Corridor Assessment Summary

December 2017

Contents

North East Link – Objectives and Principles

In 2016, Infrastructure Victoria released its 30 Year Infrastructure Strategy, identifying North East Link as the highest priority infrastructure project in Victoria. Infrastructure Victoria noted that the link will enhance access to major suburban business and employment centres, improve orbital road connectivity across Melbourne and boost the capacity of the city's freight network.

In October 2017, the Victorian Government's five-year *Victorian Infrastructure Plan* confirmed North East Link as one of several 'catalyst', state-shaping infrastructure projects designed to stimulate economic growth, create jobs and deliver positive, long-term benefits for Victorians.

Investigations into potential corridors for North East Link began in early 2017.

North East Link Authority (NELA) sought early input from the community, local councils, non-government organisations and government agencies on key issues such as community values, current traffic issues and transport-related problems in the north east. In addition to the transport system objectives of the Transport Integration Act, these views have contributed to the setting of Project Objectives and Guiding Principles for North East Link, which are being used to focus the investigation of corridor options and guide the overall development of the project.

Reflecting the views and information provided during NELA's community consultation, North East Link has a strong focus on supporting business and jobs growth in communities across Melbourne's north, east and south east, while also improving cross-city connectivity and helping to address critical traffic, freight and amenity issues.

Project Objectives and Guiding Principles reflecting this focus were established and used to assess potential corridors for the new link.

Project Objectives			
			Objective 4 Improve access, amenity and safety for communities in the north east

Guiding Principles			
Guiding Principle 1 Minimise impacts on communities	*Guiding Principle 2* Minimise impacts on environmental and cultural assets	*Guiding Principle 3* Minimise impacts during the construction phase	*Guiding Principle 4* Optimise the efficient use of resources

The project corridor

Following a detailed assessment of potential benefits and impacts, Corridor A - from the Eastern Freeway at Nunawading to the M80 at Greensborough was selected as the North East Link corridor. The main reasons for this assessment include:

- This corridor best meets the Project Objectives and was assessed as performing very well against the Guiding Principles when compared to all other corridor options.
- This corridor provides the best opportunity for connections to the existing road network that respond to travel demand through, in and out of the north east of Melbourne. This means that Corridor A attracts the most through traffic to the new link out of all the options considered and therefore reduces demand on local arterial roads.
- It provides better connectivity for all freight journeys and serves a greater number of freight catchments for trucks travelling across the north, east and south east of Melbourne. This means that the corridor provides the best opportunity to remove trucks from local roads in the north east.
- It works together with the existing road network in the north east, resulting in the greatest ability of all the options considered to reduce traffic on existing arterial networks and providing opportunities to improve conditions for more local journeys and on-road public transport.
- By connecting close to areas of greater activity, the corridor provides better access for businesses and residents in the north, east and south east to workers, jobs and services. It provides the greatest improvement in business access to labour markets of all the corridor options considered, particularly the opportunity to stimulate jobs growth in the La Trobe National Employment and Innovation Cluster (NEIC) and between the Broadmeadows, Epping, Ringwood and Box Hill Metropolitan Activity Centres (MACs).
- In enhancing the Eastern Freeway, to cater for additional North East Link traffic, the project also addresses existing issues in the operation of the freeway, future proofing it for growth.
- It provides the best opportunity for improvements to public transport on the existing network and the opportunity to implement an integrated Doncaster Busway solution along the Eastern Freeway.
- It provides the best opportunity to connect and expand existing walking and cycling facilities in the north east.
- Corridor A offers the most cost effective solution and the maximum benefits.

Identifying potential corridors

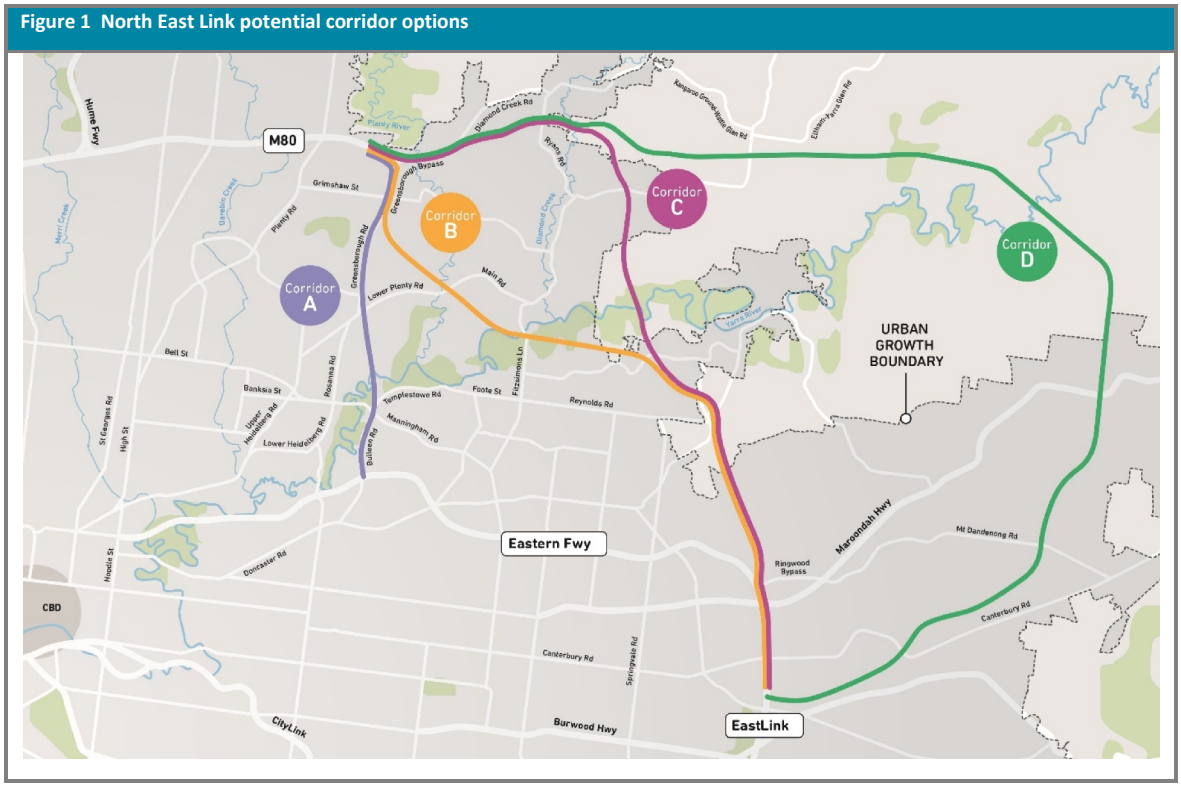
Potential corridors for North East Link were identified by:

- Assessing existing and future traffic conditions and transport movements
- Investigating existing road corridors and utilities easements that could be used for potential corridors
- Identifying potential corridors and constraints to these corridors (such as difficult terrain, sensitive environmental areas and important community assets)
- Considering treatments such as tunnels to avoid sensitive environmental and urban areas or to mitigate surface impacts
- Considering likely geology and geotechnical influences and areas suitable for tunnel construction
- Identifying opportunities for connectivity with the existing road network
- Considering current and future patterns of land use and development in the north east.

A surface road only option through any part of the north east was discounted due to its potential impacts on areas of environmental sensitivity and existing development in all areas of the north east.

Four broad corridor options were identified initially, as shown in .

Figure 1 North East Link potential corridor options



Assessing corridor options

Guided by the Australian Transport Assessment and Planning Guidelines, a three-tiered approach was adopted to assess and narrow down these options to select a corridor for the project:

- Stage 1: Strategic merit test – a strategic assessment of a corridor's alignment with the Project Objectives.
- Stage 2: Rapid appraisal – an initial indicative assessment of the scale of a corridor's benefits and costs, as assessed against the Project Objectives and Guiding Principles.
- Stage 3: Detailed appraisal – a more detailed assessment of a corridor's benefits and costs, as assessed against Project Objectives and Guiding Principles.

As each stage progressed, the assessment of corridor options considered feedback, information provided and questions raised by the community and stakeholders, alongside evidence from technical investigations. Priority issues identified and considered included:

- Reducing congestion on key roads in Melbourne's north-east
- Removing trucks that don't need to be on roads in Melbourne's north-east
- Providing better connections for people to access existing and new jobs and education opportunities
- Helping businesses better connect to each other and to workers across Melbourne
- Making freight journeys more efficient and reliable
- Improving public transport connections and travel times
- Improving connections for pedestrians and cyclists
- Protecting the environment, culture, heritage and open spaces
- Minimising the impacts from construction-related traffic as the project is being built.

The following sections discuss the corridor options in the order in which they were discounted as the options assessment progressed towards selection of the corridor for North East Link.

Corridor D

Corridor D was not selected as an appropriate corridor for North East Link. The main reasons for this assessment include:

- The corridor route is too long and circuitous. As a result, it would not address existing or future travel patterns, meaning that it would not attract enough traffic and not result in any reduction in traffic on the existing arterial network.
- The road network in this area is rural in nature and very steep, and does not provide for appropriate connections to a new motorway.
- The corridor's location outside the Urban Growth Boundary in areas of very low population density (now and in the future) limits the potential for the project to provide better access for businesses or workers. It also has the potential to generate development pressure in Green Wedge areas outside the boundary, which does not align with the objectives of Plan Melbourne.

Corridor B

Corridor B was not selected as an appropriate corridor for North East Link. The main reasons for this assessment include:

- The transport solution provided by this corridor is not satisfactory as it is likely to attract more east-west oriented trips and has limited ability to provide relief to the critically congested north-south arterial road network.
- Due to the unbalanced spacing location of the interchanges, feeder roads are likely to be affected to a greater extent as traffic would need to travel further distances to access the new link's alignment.
- The corridor provides less improvement to household access to employment and education than other options.
- Due to the location of interchanges and length and grade of the tunnels, the corridor is less likely to be attractive to truck traffic, resulting in a lesser reduction of trucks on local roads.
- There would be significant impacts on utility services, including high voltage power lines that cannot be moved underground without incurring substantial costs.
- Extensive tunnelling requirements would lead to a very high capital and operational cost solution.

CORRIDOR C

Following a detailed assessment of potential benefits and impacts, Corridor C was set aside. The main reasons for this assessment include:

- The available connections to the existing road network from this corridor are not well suited to the levels of traffic likely to be using them, resulting in lower use of a route through this corridor and less trips being attracted from the existing network (compared to Corridor A).
- Corridor C does less to reduce traffic demand on local roads when compared to Corridor A.
- While the corridor supports long-distance trips between the north and south east of Melbourne, it provides limited support for the key origins and destinations of the wide range of trips travelling into and out of the north east, both now and into the future, (compared to Corridor A).
- The corridor provides little support for or integration with the strategic arterial road network through the north east, resulting in lower levels of traffic on the new link and providing less truck traffic relief on roads in the north east (compared to Corridor A).
- The location of the corridor weaves across the Urban Growth Boundary through Green Wedge areas of low population density and has the potential to generate development pressure in these areas, contrary to the objectives of Plan Melbourne.
- Extensive tunnelling requirements would lead to a significantly higher cost solution.

A summary of the key elements of the detailed assessment of Corridor C and Corridor A is outlined in Attachment A.

North East Link corridor implementation

During community consultation conducted by NELA in August and early September 2017, the community sought further detail about several issues relating to a potential Corridor A:

- Performance of the Eastern Freeway
- Management of environmental impacts
- Maintaining and improving connectivity for communities along the corridor
- Supporting public transport in the north east.

Further information on these issues is provided below.

Improving the performance of the Eastern Freeway

Daily weekday traffic volumes along the Eastern Freeway range from 128,000 to 178,000 vehicles per day, with the busiest section between Middleborough Road and Tram Road.

Congestion occurs at a number of locations along the freeway, which result in traffic breakdown and can be attributed largely to merging and weaving at the freeway interchanges, the capacity of the freeway ramps and some mid-block areas where capacity is constrained.

In addition to the freeway on-ramps operating at capacity, the short distances between each of the interchanges affect the performance of the Eastern Freeway. Freeways operate efficiently when lane changing is minimised – the short distances between many of the Eastern Freeway interchanges result in a greater amount of lane changing within a relatively short section of road.

There are five interchanges on the Eastern Freeway within a 5.5 kilometre length of road between Elgar Road and Springvale Road. As a result, a high degree of pressure is placed on the left-most lanes of the freeway, as vehicles position themselves to exit the freeway in advance of their exits while, at the same time, traffic is merging onto the freeway. The combination of excessive lane changing and merging and weaving of traffic reduces the performance of the freeway, leading to reduced vehicle speeds and congestion during peak periods of demand.

Traffic flow in the vicinity of the EastLink tunnels also often breaks down in the peak periods, affecting the freeway's performance and creating queues. However, the flow breakdown that occurs in the tunnels is not due to a lack of capacity in the tunnel, but rather upstream and downstream bottlenecks at Springvale Road and Ringwood Bypass.

As the Eastern Freeway and EastLink are not Managed Motorways, there is no ramp metering to control merging and weaving movements. Ramp metering regulates the rate and spacing of traffic entering onto the freeway with traffic lights and is proven to improve the overall performance (vehicle speeds and capacity) of a motorway network[1].

1 VicRoads Managed Freeways – Freeway Ramp Signals Handbook, July 2013

Capacity east of Bulleen Road

As North East Link connects into the existing Eastern Freeway at Bulleen Road, demand for travel along the Eastern Freeway east of Bulleen Road is expected to increase significantly: around 75% of southbound traffic on North East Link will head east when joining the Eastern Freeway and around 30% of this traffic will continue on through the EastLink tunnels. To cater for this increased demand, the project will upgrade and modernise the Eastern Freeway to significantly increase traffic carrying capacity and improve traffic flow from Hoddle Street through to the EastLink tunnels by increasing capacity and implementing intelligent transport systems. The figure on the next page shows the expected distribution of this southbound traffic from North East Link to the Eastern Freeway.

Between Station Street and Burke Road, traffic will be split into main 'expressway' lanes in the centre of the freeway, physically separated from 'collector-distributor' lanes on the outside. The collector-distributor lanes will provide for the separation of traffic flows: access to the various interchanges along the corridor will be provided by the collector-distributor carriageways, while longer trips will be able to use the express lanes. This will reduce traffic turbulence at on- and off-ramps and optimise traffic performance. This combination of intelligent transport systems and state-of-the-art design will provide a significant uplift in carrying capacity for the Eastern Freeway, bringing it up to modern standards.

Implementation of Managed Motorway systems and the upgrade of the Springvale Road inbound on-ramp will improve traffic flow in the EastLink tunnels. Tunnel traffic will no longer need to slow down significantly to allow vehicles from Springvale Road to enter the Eastern Freeway, reducing the likelihood of a 'shockwave' of congestion travelling back into the EastLink tunnels and providing a significant capacity uplift for future traffic.

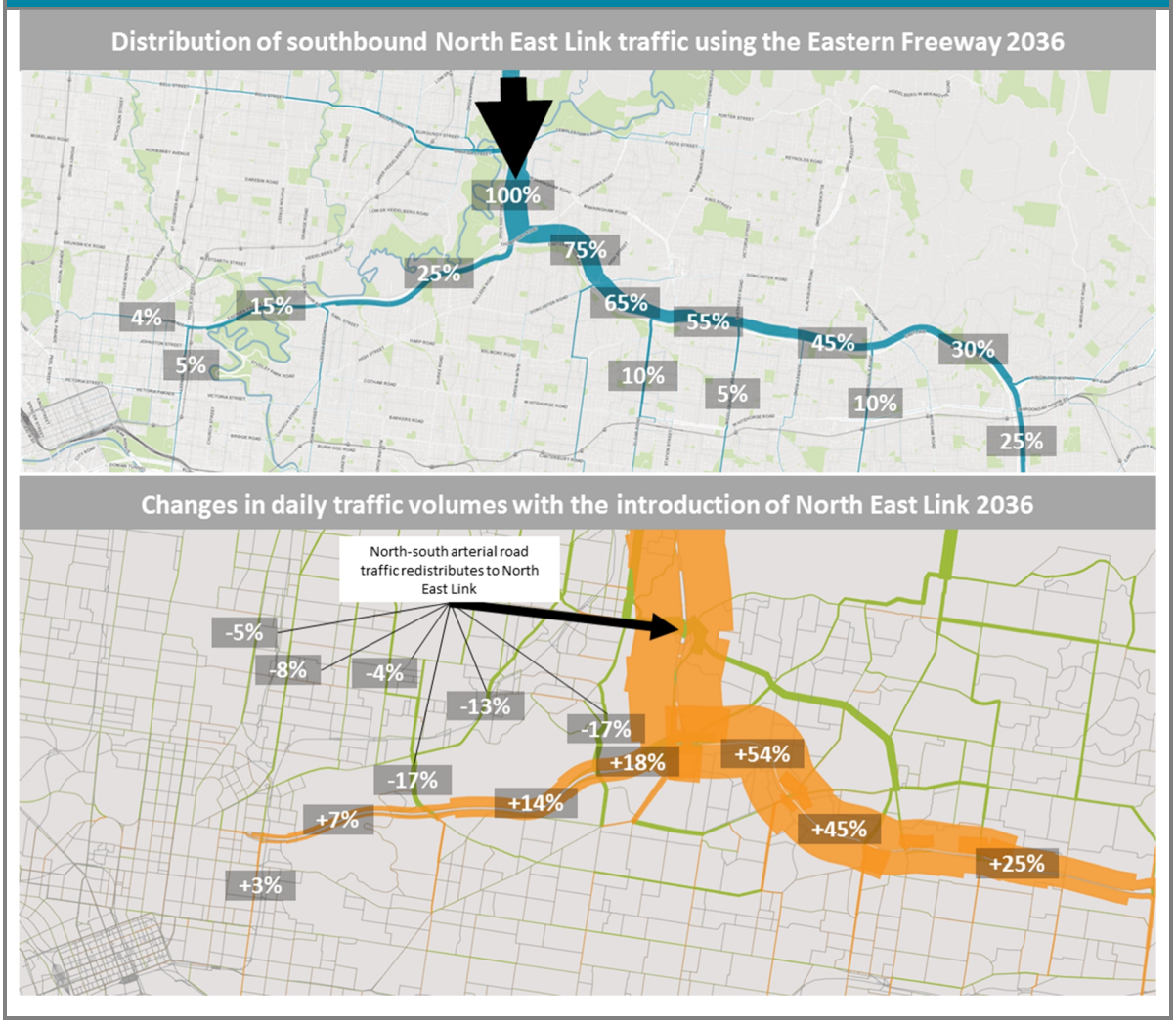
Capacity west of Bulleen Road

Demand for travel along the Eastern Freeway west of Bulleen Road is expected to increase moderately, with approximately 25% of southbound traffic on North East Link heading west. As shown in Figure 2, 5% of this southbound traffic on North East Link is destined for Hoddle Street and 4% for Alexandra Parade.

To cater for this traffic, additional lanes on the Eastern Freeway west of Bulleen Road will be provided to enable smooth entry and exit movements. Implementing Managed Motorway technology and operations for the full length of the Eastern Freeway will also improve traffic flow and performance.

In total, factoring in growth over time, there is expected to be no net increase in traffic to the CBD.

Figure 2 Distribution and traffic volume changes of North East Link traffic, 2036



Doncaster Busway

Buses are an important component of the Eastern Freeway corridor, and the modernisation of the freeway will also improve bus travel times and reliability. The reconfiguration includes the full separation of Doncaster Busway services from Hoddle Street to Doncaster Road by building a separated bus-only carriageway in the central median from east of Hoddle Street to east of Burke Road and then on the north side of the freeway to Doncaster Road. These dedicated bus lanes will connect to Victoria Park and significantly improve travel time reliability for bus services along the Eastern Freeway into the future.

Managing environmental and social impacts

Protecting the Yarra River, its tributaries, floodplains and surrounding environment – along with culturally significant sites such as Bolin Bolin Billabong – is a core requirement for North East Link and has been a key consideration in developing the project.

NELA has identified environmentally and culturally sensitive areas that are highly valued by the both the Traditional owners of the land, the Wurundjeri people, and the local community in the corridor. These areas include:

- The Yarra River and its floodplain, incorporating Banyule Flats and Bolin Bolin Billabong, have high cultural significance to the Wurundjeri people. These are also areas of high ecological value and which have retained important patches of remnant native vegetation and areas of high value habitat
- The Yarra River and its tributaries, featuring public parks and recreational areas of high value to the broader community
- Habitat for identified threatened species in the vicinity of Bolin Bolin Billabong, the Simpson Barracks and the Western Ring Road road reserve
- Waterways including the Yarra River, Plenty River, Koonung Creek, Banyule Creek and Merri Creek.

To protect areas of environmental and cultural significance that are also highly valued by the community along Corridor A, no-go zones were designated for the Banyule Flats, Bolin Bolin Billabong and Heide Museum of Modern Art. This meant that, in developing concepts for the project, modification of the existing surface in these zones was not considered acceptable, either permanently or during construction. As a result, North East Link will feature a tunnel beneath the Yarra River with a northern portal (tunnel entrance) north of Lower Plenty Road and a southern portal south of the Veneto Club, instead of an above ground or surface road design. This will avoid impacts on the environmentally and culturally sensitive Yarra River valley, Banyule Flats and Bolin Bolin Billabong.

The Victorian Government is committed to the protection of the Yarra River, as demonstrated by the Yarra River Protection Act (*Wilip-gin Birrarun murron*) that came into effect on 1st December 2017. The Yarra River Action Plan, developed in partnership with the Wurundjeri Tribe Land and Compensation and Cultural Heritage Council (Wurundjeri Council), sets out the actions that will be taken to achieve the objectives of the Yarra River Protection Act and meet the Government's commitment to protecting the river.

Maintaining and improving connectivity for communities along the corridor

North East Link will maintain existing bicycle and pedestrian connectivity across the corridor. In a number of places, connectivity will be improved. Where the removal of an existing bicycle or pedestrian connection is unavoidable, an alternative connection will be provided.

North East Link enables the completion of a key missing link in the Strategic Cycling Corridor network: the completion of the Greensborough Road path between Yallambie Road and Grimshaw Street/Greensborough Road Bypass shared use paths. This will enable cycling entirely off-road between the M80 and the wider walking and cycling network via the Eastern Freeway. This path will

form part of a continuous ring road trail around Melbourne – over 100 kilometres of off-road cycling following the orbital motorway network via Altona, Tullamarine, Greensborough, Ringwood, Dandenong, Carrum and Mt Martha.

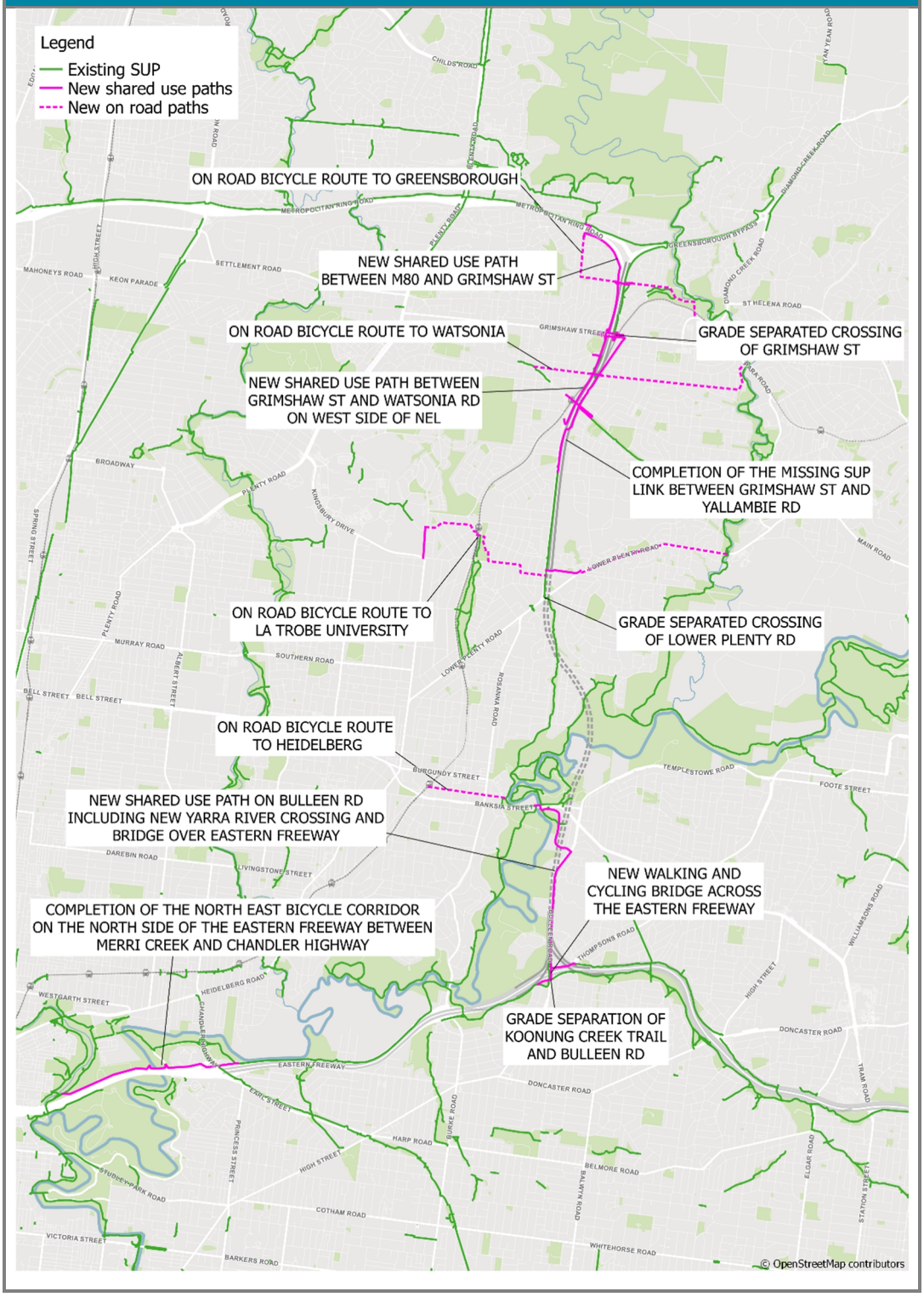
Additionally, a shared use path connection starting from Banksia Street (including a new crossing of the Yarra River near Heidelberg) running parallel to Bulleen Road to the Eastern Freeway will provide new connectivity to the schools and sporting fields on Bulleen Road. A new shared use path structure on the eastern side of the Bulleen Road interchange over the Eastern Freeway will enable safer and easier crossing of the freeway, linking the new Bulleen Road path with residential areas south of the freeway. This will be a significant upgrade from the current narrow and sub-standard footpath at the Bulleen Road bridge over the freeway.

In locations where North East Link is planned to be lower than the existing ground level, walking and cycling connections are expected to be provided at the existing surface. There are also opportunities to provide connections via land bridges over the freeway where it is in cutting, improving community integration and accessibility along and across the new link.

Other opportunities to provide connected walking and cycling infrastructure include:

- Completion of the North East Bicycle Corridor – a new walking and cycling link between Merri Creek and Chandler Highway on the north side of the Eastern Freeway to improve access between the eastern suburbs and the inner city
- A new shared use path on the southern side of the M80 and western side of North East Link to improve walking and cycling accessibility to and from Watsonia
- On road cycling routes to improve accessibility to Heidelberg, Watsonia, Greensborough and La Trobe University
- Grade-separated crossings of the Greensborough Road path at Grimshaw Street and Lower Plenty Road
- Grade separation of the Koonung Creek Trail at the Bulleen Road intersection near the Eastern Freeway.

Figure 3 Walking and cycling connections facilitated through North East Link



Supporting public transport in the north east

Public transport connections in the north east experience delays due to congestion, particularly at bottlenecks at existing crossings of the Yarra River for services between the northern and eastern suburbs. Bus services that run through the area are inefficient, and growth in residential areas to the north and expansions of commercial and educational precincts in the east and south east will continue to increase demand for these movements.

In addition to implementing Doncaster Busway, North East Link presents opportunities to improve bus services throughout the north east. Further planning will be undertaken to identify how and where these improvements can be made, including:

- Bus priority measures at interchanges with the new motorway
- Performance improvement measures at key intersections to increase the reliability of bus services
- Bus priority measures along key routes and at key intersections
- Interchanges between buses and trains including at Watsonia Station.

North East Link also provides opportunities to build a more efficient and better connected city-wide bus network including providing opportunities for commercially operated bus services to access Melbourne Airport from eastern and south-eastern parts of the state.

Next steps

NELA will work with local councils, VicRoads, PTV, Transport for Victoria, Melbourne Water and other agencies to develop the reference design for the project and identify opportunities to provide additional benefits to the community. An important next step is to for NELA is to work with Melbourne Water and the Wurundjeri Council to ensure development, design and delivery of North East Link respects and protects the Yarra River.

The reference design will be subject to an independent planning and environmental approvals process. This process, which will commence in 2018, will include extensive technical investigations and assessments, and provide multiple opportunities for community comment and input.

ATTACHMENT A: SUMMARY ASSESSMENT OF CORRIDOR A AND C

Trip patterns – Who will use North East Link?

The north east is a mix of established and growing urban environments. Figure 1 shows the population density forecast in 2051. Strong growth is expected to the north of the M80 in the northern growth corridor, while limited growth is expected east of Greensborough and Watsonia, where growth is constrained by the existing low density environment and the Urban Growth Boundary. Further south, some of Australia's fastest growing suburbs are located in the city's south east growth corridor. A significant portion of travel between these two areas passes through the north east.

While Melbourne has strong radial connections that support access to the central city, other trips are not as well-served by the transport network. The north east's location between two urban growth corridors and between the major cross-city connections of the M80 and the Eastern Freeway – along with the lack of a freeway-standard orbital connection in this part of the city – means that the region's arterial road network is used for freight and commuter trips across Melbourne.

North East Link will need to attract trips currently using this network. This means the link has to service existing and future trips through, to and from the north east with multiple origins and destinations across Melbourne, as presented in Figure 2. These trips include:

- Long trips – orbital trips with origins and destination outside the north east (for example a trip between Dandenong and Tullamarine)
- Medium trips – trips that have one end of the trip within the north east (for example, a trip between Watsonia and Ringwood).

Both Corridors A and C would service long orbital trips between the south eastern suburbs and the northern suburbs. Medium trips would be serviced differently by the two corridors:

- Corridor A will service significantly more medium trips than Corridor C. Corridor A services areas where more people live and work, including the Latrobe NEIC and key business destinations, and a significantly greater number of freight trips.
- Corridor C supports long-distance trips from the north to south east of Melbourne, but it does not support the key origins and destinations of the wide range of medium trips currently travelling into and out of the north east to same extent as Corridor A.

Because it boosts accessibility in areas of low density, Corridor C services the travel needs of fewer households and businesses and has the potential to increase development pressure in the Green Wedge areas defined by the Urban Growth Boundary. Corridor A provides improved accessibility in more populated and dense areas nominated by Plan Melbourne for employment and business growth.

Figure 1: Population density 2051

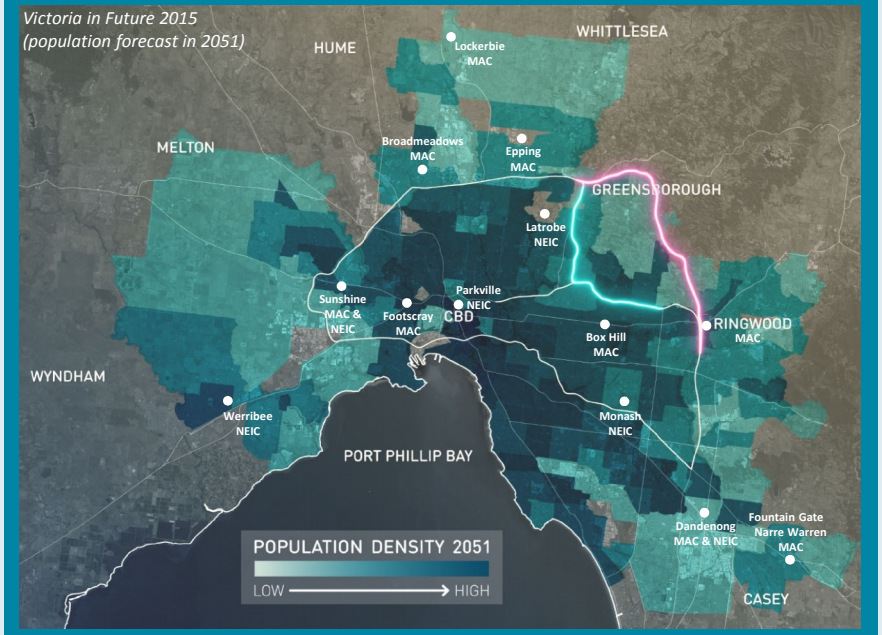
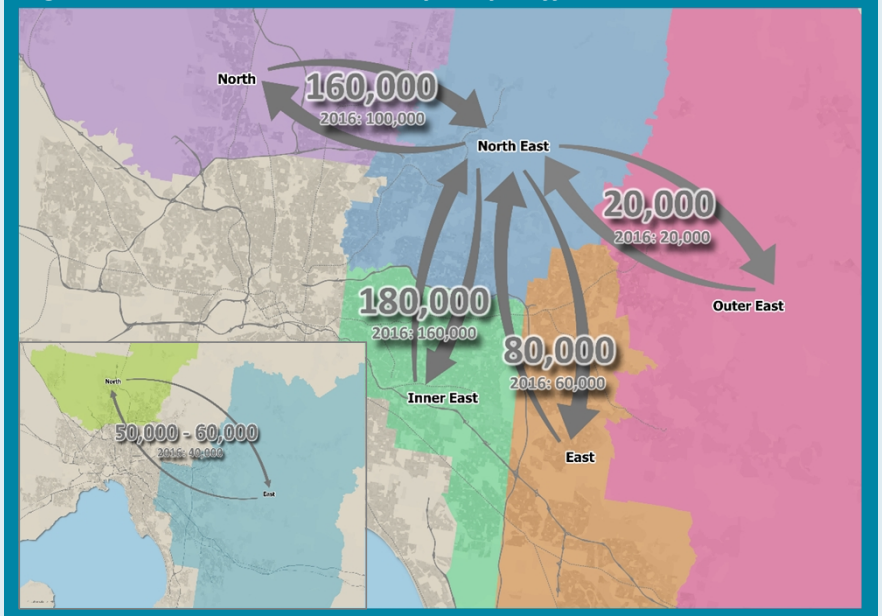
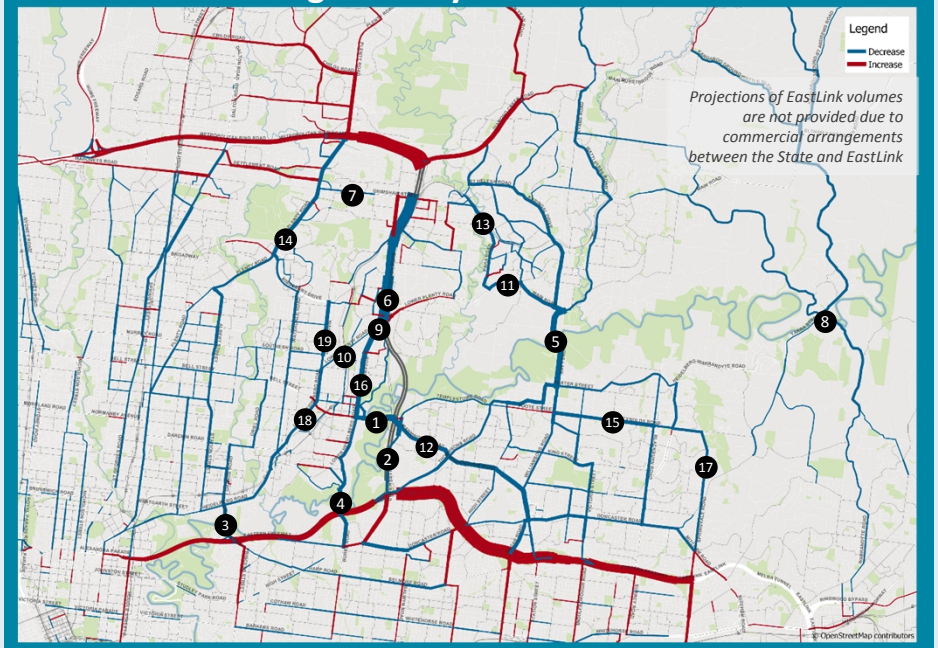


Figure 2: 2036 modelled two way daily traffic movements

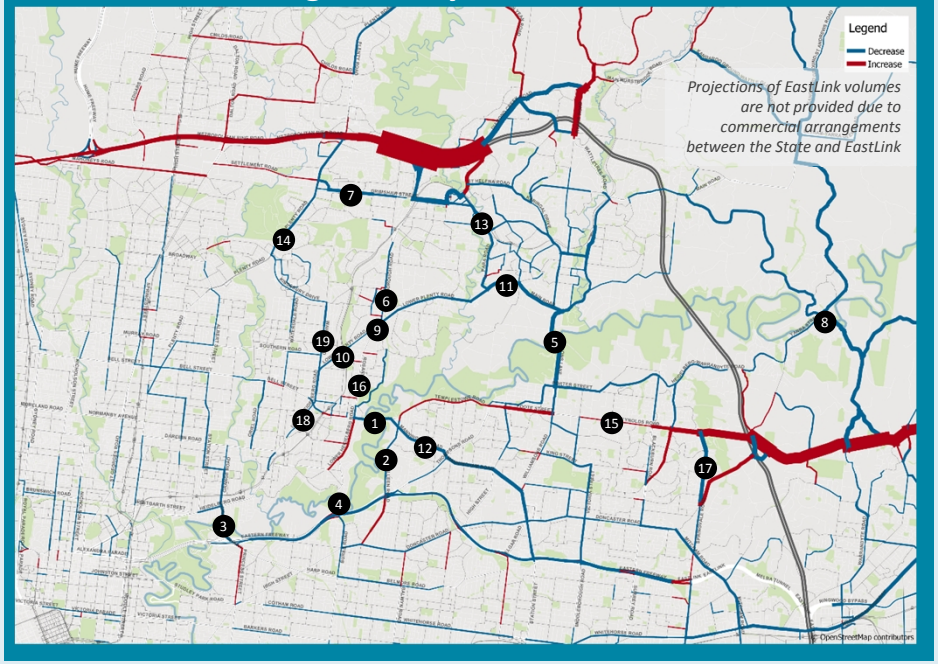


Redistribution of traffic – Less traffic on local roads

Corridor A – Change in daily traffic volumes



Corridor C – Change in daily traffic volumes



Why is traffic redistribution important?
A core objective of North East Link is to improve access, amenity and safety for communities in the north east of Melbourne. Redistribution of traffic from arterial roads to North East Link will contribute directly to improved liveability of local communities through increased access to jobs, services and key local destinations, more walking and cycling options, fewer trucks on local streets and safer and more attractive neighbourhoods.

What has the analysis found?
Corridor A achieves significantly greater redistribution of traffic from arterial roads that are heavily congested than Corridor C.

This is primarily due to the alignment of Corridor C, which does not capture trips with local area destinations in the vicinity of Corridor A or Eastern Freeway trips. Those trips would still use arterial roads between the end of the M80 and the Eastern Freeway (between Chandler Highway and Middleborough Road) to access their destinations. By providing an effective alternative to existing and future trips through heavily congested areas, Corridor A attracts more trips from the arterial road network, reducing traffic volumes significantly along roads such as Greensborough Road, Rosanna Road, Burke Road and Manningham Road. Corridor A's alignment and the length and grade of its tunnel section mean that it also provides the greatest reduction in truck traffic on local streets.

Traffic volume changes on key roads in the north east - 2036

	Locations identified by the community and stakeholders through community engagement processes as having known issues regarding amenity and traffic congestion.	Corridor A Difference *(2036 modelled volumes)*	Corridor C Difference *(2036 modelled volumes)*
1	Banksia St (At Yarra River)	-7,000 to -9,000	-1,000 to -2,000
2	Bulleen Rd (North of Eastern Fwy)	-2,000 to -3,000	-500 to -1,000
3	Chandler Highway (At Yarra River)	-4,000 to -5,000	-1,000 to -2,000
4	Burke Rd (North of Eastern Fwy)	-6,000 to -8,000	No change
5	Fitzsimons Ln (At Yarra River)	-11,000 to -14,000	-7,000 to -9,000
6	Greensborough Road (between Blamey Road and Watsonia Road)	-20,000 to -30,000	-500 to -1,000
7	Grimshaw St (West of Watsonia Rd)	-1,000 to -2,000	-3,000 to -4,000
8	Kangaroo Ground-Warrandyte Road (Warrandyte Bridge at Yarra River)	-5,000 to -6,000	-5,000 to -7,000
9	Lower Plenty Rd (Between Greensborough Rd and Rosanna Rd)	-11,000 to -14,000	-500 to -1,000
10	Lower Plenty Rd (West of Rosanna Rd)	-500 to -1,000	-500 to -1,000
11	Main Road (between Para Rd and Bolton St)	-3,000 to -4,000	-3,000 to -4,000
12	Manningham Road (between Bulleen Rd and Thompsons Rd)	-7,000 to -9,000	-3,000 to -4,000
13	Para Road (between Rattray Rd and Main Rd)	-2,000 to -3,000	-1,000 to -2,000
14	Plenty Road (North of Kingsbury Dr)	-7,000 to -9,000	-1,000 to -2,000
15	Reynolds Road (between Blackburn Rd and Williamsons Rd)	-5,000 to -6,000	-500 to -1,000
16	Rosanna Rd (South of Lower Plenty Rd)	-9,000 to -11,000	-500 to -1,000
17	Springvale Rd (North of Mitcham Rd)	-4,000 to -5,000	-7,000 to -9,000
18	Upper Heidelberg Road (between Banksia St and Studley Rd)	-2,000 to -3,000	-500 to -1,000
19	Wairoa Road (Between Southern Rd And Dougharty Rd)	-6,000 to -8,000	-1,000 to -2,000

Change in accessibility – Business

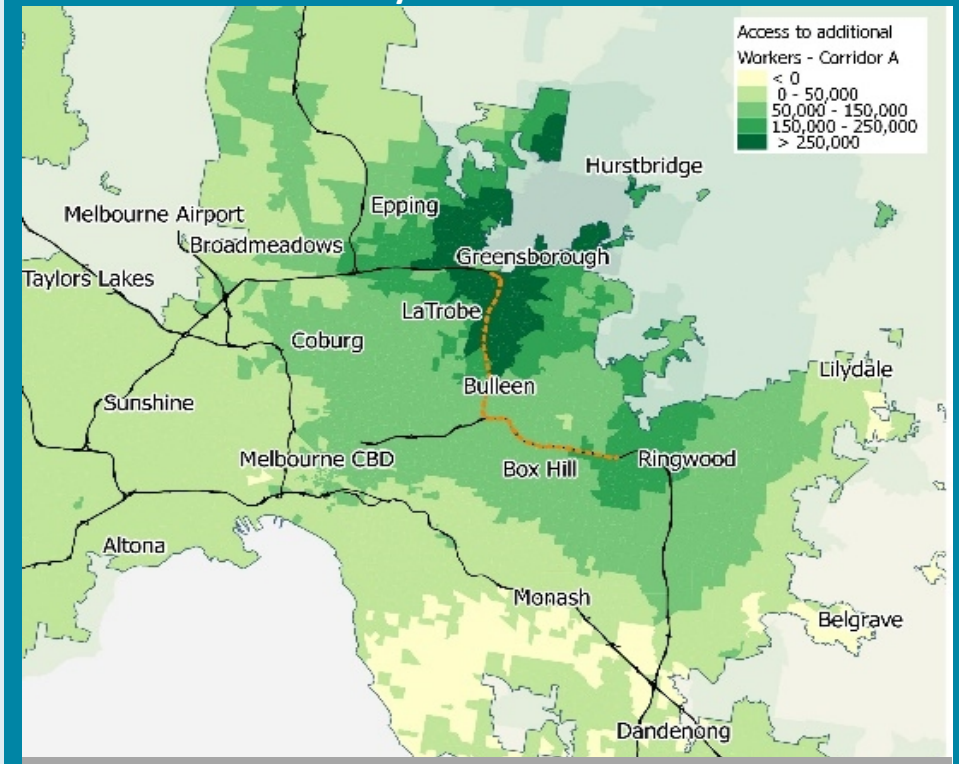
Why is accessibility important for business?

A core objective of the project is to improve businesses access and growth in Melbourne's north, east and north east. Businesses increase their efficiency and productivity when they can better match workers with jobs and build workforces with the right mix of skills. Faster, more reliable connections to key employment centres in the north, east and south east will give businesses access to many more workers, as well as attracting new investment to these areas. Better connectivity for businesses also reduces their costs, expands access to new markets and boosts collaboration and innovation. Improving accessibility for key locations outside the central city will drive a significant increase in business productivity across Melbourne.

What has the analysis found?

Corridor A will provide the greatest improvements for business along the project corridor. Corridor A provides opportunities for businesses in key locations identified in Plan Melbourne for business and jobs growth, such as the La Trobe and Monash NEICs and Metropolitan Activity Centres at Broadmeadows, Epping, Box Hill and Ringwood. Corridor C provides opportunities for business across a diverse area, but – compared to Corridor A – not in as many areas identified by Plan Melbourne for commercial, retail and residential growth.

Corridor A – accessibility for businesses

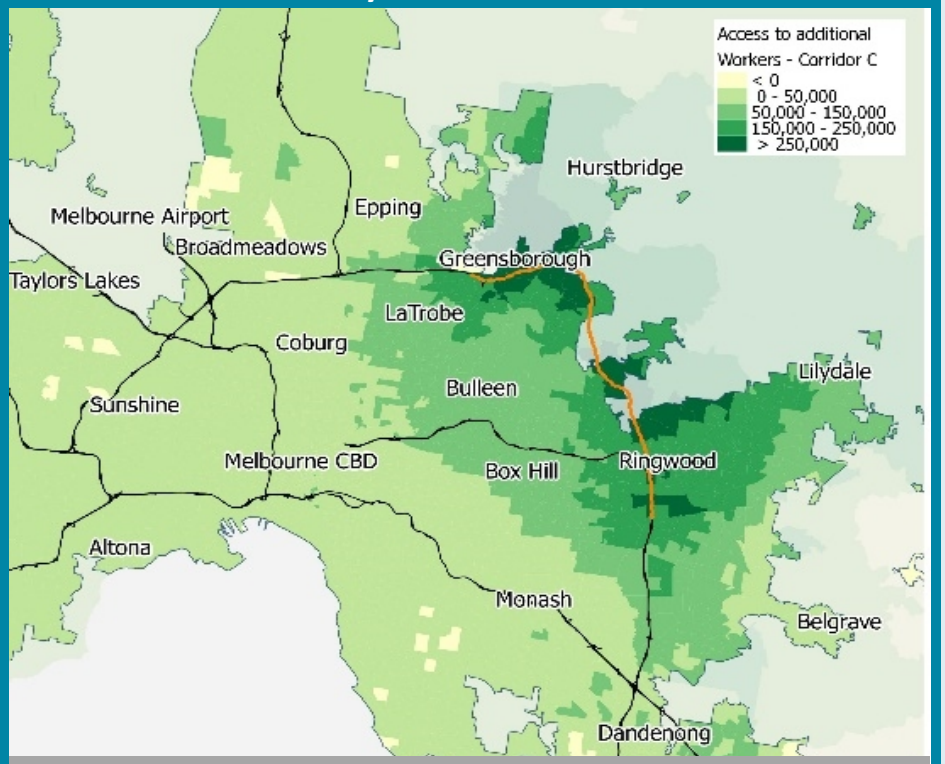


Change in workers accessible to businesses within NEICs and MACs

105,000 **130,000** *(2036 modelled forecast)*

Provides opportunities for businesses in and around the La Trobe NEIC and through the northern growth corridor, contributing to Plan Melbourne Policy 1.2.2 – to Facilitate investment in Melbourne's outer areas to increase local access to employment.

Corridor C – accessibility for businesses



Change in workers accessible to businesses within NEICs and MACs

75,000 **90,000** *(2036 modelled forecast)*

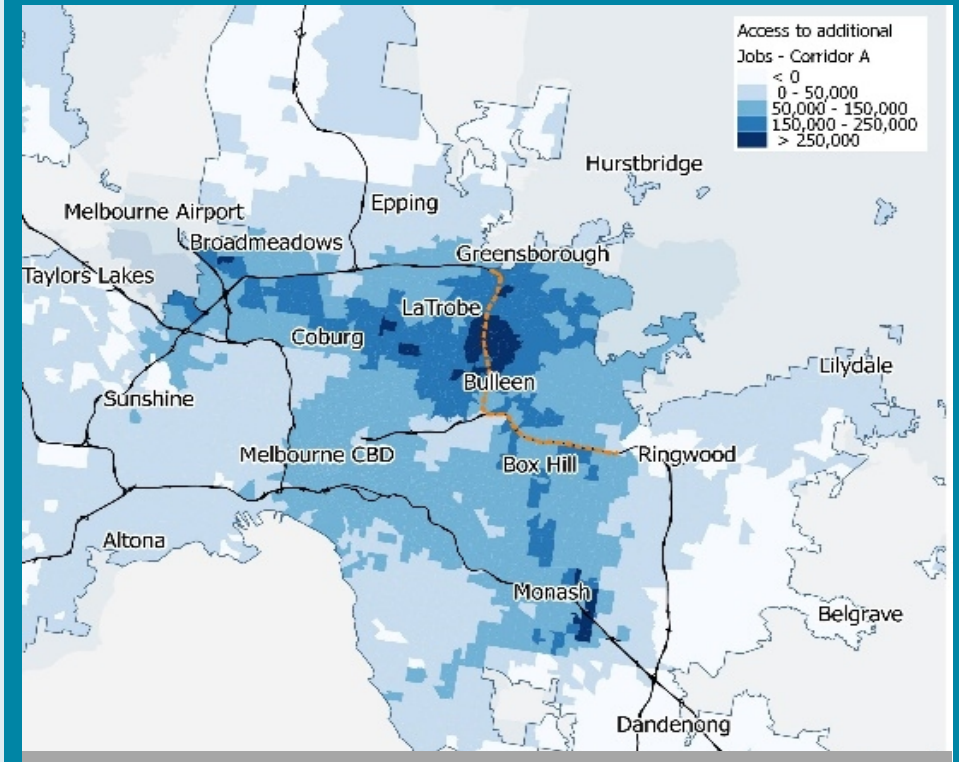
Provides opportunities for businesses along the corridor, with improvement in the Greensborough, Ringwood and Wantirna areas, however it does not contribute as strongly to La Trobe NEIC or the northern Metropolitan Activity Centres at Epping and Broadmeadows

Change in accessibility – Residents

Why is accessibility important for residents?
Improved accessibility gives residents more job choices, more options for working closer to home and more opportunities to access education and training. This boosts household income levels and reduces social disadvantage. It also supports the development of 'employment rich' suburban hubs that can generate new economic opportunities, better matching the location of jobs with where people live. This aligns with the project's objective to improve household access to employment and education.

What has the analysis found?
Corridor A improves access to jobs for residents in established areas of high population density. Corridor C improves access to jobs largely in lower density established areas that skirt the edge of Urban Growth Boundary, where further business and housing development would place pressure on Green Wedge areas.

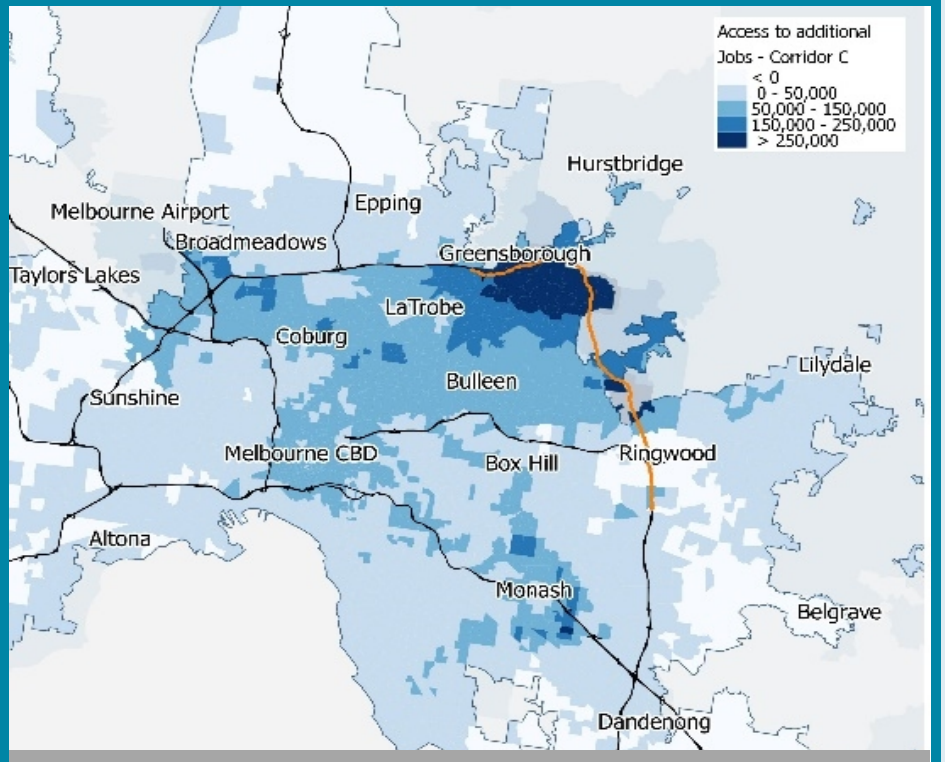
Corridor A – accessibility for residents



Change in accessibility to jobs within NEL catchment area
50,000 60,000 *(2036 modelled forecast)*

Provides greater access to jobs and education for residents who live in established urban areas with strong population density and forecast growth.

Corridor C – accessibility for residents



Change in accessibility to jobs within NEL catchment area
30,000 40,000 *(2036 modelled forecast)*

Provides greater access to jobs and education for residents, in low density areas around Greensborough and further north towards Plenty and Diamond Creek.

Freight accessibility – Better freight flows

Why is freight accessibility important?

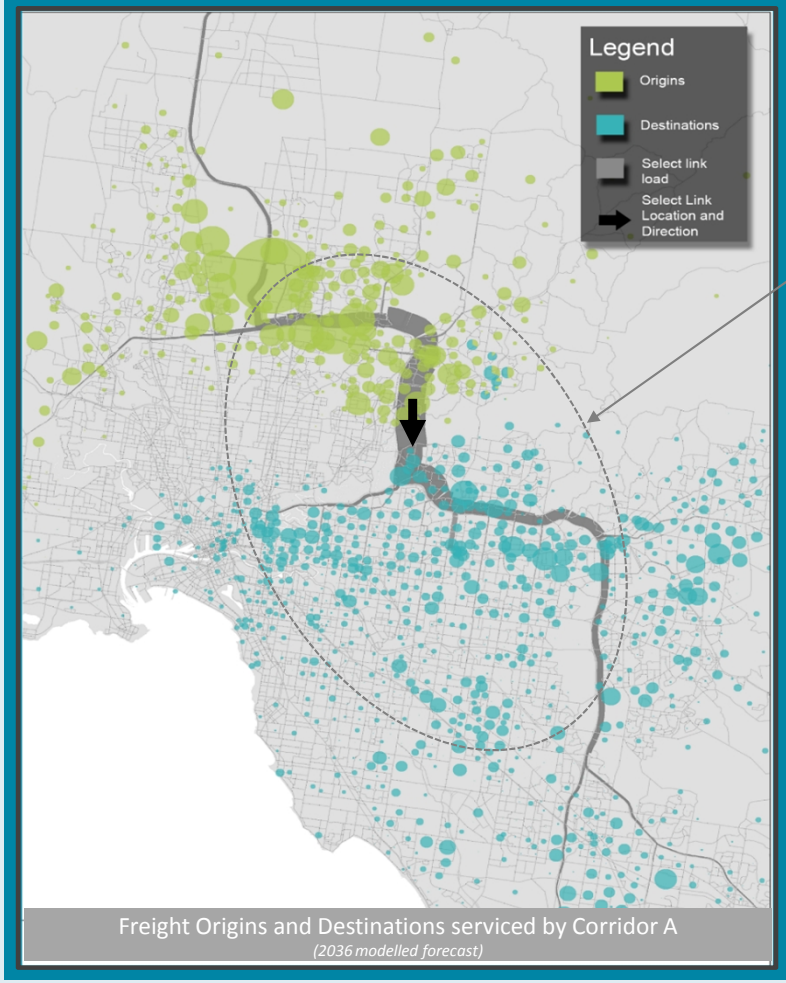
The north east corridor plays a vital role in facilitating freight flows between businesses and customers in Melbourne's north, east and south east. This includes linking regional areas, industrial precincts, freight gateways and distribution centres in the east and south east with the Hume Freeway and Melbourne Airport. With strong growth expected in the freight task, moving goods through this corridor efficiently is critical to improving business competitiveness, supporting high value industries and securing Melbourne's position as the nation's leading freight and logistics hub.

Time and reliability are key factors for businesses in determining freight routes and movements. Currently, the main orbital route for freight travelling through the north east is via the Eastern Freeway, Bulleen Road, Rosanna Road and Greensborough Road to the M80. North East Link will need to attract these trips by providing fast, efficient and reliable journeys for freight. This will reduce business costs, improve the efficiency of supply chains and increase freight productivity.

What has the analysis found?

Corridor A provides significantly better accessibility for freight journeys. Compared with Corridor C, it services a much larger freight catchment and captures a greater number of truck trips between origins and destinations in the north and south east, along the Eastern Freeway and around the La Trobe precinct. This greater accessibility means that Corridor A provides the best opportunity to redistribute a significant number of trucks from local streets to the new link.

Corridor A

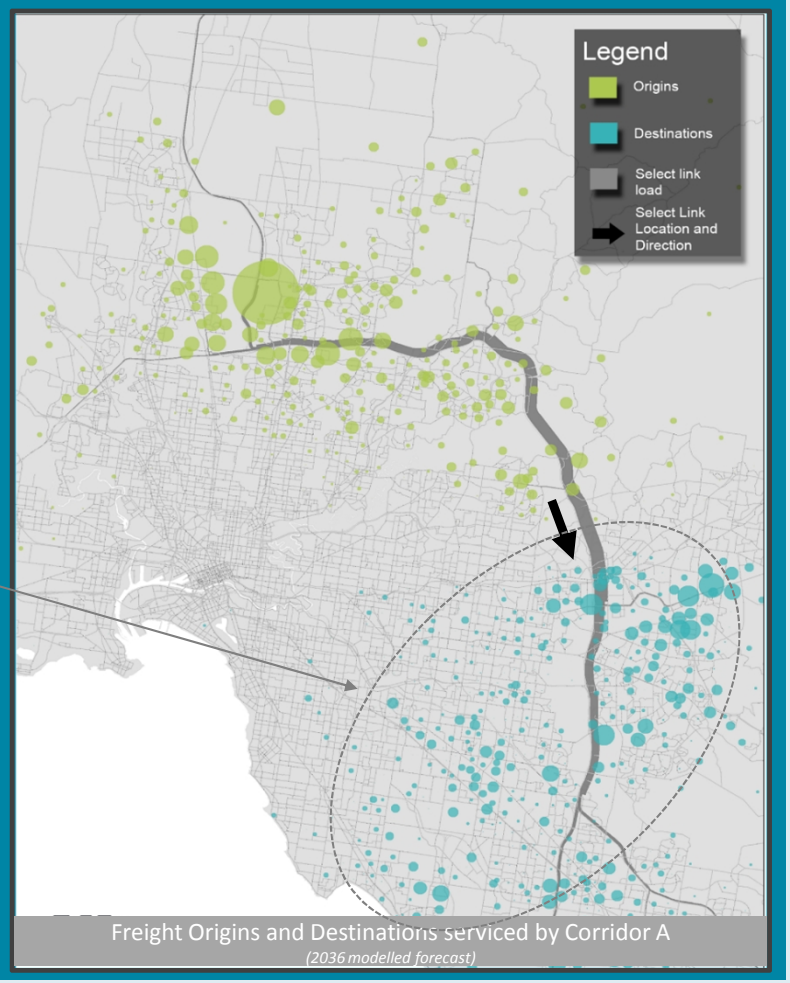


Freight Origins and Destinations serviced by Corridor A
(2036 modelled forecast)

Corridor A services a significant freight catchment, from origins in the north east of Melbourne to destinations south of the Eastern Freeway and along EastLink taking more trucks off local roads

Corridor C services a significantly reduced freight catchment, primarily servicing areas along EastLink resulting in less trucks being taken off local roads.

Corridor C



Freight Origins and Destinations serviced by Corridor A
(2036 modelled forecast)

ATTACHMENT B: TRANSPORT INTEGRATION ACT

The *Transport Integration Act 2010 (Vic)* (the TIA) is Victoria's main transport statute. It brings together the transport portfolio under one framework with the aim of developing 'an integrated and sustainable transport system that contributes to an inclusive, prosperous and environmentally responsible State'.

The TIA aims to ensure that Victoria's transport system delivers balanced economic, environmental and social outcomes, and requires all transport agencies to work together toward the common goal of an integrated, sustainable transport system. Agencies responsible for urban and regional planning must have regard to the TIA when making land use decisions that impact on the transport system.

The Project Objectives and Guiding Principles developed for North East Link (which provided the basis for assessing project options) were formulated having regard to the transport system objectives and decision-making principles of the TIA. This is demonstrated in the tables below which summarise the alignment of each transport system objective with corresponding Project Objectives and Guiding Principles along with the more detailed evaluation criteria and measures.

Table A1 Alignment with TIA transport system objectives

Transport system objective	Relevant Project Objectives and Guiding Principles	Evaluation criteria and measures
Social and economic inclusion	*Project Objective 2:* Improve access to employment and education for households in Melbourne's north, east and south east *Project Objective 4:* Improve access, amenity and safety for communities in the north east *Guiding Principle 1:* Minimise impacts on communities	Evaluation criteria and measures to assess the ability of corridor options to foster social and economic inclusion included: • Jobs growth in key locations • Additional jobs accessible to households • Additional placements accessible to students • Change in travel times for commuting and education trips • Change in travel times between residential areas and key local destinations in the north east • Improved access to public transport • Improved conditions and connections for cyclists and pedestrians. These criteria were applied to the project corridor, the broader project catchment and the rest of Melbourne. Options were also evaluated for their potential impacts on community cohesion.
Economic prosperity	*Project Objective 1:* Improve business access and growth in Melbourne's north, east and south east *Project Objective 3:* Improve freight and supply chain efficiency and industrial growth across the north, east and south east *Guiding Principle 4:* Optimise the efficient use of resources	Evaluation criteria and measures to assess the improved economic prosperity delivered by corridor options included: • Additional workers accessible to firms • Travel time savings and improved travel reliability for businesses • Change in business access to suppliers • Change in travel times for freight trips. These criteria were applied to NEICs, MACs and other key business and industrial locations along the project corridor, the broader project catchment and the rest of Melbourne.

Transport system objective	Relevant Project Objectives and Guiding Principles	Evaluation criteria and measures
Environmental sustainability	*Project Objective 4:* Improve access, amenity and safety for communities in the north east *Guiding Principle 2:* Minimise impacts on environmental and cultural assets	• Potential impacts on parks and public open space • Potential impacts on matters of national • Potential impacts on flora and fauna, including • Potential to affect waterways, including river and • Potential to affect groundwater flow, levels and • Flooding risk. Estimates were also made of greenhouse gas emissions generated by project options during construction and operation.
Integration of transport and land use	*Project Objective 1:* Improve business access and growth in Melbourne's north, east and south east *Project Objective 2:* Improve access to employment and education for households in Melbourne's north, east and south east *Project Objective 3:* Improve freight and supply chain efficiency and industrial growth across the north, east and south east *Project Objective 4:* Improve access, amenity and safety for communities in the north east	The options assessment process considered how changes to accessibility delivered by the project may affect future land use patterns. This included evaluating how some locations may become more development. Consideration was also given to potential development pressures on the Urban Growth • Change in commercial development and • Change in residential development potential and • Compatibility with Victorian Government planning
Efficiency, coordination and reliability	*Guiding Principle 3:* Minimise impacts during the construction phase *Guiding Principle 4:* Optimise the efficient use of resources	Evaluation criteria and measures to assess the ability of project options to foster greater efficiency, • Extent of impacts on the road network and public • Number of additional truck movements during • Efficient use of the asset • Ability to unlock spare capacity in the arterial road • Ability to 'future proof' the transport network,

Transport system objective	Relevant Project Objectives and Guiding Principles	Evaluation criteria and measures
Safety and health and wellbeing		Evaluation criteria and measures for determining the contribution of project options to safety, health and • Change in heavy vehicle traffic on key arterial • Improved connectivity for communities in the • Improved conditions and connections for cyclists • Extent of land acquisition impacts • Potential impacts on community facilities • Potential to reduce severance • Extent of impacts on visual amenity and sensitive Options were also evaluated for their potential amenity impacts on sensitive receptors (such as residences, schools and hospitals) during construction and operation.

Table A2 Alignment with TIA decision-making principles

Decision making principle	Features of North East Link
Integrated decision-making	*This principle means seeking to achieve Victorian and national policy objectives through coordination between levels of government and with the private sector.* The North East Link Project has been developed jointly by the Victorian Government and the North East Link Authority. This process has included collaboration across multiple areas of government on concept development and technical aspects. The Project Objectives and Guiding Principles were developed through consultation and workshops with key agencies and stakeholders including Transport for Victoria (TfV), Department of Treasury and Finance (DTF), Department of Premier and Cabinet (DPC), Victorian Planning Authority (VPA) and VicRoads. The project considered and is consistent with national and Victorian policy objectives, including Victoria's 30-year infrastructure strategy, the Australian Infrastructure Plan, the national Smart Cities Plan and Plan Melbourne 2017-2050. Integrated decision-making will be an ongoing feature of the project, with NELA continuing to consult with government agencies, local councils, community and business organisations and service providers throughout the project's assessment through the EES process, design development and delivery phases.

Decision making principle	Features of North East Link
Triple bottom line assessment	*This principle means assessing the economic, social and environmental costs and benefits, taking into account externalities and value for money.* The framework used to assess, refine and select options for the project is supported by evaluation criteria designed to compare options based on a triple bottom line assessment. These criteria are aligned directly with the Project Objectives and Guiding Principles. Guiding Principle 2 (minimise impacts on environmental and cultural assets) and Guiding Principle 4 (optimise the When assessing project options against this principle, 'costs' and 'benefits' equate with anticipated economic, social and environmental impacts. These impacts were identified for the detailed appraisal of corridors A and C and will be subjected to further assessment as part of the EES process for Corridor A. Measures to mitigate adverse impacts will also be identified during
Equity	*This principle means equity between persons irrespective of their personal attributes or location,* Project Objective 2 (improve access to employment and education for households in Melbourne's north, east and south east) and Project Objective 4 (improve access, amenity and safety for communities in the north east) are relevant to this principle as they seek to significantly improve accessibility and connectivity across the project catchment and Melbourne more broadly, The assessment of project options has included a preliminary assessment of matters relevant to intergenerational equity. This includes indicative estimates of resource use and greenhouse gas emissions in the concept for the project, and identifying potential ecological impacts during the project's construction and operation. Lifecycle costs have been incorporated into the project concept and proposed delivery strategy to reduce the operational and maintenance costs of the Project structures (such as pedestrian bridges and bicycle paths) will comply with the national
Transport system user perspective	*This principle means understanding the requirements of transport system users and enhancing the* Options assessment has considered in detail the requirements of motorists, freight operators, bus operators and customers, and pedestrians and cyclists. These requirements provided the Feedback from potential users of North East Link has informed the development of the project to date and engagement with individual and community stakeholders will continue as the project proceeds through the reference design, environmental assessment, planning approvals and Urban design principles developed for the project will include requirements related to accessibility, legibility and safety, and to providing an engaging driver experience for users of North East Link. The project's proposed managed motorway system will incorporate the use of
Precautionary principle	*The precautionary principle means that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for* The assessment of project options included consideration of environmental impacts to meet Guiding Principle 2 (minimise impacts on environmental and cultural assets). No threats of serious or irreversible damage have been identified. Where potential adverse impacts have been identified, these will be investigated further during the EES process and measures identified to avoid, mitigate and manage these impacts.

Decision making principle	Features of North East Link
Stakeholder and community participation	*This principle means considering the interests of stakeholders (including transport system users) and adopting appropriate processes for community engagement.* Extensive community and stakeholder engagement has been undertaken in developing the Project Objectives and Guiding Principles and applying these to the assessment of corridor options. NELA sought early input from the community, local councils and non-government organisations before starting to investigate potential project corridors, including seeking views on issues such as individual and community values that re important to people in the north east, and The options assessment considered opinions and information provided by the community and stakeholders where these were supported by evidence and technical investigations. The assessment also considered questions raised by community members and stakeholders. The Community Engagement Report August – October 2017 published by NELA in early November There will be further opportunities for community and stakeholder input into the development of
Transparency	*The principle of transparency means that members of the public should have access to reliable and relevant information to facilitate a good understanding of transport issues and the process by* NELA has used a range of activities and tools to inform members of the public about the project and its progress, and to understand the concerns and requirements of users of the transport system, residents, businesses, freight operators and local councils. Channels of communication have included drop-in community information sessions, a website and Facebook page, and the Proactive communication about next steps and time frames in the planning and procurement processes and engagement activities will continue to be undertaken as the project proceeds to delivery. The EES process will make detailed information about the project and its potential environmental effects publicly available and give members of the public the opportunity to Ultimately, the project will be designed, constructed and operated in accordance with a detailed Environmental Management Framework documented in the EES. The EMF is a transparent framework that identifies who is accountable for managing the environmental aspects of the project and auditing, monitoring and reporting about specific potential environmental impacts.