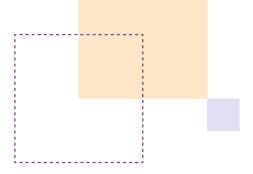
CHAPTER 06 INTEGRATED TRANSPORT



Plan Melbourne Outcome 3: Melbourne has an integrated transport system that connects people to jobs and services and goods to market. As the Northern Metro Region grows, it will require better integration of land use and transport planning, better use of existing roads, and increased investment in public transport, walking and cycling. Making better use of transport infrastructure, complemented by good precinct design, can improve connections without necessarily the expense and disruption of delivering new infrastructure. Land use decisions, as well as mode shift opportunities, can significantly improve access and reduce transport-generated emissions.



Photo credit: Tim Bell Studio



Transport in the Northern Metro Region is primarily provided by road and rail networks that radiate from the CBD, connecting through the region and onto the north of the state. However, connections are limited between residential areas and employment areas throughout the region.

The Northern Metro Region is home to the transport gateway of Melbourne Airport as well as the proposed BIFT. SRL and other committed road and rail projects will improve access within the region as well as better connecting the region to other parts of Melbourne and the state.

State of play

Map 5 outlines the current state of play for transport in the Northern Metro Region.

Road network

The region's main north-south connection is the Hume Freeway, one of Melbourne's most strategically important pieces of transport infrastructure, connecting the region with Melbourne's CBD, regional Victoria and New South Wales. The M80 Ring Road is the critical east-west link across the region. The Calder Freeway connects to the M80 Ring Road, linking Sunbury and the north-west of Victoria. Melbourne Airport, a statesignificant transport gateway, is connected to Melbourne's CBD via the Tullamarine Freeway and CityLink. Both the Hume Freeway and Melbourne Airport are key economic regions and gateways for Australia's national economy.

As the region grows, road congestion will increase, with the impact of congestion highest on residents in outer areas. By 2031, traffic volumes in the outer area of the Northern Metro Region will increase around 47 per cent from 2015 levels (KPMG & ARUP, 2017). Congestion hotspots include Epping Road and Plenty Road. The duration of morning and evening peak periods lengthens with distance from Melbourne's city centre, and for outer regions, the morning peak is forecast to begin half an hour earlier by 2031 (KPMG & ARUP, 2017).

Public transport network

The Northern Metro Region has an established public transport network, especially in the southern part of the region as shown in **Figure 15**. The inner suburbs of the Northern Metro Region are well connected to Melbourne's CBD by both train and tram. The region's rail network includes:

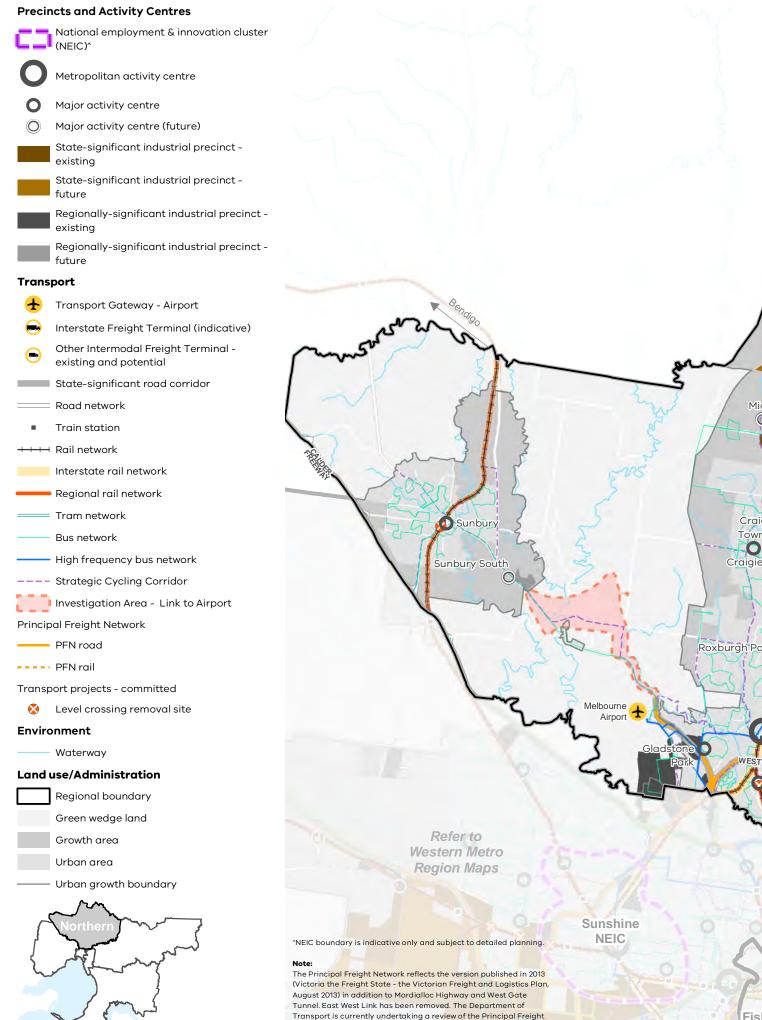
- Metro passenger services to Sunbury, Upfield, Mernda, Hurstbridge and Craigieburn
- Regional passenger services to Bendigo, Albury and Shepparton
- Interstate passenger and freight lines from Melbourne to Sydney and Brisbane (via Albury).

The outer sections of all lines are limited by single tracks. The Upfield line connects to the Craigieburn line at Roxburgh Park but is not used for metropolitan passenger services beyond Upfield. Regional passenger services operate for the growth areas beyond Craigieburn to Wallan. The tram network extends to Coburg (three lines), Brunswick (two lines) and Bundoora.

The Northern Metro Region's bus network is mainly concentrated in the southern LGAs. Three orbital SmartBus routes provide east-west connections. All existing activity centres and the La Trobe NEIC contain multi-modal transport interchanges.

Figure 13 shows the accessibility to public transport for people who live within the region based on how far they need to walk to access train, tram and bus services. Whittlesea, Nillumbik and Hume LGAs have the lowest average hourly frequencies of public transport per stop compared to other local councils in the region. Congestion in the region's inner suburbs is increasing, with more activity, traffic and freight movements, and limited north-south and east-west arterial corridors. Between the region's radial rail corridors, public transport provision can be poor, with higher levels of car dependency and increasingly congested road networks.

MAP 5. Northern Metro Region integrated transport state of play



Network

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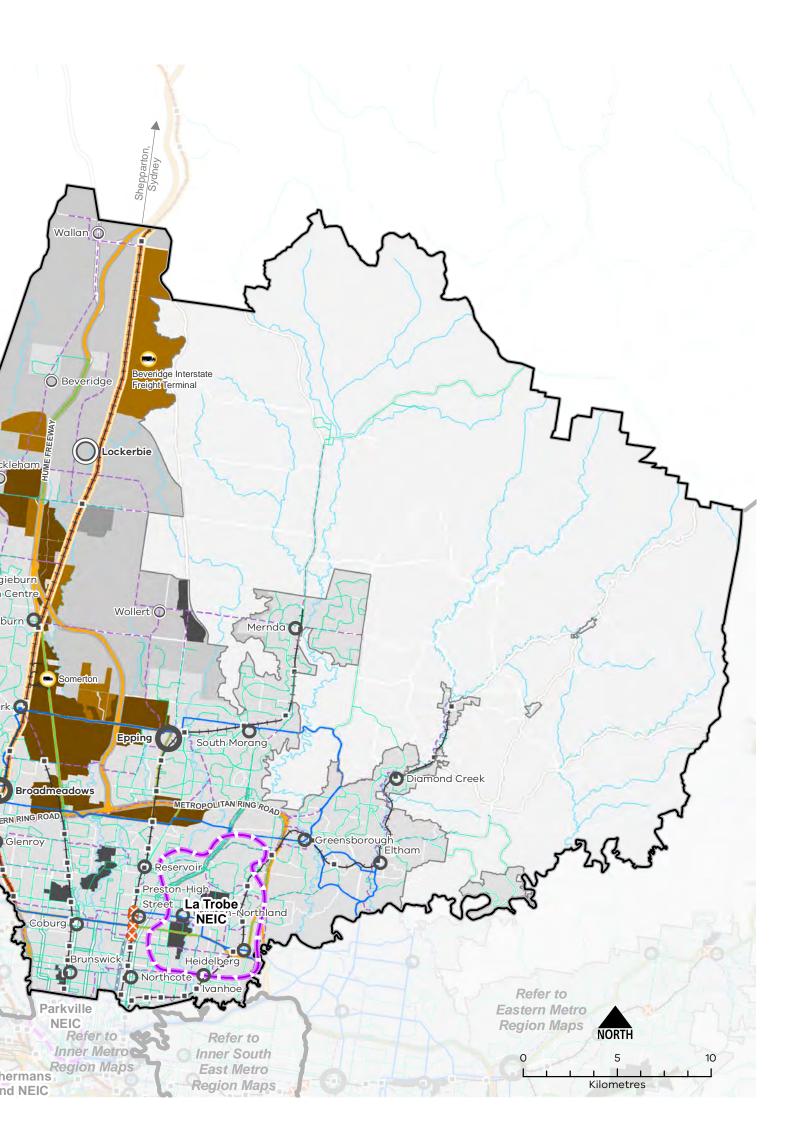
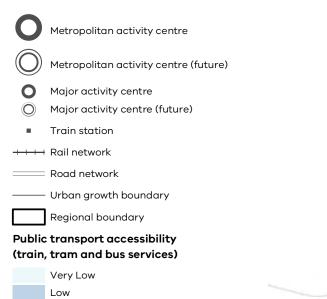


FIGURE 13. Public transport accessibility in the Northern Metro Region

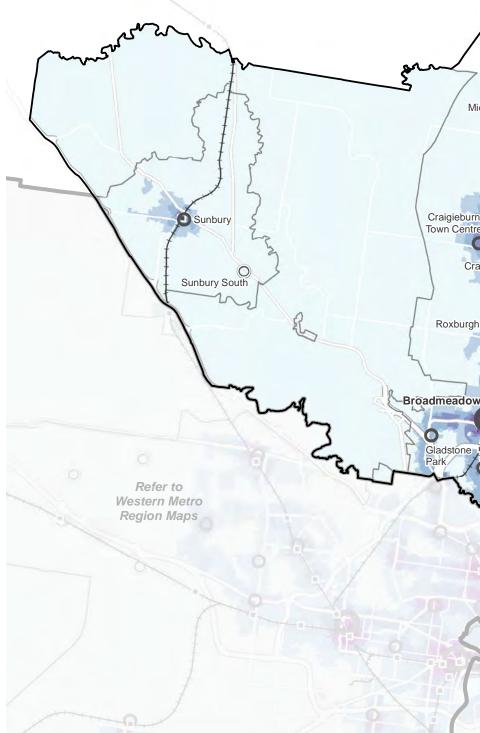


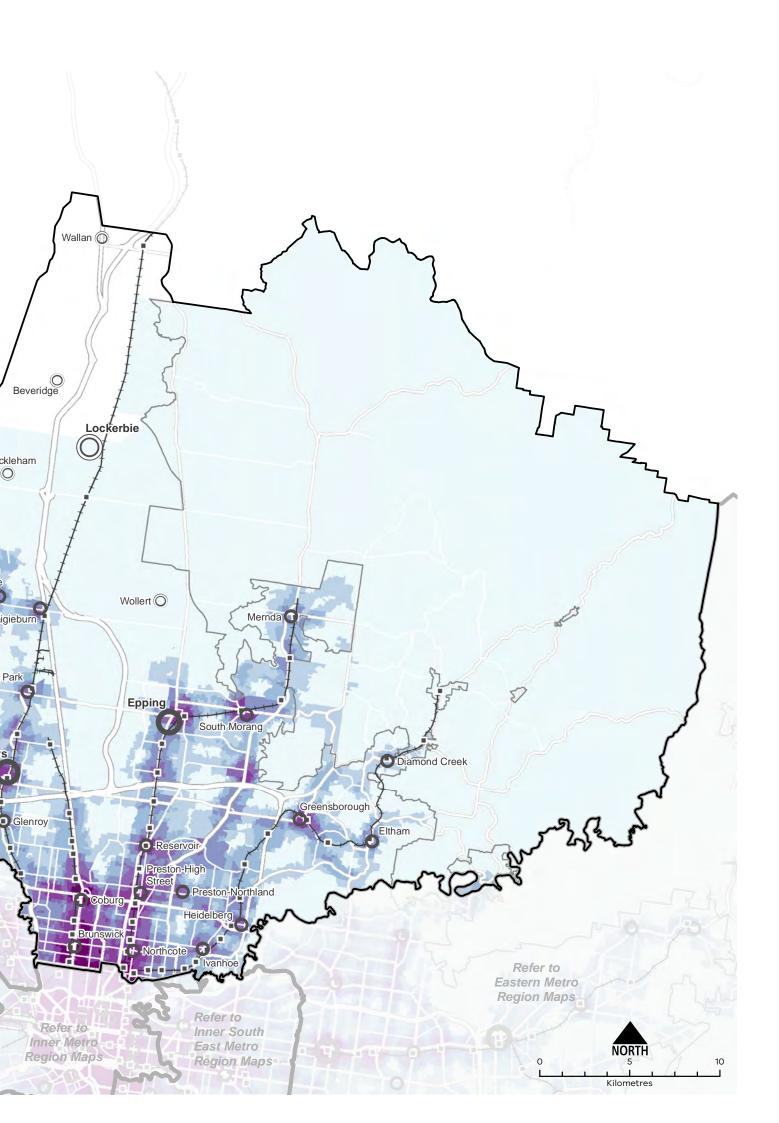
Low to Medium Medium Medium to High

High Very High









Active transport network

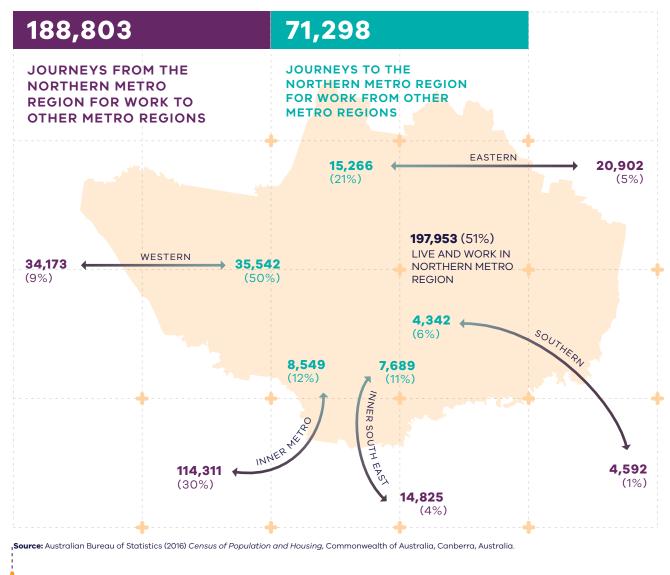
The cycling network is well developed in the southern, more populated part of the region, with established off road trails along waterway corridors and Strategic Cycling Corridors. These trails extend from Melbourne's CBD to activity centres such as Broadmeadows, Coburg, Preston and Heidelberg and La Trobe University. However, further improvements are needed to make cycling a more attractive form of transport, particularly in the outer areas. In 2016, 3 per cent of residents cycled to work in the Northern Metro Region. This compares to 1 per cent for metropolitan Melbourne. 2 per cent of residents walked to work in the Northern Metro Region, which compares to 3 per cent for metropolitan Melbourne.

Regional access and movement

Around half of the residents of the Northern Metro Region also work in the region. **Figure 14** shows journeys in and out of the Northern Metro Region in 2016. The most common work destination for the Northern Metro Region after the region itself was the Inner Metro Region. The most common work destination for residents in 2016 was Melbourne LGA, followed by the local LGAs of Hume and Whittlesea (Australian Bureau of Statistics, 2016). Whittlesea and Hume were also the most common origin of people working in the region, followed by Banyule and Darebin LGAs. Workers also travelled from LGAs in the Western Metro Region, including Brimbank, Moonee Valley and Melton LGAs.

A substantial number of workers travel from outside the region, mainly from the Western Metro Region. After the LGAs within the Northern Metro Region, workers travel from Brimbank, Moonee Valley, Melton and Manningham LGAs for jobs located in the Northern Metro Region (Australian Bureau of Statistics, 2016).

FIGURE 14. Journey to work in and out of the Northern Metro Region



Regional strengths

- There are significant existing and future transport connections to regional Victoria, Melbourne Airport, other metro regions and the Central City which will improve access to jobs, services and infrastructure.
- The region benefits from a strong freeway, arterial road and freight network, including the proposed BIFT.
- The region will benefit from access improvements through the Suburban Rail Loop.
- The region is home to the transport gateway of Melbourne Airport which will become better connected to the rest of Melbourne via Melbourne Airport Rail.

Regional challenges

- There is a lack of capacity in many of the northsouth corridors and a need to create better transport interchanges at key locations such as train stations in the Northern Growth Corridor.
- East-west connections across the region need to be increased and improved.
- The region has higher levels of car dependency and congested road networks, there is a need to increase the number of trips taken by walking, bicycle, and public transport.

Directions and strategies

The directions identified to achieve the 2050 vision for the Northern Metro Region in terms of integrated transport and Outcome 3 of Plan Melbourne are:

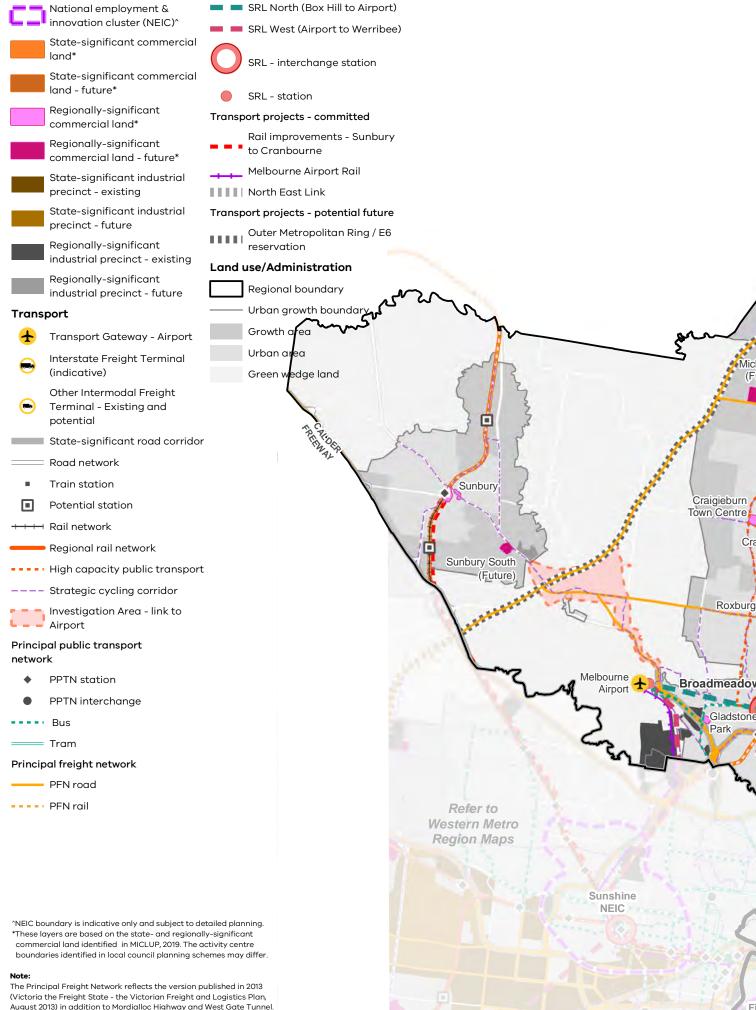
Direction 12	Improve transport connections to support the productivity of the Northern Metro Region
Direction 13	Improve public and active transport access for the La Trobe NEIC, metropolitan and major activity centres
Direction 14	Improve transport connectivity in the Northern Growth Corridor and outer suburbs
Direction 15	Improve active and public transport options to promote mode shift and support 20-minute neighbourhoods
Direction 16	Protect and grow the Northern Metro Region's comparative advantage in freight and logistics

Each direction is implemented through regionallyspecific strategies identified in this LUFP.

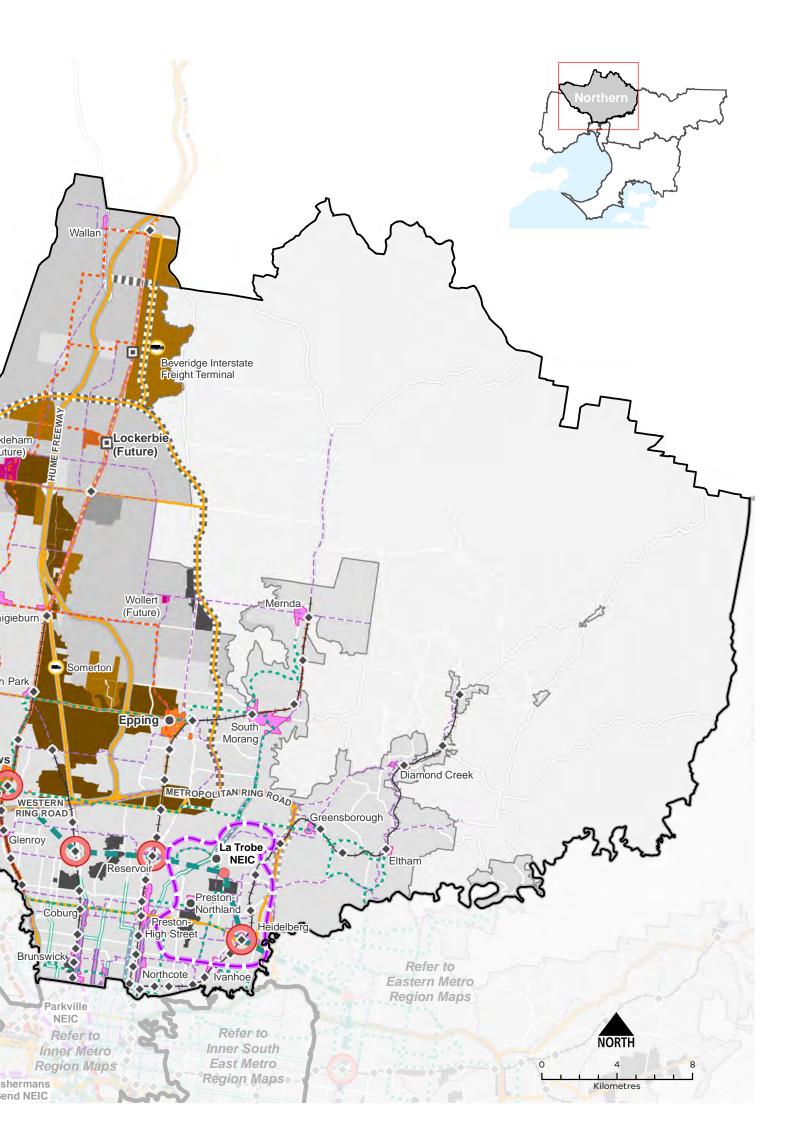
Map 6 shows how Integrated transport will be enhanced across the Northern Metro Region by 2050 as a result of these directions and strategies, together with Plan Melbourne and other strategies and initiatives as outlined in Appendix 01.

MAP 6. Northern Metro Region integrated transport 2050

Precincts and Activity Centres Suburban Rail Loop



(Victoria the Freight State - the Victorian Freight and Logistics Plan, August 2013) in addition to Mordialloc Highway and West Gate Tunnel. East West Link has been removed. The Department of Transport is currently undertaking a review of the Principal Freight Network.



DIRECTION 12.

Improve transport connections to support the productivity of the Northern Metro Region

As Broadmeadows, Epping and other important employment centres across the Northern Metro Region grow, such as Lockerbie, Mickleham and Wollert, public transport connections to these centres will need to be expanded. They will also require active transport networks that logically connect with public transport nodes and improved transport interchanges. Train station master planning will be important at key locations such as metropolitan activity centres and train stations in the Northern Growth Corridor.

Improved east-west transport connections will support the development of regional employment opportunities reducing the need for long commutes. In established urban areas, existing public transport connections comprise bus routes on heavily congested roads. In the Northern Growth Corridor there are few east-west public transport options. It will become increasingly important to improve these connections to better link residents to jobs and services in key nodes such as the La Trobe NEIC, Melbourne Airport, Broadmeadows, Epping and Lockerbie metropolitan activity centres.

The key regional linkages are shown in **Figure 15**. Decisions regarding appropriate modes for these links should consider the capacity of existing infrastructure, ongoing sustainability and providing travel choices over a longer time period including evening and late-night travel.

Key east-west, multi-modal connections requiring further development are:

- Bell Street (through inner-middle Melbourne from the Tullamarine Freeway to Heidelberg and the southern part of the La Trobe NEIC connecting into SRL)
- M80 Ring Road and Mahoneys Road (linking Melbourne Airport through Broadmeadows and Thomastown, and La Trobe NEIC)
- Cooper Street and Somerton Road (linking Roxburgh Park to Epping, and connecting with the Hume Highway Corridor, Melbourne Wholesale Fruit, Vegetable and Flower Market and Epping)
- Donnybrook Road, Craigieburn East Road, Findon Road and the M80 Ring Road duplications (ultimately connecting the OMR from Mickleham Road in the west through Lockerbie and the proposed BIFT and to Plenty Road to the east).

The proposed OMR will improve access to Melbourne Airport, Epping and Lockerbie metropolitan activity centres and Sunbury Major Activity Centre.

Increasing the capacity of north-south corridors, in particular in the growth areas in Hume and Whittlesea LGAs, is critical to improve access and reduce travel time to Melbourne's CBD and inner suburbs. This includes increasing rail capacity, completing the arterial road network and planning for its flexible use to accommodate active, sustainable modes of transport.

As the city grows, the links between the Northern Metro Region, peri-urban areas and central Victoria will continue to be important. Major activity centres such as Sunbury and Craigieburn in the region's north will become stronger service hubs, while proposed employment centres such as Lockerbie and the BIFT will become job locations for residents in peri-urban and regional areas. This will require better connections between the Northern Metro Region and towns and centres in peri-urban and central Victoria, particularly by public transport.

Key metropolitan inter-regional linkages are from Melbourne's north to western, eastern and southern economic nodes such as Sunshine, Ringwood, Box Hill, Clayton and Dandenong, and to the Melbourne CBD and Port of Melbourne.

The capacity of the regional bus network needs to be enhanced to improve integration with train and tram services and provide alternative high-capacity transport options in the growth areas. This will also increase public transport options to key locations in the short- to medium-term while longer-term transport projects are delivered such as North East Link and SRL.

Inner northern suburbs have recently transitioned to higher-density, compact suburbs with strong walking, cycling and public transport cultures. While there has been progress in implementing the Principal Bicycle Network (PBN) there is still a challenge to elevate cycling as a genuine alternative transport choice and introduce safer cycling routes to meet demand. Public and active transport access for workers to industrial precincts should also be improved to reduce car use and car parking demands in these locations.

Quality off-road and protected on-road bicycle connections are needed, especially to key destinations such as La Trobe NEIC and the Melbourne CBD.

Strategic Cycling Corridors will connect statesignificant locations and activity centres. Priority active transport projects will promote increased safe use of the region's cycling and walking network (**Figure 16**).

INTEGRATED TRANSPORT

Primary routes provide a core network of Strategic Cycling Corridors that connect places of state significance – the Central City, metropolitan activity centres and NEICs within metropolitan Melbourne. Main routes are Strategic Cycing Corridors that provide additional connections to state-significant destinations as well as connections to major activity centres and key train stations across metropolitan Melbourne.

STRATEGY 38. Provide high-quality public transport access to job-rich areas such as La Trobe NEIC, Broadmeadows and Epping metropolitan activity centres, and Melbourne Airport.

STRATEGY 39. Provide high-quality public transport connections to planned employment areas including Lockerbie Metropolitan Activity Centre (future), Beveridge and Merrifield (Mickleham) major activity centres, significant employment areas identified north and south of Merrifield and the proposed BIFT.

STRATEGY 40. Improve east-west arterial road connections and east-west bus connectivity.

STRATEGY 41. Improve north-south transport connections including public transport provision and capacity, arterial road connections and supporting infrastructure including improved and integrated transport interchanges in metropolitan and major activity centres.

STRATEGY 42. Enhance public transport connections to peri-urban areas, Bendigo, Seymour and other centres in central and northern Victoria.

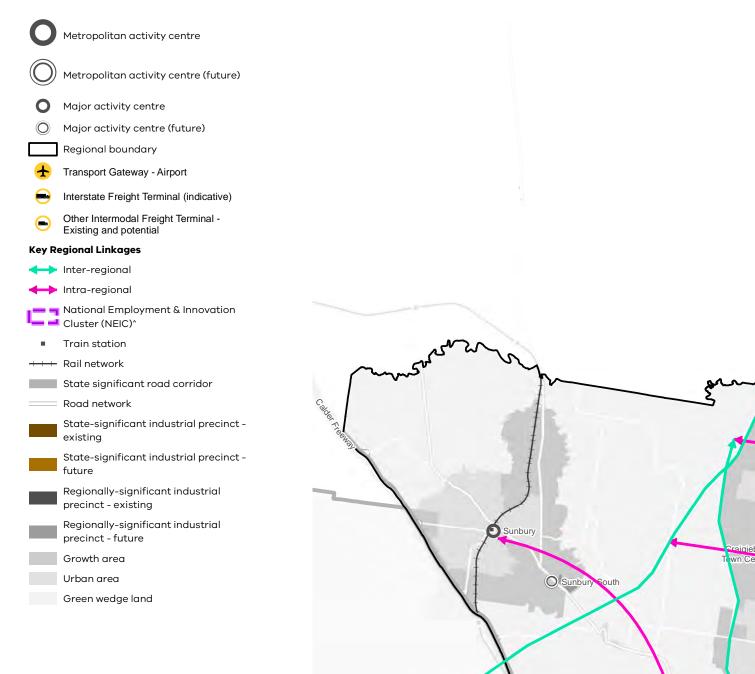
STRATEGY 43. Integrate major public transport with the activity centre and active transport network by connecting cycling and pedestrian links to major transport nodes.

STRATEGY 44. Support cycling for transport through the development of Strategic Cycling Corridors in the Northern Metro Region.



Photo ¢redit: Tim Bell Studio

FIGURE 15. Key regional linkages - Northern Metro Region



Melbourne dme

Fi

Sunshine

NEIC

^NEIC boundary is indicative only and subject to detailed planning.



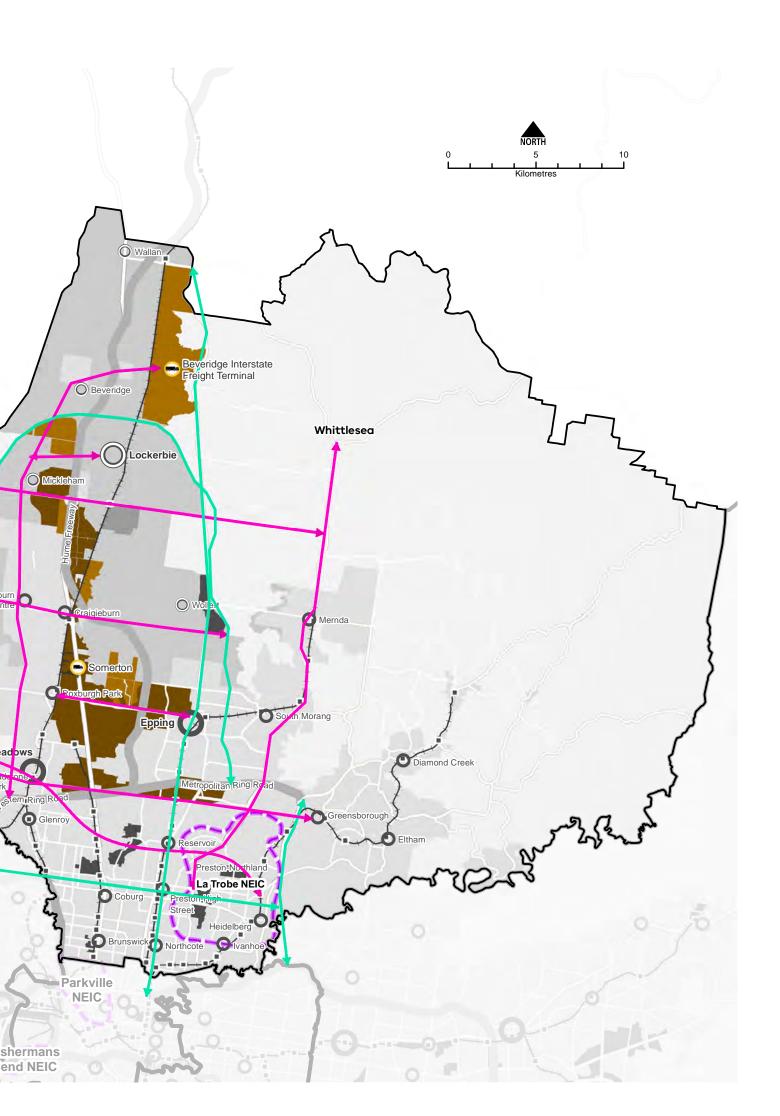
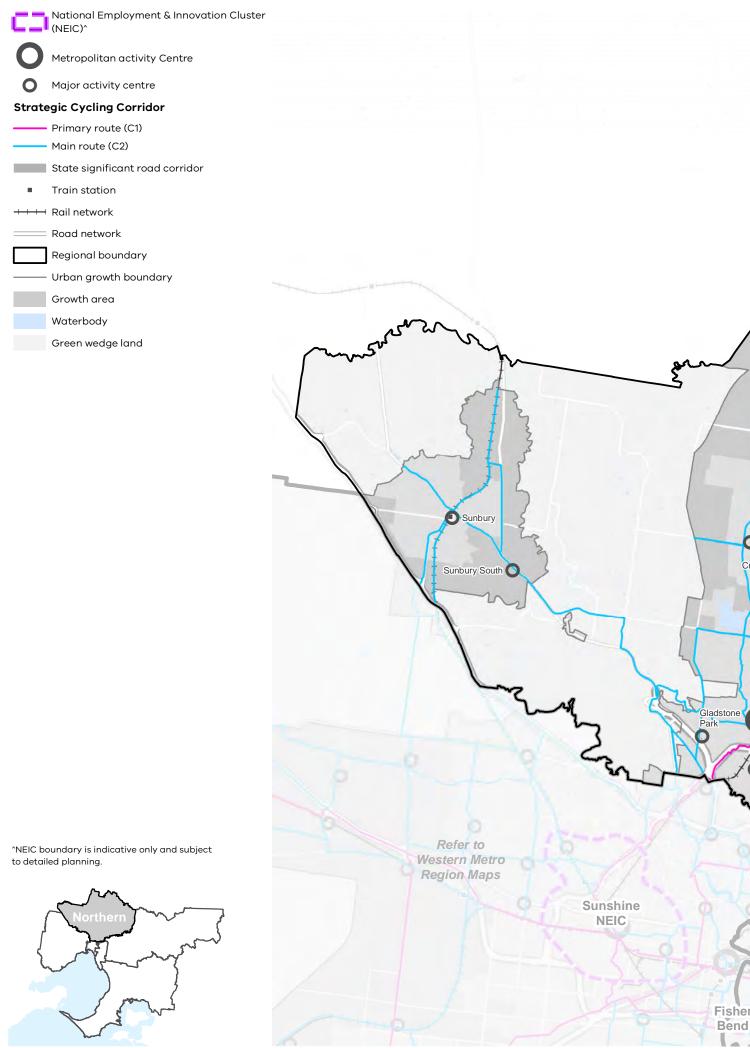
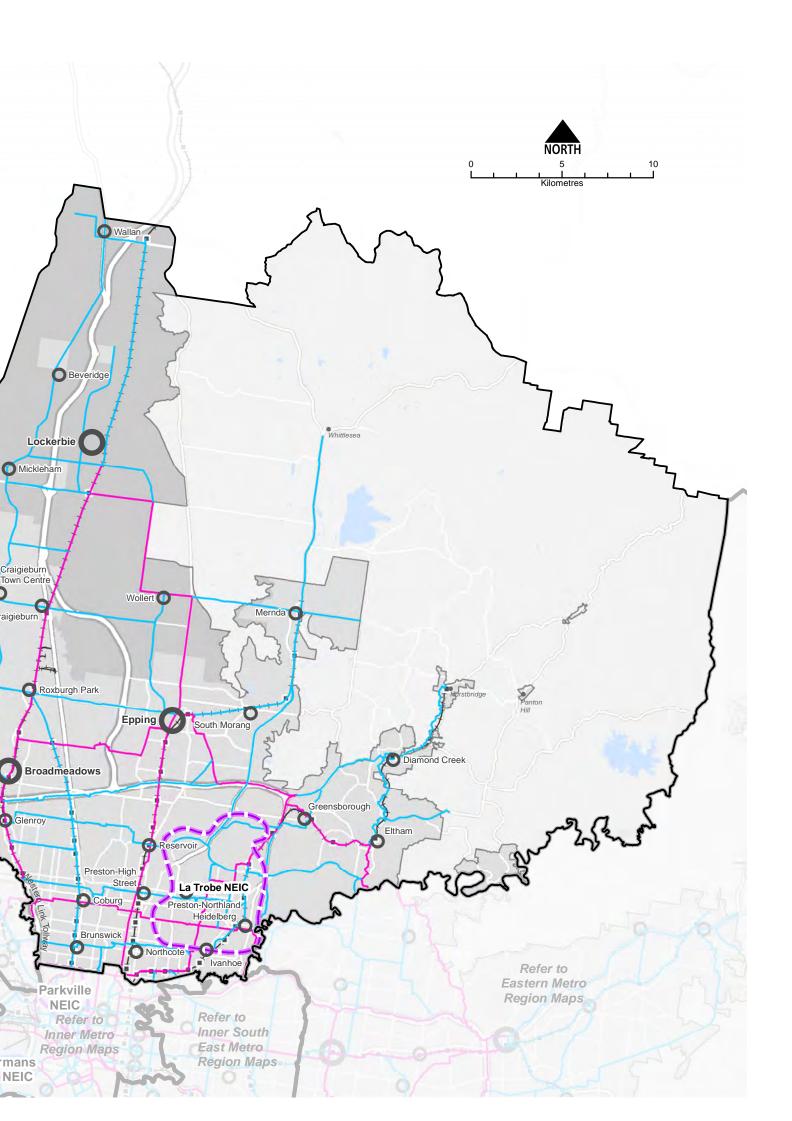


FIGURE 16. Strategic Cycling Corridor network - Northern Metro Region







DIRECTION 13.

Improve public and active transport access for the La Trobe NEIC, metropolitan and major activity centres

Continuing to provide opportunities for public and active transport in and around the NEIC, metropolitan and major activity centres will be critical to improve the amenity of these centres and make them more attractive for business investment and local residents. In the longer term, SRL North (Box Hill to Airport) will improve east-west connectivity within the region by linking the La Trobe NEIC and activity centres within the region and also improving linkages with other regions. Melbourne Airport will connect to Broadmeadows, Fawkner, Reservoir, Bundoora, and onto Heidelberg and other activity centres in Melbourne. SRL will change the way people travel to and move around the Northern Metro Region.

The location and design of interchanges will link in closely with other public transport and active transport routes. It will also enhance access to centres to the north of SRL such as Epping. The train station interchanges offer opportunities to catalyse land use change, given the increased accessibility. The foundations for an improved bus network should complement the planned SRL upgrades to better move people around the NEIC and activity centres.

STRATEGY 45. Ensure the planning and design of Suburban Rail Loop maximises opportunities for public and active transport connections and links between key destinations and surrounding activity centres.

STRATEGY 46. Improve bus service connectivity prior to the delivery of Suburban Rail Loop.

DIRECTION 14.

Improve transport connectivity in the Northern Growth Corridor and outer suburbs

While rapid development in the Northern Growth Corridor is creating greater housing choice and opportunities, employment and services are mostly to the south, often meaning long travel times for residents.

High-capacity, interconnected public transport in the central part of the corridor, as well as its western and eastern flanks, is planned. This would initially be in the form of rapid bus transport on the arterial road network, supported by a network of local bus connections. A higher capacity public transport route is identified to run along Aitken Boulevard supporting Mickleham, Beveridge, Craigieburn and through the significant employment areas identified north and south of Merrifield. This would require dedicated bus lanes on existing or new roads and other infrastructure to support its delivery.

Extending and enhancing rail connections into the growth areas will also provide greater transport choices for residents, including upgrading of the Upfield Corridor with the duplication of the Upfield line between Gowrie and Upfield, the extension and linking of the Upfield and Craigieburn lines near Roxburgh Park, the electrification of the line between Craigieburn and Wallan and the potential extension of rail to Wollert. Providing these upgrades in a timely way will be in line with the objective of sequencing growth area planning with the provision of vital transport infrastructure in the north.

Key features of public transport network planning for the Northern Growth Corridor include planning for services and train station development along the Sydney-Melbourne rail line, including multimodal integration, to support Donnybrook, Craigieburn and the future Lockerbie Metropolitan Activity Centre, as well as strategically located park and ride facilities. Key land use considerations include the strategic allocation of land for public transport infrastructure and optimising interactions between key movements and modes.

Further development of the arterial road network will improve inter-regional connectivity and opportunity for an expanded regional and local bus network and will be delivered sooner with contiguous sequencing of land use planning and development.

The Northern Growth Corridor includes the existing townships and neighbourhoods of Beveridge, Kalkallo, Donnybrook and Mandalay. PSPs will need to carefully consider how these should be integrated with new development, and how services and facilities, including public transport, are to be provided, and where, as part of emerging growth. It will be important that existing communities and networks are sustained and given the opportunity to be enhanced over time.

Wallan and Beveridge will require good transport connections to the services and facilities planned in the Northern Growth Corridor. Their communities will rely on connectivity to the growth areas for a range of employment, economic and community facilities. Wallan can be linked into the Corridor via public transport links into the Aitken Boulevard PPTN and Sydney-Melbourne railway line. Electrification of the northern end of the corridors rail infrastructure will assist. Additional arterial road connections are identified to link Wallan and the Northern Growth Corridor, in addition to the existing Hume Freeway and Northern Highway.

In the longer term, the OMR will provide additional road and rail access between Melbourne's west and the Hume Freeway. A connection between Sunbury and Craigieburn which includes the Bulla Bypass as well as the possibility to utilise the OMR and an extended Tullamarine Freeway to provide the link is also identified for investigation.

Planning for the Northern Growth Corridor recognises the potential for additional access to the Hume Freeway, north and south of the OMR. It also recognises the need for further investigation of interchanges. There is a need to ensure this important national freight route does not become congested with local traffic as well as provide some additional access to the Hume Freeway for new communities.

- **STRATEGY 47.** Maintain and further develop the arterial road network in the Northern Growth Corridor and outer suburbs to support improved travel times, safety and reliability.
- **STRATEGY 48.** Provide north-south public and active transport connections between Broadmeadows Metropolitan Activity Centre and the proposed Lockerbie Metropolitan Activity Centre and in the Epping corridor.
- **STRATEGY 49.** Improve outer suburban public transport to ensure integration with sequenced land use planning and development.

DIRECTION 15.

Improve active and public transport options to promote mode shift and support 20-minute neighbourhoods

Access to public transport varies significantly across the Northern Metro Region. Improvements to local transport, such as bus, cycling and pedestrian routes, are needed to address gaps. Continued and innovative development of the bus network is a priority for communities with the least access to public transport.

Thirty-six per cent of people in the region used a car when making a short trip under 5 kilometres in the region, whereas 27 per cent of people walked, and only 3 percent of people cycled for short trips. To reduce dependence on private vehicles, public transport, cycling and walking need to be more accessible. This means significant upgrades to public transport access, and improvements to pedestrian and cycling accessibility, better linking neighbourhoods to employment, and social and community services.

As development densities in Epping and Broadmeadows metropolitan activity centres increase, they will require active transport networks that logically connect to public transport nodes. In established, higher-density locations, networks should better connect to existing cycling and walking infrastructure to fill existing gaps.

A more cohesive network of active transport connections, including paths and trails, will be developed to prioritise connection between centres as part of the PBN. Priority active transport projects will promote safety and increased use of the region's cycling and walking network. Northern Metro Region local councils have undertaken significant work on regional trails. However, there are still opportunities to deliver connecting trails to join activity centres, existing trails along waterway corridors and open space. This could be achieved as part of major transport projects, open space improvements or through better use of government-owned land.

Decisions about the location of health and community services and sport and recreational facilities in the Northern Metro Region need to consider public access. Site selection should align with the existing public transport network to maximise its use wherever possible, and to ensure local communities are connected to their nearest regional social infrastructure. The full cost of providing access should be considered as part of the development of business cases.

- **STRATEGY 50.** Create pedestrian-friendly neighbourhoods by enhancing major pedestrian links and expanding the network.
- **STRATEGY 51.** Create a network of walking and cycling links for local trips that link to public transport.
- **STRATEGY 52.** Improve active and public transport in the La Trobe NEIC, activity centres and health and education precincts to support higher-density mixed-use walkable precincts.

STRATEGY 53. Provide walking and cycling routes and drop-off zones to health and community services and recreation facilities.

DIRECTION 16.

Protect and grow the Northern Metro Region's comparative advantage in freight and logistics

The Northern Metro Region's role as a critical gateway to domestic and international markets requires ongoing, integrated land use and transport planning to preserve and sustainably develop the region's freight and logistics sector.

The region is Victoria's domestic freight hub, connecting Victoria to key trade routes such as New South Wales and Queensland via the Hume Highway, Epping Market freight node and Somerton intermodal terminal. The proposed BIFT precinct will further contribute to this, providing an opportunity for state and local government to leverage private investment in the precinct and drive further economic growth.

The under-construction direct Port Rail Shuttle Link between Somerton Intermodal Hub and the Port of Melbourne is another significant investment in freight movement in Melbourne's north. Due for completion in 2022, the project will facilitate greater uptake of rail freight to reduce network congestion and make rail freight more cost effective. When completed, this will contribute to a fundamental shift in how freight moves in Melbourne via the Port Rail Shuttle Network. The Somerton Link alone will reduce trucks on suburban Melbourne roads by as much as 20,000 trips annually.

In addition, the 1700 kilometre Inland Rail alignment will link Melbourne and Brisbane via regional Victoria, New South Wales and Queensland. The route uses the existing interstate line from Melbourne in Victoria to Illabo in New South Wales, which will be enhanced to accommodate doublestacked trains, allowing them to carry up to twice as many containers.

Metropolitan freight volumes are expected to grow at an average annual rate of 2.6 per cent each year between 2014 and 2051. The flow on effects of population growth and increased e-commerce could result in conflicting land use.

To support these investments in supply chain efficiencies and manage the growing freight task, coordinated state and local government planning is needed to balance and protect strategically significant freight precincts and corridors from sometimes competing economic, amenity and environmental considerations. The PFN provides transparency to local government and community regarding the primary way goods will be moved throughout the region. This allows government to consider freight needs during the planning process to protect the end-to-end freight journeys from conflicting land uses or use tools to mitigate environmental or amenity risk through planning permit requirements.

The Northern Metro Region has a comparative advantage in freight and logistics linked to the location of Melbourne Airport and the Hume Freeway which act as gateways to interstate and international markets. Without undertaking the necessary planning and engagement as a priority, the future success of the BIFT and other regionallysignificant industrial precincts could be undermined. Planning considerations include protecting end-toend freight access routes from the encroachment of residential and other sensitive uses.

The regional road network planned to carry freight as a key function includes:

- The Hume Freeway
- The OMR/E6 Transport Corridor road reservation
- The proposed Melbourne Airport Rail/Bulla Bypass
- Donnybrook Road
- Somerton Road/Cooper Street
- The Metropolitan M80 Ring Road.

The region's rail freight network which extends from the Western and Inner metro regions includes:

- Tottenham-Jacana-Somerton-Beveridge corridor (including the Melbourne-Sydney-Brisbane mainline)
- Kensington-Essendon-Jacana corridor
- North Melbourne-Upfield-Roxburgh Park corridor.

The proposed BIFT site is ideally located considering its location alongside the Melbourne-Sydney-Brisbane railway line, Hume Freeway and proposed OMR.

Approximately 1500 hectares of land has been set aside for a major freight hub supporting a range of businesses such as distribution centres and warehousing. The terminal will play a vital role in enabling the transfer of interstate freight across Australia.

STRATEGY 54. Ensure the BIFT precinct and its connecting freight corridors are protected from encroachment of sensitive or conflicting land uses.

ACTIONS -Integrated transport

ACTION 9. Undertake a review of the regional bus network to support regional access and movement in the short- to medium-terms and to plan integration with major public transport changes including SRL.

ACTION 10. Review the Principal Public Transport Network for the growth areas.



INTEGRATED TRANSPORT



Photo credit: Department of Jobs, Precincts and Regions