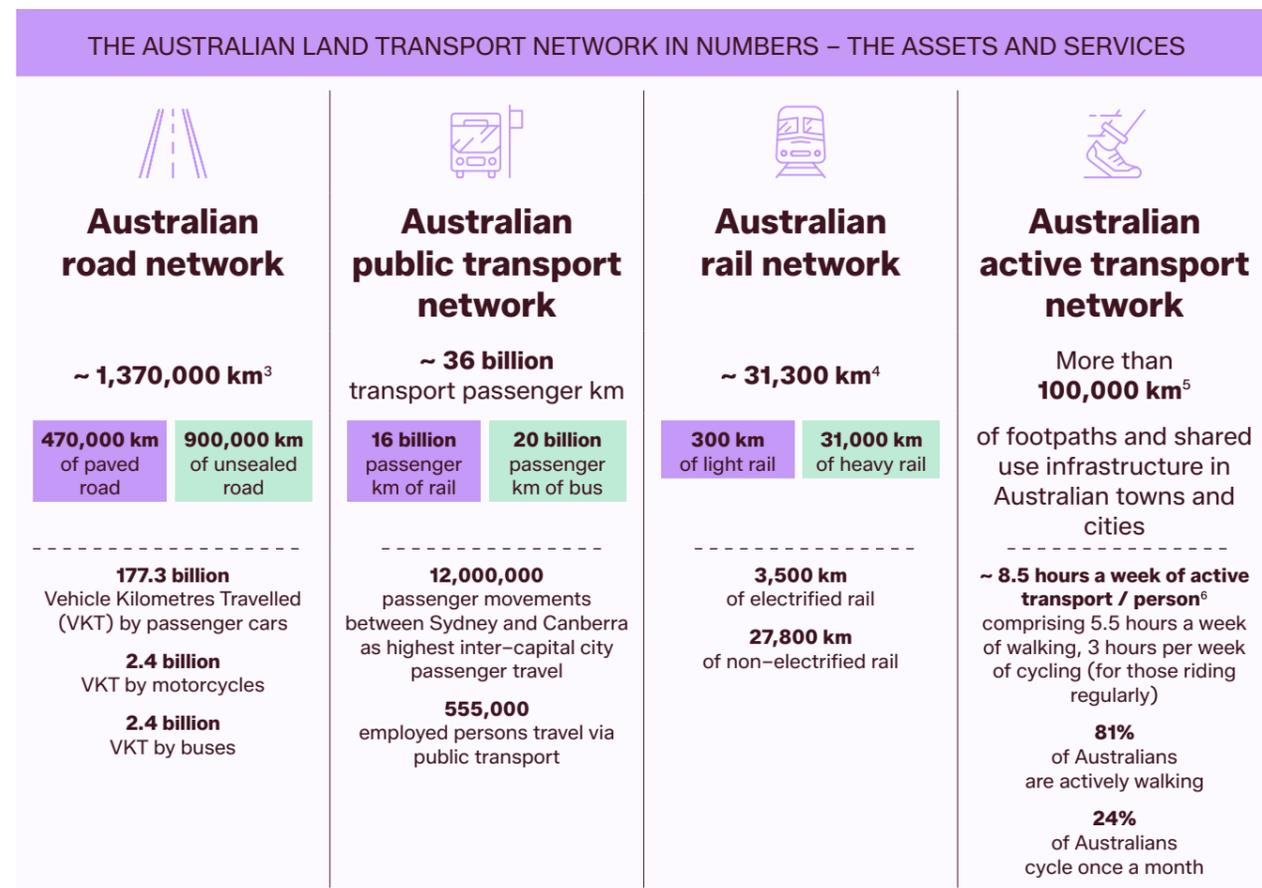
## A TRANSPORT NETWORK, GENERATIONS IN THE MAKING

Australia's land transport network spans more than 1.3 million kilometres of paved and unsealed roads, more than 31,000 kilometres of heavy rail, hundreds of kilometres of light rail, and thousands of kilometres of walking and cycling paths.

It includes more than 70 ports<sup>1</sup> and 340 airports.<sup>2</sup> It supports more than 280 billion vehicle kilometres of travel each year, moving millions of public transport passengers across cities and regions – used every day by households, businesses, freight operators and visitors.<sup>1</sup>

While critical to any society, transport is particularly valuable in Australia. We are one of the most urbanised nations, but our cities are some of the least dense. Our cities and towns are spread across a vast landmass. This distribution amplifies the importance of the transport network. Transport is the foundational connector between us all.

Figure 1: The transport network at a glance



While undeniably vast, Australia cannot rely on the sheer scale of the existing network to support our economic activity and social connection. We need a network fit for the needs of today and the future that responds to the changing needs of its users and its use.

As demands on the network continue to change – from continued population growth, changing population distribution, the shift to higher productivity freight (larger, heavier trucks) and increasing reliance on micromobility (i.e. e-bikes, e-scooters), to the speed of technology, electric vehicles and autonomous vehicles changing how we use the network – it is only with a full appreciation for its value and the evolving pressure on the legacy network that we can collectively plan for investment in its future.

## FROM TAKEN FOR GRANTED TO FUTURE-READY

Despite its obvious scale, importance, and criticality, the existing network value is rarely acknowledged in public debate or community understanding.

Use of the transport system is so enmeshed in our everyday lives and the functioning of our economy that its value, and our access to it, is either not considered or simply overlooked. This may just reflect the unrealistic idea of having no access to a transport network – a scenario that just can't be imagined.

From a **network planning and investment perspective**, Australia often considers transport investment incrementally; with a focus on the marginal benefits of mode-specific assets – a new road or a rail extension – often overlooking the far greater value of the existing system: the expansive, interconnected network that new projects rely upon to deliver that value.

From a **user perspective**, the transport system is often perceived as a public good; an asset we have ready access to, expect high performance of, that we are often not required to pay directly for, and certainly not at full cost.

And from a **system-wide perspective**, it is only when there is a failure that its true value is properly appreciated. Our national networks of transport and distribution are largely invisible to the public, until disruption hits. When the network fails, the impacts manifest immediately. With sustained disruption impacts cascade quickly – supply chains stall, shelves empty, industry slows, and communities lose connection and access to essential services.

This pervasive undervaluation can lead to suboptimal investment decisions, misallocation of resources, a focus on incremental projects rather than holistic network outcomes and missed opportunities to enhance policy outcomes.

If we do not value the network, we can perceive our ability to rely on it as a 'free' service, with perhaps an associated acceptance of congestion, unreliability and poor service quality. This invisibly taxes everyone through lost time, unreliable trips, freight delays, vehicle damage, reduced safety and worse air quality.

Understanding the true value and the interaction of transport with all other sectors of the economy and our everyday life is essential if Australia is to plan for our future and make the right investment choices – across maintenance, resilience, and long-term network augmentations. With a revised concept of value, not just cost, we better reflect an integrated, mode-agnostic view of transport and its true value in investment decision making, ensuring the network enhances Australian prosperity.

# Measuring network value

While its importance is clear, there is no perfect approach to valuing the transport network. Traditional valuation methodologies can, however, be used to demonstrate the scale and significance of this value.

Different methodologies offer a different perspective on value, each with their advantages and challenges. Taken together, they provide a useful, if not definitive, indication of the significant value of the transport network to Australia.

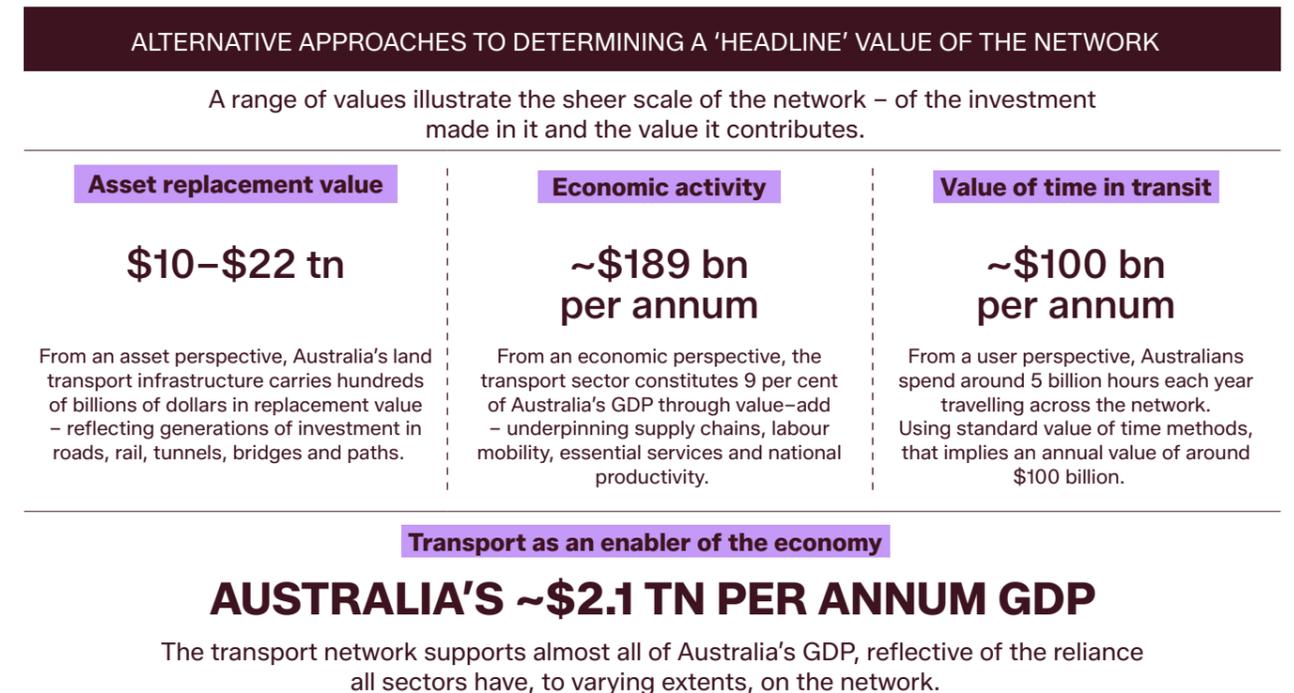
A spectrum of approaches for considering the numerical value of the network were considered in the development of this report, such as the value of land occupied by the transport network or the land values enabled by transport.

However, the valuation methods with the highest availability of data and greatest impacts on society were chosen, including:

- The cost of replacing all existing assets
- The value of time spent travelling across the network
- The contribution to the economy of transport-specific activities.

A further approach poses a view on the economic activity enabled or supported by the network. From connecting people to jobs, supply chains to industry and products to markets, there is little economic activity that is not in some way reliant upon the transport network.

Figure 2: By the numbers



(Note: the methodologies for each of the valuations are summarised in the following sections and included in more detail as Appendix 1)

## Do assets alone define network value?

The transport network has evolved over decades, reflecting generations of investment in roads, rail, tunnels, bridges, and paths.

From an asset perspective, Australia's land transport infrastructure carries tens of trillions of dollars in replacement value.

Asset replacement value represents **an estimated cost of rebuilding Australia's land-based transport infrastructure** if they were constructed today.

This measure captures the physical scale and engineering complexity of the paved road network, reflecting more than 1,000,000 single lane kilometres<sup>7</sup> of paved road network that enables national mobility. It provides a tangible baseline for appreciating the sheer magnitude of the system we rely on every day.

Analysis suggests Australia would face a **~\$10 to 22 trillion cost** to rebuild the network 'from scratch'.<sup>8</sup>

## How do we value time 'in-transit'?

Every Australian spends hundreds of hours a year in transit.

The fact that we could be using this time for another purpose implies that we place an implicit value on transport. Because what we use transport for is more valuable than the time spent travelling, the value of the transport network could be at least the value of the travel time spent on it.

Value of time in transit represents an estimated **implicit value passengers place on the activities enabled by the time spent in transit.**

This measure captures time spent on roads and rail, applying differential time values based on trip purpose to estimate a total social and economic value of being able to use the network.

Analysis suggests that the value of time spent on Australian road and rail networks is ~\$100 billion per annum.

## How do we value transport's direct economic contribution?

Australia's economy relies on a complex web of transport activities, including dedicated transport companies (such as freight and postal services) offering transport as a service and businesses moving their own goods (such as a construction company moving building materials to a building site).

The transport and logistics sector is a significant industry in its own right, contributing to national employment and economic output.

Economic activity supported includes GDP generated by 'for-hire' and 'in-house' transport activities, providing an estimate of the value of the transport network.

This measure provides a conservative, baseline valuation of the network by isolating the contribution of commercial transport to the economy. It includes the value generated by the traditional transport industry and the transport functions of other sectors, while excluding the broader value of commuting, consumer travel, and social connectivity.

This analysis suggests transport network activities ('for hire' and 'in house') support **~\$189 billion in economic activity annually, or ~9 per cent of the Australian GDP.**<sup>9</sup>

## How do we value what transport makes possible?

Transport is not just an industry; it is an input to and enabler of other industries.

Its benefits accrue through agriculture, mining, construction, retail, education, healthcare, tourism, and labour mobility. While GDP measures value added in each of these individual sectors (including transport as a sector), transport's contribution to those other sectors and their very ability to 'add value' is less visible.

As an example, in agriculture, the value of crops is attributed to the agricultural sector as that is where value is directly created. However, without transport to move crops from farm to market, the economic

value of those crops would be largely unrealisable. Transport doesn't directly create the value of the crops, but it is an indispensable prerequisite for that value to be realised and contribute to GDP.

As a further example, jobs in retail are enabled by transport providing access to employment – with further examples across all sectors.

Extending the logic, the transport network supports in some way almost all of Australia's ~\$2.1 trillion GDP. While it is also acknowledged that other essential services such as telecommunications and energy play an equally important role in support of GDP, transport's importance to our economy cannot be underestimated.

While these quantitative measures of value provide a baseline for understanding the scale and importance of the transport network, the true, enabling value often resides beyond these figures, in its profound impact on daily life and national resilience.



# Network value – its real impact

While the transport network is one of the nation's most powerful economic engines, it is not just a set of assets and headline metrics.

Analysis in the previous section of this report adopting traditional quantified metric approaches to value demonstrated the sheer scale of the network. A single number approach to valuation, however, does not adequately help us explain the tangible value of the network experienced by households, communities and businesses.

Roads, rail, freight corridors and active transport all work together as an integrated network whose combined value – agnostic of mode – extends far beyond what traditional metrics can capture.

These metrics do not capture the diverse, integrated and far-reaching ways the transport network supports productivity, provides access to everyday essentials, connects our communities and shapes how our cities develop.



## TRANSPORT AS THE FOUNDATION OF EVERYDAY ESSENTIALS

**Our national transport network is the quiet machinery behind daily life in Australia.**

Behind every grocery shop is a long chain of movement: farms, factories, ports, rail corridors, distribution centres and last mile delivery. The network supports shelves being stocked, medicines arriving, building supplies turning up, and small businesses opening on time. By connecting communities and facilitating the flow of goods and people, it makes the basics of living possible and convenient.

Despite this, our national freight network is characterised by several single-point vulnerabilities – especially for remote and east-west supply. It is not until times of disruption that the value of transport becomes clear.

In the case study example provided, an east-west outage resulted in shortages of fresh produce in Western Australia and dwindling supply of water treatment chemicals in New South Wales, to name two specific examples, highlighting the interrelated nature of our economy and supply chains and their reliance on transport.<sup>10 11</sup>

CASE STUDY

# 2022 East-West Rail Corridor Floods

 Trans-Australian Railway, South Australia and Western Australia

 Closed 24 days (January 26 – mid-February, 2022)

## The single corridor that keeps supermarkets and industry supplied across WA.

The Trans-Australian Railway line is a critical freight route stretching nearly 1,700 kilometres from the West Australian Goldfields of Kalgoorlie to Port Augusta in South Australia's Spencer Gulf.

In early 2022, extreme rainfall across outback South Australia caused catastrophic washouts along approximately 300 kilometres of the Trans-Australian Railway line. The event, described as a one in 200-year weather system, severed the nation's only continuous east-west rail link.

This corridor is indispensable for Western Australia, carrying around 80 per cent of goods bound for supermarkets and other retail outlets. When the line collapsed, freight movements ground to a halt, triggering widespread shortages across the state. Grocery shelves emptied quickly, and emergency freight measures, including sea freight and triple road train land bridges, were activated to maintain supply.



## FAST FACTS

EXTENT OF DAMAGE

~300km

Of track washed out near Tarcoola, South Australia, with an estimated \$320 million impact to national supply chains

RESTOCKING TIME

4-6 weeks

Backlog before supermarket shelves return to normal.

EMERGENCY RESPONSE

Over 500

Flood-relief transport permits issued; road freight increased 50 per cent to compensate

## TRANSPORT AS A PRODUCTIVITY ENGINE

Transport is not just about mobility – it drives economic growth by enabling the efficient movement of goods, services, and labour.

Ports, intermodals, rail paths, and motorways influence the cost and reliability of all sides of the economy. It reduces travel times, lowers business costs, and supports innovation across sectors, making Australian industries more competitive and productive.

Transport network investment ensures supply chains remain connected and efficient, even as demand grows. As an example, road upgrades that have allowed the increased use of B-Double trucks have increased freight efficiency by 15-30 per cent (when compared to conventional non-PBS approved semi-trailer).<sup>12</sup> Similarly, the Murray Basin Rail Plan in Victoria upgraded legacy rail lines from 19 Tonne Axle Load (TAL) limits to 21 TAL, enabling every train to carry an additional 1,000 tonnes of grain, a 50 per cent uplift.<sup>13</sup>

WestConnex in Sydney reduced morning peak travel time between Parramatta and the Sydney CBD by 50 per cent, despite the city adding one million new residents over the past decade. This translated into 40 minutes in transit time savings for freight for freight moving from the city's west to Port Botany.<sup>14 15</sup>

These sorts of investments bring considerable productivity benefits, with associated cost and time savings, for Australian producers and employers – flowing onto lower prices for consumers and increased competitiveness in international markets.

## TRANSPORT AS AN ENABLER OF PARTICIPATION AND SOCIAL EQUITY

The transport network is also a social equity tool. It empowers individuals and communities by unlocking opportunities for employment, study, social connection, and participation in society.

It determines whether people can realistically access jobs, healthcare, recreational activities, culture, and family and friends.

This is observable in projects that seek to more efficiently connect regional and metropolitan centres. Projects like Regional Rail Link in Victoria helped transform regional communities' access to Melbourne, improving the speed, reliability, and frequency of regional train services.

Transport supports mobility and inclusion, helping Australians pursue their goals and improve quality of life. When transport is accessible and affordable, participation in society rises.



## TRANSPORT AS A CITY SHAPER

The transport network influences the development and character of cities and regions.

It shapes where homes are built, where businesses are located, and where jobs cluster. It influences how cities grow, guiding land use and determining whether growth is compact or sprawling.

Further, the transport network can create amenity and shapes how people spend time and interact. It is the traditional high street, the tree-lined boulevard, the seaside esplanade and the boundaries to the market square. It has inherent local value as a 'place' in addition to its role as a network that provides connectivity.

Recent high-profile projects delivered by governments nationwide have underlined this potential. This includes projects such as the G:Link that connects multiple major education, health and employment hubs across the Gold Coast, the Melbourne Metro tunnel and the Sydney Metro, as detailed below. These projects both transform the networks into which they integrate and the local places to which they connect.

CASE STUDY

# Sydney Metro

A metro network improving both community and economic outcomes

 Sydney Metro, Sydney, NSW

 Sydney Metro North West Line open 2019, extended 2024; further works ongoing

The Sydney Metro extension has significantly transformed travel behaviour, unlocked housing development opportunities, strengthened economic prosperity and is shaping how people access opportunities across Sydney.

Following the opening of the Chatswood to Sydenham section in August 2024, the network experienced a substantial rise in public transport patronage. The most significant gains were seen on weekends, with ridership up approximately 17 per cent year-on-year, reflecting a strong return to leisure travel.

The extension has significantly improved travel choice and access for residents in Sydney's North West, connecting communities to key social and economic opportunities across the city. Critically, the extension links the city's three critical employment hubs: the CBD, North Sydney and Macquarie Park, which together generate more than 41 per cent of the State's annual economic output according to the NSW Government.

Beyond connecting communities to major economic hubs and social opportunities, the Sydney Metro extension has led to significant accessibility improvements, which have supported land use changes along the corridor. This has included new housing development driven by integrated land use planning and zoning laws that encourage development around high-quality public transport infrastructure.

This project underscores the ability of new transport infrastructure to not only facilitate movement but also to actively shape the way in which a city develops. In a housing market faced with significant supply pressures, the strategic expansion of the transport network is a key lever in supporting access to housing while creating more connected, vibrant communities.



## FAST FACTS

CHANGE IN USE

**~215,000 Daily trips**

Average metro patronage, with over 12 million trips in the first 10 weeks and ~99.36% punctuality

NETWORK IMPACT

**~20% Increase**

NSW public transport patronage up year-on-year (2023/24 vs 2022/23), driven by weekend travel

SOCIAL BENEFIT

**Improved accessibility**

Expanded transport choice connecting Sydney's North West to key social and economic opportunities

CASE STUDY

# Kangaroo Point Bridge

Active transport infrastructure improving both social and economic outcomes



 Brisbane, Queensland

 Opening 15 December 2024

The Kangaroo Point Bridge is reshaping the way Brisbane residents and visitors move across the river, providing a direct, active transport link between Kangaroo Point and the CBD.<sup>16</sup>

For many, the bridge replaces what was previously a ferry journey or a circuitous car trip, offering a straightforward pedestrian and cycling route that unlocks new opportunities for daily commuting, recreation, and access to city amenities. This seamless connection fundamentally changes travel patterns, making the CBD more accessible for those living on the opposite bank and encouraging a shift towards sustainable, active travel.

More than a transport corridor, the bridge is designed as a catalyst for activity and vibrancy on both sides of the river. Integrated business opportunities – including unique dining venues and viewing platforms – are intended to draw people in, fostering stronger links between local businesses and neighbourhoods and stimulating economic growth in Kangaroo Point and the CBD. The bridge's features, such as shady rest areas, public art, and

connections to parks and green spaces, encourage people to linger, interact, and enjoy the river's views, helping to build more cohesive and socially integrated communities.

By providing a viable alternative to car travel, the Kangaroo Point Bridge is expected to reduce traffic congestion, with an estimated 84,000 fewer annual car crossings over the river.<sup>17</sup> This shift supports Brisbane's strategy for a more active, liveable, and sustainable city, promoting healthier lifestyles and reducing carbon emissions. The project demonstrates how strategic investment in active transport infrastructure can deliver broad network benefits, valuable local outcomes and contributions toward statewide policy objectives, actively shaping a more connected and productive future for Brisbane.

CASE STUDY

# Melbourne Level Crossing Removals

Improving safety, reducing delays, and unlocking better places for communities



 Melbourne, Victoria

 2015 – 2030 Program

Melbourne's Level Crossing Removal Project has had a transformative impact on travel safety and efficiency for all users.

With increased road traffic and train frequency driven by Melbourne's population growth, level crossings had become a major source of safety concerns and congestion. By targeting the removal of 110 dangerous and congested level crossings by 2030, this project is not only addressing safety risks but is fundamentally reshaping transport flow, enabling both cars and trains to move with greater reliability and speed. This results in fewer boom-gate delays and more predictable journeys for commuters.

Beyond the immediate transport benefits, the project is delivering significant outcomes for local communities by eliminating physical barriers to movement across activity centres. It has created new public spaces and fostered stronger connections between local businesses

and neighbourhoods, building more cohesive and socially integrated communities.

Melbourne's Level Crossing Removal Project stands as a strong example of how large-scale transport infrastructure can deliver broad network benefits and valuable local outcomes, actively shaping a more connected and productive future for the city.

FAST FACTS

BENEFITS

Fewer conflict points and boom-gate delays; more predictable road travel times; enables more frequent trains; safety uplift for rail and road users.

BEYOND TRANSPORT

Creation of new open space/active travel corridors with related health benefits.

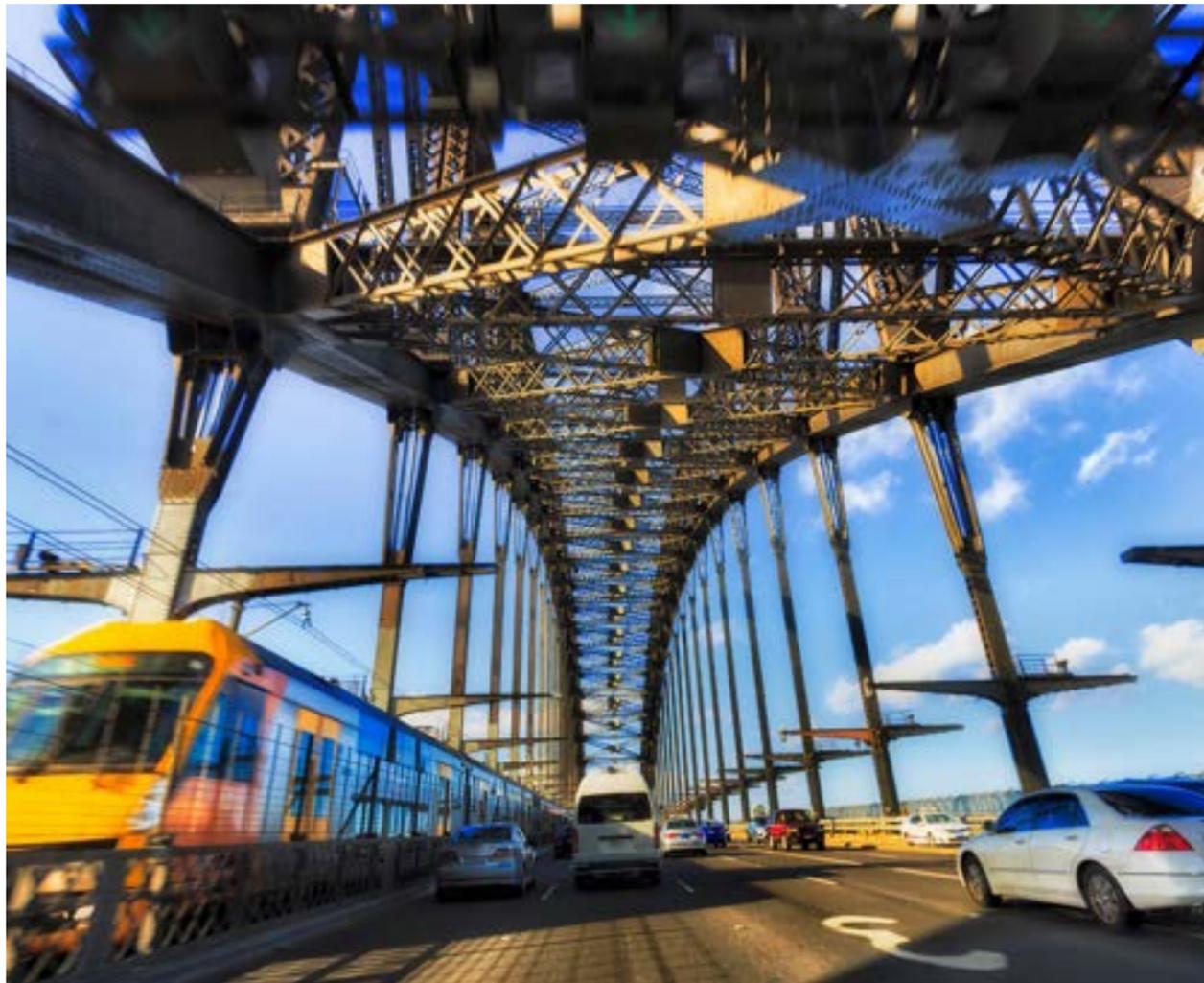
## TRANSPORT AS A LIFELINE DURING EMERGENCIES AND DISRUPTIONS

The transport network is a public safety and continuity system.

Transport acts as a critical support during emergencies and disruptions and is the means to support delivery of aid, the ability to evacuate, and access for emergency services. It moves essential workers and provides continuity of supply.

As Australia continues to face increasing and more extreme weather events, the importance of our transport network cannot be underestimated. Be it towns in threat of fires, such as recent Longwood fires in Victoria where communities were told to leave, or the delivery of aid after flooding events, transport is critical to public safety and community.

An open and resilient transport network will provide the security Australia needs in times of crisis.



## CASE STUDY

# Inherent transport network resilience and its ability to help disaster recovery

The benefits of multimodal transport in resilience and disaster recovery

The resilience of the transport network is a critical safeguard for communities during disasters, ensuring public safety and the delivery of essential aid.

This resilience comes from its multi-faceted structure – when one mode or route is compromised, such as a highway cut off by flooding, the system can shift vital movements to alternatives like rail or secondary roads, keeping communities connected and supply chains running.

Often overlooked is the adaptability of the network as a resilience tool. When neither roads nor rail are accessible, rapid deployment of maritime options can become vital. A temporary barge across Coopers Creek on the Birdsville Track was deployed by the Federal and South Australian Governments in 2025 to ensure supply chains and communities could remain connected after intense rainfall across Queensland's inland catchments.<sup>18 19</sup>

This example demonstrates how flexibility can protect the safety of isolated residents, deliver life-saving supplies to remote regions, and ensure the economy continues during times of disruption. This multi-modal, multi-route approach shows that true resilience lies in the network's ability to adapt and respond, maintaining a lifeline for communities no matter the challenge.

Ultimately, true transport resilience is defined not just by the robustness of individual modes, but by the seamless ability to shift between them. The integration of road, rail, and maritime options creates a multi-layered system that is far stronger than the sum of its parts.

## TRANSPORT AS A POLICY LEVER

The transport network serves as a powerful tool for government and industry to drive positive change – whether it's improving sustainability, addressing social equity, boosting economic performance, or responding to population growth.

Pertinent examples to current policy discussions include:



The transport network is a lever for housing supply, precinct renewal and cost-of-living relief (i.e. reduced car dependence and associated travel costs).



The transport network directly and indirectly supports the energy transition, from transition to electric vehicle fleets that can decarbonise the sector through to the infrastructure needed for wind and solar logistics.



The transport network is the backbone of national security, enabling the mobilisation and movement of defence personnel and equipment and continuous supply of critical materials.

Making transport investment decisions that align with Australia's other strategic policy objectives ensures they are also responding to national challenges that shape Australia's future – with the benefits felt well beyond the transport network.

Like the network itself, these dimensions of value do not stand alone – they are interconnected and interrelated, illustrative of the real value of the transport network as more than the road, rail, freight and active transport assets it is made up of. They are not static and will change for different user groups over time.

Through understanding these underlying dimensions of value and their evolution, we can start realising the true value of the network we often take for granted. We will be better placed to make difficult planning and investment decisions for the transport network – far beyond the cost of individual projects to transport as a response to national challenges and opportunity.

# Investing in transport to safeguard Australia's prosperity

In considering the merits of different aspects of value and valuation methodologies, one thing is clear: The value of our existing transport network is enormous – a function not only of the significant investment in its development and expansion over generations, but its importance to the wellbeing of our people and the productivity of our economy.

Through our investigation into the different nuances of value, this report seeks to shift the dialogue on valuing transport from a collection of assets and new projects to **an integrated, mode-agnostic transport system** that sustains our economy, communities and way of life. In essence, we create a foundation for more effective planning and investment.

With a shared understanding of value, we bring a more considered approach to the rationale behind complex investment decisions, and the choices being made between competing priorities.

Significant investment has been made in transport, with continued investment needed to sustain and realise the true value of the network as it is today and as it will need to be in the future. Taking into consideration network value and applying a system view, there are three themes to guide investment choices:

### INVESTING IN WHAT WE HAVE

Enhancing the value of the existing network

### INVESTING IN WHAT WE NEED NOW

Addressing gaps in the network

### INVESTING IN WHAT WE NEED IN THE FUTURE

Setting the network up to meet future demands, and sustain economic productivity

## INVESTING IN WHAT WE HAVE

### ENHANCING THE VALUE OF THE EXISTING NETWORK

While state and federal government investment in the network continues to be significant, so too are the demands on it. From aging assets, to increasing population, heavier freight burdens, changing technologies and (ever increasing) expectations of business and the community, continued investment in the existing network is essential.

#### Adequate investment in maintaining existing transport condition

The sheer scale of the transport network, and the many decades over which it has been developed, present a significant maintenance burden.

Faced with increasing pressures of rising population demands, higher productivity and cleaner freight (i.e. longer, heavier and electric trucks), and extreme weather impacts on assets, the cost of maintaining transport infrastructure is undoubtedly significant. Choices between maintenance, life extension and network improvement initiatives need to be made. Complex choices are exacerbated when considered against competing 'new road and rail projects' or indeed, other essential services.

Yet when considered from the perspective of the value the network provides – the cost of not investing in it is similarly high. Continued investment in network maintenance, upgrades and improvements will substantially enhance not only the value of the existing network but the future network as well.

#### Sufficiently investing in enhancements to the existing network

As technologies emerge, opportunities to improve capacity, performance, use, control, and productivity of the networks are increasingly available.

Advanced train controls (more trains on existing tracks), intelligent traffic signalling and automated vehicles (improving traffic flows) all complement the value of our existing network of assets. They are, however, difficult to implement, lacking the profile of major capital projects, often requiring 'network wide' adoption at a significant cost that is not immediately visible (relative to construction works) and risk not being sufficiently prioritised.

However, if considered against an appreciation of existing network value, and realising additional value from that existing asset, an understanding of the need for these sorts of investments may increase. Indeed, Australia should seek to be one step ahead of emerging and future transport trends, which will only be possible by dedicated commitment and appropriate investment today.

## INVESTING IN WHAT WE NEED NOW

### ADDRESSING GAPS IN THE NETWORK

Australia has seen record investment in transport in recent years – projects that are transforming our cities, changing where people live and work, and how our communities and industries connect.

Projects like WestConnex and Sydney Metro, West Gate Tunnel and the Metro Tunnel in Melbourne, to Cross River Rail in Brisbane will deliver generational change.

Despite these, Infrastructure Australia's Infrastructure Priority List<sup>20</sup> identifies an extensive list of transport projects needed to support national productivity, congestion relief, transport decarbonisation and regional equity.



### Has Australia invested enough in transport?

Following the significant period of investment, some suggest that Australia's period of high transport investment is, or indeed should, shift toward other national priorities in energy transition, housing, and decarbonisation.

The perception suggests the significant investment to date has fixed the transport 'problem', that it is time to focus elsewhere. While there is undoubtedly a need for investment in a range of priority sectors and services, Australia cannot afford to stop investment in transport.

Underlying challenges that led to the recent increase in investment remain – our population continues to grow, housing affordability and supply challenges remain, and new communities in our major cities still require transport connections.

Projects identified in the Infrastructure Australia Priority List – and undoubtedly a range of other initiatives to enhance our network – are and continue to be needed. For example, there are many instances across the country where active transport paths require better linkage to or integration with public transport and roads.

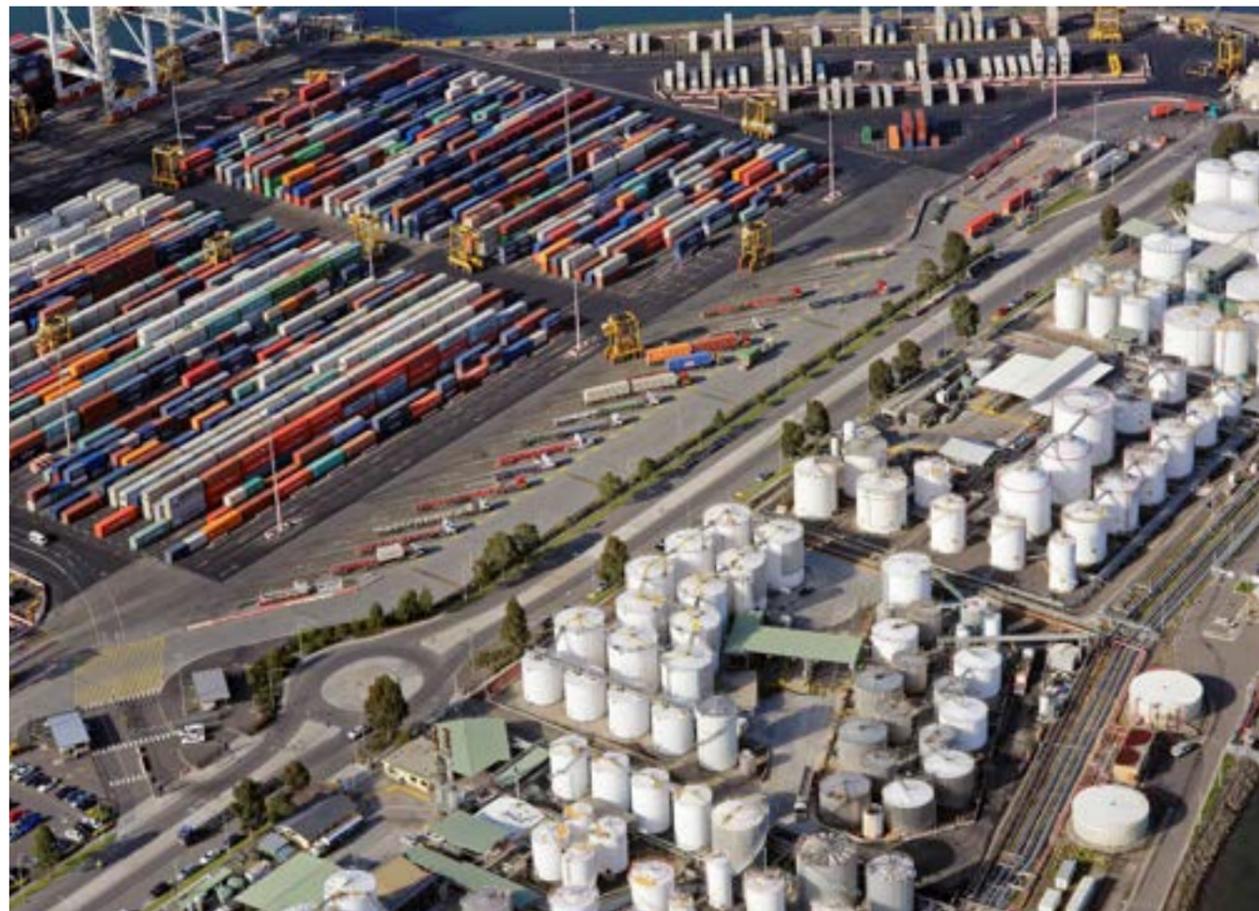
Seamless integration of the entire transport network – filling the gaps between modes so as to achieve a seamless outcome – should be a priority now and into the future.

## Transport projects are investments for Australians, supporting all sectors

Beyond more immediate and obvious transport problems (like congestion), transport is an enabler to address other challenges facing Australia – increasing access to housing, connecting industries for critical defence projects, enabling energy (for example, port developments to support offshore renewable energy).

Through understanding the value of the services, industries or outcomes transport investment enables – whether in supporting resilient communities, driving sustainable economic growth, or enhancing social equity – rather than the 'cost of another transport project', the case for investment and securing community support is enhanced.

The value of transport is not always in the transport solution.



## INVESTING IN WHAT WE NEED IN THE FUTURE

### SETTING THE NETWORK UP TO MEET FUTURE DEMANDS

The transport network, the way it is used, and the interrelated nature of the systems which rely upon it have, and continue to, evolve.

The demands on the network have similarly evolved, with retrospective investment typically needed, often at a higher cost than well-planned and proactive investment.

Looking ahead, Australia faces growing pressures from declining productivity, population growth, the impacts of climate change, rising costs of living and increasing freight demands. There are a suite of multi-faceted, interrelated and complex challenges emerging. As an enabler, the performance, productivity, and efficiency of our transport network play key roles in addressing these challenges.

### Planning for identified future challenges

By understanding not just the current patterns of demand, but also how population growth, emerging industries, and technological advancements will reshape the way Australians move and connect, we can ensure corridor reservations or other enabling activities to support priority projects are future proofed.

This proactive approach to transport planning and investment safeguards essential routes for future development, prevents costly retrofitting, and maintains flexibility to respond as community needs and economic drivers shift over time. It also sends a signal to industry on future plans, enabling them to similarly respond.

Integrating value-based planning with population and industry forecasts means corridor reservations become more than a

technical exercise – they are a strategic tool to support national objectives in housing, industry connectivity, energy transition, and social equity. By aligning corridor preservation with anticipated future uses, governments and communities unlock greater benefits from transport investment, allowing industry and community to respond, and ensuring a network that meets the needs of Australians for generations to come.

Industry, as a further example, will continue to seek productivity improvements through larger and more efficient vehicles, toward visions of autonomous light vehicles and also heavy vehicles 'fleeting' on national highways. As the introduction of B-Doubles has illustrated, however, there are trade-offs between values: from the various perspectives of industry and its productivity gains, to the costs to 'ready' the transport network for a different use, and the perspectives of the community facing impacts of heavier freight.

Through a better understanding of who uses the transport network, and the value they get from it, we are better able to understand how value might change over time, the future pressures that may be placed on it, and initiatives that could be implemented in response.

## Can we build a future-fit network with our existing funding model?

Australia has limited transparency and appreciation for funding models for transport, with their use disconnected from the general state and federal taxes (income, GST and other) and fuel excise used to fund the network.

This is in contrast to other essential services, such as energy and telecommunications, which are (predominantly) paid for by users.

When aligned with a better appreciation for value, there is an opportunity to improve transparency and recalibrate funding of transport to the value delivered by it. This could create a platform for a more direct connection between use/value and pricing/funding.

For example, with the increasing shift to electric vehicles and reduction in (opaque) fuel excises, an emerging debate around road user charging has emerged and can be reframed not as 'more taxes' but rather an understood reshaping of funding that responds to the value of the network.

Similarly, if the maintenance burden of such a significant asset as the transport network is considered against the value it provides, this enables a more sophisticated discussion on funding model reform. Models akin to the disaster recovery fund, supporting long-term funding commitments that sit outside of and go beyond budget cycles, may be adopted and accepted.

In shifting the dialogue on transport from that of transport as a significant cost to one that is grounded in the value the network delivers, we build an understanding of, and commitment to, the need for long-term planning and investment in transport.

We know that difficult choices will still need to be made – and perspectives will vary as to what is 'the right choice' – but with government, business, and the public sharing a common language of value, Australia will be able to make more informed decisions about our country's greatest and arguably most valuable public asset – the transport network.

# Transport Australia will work to bring value to life

This report is the first step towards bringing the value of the transport network to life.

Future work will underline that transport is not just infrastructure, it is the national platform that allows Australia to function. It is intended to refocus the national conversation from individual projects to the system that connects us all.

In light of the analysis presented throughout this report, it is clear that there is an opportunity to change how Australia conceptualises and leverages the value of its transport network.

Recognising transport as more than just a collection of projects or assets – as a vital, national platform that sustains our economy, communities and way of life – sets the stage for a more ambitious, integrated approach to policy, planning and investment.

Transport Australia is committed to leading this evolution. Over the next 12 months, we will embark on a coordinated program of work designed to elevate transport network value to the forefront of national conversation and decision-making. This initiative will begin by launching a nationwide dialogue – engaging governments, industry, experts, and the public – focused on how we define, measure and communicate the full breadth of value delivered by our transport network.

**TRANSPORT AUSTRALIA**

Transport Australia champions an integrated and sustainable transport system as the enabler for a prosperous Australia.

We connect government and industry to promote sustainable economic growth and liveability.

We represent more than 120 organisations including transport agencies, major contractors and consultants, asset owners and operators, material suppliers and technology providers.

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**scyne** |

Scyne provides professional services across critical sectors that serve the public interest.

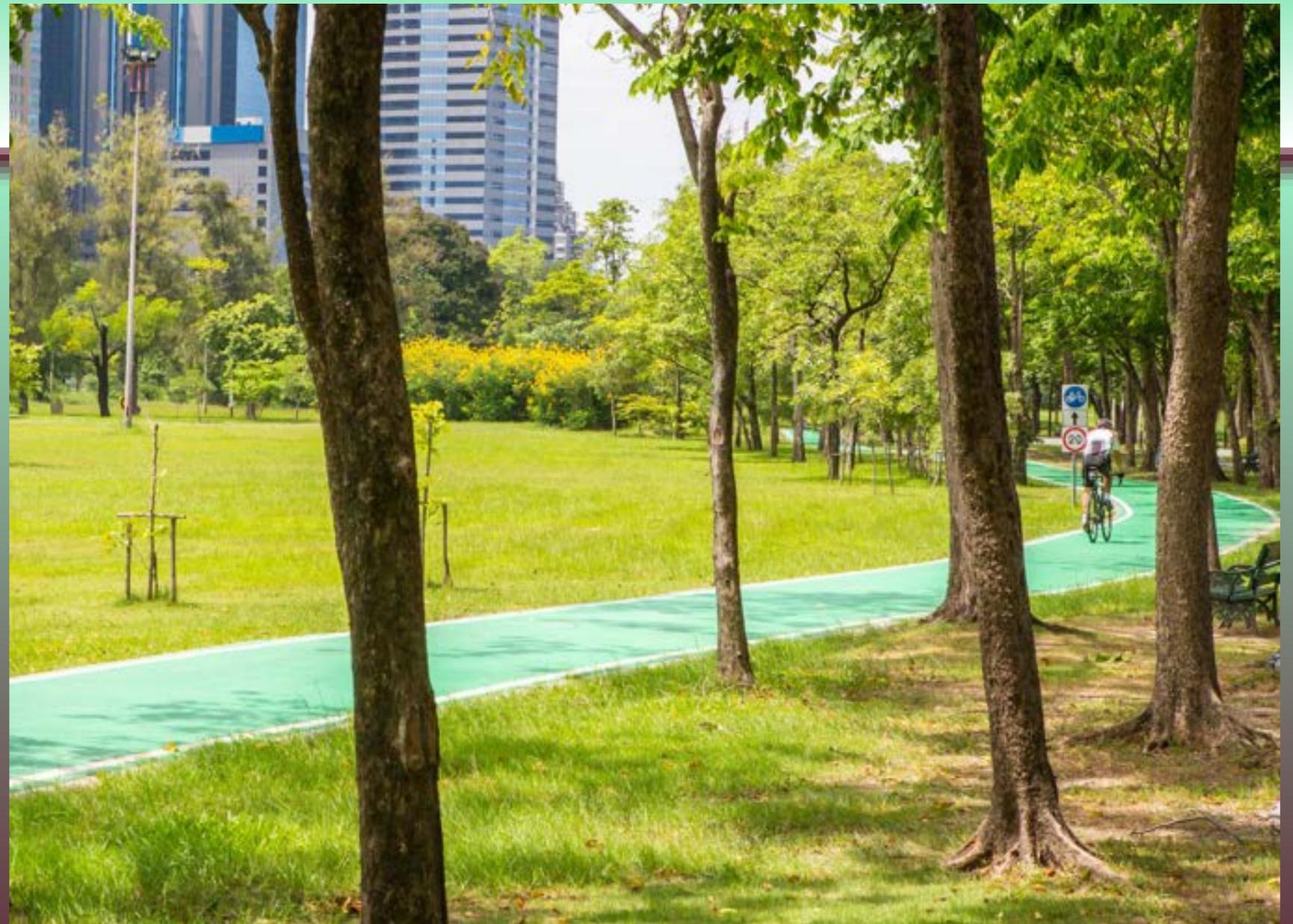
We bring deep sector knowledge and a collaborative mindset to help our clients solve complex challenges.

Whether partnering with governments, not-for-profits or commercial organisations, we are committed to building a better future – together. Our vision is to help build more resilient, secure, equitable and prosperous communities.

We are proud to partner with Transport Australia in its signature report Valuing Australia's Transport Network.

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# Appendix



# Approaches to valuation of the transport network

This report presented a range of valuation methodologies and associated values, as presented here for ease of reference. The following sections discuss the methodologies and underlying assumptions supporting these estimates.

## ALTERNATIVE APPROACHES TO DETERMINING A 'HEADLINE' VALUE OF THE NETWORK

A range of values illustrate the sheer scale of the network – of the investment made in it and the value it contributes.

| Asset replacement value  | Economic activity  | Value of time in transit  |
|--|--|---|
| <p><b>\$10–\$22 tn</b></p> <p>From an asset perspective, Australia's land transport infrastructure carries hundreds of billions of dollars in replacement value – reflecting generations of investment in roads, rail, tunnels, bridges and paths.</p> | <p><b>~\$189 bn per annum</b></p> <p>From an economic perspective, the transport sector constitutes 9 per cent of Australia's GDP through value-add – underpinning supply chains, labour mobility, essential services and national productivity.</p> | <p><b>~\$100 bn per annum</b></p> <p>From a user perspective, Australians spend around 5 billion hours each year travelling across the network. Using standard value of time methods, that implies an annual value of around \$100 billion.</p> |

### Transport as an enabler of the economy

## AUSTRALIA'S ~\$2.1 TN PER ANNUM GDP

Transport network supports almost all of Australia's GDP, reflective of the reliance all sectors have, to varying extents, on the network.

The valuation estimates presented in this report are not intended to be precise or expected to withstand detailed academic scrutiny. Rather they are provided as context to illustrate the sheer scale of network and a quantum of 'value' associated with the Australian transport network.

## COST OF REPLACING THE LAND TRANSPORT NETWORK

### Concept

Asset replacement value represents the estimated cost of rebuilding Australia's land based transport infrastructure to its current standard if it was constructed today.

This measure captures the physical scale and engineering complexity of the network, reflecting more than 1,000,000 kilometres of transport assets and the critical structures that enable national mobility. It provides a tangible baseline for appreciating the sheer magnitude of the system we rely on every day.

### Why is this approach important to consider?

These estimates provide a useful indication of what it would mean to rebuild the land transport network 'from scratch'.

### The approach to valuation

This approach values the road, heavy rail and light rail networks in Australia.

Key inputs to the valuation of the road network:

- Total road network lane kilometres in Australia
  - Approximately 1m<sup>21 22</sup>
- Low and high estimates of all in road replacement unit cost per lane kilometre
  - Approximately \$8.4 million to \$18.9 million<sup>23</sup>

The formula used to calculate the replacement cost of the full road network in Australia is:

$$\text{Total road network replacement cost} = \text{ROAD NETWORK LANE KM} \times \text{ALL IN ROAD REPLACEMENT UNIT COST PER LANE KM (\$AUD)}$$

Key inputs to the valuation of the light and heavy rail network:<sup>24</sup>

- Light rail network route kilometres
  - Approximately 338
- Heavy rail network route kilometres
  - Approximately 31,000
- Low and high estimates of light and heavy rail all in replacement unit cost per route kilometre<sup>25</sup>
  - Light rail – from \$65 million to \$109 million
  - Heavy rail – from \$44 million to \$87 million

The formulae used to estimate the replacement cost of the full light and heavy rail networks are:

**Total light rail network replacement cost =**

$$\text{LIGHT RAIL NETWORK ROUTE KM} \times \text{LIGHT RAIL ALL IN REPLACEMENT UNIT COST PER ROUTE KM (\$AUD)}$$

**Total heavy rail network replacement cost =**

$$\text{HEAVY RAIL NETWORK ROUTE KM} \times \text{HEAVY RAIL ALL IN REPLACEMENT UNIT COST PER ROUTE KM (\$AUD)}$$

Both the approach to road and rail valuation will utilise low to high estimates of replacement unit costs, hence producing a range of total replacement cost.

**Valuation estimates**

The valuation techniques outlined above yielded the replacement costs outlined below (\$FY26 AUD).

**Total road network replacement cost =**

\$8.6 TRILLION–\$19.2 TRILLION

**Total light rail network replacement cost =**

\$22 BILLION–\$37 BILLION

**Total heavy rail network replacement cost =**

\$1.4 TRILLION–\$2.7 TRILLION

**Total land transport network replacement cost =**

\$10 TRILLION–\$22 TRILLION

## VALUE OF TIME IN TRANSIT

**Concept**

People spend significant time using land transport infrastructure for trips related to either work or private travel. Time is valuable, and time spent in transit is the minimum value we place on wherever we are travelling to.

By measuring time spent on roads and rail, applying differential time values based on trip purpose, the total social and economic value from being able to use the network can be measured.

However, the disadvantages of this approach include:

- The production of counterintuitive results, e.g., more congestion/longer trips = higher value
- Value of time varies significantly by purpose (e.g., commuting, leisure, business) and person (e.g., income)
- It doesn't capture freight travel time well

**Why is this approach important to consider?**

This method attempts to value the economic and social worth of travel using the transport network. It captures all passenger movements on the road and rail networks, including passengers of for-hire movements such as Uber, and excluding time spent on the networks by drivers.

**The approach to valuation**

**Roads**

**Total road value of time per annum =**

$$\text{VEHICLE TRAVEL HOURS ((PASSENGER KM)/(AVERAGE SPEED))}^{26} \times \text{UNIT VALUE OF TIME SPENT ON ROADS}^{27}$$

**Light and heavy rail**

**Total rail value of time per annum =**

$$\text{LIGHT AND HEAVY RAIL TRAVEL HOURS ((PASSENGER KM)/(AVERAGE SPEED))}^{28} \times \text{UNIT VALUE OF TIME SPENT USING LIGHT AND HEAVY RAIL}^{29}$$

**Valuation estimates**

This approach estimates a transport value of approx. (\$FY25 AUD) \$100 billion

| Mode         | Estimated Hours/ Year | Value (\$Billion/ Year) |
|--------------|-----------------------|-------------------------|
| Road         | 4,418                 | 91                      |
| Heavy Rail   | 280                   | 5                       |
| Light Rail   | 223                   | 4                       |
| <b>Total</b> | <b>4,921</b>          | <b>100</b>              |

## ECONOMIC CONTRIBUTION OF TRANSPORT SPECIFIC ACTIVITIES

### Concept

This valuation methodology estimates the value of for-hire and in-house transport activities which, however, excludes customers, commutes and social value.

This method involves identification of the full extent of for-hire and in-house transport activities, beyond what is undertaken by the traditionally defined transport industry. It draws together a picture of transport activity conducted on a for-hire basis by the traditionally defined transport industry, as well as providing an explicit measure of transport activity undertaken by non-transport industries in the economy.

### Why is this approach important to consider?

This method provides conservative estimates of the economic activity that is supported by the transport network. It provides baseline estimates based on economic output values.

### The approach to valuation

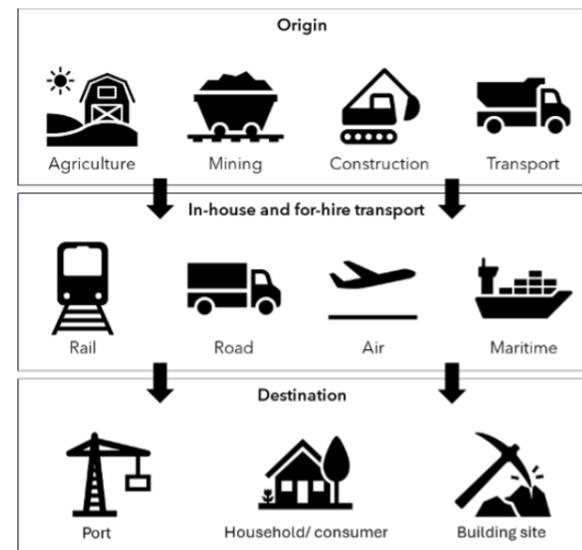
- For-hire transport activity undertaken by businesses within the transport, postal and warehousing industry as defined in the national accounts (e.g., transport of goods by freight transport businesses).
- In-house transport activity of businesses in non-transport industries, including secondary production of transport activity (either via explicit market fee or without explicit market fee). For example, where a retail business uses their own truck to deliver the goods to the customer or a retail outlet.<sup>30</sup>

This provides a measure of economic activity that is contingent upon in-house and for-hire transport. However, this valuation approach misses the following value dimensions of the transport network:

- Customers consuming goods and services– e.g., consumption travel such as retail or restaurant trips
- Commuting to/from work
- Transporting kids to/from school, and connecting communities more broadly.

The flow of goods in for-hire and in-house transport activity is shown in Figure 3.

Figure 3



### Economic Impact (I/O) assessment methodology

This section summarises the Input-Output modelling (I-O) methodology, designed to estimate the direct, indirect and induced economic effects of 'for-hire' and 'in-house' transport activity in Australia.

I-O modelling uses integrated multipliers which trace the relationship between the transactions of various industries in the economy. The models use the economic structure to explain the way that the mix and size of the economy would change subject to an increase in demand or spending. They do so using I-O tables.

I-O tables contain a detailed record of the flows and stocks within an economy for a given year. They record the activity of each industry and highlight the interdependencies between industries. I-O tables detail sales and costs of all industries, including payments to labour, payments to capital, tax payments, import expenses, and the cost of intermediate inputs.

I-O tables provide a simple method of examining GDP within the national accounting framework.

The I-O model used for this report has been developed by REMPLAN<sup>31</sup> and provides insights into the performance of key sectors within economy using the latest data and I-O tables from the Australian Bureau of Statistics.

The economic impact analysis captures the following economic effects which are summed to estimate the total economic effects:

- Direct effect – spending on 'for-hire' and 'in-house' transport activity. These estimates were obtained from the ABS Transport Economic Account for the industries defined by the ABS within each of 'for-hire' and 'in-house' transport.
- Industrial (indirect) effect – activity rippling through the supply chain of 'for-hire' and 'in-house' transport providers and their vendors. This effect is estimated by the I/O model.
- Consumption (induced) effect – activity associated with household spending derived from direct and indirect employee labour income. This effect is estimated by the I/O model.

The I-O model estimates the direct, indirect and induced economic impacts in terms of:

- The value added to the economy, broadly equivalent to GDP (the unduplicated total value of goods and services)
- Employment – the number of Full-Time Equivalent jobs (FTEs) supported per year.

**Valuation estimates**

These estimates yield a transport value of approx. (\$FY25 AUD):

**\$189 BILLION OR ~9% OF AUSTRALIAN GDP**

This reflects the most recent period for which ABS data is available (2020–21). Note that this value is likely suppressed by the COVID pandemic during that period.

Using this approach, transport contribution to GDP and employment is summarised in Figure 2, Figure 3, and Figure 4.

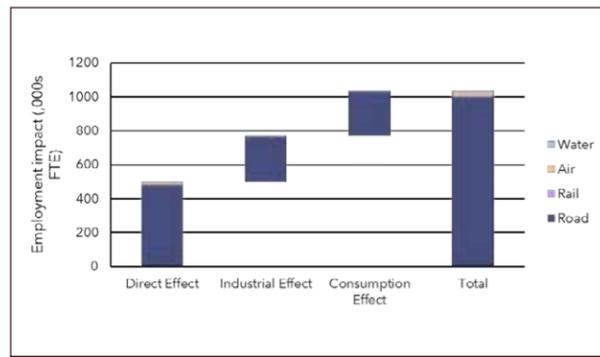


Figure 4  
Annual transport employment by mode

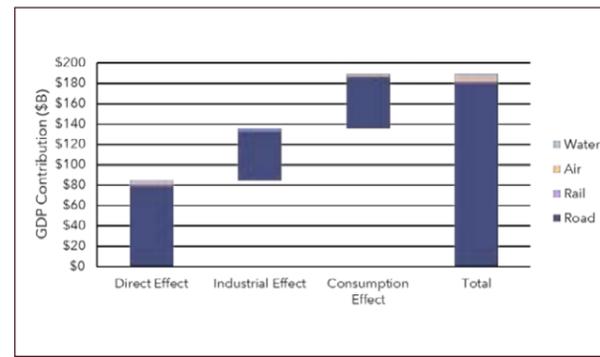


Figure 5  
Annual transport economic activity by mode

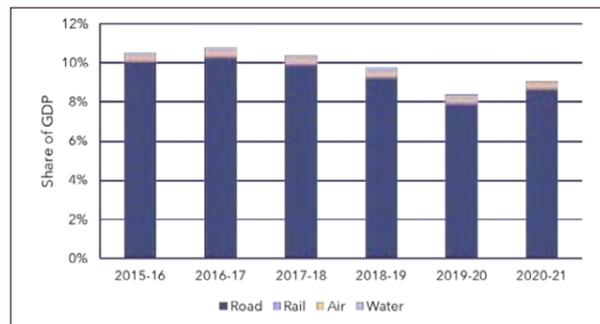


Figure 6  
Transport economic activity (direct+ indirect+ induced) share of total GDP by mode

## TRANSPORT AS A DRIVER OF THE ENTIRE NATIONAL ECONOMY

**Concept**

Almost every economic activity depends on moving people and goods, and in Australia, roads and railways are the backbone of this movement.

- **Goods production and delivery:** Raw materials (e.g., minerals, food, manufactured goods) must be moved to processing centres, factories and export ports before reaching domestic markets.
- **Supply chains:** Retailers, manufacturers, agriculture and construction all require inputs delivered and products shipped out along the transport network.
- **People movement:** Workers commute via road and rail daily; the consumption of goods and services by consumers rely on smooth transport connections.
- **Freight logistics:** Most freight in Australia moves by road and rail, often in combination, with road handling short-haul distribution and rail carrying heavy or long-distance loads.

**Why is this approach important to consider?**

This method estimates of the value of the transport network by quantifying the total economic activity it enables. This method assumes that nearly the entire economy is contingent on the transport network for its functioning.

**The approach to valuation**

As transport is embedded in every sector, and from production to consumption, disruptions to the network (e.g., closures, congestion, freight bottlenecks) ripple through every industry, affecting productivity, prices and employment.

This approach assumes that almost all of the Australian \$2.1 trillion GDP<sup>32</sup> is in some way dependent on the land transport network. However, this assertion has shortcomings that include the following:

- GDP counts the value of goods and services produced. It does not assign a 'dependency share' to enabling systems (transport, electricity, water, telecommunications).
- Without land transport, some economic activity (especially in services sectors) would re-route, for example remote legal, finance, software, government administration services, and online education.

Like the direct economic activity valuation, this approach also excludes the social value of private uses of the transport network, e.g. connecting communities.

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