Environment
Effects Statement

Technical Report I
Social

North East Link Project

North East Link Environment Effects Statement

Technical report I - Social

Prepared for North East Link

April 2019

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Executive summary

This technical report is an attachment to the North East Link Environment Effects Statement (EES). It has been used to inform the EES required for the project, and defines the Environmental Performance Requirements (EPRs) necessary to meet the EES objectives.

Overview

North East Link ('the project') is a proposed new freeway-standard road connection that would complete the missing link in Melbourne's ring road, giving the city a fully completed orbital connection for the first time. North East Link would connect the M80 Ring Road (otherwise known as the Metropolitan Ring Road) to the Eastern Freeway, and include works along the Eastern Freeway from near Hoddle Street to Springvale Road.

The Major Transport Infrastructure Authority (MTIA) is the proponent for North East Link. The MTIA is an administrative office within the Victorian Department of Transport with responsibility for overseeing major transport projects.

North East Link Project (NELP) is an organisation within MTIA that is responsible for developing and delivering North East Link. NELP is responsible for developing the reference project and coordinating development of the technical reports, engaging and informing stakeholders and the wider community, obtaining key planning and environmental approvals and coordinating procurement for construction and operation.

On 2 February 2018, the Minister for Planning declared North East Link to be 'public works' under Section 3(1) of the *Environment Effects Act 1978*, which was published in the *Victorian Government Gazette* on 6 February 2018 (No. S 38 Tuesday 6 February 2018). This declaration triggered the requirement for the preparation of an EES to inform the Minister's assessment of the project and the subsequent determinations of other decision-makers.

The EES was developed in consultation with the community and stakeholders and in parallel with the reference project development. The reference project has been assessed in this EES. The EES allows stakeholders to understand the likely environmental impacts of North East Link and how they are proposed to be managed.

GHD was commissioned to undertake a social impact assessment for the purposes of the EES.

Social context

People and communities are at the heart of every infrastructure development. The features and qualities of the built environment influence the way that people use areas. Specifically, the qualities of the built environment can affect the amenity and character of an area, level of community cohesion, and access and connectivity to places. The construction and operation of North East Link has the potential to affect land use and change these features and qualities. This may lead to changes to the social fabric of the community with regard to wellbeing, community cohesion, business functionality and access to goods, services and facilities. According to the Vanclay (2003), social impacts include all the issues associated with a project that affect or concern people, whether directly or indirectly.

This social impact assessment seeks to understand the positive and negative social impacts brought about by North East Link, and ways to enhance the positive impacts and avoid, minimise or manage the negative impacts to people and communities.

The social impact assessment addresses the evaluation objective set out in the North East Link Environment Effects Statement (EES) scoping requirements issued by the Minister for Planning: *To manage effects of the project on land use and the social fabric of the community with regard to wellbeing, community cohesion, business functionality and access to goods, services and facilities.*

The social study area comprises the regional study area and local study area. The regional study area refers to the Melbourne metropolitan region, particularly the Inner Metro Region, Inner South East Region, Northern Region, and Eastern Region as identified in the Victorian Government's long-term metropolitan strategy, *Plan Melbourne* (DELWP, 2017). The local study area consists of municipalities and suburbs the project would intersect. These municipalities include Nillumbik, Banyule, Manningham, Boroondara, Whitehorse and Yarra. It is noted the City of Whittlesea is to the north and west of the reference project, on the northern side of the M80 Ring Road. While no project components are located in Whittlesea, given the proximity of the project, Whittlesea has been included within the local study area.

A baseline of the social study area was established through desktop research on demographic characteristics, community values and community infrastructure. Potential social impacts of the project on residents and the general community and the function of community infrastructure facilities and their users within the vicinity of the project were established and assessed using data triangulation methods. A risk-based approach was applied to the social impact assessment to prioritise the key issues for assessment and inform measures to avoid, minimise and offset potential effects. The study has been informed using data triangulation method where information was sourced from desktop sources, evidence from other technical studies undertaken for the EES and through consultations for the social impact assessment with community stakeholders, such as local councils, residents, community infrastructure facilities and key community groups.

Existing conditions

As a whole, North East Link would be located within a well-established and urbanised area in the north-east of the Melbourne metropolitan region, characterised by residential areas, open spaces, commercial and industrial land uses. The project would intersect a range of Melbourne's regions identified in Plan Melbourne (DELWP, 2017), from densely populated and highly urbanised parts of inner metro and inner east regions to low density residential and recreational/natural areas in the northern and eastern regions.

The project would generally follow the alignment of the M80 Ring Road and Greensborough Bypass and Greensborough Road in the north-eastern municipalities of Nillumbik and Banyule, both of which are major routes for access to metropolitan Melbourne for the region. The direct area surrounding the project in Nillumbik and Banyule includes a mixture of residences, community infrastructure facilities (open space and recreational areas, schools) and commercial areas.

Moving towards the south-east within the municipalities of Manningham and Whitehorse, the project's southern portal would be located near the intersection of Manningham Road and Bulleen Road, and follow the alignment of Bulleen Road south towards the Eastern Freeway. This area is largely characterised by the parklands surrounding the Yarra River and Heide Museum of Modern Art, the Bulleen Industrial Precinct and a conglomeration of recreational areas with Bulleen Park and the grounds of a number of private schools. The remainder of the project within the municipalities of Manningham and Whitehorse follows the Eastern Freeway, the majority of which is bordered by well-utilised linear parks and recreational areas. These open space areas generally act as a green buffer between residences and mixed use areas and the Eastern Freeway.

The project's western extent would follow the alignment of the Eastern Freeway through the municipalities of Boroondara and Yarra. Similar to the project's eastern extent, much of the project is bordered by open and recreational areas, including parklands around the Yarra River. As with the eastern extent, there is a considerable area of linear open space that buffers residential and mixed use areas.

The existing amenity and character of the communities directly adjoining the project along the M80 Ring Road, Greensborough Bypass, Greensborough Road and the Eastern Freeway is generally influenced by this road infrastructure. Areas in the north-east between the M80 Ring Road and Eastern Freeway typically have a suburban feel while areas west of Yarra Bend Park have an inner city feel with higher density living. Residents in these areas are generally exposed to high levels of road traffic noise due to their proximity to the existing freeways and highway. This is particularly noticeable in areas that do not have existing noise mitigation controls. The interface between dwellings and the adjacent freeways/highways/roads commonly includes parks, reserves, roadside mounds or acoustic noise walls, which often provide a buffer. Consultations for this social impact assessment identified that local residents in these areas value existing buffers, particularly those which include roadside reserves and parks with trees.

Consultations for the social impact assessment indicated there are common concerns among communities across the study area about existing traffic congestion along arterial roads which create barriers to community connectivity particularly during peak times. Residents raised concerns about existing road and pedestrian safety on these busy roads, particularly for school children. Despite concerns about limited pedestrian connections, the consultations indicated that existing pedestrian crossings across these roads are important to provide connectivity and enable community members to access community facilities, services and public transport.

Key findings – construction

Social implications of land acquisition and relocation

Based on the reference project, North East Link would require the acquisition of 36 residential properties across the entirety of the project, which would require affected individuals to secure replacement accommodation. It is noted the social impact assessment report presents the acquisition requirements associated with the reference project. This is considered a conservative approach and further design refinements, including discussions with local Councils, are ongoing as part of the EES process with a view to ensuring an optimal environmental, economic and social outcomes, including the potential for a smaller project footprint.

Relocation of residents is likely to result in lifestyle disruption and pose demands on individual and family time. People may experience a loss of the social ties within their neighbourhood. The severity of these impacts would vary depending on the individuals and their circumstances, noting that vulnerable households may experience these impacts at a higher level of intensity.

102 businesses (three would be impacted by temporary occupation with the remainder impacted by full or partial acquisition). Displacement of businesses due to land acquisition would reduce local employment opportunities, and likely increase the local labour pool seeking employment. This may result in a local increase in unemployment, which can have detrimental social impacts at the individual, family and household level, including an increase in social isolation, challenges to personal identity and life satisfaction, reduced living standards and reduced health and wellbeing. The potential for these social impacts to occur is reduced, as some local employees would continue to work with the businesses after relocation, some may seek alternative employment in the local area and some may potentially become unemployed.

Community members from the local area and potentially broader area would also have to find other service providers, which may be inconvenient and potentially add travel time to access services elsewhere.

In addition, the decisions required to be made for compensation and relocation of residences and businesses, along with potential loss of social ties, disruption to lifestyle and demand on time could result in stress and worry for some individuals. Potential health impacts such as stress and worry are discussed in Technical report J – Human health.

Amenity and character

Based on a review of Technical report B – Air quality, Technical report C – Surface noise and vibration, Technical report D – Tunnel vibration and Technical report H – Landscape and visual, the degree of amenity change (visual, noise and air quality) is largely dependent on the proximity of residents to the project and the type of project works undertaken at a given location. The degree to which residents would experience social impacts due to amenity changes would vary between individuals based on factors, such as perception, underlying sensitivity to change, distance from the project, and the value which people attach to the amenity and character of an area.

Construction activities could potentially result in direct views of construction works and equipment for nearby residents. In residential areas where the existing environment becomes highly modified, or existing screening trees and vegetation are removed resulting in canopy loss, residents would experience greater visual change. Visual changes in these areas may be perceived as change in character and would diminish the sense of pride of local residents in their surroundings. The degree to which residents would experience these impacts would vary between individuals, but generally it is considered unlikely this would impact on people's ability to continue with their day-to-day life and functionally nor their use of outdoor spaces and neighbourhoods.

Construction activities have the potential to increase noise levels on properties near the construction works, as outlined in Technical report C – Surface noise and vibration. As the distance between the residential properties and construction works increases, it is likely the noise would decrease and be less audible. Technical report D – Tunnel vibration indicates that temporary vibration impacts would be noticeable to residential properties directly above and close to the alignment of the proposed tunnels due to tunnelling works. Perception and sensitivity to changes in noise levels is subjective and varies from person to person. Construction activities and equipment would likely generally move within the construction sites and along the linear study area, and so associated increase in noise levels is expected to be temporary in duration and sporadic in frequency.

Technical report B – Air quality indicates that intermittent dust and odour would be generated by surface works along the alignment and the removal, transport and disposal of spoil from tunnelling works at the northern portal and southern portal. This would impact residents living adjacent and close to construction activities along the alignment. There is potential for some people to be more sensitive to dust impacts, such as children, older people and people with medical conditions sensitive to changes in air quality. Potential health impacts of changes in air quality are discussed in Technical report J – Human health. With the implementation of the project's EPRs (AQ1, CL1, CL3, and EMF2) dust and odour levels would be managed and so from a social point of view, it is unlikely that dust and odour levels would impact on people's day-to-day lives.

Amenity changes could potentially lead to residents in those areas temporarily spending less time outdoors in their backyards or on balconies, or closing windows while indoors. Some of these changes, particularly increased noise levels, have the potential to disturb or interfere with normal activities. It is recognised that increased noise levels from the baseline conditions, even though they may be within permissible levels of the project noise criteria have the potential to generate social impacts for some people such as disturbance to conversations, relaxing at home, night-time peacefulness, reading, listening to the radio or watching television and sleep. These changes may reduce people's ability to enjoy their properties and go about their day-to-day life, particularly those living close to the project boundary.

Night-time works would change the amenity of residential properties located near the construction areas due to the glow from night-time lighting, increased noise and vibration and increased air quality impacts. The degree that residents would likely be affected would vary between individuals and households. Vulnerable groups including people with socio-economic disadvantage, disabilities, learning difficulties, elderly and children would likely be more impacted. There is potential for some people to be more sensitive to amenity changes during the night, which may affect sleep. Sleep disturbance could impact people's capacity to participate in community activities such as work, education, recreation and social activities. Reduced community participation would result in fewer opportunities for social interactions. Vulnerable groups could be more sensitive to sleep disturbance. Potential health impacts of sleep disturbance are discussed in Technical report J – Human health.

It is acknowledged that construction activities would generate combined changes to visual, noise and air quality amenity in some areas adjacent to the project and result in combined social impacts, leading to residents feeling annoyed, inconvenienced or at greater disadvantage. Some people could experience a diminished sense of pride and contentment in the area where they live or work and may choose to spend less time at home or less time in pursuing day-to-day activities in and around their homes.

However, a number of project EPRs outlined in Technical reports B – Air quality, Technical report C – Surface noise and vibration, Technical report D – Tunnel vibration and Technical report H – Landscape and visual which are also detailed in this report aim to manage amenity changes to avoid and minimise these social impacts.

Access and connectivity

Access and connectivity changes are anticipated due to increased construction traffic and trucks along a number of key routes, lane and road closures, relocation and diversions of shared use paths and pedestrian facilities and changes to public transport services.

According to Technical report A – Traffic and transport, key routes that would experience increased truck traffic during construction include the M80 Ring Road, Greensborough Bypass, Rosanna Road, Bulleen Road, Chandler Highway and Eastern Freeway. Residents and community members near the project are likely to experience temporary increased queuing, traffic congestion and delays along these routes, which would increase their travel times for daily commutes or usual trips. Additional time spent travelling would likely reduce the time people spend with families, and undertaking leisure and social activities.

Increased traffic along these roads may increase real and perceived community barriers to movement, which was identified as an existing community concern during consultations for the social impact assessment.

Temporary lane and road closures would be required to facilitate works while maintaining public safety and safety of workers, which would result in local impacts on traffic flow. These would include the interchanges at the M80 Ring Road, Manningham Road, Eastern Freeway and Doncaster Road, Bulleen Road north of Eastern Freeway, and Chandler Highway and Burke Road. Temporary closure of lanes and roads may have local impacts on traffic flow. To minimise these impacts, Transport Management Plans (EPR T2) would be developed for the closures which would need to identify detour routes and undertake traffic engineering assessments of the impacts. If required, mitigating measures would be developed to address any adverse impacts.

Changes in traffic conditions and additional construction traffic could also alter people's perceptions of traffic safety. At times, these real and perceived barriers could deter some people, particularly vulnerable groups such as people with disability and elderly people, from making some trips. This behaviour change has the potential to isolate people in the community.

Construction would require the temporary relocation, diversions and potentially closure of shared use paths and pedestrian facilities including trails, bridges and footpaths. Changes would result in temporary disruption or increased travel times for pedestrians, commuters, active recreational users and people with mobility aids. These changes could potentially deter some people especially the vulnerable such as people with disability, elderly and children from making some trips and impede on people's active lifestyle or active transport to schools. Even temporary disruption to shared use paths and pedestrian facilities could result in social isolation of vulnerable individuals who use the paths to make necessary trips to shops, medical centres, public transport services and social activities.

Construction works would require temporary changes to the rail network, location of bus stops and bus routes along the project boundary. This includes the temporary occupation of the Watsonia railway station carpark and Doncaster Park and Ride facility and temporary disruption to Hurstbridge rail line due to road widening works where North East Link would cross the rail line. It is anticipated that a mix of after last (train) and before first (train), weekend and extended week-long occupation would be required to complete the station works. In addition, changes to bus stop locations, bus routes and train timetables would increase travel times for some and could be confusing for some people.

However, since these access changes would be temporary and alternative routes and access for affected roads, shared use paths and public transport services would be available, it is anticipated that people would be able to travel through the study area to access places they wish to. It is unlikely that intermittent and infrequent deterrence due to temporary access changes would lead to social isolation or impact community cohesion.

It is acknowledged that combined amenity, access and connectivity changes could lead to cumulative social impacts, where residents who may experience all of the above discussed changes at the same time would experience a higher degree of annoyance and inconvenience and feel they are at a greater disadvantage.

EPRs to manage amenity and access and connectivity changes and reduce the resultant social impact are outlined in Technical report A – Traffic and Transport, Technical report B – Air quality, Technical report C – Surface noise and vibration, Technical report D – Tunnel vibration and Technical report H – Landscape and visual, as well as in this report.

Community infrastructure facilities and users

Construction would result in changes to community infrastructure facilities and users along North East Link, including temporary occupation and permanent acquisition, changes in amenity and character, and to access and connectivity to facilities, which may result in social impacts to users of these facilities.

A facility-by-facility assessment of impacts on community infrastructure facilities is provided in Appendix E and a summary of that detailed assessment in captured in Sections 9.5.2 to 9.5.6 of this report.

The recreational facilities within Banyule, Manningham, Boroondara and Whitehorse Council that would be displaced by the reference project have been subject to a Sport and Recreation Options Assessment that has been prepared by NELP. The Sport and Recreation Options Assessment (attached in Appendix F to this report) has been prepared in consultation with each of the relevant Councils and provides further detail to supplement this social impact assessment report.

The Sport and Recreation Options Assessment documents the approach that has been adopted in consultation with facility operators, local councils and relevant State authorities to identify relocation opportunities. Solutions to address this include increasing the capacity at nearby sites to enable them to accommodate increased use for a temporary period. The objective of this work is to accommodate impacted facilities in alternative locations and where practicable, to maintain the continuity of the facilities. The options assessment represents the work that has been completed to date consistent with EPR SC4. It is noted however that this social impact assessment does not consider the impacts of the relocation opportunities identified in the Sport and Recreation Options Assessment.

Through this process, NELP and the councils have held the common objectives of accommodating displaced facilities and maintaining the continuity of those recreational activities. The Sport and Recreation Options Assessment is however, preliminary in nature and does not present a definitive solution for each recreational facility or club. Further consultation and assessment of the feasibility of these options is required before this work is completed. Once preferred options have been selected, the implications for the recreational facilities and user groups would be further considered and NELP would work with these groups to reduce impacts as much as possible.

NELP has developed seven relocation options within the Bulleen Park Area. Principles and Evaluation Criteria have also been developed to enable an objective options assessment process. The development of both these options and the principles and criteria has included consultation and feedback from Council officers.

Overall, the function and viability of community facilities not affected by acquisition or temporary occupation is not expected to be altered by visual changes and dust during construction. However, changes in the noise environment have the potential to temporarily disturb users of community facilities. For open space and recreational facilities, this could reduce enjoyment of facilities, although is not expected to impact their overall function and viability. There are several schools, child care centres aged care centres and other community meeting places located close to the project, and while they are not expected to be exposed to exceedances in noise targets, a number of these facilities have vulnerable users that may be sensitive to changes in the noise environment. EPRs outlined in Technical report C – Surface noise and vibration would manage noise impacts, and EPR SC2 would include early and ongoing engagement with the facilities located near the project about noise management and mitigation, including its ongoing efficacy, which would provide a further mechanism to address noise impacts on facility users.

Changes to traffic and transport conditions can change people's ability to temporarily access community infrastructure facilities, particularly due to increased travel times due to congestion, delays or the need to travel further. There may also be some changes in pedestrian access to facilities, which could create a barrier for school children. There is potential for some community members, particularly vulnerable groups, to be deterred from accessing facilities due to these changes, and perceptions of decreased safety. This behaviour change would be temporary, reflecting the temporary nature of changes in traffic conditions. However, this behaviour change has the potential to isolate people from their community and accessing services, which may result in flow-on social impacts to the individual.

Key findings – operation

During its operation the project would overall deliver a number of social benefits for the local and regional study area such as reduced travel times for users of North East Link and users of surrounding roads, improved access and connectivity for areas along the project, increased opportunities for active travel, improved noise amenity in some residential areas adjacent to the project. More specific impacts are discussed below.

Amenity and character

Based on a review of Technical report H – Landscape and visual, the operation of North East Link would create new infrastructure such as noise walls, viaducts, elevated road structures, shared use overpasses and lighting. In addition, the operation of North East Link would require the permanent removal of some open spaces which currently provide leafy views for nearby residents. The presence of new road infrastructure would mean some people in nearby residences would have views of the project's infrastructure, leading to altered views potentially including new noise walls, light spill, overshadowing and loss of canopy cover.

Due to the above mentioned visual and character changes in some residential areas near the project, residents would likely experience reduced enjoyment and sense of pride in their properties, particularly their backyards or outdoor spaces. The degree to which their enjoyment would likely be affected would vary, but it is considered unlikely this would impact on people's ability to continue with their day-to-day lives. Most people generally tend to adjust to visual changes over time. It is expected that areas where re-established vegetation would mature and filter views of the infrastructure, most residents would likely adjust to visual changes over a shorter period, compared with areas without revegetation. It is likely that while vegetation is maturing, there would be a period of time where there was temporary reduced visual amenity and shade on these residents. Residents who live further from the infrastructure are also likely to adjust over a shorter period and potentially in some case over a period of time re-establish usage of residential open spaces.

According to Technical report C – Surface noise and vibration, the operation of North East Link would reduce traffic-related noise on a number of local and arterial roads in the surrounding road network. This would be due to traffic diverting to North East Link particularly heavy vehicles and the implementation of noise mitigation measures along the alignment such as noise walls. This would include Greensborough Road, Rosanna Road, Lower Plenty Road, Banksia Street and Bulleen Road based on noise modelling for the years 2026 and the design year of 2036. Reduced traffic noise is expected to improve the noise amenity of residential areas close to these roads. This may contribute to quieter residential amenity, in line with the amenity values of residents identified in Section 6, and encourage residents to enjoy outdoor spaces.

Conversely, Technical report C – Surface noise and vibration indicates that some residential areas located near the project would experience increased surface noise from increased traffic volumes along some non-project local roads in 2036. These roads include Edmund Rice Parade (Bundoora), Eastgate Drive (Greensborough), Furneaux Grove (Bulleen), Bulleen Road

(Bulleen), Hender Street (Doncaster), Jocelyn Avenue (Balwyn Avenue), Stanton Street (Doncaster), Paul Avenue (Box Hill North), Norfolk Circuit (Doncaster), Lyndhurst Crescent (Box Hill North), Eram Road (Box Hill), Boronia Grove (Doncaster East) and Kellett Grove (Kew), Keystone Crescent (Kew East).

Technical report C – Surface noise and vibration has predicted that in 2036 exceedances of noise objectives could occur at some nearby residential properties and may need further consideration of at-property noise mitigation in addition to noise walls (where provided). It is expected that 159 residential and noise sensitive properties across the alignment would be further considered for at-property noise treatment to mitigate impacts, subject to further detailed design. Perception and sensitivity to changes in noise levels is subjective and varies from person to person. Some of these residents may choose to spend less time outdoors in their backyards or on balconies, or to close windows while indoors. It is recognised that prolonged exposure to increased noise levels has health implications, which are assessed in Technical report J – Human health.

According to Technical report B – Air quality, improved air quality is predicted for the 2026 and 2036 scenarios along many roads due to decreased traffic particularly heavy vehicles diverting to North East Link. Improved air quality due to reduced traffic is expected to enhance the air quality of residential areas located near these roads. From a social impact perspective, the change is expected to be minimal and therefore not expected to alter people's day-to-day life.

Small increases in air emissions (PM_{10} and $PM_{2.5}$) are predicted along some roads, including the M80 Ring Road, Eastern Freeway and Middleborough Road. Due to the diversion of traffic to North East Link, an increase in PM_{10} and $PM_{2.5}$ is predicted along Greensborough Bypass between Grimshaw Street and Lower Plenty Road, with maximum impacts occurring at the Watsonia Road interchange. The tunnel ventilation structures would result in small exceedances of applicable air quality management design criteria for the 2026 and 2036 scenarios in the surrounding area including the Macleod and Bulleen residential areas. It is noted the surrounding area currently exceeds the design criteria on multiple occasions primarily due to existing levels of traffic. Technical report B – Air quality provides more detail on air quality change.

Given the existing background concentrations of PM_{10} and $PM_{2.5}$ (without contribution from the project), small increases in air emissions predicted from traffic and the tunnel ventilation structures are not expected to be noticeable to most residents near the project and so it is not likely to change people's day-to-day activities from a social impact perspective. However, there is potential for some vulnerable groups to be more sensitive to air quality change, such as children, older people and people with medical conditions. Potential health impacts of changes in air quality are discussed in Technical report J – Human health.

Access and connectivity

According to Technical report A – Traffic and transport, traffic volumes are predicted to decrease on almost every arterial and local road between the M80 Ring Road and Eastern Freeway. Technical report A – Traffic and transport identifies these roads. The largest reductions in traffic are predicted on Greensborough Road and parallel routes of Rosanna Road. Reduced traffic along these roads would improve traffic flow and travel times for residents and general community in the north-east allowing more time available for many people to spend with families and undertake leisure and social activities. Reduced traffic would benefit road users travelling by car, truck, bus, cycling and walking.

Faster travel times due to North East Link would improve people's connectivity to employment areas, destinations and community facilities generally across Melbourne and the north-east, particularly Templestowe, Bulleen and the La Trobe National Employment and Innovation

Cluster (NEIC). This would improve access for residents and general community to more job choices and more options for working closer to home, boost income levels and support the development of employment hubs within the north-east. These benefits could lead to greater participation in work, education and community activities and more opportunities for social interaction, which can help further strengthen cohesion across communities.

Road safety is expected to improve due to reduced car and truck traffic along many roads including reduced road crashes across the north-east. This would provide broader community benefit in the long term, particularly for vulnerable road users such as children, older residents, people with a disability, cyclists and pedestrians.

Increased traffic is predicted along some feeder routes to North East Link and some arterial roads south of the Eastern Freeway in 2036. Some people would experience marginally increased travel times along these roads which could cause annoyance and marginally reduce time available for leisure activities, but this is unlikely to impact most people's day-to-day lives over the long term nor their ability to access various destinations. Given the broader community benefit provided by North East Link through overall faster travel times in the north-east as well as to and from the Melbourne CBD, marginally increased travel times along some of the feeder routes is not expected to impact the majority of residents and general community in the north-east.

Permanent changes to road access arrangements such as Elder Street to Watsonia railway station, Oban Way, Edward Street to Sydney Street, and Avon Street would require local residents to take an alternative route to access some arterial roads near the alignment. This may result in a small increase in the daily travel times of these residents. It is noted that several of these residential streets currently have minimal levels of traffic. With the availability of nearby alternative travel routes within the local road network, these permanent changes are unlikely to impact the ability of these residents to continue to access their daily destinations or carry on with their day-to-day activities.

New shared use paths along the alignment would provide fewer disruptions from road traffic, time savings and continuous travel, which would benefit commuter cyclists and residents who walk and cycle for recreation. Increased access to shared use paths for residents living near the project may lead to more active lifestyles and access to nearby community facilities. This may lead to increased informal social interactions and greater cohesion for communities along the study area.

Pedestrian bridges, land bridges and signalised crossings across a number of arterial roads would improve east-west connectivity for the community, such as at the Greensborough Bypass and Greensborough Road. Community members who rely on pedestrian facilities are generally expected to benefit from these crossings and it may lead to more walking. It is also likely that improved connectivity with an improved share path network would increase opportunities for vulnerable people to travel (for example, people using mobility aids). Increased active travel would provide greater passive surveillance along shared use paths and pedestrian facilities along the alignment benefitting the broader community in the long term.

The new dedicated lanes for the Doncaster Busway would increase service frequencies, provide faster travel times, and increase patronage across the Busway routes benefitting bus users between the Melbourne CBD and eastern suburbs, such as The Pines, Warrandyte and Mitcham. A new Bulleen Road park and ride facility would also increase community access to bus services between Bulleen, The Pines Shopping Centre and Melbourne CBD. These improvements would positively impact community accessibility and connectivity along these routes, including connections to other public transport and active transport options along the corridor. This may increase the use of these transport modes.

Community infrastructure facilities and users

The project's land requirement impact on open space and recreation areas during operation would be significantly less than during construction. All temporarily occupied open spaces and recreational areas during construction would be reinstated. Through a series of urban design workshops, NELP has held discussions with relevant councils to explore options about how the project could make a positive contribution to the open spaces impacted during construction through high quality urban design as well as passive and active open space landscaping. Urban design would also be guided by EES Attachment II – Urban Design Strategy as well as design-focused EPRs.

The project would require the permanent acquisition of a combined total 182,300 square metres of open space and recreational areas across the municipalities of Banyule, Yarra, Manningham, Boroondara and Whitehorse. Watsonia Railway Station Carpark Reserve and Borlase Reserve would be acquired to the extent the current use would no longer be viable. Open space acquired at every other location would be minimal and includes strip acquisition along existing road infrastructure for widening roads in addition to small areas of open spaces acquired for establishing shared use paths and trails. Importantly, community access to open space would not be diminished by the project's land requirement.

Land bridges built over North East Link in Watsonia would create approximately 8,450 square metres of new open space (excluding adjacent landscape buffers and the roadside currently in the public realm) and would provide north-south linear parkland between Wittman Reserve and Winsor Reserve. The area would provide informal parkland for recreation and active transport opportunities with a series of walking paths and a north-south cycling and walking route.

Visual amenity along open spaces and recreational areas would be enhanced where practicable along the project. There would be visual change at some locations but it is expected that views of new road infrastructure would not impact the functionality of community infrastructure facilities.

The users of community facilities located along roads that would experience reduced traffic are expected to benefit from improved amenity due to reduced noise and improved air quality. In particular, this would improve the value of community infrastructure facilities that engage in outdoor activities, including open space and recreational areas, schools and aged care facilities.

Increased noise and dust on roads is not expected to result in noticeable changes for the majority of community facilities located on these roads. Due to the minimal increase in noise and dust, it is considered unlikely the function of any community infrastructure facilities would be impacted in the longer term.

Access to the community infrastructure facilities discussed in this social impact assessment is expected to generally improve on most travel routes compared with the predicted traffic levels without North East Link. This would help ensure that community infrastructure facilities maintain users and their functionality, which would support social cohesion and key social services in the longer term. However, a number of areas may experience increased traffic along some feeder routes. Slight delays on these roads may cause some annoyance to community facility users, but would unlikely impact people's ability to continue with their day-to-day lives over the long term.

Similarly, the project would provide major improvements to the walking and cycling network. Proposed improvements would improve connectivity to and within several community infrastructure facilities. Improved and safer access and connectivity via roads and shared use paths to all open spaces and recreational areas affected by the project would allow and encourage community participation in active and passive recreational activities and community networking, including for vulnerable groups such as children and people using mobility aids.

Environmental Performance Requirements (EPRs)

Social impacts of the project's construction and operation would be addressed with the implementation of EPRs developed as part of Technical report A – Traffic and transport, Technical report B – Air quality, Technical report C – Surface noise and vibration, Technical report D – Tunnel vibration and Technical report H – Landscape and visual. The recommended EPRs in this report to further avoid, minimise or mitigate social impacts are summarised below:

- **SC1 Reduce community disruption** – Design and construct the project to reduce disruption to residences and community infrastructure facilities from direct acquisition or temporary occupation of land, as far as is practicable. Where residential land is to be permanently acquired:
  - Use a case-management approach for project interactions with affected land owners and occupants
  - Endeavour to reach agreement on the terms for possession of the land
  - Consider the relative vulnerability and special needs of land owners and occupants.
- **SC2 Implement a Communications and Community Engagement Plan** – Prior to construction, prepare and implement a Communications and Community Engagement Plan to engage the community and potentially affected stakeholders and communicate progress of construction activities and operation. The plan must include:
  - A process for identifying community issues and the recording, management and resolution of complaints from affected stakeholders consistent with Australian Standard AS/NZS 10002:2014 Guidelines for Complaint Management in Organisations
  - Approach to stakeholder identification
  - Enquiry management and record keeping approach and procedures including making available a 24-hour telephone number, postal address, and an email address and publishing these on the project website
  - Approach to communicating and engaging with the community and potentially affected stakeholders in relation to:
    - Construction activities including temporary facilities and impacts that may affect the community, businesses or individual stakeholders (eg dust, noise, vibration and light) and relevant mitigation (eg relocations policy)
    - Changes to transport conditions and relevant mitigation (eg road closures, detours)
  - Identifying how stakeholders can access information on environmental performance that is to be made publicly available
  - Incident and emergency communications, including notification methods and timeframes in the event of a major incident or overrun
  - Approach and processes to ensure that the workforce has appropriate community awareness and sensitivity
  - Innovative communications tools and methods to enhance the project's ability to effectively communicate and engage with the community and stakeholders
  - Approach to engaging with local schools to provide education opportunities on project activities
  - Approach to making relevant project information available to the community, with specific consideration to vulnerable groups (including culturally and linguistically diverse groups)
  - How it will evaluate the effectiveness of the communication and engagement under the Communications and Community Engagement Plan.

- The Communications and Community Engagement Plan must consider and where appropriate address matters of interest or concern to the following stakeholders:
  - Municipalities
  - Recreation, sporting and community groups
  - Potentially affected residents and property owners
  - Potentially affected business
  - Other public facilities in proximity
  - Religious and worship groups
  - Vulnerable groups.
- **SC3 Participate in the Community Liaison Group** – Contractors must participate in the Community Liaison Group (CLG) that has been established and managed North East Link Project, to facilitate community and stakeholder involvement for the construction phase of the project. Participation must include:
  - Attendance at meetings
  - Regular reporting of design and construction activities
  - Timely provision of relevant information, including response to issues raised by the group
  - Regular reporting and monitoring of community feedback, impacts and discussion of mitigation measures and their effectiveness.
- **SC4 Minimise impacts on sporting, recreation and other facilities** – Where recreation facilities are displaced by the construction or operation of the project, work in collaboration with facility operators, local Councils and relevant State authorities to identify relocation opportunities with the objective of accommodating displaced facilities and maintaining the continuity of those recreational activities, where practicable.

  Where construction or operation activities directly impact on community infrastructure facilities such as schools, child care centres, and aged care centres, consultation must occur with facility operators and user groups to understand and, where appropriate, implement any practical measures can be taken to avoid or minimise impacts.

Structure of the EES

Abbreviations

Term	Definition
ABS	Australian Bureau of Statistics
CALD	Cultural and linguistically diverse
CLG	Community Liaison Group
DDA	Disability Discrimination Act 1992
DELWP	Department of Environment, Land, Water and Planning
EES	Environment effects statement
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPR	Environmental Performance Requirement
Heide	The Heide Museum of Modern Art
IAIA	International Association of Impact Assessment
IRSD	Index of Relative Socio-Economic Disadvantage
IRSAD	Index of Relative Socio-Economic Advantage and Disadvantage
LAC Act	Land Acquisition and Compensation Act 1986
LGA	Local government area
M80 Ring Road	Metropolitan Ring Road
Metro ARIA	Metro Accessibility/Remoteness Index of Australia
MNES	Matters of national environmental significance
MTIA	Major Transport Infrastructure Authority
MTPF Act	Major Transport Projects Facilitation Act 2009
n.d.	No date
NECA	North East Citizen Advocacy
NEIC	National Employment and Innovation Cluster
NELP	North East Link Project
NSW	New South Wales
PE Act	Planning and Environment Act 1987
PER	Public Environment Report
PIA	Planning Institute of Australia
SA1	Statistical Area Level 1
SEIFA	Socio-economic index of areas
SIA	Social impact assessment
The project	North East Link
Transport Integration Act	Transport Integration Act 2010
VPA	Victorian Planning Authority
WHO	World Health Organisation
WWCHAC	Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation
WSUD	Water Sensitive Urban Design features

Glossary

Term	Definition
Amenity and character	The noise, air quality, and visual amenity of the area provide for the enjoyment of residents and create a recognisable and distinctive character (Wood *et al*., 2008).
Community cohesion	Social or community cohesion generally refers to the complex set of social characteristics that contribute to how well society functions, including people's trust in their fellow community members, their sense of belonging in the community and their willingness to help each other (Reeve et al., 2016). While community cohesion is an outcome of the interaction of many social characteristics, the following facets have been considered in this social impact assessment: • The presence of social order (such as lack of crime and conflict) • Feelings of safety and trust in the community • Equitable economic and social development (such as lack of disparities in socio-economic conditions and appropriate services for those who are socio-economically disadvantaged) • Social networks and social capital (such as social interactions within the community and civic engagement) (Forrest & Kearns, 2001).
Community infrastructure	The *Community Infrastructure Development Framework* (City of Melbourne, 2014) defines community infrastructure facilities as 'spaces that accommodate community infrastructure facilities and services and support individuals, families and groups to meet their social needs, maximise their potential and enhance community wellbeing'. The Victorian Planning Authority (2018) notes 'community infrastructure facilities can be provided by government, not-for-profit organisations and the private sector'. Within this report, the following community infrastructure facilities have been included: education and child care facilities, aged care, health centres and services, disability services, justice and emergency services, libraries, youth and community spaces, religious facilities, indoor and outdoor sport and recreation, and passive open space such as parks and gardens.
Community severance	Community severance refers to reduced access to local amenities and disruption of local social networks caused by a physical barrier running through a community (eg road, rail line or other transport route).
Community values	Community values, or a sense of community, are generally accepted to be the social ties established within a community, in part based around the features and qualities of the built environment that encourage these social ties and contribute to quality of life and wellbeing (Maller & Nicholls, 2014; Paranagamage, Austin, Price, & Khandokar, 2010).
Connectivity	People have the ability to move through their community and access a range of places in and outside their community safely and conveniently (Paranagamage *et al.,* 2010).
Cultural heritage	Indigenous and non-Indigenous items and areas (commonly referred to as places) that are a significant indicator of historical and cultural events and practices.
Demography	The range of different groups existing in a particular populace, as distinguished by factors such as age, ethnicity and social background.
Department of Transport	The Victorian Department of Transport is responsible for delivering the government's transport infrastructure agenda. It was formed on 1 January 2019 when the former Victorian Department of Economic Development, Jobs, Transport and Resources transitioned into the Department of Transport and the Department of Jobs, Precincts and Regions.

Term	Definition
Full-time equivalent	A ratio of the total number of paid hours during a fixed time period by the number of hours worked in that period.
Household	One or more persons usually resident in the same dwelling (ABS, 2016b)
Index of Relative Socio-Economic Advantage and Disadvantage	Socio-economic advantage and disadvantage are defined broadly by the Index of Relative Socio-Economic Disadvantage (IRSD) in terms of people's access to material and social resources and their ability to participate in society (ABS, 2018c). In order to capture this broad definition, the IRSD includes a range of data points, including income, education, employment, occupation, and housing. The IRSD divides a population into ten equal groups. The lowest scoring 10 per cent of these groups are given a decile number of 1, which indicates the highest level of disadvantage, and the highest scoring 10 per cent of areas are given a decile of 10, which indicates the lowest level of disadvantage.
Local catchment (open space)	Users are located within a short and safe walking distance, generally in the range of 150 m to 300 m, depending on the presence of barriers (Parks and Leisure Australia, 2013)
Local study area	Includes the local government areas (municipalities) and suburbs intersected by the project as illustrated in Figure 5-2. These areas would be directly and indirectly affected by the project activities especially during construction and would experience both positive and negative effects of the project.
Major Transport Infrastructure Authority	The Major Transport Infrastructure Authority is the proponent for North East Link. The MTIA is an administrative office within the Victorian Department of Transport with responsibility for overseeing major transport projects.
Neighbourhood	In the context of this SIA, neighbourhood means an area that is considered to be within a comfortable walking distance (approximately 500 m) from a person's place of residence or work. What is defined as a neighbourhood would be subjective to each individual.
Neighbourhood catchment (open space)	Users are generally within a walking distance of 400 metres (Parks and Leisure Australia, 2013).
North East Link Project	North East Link Project is an organisation within MTIA that is responsible for developing and delivering North East Link. NELP was formerly known as the North East Link Authority prior to 1 January 2019. NELP is responsible for developing the reference project and coordinating development of the technical reports, engaging and informing stakeholders and the wider community, obtaining key planning and environmental approvals and coordinating procurement for construction and operation.
Project boundary	The project boundary includes the area directly under the project's construction and operation footprint, as illustrated in Figure 5-2.
Project footprint	The area of land covered by the project.
Qualitative	Relating to or concerned with quality or qualities, rather than quantity or measured value.
Quantitative	An assessment based on quantifiable, measured data.
Regional study area	Includes the Melbourne metropolitan region in particular the Inner Metro Region, Inner South East Region, Northern Region, and Eastern Region as identified in Plan Melbourne.
Reserve	Land reserved for community or public purposes.
Resident	In the context of this SIA, resident refers to people living in the area.

Term	Definition
SA1 – Statistical Area 1	The ABS notes the following in regards to the construction of SA1s: 'The SA1s have generally been designed as the smallest unit for the release of census data. SA1s have a population of between 200 and 800 people with an average population size of approximately 400 people. SA1s are designed to be either a predominantly rural or predominantly urban in character, with SA1s in rural and remote areas generally having a lower population than in urban areas. SA1s are designed to be internally connected by road, except for groups of unpopulated islands and Aboriginal and Torres Strait Islander communities, which may not be contiguous. SA1s closely bound small rural towns. In urban areas, SA1s have been design to contain or aggregate to whole gazetted suburbs. SA1s may be aggregated to reflect Local Government Areas, but will not exactly match (ABS, 2016a)'.
Stakeholder	Person or group affected by or concerned with an issue.
Sub-district catchment	Users are generally within three neighbourhoods (Parks and Leisure Australia, 2013).
Vulnerable group	The inability of people to withstand or adapt to change due to characteristics of the group they are a part of. This report considers the following groups: socio-economically disadvantaged persons as identified by the Index of Relative Socio-Economic Advantage and Disadvantage (ISRAD), the elderly and very young, culturally and linguistically diverse (CALD) people, people who need assistance with core activities such as self-care, movement and communication due to a severe or profound disability.

1. Introduction

1.1 Purpose of this report

North East Link ('the project') is a proposed new freeway standard road connection that would complete the missing link in Melbourne's ring road, giving the city a fully completed orbital connection for the first time. North East Link would connect the M80 Ring Road (otherwise known as the Metropolitan Ring Road) to the Eastern Freeway, and include works along the Eastern Freeway from near Hoddle Street to Springvale Road.

The Major Transport Infrastructure Authority (MTIA) is the proponent for North East Link. The MTIA is an administrative office within the Victorian Department of Transport with responsibility for overseeing major transport projects.

North East Link Project (NELP) is an organisation within MTIA that is responsible for developing and delivering North East Link. NELP is responsible for developing the reference project and coordinating development of the technical reports, engaging and informing stakeholders and the wider community, obtaining key planning and environmental approvals and coordinating procurement for construction and operation.

On 2 February 2018, the Minister declared the works proposed for North East Link as Public Works and issued a decision confirming that an Environment Effects Statement (EES) is required for the project due to the potential for significant environmental effects.

Similarly, the project was referred to the Australian Government's Department of the Environment and Energy on 17 January 2018. On 13 April 2018 the project was declared a 'controlled action', requiring assessment and approval under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Separate to this EES, a Public Environment Report (PER) is required to be prepared to satisfy the EPBC Act requirements, and assess the impacts of the project on Commonwealth land and matters of national environmental significance (MNES).

The purpose of this report is to assess the potential social impacts associated with North East Link and to define the Environmental Performance Requirements (EPRs) necessary to meet the EES objectives.

1.2 Why understanding social impact is important

People and communities are at the heart of every infrastructure development. The features and qualities of the environment influence the way that people use areas. These include the amenity and character of an area, level of community cohesion, and access and connectivity to places. The construction and operation of North East Link has the potential to affect land use and change these features and qualities. This may lead to implications on the social fabric of the community with regard to wellbeing, community cohesion, business functionality and access to goods, services and facilities.

This social impact assessment (SIA) seeks to understand the positive and negative social changes brought about by North East Link, and ways to enhance the positive impacts and avoid, minimise or manage the negative impacts to people and communities that may occur due to these changes.

2. EES scoping requirements

2.1 EES evaluation objectives

The scoping requirements for the EES, issued by the Minister for Planning, set out the specific environmental matters to be investigated and documented in the project's EES, which informs the scope of the EES technical studies. The scoping requirements include a set of evaluation objectives. These objectives identify the desired outcomes to be achieved in managing the potential impacts of constructing and operating the project.

The following evaluation objective is relevant to the SIA:

- To manage effects of the project on land use and the social fabric of the community with regard to wellbeing, community cohesion, business functionality and access to goods, services and facilities.

2.2 EES scoping requirements

The aspects from the EES scoping requirements relevant to this social impact assessment evaluation objectives are shown in Table 2-1 as well as the location where these items have been addressed in this report.

Table 2-1 Scoping requirements relevant to social impact assessment

Aspect	Scoping requirement	Section addressed
Key issues	Maintenance of community linkages and social cohesion within both the immediate neighbourhood of proposed works and the broader area that may be affected by the project.	Impact assessment – construction: Section 9 Impact assessment – operation: Section 10
	Changed accessibility for residents, including to jobs and community goods, services or facilities due to construction or operation of the project.	Access and connectivity – construction: Section 9.4 Access and connectivity – operation: Section 10.3
	Acquisitions of private property and temporary disruption or displacement of existing land use activities and infrastructure for project purposes.	Land acquisition and relocation – construction: Section 9.2 Land acquisition and relocation – operation: Section 10.1 Technical report F – Business Technical report E – Land use planning
Priorities for characterising the existing environment	Describe communities that may be affected by the project and characterise the relevant community values. The description should address both physical components, such as community service facilities and public spaces used by community members, and intangible elements such as social cohesion and values shared by particular groups, to the extent relevant to the project.	Existing conditions: Section 6

Aspect	Scoping requirement	Section addressed
	Describe the land that may be required permanently or temporarily for the delivery of the project, including its current uses and sensitivities.	Land acquisition and relocation – construction: Section 9.2 Land acquisitions and relocation – operation: Section 10.1 Appendix E (per facility). Technical report F – Business Technical report E – Land use planning.
	Describe the relevant infrastructure, networks and other elements that provide for connectivity within and between communities, to the extent that such features may be disrupted or additionally loaded due to project works or activities.	Existing conditions: Section 6 Access and connectivity – construction: Section 9.4 Access and connectivity – operation: Section 10.3
	Describe the relevant social and land use policies, strategies and plans in the vicinity of the project.	Legislation policy and guidelines: Section 4 and Appendix A Technical report E – Land use planning.
Design and mitigation measures	Describe measures to maintain or enhance community linkages or replace linkages that may be disrupted by the project.	Access and connectivity – construction: Section 9.4 Access and connectivity – operation: Section 10.3
	Describe measures to minimise the temporary or permanent acquisition of land and, where access is required, the processes to be applied to gain access to land, including the approach to compensation and managing adverse effects for land owners.	Land acquisition and relocation – construction: Section 9.2 Community infrastructure facility users: Section 9.5 Technical report F – Business, Technical report E – Land use planning.
	Describe the approach to be taken to enable or assist businesses that may be temporarily or permanently adversely affected by the project to maintain business continuity.	Technical report F – Business.
Assessment of likely effects	Analyse the residual effects on communities, categorising the severity of residual effects.	Risk assessment: Section 7 Sections 8 to 11
	Analyse indirect temporary and permanent effects that might result from the project (eg on catchments for community facilities).	Sections 8 to 11
	Describe any benefits for social cohesion, business, land use, or infrastructure from the project.	Operation impacts: Section 8.3 Impact assessment – operation: Section 10 Technical report F – Business Technical report E – Land use planning
Approach to manage performance	Describe the environmental performance requirements to set social, business, land use and infrastructure outcomes that the project must achieve.	Environmental performance requirements: Section 13

2.3 Linkages to other reports

This report relies on or informs the technical assessments as indicated in Table 2-2 below.

Table 2-2 Linkages to other technical reports

Specialist Report	Relevance to social impact assessment
Technical report A – Traffic and transport	Provides an assessment of the project's effects on the transport network within the report study area. Information related to changes to local and regional access and connectivity as a result of the project have informed the preparation of the existing conditions section of this report, and impact assessment on community access and connectivity, and community infrastructure facilities.
Technical report B – Air quality	Provides an assessment of the project's effects on local air quality within the report study area. Findings from the report have informed the impact assessment on amenity and character, and community infrastructure facilities.
Technical report C – Surface noise and vibration	Provides an assessment of the project's potential noise and vibration impacts on sensitive receptors within the report study area. Findings from the report have informed the impact assessment on amenity and character, and community infrastructure facilities.
Technical report D – Tunnel vibration	Provides an assessment of the project's potential vibration impacts specifically related to tunnelling activities during construction only. Findings from the report have informed the impact assessment on amenity and character, and community infrastructure facilities.
Technical report E – Land use planning	Provides an assessment of the projects effects on land uses within the study area, including an understanding of changes to residential, commercial, industrial, open space and community land use. Findings from the report have informed the existing conditions section of this report, and the impact assessment on land and relocation and acquisition impacts, amenity and character, access and connectivity, and community infrastructure facilities.
Technical report F – Business	Provides an assessment of the project's effects on businesses within the report study area due to changes in access and full or partial property acquisition. Findings from the report have informed the impact assessment on relocation and acquisition impacts, and community infrastructure facilities.
Technical report H – Landscape and visual	Provides an assessment of the visual impact of the project's design sensitive receptors within the report study area. Findings from the report have informed the impact assessment on amenity and character, and community infrastructure facilities.
Technical report J – Human health	Provides an assessment of health and wellbeing impacts associated with the project. Findings from the report have informed the impact assessment on relocation and acquisition impacts, and amenity and character.
Attachment I – Sustainability approach	The sustainability approach describes how sustainability and climate change considerations will be incorporated into the planning, design and delivery phases of North East Link. The approach to sustainability has informed the impact assessment on local employment.
Attachment II – Urban Design Strategy	The Urban Design Strategy provides the design guidelines to inform the urban design project requirements and establishes the minimum quality expected in terms of performance outcomes and benchmarks for quality. The approach to urban design has informed the impact assessment on amenity and character, and access and connectivity and provides guidance for mitigating potential impacts on amenity and character.

3. Project description

3.1 Overview

The North East Link alignment and its key elements assessed in the Environment Effects Statement (EES) include:

- **M80 Ring Road to the northern portal** – from the M80 Ring Road at Plenty Road, and the Greensborough Bypass at Plenty River Drive, North East Link would extend to the northern portal near Blamey Road utilising a mixture of above, below and at surface road sections. This would include new road interchanges at the M80 Ring Road and Grimshaw Street.
- **Northern portal to southern portal** – from the northern portal the road would transition into twin tunnels that would connect to Lower Plenty Road via a new interchange, before travelling under residential areas, Banyule Flats and the Yarra River to a new interchange at Manningham Road. The tunnels would then continue to the southern portal located south of the Veneto Club.
- **Eastern Freeway** – from around Hoddle Street in the west through to Springvale Road in the east, modifications to the Eastern Freeway would include widening to accommodate future traffic volumes and new dedicated bus lanes for the Doncaster Busway.
  There would also be of a new interchange at Bulleen Road to connect North East Link to the Eastern Freeway.
- These elements are illustrated in Figure 3-1.

The project would also improve existing bus services from Doncaster Road to Hoddle Street through the Doncaster Busway and pedestrian connections and the bicycle network with connected shared use paths from the M80 Ring Road to the Eastern Freeway.

For a detailed description of the project, refer to EES Chapter 8 – Project description.

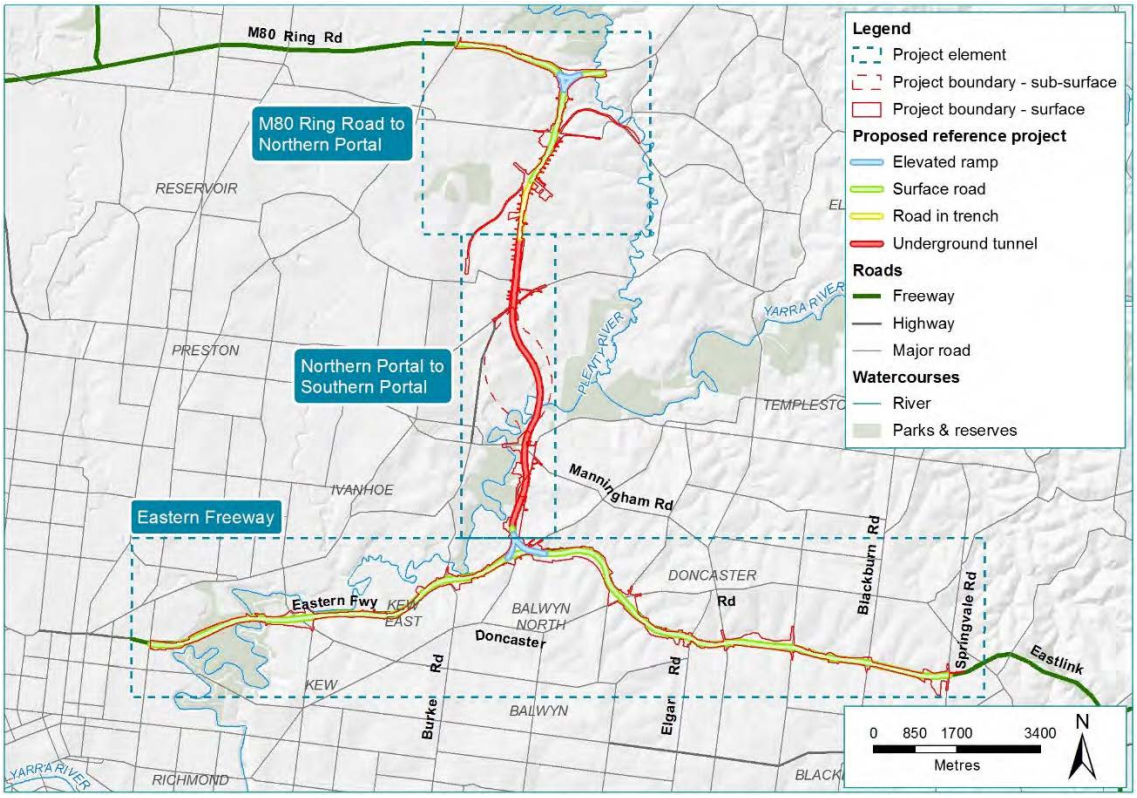


Figure 3-1 Overview of North East Link

3.2 Construction

Key construction activities for North East Link would include:

- General earthworks including topsoil removal, clearing and grubbing vegetation
- Relocation, adjustment or installation of new utility services
- Construction of retaining walls and diaphragm walls including piling
- Ground treatment to stabilise soils
- Tunnel portal and dive shaft construction
- Storage and removal of spoil
- Construction of cross passages, ventilation structures and access shafts
- Installation of drainage and water quality treatment facilities
- Installation of a Freeway Management System
- Tunnel construction using tunnel boring machines (TBMs), mining and cut and cover techniques
- Installation of noise barriers
- Restoration of surface areas.

3.3 Operation

Following construction of North East Link, the key operation phase activities would include:

- Operation and maintenance of new road infrastructure
- Operation and maintenance of Freeway Management System
- Operation of North East Link motorway control centre
- Operation and maintenance of the tunnel ventilation system
- Operation and maintenance of water treatment facilities
- Operation and maintenance of the motorways power supply (substations)
- Maintenance of landscaping and Water Sensitive Urban Design (WSUD) features.

3.4 Activities and design considerations relevant to social impact assessment

Consideration of social and environmental risks have been a key element contributing to the project design. Key social and environmental commitments reflected in the design to minimise land use impacts include:

- The tunnel design minimises impacts to open space, residential land use and community infrastructure facilities by reducing the requirement for above ground infrastructure. This approach assists in reducing permanent land acquisition and temporary occupation of land for the project.
- Design and construction of the project makes use of existing road corridors where possible, minimising requirement for land acquisition and therefore the social impacts associated with land acquisition.
- The project also presents potential to provide social benefits or opportunities as outlined in the North East Link Business Case (North East Link Authority, 2018). These include:
  - Congestion relief across the road network, fewer trucks on arterial roads, and improved travel times on key routes and between activity centres
  - Opportunities to enhance open space and community infrastructure facilities in consultation with relevant stakeholders and in accordance with Attachment I – Sustainability attachment and generally in accordance with Attachment II – Urban Design Strategy
  - Enhanced connectivity through improvements to shared path networks, including improved shared user paths and land bridges.
  - Legislation, policy and guidelines

4. Legislation

Numerous legislative, policy and guidance documents were found to be relevant to this social impact assessment and are discussed further in this report. The key legislation, policy and guidelines that apply to the social impact assessment for the project are summarised in Table 4-1. Further detail is provided in Section 4.1 and Section 4.2.

Table 4-1 Commonwealth legislation

Legislation	Description
Disability Discrimination Act 1992	• The Disability Discrimination Act provides legal protection for everyone in Australia against discrimination based on disability. The relevant objectives for this assessment are: a) to eliminate, as far as possible, discrimination against persons on the ground of disability in the areas of: i work, accommodation, education, access to premises, clubs and sport; and ii the provision of goods, facilities, services and land; and iii existing laws; and iv the administration of Commonwealth laws and programs; and b) to ensure, as far as practicable, that persons with disabilities have the same rights to equality before the law as the rest of the community; and c) to promote recognition and acceptance within the community of the principle that persons with disabilities have the same fundamental rights as the rest of the community. The most relevant sections for this assessment: • Section 23: Access to premises • Section 24: Goods, services and facilities • Section 26: Land. • This social impact assessment has considered the potential for the project to impact on people with disabilities pedestrian mobility and access to services due to changes in connectivity.
Environment Protection and Biodiversity Conservation Act 1999 ('EPBC Act')	• The EPBC Act provides for the protection of defined Matters of National Environmental Significance (MNES) including World Heritage Properties, National Heritage Places, Ramsar wetlands, nationally listed threatened species and ecological communities and listed migratory species. • In January 2018, the project was referred to the Commonwealth Department of the Environment and Energy. On 13 April 2018, a delegate of the Minister for Environment and Energy decided that construction of North East Link is a controlled action under the EPBC Act.

Table 4-2 State legislation

Legislation	Description
Planning and Environment Act 1987	• The Planning and Environment Act sets out the key planning environmental objectives for Victoria. The relevant objectives for this assessment are: (1)(c) To secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria (1)(e) To protect public utilities and other assets and enable the orderly provision and coordination of public utilities and other facilities for the benefit of the community (2)(d) To ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land (2)(i) to ensure that those affected by proposals for the use, development or protection of land or changes in planning policy or requirements receive appropriate notice. • In line with the Planning and Environment Act, this social impact assessment considers the potential for the project to impact on a range of characteristics in the environment that may have social implications. Specifically, this social impact assessment has considered amenity of and connectivity, mobility and access to residences, employment, services and recreation as key community values which have the potential to change, both positively and negatively, as a result of the project.
Environment Effects Act 1978	• The Environment Effects Act requires an assessment of proposed projects (works) that are capable of having a significant effect on the environment. Under the Act, an Environment Effects Statement must be prepared and submitted to the Minister for the Minister's assessment of the environmental effects of the works. This social impact assessment was prepared to address the EES scoping requirements as detailed in Section 2.2.
Transport Integration Act 2010 (Transport Integration Act)	• The Transport Integration Act provides a key legislative context for the assessment of transport projects. The Transport Integration Act lists a range of themes and uses relevant to transport. Section 11 outlines the principles for the integration of transport and land use including: • The transport system should provide for the efficient integration of transport and land uses and facilitate access to social and economic opportunities • Transport and land use should be effectively integrated so as to improve accessibility and transport efficiency with a focus on: (2)(a) Maximising access to residences, employment, markets, services and recreation (2)(d) Facilitating better access to, and greater mobility within, local communities. • This social impact assessment has considered connectivity, mobility and access to and from residences, employment, services and recreation as key community values which have the potential to change, both positively and negatively, as a result of the project.

4.1 Policy

Table 4-3 summarises Victorian Government plans and policies relevant to this social impact assessment.

Table 4-3 State and Melbourne plans and policies

Policy document	Relevance
Planning Policy Framework	• The Planning Policy Framework provides a framework for integrated policy decision making with regards to how land is used and developed across the state. This framework is consistent across the state and is contained with the local municipal planning scheme. The most relevant sections for this assessment are: **Section 11 Settlement:** – Planning is to anticipate and respond to the needs of existing and future communities through provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities and infrastructure. **Section 15 Built environment and heritage:** – Planning must support the establishment and maintenance of communities by delivering functional, accessible, safe and diverse physical and social environments, through the appropriate location of use and development and through high quality buildings and urban design. **Section 19 Infrastructure:** – Planning for development of social and physical infrastructure should enable it to be provided in a way that is efficient, equitable, accessible and timely. – Planning is to recognise social needs by providing land for a range of accessible community resources, such as education, cultural, health and community support (mental health, aged care, disability, youth and family services) facilities.
Plan Melbourne	Plan Melbourne provides a long-term plan that responds to the state-wide, regional and local opportunities Victoria will face between now and 2050. The plan is the key strategy for supporting jobs, housing and transport in greater Melbourne through effectively integrating long-term land use, infrastructure and transport planning. This social impact assessment has drawn on Plan Melbourne to identify regionally relevant land use and infrastructure and the potential for regional impacts.

Table 4-4 summarises the community strategic plans for each local government area as relevant to this social impact assessment. A full review of other local government plans and policies, such as transport, open space and recreation strategies is provided in Appendix A.

Table 4-4 Local plans and policies

Policy document	Relevance
Nillumbik Shire Council Plan 2017-2021	• The Council Plan outlines the priorities for the Nillumbik Shire over the next four years. The goals of the plan include engaged, connected communities and active, creative people living in safe and healthy environments. A strong focus of the plan is protecting the lifestyle and amenity of the Shire, which is informally named the Green Wedge Shire, including its reserves, natural bushland and farming land while developing the Shire's economy.
Banyule City Council Plan 2017-2021 (Year 2)	• The Council Plan provides the strategic objectives, strategies and indicators to achieve the vision for a green, sustainable and vibrant place for a healthy, connected and inclusive community. • Banyule has 466 hectares of Council-owned open space as well as parkland managed by Parks Victoria. There are sport and recreation facilities including indoor aquatics and fitness centres. There are also sites of ecological and heritage significance, including Aboriginal archaeological sites. These features provide recreational, environmental and tourism opportunities for the region. • Cycling and walking through Banyule are popular due to bicycle and pedestrian trails throughout the municipality, particularly along the Yarra and Plenty Rivers and the Darebin Creek. • The municipality is primarily a residential area and retaining the character of individual neighbourhoods is important to the local community. • Banyule has a number of commercial centres including Greensborough, Heidelberg and Ivanhoe. There are significant industrial areas in Heidelberg West, Greensborough, Briar Hill and Bundoora. Banyule's main industries are health care, retail, education, construction and manufacturing. • Banyule's population is expected to increase and age over the next decade, with the greatest growth occurring in the 75 years and over age group. • To support a connected, inclusive and involved community, the Council Plan identifies the following focus areas: – Ensure council facilities, activities and services are accessible, inclusive and provide equity – Deliver integrated transport solutions – Provide shared trails that help to link key public open spaces and community infrastructure facilities – Encourage walking, cycling and public transport use.
Manningham City Council Council Plan 2017-2021	• The vision of the Manningham Council Plan for a liveable and harmonious city, including a healthy, resilient and safe community, a connected and inclusive community, inviting places and spaces, enhanced parks, open space and streetscapes, and growth of local business, tourism and economy. • Goals include a well-connected, safe and accessible travel, such as well-planned and maintained roads and transport infrastructure, and easier travel to and within Manningham and the wider metropolitan area. • Improved transport investment into the local road network would contribute to a vibrant and prosperous economy.

Policy document	Relevance
Boroondara City Council Council Plan 2017-21	• The vision of the Boroondara Council Plan is a vibrant and inclusive city, meeting the needs and aspirations of its community. • Strategic objectives include: – Community services and facilities are high quality, inclusive and meet a variety of needs now and into the future. This includes facilitating opportunities to increase connections within the community, with a focus on local neighbourhoods and creating public areas, facilities, amenities, footpaths and spaces that are inviting, clean and appropriately lit to increase social connection and improve perceptions of safety. – Encourage the planning of well-designed new development that is appropriately located, and does not negatively impact on established residential streets and valued neighbourhood character. – Travel options that are connected, safe, accessible, environmentally sustainable and well-designed. This includes improving road safety for pedestrians, drivers and cyclists through infrastructure improvements, education and traffic management initiatives; addressing road congestion through an integrated approach that better manages traffic and promotes public transport, walking and cycling initiatives; and plan for better access and transport strategies to assist people with limited mobility, including those with disabilities and older adults, to travel in Boroondara to increase their participation in community life.
Whitehorse City Council Council Plan 2017-2021 Year Two	• The vision for Whitehorse is a healthy, vibrant, prosperous and sustainable community supported by strong leadership and community partnerships. • Population forecasts predict that in the next 10 years the biggest growth will occur among the 25–34 year old age group. Whitehorse's population is also ageing with more than 22% of people over the age of 60. • Whitehorse is characterised by quiet, tree lined residential streets. The LGA contains 53 sports fields, 177 playgrounds and 690 hectares of open space, including quality bushland reserves, parks, formal gardens, recreation reserves and trails, combined with tree lined residential streetscapes to form a pleasant urban environment. • Goals of the plan include: – Development which respects our natural and built environments and neighbourhood character while achieving a balanced approach to growth in accordance with relevant legislation. – Advocate for enhanced transport accessibility and improved transport routes and modes (including active transport). – Provide and maintain an infrastructure network that meets the needs of development growth while supporting residents, businesses and visitors in their daily activities.
Yarra City Council Council Plan 2017-2021	• The plan represents the Council's vision for the City of Yarra based on extensive community consultation. • At a high level, the top issues identified by the community for Yarra include sustainable transport, drugs and alcohol, community safety, open space, growth and change, and social connectedness. The six neighbourhood characteristics that are important to Yarra residents include proximity to public transport, plentiful parks and open spaces, variety of shops, cafes and restaurants, ability to walk or cycle to meet daily needs, character of the buildings, access to health and social services.

Policy document	Relevance
Whittlesea City Council Council Plan 2017-21	• The vision for Whittlesea is to create vibrant self-sustaining communities together. Council goals include: – People can access and use our public transport and road networks effectively in accessing jobs, services and recreation activities – We build a healthy and sustainable community that has a sense of wellbeing, inclusion and belonging – Our neighbourhoods and towns are safe and have proactive programs that support and build a safe community – We grow our economy by attracting jobs and investment – Council will ensure sustainable, timely and quality development of our municipality while improving the range of recreational opportunities for residents and visitors.

4.2 Social impact assessment guidelines and standards

The process for this social impact assessment was guided by international social impact assessment principles and methods as described by Vanclay *et. al.* (2015), and endorsed by the International Association for Impact Assessment (IAIA) and by other industry standards such as the Social Impact Assessment Position Statement by the Planning Institute of Australia (2010) and *Environmental Impact Assessment Practice Note – Socio-economic assessment*, New South Wales Roads and Maritime Services (2013). The relevance of these guidelines and standards is summarised in Table 4-5.

Table 4-5 Relevant social impact assessment guidelines and standards

Policy document	Relevance
Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects (Vanclay et al, 2015)	The IAIA defines social impact assessment as the process of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment. These guidelines provide a framework for the preparation of social impact assessments.
Planning Institute of Australia Social Impact Assessment Position Statement (PIA, 2010)	The Planning Institute of Australia position on social impact assessment states that: • Impact assessment is an important part of planning and decision making processes. • Proposals for change which require an environmental or economic impact assessment also require a social impact assessment. • Social impact assessment of policies or plans should be sufficiently robust to anticipate the impact of proposals made under the plan and minimise the need for further assessment. • Without limiting the matters in regard to which a social impact assessment may be appropriately required, proposals for a significant change of land use, including new highways, should be fully assessed for their social impacts in a social impact assessment. • Social impact assessment should be undertaken by appropriately trained and qualified personnel using rigorous social science methodologies and with a high degree of public involvement. • A social impact assessment should be a public document.

5. Method

5.1 Overview of method

This section describes the method that was used to assess the potential impacts of North East Link. A risk-based approach was applied to prioritise the key issues for assessment and inform measures to avoid, minimise and offset potential effects. Figure 5-1 shows an overview of the assessment method.

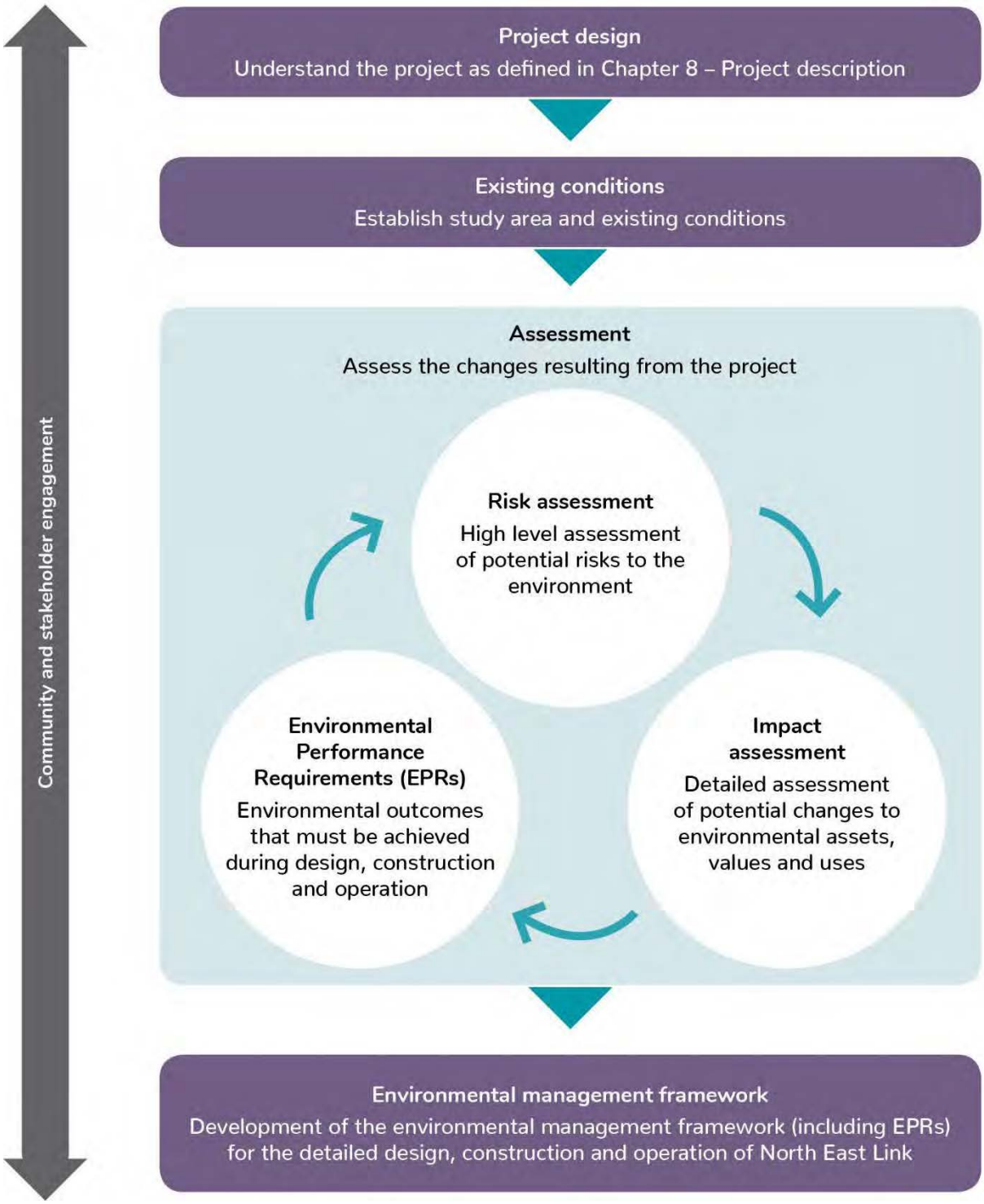


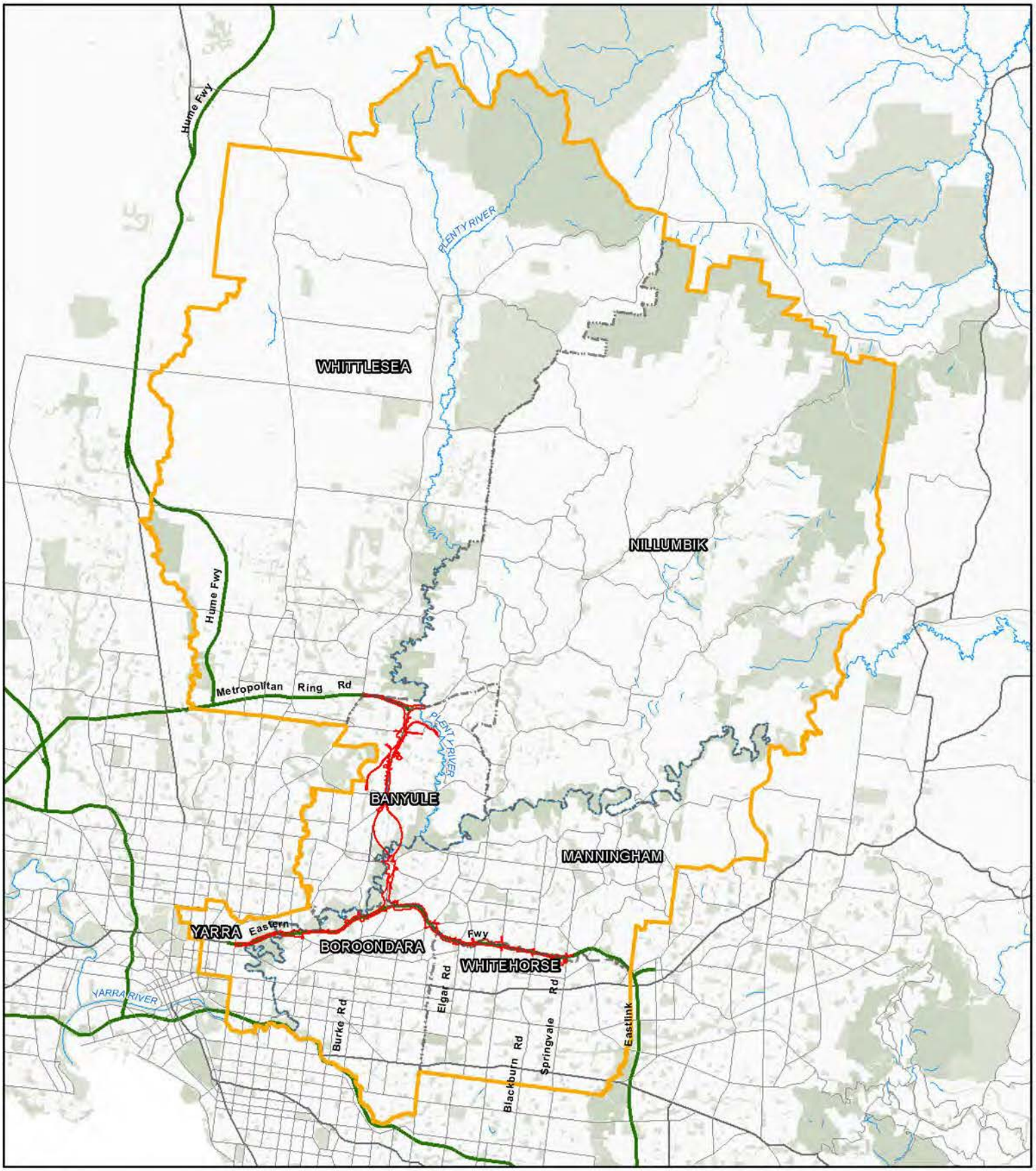
Figure 5-1 Overview of assessment method

The following sections outline the methodology adopted for this social impact assessment.

5.2 Study area

Identifying the social area of influence of a development is a primary step in preparing the social impact assessment. The socio-economic impacts and benefits of large infrastructure developments are experienced beyond the immediate surroundings of the development. For this reason, the social study area includes regional and local study area that aligns within the influence of planning and administrative boundaries:

- The regional study area includes the Melbourne metropolitan region in particular the Inner Metro Region, Inner South East Region, Northern Region, and Eastern Region as identified in Plan Melbourne. This area has been considered as the wider area of social influence that would experience the positive and negative effects of the project.
- The local study area, includes the local government areas and suburbs intersected by the project as illustrated in Figure 5-2. These areas would be directly and indirectly affected by the project activities especially during construction and would experience positive and negative effects of the project. Within the local study area, community infrastructure facilities within 100 metres on either side of the alignment were also identified as they would likely be most impacted by the project activities. Some community infrastructure facilities beyond this area were included where appropriate. For example, a number of schools beyond the 100-metre buffer were identified, based on whether their catchment would be intercepted by the project. Section 5.3 provides more detail on the types of community infrastructure identified within this social impact assessment.
- The project boundary includes the area directly under the project's construction and operation footprint as shown in Figure 5-2.



Legend

Local study area | LGA boundary | Freeway | Major road
Project boundary | Open space | Highway

Paper Size A4

0 1 2 3 4 5

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

North East Link Project

Job Number 31-35006
Revision H
Date 06 Feb 2019

Social Impact Assessment
Local Study Area Overview Figure 5-2

Data source: Data sources: Basemap - CARTO - 2018 | LGA, Rail - Vicmap - 2018 | Open space - VPA - 2018. Created by:xlee

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\\ghdnet\ghd\AU\Melbourne\Projects\31\35006\GIS\Maps\Working\Specialist Submission\EES\Social\Social_Impact\3135006_SocialImpactAssessment_LocalStudyArea_Overview_A4P_Rev1.mxd

5.3 Existing conditions

The existing conditions assessment was used to establish a baseline of the social study area particularly the local study area and provide a profile of the current social environment. Understanding demographic characteristics, community values and community infrastructure was the focus of the existing conditions assessment.

Demographic characteristics

To provide the social context of the study area, the relevant demographic characteristics of the community within the local government area and the suburbs intersected by the project have been identified. It broadly includes information on population, mobility, income and information on relative socio-economic advantage and disadvantage within communities (SEIFA) (see further discussion under Vulnerable communities, below). Data was sourced from the Australian Bureau of Statistics (ABS) 2016 Census data and other data sources, including profile.id, forecast.id, and Community Wellbeing Indicators Victoria.

Community values

Community values, or a sense of community, are generally accepted to be the social ties established within a community, in part based around the features and qualities of the built environment that encourage these social ties and contribute to quality of life and wellbeing (Maller & Nicholls, 2014; Paranagamage et al., 2010). Features that contribute to community values include tangible (physical) elements such as parks, buildings, and landscape, and intangible (social) elements such as sense of belonging and community diversity. Social infrastructure such as churches, schools, public places and community centres is also highly valued in local communities, as are demographic characteristics and local features (Roads and Maritime, 2015). An understanding of community values for each local government area has been established through a review of the following indicators and supported by the findings from desktop research and stakeholder consultation:

- **Amenity and character** – the noise, air quality, and visual amenity of the area provide for the enjoyment of residents and create a recognisable and distinctive character (Wood et al., 2008).
- **Community cohesion** – Social or community cohesion generally refers to the complex set of social characteristics that contribute to how well society functions, including people's trust in their fellow community members, their sense of belonging in the community and their willingness to help each other (Reeve et al., 2016). While community cohesion is an outcome of the interaction of many social characteristics, the following facets have been considered in this social impact assessment:
  - The presence of social order (such as lack of crime and conflict)
  - Feelings of safety and trust in the community
  - Equitable economic and social development (such as lack of disparities in socio-economic conditions and appropriate services for those who are socio-economically disadvantaged)
  - Social networks and social capital (such as social interactions within the community and civic engagement) (Forrest & Kearns, 2001).

- **Connectivity** – people have the ability to move through their community and access a range of places in and outside their community safely and conveniently (Paranagamage et al., 2010). Community severance will also be considered under connectivity. Community severance refers to reduced access to local amenities and disruption of local social networks caused by a physical barrier running through a community (that is, a road or other transport route). Community severance may also be caused by significant increases in traffic flow on a road that was not originally regarded as a barrier (Road and Maritime, 2015).
- **Public spaces and facilities** –people have access to spaces to live, work, be entertained and provide essential facilities (Maller & Nicholls, 2014; Paranagamage et al., 2010; Wood et al., 2008). These spaces provide opportunities for meeting and interacting with other people and provide a place to develop and maintain relationships (Gehl, 2011; Paranagamage et al., 2010). Access to open space, particularly local or neighbourhood open space is also understood to increase people's sense of wellbeing (Sugiyama, Leslie, Giles-Corti, & Owen, 2008).

Community values were identified through a desktop review of:

- Australian Bureau of Statistics (ABS) 2016 Census data
- Other data sources including profile.id, forecast.id, ABS Socio-Economic Indexes for Areas (SEIFA), and Community Wellbeing Indicators Victoria
- Council policies, strategies and plans.

In addition, the following activities were undertaken:

- Site visit to observe location of key transport routes, and overall characteristics of the study area
- Stakeholder engagement activities to validate and elaborate the social baseline conditions.

Vulnerable communities

In line with international social impact assessment principles and methods as described by Vanclay F, *et. al.* (2015), this social impact assessment has also included an assessment of vulnerable groups that can be identified in the study area. Vulnerable groups are those groups in a society that have an inability to withstand or adapt to change due to characteristics of the group (Cinner et al., 2012).

These vulnerable populations have been determined at the local government area level and include:

- Socio-economic disadvantage as defined by ABS' Index of Relative Socio-Economic Disadvantage (IRSD), which indicates the level of relative socio-economic disadvantage in a specified area. Socio-economic advantage and disadvantage are defined broadly by the IRSD in terms of people's access to material and social resources and their ability to participate in society (ABS, 2018c). In order to capture this broad definition, the IRSD includes a range of data points, including income, education, employment, occupation, and housing. The IRSD divides a population into ten equal groups. The lowest scoring 10 per cent of these groups are given a decile number of 1, which indicates the highest level of disadvantage, and the highest scoring 10 per cent of areas are given a decile of 10, which indicates the lowest level of disadvantage. The groups used in this report are the ABS' Statistical Area 1 (SA1) for each local government area, which is the smallest

statistical area reported by the ABS[1].A similar index, the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) provides a broader understanding, where a low decile indicates relatively greater disadvantage and a lack of advantage (such as high incomes and skilled occupations), while a higher decile indicates a relative lack of disadvantage and greater advantage.

- Ageing populations, which present a well understood set of vulnerabilities, including lower mobility, higher medical needs, and social isolation as a result of a range of factors, including accessibility barriers in the urban environment (WHO, 2007).
- Children, who are recognised to be vulnerable to changes in the ambient noise environment (Markovich & Lucas, 2011). Further, it is also recognised that changes in the transport environment that lead to a reduced sense of safety has resulted in increased unwillingness of parents to allow children to play outside or to walk or cycle; in turn, this has the potential to reduce active lifestyle options for children (*ibid).*
- Culturally and linguistically diverse (CALD) groups, people from CALD backgrounds have a greater chance of being socially isolated, especially as they age (Federation of Ethnic Communities' Council of Australia, n.d.). People from CALD backgrounds may also face language barriers and difficulty understanding access changes.
- People who require assistance with daily tasks are vulnerable to changes in the transport environment and may be more sensitive to changes in amenity. For example, they may be reliant on others for their general mobility, and may require emergency services at a higher rate than the general population. These have been identified based on the percentage of a population that stated they required assistance with daily activities in the 2016 Census at the SA1 level (ABS, 2018a). This method is influenced by the presence of aged care facilities in a SA1. It should be noted that the vulnerability of residents in aged care facilities to particular changes invoked by the project are likely to vary, depending on the level of care offered, and are may be different to those who 'need assistance with core activities' living independently in the community.

An overview of these factors for each local government area, with any suburb specific distinctions have been described.

Community infrastructure

The location and type of community infrastructure facilities and services within the social local study area. As a general guide community infrastructure facilities within 100 metres on either side of the alignment were identified as they are likely to be directly and indirectly impacted by the project activities. Some community infrastructure facilities beyond this area were also included, where appropriate. For example, a number of schools beyond the 100-metre buffer were identified, based on whether their catchment would be intercepted by the project. Community infrastructure was identified through a review of GIS mapping, Google search and a site visit.

[1] The ABS notes the following in regards to the construction of SA1s: 'The SA1s have generally been designed as the smallest unit for the release of census data. SA1s have a population of between 200 and 800 people with an average population size of approximately 400 people. SA1s are designed to be either a predominantly rural or predominantly urban in character, with SA1s in rural and remote areas generally having a lower population than in urban areas. SA1s are designed to be internally connected by road, except for groups of unpopulated islands and Aboriginal and Torres Strait Islander communities, which may not be contiguous. SA1s closely bound small rural towns. In urban areas, SA1s have been design to contain or aggregate to whole gazetted suburbs. SA1s may be aggregated to reflect Local Government Areas, but will not exactly match (ABS, 2016a)'.

The Community Infrastructure Development Framework (City of Melbourne, 2014) defines community infrastructure facilities as 'spaces that accommodate community infrastructure facilities and services and support individuals, families and groups to meet their social needs, maximise their potential and enhance community wellbeing'. The Victorian Planning Authority (2018) notes 'community infrastructure facilities can be provided by government, not-for-profit organisations and the private sector'.

Based on the definition, the following community infrastructure facilities have been included in the baseline, education and child care facilities, aged care, health centres and services, disability services, justice and emergency services, libraries, religious facilities, youth and community spaces, indoor and outdoor sport and recreation, and passive open space such as parks and gardens.

5.4 Stakeholder consultation undertaken for the social impact assessment

Extensive stakeholder consultation activities were undertaken to inform the development of the social impact assessment, primarily to validate and elaborate on the social baseline conditions and potential issues that may be experienced during construction and operation of the project. Consultation activities that have informed the social impact assessment were undertaken between April and September 2018 and involved:

- Meetings with the six local councils within the local study area and key community groups, for example resident action groups and bicycle user groups local to the study area.
- Meetings and online surveys with a sample of managers and users of community infrastructure facilities located in proximity to the project. Managers representing 52 community infrastructure facilities and representatives from 28 users groups were consulted directly by the social impact assessment team. In addition to this, issues and concerns of other facilities managers and user groups were noted from the project wide engagement activities undertaken by NELP.
- Five workshops were held with residents in proximity to the project. The locations of the workshops were based on identification of residential areas in proximity to the project. This was further refined by identifying clusters across the entire alignment to allow for an appropriate cross-section of community representation. A total of 1,050 letters inviting residents from residential areas adjacent along the entire project boundary were delivered. All residents who responded were invited to attend the workshops. The workshops were attended by a total of 44 residents at Greensborough, Watsonia MacLeod, Balwyn North, Bulleen and Rosanna. Inputs from residents were also drawn from project-wide engagement activities undertaken by NELP which were attended by the social impact assessment technical team, they included NELP community workshops and NELP community drop-in sessions.
- Other consultation inputs included conversations with and review of consultation notes by the NELP stakeholder engagement team and land access team and discussions with other relevant EES technical specialists. As detailed in Section 5.9 and EES Attachment IV – Stakeholder consultation report a range of activities and avenues were made available to stakeholders and communities to provide feedback to the project.

Appendix C provides a list of all external stakeholder consulted for this social impact assessment and method of consultation. Section 5.9 outlines the broader engagement undertaken for the project, the outcomes of which have been incorporated into this social impact assessment.

5.5 Risk assessment

An environmental risk assessment has been completed to identify environmental risks associated with construction and operation of North East Link. The risk-based approach is shown in Figure 5-3 and is integral to the EES as required by Section 3.1 of the scoping requirements and the Ministerial guidelines for assessment of the environmental effects under the *Environment Effects Act 1978*.

Specifically the EES risk assessment aimed to:

- Systematically identify the interactions between project elements and activities and assets, values and uses
- Focus the impact assessment and enable differentiation of significant and high risks and impacts from lower risks and impacts
- Inform development of the reference project to avoid, mitigate and manage environmental impacts
- Inform development of EPRs that set the minimum outcomes necessary to avoid, mitigate or manage environmental impacts and reduce environmental risks during delivery of the project.

This section presents an overview of the EES risk assessment process. EES Attachment III Environmental risk report describes each step in the risk assessment process in more detail and contains a consolidated risk register.

This technical report describes the social risks associated with the project. Wherever risks relating to this study are referred to, the terminology 'risk SO01' is used. Wherever EPRs relating to this study are referred to, the terminology 'EPR SC01' is used. The risk assessment completed for this study is provided in Appendix D.

5.5.1 Risk assessment process

The risk assessment process adopted for North East Link is consistent with AS/NZS ISO 31000:2009 Risk Management Process. The following tasks were undertaken to identify, analyse and evaluate project risks:

- Use existing conditions and identify applicable legislation and policy to establish the context for the risk assessment
- Develop likelihood and consequence criteria and a risk matrix
- Consider construction and operational activities in the context of existing conditions to determine risk pathways
- Identify standard controls and requirements (Environmental Performance Requirements (EPRs)) to mitigate identified risks
- Assign likelihood and consequence ratings for each risk to determine risk ratings considering design, proposed activities and standard EPRs.

While there are clear steps in the risk process, it does not follow a linear progression and requires multiple iterations of risk ratings, pathways and EPRs as the technical assessments progress. Demonstrating this evolution, a set of initial and residual risk ratings and EPRs are produced for all technical reports. Figure 5-3 shows this process.

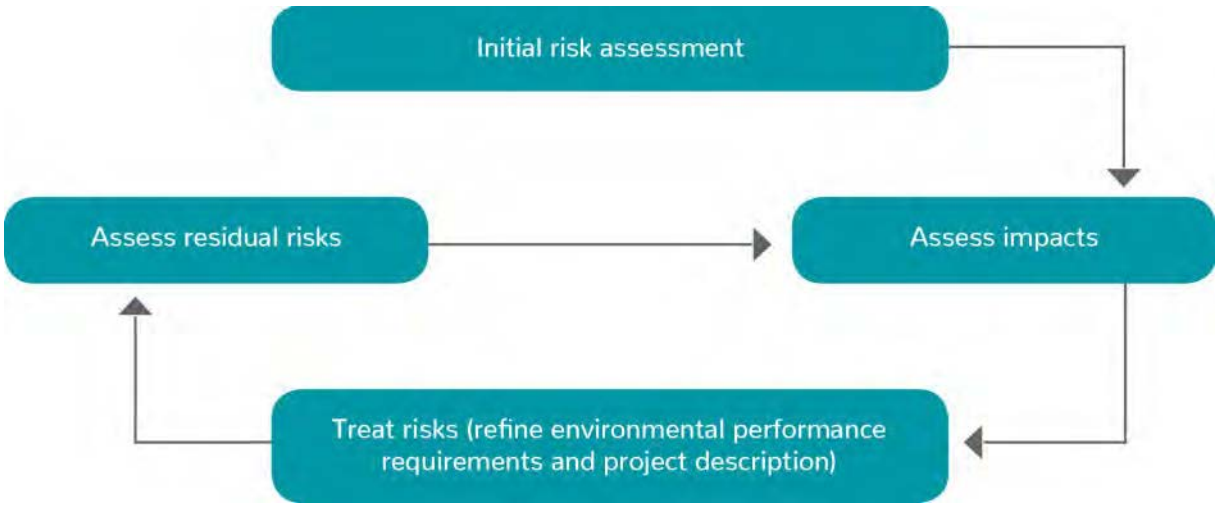


Figure 5-3 Risk-based approach

Rating risk

Risk ratings were assessed by considering the consequence and likelihood of an event occurring. In assessing the consequence, the extent, severity and duration of the risks were considered. These are discussed below.

Assigning the consequences of risks

'Consequence' refers to the maximum credible outcome of an event affecting an asset, value or use. Consequence criteria as presented in Chapter 4 – EES assessment framework, were developed for the North East Link EES to enable a consistent assessment of consequence across the range of potential environmental effects. Consequence criteria were assigned based on the maximum credible consequence of the risk pathway occurring. Where there was uncertainty or incomplete information, a conservative assessment was made on the basis of the maximum credible consequence.

Consequence criteria have been developed to consider the following characteristics:

- Extent of impact
- Severity of impact
- Duration of threat.

Severity has been assigned a greater weighting than extent and duration as this is considered the most important characteristic.

Each risk pathway was assigned a value for each of the three characteristics, which were added together to provide an overall consequence rating.

Further detail on the consequence criteria are provided in Chapter 4 – EES assessment framework.

Assigning the likelihood of risks

'Likelihood' refers to the chance of an event happening and the maximum credible consequence occurring from that event. The likelihood criteria are presented in Table 5-1.

Table 5-1 Likelihood of an event occurring

Planned	The event is certain to occur
Almost certain	The event is almost certain to occur one or more times a year
Likely	The event is likely to occur several times within a five-year timeframe
Possible	The event may occur once within five-year timeframe
Unlikely	The event may occur under unusual circumstances but is not expected (ie once within a 20-year timeframe)
Rare	The event is very unlikely to occur but may occur in exceptional circumstances (ie once in a 100-year timeframe)

Risk matrix and risk rating

Risk levels were assessed using the matrix presented in Table 5-2.

Table 5-2 Risk matrix

Likelihood	Consequence				
	Negligible	**Minor**	**Moderate**	**Major**	**Severe**
Rare	Very low	Very low	Low	Medium	Medium
Unlikely	Very low	Low	Low	Medium	High
Possible	Low	Low	Medium	High	High
Likely	Low	Medium	Medium	High	Very high
Almost certain	Low	Medium	High	Very high	Very high
Planned	Planned (negligible consequence)	Planned (minor consequence)	Planned (moderate consequence)	Planned (major consequence)	Planned (severe consequence)

Planned events

North East Link would result in some planned events, being events with outcomes that are certain to occur (ie planned impacts such as land acquisition), as distinct from risk events where the chance of the event occurring and its consequence is uncertain. Although planned events are not risks, these were still documented in the risk register as part of Attachment III – Risk report for completeness and assigned a consequence level in order to enable issues requiring further assessment or treatment to be prioritised.

These planned events were assessed further through the impact assessment process.

Risk evaluation and treatment

The risk assessment process was used as a screening tool to prioritise potential impacts and the subsequent level of assessment undertaken as part of the impact assessment. For example, an issue that was given a risk level of medium or above, or was identified as a planned event with a consequence of minor or above, would go through a more thorough impact assessment process than a low risk.

Where initial risk ratings were found to be 'medium' or higher, or were planned events with a consequence of 'minor' or higher, options for additional or modified EPRs or design changes were considered where practicable. It should be noted that the consequence ratings presented in the risk register are solely based on the consequence criteria presented in Attachment III – Risk report. Further analysis and evaluation of the impacts potentially arising from both risks and planned events and information on how these would be managed is provided in Section 9 and Section 10.

5.6 Impact description and assessment

This assessment has described and assessed social impacts of the project on residents[2], households[3], neighbourhoods[4] and the general community[5], and managers and users of community infrastructure facilities mainly within the vicinity of the project. The study particularly assesses the changes to the social environment brought about by project activities and its implications/impacts on the ability of residents and general community to go about their day-to-day life and the ability of community infrastructure facilities to continue to offer the function and services they do for their users.

This study has assessed the planned (known) and potential positive and negative social impacts the project may have on the social fabric of the community with regard to wellbeing, community cohesion, functionality and access to goods, services and facilities.

The impact description and assessment is carried out for the construction and operation phases of the project. The impacts are organised into four themes:

- Property acquisition and relocation – social implications of residential and commercial property acquisition and associated relocation. Social implications of residential relocation as a result of mitigating amenity impacts are also considered as part of this assessment.
- Amenity and character – identifies the social implications of noise, vibration, air quality, landscape and visual changes on people's day to day lifestyle, liveability of the area and their level of enjoyment of the natural and built environment.
- Access and connectivity – identifies the social implications of people's ability to get from one place to another and its implications on community cohesion and severance brought about by changes to access and connectivity.
- Function and viability of community infrastructure facilities – the social implications of changes to the following attributes of the community infrastructure facilities in proximity to the project, including property acquisition and temporary occupation, changes to amenity, and changes to access and connectivity. In addition, access to open spaces as a social value was assessed based on the catchments outlined in Parks and Leisure Australia (2013) with an emphasis on the 400-metres pedestrian shed recommended in Arundel *et. al.* (2017).

The research and data analysis for the assessment were based on data triangulation methods, where information to ascertain an impact was collected from various reliable sources, using evidence based information where available. The following sources of data were used:

[2] In the context of this SIA, residents refers to the people living in the area.

[3] Households refers to one or more persons usually resident in the same dwelling (ABS, 2016b)

[4] In the context of this SIA, neighbourhood means an area that is considered to be within a comfortable walking distance (approximately 500 m) from a person's place of residence or work. What is defined as a neighbourhood would be subjective to each individual.

[5] In the context of this SIA, general community means people who may be living in the surrounding area, visiting, passing through, or working in the area.

- Review of the North East Link reference project
- Review of the North East Link Business Case, 2018 (North East Link Authority, 2018)
- Review of the existing baseline conditions (see Section 5.3) to understand how changes in the urban environment may result in social change
- Outcomes of consultation with affected stakeholders and their representatives (see Section 5.4 and 5.9) to understand the current environment and their views on potential changes as a result of the project
- Outcomes of discussions with other technical specialists and review of the findings of relevant technical studies to gather evidence to assess social implications of changes resulting from the project. Relevance of other technical studies is provided in Section 2.3.

It should be recognised the experience of social impacts is subjective; that is, different people experience and perceive changes to the social environment and their impacts on them differently. The description and assessment of social impacts in Section 9 and Section 10 takes into consideration the qualitative and subjective nature of social impacts. Impact assessment and significance rating gives due consideration to the following aspects:

- Existing baseline conditions
- Sensitivity and adaptability of receivers to the changes in the social environment
- Severity/intensity of the change to the social environment – it should be noted the intensity of construction activities at any one location would vary during the construction period at that location
- Duration of the change to the social environment – the duration of impacts is mainly considered in terms of temporary or permanent, which is in line with the Chapter 8 – Project description:
  - Temporary refers to impacts during construction and takes into consideration the duration of construction activities as indicated in the construction schedule in Chapter 8 – Project description and reproduced in Figure 5-4. While the construction timeframe of the entire project would be seven years, being a linear project the construction front would keep advancing so the assessment considers the duration of construction activities at any one given location would be less than the construction period outlined for that precinct of the project. For example, the entire construction period for the project's M80 Ring Road to northern portal precinct is estimated to take 51 months (approximately 4 years) as shown in Figure 5-4. However, construction at any one given location in this precinct would be less due to the staging of construction.
  - Permanent refers to changes during the project's operation.
- The EPRs that would be implemented to minimise changes to the social environment.

Social impact assessment and the assignment of significance ratings is subjective and a matter of professional judgement.

Figure 5-4 Indicative project construction timeframes

Based on the above listed considerations, an impact rating scale is developed in Table 5-3 to provide a sense of the significance on the negative impacts. Positive social impacts arising from the project are referred to as benefits from the project.

The impact assessment takes into consideration that the degree to which residents, households and community members would experience social impacts would vary based on various factors such as perception, underlying sensitivity to change, distance from the project, and individuals values. Due to this variation, a range has been provided in the impact assessment rating section to demonstrate that the impact may be experienced at different levels.

Impacts on operators and users of community infrastructure facilities are individually assessed in Appendix E.

Table 5-3 sets out the impact assessment rating criteria developed for the social impact assessment. The sensitivity and severity criteria are used to assess social impacts that project-related processes have on receptors. The level of impact is determined once the EPRs have been applied.

Table 5-3 Impact significance rating

Severity	Significance rating
Marginal change from the baseline conditions with no discernible effects to way of life/social values and a functional recovery occurs in several months	*Negligible*
Small change from the baseline conditions with easily negotiable effects to way of life/social values and a functional recovery is expected within 5 years	*Minor*
Noticeable change from the baseline conditions with not easily negotiable effects to way of life/social values and a functional recovery is expected within 5 years	*Moderate*
Substantial change from baseline conditions with noticeable with substantial effects to way of life/social values and a functional recovery is expected within 5 years	*Major*
Significant change to baseline conditions with irreversible and unreplaceable changes to way of live/social values and functional recovery is expected in 10 years, if at all.	*Severe*

5.7 Rationale

As discussed in Section 5.4, a number of specific stakeholder consultation activities for the social impact assessment were undertaken to inform preparation of this report. In terms of consultation with local residents and community infrastructure facility managers and user groups, a sample was selected to reflect the range of circumstances which exist in the social areas of influence. It is considered that a selection of a cross section of the community residents and infrastructure facilities across the entire study area was representative to provide insights into community baseline and potential impacts from the project. It is expected that additional feedback may be received following preparation of this social impact assessment.

5.8 Limitations and assumptions

The social impact assessment should be read with the following qualifications:

- This assessment was undertaken at a moment in time. Communities change, residents move and facilities redevelop or have changes in operation. This report reflects the existing conditions within the local study area as in July 2018 and information drawn from ABS Census 2016.
- The assessment of social impact is based on project information and findings of other technical studies listed in Table 2-2 available at the time of this report's preparation.
- This report includes feedback from key stakeholders and local governments based on their views at the time of consultation.
- Due to information availability, the consideration of the timeframe over which receptors would be exposed to changes is limited to temporary and permanent.
- The opinions, conclusions and recommendations in this report are based on information available at the date the report was prepared. They are based on the assumption the final project EPRs (as contained in the proposed Environmental Management Framework) would be met.

5.9 Stakeholder engagement

Stakeholders and the community were consulted to support the preparation of the North East Link EES and to inform the development of the project and understanding of potential impacts. Table 5-4 lists specific engagement activities that have occurred in relation to this social impact assessment with more general engagement activities occurring at all stages of the project. Appendix C provides a list of resident workshops and interviews with community infrastructure facilities conducted for this social impact assessment (as discussed in Section 5.4).

Feedback received during community consultation sessions is summarised in Section 5.9.

Table 5-4 Stakeholder consultation undertaken for social impact assessment

Activity	When	Matters discussed	Outcome
Meeting with Whitehorse City Council	01 May 2018	Project information was presented. Existing socio-economic conditions of the community as they may relate to the project were discussed. This included socio-economic characteristics, existing amenity, location and usage of key community infrastructure facilities, vulnerable groups, connectivity. Concerns arising from construction and operation of the project and thoughts on managing concerns.	Information gained on existing conditions in each council area has been incorporated into this social impact assessment in Section 6. Discussions also informed the specialists' understanding of potential impacts that could occur and have been incorporated into this social impact assessment in Sections 9, 10 and 11.
Meeting with City of Yarra	03 May 2018		
Meeting with Boroondara City Council	16 May 2018		
Meeting with Banyule City Council	17 May 2018		
Meeting with Nillumbik Shire Council	23 May 2018		
Meeting with Manningham City Council	19 June 2018		

In addition to the meetings outlined in Table 5-4, in 2018 NELP met with Whittlesea City Council, however given the minor nature of works in this LGA, discussions were limited to the extent of works at the M80 Ring Road/Plenty Road intersection.

Project consultation and social involvement

NELP has been engaging with communities and stakeholders since late 2016 to investigate and recommend a project boundary and develop a business case for the project. Public participation has been incorporated and integrated into each stage of the project, with conversations starting during early strategic planning, through to design updates and preparation of the EES.

Members of the social impact assessment team attended a number of community engagement events where they spoke with local community members and other stakeholders, including at:

- 12 information displays held in mid to late 2017 where 2,300 people attended
- Eight design update information sessions held in April and May 2018 where 2,280 people attended
- 14 design update information sessions held in September and October 2018 where 3,715 people attended.

People came to the information displays held across the study area in Bulleen, Eltham, Ivanhoe, Greensborough, Lilydale, Ringwood, Rosanna and Warrandyte to view materials and talk to the specialists.

More than 4,390 pieces of feedback were provided in person, online, by phone and in writing during the 2017 information sessions, and 1,370 pieces of feedback were received during the 2018 sessions.

The social impact assessment team also presented and heard feedback at small group workshops held in early 2018 (141 people participated in six workshops) and also at the Community Liaison Groups (comprising 15 to 20 people including local residents, businesses, community groups, environmental groups, education institutions, Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWCHAC), VicRoads and local councils).

Chapter 5 – Communications and engagement and EES Attachment IV – Stakeholder consultation report provides a more detailed description of these activities and others undertaken to date across the project.

Project consultation with vulnerable groups

NELP has engaged and consulted with culturally and linguistically diverse (CALD) groups, communities with targeted needs and vulnerable and hard to reach communities. Consultation has included engaging with cultural leaders, supporting agencies including Expression Australia (formerly known as VicDeaf) and Blind Citizens Australia, and CALD groups throughout the study area (including clubs, churches, migrant information centres, health services and senior citizen associations). Contact has been made via email and phone call, with briefings offered.

NELP promoted key information displays through Expression Australia's channels, including online and social platforms and its subscriber database, and provided Auslan interpreters at displays.

Community engagement activities were promoted through Blind Citizens Australia's online mailing list and teleconferences on the project were offered to interested community members. Guide Dogs Australia and Blind Citizens Australia were also invited to nominate participants for the Community Technical Discussion Group on walking and cycling.

Materials about the project and how to get involved were translated into the top five languages other than English in the study area, as well as other languages requested by cultural leaders including Arabic, Burmese, Chinese, Farsi, Greek, Hindi, Italian and Macedonian. Interpreters were available at all community sessions on request. Mandarin and Cantonese translators were provided at Box Hill sessions and a free telephone translation service was promoted on all materials.

5.10 Community feedback

In addition to consultation undertaken with specific stakeholders, consultation has been ongoing with the community throughout the design development and the EES process. Feedback relevant to the social impact assessment is summarised in Table 5-5, along with where and how we have addressed those topics in this report.

Table 5-5 Community consultation feedback addressed by social

Issues raised during community consultation	How it's been addressed
Concerned about temporary or permanent loss of parklands, wetlands, sections of Koonung Creek and walking and cycling trails along the Eastern Freeway	The upgrades to the Eastern Freeway are proposed to stay within the existing road reserve where possible. Where works would extend outside the road reserve, maintenance of community access to walking and cycling trails has been prioritised. In cases where walking and cycling trails would be temporarily occupied, appropriate diversions would be implemented where practicable to maintain the community's access to infrastructure the supports active lifestyles. Potential impacts on Koonung Creek parklands have been considered as detailed in Section 9.5 and Section 10.4. The project must be designed and constructed to minimise the design footprint to avoid, to the extent practicable, any to avoid temporary and permanent impacts on parks and reserves (EPR LP1).
Concerns about temporary and permanent loss of walking and cycling connections and requests for additional upgrades to walking and cycling	The proposed shared use paths scope for North East Link is based around fixing strategic missing gaps in the existing network within the project boundary, including along key commuter routes. The project includes a number of significant improvements to local and commuter shared use paths links as outlined in Chapter 8 – Project description. Generally, the existing shared use paths would be retained. In locations where existing paths are impacted during construction, they would be realigned and rebuilt. Diversions would be instated to ensure community access to active infrastructure is maintained. Impacts on community connectivity have been considered in Section 9.4 and Section 10.3. The potential for impacts on individual areas of open space is considered in Appendix E. EPR T1 requires the contractors to optimise the design of the works and maintain, and where practicable, enhance pedestrian movements, bicycle connectivity, and shared use paths.
Concerns reductions in air quality, increased traffic noise and views of road infrastructure will reduce community enjoyment of open spaces, sports fields and community facilities.	The temporary and permanent amenity impacts on open spaces and community facilities are discussed in Section 9.5 and Section 10.4.1. A number of EPRs (EMF2, NV3, NV4, and SC2) would be implemented to reduce and manage noise impacts on receivers, including during construction. During operation, some open spaces and recreational areas would experience positive social impacts due to improved noise attenuation, improved access and connectivity.
Concerns about permanent acquisition or temporary impacts during construction on community facilities and parklands at Bulleen Park particularly school and community playing fields, community clubs, Boroondara Tennis Centre and Freeway Golf Course.	Impacts on communities from temporary and permanent acquisition of facilities including Boroondara Tennis Centre and areas of the Freeway Golf Course have been considered in Section 9.5. The contractors would be required to minimise impacts on sporting, recreation and other facilities (EPR SC4). This includes working with local councils and relevant State authorities to identify relocation opportunities for displaced facilities, with the objective of accommodating displaced facilities and maintaining the continuity of recreational activities, where practicable.
Concerns about loss of local employment at Bulleen industrial precinct	The potential impacts on local employment opportunities as a result of the acquisition of land at the Bulleen industrial precinct are discussed in Section 9.2.3. The total number of jobs displaced from the Bulleen industrial precinct may be minimised if businesses found relocation opportunities that were close to their original location. However, it is acknowledged that many businesses in the Bulleen industrial precinct are reliant on appropriately zoned land. Early engagement with the business community would assist businesses to plan for relocation (EPR B1).

Issues raised during community consultation	How it's been addressed
Concerns about the potential closure of Bulleen Art and Garden which has been identified by people in the immediate local area as well as broader areas as a community hub.	Construction of North East Link would result in land acquisition at Bulleen Art and Garden, which is recognised to provide a range of community services at both the local and broader community level (refer to Section 6.5.4). Where construction or operation activities directly impact on community infrastructure facilities such as Bulleen Art and Garden, consultation must occur with the operator to understand if any practical measures can be taken to avoid or minimise impacts (EPR B1). If the facility is relocated further away from its existing location, some users from the immediate surrounding area may be deterred to travelling the additional distance to access the facility.
Concerns about impacts during construction particularly traffic delays and diversions, loss of access or reduced access to community facilities and services and residential areas.	Impacts on community connectivity have been considered in Section 9.4. EPR T2 requires the contractors to develop and implement a Transport Management Plan to minimise disruption to affected local land uses, traffic, car parking, public transport (rail, tram and bus), pedestrian and bicycle movements and existing public facilities during all stages of construction.
Concerned that the new location of the Nell Street bridge footings will make general east-west walking and cycling movements between Watsonia and Greensborough less direct, and reduce ease of access.	Upgraded shared use paths bridges over North East Link at Nell Street would provide key crossing points to access existing and new paths, which would improve walking and cycling links along and across the project boundary. The reference project includes replacing the old, narrow Nell Street bridge with a new bridge that would be compliant with the requirements of the Commonwealth Disability Discrimination Act 1992. Impacts on community connectivity have been considered in Section 9.4 and Section 10.3. EPR T1 requires the contractors to optimise the design of the works and maintain, and where practicable, enhance pedestrian movements, bicycle connectivity, and shared use paths.

6. Existing conditions

6.1 Introduction

This section provides a qualitative description of the existing social conditions of the local study area and establishes a baseline for the assessment of impacts. The methodology used to develop the social baseline is described in Section 5.3.

Detailed demographic statistics are provided in Appendix B to one decimal place. Statistics presented in this section have been rounded to the closest whole figure.

6.2 Overview of the region

As a whole, North East Link would be located within a well-established and urbanised area in the north-east of the Melbourne metropolitan region, characterised by residential areas, open spaces, commercial and industrial land uses. Socio-economic characteristics of the communities along the project are described in Sections 6.3 to 6.9.

6.2.1 Regional profile

According to the Victorian Government's long-term metropolitan planning strategy, *Plan Melbourne 2017-2050*, North East Link would be located within land in the following metropolitan regions: Inner Metro Region, Inner South East Region, Northern Region, and Eastern Region. These regions comprise the following municipalities:

- Inner Metro Region – Melbourne, Port Phillip, **Yarra**
- Inner South East Region – Stonnington, Bayside, **Boroondara**, Glen Eira
- Northern Region – **Banyule**, **Whittlesea, Nillumbik**, Hume, Moreland, Darebin, Mitchell (part)
- Eastern Region – **Manningham**, **Whitehorse**, Knox, Yarra Ranges, Maroondah, Monash.

According to Australian Bureau of Statistic (ABS) data, in 2015 the four regions were home to a combined total resident population of 2,660,000 persons (DELWP, 2017). These regions represent a portion of approximately 59 per cent of the total population of the metropolitan area.

North East Link would traverse regions ranging from the densely populated and highly urbanised areas of inner metro and inner south-east, to the low density residential and recreational and natural areas of the outer parts of the northern and eastern regions.

Of the four regions, the northern region is forecast to experience the strongest growth from 2031 to 2051 (DELWP, 2017). Development in the northern region will be in established areas and growth areas through a number of new suburbs planned for the outer extents of the region (DELWP, 2017). Housing distribution will be concentrated in established areas of the inner metro, inner south-east and eastern regions and accommodated through infilling and urban renewal (DELWP, 2017).

6.2.2 Regional connectivity

Transport connectivity can influence social and economic participation, liveability and community cohesion. These aspects feature in the nine principles identified in Plan Melbourne, which shape a vision for Melbourne (DELWP, 2017).

In the north-east, the M80 Ring Road and Eastern Freeway are the major routes for access to metropolitan Melbourne although the arterial and major road networks are relied on for access to key services and local centres. There is limited access to trams and rail services, particularly in the outer area of the northern and eastern regions.

Arterial roads have high volumes of through traffic and experience significant traffic congestion. The congestion on the arterial network also spills to the surrounding local streets, which suffer high numbers of vehicles and reduced amenity.

Population growth across the regions, particularly around the northern growth corridor, and the future expansion of identified employment areas, activity centres and industrial, health and education precincts, will generate increased traffic volumes across the road network. If not addressed, this will affect amenity and safety, and further impact access and connectivity across the regions.

6.2.3 Places of state and local significance

A number of key regional community infrastructure facilities and places of state and local significance are located near the project. These facilities are considered important to form the social regional context. Table 6-1 provides a list of places identified in Plan Melbourne as being of state or local significance within the vicinity of North East Link. They include:

- Places of state significance – national employment and innovation clusters, metropolitan activity centres, state-significant industrial precincts, transport gateways, health precincts, education precincts, major urban renewal precincts
- Places of local significance – major activity centres.

Activity centres fill diverse roles, including housing, retail, commercial and civic services, and are a focus for services, employment and social interaction (DELWP, 2017).

Table 6-1 Plan Melbourne places of state and local significance in proximity to the project

Metropolitan Melbourne region	Places of state significance	Places of local significance (major activity centres)
Inner Metro	Health and educational precincts – St Vincent's Hospital and Australian Catholic University Precinct (East Melbourne/Fitzroy), Epworth	Fitzroy-Brunswick Street, Fitzroy-Smith Street, Richmond-Victoria Street
Inner South East	Health and/or educational precincts – Monash University (Caulfield), Swinburne University (Hawthorne)	Kew Junction, Hawthorn-Glenferrie Road, Camberwell Junction,
Northern	La Trobe National Employment and Innovation Cluster (NEIC) Metropolitan Activity Centre – Epping Health and educational precincts – Austin Hospital, La Trobe University, University Hill (includes RMIT Bundoora campuses), Northern Hospital	Diamond Creek, Eltham, Greensborough, Heidelberg, Ivanhoe, Northcote, South Morang,
Eastern	Monash NEIC Metropolitan activity centre – Box Hill Health and educational precincts – Box Hill Hospital and Box Hill TAFE Precinct, Monash Medical Centre, Deakin University (Burwood), Knox Private Hospital	Doncaster Hill, Doncaster East-The Pines, Forest Hill Chase, Nunawading

Source: (DELWP, 2017)

The places of state and local significance listed above do not include open spaces that are recognised as being of importance to the broader metropolitan area. Regionally significant open spaces are predominately linked to the Yarra River. The Yarra Valley Parklands span across 85 hectares and include Westerfolds, Banksia, Birrarrung and Candlebark parks, Yarra Flats, Sweeneys Flat and Longridge Park Camp (Parks Victoria, 2018). Other parklands along the Yarra River include Yarra Bend Park, Warringal Parklands and Banyule Flats. Plenty Gorge Parklands and linear parklands along Koonung Creek are also open space areas of regional value. These areas provide opportunities for both passive and active recreation and are significant for their natural, cultural and heritage values.

In addition to those places listed above, the Heide Museum of Modern Art, the Royal Exhibition building and Abbotsford Convent provide cultural and arts functions at a metropolitan Melbourne level. The buildings themselves are also recognised to have considerable historical value. There are also state and local places of heritage significance which are considered Technical report K – Historic heritage and Technical report L – Aboriginal cultural heritage.

According to Technical report L – Aboriginal cultural heritage, places of Aboriginal cultural heritage significance include artefact scatters, scarred trees, historical references and a historical place. The location of Aboriginal cultural heritage items identified in that technical report discussed in this report include Yarra Flats, Banyule Flats Reserve and Yarra Bend Park. Bolin Bolin Billabong is identified in Technical report L as an archaeological place and significant site to the Indigenous Wurundjeri people.

Historic heritage buildings and places identified in Technical report K – Historic heritage that are discussed in this report include Strathalan (Baptcare Strathalan Macleod), Simpson Barracks, Heide I and II (Heide Museum of Modern Art), Yarra Flats, Bolin Bolin Billabong, Yarra River Corridor environs (includes Warringal Parklands, Banyule Flats and Banksia Park) and the Veneto Club.

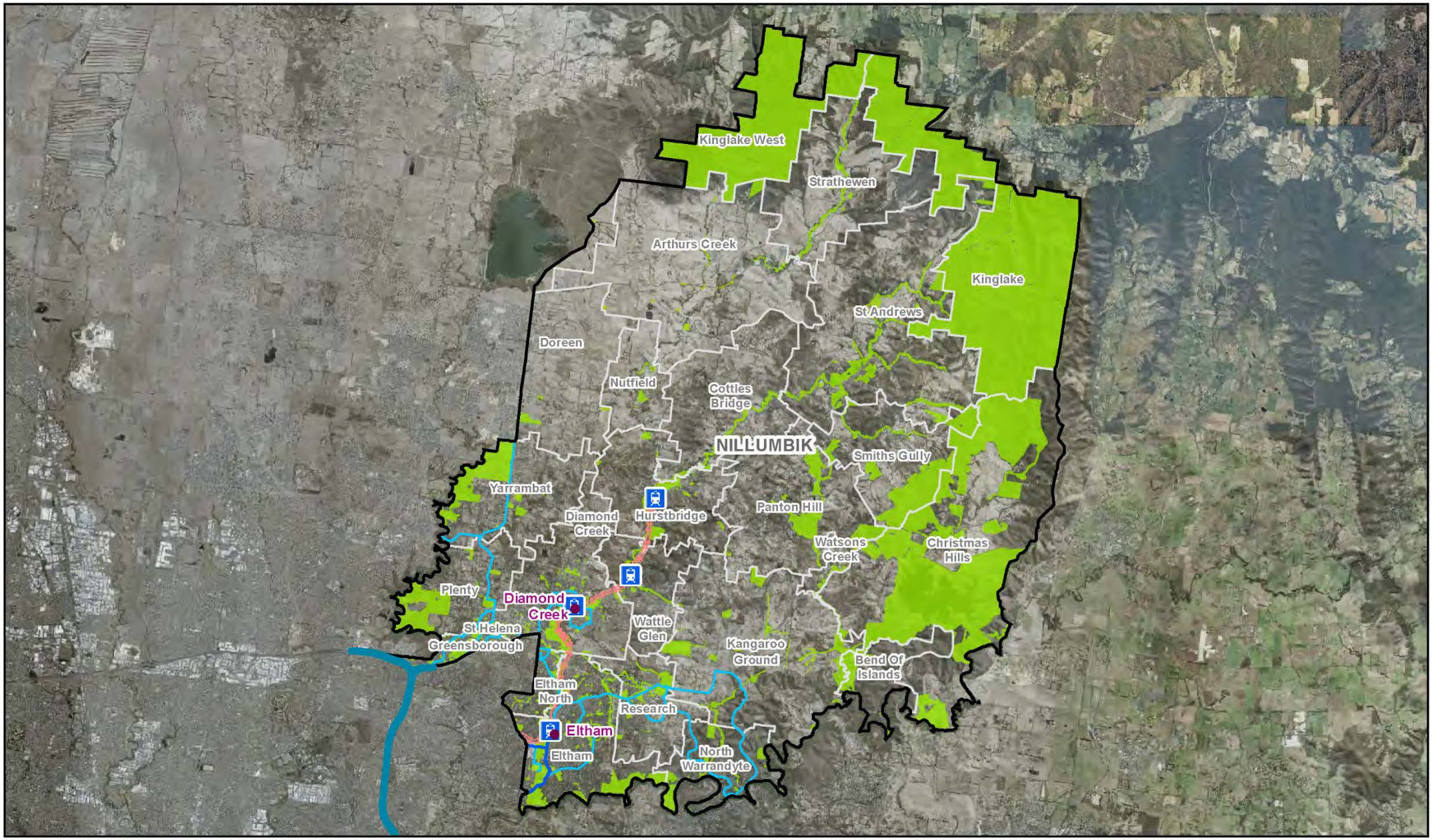
Other important local features, facilities and services are identified in Sections 6.3 to 6.9.

6.3 Nillumbik local government area

6.3.1 Demographic profile

The key demographic characteristics of the Shire of Nillumbik compared with Greater Melbourne are summarised below and detailed in Appendix B.

- At the 2016 Census the total population of Nillumbik was 61,273 compared with 60,342 in 2011. By 2036, the population of Nillumbik is expected to increase to 70,391 (.id The Population Experts, 2018i).
- Population growth in Nillumbik from 2011 to 2016 was 2 per cent.
- Nillumbik reported a female population of 51 per cent and a male population of 49 per cent, which reflected the Greater Melbourne gender distribution.
- The highest proportion of people in Nillumbik was in the 45-49 age group.
- Nillumbik had a considerably lower proportion of the population born in non-main English speaking countries (9 per cent compared with 28 per cent in Greater Melbourne) and speaking a language other than English at home (9 per cent compared with 32 per cent in Greater Melbourne).
- There were a total of 19,763 households in Nillumbik. Family households comprised 84 per cent of households, 14 per cent were lone person households and group households made up 1 per cent. At 23 per cent, the proportion of lone person households in Nillumbik were noted to be much below the average of Greater Melbourne.
- Home ownership data indicated that Nillumbik had a higher proportion of fully owned houses (39 per cent compared with 30 per cent in Greater Melbourne) and houses owned with a mortgage (49 per cent compared with 36 per cent in Greater Melbourne) compared with Greater Melbourne.
- Employment data shows that Nillumbik had a total labour force of 34,036 persons. Of these, 56 per cent were employed full time, 36 per cent were employed part-time and 4 per cent were unemployed. Nillumbik had a lower proportion of unemployed persons than Greater Melbourne (7 per cent).
- The median weekly income for people aged 15 years and over was higher in Nillumbik compared with Greater Melbourne ($2,098 compared with $1,542).
- The SEIFA IRSAD ranked Nillumbik at decile 10 within Victoria. This indicates the municipality has high socio-economic advantage.
- Nillumbik had a lower proportion of households without a motor vehicle compared with Greater Melbourne (2 per cent compared with 9 per cent).
- Nillumbik had a higher percentage of employed people aged 15 years and over who travelled to work by car (either as driver or passenger) compared with Greater Melbourne (72 per cent compared with 66 per cent). Lower levels of public transport use was also noted in Nillumbik compared with Greater Melbourne (10 per cent compared with 16 per cent).
- There was a higher proportion of people who had lived at the same address one year ago (85 per cent compared with 76 per cent) and five years ago (65 per cent compared with 50 per cent) in Nillumbik compared with Greater Melbourne.



Paper Size A4

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Major Activity Centre
- Rail Station
- NEL Alignment
- LGA

Principal Public Transport Network

- Bus
- Tram/Bus

Public Transport Victoria (PTV)

- Bus
- Railway
- Suburb
- Open Space

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Date 06 Feb 2019

Overview of the local study area - key features of Nillumbik

Figure 6-1

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: PTV 2018: Bus and Tram Routes, VicMap 2018: Localities, LGA, Imagery, ABS: SA1 2016, SEIFA data 2018 Created by:xlee

6.3.2 Key features

The Shire of Nillumbik includes a collection of towns, townships and tiny villages that are dispersed across the suburbs of Greensborough (shared with the City of Banyule), Diamond Creek, Doreen (shared with the City of Whittlesea), Eltham, Eltham North (shared with the City of Banyule), Hurstbridge, North Warrandyte, Research and Wattle Glen.

Known widely as the 'green wedge Shire', Nillumbik Shire is characterised by non-urban areas, including reserves, national park, bushland, and lifestyle and agricultural properties. Consequently, Nillumbik has high levels of participation in sport and recreation activities, including walking, swimming, cycling, running and horse riding (Shire of Nillumbik, 2017a). Consultation for this social impact assessment also confirmed that activity groups frequently use on-road and off-road dedicated bike lines nearby the study area. Off road tracks are of particular significance and include the Diamond Creek Trail and the Metropolitan Ring Road Trail.

Urban areas include Diamond Creek, Eltham, Plenty, Research, Wattle Glen, Hurstbridge and parts of Greensborough. Eltham and Diamond Creek are the major activity centres, the former of which provides significant industrial land (Shire of Nillumbik, 2014).

Within Nillumbik, North East Link would extend 530 metres into the suburb of Greensborough. This section of the project consists of upgrades to the M80 Ring Road to accommodate North East Link connections and borders on the City of Banyule. As such, this section of the alignment would be located between the suburbs of Plenty (City of Nillumbik) and Greensborough (City of Nillumbik and City of Banyule).

The area adjacent to North East Link in Nillumbik is a predominantly residential area between the M80 Ring Road and the Plenty Gorge Parklands and Maroondah Aqueduct Reserve. Surrounding the north-eastern edge of the project on the M80 Ring Road is the Civic Drive activity centre containing the Melbourne Polytechnic, Nillumbik Shire Council offices, various recreation facilities and local shops.

6.3.3 Amenity and character

Nillumbik's natural and rural landscapes, along with rural townships and artists colonies are recognised as important to the local community and also to the wider metropolitan Melbourne region (Shire of Nillumbik, 2014).

The Nillumbik green wedge covers 91 per cent of the municipality, 43 per cent of which is recognised as having environmental values (Shire of Nillumbik, 2018b). In addition to protected environmental areas, there is a sizeable rural population (11,250 in 2011) that resides in rural residences which is valued by residents and visitors (Shire of Nillumbik, 2014). Additionally, Nillumbik's undulating topography creates multiple viewing points of distant vistas, including ranges, valleys and metropolitan Melbourne that are highly valued and contribute to the Shire's amenity (Shire of Nillumbik, 2014). Maintaining the semi-rural character of these areas is a consistently stated desire of the local and broader community (Shire of Nillumbik, 2018b).

Nillumbik is also well known for its artist's colonies, which are strongly associated with mudbrick cottages, including the Montsalvat and Dunmoochin colonies.

On a more granular level, the Shire's *Residential Design Guidelines* (2001) define the character of Apollo Parkways, the small residential area adjacent to North East Link, as having mostly two-storey, 1970s-80s dwellings. Mature canopy trees and vegetated areas are common along streetscapes and there are often terraced gardens within properties.

M80 Metropolitan Ring Road

(Source: NELP)

Residential street in Nillumbik

(Source: NELP)

Figure 6-2 Shire of Nillumbik – character and amenity

6.3.4 Public spaces and facilities

Nillumbik hosts a range of public spaces and facilities that are largely concentrated in the south-west. Major activity centres are located in Eltham and Diamond Creek, which provide access to supermarkets and other everyday facilities, such as pharmacies, newsagents and hairdressers (Shire of Nillumbik, 2011a). These areas also host office space and industrial uses. Residents of Nillumbik generally access facilities that are typically contained within major shopping centres, including department stores, in areas that are close by but outside the municipality, such as Greensborough, Plenty Valley and the Pines (Shire of Nillumbik, 2011a). A full list of community infrastructure facilities within the local study area are provided in Section 6.3.8.

Nillumbik also includes a large number of open space and recreational areas including the Kangaroo Ground War Memorial, Sugarloaf Reservoir in Christmas Hills, the Edendale Community Environment Farm. During consultation for the social impact assessment, the council identified the Diamond Valley Sports and Fitness Centre in Greensborough as a major sporting facility in the area.

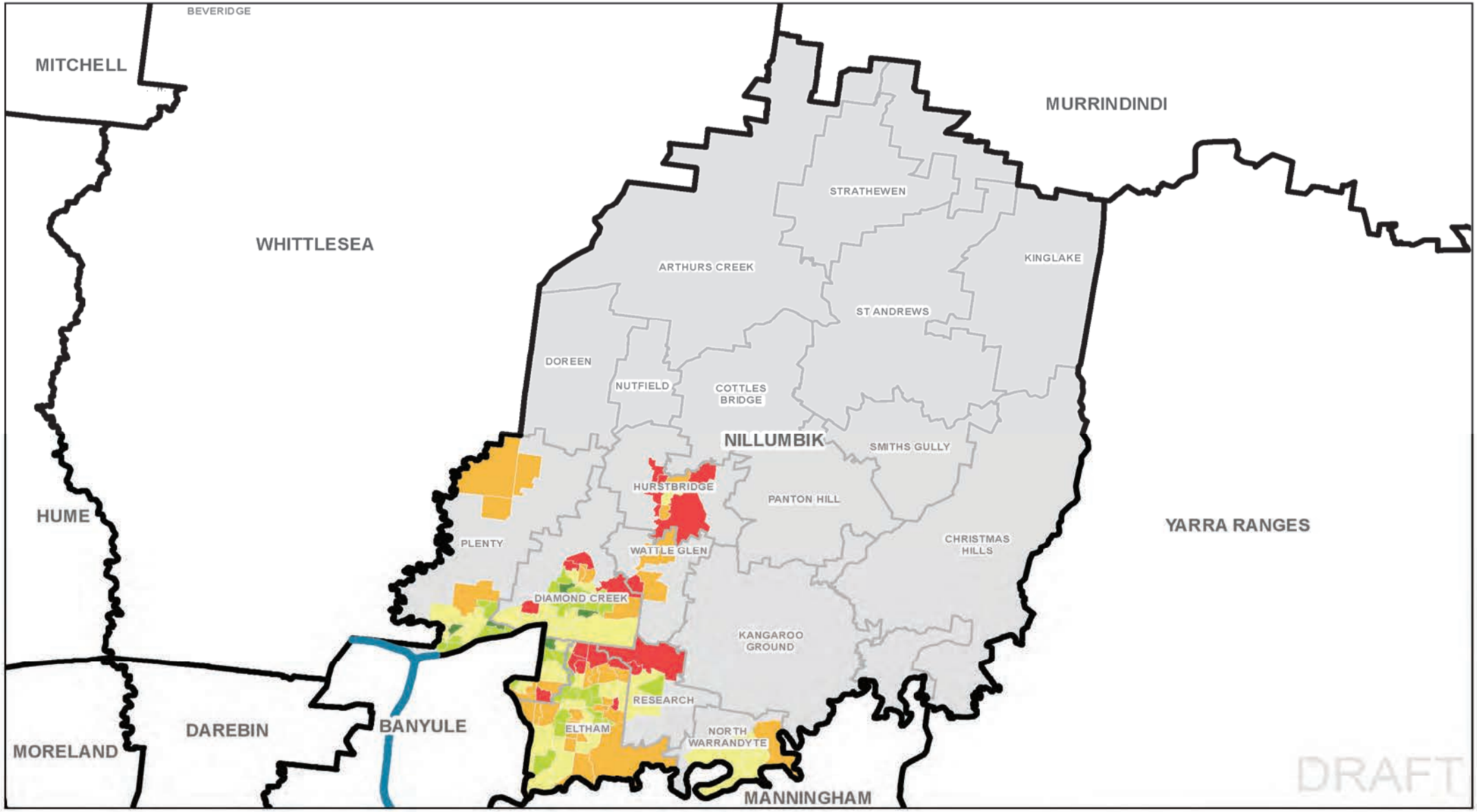
Melbourne Polytechnic – Greensborough Campus is located in proximity to the project boundary near the intersection of North East Link and the M80 Ring Road. It is considered an important resource as a venue for conferences and seminars as well as English language courses.

The *2017 Annual Community Survey* found that residents rate community infrastructure facilities and recreational areas highly, indicating that access to these is considered favourably by residents (Metropolis Research, 2017e). The exception to this was services and facilities for seniors, which were rated as of high importance but good in terms of resident satisfaction (Metropolis Research, 2017e).

Services and facilities are generally located in the south-western corner of Nillumbik, resulting in SA1s outside this region being rated as limited and low accessibility areas by the Metro Accessibility/Remoteness Index of Australia (Metro ARIA) combined index[6], which reflects the ease or difficulty people face in accessing basic services (AURIN & University of Adelaide, 2014). Figure 6-3 shows the north-eastern areas of Nillumbik have lower levels of accessibility and highlights the necessity of connectivity for those residents, who would rely on the ability to access facilities in other areas to fulfil their needs.

[6] The Metropolitan Accessibility/Remoteness Index of Australia (Metro ARIA) provides six indices to comparatively evaluate metropolitan accessibility both within and across all Australian Capital Cities (AURIN & University of Adelaide, 2014). The index aims to reflect the ease or difficulty people face accessing basic services within metropolitan areas, derived from the measurement of road distances people travel to reach different services. The five different service themes are education, health, shopping, public transport, and financial/postal services.

Note that a considerable area of Nillumbik is not covered by the Metro ARIA index, as it is not defined as a 'metropolitan area' under the remoteness area classification used by the ABS (*.ibid*). These areas are defined as 'Other' in Figure 6-3. Consultation with the Nillumbik Shire Council confirmed that connectivity between the north-east and south-west of the municipality and the Shire to other municipalities is essential for residents to access services and facilities, many of which are not provided within Nillumbik, including hospitals.



Paper Size A4

0 1,250 2,500 5,000

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- NEL Alignment
- LGA
- Suburb
- Other
- Very High Accessibility
- High Accessibility
- Moderate Accessibility
- Low Accessibility
- Limited Accessibility
- Other

North East Link Project

Metro Accessibility/Remoteness Index of Australia (ARIA) combined index - Nillumbik

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Revision F
Date 06 Dec 2018

Figure 6-3

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, MetroARIA data 2018, Data Custodian, Data Set Name/Title, Version/Date. Created by:Cjauniau

6.3.5 Connectivity

Kangaroo Ground-St Andrews Road, Heidelberg-Kinglake Road, Caledonia Street, Yan Yean Road and Wattle Street provide primarily north-south routes throughout Nillumbik, which are intersected by east-west routes, including Kangaroo Ground Wattle Glen Road, Eltham-Yarra Glen Road and Diamond Creek Road. The major access to metropolitan Melbourne is provided by the M80 Ring Road which traverses the south of Nillumbik and is part of the local study area. Within the south-western corner of Nillumbik, the M80 Ring Road, Greensborough Bypass and Greensborough Road are key corridors for movement in and out of the municipality in terms of metropolitan access and also in terms of access to key services, such as hospitals and shopping centres.

The *2017 Annual Community Survey* (Metropolis Research, 2018) found that traffic issues remain a very significant concern for Nillumbik residents, with local traffic management having the lowest level of satisfaction among residents of all services provided by the council. More specifically, *2017 Annual Community Survey* (Metropolis Research, 2018) found the primary areas of concern were main roads, traffic congestion and commuting times. This indicates that population growth in and surrounding Nillumbik has begun to impact on transport infrastructure capacity (Shire of Nillumbik, 2014). Consultation undertaken for the social impact assessment with the council confirmed that congestion, particularly in the south-western corner of the municipality inclusive of the local study area is considered a major issue for residents. In addition, concerns regarding bottlenecking in the area in instances of bushfire evacuation are an ongoing concern for the community (Shire of Nillumbik, 2018c).

As an example of a community facility close to the North East Link corridor, most students and staff at Greensborough Polytechnic drive to the facility. While some students take public transport to the campus where there are direct connections, most staff and students travel by car to the campus with many dropped off nearby to avoid traffic congestion on surrounding streets.

Public transport to the north-eastern suburbs and central Melbourne is primarily provided by the Hurstbridge rail line, with railway stations at Eltham, Diamond Creek, Wattle Glen and Hurstbridge. Nillumbik has a lower rate of public transport use than greater Melbourne, with 10 per cent of residents commuting by train compared with 12 per cent in Greater Melbourne and 1 per cent commuting by bus compared with 2 per cent in Greater Melbourne. This may in part be a result of a number of suburbs, such as Kangaroo Ground, Nutfield North Warrandyte and Research, being serviced by only one or two public transport routes (Public Transport Victoria, 2018).

Nillumbik has an extensive network of on-road marked bicycle lanes and off-road shared trails that provide pedestrian and bicycling connectivity for residents. The local study area within Nillumbik includes the Metropolitan Ring Road path, which is a key cycling-commuting link between Nillumbik and the south-west. Consultation for this social impact assessment identified the need for dedicated cycling paths as well as connections between major paths.

Walking, bike riding and horse riding are popular activities and the trails are highly valued by residents (Shire of Nillumbik, 2011b). The *2017 Annual Community Survey* (2018) found that residents rate their satisfaction with on and off-road bike paths 7 per cent higher than the metropolitan Melbourne average, which indicates these trails are highly valued.

6.3.6 Trust and cohesion

Nillumbik's indicators of social cohesion and trust are relatively high according to the *VicHealth Indicators Survey 2015 Results* (VicHealth, 2016b). The results show that 89 per cent of people in the community believe that others can be trusted, compared with the state estimate of 72 per cent. Most residents of Nillumbik also feel the community are willing to help each other (86 per cent compared with the state estimate of 74 per cent) and they live in a close knit neighbourhood (73 per cent compared with the state estimate of 61 per cent).

These responses may have resulted from lower levels of migration in Nillumbik, with:

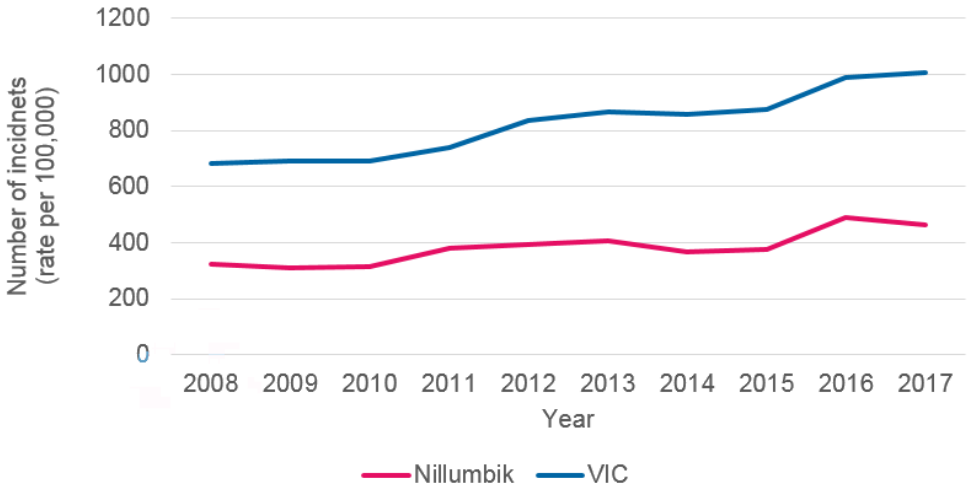
- 86 per cent of people in 2016 living at the same address as one year ago compared with 77 per cent in Greater Melbourne
- 68 per cent of people in 2016 living at the same address as five years ago compared with 54 per cent in Greater Melbourne.

These higher proportions of longer residence in Nillumbik is likely to allow for people to form more and stronger relationships with those in the community, which is a generally recognised to increase social capital, which in turn, has the potential to impact social cohesion (ABS & Edwards, 2004).

People's perception of safety can influence their feelings of trust and cohesion. When places are designed and maintained to be safe, people are encouraged to access and use them, which can increase opportunities for social interaction. According to the Community Safety Statement 2018/19 (Victoria State Government, 2018), measures for public perceptions of safety include the proportion of people who felt safe home alone during the night, walking alone in their neighbourhood and travelling on public transport.

Metropolis Research (Metropolis Research, 2017e) found that perception of safety remains very high in Nillumbik, particularly during the day, with 61 per cent of residents stating that public areas of Nillumbik are very safe and only 6 per cent of residents feeling unsafe. Perceived safety on public transport has increased from a scale of 6.75 in 2011 to 7.98 in 2018, which represents a significant increase of 18 per cent.

The relatively very high levels of feelings of safety may reflect the lower levels of crimes against the person experienced in Nillumbik compared with the state, as shown in Figure 6-4. In addition, feelings of safety likely reflect the high levels of trust in the community and longer lengths of tenure – put simply, people are more likely to feel safe in a community where they know and trust their neighbours, along with experiencing low levels of personal crime.



Source: (Crime Statistics Agency Victoria, 2018)

Figure 6-4 Crimes against the person, City of Nillumbik and Victoria, 2008 – 2017

6.3.7 Vulnerable communities

Nillumbik is the least disadvantaged municipality in the state (Shire of Nillumbik, 2017b). As shown in Figure 6-5, SA1s in Nillumbik range from decile 5 to decile 10, indicating low disadvantage in the Shire. Reflectively, Nillumbik has a lower proportion of state housing dwellings (1 per cent compared with 2 per cent in Greater Melbourne (ABS, 2018a).

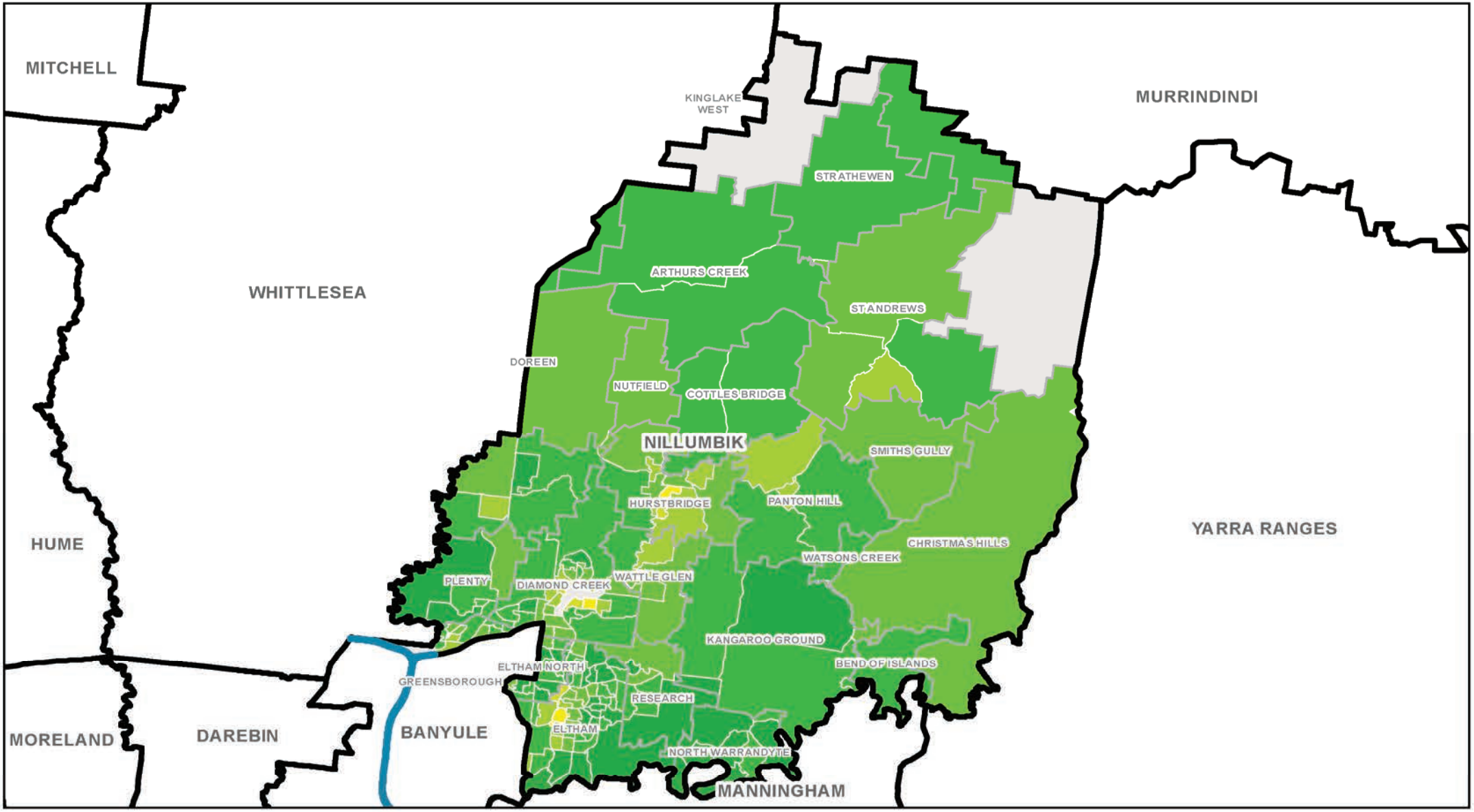
Nillumbik has a significant ageing population (Shire of Nillumbik, 2017b) at levels slightly higher than Greater Melbourne, including:

- Older workers and pre-retirees (50 to 59 years) (16 per cent in Nillumbik compared with 12 per cent in Greater Melbourne)
- Those around retirement age (60-69 years) (12 per cent in Nillumbik compared with 9 per cent in Greater Melbourne) (.id The Population Experts, 2018f; ABS, 2018a).

Nillumbik recognises the population of those aged over 65 years is higher than the Melbourne average and likely to increase over the next 20 years. The council recognises the ageing population in Nillumbik faces particular issues in regards with accessibility, noting that many essential services (including health services, such as hospitals) are located either in the south-western corner of the municipality or outside its boundaries. The lack of services within the municipality, combined with poor public transport in some areas induces high car reliance, which as people age is complicated by reduced mobility. As a result, elderly people in Nillumbik are at risk of social isolation, as they increasingly rely on public transport to access essential services (Shire of Nillumbik, 2017c).

Nillumbik has relatively few people from CALD backgrounds overall, with the most common birthplace after Australia being England (5 per cent), followed by Italy (1 per cent) and New Zealand (1 per cent) (ABS, 2018a). However, there are higher concentrations of people who are not fluent in English clustered around the study area in the south-west corner of the municipality. In addition, around 120 refugees from Syria and Iraq will be provided temporary accommodation in 60 units on the site of St Vincent's Care Services Eltham (Shire of Nillumbik, 2018a).

Nillumbik's proportion of people who need assistance with core activities such as self-care, movement and communication due to a severe or profound disability (3 per cent), is lower compared with Greater Melbourne (5 per cent). However, there are a number of pockets adjacent to the project, including in Wattle Glen and south of Diamond Creek Road in the south-west of the municipality where over 15 per cent of the population required assistance with core activities, as illustrated in Figure 6-6.



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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

NEL Alignment
LGA
Suburb

SEIFA (SEDA) by SA1 2016

Other
1
2
3
4
5
6
7
8
9
10

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SEIFA (IRSD) Deciles by SA1 - Nillumbik

Figure 6-5

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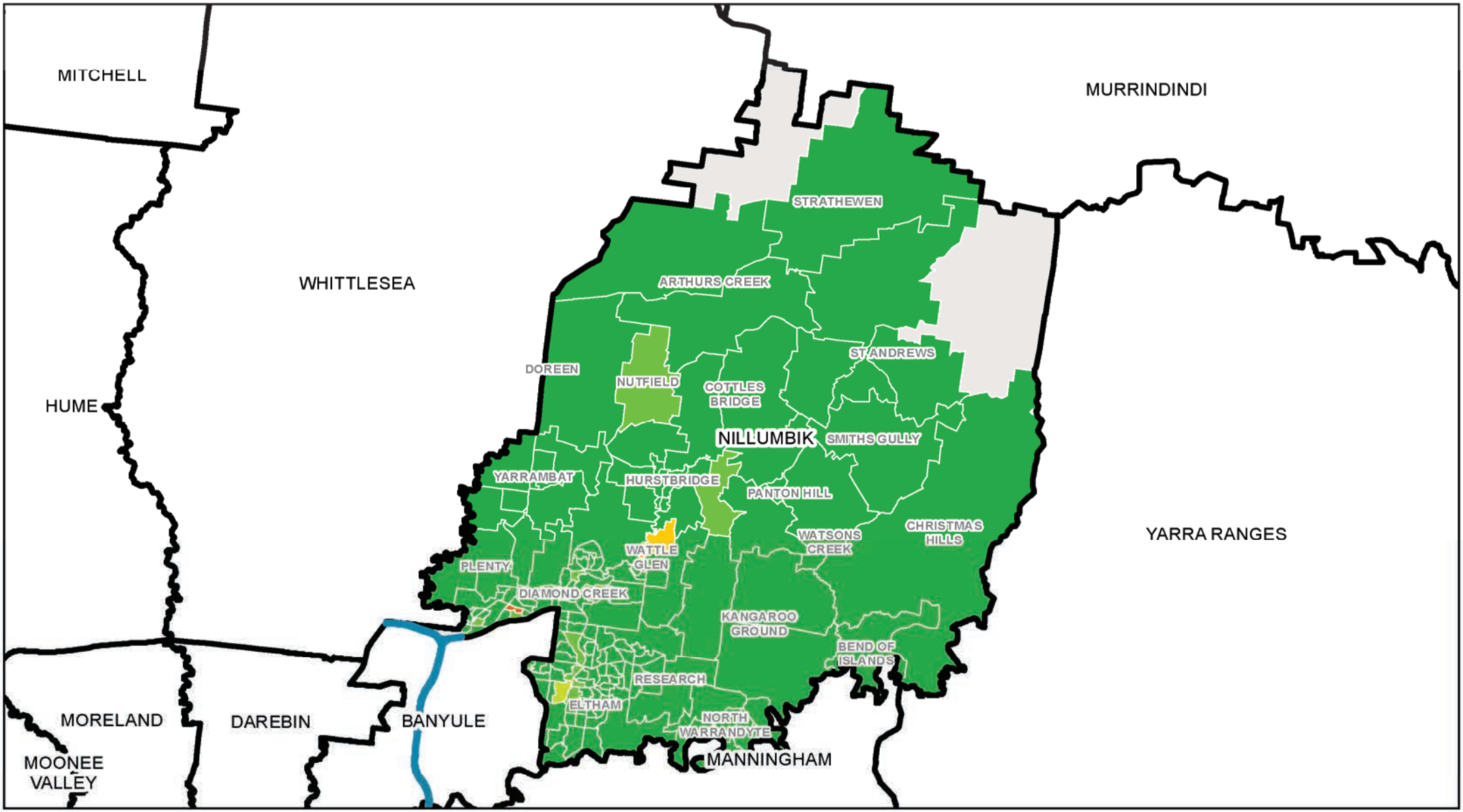
Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, SEIFA data 2018. Created by:xlee



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Map Projection: Transverse Mercator
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Legend

- NEL Alignment
- LGA

Disability %

- 0 - 5%
- 5.01% - 10%
- 10.01% - 15%
- 15.01% - 20%
- 20.01% - 40%
- 40.01% - 60%

NORTH EAST LINK PROJECT

North East Link Project

People who require assistance with core activities - Nillumbik

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Date	06 Feb 2019

Figure 6-6

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Data source: VicMap 2018: API, POI points, Localities, LGA; GHD: Survey Data 2018. Created by:xlee

6.3.8 Key community infrastructure relative to North East Link

Key community infrastructure facilities in Nillumbik located near the project are listed in Table 6-2 and shown in Figure 6-7.

Table 6-2 Key community infrastructure relative to North East Link in Nillumbik

Suburb	Map code	Facility name
Greensborough	1	Greensborough bypass path
	2	Plenty River Linear Reserve and Path
	3	Collendina Reserve
	4	Metropolitan Ring Road Linear Reserve and Linear Path
	5	Unnamed reserve – Callan Walk

Figure 6-7

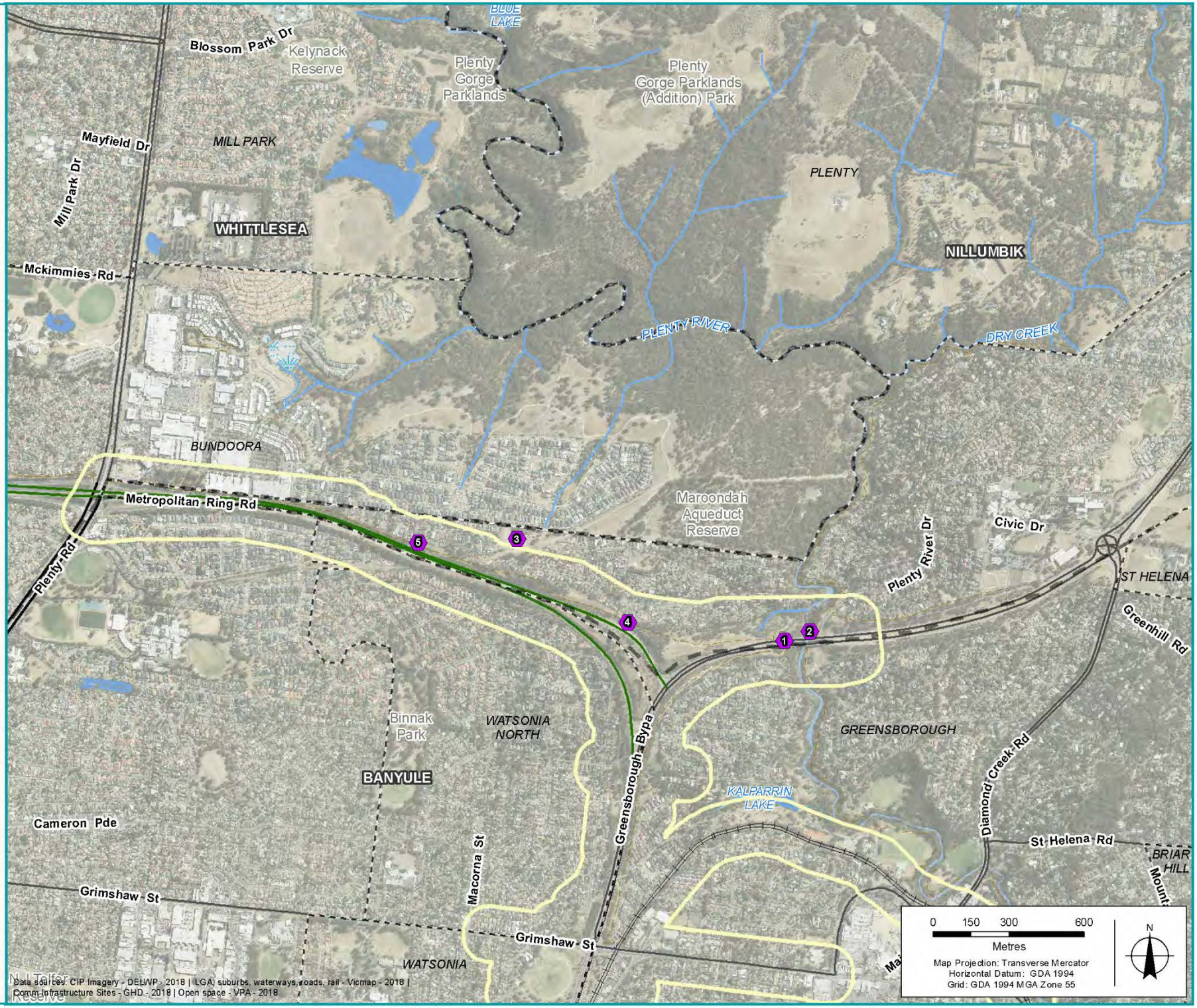
Nillumbik community infrastructure facilities

Community Infrastructure

1 - Greensborough bypass path
2 - Plenty River Linear Reserve and Path
3 - Collendina Reserve
4 - Metropolitan Ring Road and Linear Reserve
5 - Unnamed reserve - Callan Walk

Legend

- Open Space and Recreation
- Social Impact Assessment Area (SIA)
- Open Space
- LGA Boundaries
- Suburb Boundary

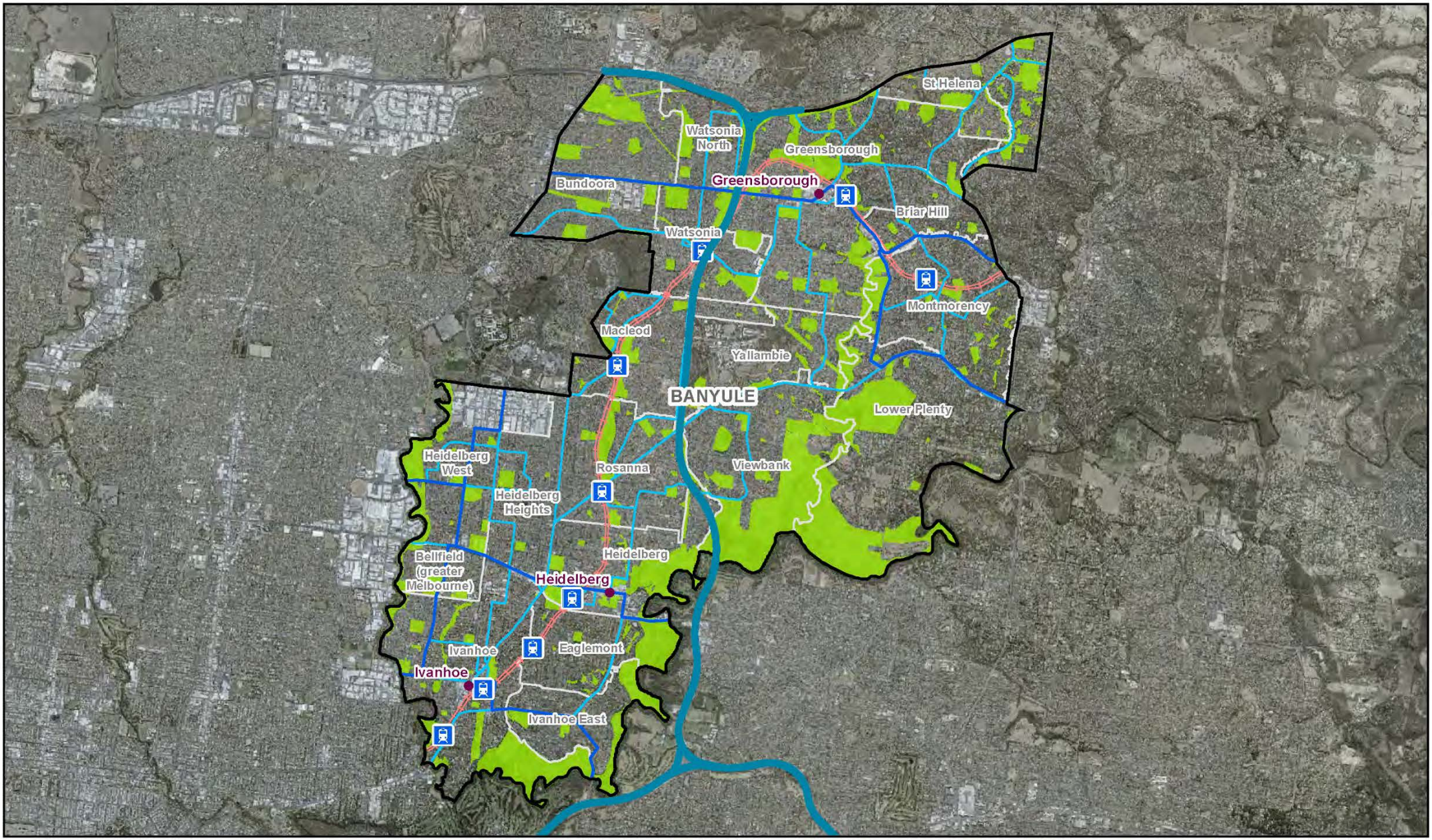


6.4 Banyule local government area

6.4.1 Demographic profile

The key demographic characteristics of the City of Banyule compared with Greater Melbourne are summarised below and detailed in Appendix B.

- At the 2016 Census the total population of Banyule was 121,865 compared with 118,306 in 2011. By 2036, the population of Banyule is anticipated to increase to 147,098 (.id The Population Experts, 2018h).
- Population growth in Banyule from 2011 to 2016 was 3 per cent.
- Banyule reported a female population of 51 per cent and a male population of 49 per cent, which reflected the gender distribution in Greater Melbourne.
- In Banyule, a higher proportion of people did not change address (61 per cent) over five years, while a lower rate (28 per cent) moved from elsewhere in Australia, and a lower rate (5 per cent) moved from overseas.
- The largest proportion of males and females in Banyule was in the 40-44 age group.
- Banyule had lower percentages of persons born in non-main English speaking countries (18 per cent) and speaking a language other than English at home (22 per cent) compared with Greater Melbourne (28 per cent and 32 per cent).
- Home ownership data indicated that Banyule had a higher proportion of fully owned housing at 37 per cent compared with 30 per cent in Greater Melbourne. The municipality also had a larger percentage of the housing operated by a State or Territory housing authority (3 per cent compared with 2 per cent in Greater Melbourne).
- Employment data shows that Banyule had a total labour force of 62,343 persons. Of these, 57 per cent were employed full time, 33 per cent were employed part-time and 6 per cent were unemployed. Greater Melbourne had a higher percentage of unemployed persons compared with Banyule at 7 per cent.
- The median weekly income for people aged 15 years and over in Banyule was slightly higher than that reported for Greater Melbourne ($1,655 compared with $1,542).
- The SEIFA IRSAD ranked Banyule at decile 9 within Victoria. This indicated the municipality is highly advantaged.
- Banyule had a lower proportion of households without a motor vehicle compared with Greater Melbourne (6 per cent compared with 9 per cent).
- A high proportion of people in Banyule used the train for their journey to work compared with Greater Melbourne (15 per cent compared with 12 per cent).



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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Legend

- Major Activity Centre
- Rail Station
- NEL Alignment
- LGA

Principal Public Transport Network

- Bus
- Tram
- Tram/Bus

Public Transport Victoria (PTV)

- Bus
- Railway
- Suburb
- Open Space

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Overview of the local study area - key features of Banyule

Figure 6-8

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: PTV 2018: Bus and Tram Routes, VicMap 2018: Localities, LGA, Imagery, ABS: SA1 2016, SEIFA data 2018 Created by:xlee

6.4.2 Key features

The City of Banyule includes the suburbs of Bundoora (shared with the City of Darebin and the City of Whittlesea), Greensborough (shared with the Shire of Nillumbik), St Helena, Eltham North (shared with the Shire of Nillumbik), Watsonia, Watsonia North, Yallambie, Montmorency, Briar Hill, Lower Plenty, Macleod (shared with the City of Darebin), Rosanna, Viewbank, Heidelberg West, Heidelberg Heights, Bellfield, Ivanhoe, Heidelberg, Ivanhoe East and Eaglemont.

Banyule is bound by the Yarra River to the south and the Darebin Creek to the west, both of which are associated with large and in some cases regionally significant open spaces. In addition, Banyule is part of the Melbourne Riverlands and Plenty Yarra Community Tourism Association tourist areas, which are valued for their natural landscapes and cultural heritage (Aboriginal and non-Indigenous) (City of Banyule, 2015b).

Banyule contains a number of major activity centres, including Greensborough, Heidelberg and Ivanhoe. In addition, the Banyule hosts parts of the La Trobe National Employment and Innovation Cluster (NEIC) that includes the Heidelberg Major Activity Centre, several public and private hospitals, La Trobe University, Northern College of the Arts & Technology, and Melbourne Polytechnic.

Within Banyule, North East Link would extend approximately 7.5 kilometres from Greensborough in the north to Heidelberg in the south. The project's M80 Ring Road to northern portal component would stretch from Greensborough to Yallambie. The northern portal would transition into twin tunnels in Yallambie and travel under parts of Viewbank, Rosanna and Heidelberg to a new interchange at Manningham Road in Bulleen. A small section (three metres) of the project alignment would be located within the eastern part of Eaglemont.

The area surrounding North East Link in Banyule consists of residential land to the east in Greensborough, Watsonia and Yallambie. The Simpson Army Barracks site sits to the east of the project boundary. The Hurstbridge rail line and main roads for local travel including Lower Plenty Road and Grimshaw Street traverse the project in Banyule. Watsonia railway station and Watsonia Village sit to the west of the study area. The proposed cut-and-cover tunnels and interchange areas of the project lie within the City of Manningham which border on Banyule's parklands along the Yarra River.

6.4.3 Amenity and character

Banyule has a notable art history, which includes:

- Housing estates designed by early 20th century architects, Walter Burley Griffin and Albert Victor Jennings
- Significant art deco buildings
- A range of buildings associated with the Heidelberg art movement.

In addition, there are a number of areas that hold considerable Aboriginal heritage values, including sacred sites, canoe trees and scar trees (City of Banyule, n.d.).

While Banyule hosts large areas of open space as well as areas with significant heritage values, Banyule is largely characterised as a residential area (City of Banyule, 2015b). The character of residential areas and protecting this is important to the community (City of Banyule, 2012). The significant trees located throughout Banyule are highly regarded and considered a key component of amenity in the City (City of Banyule, 2012).

On a more granular level, the City's *Neighbourhood Character Strategy* defines character types for the areas surrounding the study area as:

- Garden suburban (Greensborough, Watsonia) – defined detached residential buildings, with established and mature gardens and tree dominated landscapes in some streets (City of Banyule, 2012).
- Garden court (Viewbank) – residential buildings are generally brick and low scape, surrounding by spacious and informal gardens with mature vegetation.
- Bush garden (Rosanna, Macleod, Banyule) – residential areas of primarily post-war buildings set in mature gardens with substantial native trees. Trees dominate the viewscape and long-distance vistas (City of Banyule, 2012).

Consultation with residents close to the project boundary emphasises the importance of the quiet, tranquil setting created by wooded areas, particularly Simpson Barracks. Although the barracks are inaccessible to residents, consultation indicates that local residents like being able to walk along the boundaries and view the green areas within, including sighting wildlife including owls, lizards and kangaroos. Consultation with conservation groups for social impact assessment highlighted the importance of the wildlife conservation areas in Simpson Barracks, as well as other nearby areas of Koonung Creek Reserve, and Yarra Flats Park, including the Bolin Bolin Billabong and Banyule Wetlands. These areas are popular for birdwatching activities and connecting with nature through local flora and fauna enjoyed by people of all ages. Consultation with cycling groups for the social impact assessment also indicates they value the trails which run along the rivers and creeks in Banyule.

Consultation for the social impact assessment with residents living near Greensborough Road, the Greensborough Bypass and M80 Ring Road found that residents have existing concerns about traffic noise and traffic on local roads.

Simpson Barracks woodlands adjacent to Greensborough Road, Yallambie

(Source: NELP)

Watsonia Library

(Source: NELP)

Figure 6-9 City of Banyule – character and amenity

6.4.4 Public spaces and facilities

Banyule hosts a range of public spaces and facilities that in some cases, service the wider metropolitan Melbourne community including:

- The Heidelberg West major industrial area and smaller though still significant industrial areas of Greensborough, Briar Hill and Bundoora. These areas are recognised as important economic areas that generate considerable employment (City of Banyule, 2015b).
- Banyule includes a number of major activity centres including Greensborough, Heidelberg and Ivanhoe. These centres provide a range of retail and commercial services and spaces, in addition to municipal services such as libraries.
- The Watsonia Village Neighbourhood Centre would be intersected by the project. It provides a range of commercial and retail services in addition to access to the railway station (City of Banyule, 2015c). The council has developed a vision for this area, which includes expanding commercial areas to underutilised land, increasing the pedestrian linkages between the commercial areas and the railway station (City of Banyule, 2015c).
- Banyule hosts a significant range of health facilities, including the Austin and Repatriation Medical Centre, the Warringal Private Hospital and the Banyule Community Health Centre. These areas provide a diverse range of health services and are also major employers for Banyule and the broader region (City of Banyule, 2015b).
- Parts of Banyule in the north-west are included in the La Trobe National Employment Cluster, particularly areas in and surrounding the Heidelberg Activity Centre. The La Trobe cluster is a major employment area and is also identified for future population growth and densification (City of Banyule, 2016a).

A full list of community infrastructure facilities near the study area is provided in Section 6.4.8.

Banyule also includes a large number of open space and recreational areas, many of which are associated with the Yarra River and Plenty River and the Darebin Creek (City of Banyule, 2015c). A number of parks are recognised to have regional recreational and open space values, such as the Yarra Valley Parklands (City of Banyule, 2016a). During consultations for the social impact assessment, residents also identified Banyule Flats as a key open space area, valued by the community for the wildlife present and the recreation opportunities.

The project alignment would intercept the Borlase Reserve, which connects to the River Gum Walk, which in addition to providing pedestrian connectivity, has amenity and wildlife values (City of Banyule, 2016c). This was confirmed during consultations for the social impact assessment with residents living close to the project boundary. The AK Lines Reserve would be located near the project's M80 Ring Road to northern portal element. The reserve is used by several sporting clubs.

Parks and open spaces near the study area are listed in Section 6.4.8.

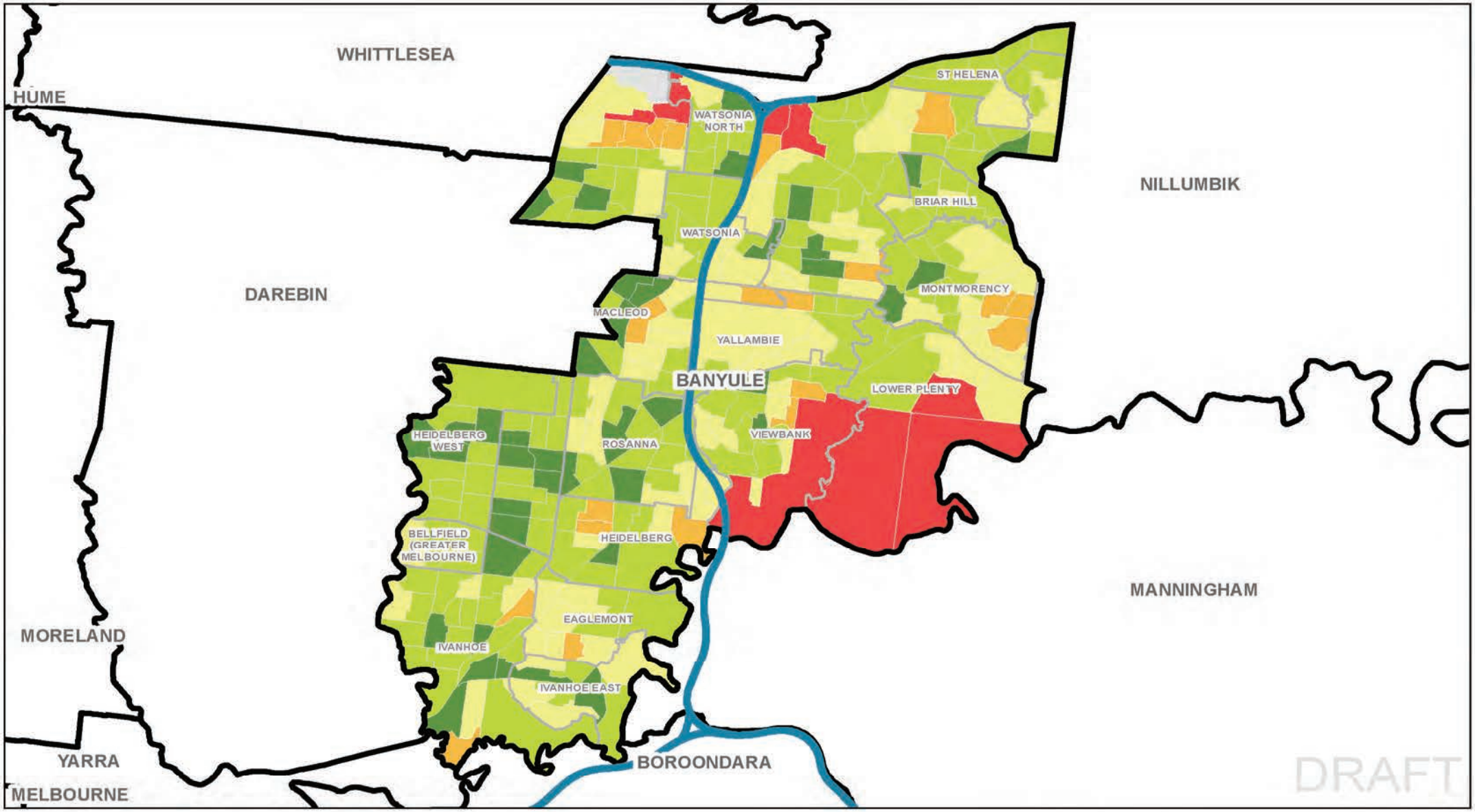
A number of schools within Banyule are located close to North East Link. These include St Mary's School, Watsonia Primary School, St Martin of Tours Primary School and Rosanna Golf Links Primary School, which would be located near the project's M80 Ring Road to northern portal element. According to consultation conducted for the social impact assessment, students at St Martin of Tours Primary School use a parish-owned community centre opposite the school for some classes. Outside school hours' care and a church hosting various community groups are provided at St Mary's School and St Martin of Tours Primary School. St Mary's School also hosts judo and basketball clubs. Watsonia Primary School is host to sporting and recreation clubs, out of school hours as well as kinder and afterschool care. Concord School (Watsonia Campus) is adjacent to this facility.

Banyule Primary School, Viewbank Primary School and Viewbank Secondary College are located within the project's northern portal to southern portal element. According to the consultation conducted for the social impact assessment, Banyule Primary School is considered a focal point for the community, as the school's open space, sports oval and adventure playground are open to community use outside school hours. The school provides a local option for recreation without travelling to the Banyule Flats. The school is also used as a venue for an external school holiday program. Viewbank Secondary College frequently uses the Banyule Theatre and Warringal Parklands for classes and events. As Viewbank Secondary College is open to the public out of school hours, its grounds are used casually by the surrounding community for recreation.

A number of schools and centres which care for children with special needs are also located near project boundary including Concord Special School and Watsonia Occasional Care. Rosanna Golf Links Primary School is host to a facility for deaf students.

The *City of Banyule 2017 Community Satisfaction Survey* (JWS Research, 2017a) found that residents rate Banyule's open space and recreational facilities highly, with 71 per cent rating the recreational facilities as very good or good and 17 per cent of residents stating the parks and gardens are the best part of living in the area. This was confirmed during consultations conducted for the social impact assessment with residents living close to the project.

The majority of Banyule is rated as having very high to moderate accessibility under the Metro ARIA combined index (Figure 6-10), which reflects the ease or difficulty people face in accessing basic services (AURIN & University of Adelaide, 2014). There are small pockets of low access located in non-residential areas in the south-west of Banyule, and in the north-east where Banyule connects with the Shire of Nillumbik. Note that a small area not covered by the Metro ARIA index, as it is not defined as a 'metropolitan area' under the remoteness area classification used by the ABS (*.ibid*). These areas are defined as 'Other' in Figure 6-10.



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- NEL Alignment
- LGA
- Suburb
- Other
- Very High Accessibility
- High Accessibility
- Moderate Accessibility
- Low Accessibility
- Limited Accessibility
- Other

North East Link Project

Metro Accessibility/Remoteness Index of Australia (ARIA) combined index - Banyule

Job Number 31-35006
Revision F
Date 06 Dec 2018

Figure 6-10

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, MetroARIA data 2018, Data Custodian, Data Set Name/Title, Version/Date. Created by:Cjauniau

6.4.5 Connectivity

Greensborough Road, Plenty Road, Rosanna Road, and Upper Heidelberg Road provide a range of primarily north-south routes throughout Banyule, which are intersected by east-west routes, including Grimshaw Street, Lower Plenty Road, Banksia Street and Lower Heidelberg Road. The major access to metropolitan Melbourne is provided by the Eastern Freeway via Burke Road.

Banyule and its arterial road network, particularly Rosanna Road and the Greensborough Bypass, act as a link for commuter and freight traffic between the northern suburbs and the west/south-east of metropolitan Melbourne. As a result, these roads experience high levels of congestion, which the council recognises as an impact on road safety and the amenity of surrounding residents (City of Banyule, 2015a). This was confirmed during consultations for the social impact assessment with community groups and residents, with safety of pedestrians and road users on Rosanna Road and Greensborough Road a key concern.

Similarly, the scale of the roads themselves and their speed, congestion and use by freight was noted during consultations for the social impact assessment to split Banyule and some of its suburbs in half, making it difficult for residents to access local and municipal-level services. According to consultation for the social impact assessment, many residents avoid using Rosanna Road and Greensborough Road, and instead use local roads, often taking indirect routes to reach their destinations. This is primarily due to the congestion of these roads particularly during peak hours. Consultation for the social impact assessment also indicated that local residents avoid Rosanna Road due to feeling unsafe, even when travelling in vehicles. *The City of Banyule 2017 Community Satisfaction Survey* found that residents rated traffic management performance significantly below the importance placed on it by residents, indicating under-performance (JWS Research, 2017a).

Banyule is serviced by the Hurstbridge rail line, the Plenty Road tram route and a number of SmartBus routes, which traverse Banyule in east-west routes that connect Banyule to the surrounding region. Public transport use is slightly above the greater Melbourne average, for example, with 16 per cent of Banyule commuting by train compared with 12 per cent in Greater Melbourne (ABS, 2018a). However, the council aims to increase public transport use through increasing connectivity between bus and rail services, and encouraging housing development in nearby activity centres, which act as major transport hubs (City of Banyule, 2015a). Consultation for the social impact assessment indicated that many residents in surrounding suburbs walk to Watsonia railway station to then commute to work.

Banyule has an extensive network of on-road marked bicycle lanes and off-road shared trails that provide pedestrian and bicycling connectivity for residents (Figure 6-11). Consultation with the council for the social impact assessment indicated that walking and cycling is very popular amongst Banyule residents and that shared paths are well used by pedestrians, cyclists and people using mobility aid such as electric wheelchairs. Upgrading active transport infrastructure, particularly around areas near activity centres is an identified priority for the council (City of Banyule, 2016b). As mentioned previously, the speed, congestion and presence of freight discourages active transport in Banyule, particularly along arterial roads (City of Banyule, 2016b). Consultation for the social impact assessment indicates that other deterrents to active transport in the municipality include lack of maintenance of bike lanes, lack of on road dedicated bike lanes, steep grades and circuitous routes to access safe lanes.

Pedestrian and active transport infrastructure in the area surrounding North East Link includes the road bicycle paths along Greensborough Road and Greensborough Bypass, and the shared trails within the Rivergum Reserve, the Gabonia Avenue and Elder Street Reserve, and the Main Yarra Trail. Consultations for the social impact assessment confirmed the pedestrian bridges over Greensborough Road and Greensborough Bypass provide important east-west connectivity for the local community, such as to Watsonia railway station and Watsonia Village Neighbourhood Centre, and for school children.

Source: (City of Banyule, 2015a)

Figure 6-11 Active transport infrastructure – City of Banyule

6.4.6 Trust and cohesion

VicHealth reports show levels of community cohesion higher than the state average. Illustrative of this is that residents of Banyule generally report a slightly higher level of trust, where 81 per cent of Banyule stating that people in the community are willing to help each other compared with the state average of 72 per cent (VicHealth, 2016a). The majority of residents also believe they live in a close knit community (65 per cent compared with the state average of 61 per cent). In part, these slightly higher levels of trust within the community may reflect the slightly lower level of migration in Banyule, with:

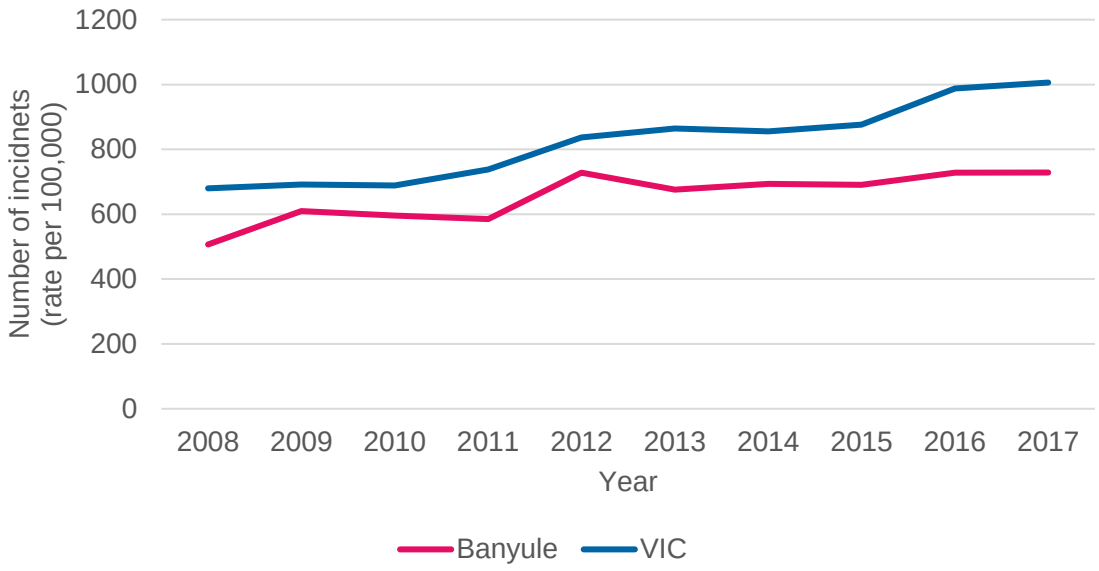
- 81 per cent of people in 2016 living at the same address as one year ago compared with 77 per cent in Greater Melbourne.
- 61 per cent of people in 2016 living at the same address as five years ago compared with 54 per cent in Greater Melbourne.

These slightly higher proportions of longer residence in Banyule are likely to allow people to form more and stronger relationships with those in the community, which is a generally recognised to increase social capital (ABS & Edwards, 2004). Consultation for the social impact assessment supported this assertion, with strong community and family connections recognised.

People's perception of safety can influence their feelings of trust and cohesion. When places are designed and maintained to be safe, people are encouraged to access and use them, which can increase opportunities for social interaction.

According to the *VicHealth Indicators Survey 2015 Results,* most Banyule residents felt safe walking alone in their local area during the day (92 per cent compared with the state average of 93 per cent), whereas 62 per cent felt safe walking alone after dark (slightly higher than the state average of 55 per cent) (VicHealth, 2016b).

These relatively high perceptions of safety are reflected in the lower levels of crimes against the person experienced in Banyule compared with the state, as shown in Figure 6-12. In addition, feelings of safety likely reflect the high levels of trust in the community and longer lengths of tenure – put simply, people are more likely to feel safe in a community where they know and trust their neighbours, along with experiencing low levels of personal crime.



Source: (Crime Statistics Agency Victoria, 2018)

Figure 6-12 Crimes against the person, City of Banyule and Victoria, 2008-2017

6.4.7 Vulnerable communities

Banyule's population is increasingly demographically diverse, with Banyule containing some of the most advantaged populations and some of the most disadvantaged populations, as defined by the SEIFA index (Figure 6-13). Disadvantage is largely clustered in the south-west of Banyule in Heidelberg West and Bellfield. However, there are small pockets with moderate to high levels of socio-economic disadvantage surrounding the project in Watsonia (1st and 3rd decile) and Greensborough (5th decile).

Banyule has a slightly higher concentration of state housing dwellings (3 per cent compared with Greater Melbourne's 2 per cent), particularly in the south-west (Heidelberg West and Bellfield) although these areas are generally not located near North East Link.

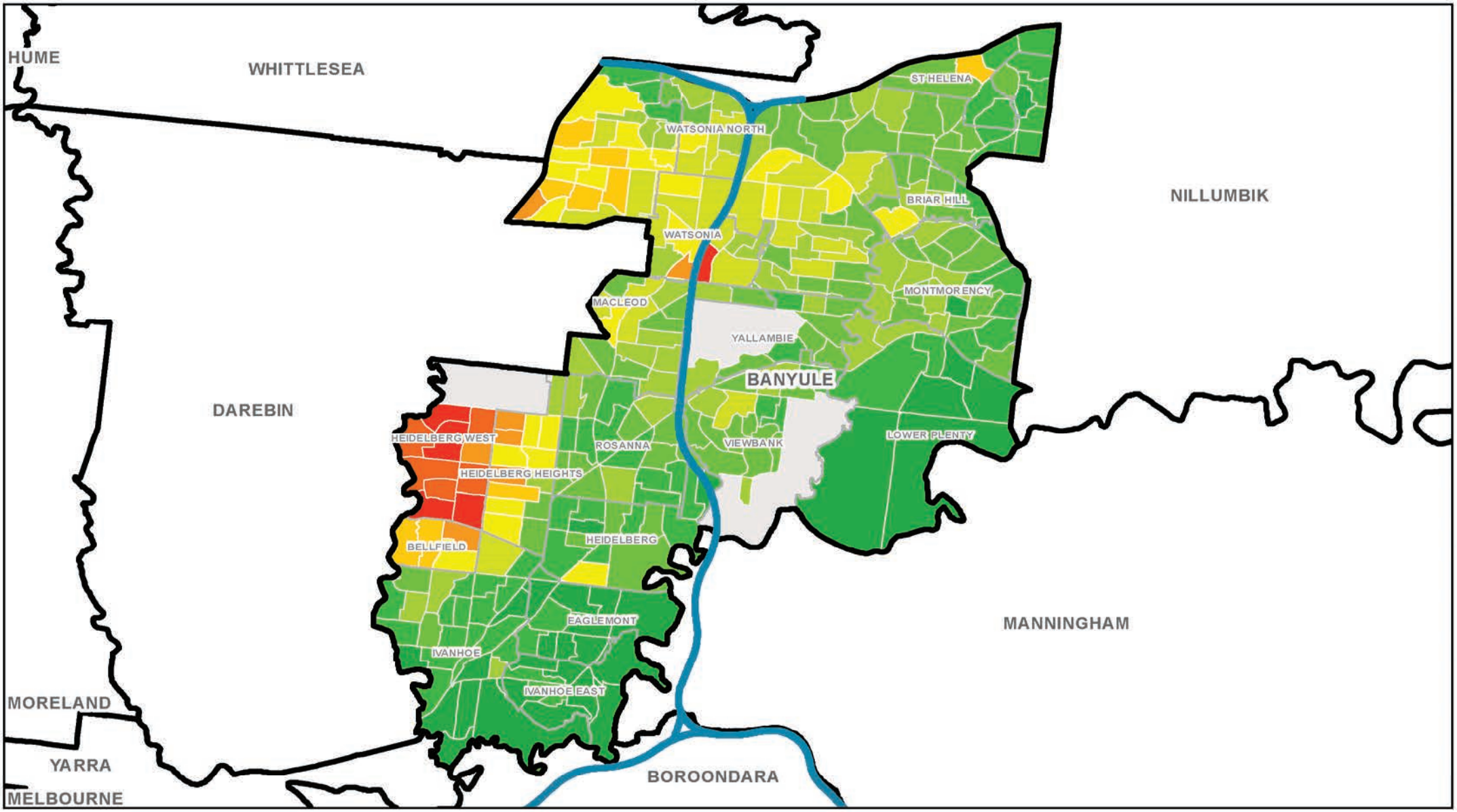
Banyule has a significant ageing population (City of Banyule, 2013) at levels slightly higher than Greater Melbourne, including:

- Those around retirement age (60-69 years) (11 per cent in Banyule compared with 9 per cent in Greater Melbourne)
- Seniors (70-84 years) (9 per cent in Banyule compared with 8 per cent in Greater Melbourne) (.id The Population Experts, 2018f; ABS, 2018a).

In addition, there was a notable increase in the number of primary school students (+1,034 persons) from 2011 to 2016 (.id The Population Experts, 2018f; ABS, 2018a).

Banyule saw a growth in cultural and linguistic diversity from 2011 to 2016. This includes growth in the population of those with Chinese (2,100), Italian (730) and Indian (737) heritages. However, only 3 per cent of people in the municipality do not speak English well or at all, which is below that of Greater Melbourne (6 per cent). Although there is a smaller proportion of people who don't speak English in Banyule, these people are more likely to be isolated. Banyule also has a notable Indigenous population, who are largely dispersed throughout Watsonia, Bundoora, Heidelberg and surrounding suburbs and Lower Plenty.

Banyule's proportion of people who need assistance with core activities (such as self-care, movement and communication due to a severe or profound disability) of 5 per cent is equal to Greater Melbourne. However, there are a number of pockets surrounding the study area, located in Watsonia, Macleod, Rosanna and Greensborough, where more than 15 per cent of the population need assistance (Figure 6-14). This was confirmed during consultations with the council for the social impact assessment, who noted there are many older people living in Watsonia and Macleod, with several disability services also in these suburbs.



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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

NEL Alignment
LGA
Suburb

SEIFA (SEDA) by SA1 2016

Other
1
2
3
4
5
6
7
8
9
10

North East Link Project

Job Number 31-35006
Revision F
Date 06 Feb 2019

SEIFA (IRSD) Deciles by SA1 - Banyule

Figure 6-13

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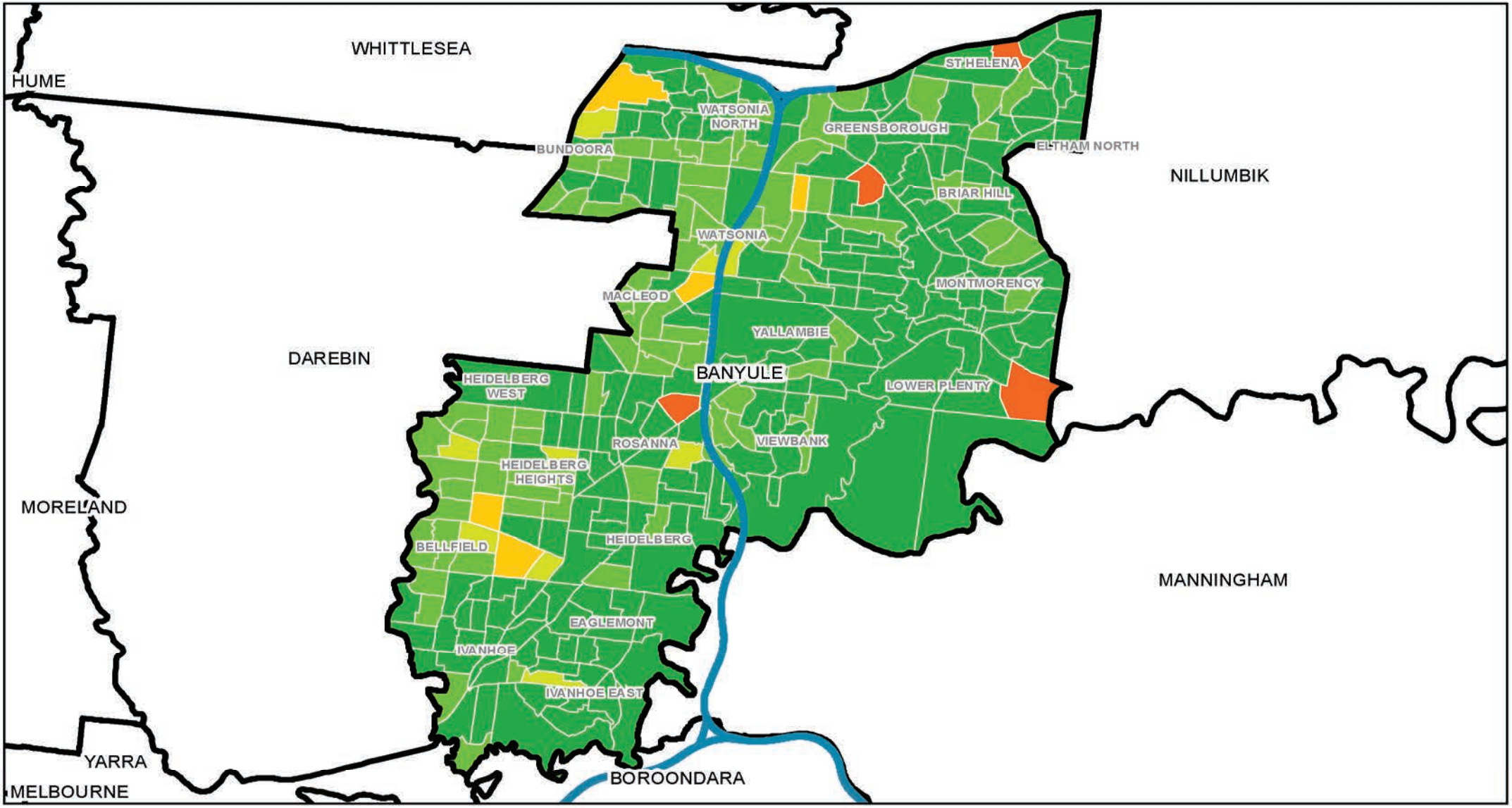
180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, SEIFA data 2018. Created by:xlee



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- NEL Alignment
- LGA
- **Disability %**
  - 0 - 5%
  - 5.01% - 10%
  - 10.01% - 15%
  - 15.01% - 20%
  - 20.01% - 40%
  - 40.01% - 60%

NORTH EAST LINK PROJECT

North East Link Project

People who require assistance with core activities - Banyule

Job Number	31-35006
Revision	H
Date	06 Feb 2019

Figure 6-14

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: API, POI points, Localities, LGA; GHD: Survey Data 2018. Created by:xlee

6.4.8 Key community infrastructure relative to North East Link

Key community infrastructure facilities in Banyule suburbs the project would intersect are listed in Table 6-3 and shown in Figure 6-15 and Figure 6-16. Additional detail on these facilities is provided in Appendix E.

Table 6-3 Key community infrastructure relative to North East Link in Banyule

Suburb	Map code	Facility name
Bundoora	1	Hughes Circuit Reserve
	2	Maroondah Aqueduct
	3	Garvey Oval
Watsonia North	4	Gillingham Reserve
	5	Trist Street Reserve
	6	Watsonia North Primary school
Greensborough	7	Greensborough Preschool
	8	Abacus Child Care Centre
	9	Kalparrin Early Intervention Program child care
	10	Greensborough Road Surgery
	11	Diaverum Diamond Valley Dialysis Clinic
	12	Greensborough Maternal and Child Health
	13	St Mary's Church
	14	St Mary's School
	15	Greensborough College
	16	Greensborough Primary School
	17	Kalparrin Gardens
	18	Poulter Avenue Reserve
	19	Whatmough Park
	20	Fell Reserve
	21	Plenty River Drive Reserve
	22	St Mary's Reserve
	23	Sarah's Reserve (Banfield Terrace Reserve)
	24	Greensborough Police Station
	25	Greensborough MFB Fire Station
Watsonia	26	Watsonia Occasional Child Care Centre
	27	MS Respite Services
	28	Watsonia scout hall
	29	Watsonia RSL
	30	North East Citizen Advocacy (NECA)
	31	Watsonia Library
	32	Holy Spirit Anglican Church
	33	Grace Baptist Church

Suburb	Map code	Facility name
	34	Watsonia Uniting Church
	35	Concord School
	36	Watsonia Primary School
	37	AK Lines Reserve
	38	Elder Street Reserve
	39	West Mayling Reserve
	40	Gabonia Avenue Reserve
	41	Watsonia Station Carpark Reserve
	42	Watsonia Road Reserve
Macleod	43	Greensborough Road Early Learning and Kinder
	44	Macleod Recreation and Fitness & CC
	45	Macleod Preschool
	46	Baptcare Strathalan Macleod
	47	Regis Macleod
	48	Macleod Maternal and Child Health
	49	IDV
	50	YMCA Recreation and Fitness Centre
	51	Nets Stadium Banyule
	52	Macleod Organic Community Garden
	53	Winsor Reserve
	54	Macleod College Oval
	55	Harry Pottage Reserve
	56	Macleod Park
	57	Macleod Tennis Club
	58	Junior Football Club and Macleod Cricket
Yallambie	59	Simpson Barracks
	60	Coleen Reserve
	61	Borlase Reserve
	62	Melbourne Water easement
Rosanna	63	Goodstart Early Learning
	64	Assisi Centre Aged Care
	65	Japara Rosanna Views Nursing Home
	66	St Martin of Tours Catholic Church
	67	St Martin of Tours Catholic Primary School
	68	Banyule Primary School
	69	Maleela Grove, Rosanna
	70	Mercedes Court Reserve
	71	River Gum Walk
	72	Creekbend Reserve

Suburb	Map code	Facility name
	73	Rosanna Golf Links Primary School
Viewbank	74	Viewbank College
	75	Viewbank family medical group
	76	Viewbank podiatry
	77	Simla Close Reserve
	78	Banyule Flats
	79	River Gum Walk
	80	Warringal Parklands
	81	Banyule Tennis Club
Heidelberg	82	Heidelberg Park and Heidelberg cricket ground
	83	Banyule Theatre Complex
	84	Heidelberg Police Station
	85	Austin Hospital Precinct
	86	Heidelberg Primary School
Eaglemont	87	Yarra Flats Park
Ivanhoe East	88	Yarra Flats Park

Figure 6-15

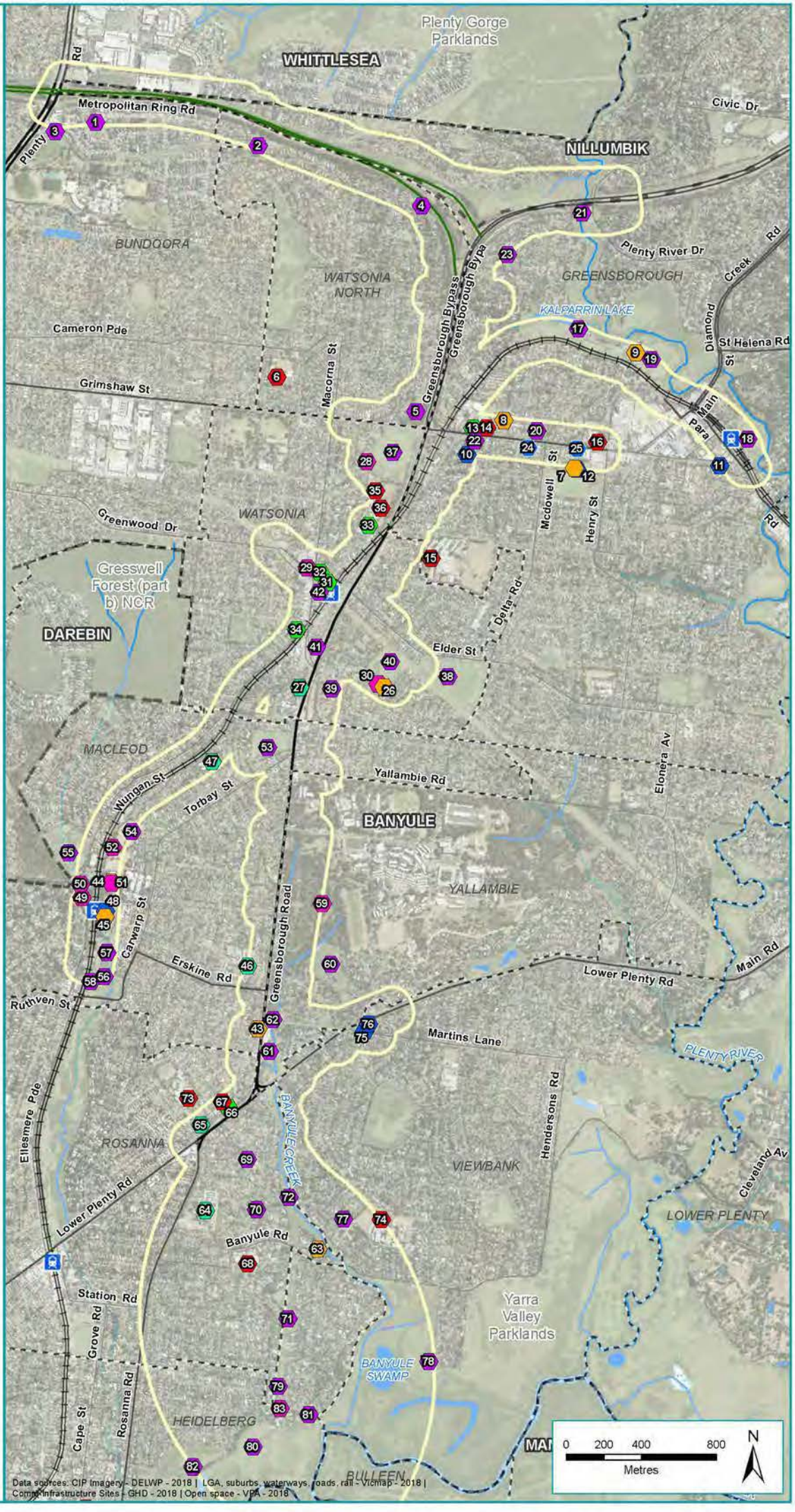
Banyule community infrastructure facilities (north)

Community Infrastructure

1 - Hughes Circuit Reserve
2 - Maroondah Aqueduct
3 - Garvey Oval
4 - Gillingham Reserve
5 - Trist Street Reserve
6 - Watsonia North Primary school
7 - Greensborough Preschool
8 - Abacus Child Care Centre
9 - Kalparrin Early Intervention Program child care
10 - Greensborough Road Surgery
11 - Diaverum Diamond Valley Dialysis Clinic
12 - Greensborough Maternal and Child Health
13 - St Mary's Church
14 - St Mary's School
15 - Greensborough College
16 - Greensborough Primary School
17 - Kalparrin Gardens
18 - Poulter Avenue Reserve
19 - Whatmough Park
20 - Fell Reserve
21 - Plenty River Drive Reserve
22 - St Mary's Reserve
23 - Sarah's Reserve (Banfield Terrace Reserve)
24 - Greensborough Police Station
25 - Greensborough MFB Fire Station
26 - Watsonia Occasional Child Care Centre
27 - MS Respite Services
28 - Watsonia scout hall
29 - Watsonia RSL
30 - North East Citizen Advocacy (NECA)
31 - Watsonia Library
32 - Holy Spirit Anglican Church
33 - Grace Baptist Church
34 - Watsonia Uniting Church
35 - Concord School
36 - Watsonia Primary School
37 - AK Lines Reserve
38 - Elder Street Reserve
39 - West Mayling Reserve
40 - Gabonia Avenue Reserve and Frensham Reserve
41 - Watsonia Station Carpark Reserve
42 - Watsonia Road Reserve
43 - Greensborough Road Early Learning and Kinder
44 - Macleod Recreation and Fitness & CC
45 - Macleod Preschool
46 - Baptcare Strathalan Macleod
47 - Regis Macleod
48 - Macleod Maternal and Child Health
49 - IDV
50 - YMCA Recreation and Fitness Centre
51 - Nets Stadium Banyule
52 - Macleod Organic Community Garden
53 - Winsor Reserve
54 - Macleod College Oval
55 - Harry Pottage Reserve
56 - Macleod Park
57 - Macleod Tennis Club
58 - Junior Football Club and Macleod Cricket
59 - Simpson Barracks
60 - Coleen Reserve
61 - Borlase Reserve
62 - Melbourne Water easement
63 - Goodstart Early Learning
64 - Assisi Centre Aged Care
65 - Japara Rosanna Views Nursing Home
66 - St Martin of Tours Catholic Church
67 - St Martin of Tours Catholic Primary School
68 - Banyule Primary School
69 - Maleela Grove, Rosanna
70 - Mercedes Court Reserve
71 - River Gum Walk
72 - Creekbend Reserve
73 - Rosanna Golf Links Primary School
74 - Viewbank College
75 - Viewbank family medical group
76 - Viewbank podiatry
77 - Simla Close Reserve
78 - Banyule Flats
79 - River Gum Walk
80 - Warringal Parklands
81 - Banyule Tennis Club
82 - Heidelberg Park and Heidelberg cricket ground
83 - Banyule Theatre Complex

Legend

- Aged Care
- Child Care
- Community Centre
- Education
- Emergency
- Health
- Library and Cultural Space
- Open Space and Recreation
- Social Impact Assessment Area (SIA)
- Open Space
- LGA Boundaries
- Suburb Boundary



Data sources: CIP Imagery - DELWP - 2018 | LGA, suburbs, waterways, roads, rail - Vicmap - 2018 | Comm Infrastructure Sites - GHD - 2018 | Open space - VPA - 2018

Figure 6-16

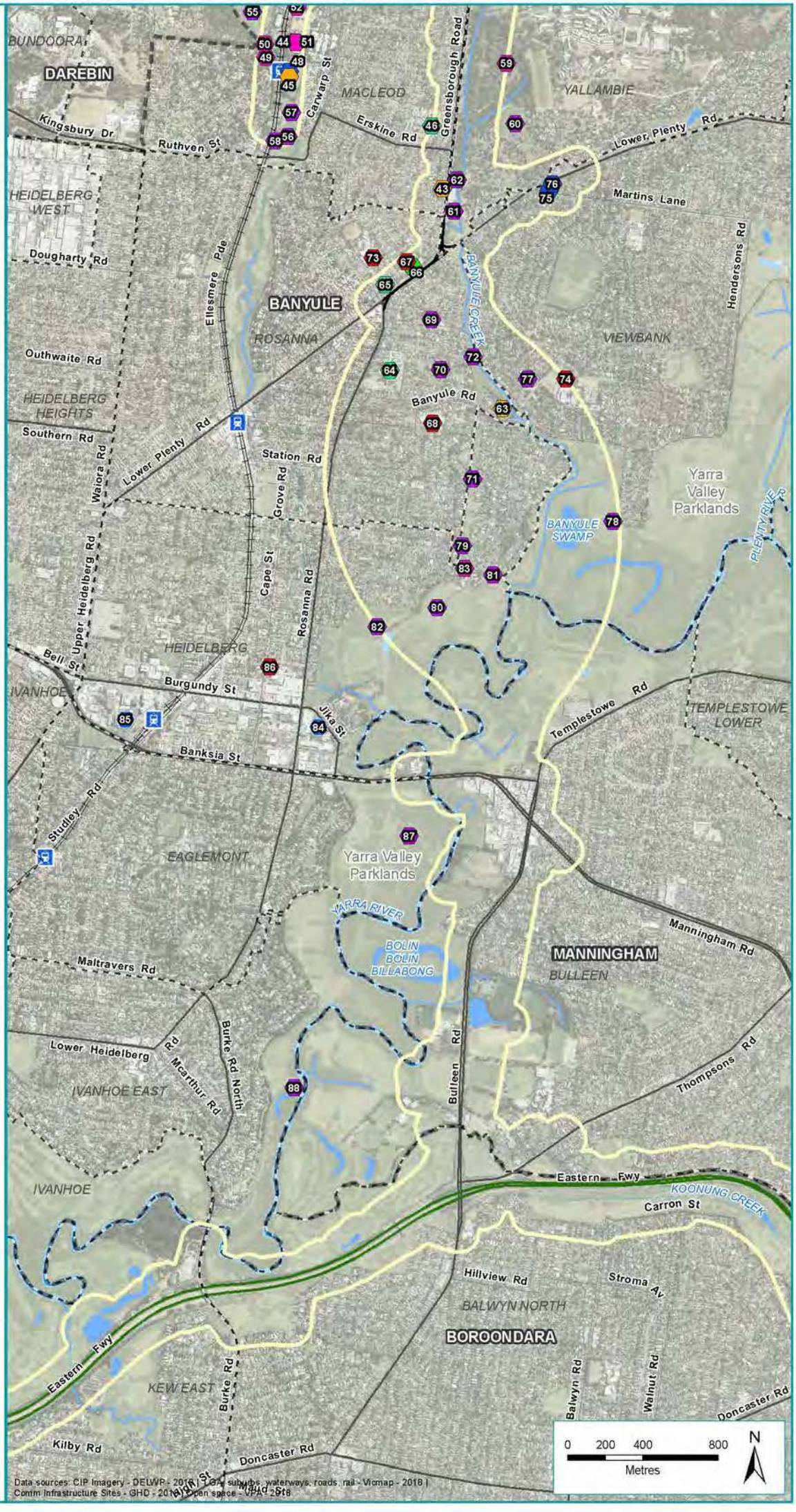
Banyule community infrastructure facilities (south)

Community Infrastructure

43 - Greensborough Road Early Learning and Kinder
44 - Macleod Recreation and Fitness & CC
45 - Macleod Preschool
46 - Baptcare Strathalan Macleod
48 - Macleod Maternal and Child Health
49 - IDV
50 - YMCA Recreation and Fitness Centre
51 - Nets Stadium Banyule
52 - Macleod Organic Community Garden
55 - Harry Pottage Reserve
56 - Macleod Park
57 - Macleod Tennis Club
58 - Junior Football Club and Macleod Cricket
59 - Simpson Barracks
60 - Coleen Reserve
61 - Borlase Reserve
62 - Melbourne Water easement
63 - Goodstart Early Learning
64 - Assisi Centre Aged Care
65 - Japara Rosanna Views Nursing Home
66 - St Martin of Tours Catholic Church
67 - St Martin of Tours Catholic Primary School
68 - Banyule Primary School
69 - Maleela Grove, Rosanna
70 - Mercedes Court Reserve
71 - River Gum Walk
72 - Creekbend Reserve
73 - Rosanna Golf Links Primary School
74 - Viewbank College
75 - Viewbank family medical group
76 - Viewbank podiatry
77 - Simla Close Reserve
78 - Banyule Flats
79 - River Gum Walk
80 - Warringal Parklands
81 - Banyule Tennis Club
82 - Heidelberg Park and Heidelberg cricket ground
83 - Banyule Theatre Complex
84 - Heidelberg Police Station
85 - Austin Hospital Precinct
86 - Heidelberg Primary School
87 - Yarra Flats Park
88 - Yarra Flats Park

Legend

- Aged Care
- Child Care
- Community Centre
- Education
- Emergency
- Health
- Library and Cultural Space
- Open Space and Recreation
- Social Impact Assessment Area (SIA)
- Open Space
- LGA Boundaries
- Suburb Boundary

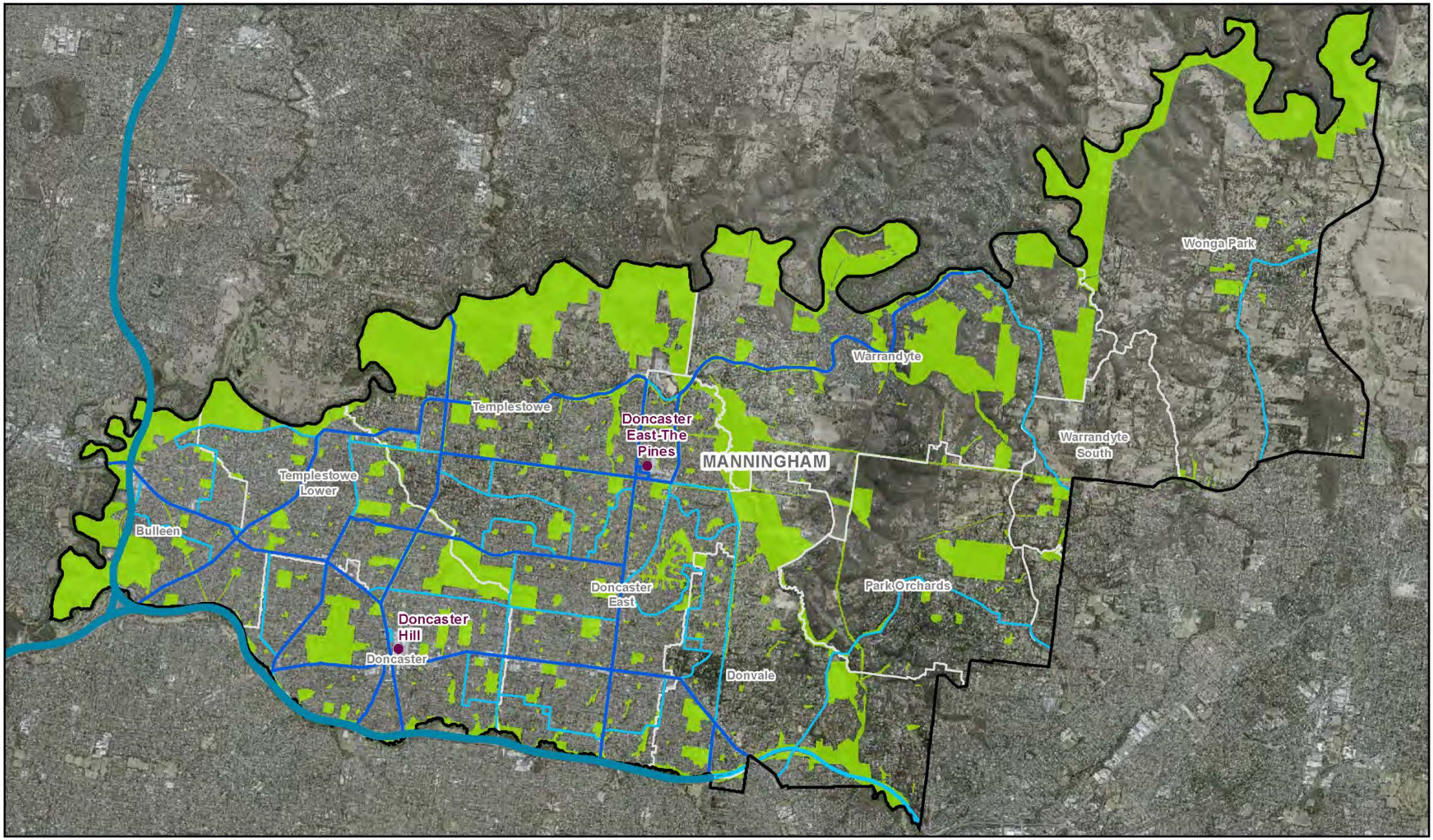


6.5 Manningham local government area

6.5.1 Demographic profile

The key demographic characteristics of the City of Manningham compared with Greater Melbourne are summarised below and detailed in Appendix B.

- At the 2016 Census the total population of Manningham was 116,255 compared with 111,300 in 2011. By 2036, the population of Manningham is expected to increase to 149,274 (.id The Population Experts, 2018b).
- Population growth in Manningham from 2011 to 2016 was 4.5 per cent.
- Manningham reported a female population of 52 per cent and a male population of 48 per cent, which is similar to the gender distribution of Greater Melbourne with 51 per cent female and 49 per cent male.
- The largest proportion of people in Manningham was in the 45-49 age group.
- Manningham had a considerably higher median age of 43 years compared with 36 years in Greater Melbourne.
- Manningham had a higher proportion of persons born in non-main English speaking countries compared with Greater Melbourne (35 per cent compared with 28 per cent). A higher proportion of languages other than English spoken at home was also reported (43 per cent compared with 32 per cent in Greater Melbourne).
- Home ownership data indicated that Manningham had a higher proportion of fully owned housing (46 per cent compared with 30 per cent in Greater Melbourne)
- The median weekly income for people aged 15 years and over was higher in Manningham $1,642 compared with $1,542 in Greater Melbourne).
- Manningham has a higher rate of people that did not change address (62.9 per cent) over five years.
- The SEIFA IRSAD ranked Manningham at decile 10 within Victoria. This indicates that the municipality is highly advantaged.
- Manningham had a higher percentage of employed people aged 15 years and over who travelled to work by car (either as driver or passenger) compared with Greater Melbourne (70 per cent compared with 66 per cent). Travel to work by bus was also higher in Manningham than Greater Melbourne (9 per cent compared with 2 per cent).



Paper Size A4

0 500 1,000 2,000

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Major Activity Centre
- NEL Alignment
- LGA
- **Principal Public Transport Network**
- Bus
- **Public Transport Victoria (PTV)**
- Bus
- Suburb
- Open Space

NORTH EAST LINK PROJECT

North East Link Project

Job Number 31-35006
Revision I
Date 06 Feb 2019

Overview of the local study area - key features of Manningham

Figure 6-17

180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: PTV 2018: Bus and Tram Routes, VicMap 2018: Localities, LGA, Imagery, ABS: SA1 2016, SEIFA data 2018 Created by:xlee

6.5.2 Key features

The City of Manningham includes the suburbs of Bulleen, Doncaster, Doncaster East, Donvale, Nunawading, Park Orchards, Templestowe, Templestowe Lower, Warrandyte, Warrandyte South and Wonga Park.

Manningham is bound by the Yarra River to the north and west, and Koonung Creek to the south. Mullum Mullum Creek essentially divides the municipality in terms of land use, with land to the west of Mullum Mullum Creek being highly urbanised and land to the east being primarily semi-rural (City of Manningham, 2013a), with significant tracts of open space and recreational land. Much of the east of Manningham is part of Melbourne's 'green wedge', which is generally protected from urbanisation by the Victorian Government (Shire of Nillumbik, 2018b). Consequently, Manningham is known for its high environmental standards, scenic resources and established residential areas with mature gardens (City of Manningham, 2013a).

Manningham contains a network of activity centres, including a principal activity centre in Doncaster Hill, a major activity centre in East Doncaster, and 10 Neighbourhood Activity Centres (Donburn, Tunstall Square, Jackson Court, Templestowe Village, Macedon Activity Centre, Bulleen Plaza, Doncaster East, Devon Plaza Activity Centre, Park Orchards, Warrandyte township and Warrandyte Goldfields) (City of Manningham, 2013a).

Within the City of Manningham, North East Link would extend approximately 1.49 kilometres traversing a number of suburbs from Bulleen in the north to Nunawading in the east. The project's southern portal and Bulleen Road interchange would be located in Bulleen and connect North East Link to the Eastern Freeway. Works along the Eastern Freeway would be along the southern edge of Doncaster, Doncaster East, Donvale and Nunawading.

The area surrounding North East Link area includes the Heide Museum of Modern Art, Bulleen Industrial Precinct and the residential area of Bulleen. The Bulleen Industrial Precinct contains a number of light industrial businesses including automotive repair premises. Businesses are well-established with some operating on a reciprocal system, where they rely on other businesses in the precinct. Given the length of tenure of some businesses, there are strong social ties among business owners, employees and the local community. Consultation undertaken for the social impact assessment found that businesses in the precinct are valued based on the long-standing relationships, and diversity in employment technical education pathways for the local and broader community that in some cases is reliant on industrial zoning. Consultation with Manningham City Council confirmed the importance of the Bulleen Industrial Precinct to the local economy.

Moving south towards the Eastern Freeway, the area is largely characterised by recreational and open space areas located to the west of Bulleen Road and schools and recreational areas to the east. The alignment then moves along the Eastern Freeway through residential areas and some recreation and open space areas between Bulleen, Donvale and Nunawading.

6.5.3 Amenity and character

Manningham is divided into an eastern semi-rural and green space side and a western residential side. The eastern area is characterised by extensive vegetation and contains significant areas of biological significance. In addition, Manningham has one of the largest networks of open space in metropolitan Melbourne, with over 300 parks that cover approximately 17 per cent of the municipality (City of Manningham, 2013a).

Manningham contains a range of heritage buildings and precincts, including the Warrandyte township, which is known for its distinctive building style and association with the Heidelberg School of Arts (John Patrick Pty Ltd, 2006). In addition, there are a number of areas that hold considerable value to the Wurundjeri people, particularly along the Yarra River and hilltop areas (John Patrick Pty Ltd, 2006).

The west of Manningham is largely urbanised, with residential development reflecting a range of architectural periods, ranging from post-war weatherboard and brick houses to modernist and larger post-modern homes.

On a more granular level, the City's Residential Character Guidelines (City of Manningham, 2012b) defines character types for the areas surrounding the study area as:

- Residential areas removed from activity centres and main roads (most parts of Bulleen, Doncaster East, Donvale and Nunawading). Predominantly detached dwellings with a garage or carport and gardens and lawns at the front and rear of the property. The level of tree canopy varies.
- Residential areas surrounding activity centres and main roads (Doncaster activity centre and residential areas close to main roads, such as Manningham Road, Doncaster Road, Tram Road and Elgar Road), characterised by 1950s and 1960s dwellings with some 1970s buildings. In some areas, detached dwellings have been redeveloped with units.

Consultation for the social impact assessment with residents living near the project boundary indicated that residents value living in a low density, quiet, green area, and their connections to neighbours. They also value the linear parks and trees which are currently a buffer to the Eastern Freeway. Despite this buffer, residents living close to the freeway have current concerns related to traffic noise and dust.

Yarra River, Bulleen

(Source: NELP)

Sculpture at Heide Museum of Modern Art

(Source: NELP)

Figure 6-18 Manningham character

6.5.4 Public spaces and facilities

Manningham hosts a range of public spaces and facilities, with key features including:

- The Doncaster Hill Principal Activity Centre, which includes high density residential areas, the Doncaster Shopping Town – a major regional shopping centre, and civic and educational facilities and light industrial areas (City of Manningham, 2013a).
- Manningham contains numerous local activity centres that service the needs of the community and the suburb level. There are two local activity centres located on Bulleen Road and Templestowe Road near the project.

The majority of the western half of Manningham is rated as having very high to high accessibility under the Metro ARIA combined index (Figure 6-19), which reflects the ease or difficulty people face in accessing basic services (AURIN & University of Adelaide, 2014). The eastern half has low and limited accessibility, reflecting the largely semi-rural land uses of this area. High accessibility in Manningham is generally associated with activity centres. The area surrounding the project boundary is rated to have very high and high accessibility in the west as the project moves northward. However, there are a number of areas along the Eastern Freeway that have moderate accessibility. This was supported by consultations for the social impact assessment with residents close to the project, which indicated that residents value the current level of access they have to facilities and services. Note there is a considerable area not covered by the Metro ARIA index, as it is not defined as a 'metropolitan area' under the remoteness area classification used by the ABS (*.ibid*). These areas are defined as 'Other' in Figure 6-19.

A summary of key public spaces and facilities located close to the project is provided below.

Bulleen Industrial Precinct

There are approximately 100 businesses operating within the Bulleen Industrial Precinct. It provides a number of services such as automobile services, dry cleaning, gardening needs, food manufacturing and distribution and provides approximately 1,000 jobs. It provides a diversity of employment ranging from skilled to unskilled, and full-time to casual work creating local employment pathways. Consultation with community members shows that residents from other municipalities, particularly Boroondara and Whitehorse, also use and rely on this precinct for some specialist services.

Art and cultural facilities

Manningham hosts a number of art and culture facilities, including The Heide Museum of Modern Art (Heide), Mia Mia Gallery and the Heidelberg School Artists Trail. Heide is located in proximity to North East Link to the east and incorporates galleries with a range of gardens including artist gardens that are open to the public. Established by John and Sunday Reed, Heide is recognised as an important feature of Australian art and social history, most notably through its development of artists known as the Heide Circle, who lived and worked at Heide. School groups regularly visit the gallery and the grounds are also used for Tai Chi workshops and a craft market in the summer months. The grounds themselves are popular for the café and picnic spots and facilities are available for event hire. Community groups also regularly use the grounds.

The Heidelberg School Artists Trail includes 57 signs that are dispersed across 40 kilometres though the municipalities of Manningham, Banyule and Nillumbik. Those located close to the project in Manningham are located either side of the Yarra River within the Yarra Flats Park. Signs on the eastern side of the river and most proximal to the project include works by Arthur Streeton and Charles Condor.

Bulleen Art and Garden is a not for profit business with a nursery and gallery space for emerging local artists. The business hosts various art and gardening workshops and social groups. As well as catering for schools excursions, community disability groups and elderly social groups, it is an important hub for a range of socio economic groups due to a range of free or affordable to join events hosted by the business.

Public open space and sports facilities

The Yarra Valley Parklands spans across 85 hectares and includes a range of pastoral and heritage landscapes and bushlands. Within the parklands are smaller formalised parks including Banksia Park, Bolin Bolin Billabong and Bulleen Park. Banksia Park includes playground facilities, a Japanese Cherry Tree Grove and an off-leash dog area.

Consultations with residents for the social impact assessment revealed the importance of linear parks and open space close to the project boundary. Of significance was the Koonung Creek Trail, Yarra River and Estelle Street Linear Park for walking and cycling for recreation. Bolin Bolin Billabong is part of a larger network of billabongs and swamps formed by the Yarra River. It is a highly sacred site to the Indigenous Wurundjeri people (City of Manningham, n.d.-a). Banksia Park is of interest to local dog walkers and elderly walking groups, the Yarra Flats also host not-for-profit organisations Bulleen Art and Garden (see above). This area is collectively known as the Yarra Valley Parklands and is the main focus of conservation group friends of Yarra Valley Parklands.

Bulleen Park incorporates significant sport and recreational facilities, playgrounds, picnic areas, walking trails and bushland reserves (City of Manningham, n.d.-b). Sports facilities include football, cricket and soccer ovals that are highly utilised by a range of groups, including:

- Yarra Junior Football League
- Templestowe United Football Club
- Bulleen Templestowe Junior Football Club
- Yarraleen Cricket Club
- The Yarra Bowman Archery Club facilities
- The Doncaster Aeromodeller's Club.

These groups typically use the grounds in the evenings during the week and throughout the day over the weekend.

Marcellin College and the sports fields of Carey Baptist Grammar School and Trinity Grammar School are located close to the project at the proposed entrance to North East Link near its intersection with the Eastern Freeway.

The Marcellin College grounds are used by various external sports groups including the Marcellin Old Collegians Football Club and Camberwell Dragons Basketball Association who use the facility on Sundays, and Bulleen Templestowe Basketball Club who use the facilities some weeknights. Marcellin Old Collegians Football Club also have their own clubroom on the school site. The school is host to interschool sports competitions and sporting events. Local primary schools from neighbouring suburbs including St Leonards Primary School and St Martin of Tours Primary School use the school halls and sports grounds on occasion. Trinity Grammar School and Carey Baptist Grammar School both have their school sports grounds adjacent to Marcellin College. Similarly, the Trinity and Carey grounds host alumni football clubs. Trinity Grammar School's grounds also host external sporting camps and programs and some local primary school sports.

Birralea Primary School is located near the Eastern Freeway section of North East Link. The school are regular hosts to out of hours' tennis and basketball games as well as extension classes for students after school hours.

The Veneto Club and associated sports grounds are also used by various community groups and as an important meeting place for members of the local Italian community. Sports clubs that use the club facilities include the Templestowe Football Club for weeknight and occasional Sunday games, Bulleen Lions Football Club, futsal and basketball clubs. Other uses of the grounds include school visits and community events (such as Christmas carols).

Park Reserve in Doncaster is used by the Manningham United Blues and the Juventus Old Boys Football Clubs. The park is used all days of the week in evenings on weekdays and all day on weekends.

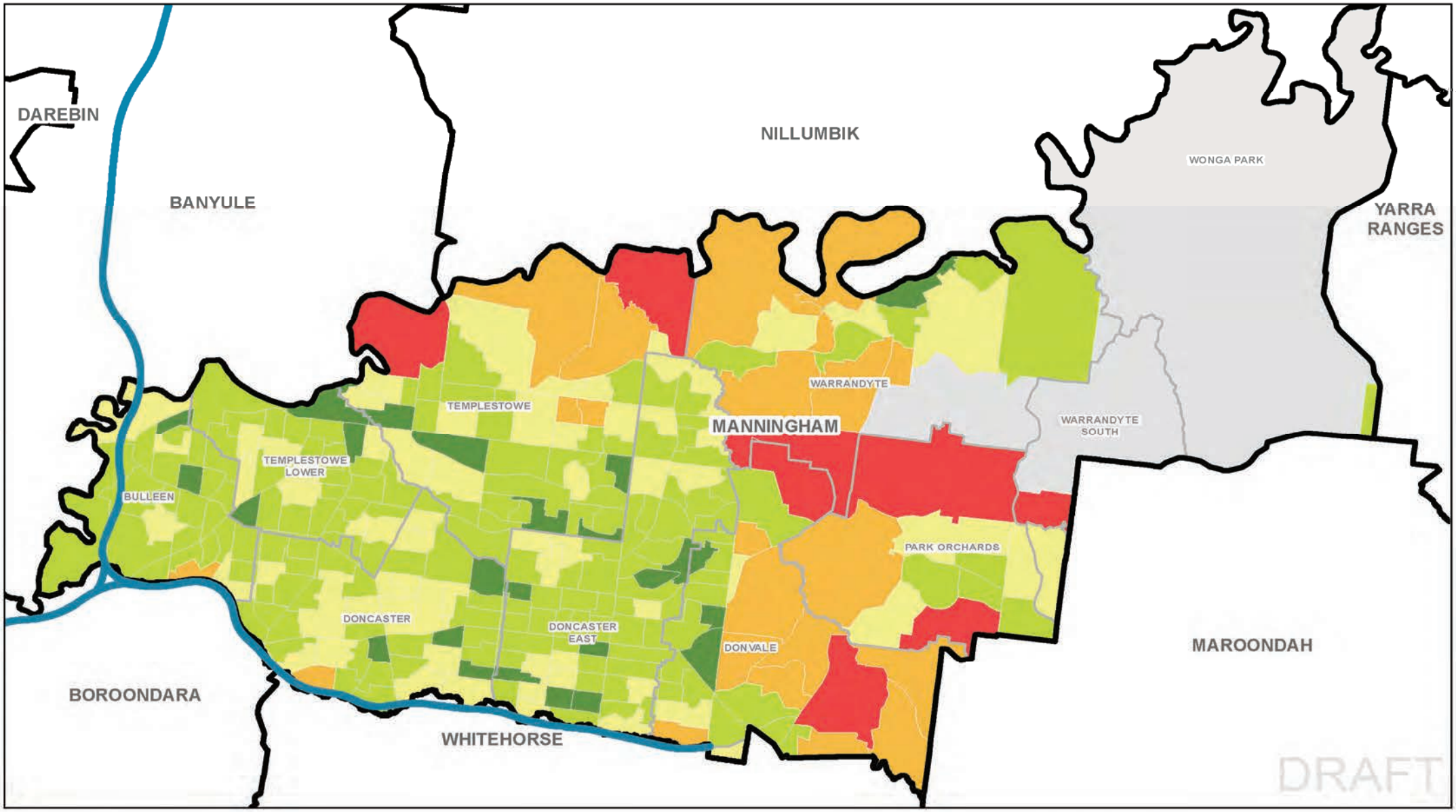
The Bulleen Swim Centre on Bulleen Road and Bulleen Golf Driving range on Templestowe Road are near the southern region of the project boundary. Both are regular hosts to school groups in the area, with Bulleen Swim Centre catering to students from Heatherwood Special School and elderly citizens groups in particular. The Swimming Association of Victoria also run annual workshops at the facility.

Tende Beck Scouts Hall located along the Eastern Freeway in Doncaster runs a scouts group for disabled and severely disabled members. The hall also hosts ad hoc meetings for martial arts classes, personal training classes, a costume store, a four wheel drive association and other support groups.

Consultations for the social impact assessment with residents near the project boundary indicated that residents from Manningham as well as the surrounding municipalities of Boroondara and Whitehorse in particular, value the sports fields and indoor sports facilities. Boroondara Tennis Centre is particularly valuable as an important regional community facility.

According to the *Local Government Community Satisfaction Survey – City of Manningham 2017* (JWS Research, 2017c), Manningham residents rate the existing open space and recreational facilities in the municipality highly. From consultation conducted for the social impact assessment, it was clear that Manningham residents along the Eastern Freeway see the linear parks as their green spaces as they do not have the same access to parks that other areas of the municipality experience. When responding to the *Community Satisfaction Survey*, 65 per cent of survey respondents rated Manningham's recreational facilities as very good or good. Eight per cent of survey respondents stated the sports and recreational facilities are the best part of living in the area, and 10 per cent stated that parks and gardens are the best aspects of Manningham (JWS Research, 2017c).

Community infrastructure facilities within the local study area are listed in Section 6.5.8.



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Map Projection: Transverse Mercator
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- NEL Alignment
- LGA
- Suburb
- Other
- Very High Accessibility
- High Accessibility
- Moderate Accessibility
- Low Accessibility
- Limited Accessibility
- Other

North East Link Project

Metro Accessibility/Remoteness Index of Australia (ARIA) combined index - Manningham

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Figure 6-19

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, MetroARIA data 2018, Data Custodian, Data Set Name/Title, Version/Date. Created by:Cjauniau

6.5.5 Connectivity

Manningham is serviced by a bus network. Reliance on the road network is high in Manningham due to a lack of rail-based public transport services in the municipality. Car travel and motor vehicle ownership is high, with 76 per cent of people travelling to work by car compared with the Greater Melbourne average of 71 per cent (ABS, 2018a).

Key roads and connections throughout Manningham include north-south routes (Elgar Road, Tram Road, Blackburn Road, Jumping Creek Road, Bulleen Road, Thompsons Road, Williamsons Road, Andersons Creek Road, Springvale Road, Ringwood-Warrandyte Road, and Croydon Road) and east-west routes (Reynolds Road, Heidelberg-Warrandyte Road, Foote Street, Templestowe Road, Manningham Road, and Doncaster Road). The major access to metropolitan Melbourne is provided by the Eastern Freeway.

Consultation for the social impact assessment indicated that residents value living in the area due to the ease of access to the city and airport, surrounding suburbs, and locations further afield via the Eastern Freeway (such as the Mornington Peninsula).

Traffic congestion in Manningham is becoming an increasing issue, which was highlighted during consultations for the social impact assessment. There is considerable congestion on arterial roads, especially during peak hours. Traffic congestion, as well as poor pedestrian connectivity, was also noted as a key issue for access to some community facilities, such as Bulleen Park. Consultation for the social impact assessment also identified that some arterial roads, particularly Bulleen Road, act as a barrier between both sides of the road due to congestion and limited pedestrian crossings. Consultations also indicated that some residents do not feel safe walking along and crossing Bulleen Road. According to the *Local Government Community Satisfaction Survey – City of Manningham 2017*, residents rated traffic management performance significantly below the importance placed on it by residents, indicating under-performance (JWS Research, 2017c).

The council aims to increase public transport use, particularly in the higher density area of Doncaster Hill to reduce congestion (City of Manningham, 2014). This was confirmed during consultation with council for the social impact assessment, with some areas such as Bulleen noted to be lacking services due to poor public transport access.

Manningham has lower proportions of people who cycle to work (less than 1 per cent) or walk to work (1 per cent) compared with the average for Greater Melbourne (2 and 3 per cent respectively) (ABS, 2018a). In part, this likely reflects the lack of cycling and pedestrian infrastructure and poor connectivity where this infrastructure exists (City of Manningham, 2010, 2013c).

During consultations for the social impact assessment, residents spoke of the importance of the pedestrian bridges crossing the Eastern Freeway for access to sports fields by foot, especially to walk dogs in open space areas. However, some residents did not feel these bridges were currently safe at night or for children to cross alone.

6.5.6 Trust and cohesion

According to the VicHealth Indicators Survey 2015 Results (VicHealth, 2016b), Manningham residents have slightly higher levels of trust in others (77 per cent) compared with the state average (72 per cent). Most residents also felt that people in the community are willing to help each other (71 per cent compared with the state average of 74 per cent) and that they live in a close knit neighbourhood (consistent with the state average of 61 per cent).

This was supported by consultations for the social impact assessment with residents close to the project boundary, who spoke about the neighbourly feel of where they live. This may reflect the slightly lower level of migration in Manningham, with:

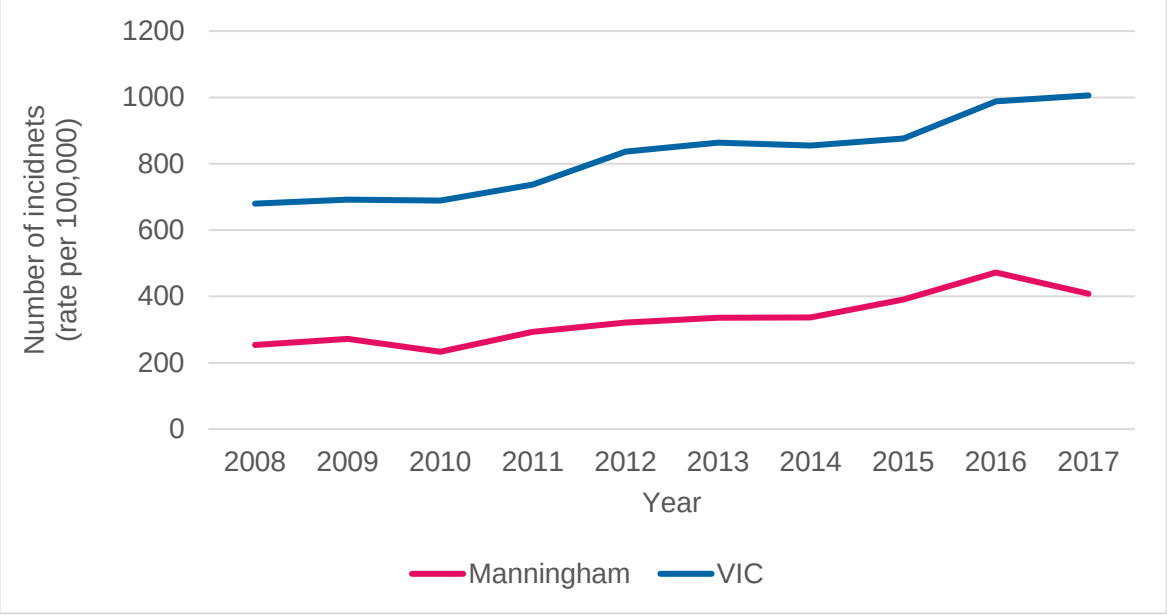
- 82 per cent of people in 2016 living at the same address as one year ago compared with 77 per cent in Greater Melbourne
- 63 per cent of people in 2016 living at the same address as five years ago compared with 54 per cent in Greater Melbourne.

These slightly higher proportions of longer residence in Manningham are likely to allow people for form more and stronger relationships with those in the community, which is a generally recognised to increase social capital (ABS & Edwards, 2004). Manningham City Council noted during consultations for the social impact assessment that community infrastructure facilities such as the Veneto Club provide a meeting place for residents and facilitate social connection.

People's perception of safety can influence their feelings of trust and cohesion. When places are designed and maintained to be safe, people are encouraged to access and use them, which can increase opportunities for social interaction and cohesion.

According to the VicHealth Indicators Survey 2015 Results (VicHealth, 2016b), most Manningham residents felt safe walking alone in their local area during the day (92 per cent consistent with the state average of 93 per cent), whereas 55 per cent felt safe walking alone after dark (consistent with the state average). Consultations for the social impact assessment with residents close to the project indicated that some areas near the Eastern Freeway noise walls lack lighting, and therefore some residents feel unsafe in these areas at night.

Although reported crimes are lower than the state (Figure 6-20), according to the Community Safety Plan 2013-2017 (City of Manningham, 2012a), there was community concern around violence against women, young people's safety (bullying, sexual abuse) and senior safety (elder abuse, mobility safety, pedestrian safety, and being socially isolated) (City of Manningham, 2013b).



Source: (Crime Statistics Agency Victoria, 2018)

Figure 6-20 Crimes against the person, City of Manningham and Victoria, 2008-2017

6.5.7 Vulnerable communities

Manningham's population is relatively socio-economically advantaged, with the majority of SA1's placed in the 7th to 10th deciles (Figure 6-21). There are several pockets in the 6th decile in the west and south-west and along the southern boundary of the municipality, north of the project boundary as it follows the Eastern Freeway.

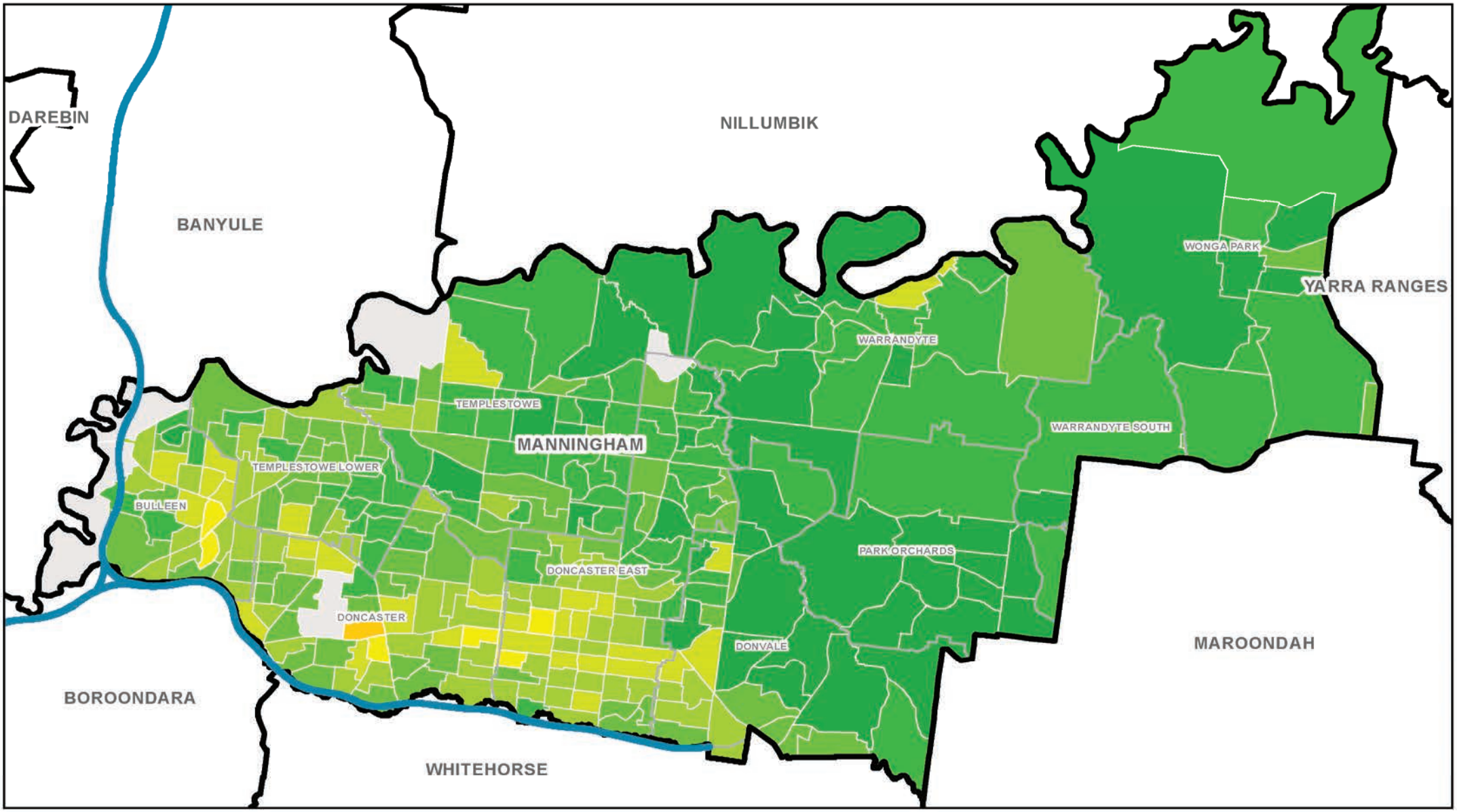
Manningham has a significant ageing population, including:

- A higher proportion of seniors (70-84 years) (13 per cent in Manningham compared with 8 per cent in Greater Melbourne)
- A slightly higher proportion of people around retirement age (60-69 years) (11 per cent in Manningham compared with 9 per cent in Greater Melbourne) (.id The Population Experts, 2018g; ABS, 2018b).

Manningham City Council Healthy City Strategy 2017 – 2021 found that 29 per cent of older people in Manningham identified they have transport limitations (City of Manningham, 2017). This represents a sizeable and growing population that are likely to increasingly rely on public transport and require urban environments to be accessible and pedestrian-friendly.

Manningham in increasingly diverse in terms of cultural and linguistic diversity, with 9 per cent of the population born in China, followed by 3 per cent in Malaysia and 3 per cent in Italy. The proportion of people who do not speak English well or at all was 8 per cent in 2016, which is significantly higher than the Greater Melbourne average of 6 per cent (.id The Population Experts, 2018f). During consultations for the social impact assessment the council noted that spaces like the Veneto Club are important to the community and particularly older people as a place for social interaction and gatherings.

Manningham's proportion of people who need assistance with core activities (such as self-care, movement and communication due to a severe or profound disability) of 5 per cent is equal to Greater Melbourne. However, there are a number of pockets scattered throughout Manningham, including Templestowe, Templestowe Lower Donvale and Doncaster East, with proportions of people who need assistance above 15 per cent (Figure 6-22).



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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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NEL Alignment
LGA
Suburb

SEIFA (SEDA) by SA1 2016

Other
1
2
3
4
5
6
7
8
9
10

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SEIFA (IRSD) Deciles by SA1 - Manningham

Figure 6-21

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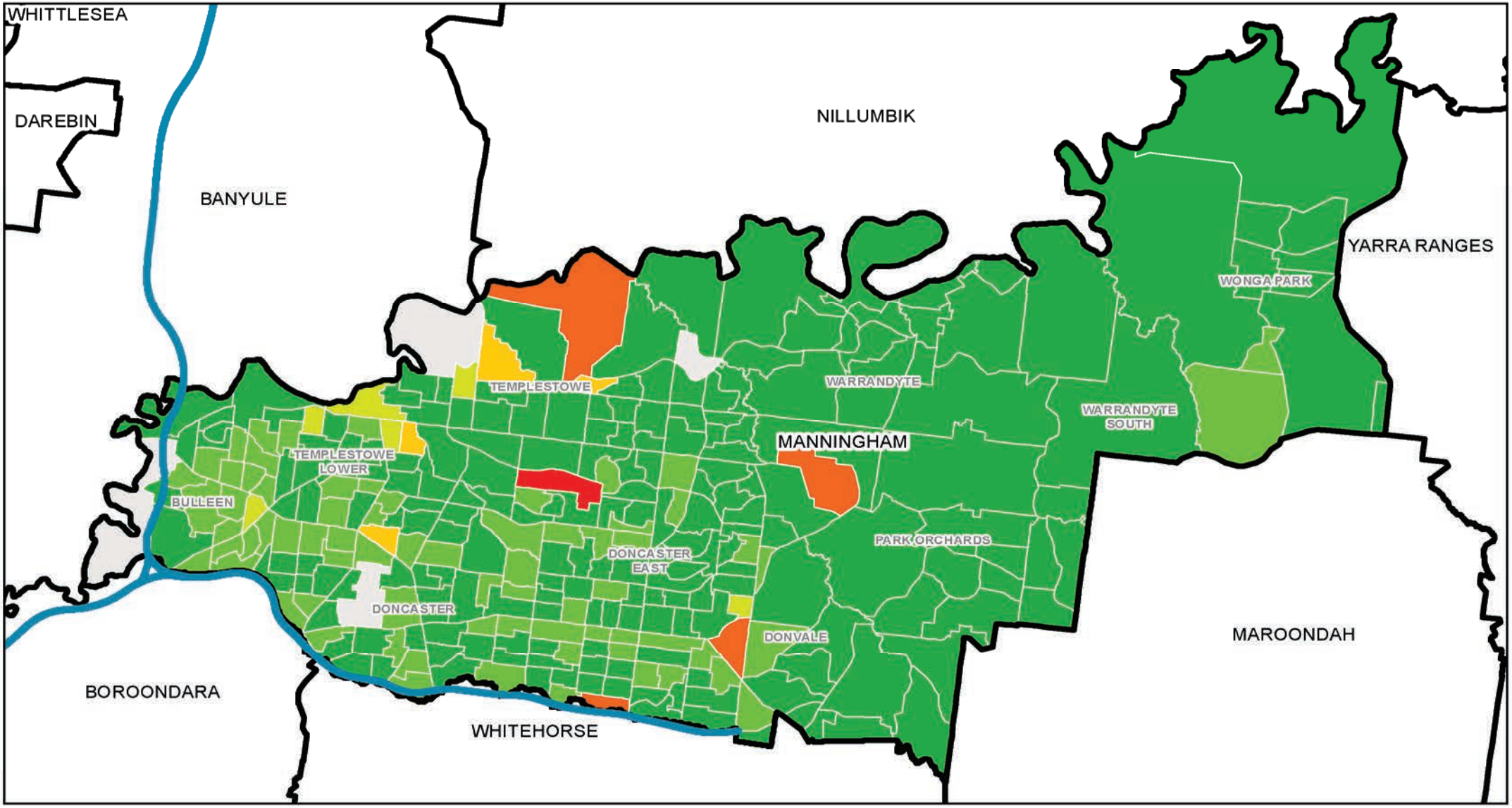
Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, SEIFA data 2018. Created by:xlee



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Map Projection: Transverse Mercator
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- NEL Alignment
- LGA

Disability %

- 0 - 5%
- 5.01% - 10%
- 10.01% - 15%
- 15.01% - 20%
- 20.01% - 40%
- 40.01% - 60%

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People who require assistance with core activities - Manningham

Figure 6-22

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Data source: VicMap 2018: API, POI points, Localities, LGA; GHD: Survey Data 2018. Created by:xlee

6.5.8 Key community infrastructure relative to North East Link

Key community infrastructure facilities in Manningham suburbs the project would intersect are listed in Table 6-4 and shown in Figure 6-23. Additional detail on these facilities is provided in Appendix E.

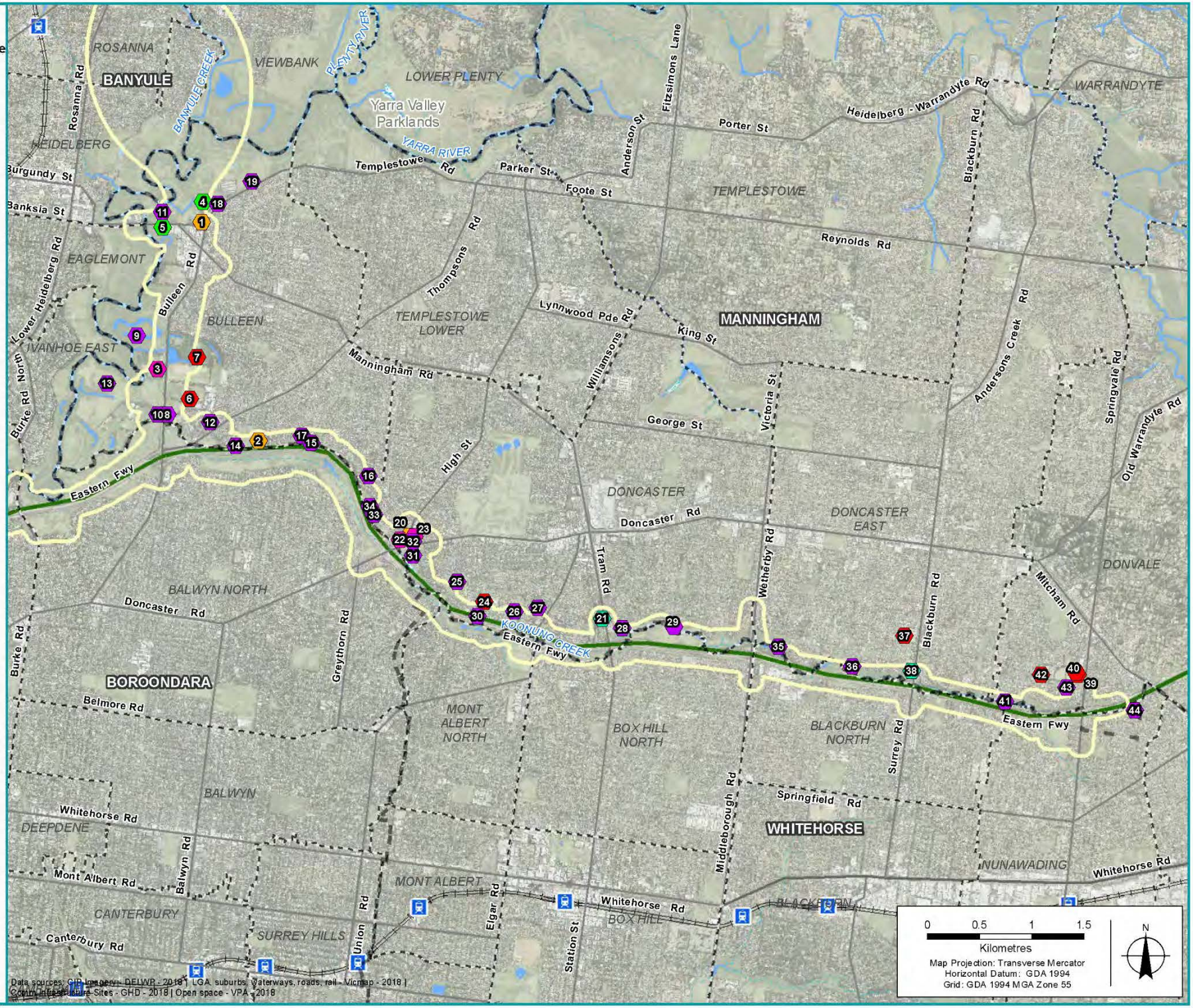
Table 6-4 Key community infrastructure relative to North East Link in the Manningham

Suburb	Map code	Facility name
Bulleen	1	Creative Play Early Learning Centre
	2	Kalker Montessori Centre
	3	Veneto Club
	4	Heide Museum of Modern Art
	5	Bulleen Art and Garden
	6	Marcellin College
	7	Trinity Grammar School Sporting Complex
	8	Bulleen Swim Centre
	9	Bolin Bolin Billabong
	10	Carey Grammar Sports Complex
	11	Yarra Valley parklands – Banksia Park
	12	Sandra Street Reserve
	13	Bulleen Park
	14	Koonung Reserve
	15	Koonung Creek Reserve
	16	Willow Bend Reserve
	17	Pipe Line Reserve
	18	Yarra Valley Country Club
	19	Bulleen Golf Driving Range
Doncaster	20	Wonderland Childcare and Kinder
	21	Applewood Retirement Village
	22	Tende Beck Scout Hall
	23	North Eastern Jewish Centre-Yeshurun Congregation
	24	Birralee Primary School
	25	Wilsons Road Reserve
	26	Katrina Street Reserve
	27	Davis Street Reserve
	28	Tram Road Reserve
	29	Koonung Creek Linear Park

Suburb	Map code	Facility name
	30	Stanton Street Reserve
	31	Doncaster Park and Ride
	32	Tino Ceberano Martial Arts Academy
	33	Greythorn Bowling Club
	34	Manningham Park Reserve
Doncaster East	35	Koonung Creek Reserve
	36	Boronia Grove Reserve
	37	Beverley Hills Primary School
	38	Japara Sydney Williams Apartments
Donvale	39	Heatherwood School
	40	State Vision Resource Centre
	41	Koonung Creek Linear Park
	42	Donvale Primary School
	43	Aranga Reserve
Nunawading	44	Oxford Street Reserve

Figure 6-23

Manningham community infrastructure facilities

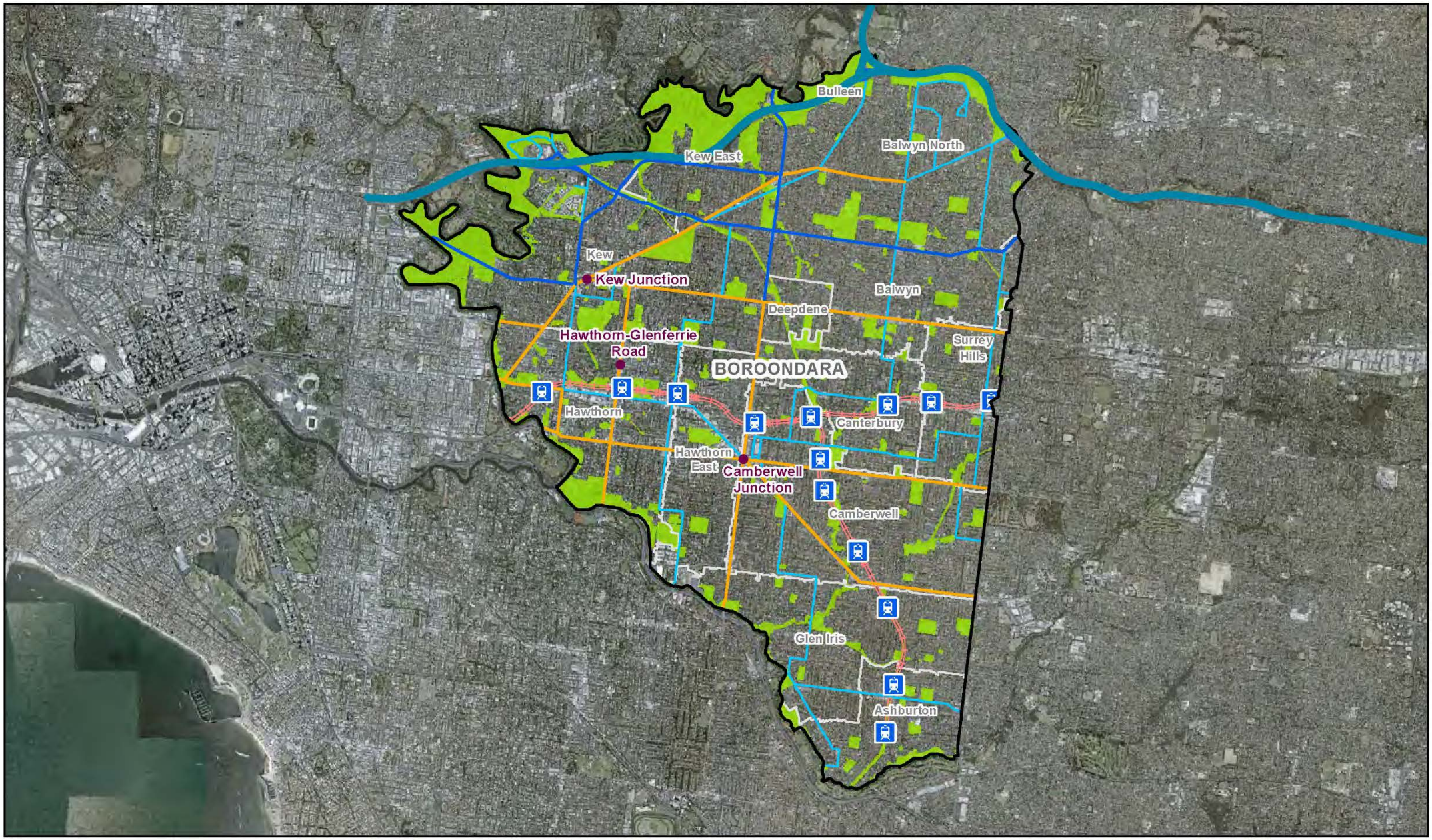


6.6 Boroondara local government area

6.6.1 Demographic profile

The key demographic characteristics of the City of Boroondara compared with Greater Melbourne are summarised below and detailed in Appendix B.

- At the 2016 Census the total population of Boroondara was 167,231 compared with 159,184 in 2011. By 2041, the population of Boroondara is expected to reach 217,676 (.id The Population Experts, 2018a).
- Population growth in Boroondara from 2011 to 2016 was 5.1 per cent.
- Boroondara reported a female population of 52 per cent and a male population of 48 per cent, which is similar to Greater Melbourne with females at 51 per cent and males at 49 per cent.
- The largest proportion of males in Boroondara was in the 20-24 age group, while the largest proportion of females was in the 45-49 age group.
- In Boroondara, 25 per cent of the population were born in non-main English speaking countries and 27 per cent of the population spoke a language other than English at home.
- The median weekly income for people aged 15 years and over in Boroondara was $2,083. This was higher than the average income reported for Greater Melbourne, which was $1,542.
- Boroondara has a higher rate of people that did not change address (51 per cent) over five years compared with Greater Melbourne (50 per cent).
- The SEIFA IRSAD ranked Boroondara LGA at decile 10 within Victoria. This indicated the municipality is highly advantaged.
- Boroondara had lower levels of car use compared with Greater Melbourne (56 per cent compared with 66 per cent), a lower percentage of vehicle use compared with Melbourne (8 per cent compared with 9 per cent).
- The municipality reported higher percentages of active and public transport for journey to work than Greater Melbourne, including travel by train (14 per cent compared with 12 per cent), bus (2 per cent for both areas), cycling (2 per cent compared with 1 per cent) and walking (4 per cent with to 3 per cent).



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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Major Activity Centre
- Rail Station
- NEL Alignment
- LGA

Principal Public Transport Network

- Bus
- Tram

Public Transport Victoria (PTV)

- Bus
- Railway
- Suburb
- Open Space

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Overview of the local study area - key features of Boroondara

Figure 6-24

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Data source: PTV 2018: Bus and Tram Routes, VicMap 2018: Localities, LGA, Imagery, ABS: SA1 2016, SEIFA data 2018 Created by:xlee

6.6.2 Key features

The City of Boroondara includes the suburbs of Ashburton, Balwyn, Balwyn North, Camberwell, Canterbury, Deepdene, Glen Iris, Hawthorn, Hawthorn East, Kew, Kew East, Mont Albert and Surrey Hills.

Boroondara is primarily residential and is known for a distinct residential character of inter-war and post-war development in the form of the 'Garden Suburb' (City of Boroondara, 2018a). The Yarra River acts as Boroondara's boundary for much of the west and northern extents of the municipality and is associated with significant landscape and open space values (City of Boroondara, 2018a).

Boroondara contains an extensive network of activity centres, with three activity centres of Glenferrie, Camberwell Junction and Kew Junction, in addition to 31 neighbourhood centres and four commercial corridors (City of Boroondara, 2018a). In addition to this network of activity centres, Boroondara has a well-established education sector, with the highest concentration of independent schools in Melbourne and the Swinburne University of Technology (City of Boroondara, 2016).

Within Boroondara, North East Link would extend approximately 1.52 kilometres. Works along the Eastern Freeway would be along the northern edge of Kew, Kew East and Balwyn North. The project boundary borders predominantly on residential areas as well as the Koonung Creek parkland reserve which runs along the Eastern Freeway. Locally significant north-south roads traverse these residential areas. These connect directly to the Eastern Freeway section of the project boundary and include Princes Street and Burke Road. Other connections and roads include Chandler highway, High Street and Doncaster Road freeway access.

6.6.3 Amenity and character

Boroondara has considerable heritage values, with around 20 per cent of the urban area covered by heritage overlays (City of Boroondara, 2006). Boroondara contains evidence of most major periods of post-contact settlement including:

- Some of Melbourne's earliest non-Indigenous settlements in Melbourne in Hawthorn's west (mid 1840s)
- Mid-Victorian development (1850s to 1870s) spread across Hawthorn, parts of Kew, Camberwell, Balwyn and Canterbury
- Boom-era (1880s) development along the railway line
- Early 20th century development in the north-east and south-east of the Boroondara
- Post-war development in the north-eastern and south-eastern fringes (Built Heritage Pty Ltd, 2012).

Boroondara contains 10 Aboriginal archaeological sites, including two Aboriginal historic places and a number of cultural places (City of Boroondara, 2006).

Boroondara has a distinctive character that is created through the mix of inter-war and post-war houses, with large areas established in line with the Garden Suburb form of development. These residential areas are associated with nature strips, large established private gardens, tree-lined streets and access to open space areas (City of Boroondara, 2006).

Local to the study area, residential character can be generally characterised as a mix of pre, post and interwar one to two-storey houses with pitched rooves and established front and rear gardens (City of Boroondara, 2017c) (Figure 6-25). *The City of Boroondara Thematic Environmental History* notes the area surrounding the project includes some areas, including Balwyn North and Kew, that are characterised by large numbers of architect-designed houses that were considered leading practice at the time of their construction (Built Heritage Pty Ltd, 2012). Some areas have an increasing presence of new houses and period reproduction design although development is encouraged to integrate with the pitched roofs and garden suburb form of development (City of Boroondara, 2017c). The exception to the character of much of the area surrounding the project boundary is a small precinct[7] that was developed in the 1990s with one and two-storey dwellings with neo-Edwardian detailing, lack of fences and small front and rear gardens, as shown in Figure 6-25 (City of Boroondara, 2017c).

Consultation for the social impact assessment indicates that many Booroondara residents value the quiet, leafy feel of where they live, and good access to public open spaces (such as Koonung Creek Linear Reserve) and community facilities (such as schools). However, consultations for the social impact assessment with residents who live close to the Eastern Freeway indicate they currently experience concerns related to traffic noise, dust and visual impacts.

Koonung Creek Trail

(Source: NELP)

Residential street in Balwyn North

(Source: NELP)

Figure 6-25 Boroondara character

[7] Classified as area 7 in the *Neighbourhood Character Study*

6.6.4 Public spaces and facilities

Boroondara hosts a range of public spaces and facilities that in some cases, service the wider metropolitan Melbourne community including:

- The Camberwell Junction principal activity centre
- Kew Junction and Glenferrie major activity centres
- Boroondara contains 31 local neighbourhood centres and 15 local centres that service the needs of the community at the suburb and local level
- A range of public and private hospitals, including the Royal Talbot Rehabilitation Centre.

Community infrastructure facilities that would be located close to the study area are listed in Section 1.1.1.

Boroondara also includes a large number of open space and recreational areas, many of which are associated with the Yarra River and Gardiners Creek (City of Boroondara, 2013b). A number of parks are recognised to have regional recreational and open space values, such as the open space associated with Gardiners Creek and the Yarra River (City of Boroondara, 2013b). The study area is adjacent or intersects a number of open space areas, including:

- Musca Street Reserve, which connects to the Main Yarra Trail and the Yarra Flats Park via a shared trail
- Yarra Flats Reserve, which covers an extensive area of 85 hectares and includes pastoral and heritage landscapes, natural bushland, wetlands and informal picnic areas. The Yarra Flats Reserve connects to the Main Yarra Trail
- Koonung Creek Reserve, which is an extensive linear park adjacent to the project alignment to the north and south of the Eastern Freeway. The Reserve contains a range of environmental features including wetlands, indigenous vegetation, a BMX facility, playgrounds and a number of shared use paths (City of Boroondara, 2013b). Consultation for the social impact assessment indicated that Koonung Creek Reserve in particular is used regularly by dog walkers, cyclists and for informal recreation. The Koonung Creek Trail is used by commuting and recreational cyclists.

The study area also intersects the following public sporting facilities owned by Boroondara Council:

- The Boroondara Tennis Centre is a 23-court publicly accessible facility that is one of the largest facilities in Victoria and so serves a regional purpose (City of Boroondara, 2018b). The tennis centre is unique in that it provides for casual users rather than clubs and so is locally and regionally utilised (City of Boroondara, 2018b). Courts are available for public hire and the facility is a popular place for socialising. Nearby schools regularly use the facility for sport, and casual users come from surrounding local government areas. The facility is also utilised for tournaments throughout the year, including those hosted by Tennis Victoria and Tennis Australia.
- The Freeway Public Golf Course is the only golf course in Boroondara open to the general public.

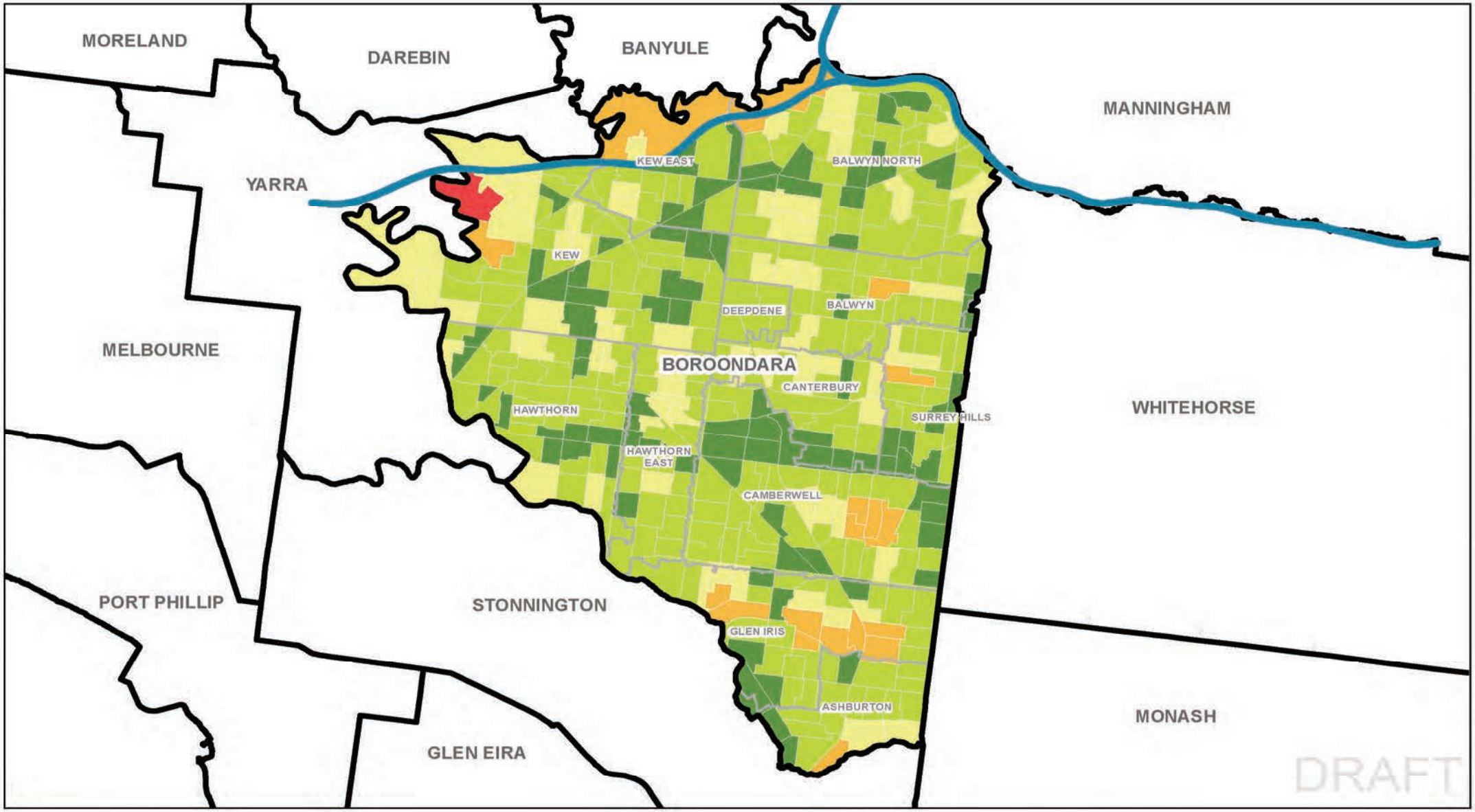
- The Kew Golf Club is also near the project boundary and has a private membership base. However, its facilities are also used by a number of community groups including the Rotary Club of North Balwyn, the Port Philip Probus Club and regular card playing groups. The facility also holds seminars as well as local sporting club presentation nights.

Belle View Primary School is located near the Eastern Freeway section of North East Link. The school is the only government school in the area. The school hosts Greek and Chinese Language Schools on weekends and utilises surrounding community infrastructure facilities including Koonung Creek, Bullen Park and the Manningham Club for school sports and events.

Parks and open spaces near the project are listed in Section 1.1.1.

The 2017 City of Boroondara City Council Community Satisfaction Survey (JWS Research, 2017d) found that residents rate the existing open space and recreational facilities in Boroondara highly with 82 per cent rating the recreational facilities as very good or good and 27 per cent of residents stating the parks and gardens are the best part of living in the area. This was supported by consultations for the social impact assessment with residents living close to the project, who indicated they value having good access to community facilities and public open space. JWS Research (2017d) also found that recreational facilities are highly utilised by the residents of Boroondara, with 71 per cent of residents reporting they personally use recreational areas.

The majority of Boroondara is rated as having very high to high accessibility under the Metro ARIA combined index (Figure 6-26), which reflects the ease or difficulty people face in accessing basic services (AURIN & University of Adelaide, 2014). There are small pockets of moderate accessibility located in non-residential areas of Boroondara, particularly along its northern boundary, which is primarily associated with open space and parklands. Note that there is a small area not covered by the Metro ARIA index, as it is not defined as a 'metropolitan area' under the remoteness area classification used by the ABS (*.ibid*). These areas are defined as 'Other' in Figure 6-26.



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- NEL Alignment
- LGA
- Suburb
- Other
- Very High Accessibility
- High Accessibility
- Moderate Accessibility
- Low Accessibility
- Limited Accessibility
- Other

North East Link Project

Metro Accessibility/Remoteness Index of Australia (ARIA) combined index - Boroondara

Job Number	31-35006
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Figure 6-26

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Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, MetroARIA data 2018, Data Custodian, Data Set Name/Title, Version/Date. Created by:Cjauniau

6.6.5 Connectivity

Burke Road, Glenferrie Road, Bulleen Road and Denmark Street provide a range of primarily north-south routes throughout Boroondara, which are intersected by east-west routes, including High Street, Studley Park Road, Barkers Road, Riversdale Road, Toorak Road and Doncaster Road. The major access to metropolitan Melbourne is provided by the Eastern Freeway, in addition to more localised access through Boroondara's east-west routes.

The City of Boroondara has noted the arterial network suffers from traffic congestion, along with congestion and high traffic speeds on a number of local streets (City of Boroondara, 2017b). Congestion on the Eastern Freeway and Bulleen Road were raised during consultations for the social impact assessment as creating barriers to accessing the CBD, or as a cause for using alternative roads and local streets as diversion routes. This reflects the findings of Technical report A – Traffic and transport, which found that Bulleen Road is subject to AM peak delays 50 to 100 per cent above that outside of peak times. Consultations for the social impact assessment also confirmed traffic congestion associated with schools, such as Belle Vue Primary School (Belle Vue Primary School, 2018).

Although congestion on the Eastern Freeway was noted as a key concern, consultations for the social impact assessment with residents living close to the Eastern Freeway indicate they value the access it provides to the CBD and other parts of Melbourne. The consultations indicated that residents often cross the Eastern Freeway to access services and facilities. Bulleen Road and Doncaster Road were identified as key north-south connections across the freeway, although concerns about trucks and reduced safety were noted about Bulleen Road, particularly for pedestrians. Residents living close to the Eastern Freeway indicated they use the existing pedestrian bridges which cross the freeway when walking along the Koonung Creek Trail.

Boroondara is serviced by the Alamein, Belgrave and Lilydale rail lines, six tram routes and an extensive network of more than 30 bus services. Public transport usage is slightly above that of Greater Melbourne average; for example, 15 per cent of Boroondara commute by train compared with 12 per cent and 3 per cent commute by bus compared with 2 per cent (ABS, 2018a).

Boroondara has an extensive network of on-road marked bicycle lanes and off-road shared trails that provide pedestrian and bicycling connectivity for residents. Consultations for the social impact assessment indicated that cycling is a popular activity in the municipality. On-road bicycle paths include much of the primary road network. A number of these intersect with North East Link, including the Main Yarra trail and the Koonung Trail. The Outer Circle trail also intersects the study area as it crosses the Eastern Freeway at the Chandler Highway.

Off-road shared trails that are close to or are intersected by the project include Koonung Creek Reserve, the Main Yarra Trail and an un-named trail. These trails are well-utilised and have high recreational value for cyclists and non-cyclists (City of Boroondara, 2008). The trails are important links for residents commuting to and from work (City of Boroondara, 2013b) (City of Boroondara, 2018b). Consultations with cycling groups for the social impact assessment indicated there are current concerns related to a lack of protected bike lanes, safety of cyclists, and lack of wayfinding and access.

6.6.6 Trust and cohesion

According to the VicHealth Indicators Survey 2015 Results (VicHealth, 2016b), Boroondara residents have slightly higher levels of trust in others (77 per cent) compared with the state average (72 per cent). Despite this, less residents felt that people in the community are willing to help each other (69 per cent) when compared with the state average of (74 per cent) and only 52 per cent of residents believe they live in a close-knit neighbourhood, compared with the state average of 61 per cent.

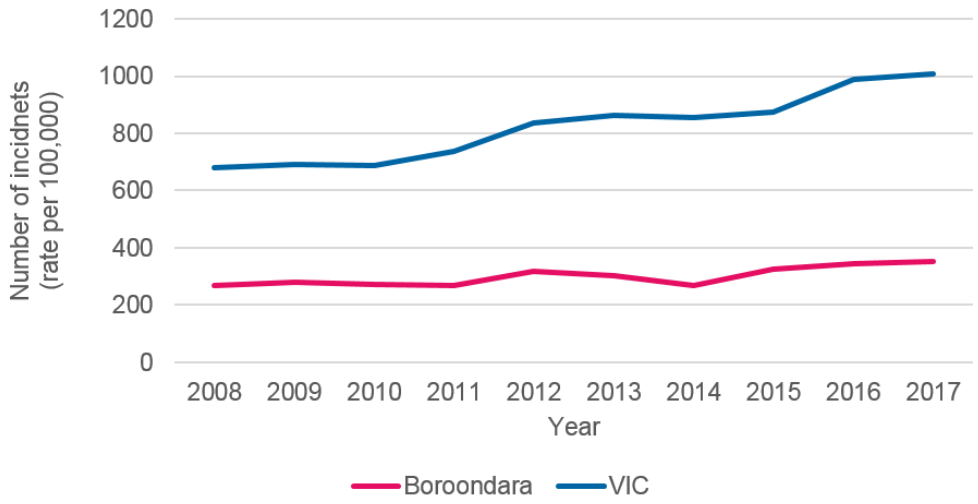
Although these levels are lower than the state average, VicHealth notes they are generally in line with the state profile. Levels of migration within Boroondara are also consistent with Greater Melbourne with:

- 77 per cent of people in 2016 living at the same address as one year ago
- 54 per cent of people in 2016 living at the same address as five years ago.

While length of residence is often an indicator of social capital, in this instance Boroondara's similarity to Greater Melbourne's length of residence indicates a level of mobility typical of urban areas, which in some cases is lower than other areas considered in this report. This may reflect the slightly lower levels of trust discussed above.

According to the VicHealth Indicators Survey 2015 Results (VicHealth, 2016b), most Boroondara residents felt safe walking alone in their local area during the day (98 per cent compared with the state average of 93 per cent), whereas 70 per cent felt safe walking alone after dark (consistent with the state average). This was supported by consultations with residents living close to the project for the social impact assessment.

The high levels of feelings of safety, particularly at night, likely reflects the lower levels of crimes against the person experienced in Boroondara compared with the state, as shown in Figure 6-27. In addition, the relatively low levels of socio-economic deprivation (see Section 6.6.7) in Boroondara may have contributed to feelings of safety, with the ABS noting that perception of safety tends to decrease with higher levels socio-economic disadvantage (ABS, 2010).



Source: (Crime Statistics Agency Victoria, 2018)

Figure 6-27 Crimes against the person, City of Boroondara and Victoria, 2008-2017

6.6.7 Vulnerable communities

Boroondara's population is relatively socio-economically advantaged, with SA1s on the SEIFA index ranging from decile 6 to decile 10, indicating there is limited disadvantage in Boroondara (Figure 6-28). Boroondara has a significantly lower proportion of state housing dwelling of 1 per cent compared with 2 per cent in Greater Melbourne. Boroondara City Council recognises the need for additional public housing stock (City of Boroondara, 2017a).

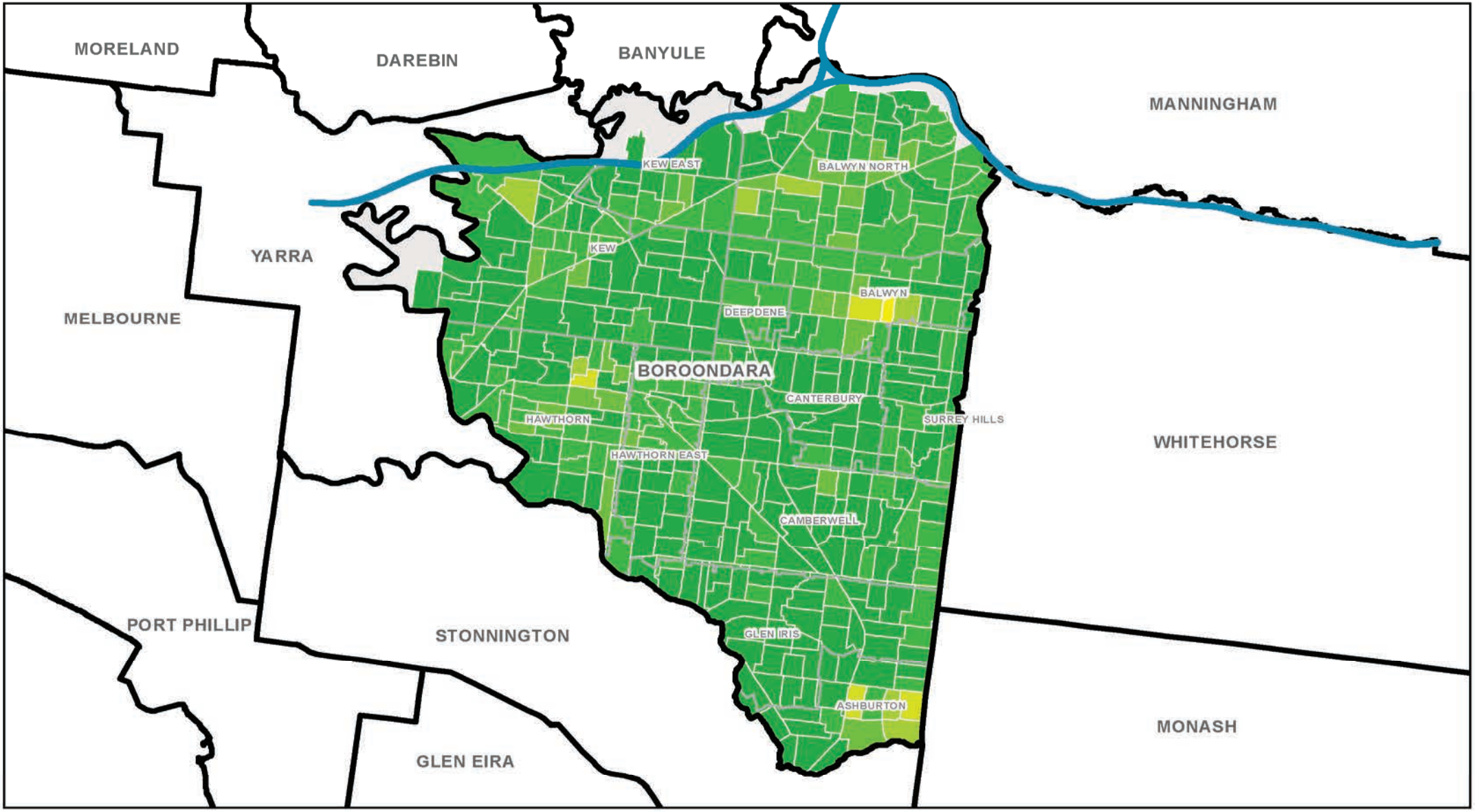
Boroondara has a significant ageing population (City of Boroondara, 2013a) although it is generally on par with Greater Melbourne, with:

- Older workers and pre-retirees (50 to 59) (13 per cent in Boroondara compared with 12 per cent in Greater Melbourne)
- Those around retirement age (60 to 69 years) (10 per cent in Boroondara compared with 9 per cent in Greater Melbourne)
- Seniors (70 to 84 years) (8 per cent for both areas)
- Elderly people (85+ years) (3 per cent in Boroondara compared with 2 per cent in Greater Melbourne) (.id The Population Experts, 2018f; ABS, 2018a).

According to the City of Boroondara (2014), older people in Boroondara are comparatively affluent and enjoy an overall great sense of wellbeing. However, the City of Boroondara also notes that older single women are more likely to face social isolation and financial pressure (*ibid*.).

Around 30 per cent of Boroondara residents were born overseas, with the most common birthplace after Australia being China (7 per cent) followed by the United Kingdom (4 per cent) and India (2 per cent) (ABS, 2018a). The proportion of people who do not speak English well or at all was 4 per cent in 2016, which is lower than the Greater Melbourne average of 6 per cent (.id The Population Experts, 2018f).

Boroondara's proportion of people who need assistance with core activities (such as self-care, movement and communication due to a severe or profound disability) of 4 per cent is lower than that Greater Melbourne at 5 per cent. However, there are pockets where disability reaches above 15 per cent (Figure 6-29).



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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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NEL Alignment
LGA
Suburb

SEIFA (SEDA) by SA1 2016

Other
1
2
3
4
5
6
7
8
9
10

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SEIFA (IRSD) Deciles by SA1 - Boroondara

Figure 6-28

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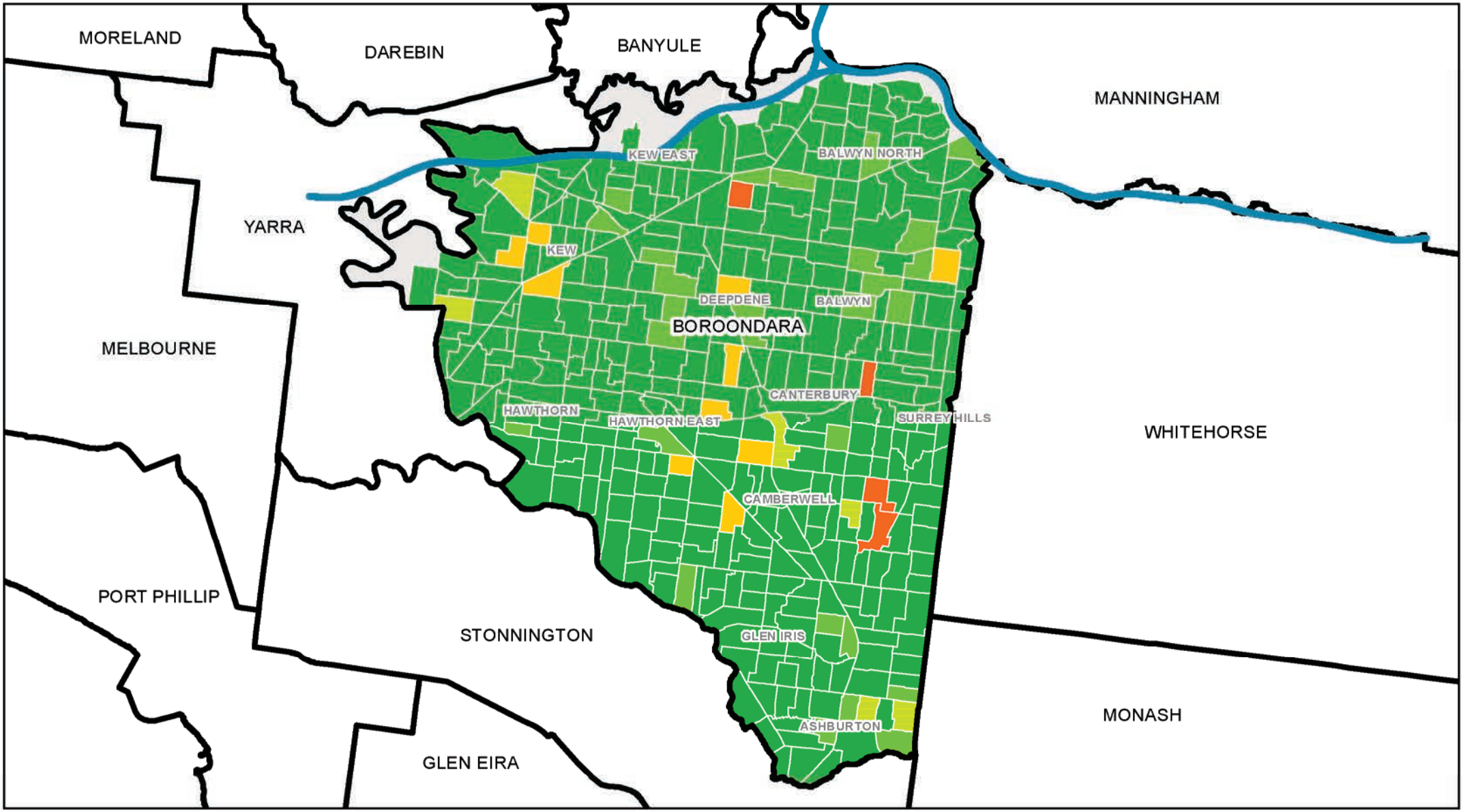
180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, SEIFA data 2018. Created by:xlee



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Map Projection: Transverse Mercator
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- NEL Alignment
- LGA

Disability %

- 0 - 5%
- 5.01% - 10%
- 10.01% - 15%
- 15.01% - 20%
- 20.01% - 40%
- 40.01% - 60%

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People who require assistance with core activities - Boroondara

Figure 6-29

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Data source: VicMap 2018: API, POI points, Localities, LGA; GHD: Survey Data 2018. Created by:xlee

6.6.8 Key community infrastructure relative to North East Link

Key community infrastructure facilities in Boroondara suburbs the project would intersect are listed in Table 6-5 and shown in Figure 6-30. Additional detail on these facilities is provided in Appendix E.

Table 6-5 Key community infrastructure relative to North East Link in the Boroondara

Suburb	Map code	Facility name
Balwyn North	1	Belle Vue Primary School
	2	Boroondara Tennis Centre
	3	Musca Street Reserve
	4	Columba Street Reserve
	5	Leonis Avenue Reserve
	6	Koonung Creek Reserve
	7	Winfield Road Reserve
	8	Yarra Flats Reserve
	9	Freeway Public Golf Course
	10	Boroondara Park Primary School
Kew East	11	Kew Golf Club
	12	Hays Paddock Reserve
	13	Hyde Park
	14	Burke Rd Billabong Reserve
	15	Green Acres Golf Club
	16	Willsmere-Chandler Park
Kew	17	Guide Dogs Victoria
	18	Royal Talbot Rehabilitation Centre
	19	Yarra Bend Park
	20	Kate Campbell Reserve
	21	Jack O'Toole Reserve
	22	North Kew Tennis Club
	23	1st Kew Scout Group

Figure 6-30

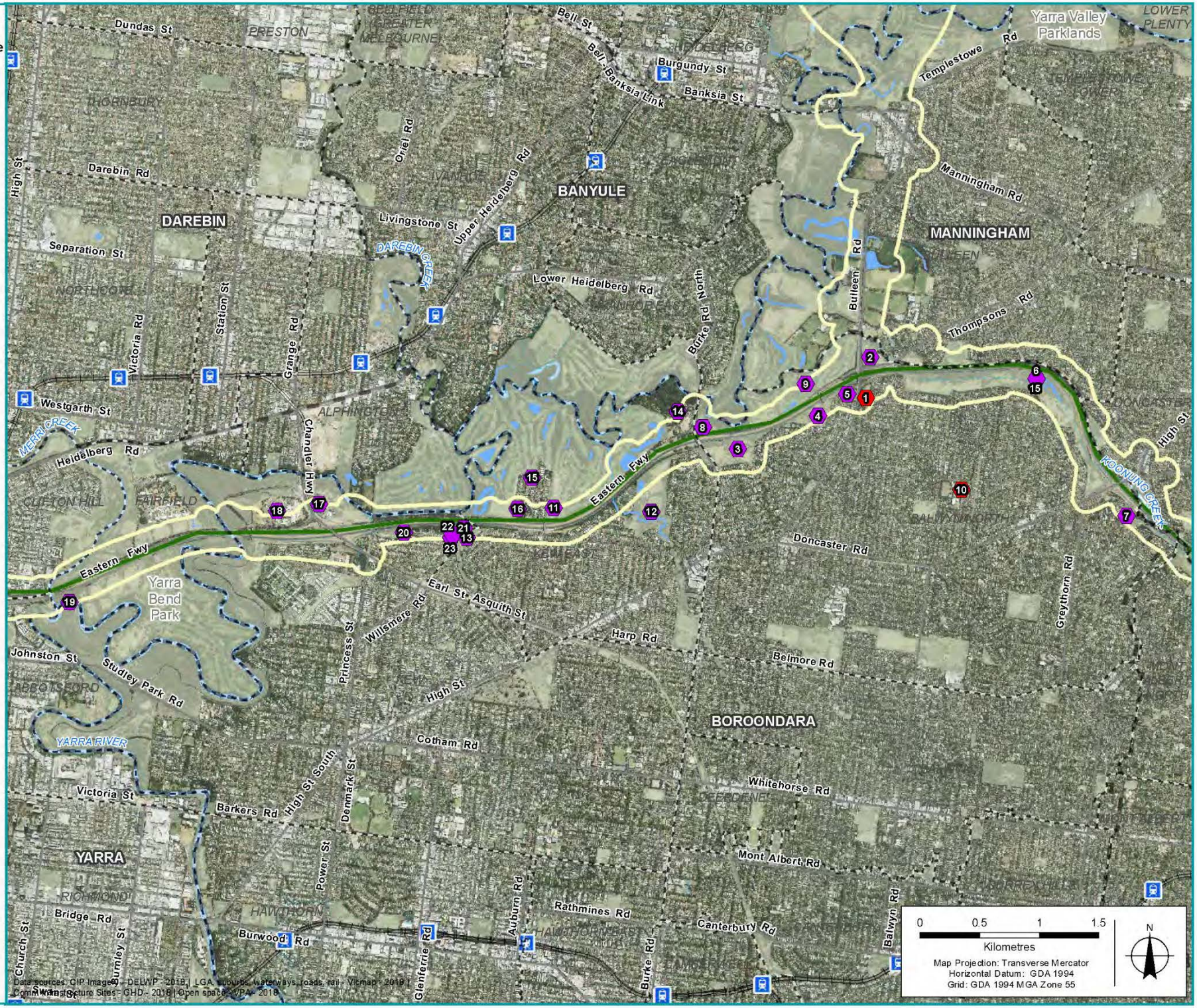
Boroondara community infrastructure facilities

Community Infrastructure

1 - Belle Vue Primary School
2 - Boroondara Tennis Centre
3 - Musca Street Reserve
4 - Columba Street Reserve
5 - Leonis Avenue Reserve
6 - Koonung Creek Reserve
7 - Winfield Road Reserve
8 - Yarra Flats Reserve
9 - Freeway Public Golf Course
10 - Boroondara Park Primary School
11 - Kew Golf Club
12 - Hays Paddock/Reserve
13 - Hyde Park
14 - Burke Rd. Billabong Reserve
15 - Green Acres Golf Club
15 - Koonung Creek Reserve
16 - Willsmere-Chandler Park
17 - Guide Dogs Victoria
18 - Royal Talbot Rehabilitation Centre
19 - Yarra Bend Park
20 - Kate Campbell Reserve
21 - Jack O'Toole Reserve
22 - North Kew Tennis Club
23 - 1st Kew Scout Group

Legend

- Education
- Open Space and Recreation
- Social Impact Assessment Area (SIA)
- Open Space
- LGA Boundaries
- Suburb Boundary



6.7 Whitehorse local government area

6.7.1 Demographic profile

The key demographic characteristics of the City of Whitehorse compared with Greater Melbourne are summarised below and detailed in Appendix B.

- At the 2016 Census the total population of Whitehorse was 162,078 compared with 151,334 in 2011. By 2036, the population of Whitehorse is expected to increase to 207,424 (.id The Population Experts, 2018c).
- Population growth in Whitehorse from 2011 to 2016 was 7 per cent.
- Whitehorse reported a female population of 52 per cent and a male population of 48 per cent. Greater Melbourne had a similar gender split with 51 per cent female and 49 per cent male.
- The largest proportion of males and females in Whitehorse was in the 20-24 age group.
- In Whitehorse, 34 per cent of the population were born in non-main English speaking countries compared with 28 per cent in Greater Melbourne. Whitehorse reported a higher proportion of languages other than English spoken at home (37 per cent compared with 32 per cent).
- Whitehorse has a higher rate of people that did not change address (54 per cent) over five years) compared with greater Melbourne (50 per cent).
- Home ownership data indicated that Whitehorse had a higher proportion of fully owned housing at 38 per cent compared with 32 per cent in Greater Melbourne.
- The median weekly income for people aged 15 years and over was similar in Whitehorse and Greater Melbourne with $1,507 and $1,542 respectively.
- The SEIFA IRSAD ranked Whitehorse at decile 9 within Victoria. This indicated that municipality is highly advantaged.
- Whitehorse had lower levels of car use compared with Greater Melbourne (63 per cent compared with 66 per cent) and a lower percentage of households without a vehicle (8 per cent compared with 9 per cent).
- Whitehorse reported higher percentages of public transport use for journeys to work, including travel by train (16 per cent compared with 12 per cent) and bus (2 per cent for both areas).

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
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Legend

- Metropolitan Activity Centre
- Major Activity Centre
- Rail Station
- NEL Alignment
- LGA

Principal Public Transport Network

- Bus
- Tram
- Tram/Bus

Public Transport Victoria (PTV)

- Bus
- Railway
- Suburb
- Open Space

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Overview of the local study area - key features of Whitehorse

Figure 6-31

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: PTV 2018: Bus and Tram Routes, VicMap 2018: Localities, LGA, Imagery, ABS: SA1 2016, SEIFA data 2018 Created by:xlee

6.7.2 Key features

The City of Whitehorse (Whitehorse) includes the suburbs of Blackburn, Blackburn North, Blackburn South, Box Hill, Box Hill North, Box Hill South, Burwood, Burwood East, Forest Hill, Mitcham, Mont Albert, Mont Albert North, Nunawading, Surrey Hills, Vermont and Vermont South.

Whitehorse is bound by Warrigal Road to the west, Highbury Road to the south, Heatherdale Road to the east, and the Eastern Freeway to the north. Whitehorse is known for its mix of quiet residential streets, lively activity centres and employment areas. It has large educational, medical, business, and technology precincts that are home to major institutions and corporations such as Box Hill Institute, Deakin University and Box Hill Hospital (City of Whitehorse, 2011). Box Hill is a Central Activities District, while the Major Activity Centres are Forest Hill, MegaMile, Burwood Heights, and Burwood East – Tally Ho Business Park.

Within the City of Whitehorse, North East Link would extend approximately 6.7 kilometres. Works along the Eastern Freeway would be along the northern edge of Mont Albert North, Box Hill North, Blackburn North and Nunawading. The area surrounding the project boundary comprises residential areas. Walking and cycling trails and recreational areas run along the Koonung Creek Linear Park between the Eastern Freeway and residential areas.

6.7.3 Amenity and character

Whitehorse is recognised as an arts and cultural hub, stemming from Box Hill which was the original site of the Box Hill Artists Camp in 1885. Today, local arts and culture is showcased at the Box Hill Community Arts Centre. Box Hill Town Hall also provides an art space that showcases the council's art collection and provides a place for local meetings (City of Whitehorse, 2018a).

The Whitehorse Centre is a key arts and cultural centre that attracts thousands of people each year to shows from around the country. Whitehorse annually hosts free festivals from spring to autumn, which attracts many people and community groups to the area (City of Whitehorse, 2018a).

Whitehorse has many places of historical significance that mark its agricultural origins to the post-war housing boom. Schwerkolt Cottage and Museum Complex is a heritage-listed stone cottage in a garden setting surrounded by bushland (City of Whitehorse, 2018a).

Blackburn Lake Sanctuary is an important environmental asset and is regarded as one of the most important bird refuges in metropolitan Melbourne. The waterways of Koonung, Gardiners, Mullum Mullum and Dandenong Creeks are also significant environmental, landscape and recreation locations (see Figure 6-32). These creeks form part of an advanced open space network that is highly valued by the community (City of Whitehorse, 2018a).

Whitehorse has numerous activity centres and residential areas that exhibit different characteristics from the tree lined streets of Mont Albert, the native bushland setting around Blackburn Lake to higher density housing around Box Hill. Trees are integral to Whitehorse's character particularly residential areas. A tree canopy and large mature trees dominate parts of the LGA including Bellbird Dell, Cootamundra Walk, Wandinong Sanctuary, Wurundjeri Walk, Yarran Dheran, Antonio Park and the Blackburn Lake area (City of Whitehorse, 2018a).

On a more granular level, the City's *Neighbourhood Character Study* (2014) defines character types for the areas surrounding the project as:

- Garden suburban (part of Blackburn North, Box Hill North) – streets are commonly characterised by a grid road layout with grassy strips and footpaths. Residential buildings are generally visible along streets behind low front fences and open gardens, including canopy trees, lawns, garden beds and shrubs as shown in Figure 6-32.

- Bush suburban (Mont Albert North, part of Blackburn North, Nunawading) – mix of formal and informal streetscapes dominated by vegetation and wide nature strips. Residential buildings are often partially hidden behind tall trees. Buildings are mostly detached, brick or timber, with pitched and tiled roofs. There are some three to four-storey apartments along main roads.
- Bush environment (Mitcham) – informal streetscapes dominated by vegetation. Residential buildings are mostly detached, and partially or completely hidden behind mature trees or large setbacks.

Koonung Creek Wetlands in Mont Albert North

(Source: NELP)

Residential street in Blackburn North

(Source: NELP)

Figure 6-32 Whitehorse character

6.7.4 Public spaces and facilities

Whitehorse has many public spaces and facilities that are important to the eastern region of Melbourne and several of state importance including:

- Several major educational and health institutions that contribute significantly to the Whitehorse economy and provide a large number of jobs, such as the Box Hill Institute of TAFE, Deakin University, Box Hill Hospital, Epworth Private Hospital and Mitcham Private Hospital (City of Whitehorse, 2018b).
- The Box Hill Activity Centre hosts several institutions, including the TAFE, and Box Hill and Epworth Hospitals. Box Hill is also a major commercial centre and regional transport interchange. Box Hill is designated as a Health and Education Precinct in Plan Melbourne (City of Whitehorse, 2018b).
- Deakin University has a campus located in Burwood. Deakin University is designated as an Education Precinct in Plan Melbourne (City of Whitehorse, 2018b).
- Whitehorse has one of the biggest concentrations of office space in Melbourne outside of Melbourne CBD and St Kilda Road (City of Whitehorse, 2018b). Major offices centres are located at Box Hill, Tally Ho and Greenwood office parks.
- Major industrial precincts provide significant employment opportunities for the local and regional area, including Rooks Road, Middleborough Road, Redland Drive Estate, Joseph Street and Lexton Road. The MegaMile activity centre along Whitehorse Road in Nunawading provides bulky goods retail and motor vehicle sales that attract people from around the region (City of Whitehorse, 2018b).
- Major leisure facilities in the area include Aqualink Nunawading, Aqualink Box Hill and SportLink Vermont South.

A full list of community infrastructure facilities that are close to the project area is provided in Section 1.1.1.

The linear reserves along the waterways provide open space corridors. These include the Gardiners, Koonung, Bushy, Mullum Mullum and Dandenong creeks. The linear reserves are well used by the community for passive recreation (City of Whitehorse, 2008). It is understood from consultations for the social impact assessment that these linear open spaces are important facilities for the community as people recreate, walk dogs, picnic and play sport along the reserves. People with disabilities from nearby day services also use the linear reserves as sections of the reserves have good accessibility.

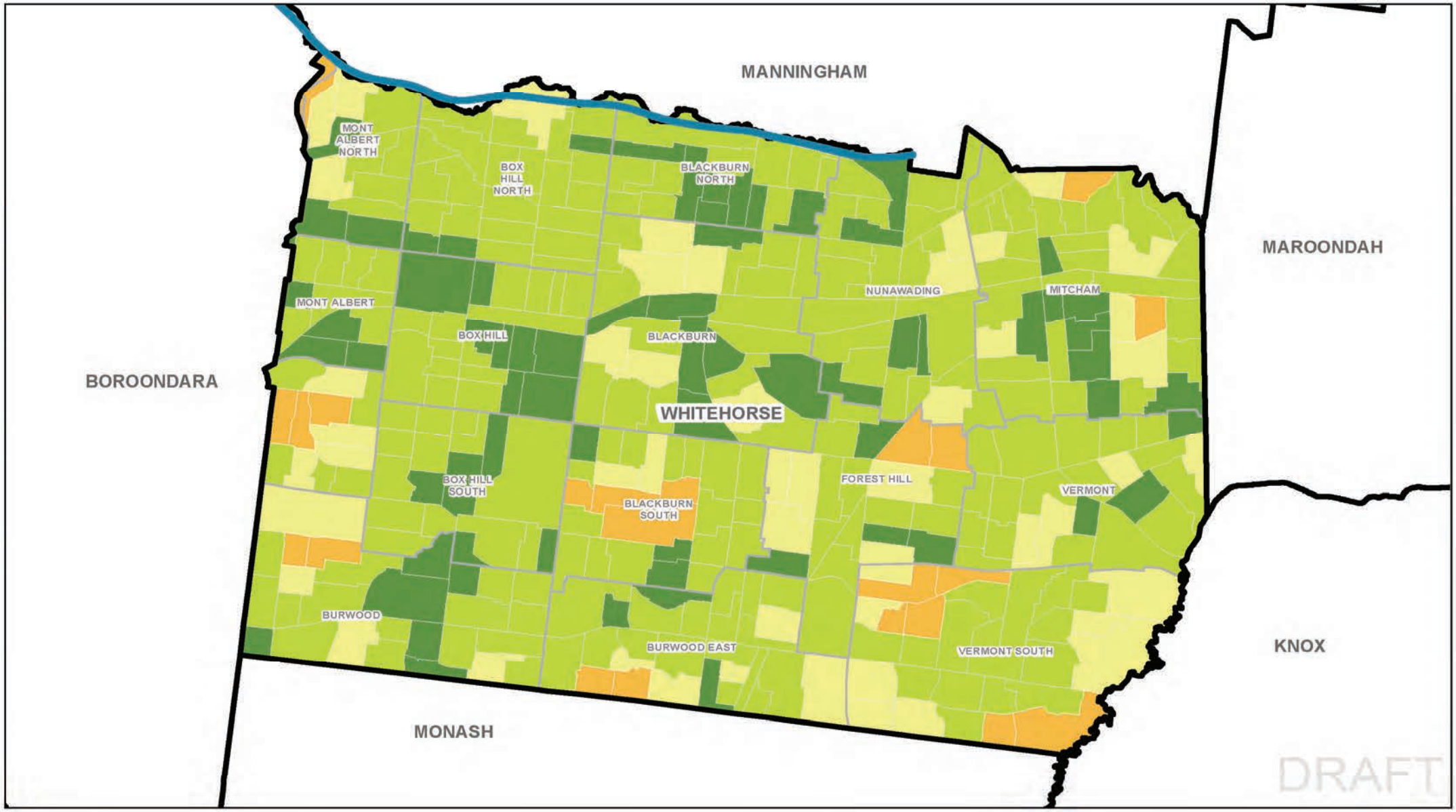
Close to the project within Whitehorse are the Eastern Freeway linear park and sporting facilities at Elgar Park and Slater Reserve. According to consultations for the social impact assessment, the Eastern Freeway linear park is well used by the local community for passive recreation activities such as dog walking and exercising.

During Summer, Elgar Park hosts the Box Hill North Super Kings Cricket Club and The Mont Albert Cricket Club. The Mont Albert Cricket Club use the park on Friday nights and weekends only. The Box Hill North Super Kings Cricket Club use the park for training on Tuesday and Thursday evenings and for Saturday matches. The Mont Albert Cricket Club consists predominantly local residents, with most traveling to the facility by car. In Winter the park is used by the Box Hill North Football club for training two nights per week and Saturday matches. The Eastern Ultimate Frisbee Club use the park year round on Thursday evenings in summer and Friday evenings in winter.

The Koonung Creek Trail is an established regional east-west link that connects many open spaces and facilities within Whitehorse, as well as a series of open spaces outside of the area. Footbridges over the Eastern Freeway provide residents with direct access to open spaces to the north, such as the Koonung Creek Linear Park and Boronia Grove Reserve.

The Whitehorse Community Satisfaction Survey 2017 (2017b) found that residents rate the existing open space and recreational facilities in Whitehorse highly with 72 per cent rating the recreational facilities as average or above, and 15 per cent of residents stating that the parks and gardens are the best part of living in the area. Consultations for the social impact assessment confirmed that open space, including dog off-leash areas, are extremely important to the local community and highly used.

The majority of Whitehorse is rated as having very high to high accessibility under the Metro ARIA combined index (Figure 6-33), which reflects the ease or difficulty people face in accessing basic services (AURIN & University of Adelaide, 2014). Areas of very high accessibility feature predominantly in the west in Box Hill, Burwood and Mont Albert, as well as a small pocket in the east in Mitcham. Pockets around Nunawading, Forest Hill, Vermont South and Burwood East, as well as areas along the Eastern Freeway Corridor have high levels of accessibility, with a small area of low accessibility shown in the south east corner of Whitehorse within Vermont South. Note that is a small area not covered by the Metro ARIA index, as it is not defined as a 'metropolitan area' under the remoteness area classification used by the ABS (*.ibid*). These areas are defined as 'Other' in Figure 6-33.



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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Legend

- NEL Alignment
- LGA
- Suburb
- Other
- Very High Accessibility
- High Accessibility
- Moderate Accessibility
- Low Accessibility
- Limited Accessibility
- Other

North East Link Project

Metro Accessibility/Remoteness Index of Australia (ARIA) combined index - Whitehorse

Figure 6-33

Job Number 31-35006
Revision F
Date 06 Dec 2018

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, MetroARIA data 2018, Data Custodian, Data Set Name/Title, Version/Date. Created by:Cjauniau

6.7.5 Connectivity

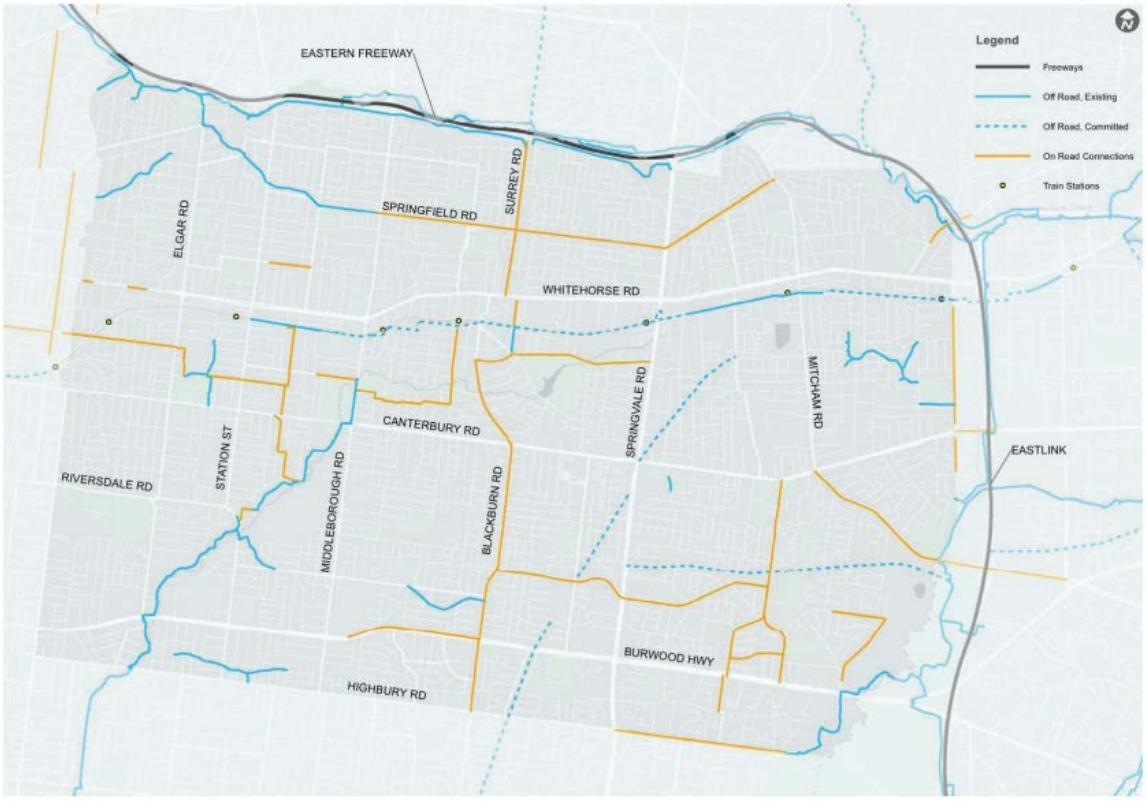
Whitehorse Road, Burwood Highway and Canterbury Road are major arterial roads that provide east-west connectivity through Whitehorse. These are intersected by north-south arterial roads, including Springvale Road, Elgar Road, Station Street, Middleborough Road and Blackburn Road, some of which provide access to the Eastern Freeway. The Eastern Freeway is the major access to metropolitan Melbourne. Consultations for the social impact assessment indicated that Whitehorse residents often cross the Eastern Freeway frequently to Manningham, particularly for shopping. Whitehorse also attracts people from surrounding areas who come to use facilities and services.

Arterial roads within Whitehorse have high volumes of through traffic and experience significant traffic congestion (City of Whitehorse, 2011). Traffic growth is expected across the arterial road network particularly along east-west roads around Springvale Road and north-south roads around Whitehorse Road (City of Whitehorse, 2011). The council recognises there are pedestrian safety and accessibility issues, including high pedestrian numbers around activity centres especially Box Hill and potential difficulties crossing busy arterial roads (City of Whitehorse, 2011).

Whitehorse is serviced by the Lilydale and Belgrave rail line, Vermont South to city tram line, Box Hill to city tram line, Wattle Park to city tram line and Smart Bus routes along Springvale, Blackburn, Mitcham, Whitehorse and Warrigal roads and Station Street. The Box Hill Transport Interchange is the busiest suburban transport interchange outside of metropolitan Melbourne and provides a hub for rail, tram, bus and taxi services (City of Whitehorse, 2011). The Vermont South to city tram line services major institutions in the south, such as Deakin University, several private schools, Greenwood Office Park, and activity centres in Burwood Heights, Burwood One, Tally Ho and Vermont South.

Whitehorse has several on-road bicycle lanes and off-road shared trails that provide opportunities for recreational walking and cycling, as well as commuter cycling trips (Figure 6-34).Major on-road bicycle paths include the Blackburn Road to Surrey Road link and a mix of on and off-road facilities along Springfield Road.

There are several off-road paths along open space and creek corridors, including the Koonung Creek, Gardiners Creek, Bushy Creek, and Dandenong Creek Trails. These primarily cater for recreational walking and cycling, and complement the on-road facilities for commuter cyclists (City of Whitehorse, 2011). There are also shorter links along parts of Highbury Road, Deep Creek Road, Hawthorn Road, Hanover Road, Hartland Road, Terrara Road, Morack Road and Boronia Road. The council recognises there are limited bicycle facilities along the main east-west arterial roads, such as Whitehorse Road, Canterbury Road and Burwood Highway (City of Whitehorse, 2011).



Source: (City of Whitehorse, 2016)

Figure 6-34 Active transport infrastructure – City of Whitehorse

6.7.6 Trust and cohesion

According to the VicHealth Indicators Survey 2015 Results (VicHealth, 2016b), Whitehorse residents have slightly higher levels of trust in others (76 per cent) compared with the state average (72 per cent). Most residents also felt that people in the community are willing to help each other (77 per cent compared with the state average of 74 per cent) and that they live in a close knit neighbourhood (62 per cent, consistent with the state average of 61 per cent).

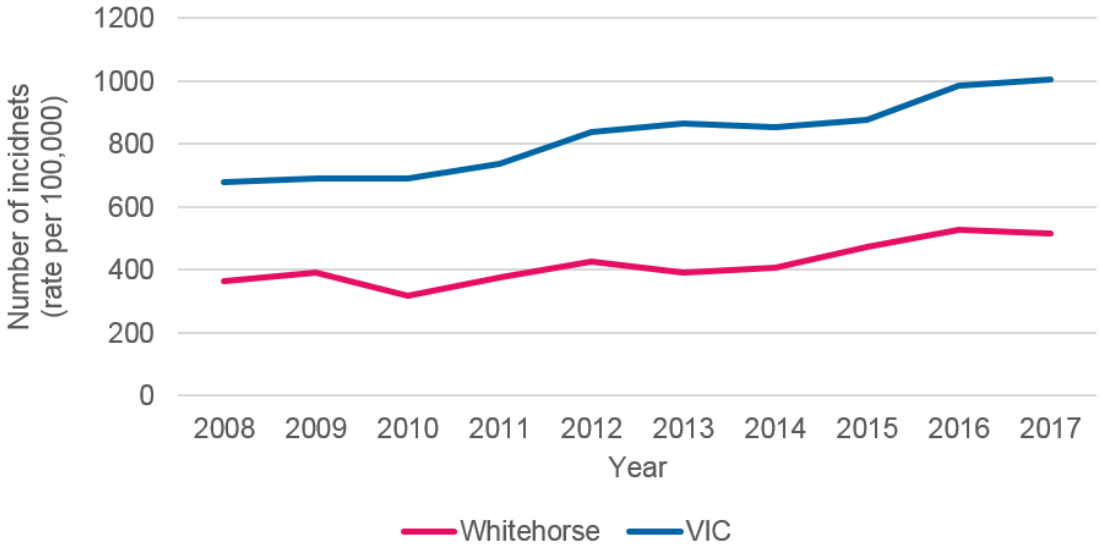
The level of migration in Whitehorse is also similar to state averages, with:

- 79 per cent of people in 2016 living at the same address as one year ago compared with 77 per cent in Greater Melbourne
- 57 per cent of people in 2016 living at the same address as five years ago compared with 54 per cent in Greater Melbourne.

People's perception of safety can also influence their feelings of trust and cohesion. When places are designed and maintained to be safe, people are encouraged to access and use them, which can increase opportunities for social interaction and cohesion.

According to the VicHealth Indicators Survey 2015 Results (VicHealth, 2016b), most Whitehorse residents felt safe walking alone in their local area during the day (96 per cent compared with the state average of 93 per cent) whereas 57 per cent felt safe walking alone after dark (consistent with the state average of 55 per cent).

Feelings of safety are higher to that of the state, which is consistent with evidence that crimes against the person are considerably and consistently lower than the state as shown in Figure 6-35.



Source: (Crime Statistics Agency Victoria, 2018)

Figure 6-35 Crimes against the person, City of Whitehorse and Victoria, 2008-2017

6.7.7 Vulnerable communities

While Whitehorse is ranked as the eighth least disadvantaged community in metropolitan Melbourne (City of Whitehorse, 2017), there are some small pockets of disadvantage located in Burwood, Blackburn South and Nunawading as shown in Figure 6-36.

Whitehorse has a larger proportion of older residents, including:

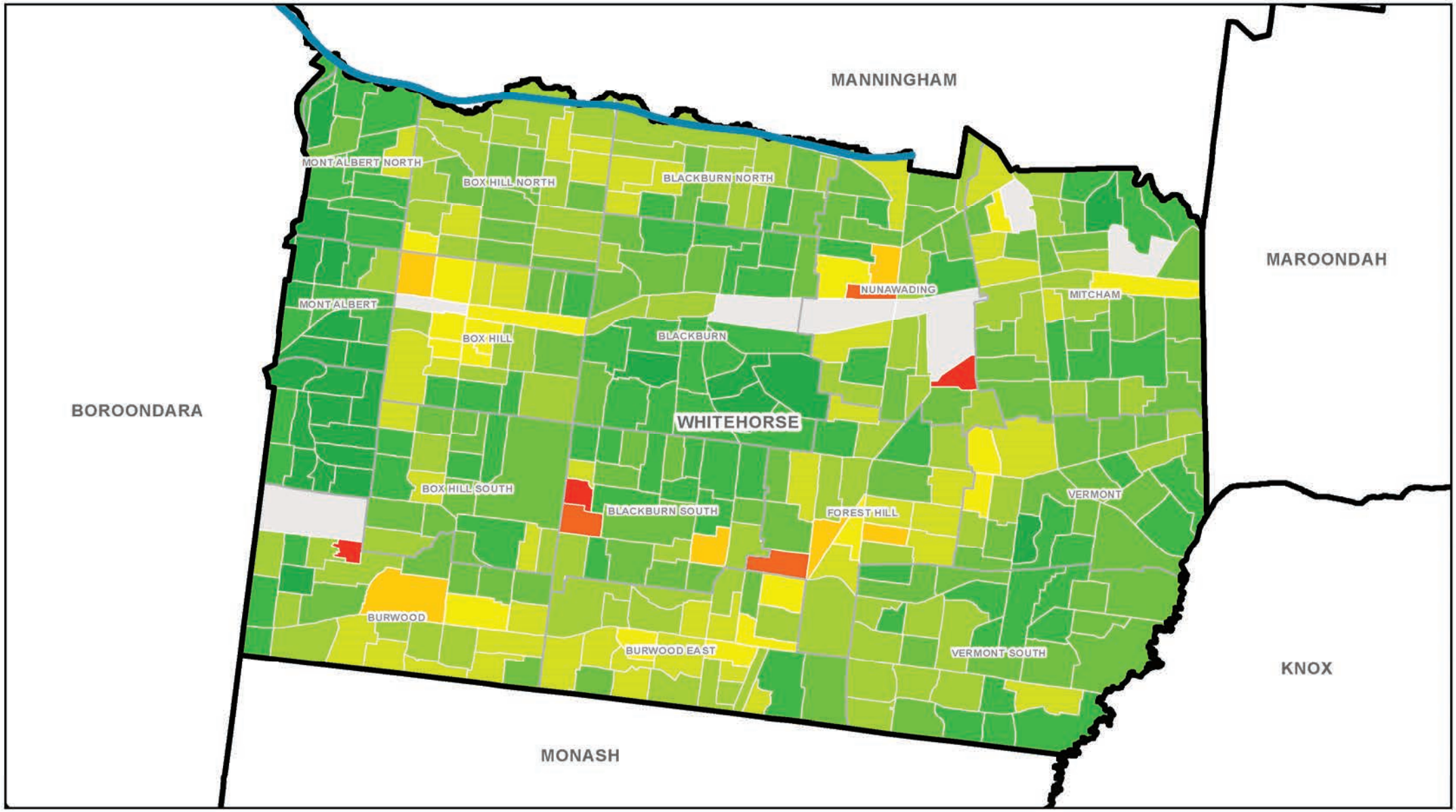
- Seniors (70-84 years) (10 per cent compared with 8 per cent)
- Elderly (85 years and over) (3 per cent compared with 2 per cent) (.id The Population Experts, 2018f).

Whitehorse is culturally diverse, with 34 per cent of the population born in non-main English speaking countries compared with 28 per cent in Greater Melbourne. The top non-main English speaking countries of birth were China, India, Malaysia and Hong Kong. The most commonly spoken languages other than English at home include Mandarin, Cantonese, Greek, Italian and Vietnamese (City of Whitehorse, 2018b). The number of residents from Asian countries is increasing in Whitehorse, including a growing international student population attending tertiary and some secondary education facilities. From 2011, the number of people born in China increased by more than two-thirds or 7,576 people (City of Whitehorse, 2018a).

Eight per cent of people in the municipality do not speak English well or at all, which is higher than Greater Melbourne (six per cent).

A relatively small population of people who identify as Indigenous live in Whitehorse (0.2 per cent) compared with Greater Melbourne (0.5 per cent).

Whitehorse's proportion of people who need assistance with core activities (such as self-care, movement and communication due to a severe or profound disability) of 5 per cent is on par with Greater Melbourne. Need for assistance in areas close to the project range from under 5 per cent to between 5 and 10 per cent (Figure 6-37).



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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

NEL Alignment
LGA
Suburb

SEIFA (SEDA) by SA1 2016

Other
1
2
3
4
5
6
7
8
9
10

North East Link Project

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Revision F
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SEIFA (IRSD) Deciles by SA1 - Whitehorse

Figure 6-36

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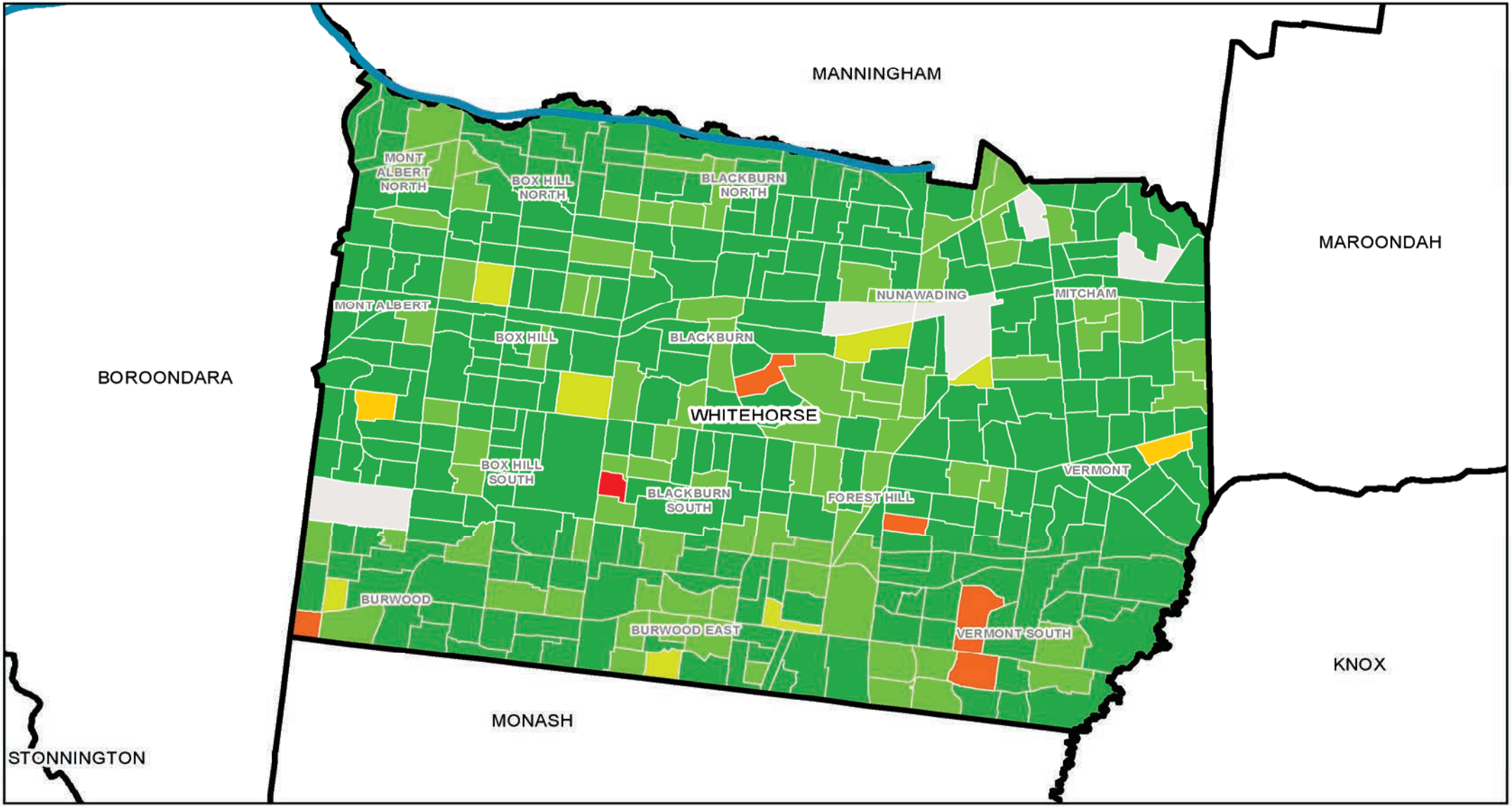
180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, SEIFA data 2018. Created by:xlee



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- NEL Alignment
- LGA

Disability %

- 0 - 5%
- 5.01% - 10%
- 10.01% - 15%
- 15.01% - 20%
- 20.01% - 40%
- 40.01% - 60%

NORTH EAST LINK PROJECT

North East Link Project

People who require assistance with core activities - Whitehorse

Job Number 31-35006
Revision H
Date 06 Feb 2019

Figure 6-37

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Data source: VicMap 2018: API, POI points, Localities, LGA; GHD: Survey Data 2018. Created by:xlee

6.7.8 Key community infrastructure relative to North East Link

Key community infrastructure facilities in Whitehorse suburbs the project would intersect are listed in Table 6-6 and shown in Figure 6-38. Additional detail on these facilities is provided in Appendix E.

Table 6-6 Key community infrastructure facilities relative to North East Link in Whitehorse

Suburb	Map code	Facility name
Mont Albert North	1	Elgar Park
	2	Koonung Creek Wetlands
Box Hill North	3	Koonung Creek Linear Park
	4	Presbyterian Theological College
	5	Frank Sedgeman Reserve
Blackburn North	6	Bounce Inc.
	7	Melbourne Badminton Centre
	8	Eastern Freeway Linear Park
	9	Koonung Creek Linear Park
	10	Slater Reserve
Nunawading	11	Warekila Preschool
	12	Eastern Freeway Linear Reserve
	13	Ronald E Gray Reserve
	14	Koonung Creek Linear Park

Figure 6-38

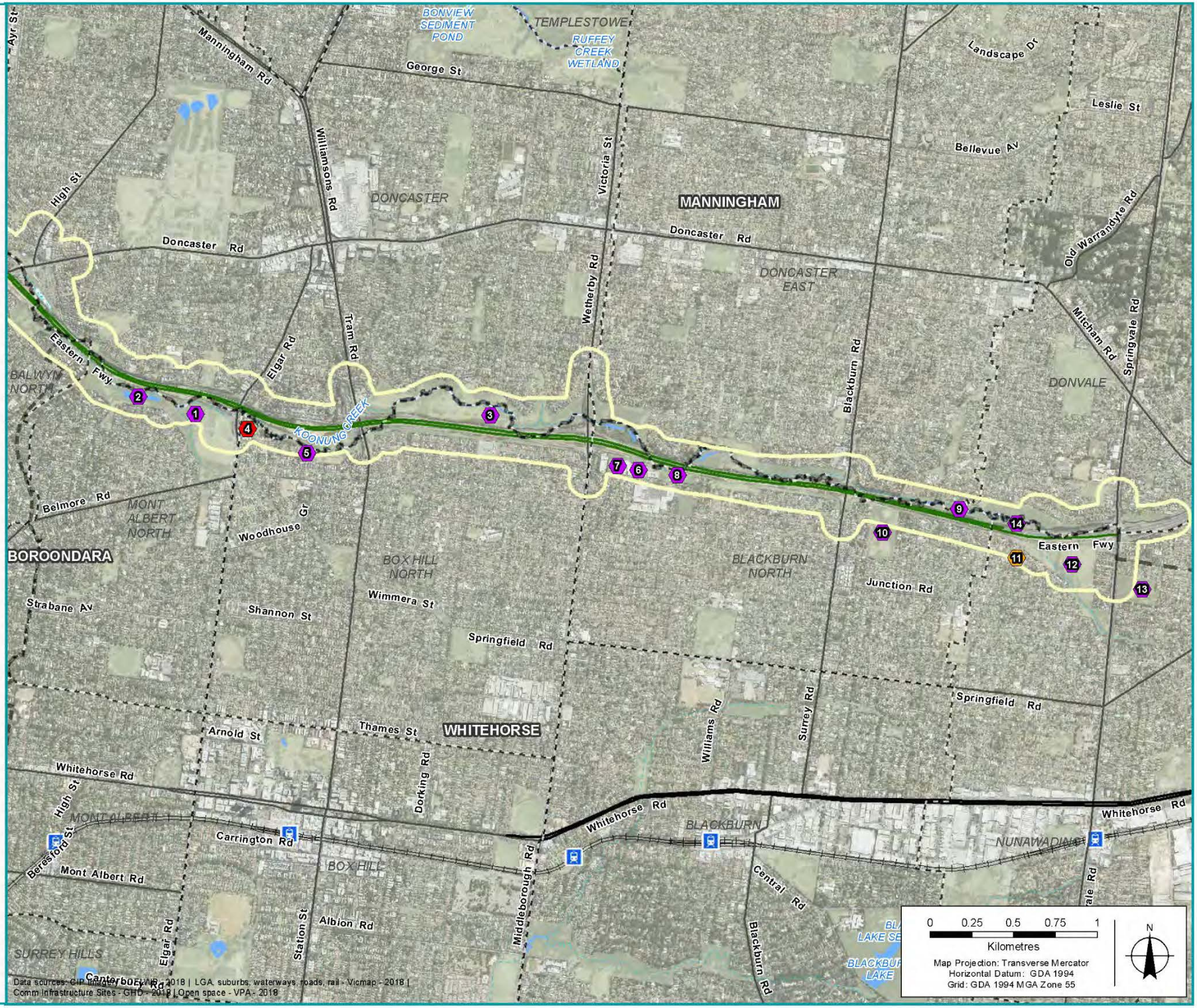
Whitehorse community infrastructure facilities

Community Infrastructure

1 - Elgar Park
2 - Koonung Creek Wetlands
3 - Koonung Creek Linear Park
4 - Presbyterian Theological College
5 - Frank Sedgeman Reserve
6 - Bounce Inc.
7 - Melbourne Badminton Centre
8 - Eastern Freeway Linear Park
9 - Koonung Creek Linear Park
10 - Slater Reserve
11 - Warekila Preschool
12 - Eastern Freeway Linear Reserve
13 - R E Gray Reserve
14 - Koonung Creek Linear Park

Legend

- Child Care
- Education
- Open Space and Recreation
- Social Impact Assessment Area (SIA)
- LGA Boundaries
- Suburb Boundary

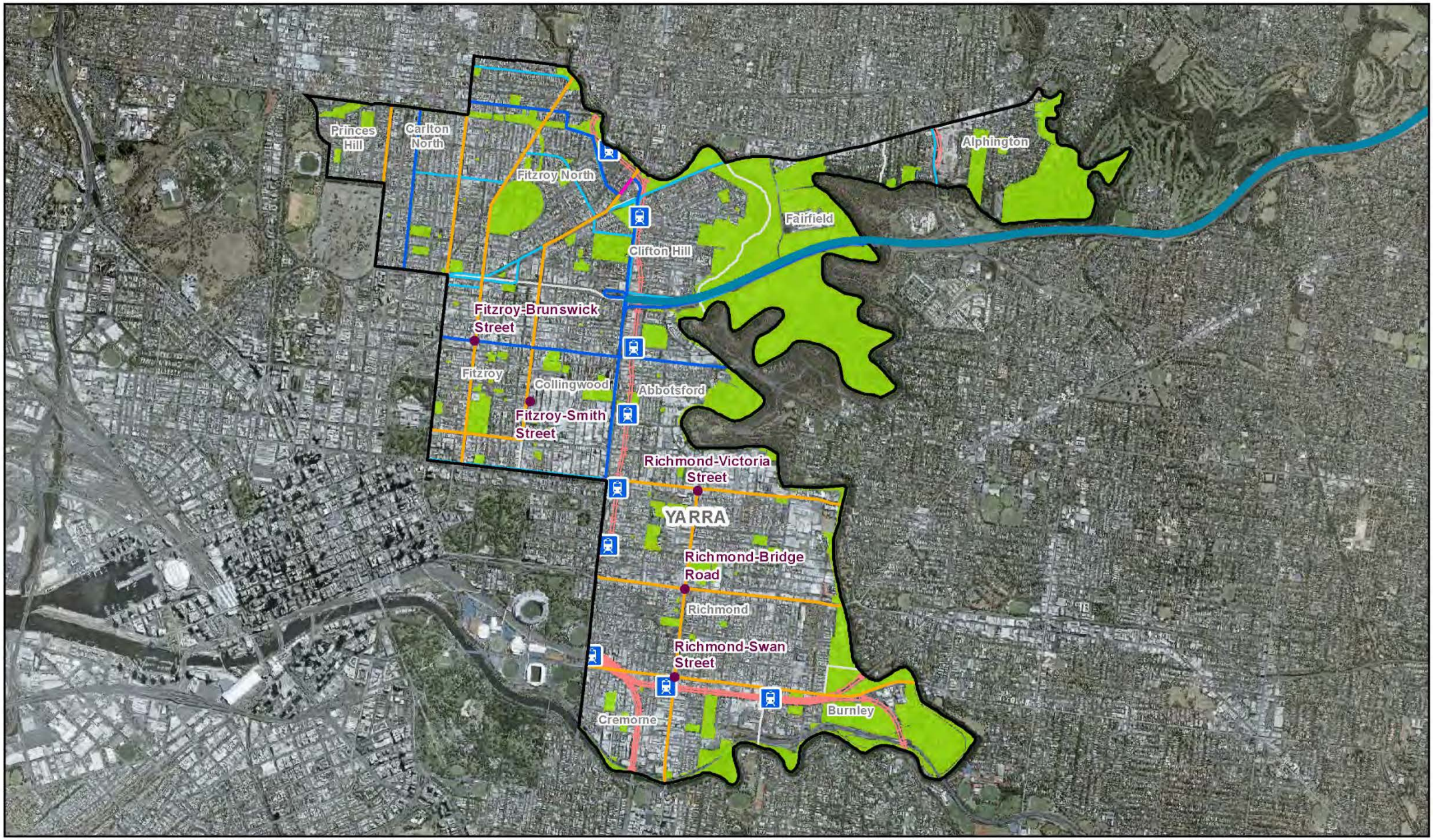


6.8 Yarra Local Government Area

6.8.1 Demographic profile

The key demographic characteristics of Yarra compared with Greater Melbourne are summarised below and detailed in Appendix B.

- At the 2016 Census the total population of Yarra was 86,657 compared with 74,090 in 2011. By 2041, the population of Yarra is expected to increase to 157,607 (.id The Population Experts, 2018e).
- Yarra reported a female population of 52 per cent and a male population of 49 per cent. Greater Melbourne had a similar gender split with 51 per cent female and 49 male.
- The median weekly income for people aged 15 years and over in Yarra was $1,958. This was higher than the average income reported for Greater Melbourne, which was $1,542.
- The SEIFA IRSAD ranked Yarra LGA at decile 10 within Victoria. This indicated the municipality is highly advantaged.
- Yarra had significantly lower levels of car use compared with Greater Melbourne (35 per cent compared with 66 per cent) and a higher percentage of households without a motor vehicle (21 per cent compared with 9 per cent).
- Yarra reported higher percentages active transport use for journeys to work compared with Greater Melbourne and similar public transport usage, including travel by train (12 per cent for both areas), bus (2 per cent for both areas), cycling (9 per cent compared with 1 per cent) and walking (12 per cent compared with 3 per cent).



Paper Size A4

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Major Activity Centre
- Rail Station
- NEL Alignment
- LGA

Principal Public Transport Network

- Bus
- Tram
- Tram/Bus

Public Transport Victoria (PTV)

- Bus
- Railway
- Suburb
- Open Space

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Revision I
Date 06 Feb 2019

Overview of the local study area - key features of Yarra

Figure 6-39

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: PTV 2018: Bus and Tram Routes, VicMap 2018: Localities, LGA, Imagery, ABS: SA1 2016, SEIFA data 2018 Created by:xlee

6.8.2 Key features

The City of Yarra includes the suburbs of Abbotsford, Alphington (shared with the City of Darebin), Burnley, Carlton North, Clifton Hill, Collingwood, Cremorne, Fairfield (shared with the City of Melbourne), Fitzroy, Fitzroy North, Princes Hill and Richmond.

Yarra contains a number of cultural, open space and entertainment areas important to the local community as well as to the wider central Melbourne community, including the Royal Exhibition Building, Carlton Gardens, Edinburgh Gardens, Darling Gardens, and Abbotsford Convent.

Yarra's major activity centres include the retail areas of Brunswick, Smith, Victoria and Swan Streets and Bridge Road provide major employment areas and act as Melbourne tourism areas (City of Yarra, 2009). In addition, Gertrude Street is a well-established live music and cultural activities areas.

Within the City of Yarra, North East Link would extend approximately 287 metres. Works along the Eastern Freeway would traverse Fairfield and the edges of Clifton Hill and Abbotsford. The North East Link corridor is surrounded by Yarra Bend Park to the east and crosses the Yarra River at the boundaries of Yarra and Boroondara. The south-west corner of the corridor borders on residential, mixed and commercial zones in the south of Clifton Hill and the north of Collingwood.

6.8.3 Amenity and character

Yarra is well known for its mix of retail, hospitality and entertainment precincts intermixed with open space and heritage buildings. The municipality is strongly associated with creative industries due to the in-migration of students, artists and activists to the area in the 1970s and 1980s along with heritage streetscapes (City of Yarra, 2017).

Three quarters of Yarra's buildings are covered by a heritage overlay (City of Yarra, 2017), reflecting the fact the area's residential establishment was to support the expansion of the British colony in 1839 (City of Yarra, 2015). Sites of known significance near the project area include Victoria Park and the Clifton Shot Tower (City of Yarra, 2009).

The project alignment intercepts an area of mixed development, with industrial uses and other commercial uses interspersed with heritage and character homes that were developed largely in Victorian and interwar period (City of Yarra, 2009). The non-residential buildings range in height from a single storey, to four-storey spinning mills (Context Pty Ltd, 2016). As the project moves west, it enters largely recreational and open space areas (Figure 6-40), which are discussed further below.

Fairfield Pipe Bridge, Main Yarra Trail

(Source: NELP)

Bridge over Yarra River

(Source: NELP)

Figure 6-40 City of Yarra – character and amenity

6.8.4 Public spaces and facilities

Yarra hosts the range of services and facilities typically found within an inner city area, including:

- Specialised retail shopping, entertainment and cultural areas
- Major hospital (St Vincent's Hospital) and specialist medical services
- Tertiary and technical education facilities, including the University of the Third Age, the Australian Catholic University, Epworth
- Aboriginal services, Victorian Aboriginal Health Service, and Melbourne Aboriginal Youth Sport and Recreation.

Community infrastructure facilities close to the project are listed in Section 1.1.1.

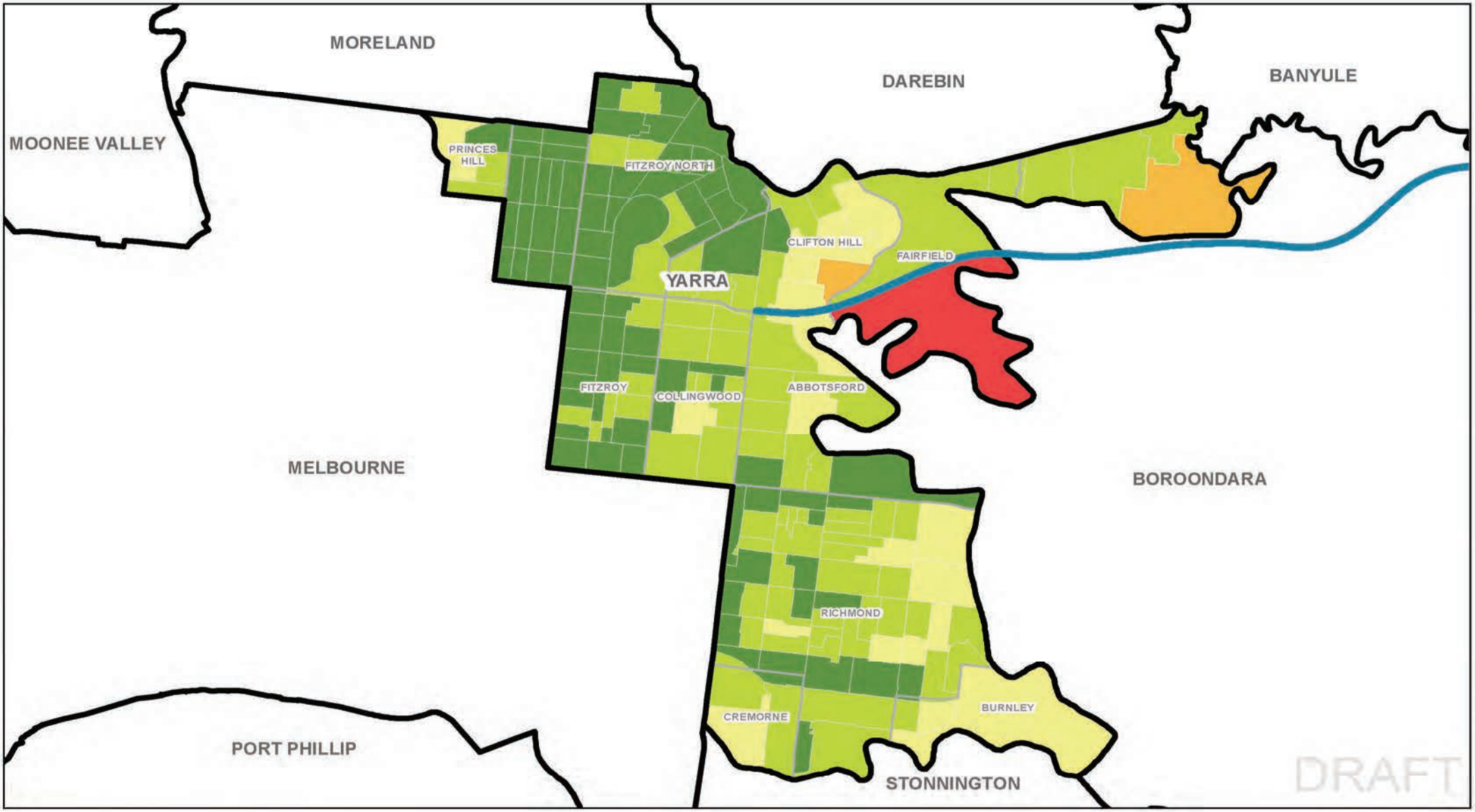
The City of Yarra includes a large number of open space and recreational areas that are valued by the local community as well as the broader metropolitan Melbourne. These include Yarra Bend Park which is located close to the project boundary. Consultations for the social impact assessment confirmed that sport and recreation plays an important role within the municipality, and residents and visitors use the identified open space and sport and recreation facilities.

As an example in proximity to North East Link corridor, the fishing pools at Fairlea Reserve are used between April and January when water levels are adequate. Fishing groups here include the Victorian Fly Fishing Association, the GSSA, the Sunshine Fly Fishers and the Australian Casting Federation. The pool functions especially well for this sport as it is out of the way of walking and running tracks, reducing the hazard of members of the public being hit by fishing lines. The Victorian Fly Fishing Association in particular hold competitions and events, and hosts local scouts groups.

Yarra Bend Park holds the Victorian Indigenous Nursery Co-Operative, Melbourne Polytechnic Fairfield Campus, Fairfield Reserve, Studley Park Boathouse and Yarra Bend Golf Club as well as horse riding and mountain bike riding groups. The Yarra Jets Football Club practice and play on Fairlea Reserve ovals and Fairfield Park for most of the year on every Sunday. The club shares the ovals with the Fitzroy Football Club. The Clifton Hill Cricket Club also use Fairlea Reserve East and West ovals for games on weekends.

The City of Yarra 2017 Annual Customer Satisfaction Survey found that residents generally rate community infrastructure facilities and recreational areas highly, indicating that access to these is considered favourably by residents (Metropolis Research, 2017d). Further to this, access to services, open space, recreation and leisure, and entertainment are characteristics that residents value about the area (City of Yarra, 2017).

Reflecting its proximity to metropolitan Melbourne, the majority of Yarra is rated as having very high to high accessibility under the Metro ARIA combined index (Figure 6-41), which reflects the ease or difficulty people face in accessing basic services (AURIN & University of Adelaide, 2014). There are small pockets of moderate accessibility located in non-residential areas of Yarra, particularly along its eastern boundary, which is primarily associated with open space and parklands. Note there is a small area not covered by the Metro ARIA index, as it is not defined as a 'metropolitan area' under the remoteness area classification used by the ABS (*.ibid*). These areas are defined as 'Other' in Figure 6-41.



Paper Size A4

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- NEL Alignment
- LGA
- Suburb
- Other
- Very High Accessibility
- High Accessibility
- Moderate Accessibility
- Low Accessibility
- Limited Accessibility
- Other

North East Link Project

Metro Accessibility/Remoteness Index of Australia (ARIA) combined index - Yarra

Job Number 31-35006
Revision F
Date 06 Dec 2018

Figure 6-41

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, MetroARIA data 2018, Data Custodian, Data Set Name/Title, Version/Date. Created by:Cjauniau

6.8.5 Connectivity

Hoddle Street and Brunswick Street are the major north-south routes through Yarra, which are intersected by east-west routes, including Johnston Street, Victoria Street, Swan Street, Alexandria Parade, Heidelberg Road and the Eastern Freeway. The Eastern Freeway would be updated as part of the project. Road traffic is recognised by the council to have a negative impact on amenity (City of Yarra, 2009).

Yarra has well established public transport networks, including 14 tram routes, nine rail stations, five train lines and over 20 bus services (City of Yarra, 2009). While public transport is recognised as one the reasons people are attracted to living in Yarra, the council notes there are limitations in the public transport system, including its availability to those in the northern parts of the municipality travelling south-east, particularly in the evening (City of Yarra, 2009). In addition, crowding is and has been a long-term issue for the Yarra community (City of Yarra, 2009). Despite this, it is clear that public transport is highly valued and widely used, with 22 per cent of households not owning motor vehicles compared with the Greater Melbourne average of 8 per cent (ABS, 2018a). Correspondingly, trams are used by 13 per cent of Yarra's residents daily compared with the Melbourne average of 2 per cent and rail patronage is around the Melbourne average of 9 per cent (City of Yarra, 2009).

Yarra has an established cycling culture with the number of residents regularly cycling being the highest of any municipality in Australia (City of Yarra, 2016b, 2016a). The project would intersect the Main Yarra Trail and the Anniversary Trail, which are both highly utilised by recreational and commuting cyclists. Consultation with community infrastructure facilities operating out of Yarra Bend Park show that community members cycle, walk and drive to recreational activities.

Although *The City of Yarra 2017 Annual Customer Satisfaction Survey* (Metropolis Research, 2017d) found satisfaction with cycling infrastructure was rated as very good, improving cycling and walking tracks is a council priority based on the *Liveable Yarra Community Survey* (City of Yarra, 2017).

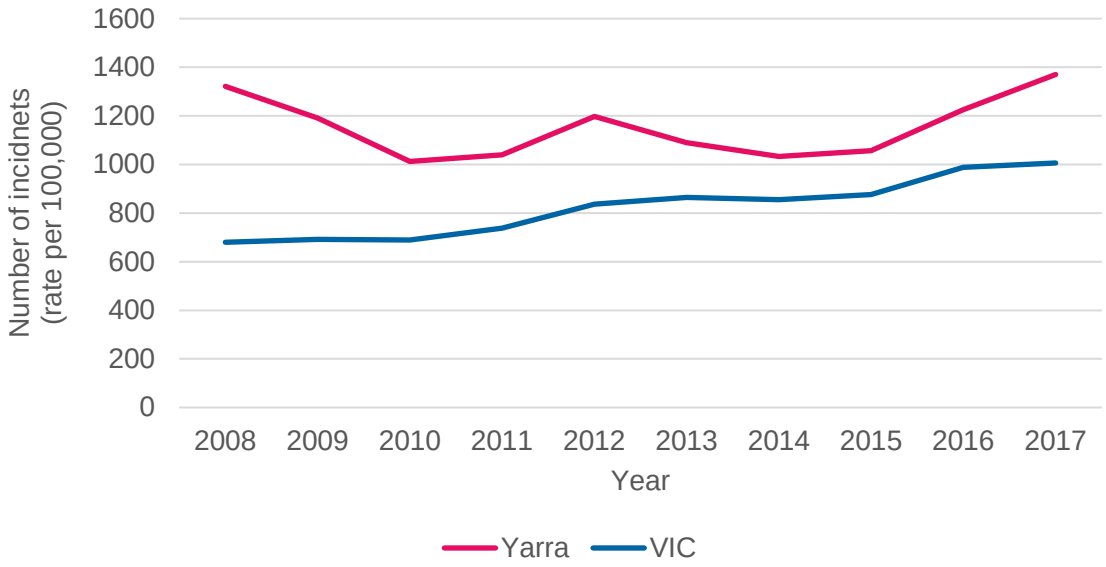
The City of Yarra 2017 Annual Customer Satisfaction Survey (Metropolis Research, 2017d) found that satisfaction with traffic satisfaction with the volume of traffic on main roads is poor, which reflects a trend found across metropolitan Melbourne.

6.8.6 Trust and cohesion

According to the *VicHealth Indicators Survey 2015 Results* (VicHealth, 2016b), Yarra residents have lower levels of trust in others (59 per cent) compared with the state average (72 per cent). Furthermore, fewer residents also felt that people in the community were willing to help each other (64 per cent compared with the state average of 74 per cent) and that they live in a close knit neighbourhood (47 per cent compared with the state average of 61 per cent).

The lower perceptions of community cohesion may relate to the high rates of migration in Yarra, with only 38 per cent of people living at the same address as five years ago, compared with 54 per cent in Greater Melbourne (ABS, 2018a). Similarly, while Yarra is vibrant and has well rated access to services and facilities, there are high levels of social inequality and drug and alcohol issues (City of Yarra, 2017; Metropolis Research, 2017d; VicHealth, 2016b).

Correspondingly, rates of crimes against the person[8] per 100,000 in Yarra are higher than the state average, as shown in Figure 6-42, with the 2017 rate of 1,006 offences considerably higher than the state rate of 1,370 offences per 100,000.



Source: (Crime Statistics Agency Victoria, 2018)

Figure 6-42 Crimes against the person, City of Yarra and Victoria, 2008 – 2017

6.8.7 Vulnerable communities

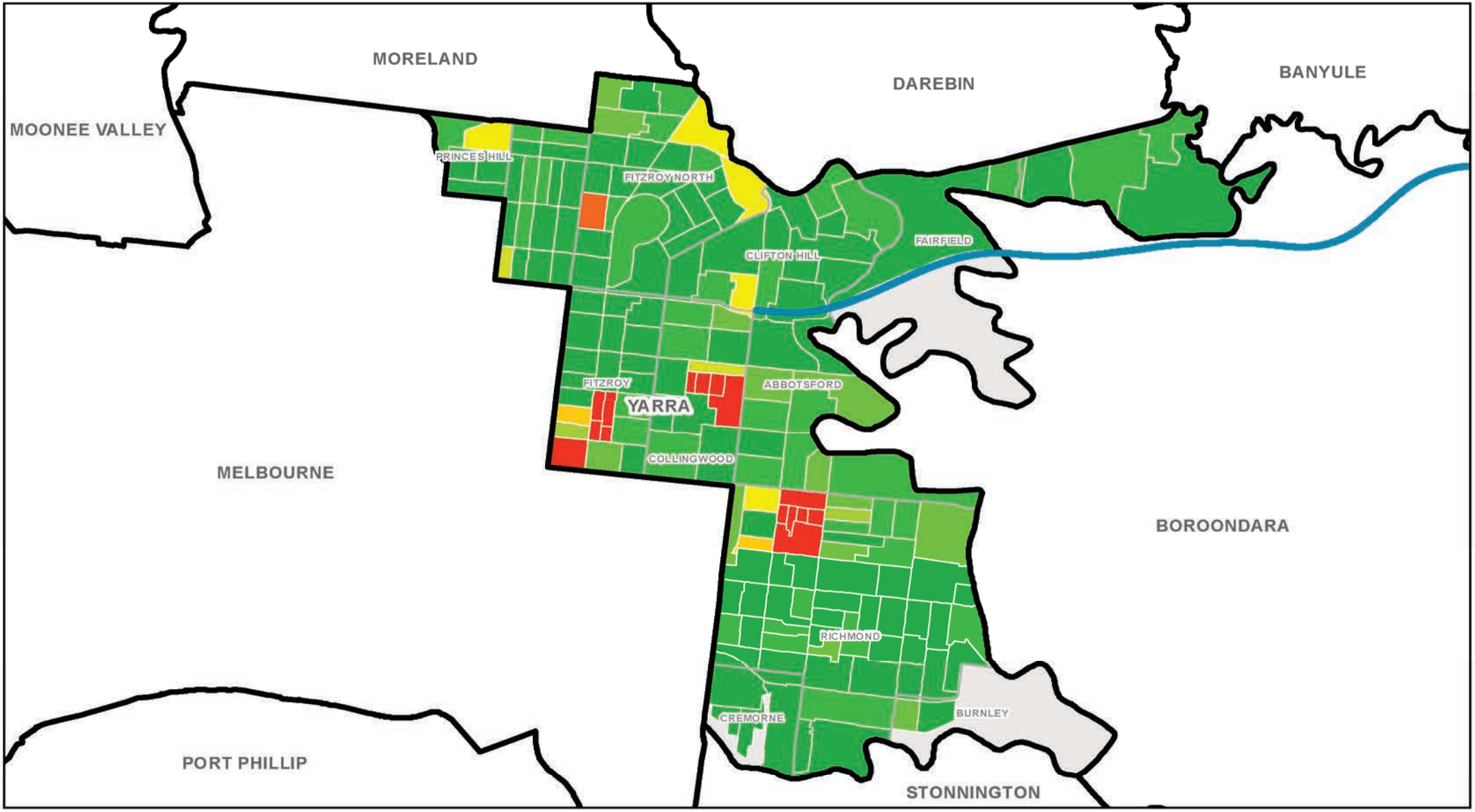
While Yarra has experienced a gentrification process over the last 20 years, the municipality was originally and remains home to a large number of low-income people (City of Yarra, 2009). Consequently, Yarra has a considerably higher proportion of people living in state housing at 9 per cent, compared with the Greater Melbourne average of 2 per cent (ABS, 2018a). During consultations for the social impact assessment homelessness was identified as an issue in Yarra. Reflecting the historical disadvantage present in Yarra along with gentrification processes, Yarra's SEIFA profile includes clusters of disadvantage (1st decile) and advantage (10th decile) (Figure 6-43). In proximity to the project, SA1s fall largely within the advantaged deciles (7-10) although there is one SA1 west of Hoddle Street and north of Alexandra Parade in the 5th decile.

Yarra is notable for its considerable cultural and linguistic diversity, with 19 per cent of the population born in non-English speaking countries (.id The Population Experts, 2018f). Notable populations include those born in Vietnam (3 per cent), China (2 per cent), Greece (1 per cent), Italy (1 per cent) and Malaysia (1 per cent) (.id The Population Experts, 2018f).

[8] Crimes against the person include: homicide and related offences, assault and related offences, sexual offences, abduction and related offences, robbery, blackmail and extortion, stalking, harassing and threatening behaviour, and dangerous and negligent acts endangering people.

Around 5 per cent of people within Yarra do not speak English well or at all, which is just below that of Greater Melbourne (6 per cent).

Yarra's proportion of people who need assistance with core activities (such as self-care, movement and communication due to a severe or profound disability) of 4 per cent is generally on par with Greater Melbourne at 5 per cent. However, there are a number of pockets including a SA1 in the north of Abbotsford and in the south of Fitzroy, with proportions of people who need assistance at above 15 per cent (Figure 6-43).



Paper Size A4

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Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

NEL Alignment
LGA
Suburb

SEIFA (SEDA) by SA1 2016

Other
1
2
3
4
5
6
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8
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10

North East Link Project

Job Number 31-35006
Revision F
Date 06 Feb 2019

SEIFA (IRSD) Deciles by SA1 - Yarra

Figure 6-43

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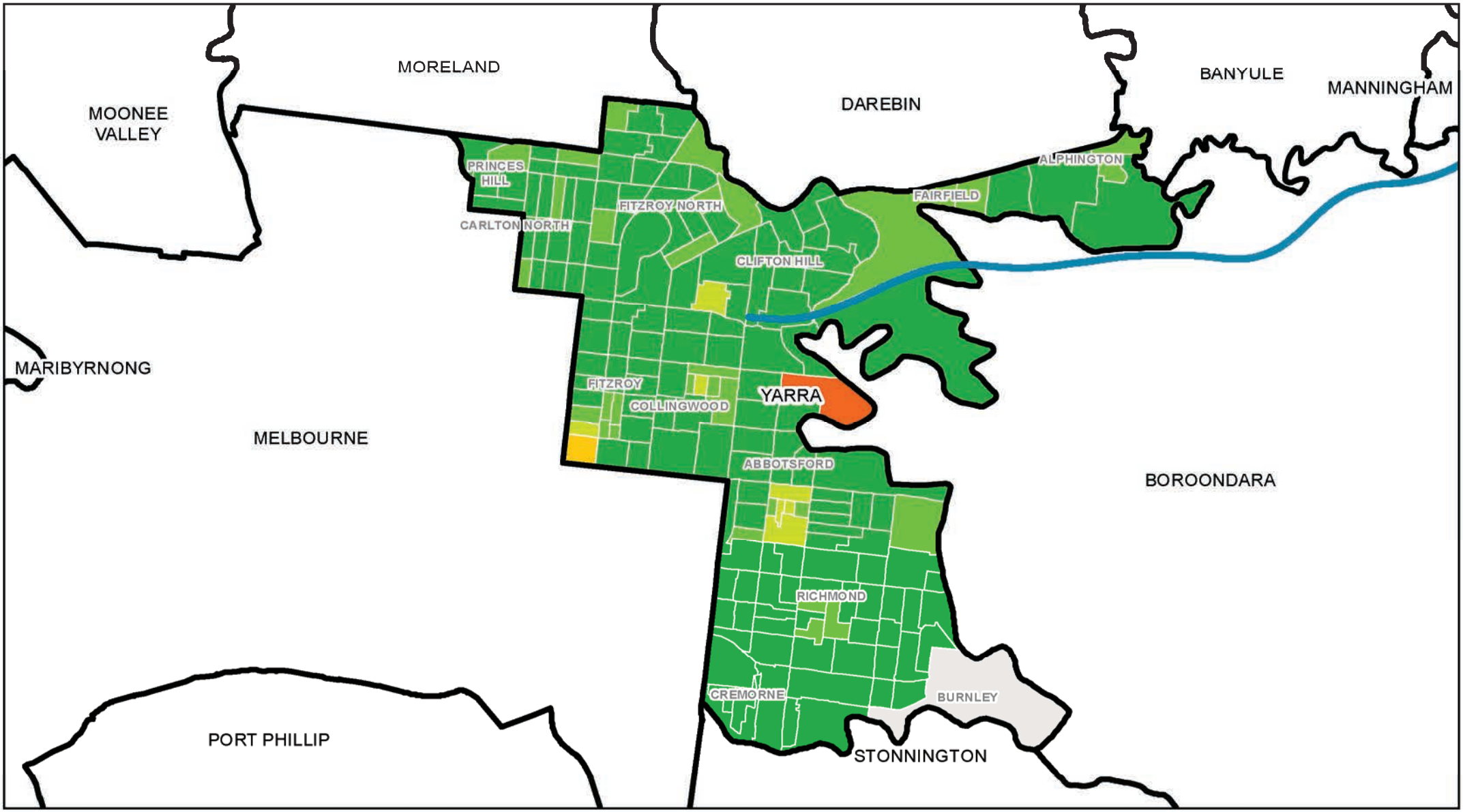
180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, SEIFA data 2018. Created by xlee



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- NEL Alignment
- LGA

Disability %

- 0 - 5%
- 5.01% - 10%
- 10.01% - 15%
- 15.01% - 20%
- 20.01% - 40%
- 40.01% - 60%

North East Link Project

People who require assistance with core activities - Yarra

Job Number 31-35006
Revision H
Date 06 Feb 2019

Figure 6-44

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: API, POI points, Localities, LGA; GHD: Survey Data 2018. Created by:xlee

6.8.8 Key community infrastructure relative to North East Link

Key community infrastructure facilities in Yarra suburbs the project would intersect are listed in Table 6-7 and shown in Figure 6-45. Additional detail on these facilities is provided in Appendix E.

Table 6-7 Key community infrastructure facilities relative to North East Link in Yarra

Suburb	Map code	Facility name
Alphington	1	Alphington Park
	2	Latrobe Golf Club
Fairfield	3	Thomas Embling Hospital
	4	Melbourne Polytechnic
	5	RMIT Surveying Field Station
	6	Victorian Indigenous Nursery Co-operative
	7	Yarra Bend Park
	8	Fairlea Reserve
	9	Yarra Bend Public Golf Course
Clifton Hill	10	Petit Early Learning Journey
	11	Gray Street Reserve
	12	Ramsden Street Reserve
Abbotsford	13	Dights Falls Reserve
	14	Victoria Park
	15	Maugie Street Reserve

Figure 6-45

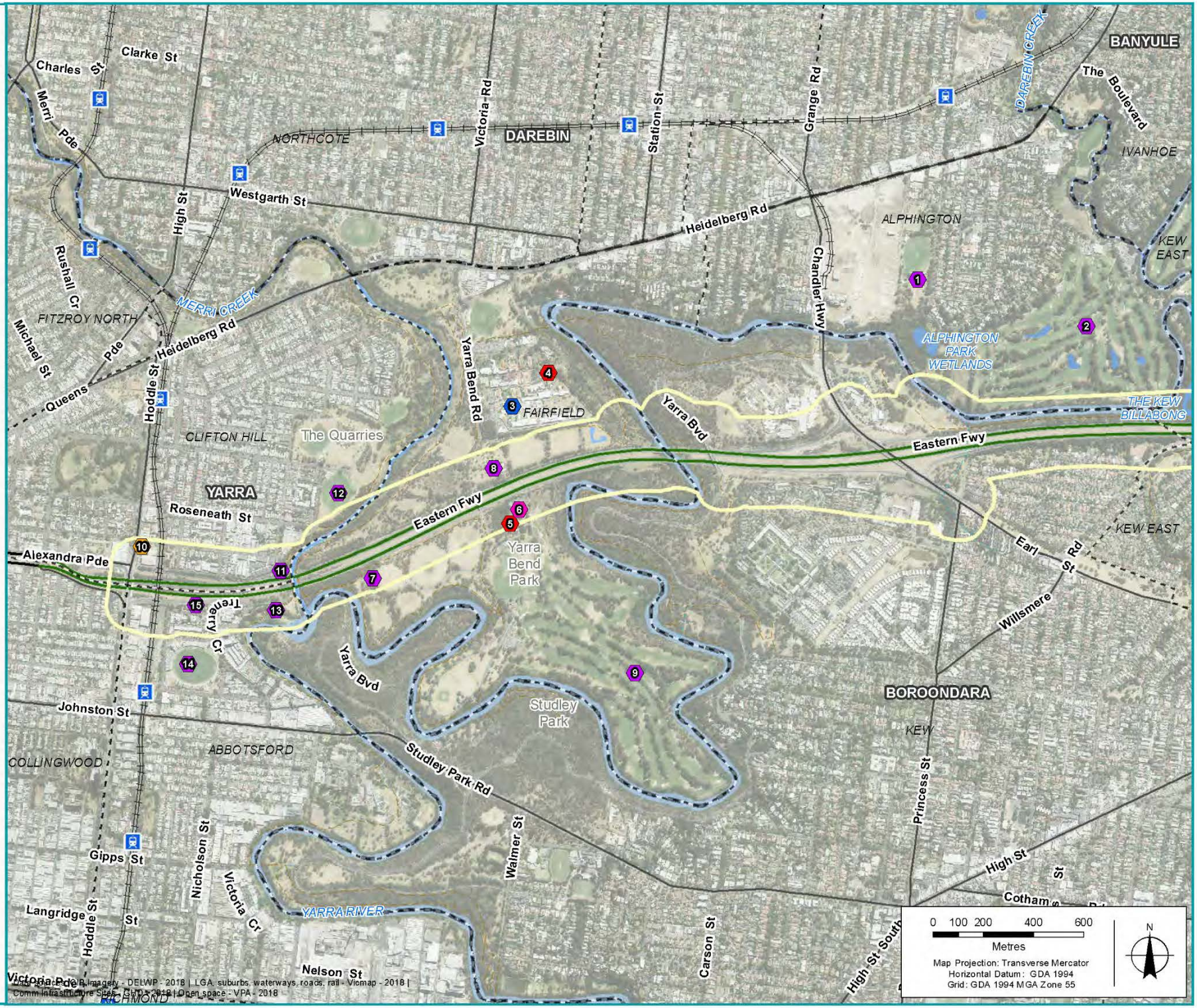
Yarra community infrastructure facilities

Community Infrastructure

1 - Alphington Park
2 - Latrobe Golf Club
3 - Thomas Embling Hospital
4 - Melbourne Polytechnic
5 - RMIT Surveying Field Station
6 - Victorian Indigenous Nurseries Co-Operative
7 - Yarra Bend Park
8 - Fairlea Reserve
9 - Yarra Bend Public Golf Course
10 - Petit Early Learning Journey
11 - Gray Street Reserve
12 - Ramden Street Reserve
13 - Dights Falls Reserve
14 - Victoria Park
15 - Maugie Street Reserve

Legend

- Child Care
- Community Centre
- Education
- Health
- Open Space and Recreation
- Social Impact Assessment Area (SIA)
- Open Space
- LGA Boundaries
- Suburb Boundary



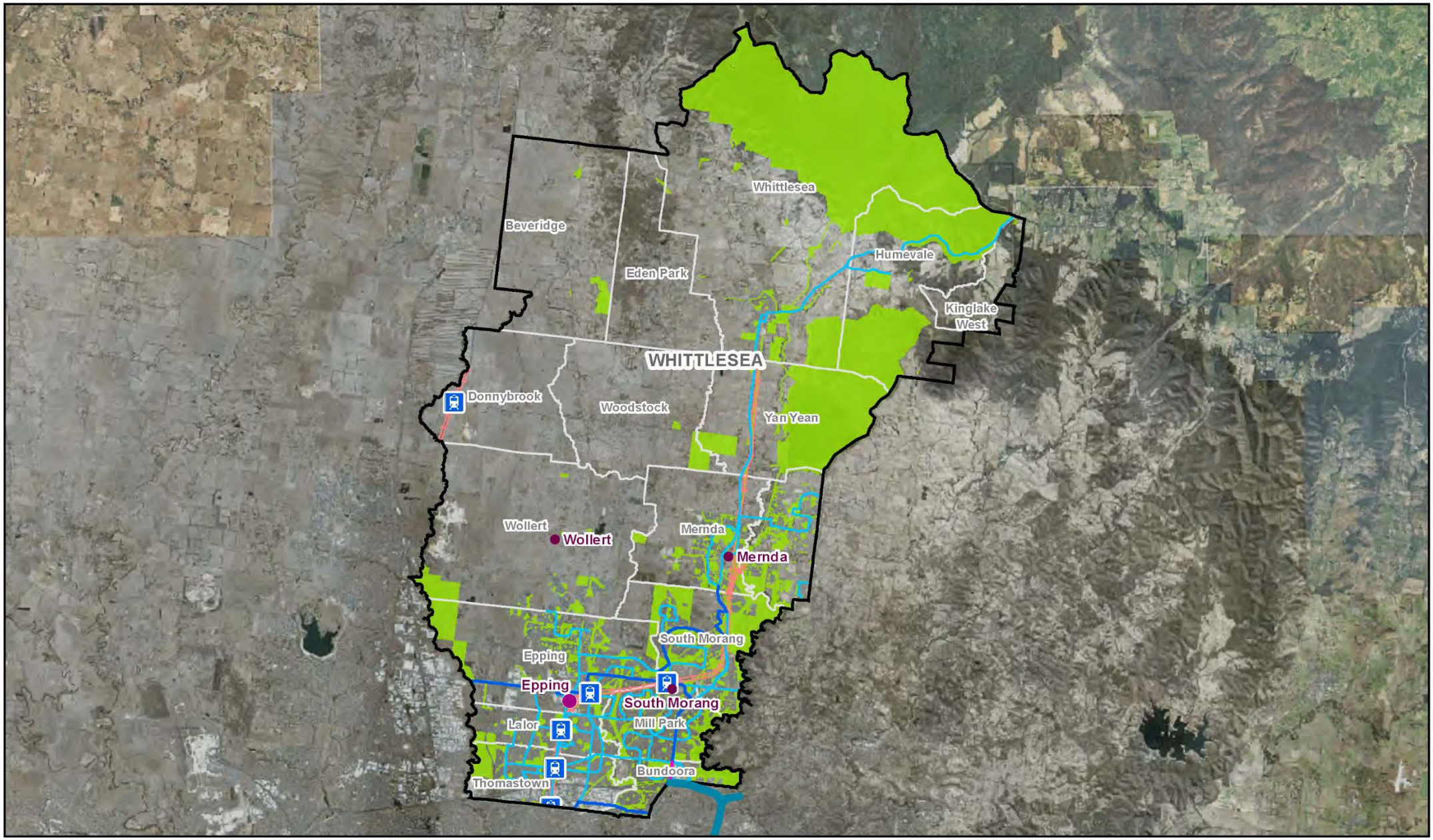
Data sources: Imagery - DELWP - 2018 | LGA, suburbs, waterways, roads, rail - Vicmap - 2018 | Comm Infrastructure Sites - GHD - 2018 | Open space - VPA - 2018

6.9 Whittlesea local government area

6.9.1 Demographic profile

The key demographic characteristics of Whittlesea compared with Greater Melbourne are summarised below and detailed in Appendix B.

- At the 2016 Census the total population of Whittlesea was 197,491 compared with 154,880 in 2011. By 2041, the population of Whittlesea is expected to increase to 382,896 (.id The Population Experts, 2018d)
- Population growth in Whittlesea from 2011 to 2016 was 30 per cent.
- Whittlesea reported a female population of 51 per cent and a male population of 49 per cent, reflecting the Greater Melbourne gender distribution.
- The highest proportion of people in Whittlesea was in the 30-34 age group.
- Whittlesea had a higher proportion of the population born in non-main English speaking countries (32 per cent compared with 28 per cent in Greater Melbourne) and speaking a language other than English at home (44 per cent compared with 32 per cent in Greater Melbourne).
- Around half of the Whittlesea population did not change address (49 per cent) over five years.
- Family households comprised 81 per cent of households, 16 per cent were lone person households and group households made up 3 per cent. The proportion of lone person households in Whittlesea were noted to be much below the average of Greater Melbourne at 23 per cent.
- Home ownership data indicated that Whittlesea had a similar proportion of fully owned houses compared with Greater Melbourne (29 per cent compared with 30 per cent in Greater Melbourne) and higher proportion of houses owned with a mortgage (44 per cent compared with 36 per cent).
- Employment data shows that Whittlesea had a total labour force of 95,424 persons. Of these 62 per cent were employed full-time, 32 per cent were employed part-time and 7 per cent were unemployed (the same as Greater Melbourne at 7 per cent).
- The median weekly income for people aged 15 years and over was lower in Whittlesea $1,444 compared with $1,542 in Greater Melbourne).
- The SEIFA IRSAD ranked Whittlesea at decile 7 within Victoria. This indicated the municipality has a higher level of disadvantage.
- Whittlesea had higher levels of car use as a driver or passenger compared with Greater Melbourne (76 per cent compared with 66 per cent) and a lower percentage of households without a vehicle (5 per cent compared with 9 per cent) compared with Greater Melbourne.
- Whittlesea reported lower percentages of active and public transport for journey to work, including travel by train compared with Greater Melbourne (9 per cent compared with 12 per cent), bus (1 per cent compared with 2 per cent), cycling (0 per cent compared with 1 per cent) and walking (1 per cent compared with 3 per cent).



Paper Size A4

0 1,500 3,000 6,000

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- Metropolitan Activity Centre
- Major Activity Centre
- Rail Station
- NEL Alignment
- LGA

Principal Public Transport Network

- Bus
- Tram/Bus

Public Transport Victoria (PTV)

- Bus
- Railway
- Suburb
- Open Space

NORTH EAST LINK PROJECT

North East Link Project

Job Number	31-35006
Revision	I
Date	06 Feb 2019

Overview of the local study area - key features of Whittlesea

Figure 6-46

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: PTV 2018: Bus and Tram Routes, VicMap 2018: Localities, LGA, Imagery, ABS: SA1 2016, SEIFA data 2018 Created by:xlee

6.9.2 Key features

The City of Whittlesea is made up of around 70 per cent of rural land with the remaining 30 per cent comprising urban areas closer to the metropolitan Melbourne area. Whittlesea's urban areas consist of established and new growth areas and include suburbs of Bundoora (shared with the City of Darebin and City of Banyule), Mill Park, Thomastown, Epping, Lalor and South Morang.

In the northern part of the municipality is the Whittlesea green wedge, which makes up over 61 per cent of Whittlesea. The green wedge supports agricultural activities, national parks and rural living. It includes the Whittlesea township and rural areas of Yan Yean (shared with the Shire of Nillumbik), Woodstock and Eden Park.

Within Whittlesea, Epping is identified as a metropolitan activity centre while Plenty Valley within Mill Park is an activity centre. Lalor, Thomastown and Bundoora are neighbourhood centres. A health and tertiary education precinct is located adjacent to North East Link in the north of Bundoora known as University Hill (City of Whittlesea, 2013b). University Hill is considered an important economic precinct to the area. It contains the RMIT East Campus, University Hill town centre, residential development, a retirement village, recreation parks and nature reserves. University Hill generates a high number of work and visitor trips.

It is noted the City of Whittlesea is located directly north of the reference project, on the northern side of the M80 Ring Road. While no project components are located in Whittlesea, given the proximity of the project, Whittlesea has been included within the local study area. The closest project component includes the upgrade to the M80 Ring Road to the east of Plenty Road between the suburbs of Bundoora (City of Whittlesea and Banyule) and Greensborough (Shire of Nillumbik).

6.9.3 Amenity and character

The Whittlesea green wedge has distinctive features such as agricultural living, water catchments, significant natural and rural landscapes, flora and fauna, and heritage places. It is characterised by slopes and valleys including the Plenty Ranges and parts of the Great Dividing Range, which provide significant scenic and habitat values. This area also contains the Kinglake National Park that provides forested areas. Surrounded by these features are flat areas of rural and agricultural land. High community value is placed on the quality of the rural landscape which is considered part of the area's distinctive character and appeal to residents and visitors.

The Plenty Valley extends to the Whittlesea township and Plenty Gorge, which is a steep gorge in the south-eastern part of the municipality. The western and south-western parts of the municipality are characterised by grasslands and woodlands known as the Western Plains, which support various flora and fauna.

Whittlesea is on the land of the Wurundjeri Willum Clan. There are sites of Aboriginal cultural significance throughout the green wedge, such as scarred trees, along waterways and stony rises.

To the east of Whittlesea closer to North East Link is mostly newer housing including the University Hill precinct in Bundoora. Bundoora is described as suburban residential. It is generally characterised by curvilinear streets that have resulted in irregular shaped housing lots (Figure 6-47). Housing in Bundoora is predominantly low density detached dwellings with some medium density housing.

Residential street in Bundoora

(Source: City of Whittlesea)

Residential street in Epping North

(Source: City of Whittlesea)

Figure 6-47 City of Whittlesea – character and amenity

6.9.4 Public spaces and facilities

Public spaces and facilities are generally dispersed throughout the urban areas of Whittlesea. Epping is identified as a Metropolitan Activity Centre and includes a shopping centre, Northern Hospital, Melbourne Polytechnic – Epping Campus, business parks within the Cooper Street employment area and soccer stadium.

University Hill is a health and tertiary education precinct located adjacent to North East Link. It includes community facilities and services, such as the RMIT East Campus, RMIT Health Sciences Clinic, University Hill Medical Centre, Bundoora Retirement Village, Plenty Gorge Parklands and child care centres. The University Hill town centre is surrounded by residential development.

The RMIT West Campus is located opposite University Hill in proximity to the project boundary near the intersection of Plenty Road and the M80 Ring Road. The RMIT campuses specialise in engineering, biosciences, education and medical sciences.

Adjacent to the RMIT West Campus is the Bundoora Netball and Sports Centre, which caters for a range of sports including basketball, netball, badminton, volleyball, squash and a fitness centre. The Bundoora Square Shopping Centre and Northpark Private Hospital are located in Bundoora to the south of the M80 Ring Road.

Outside of the urban areas, the Whittlesea township provides a number of key facilities that service the surrounding rural areas, including the Whittlesea Swimming Centre, Whittlesea Showgrounds and Recreation Reserve and Whittlesea Community House.

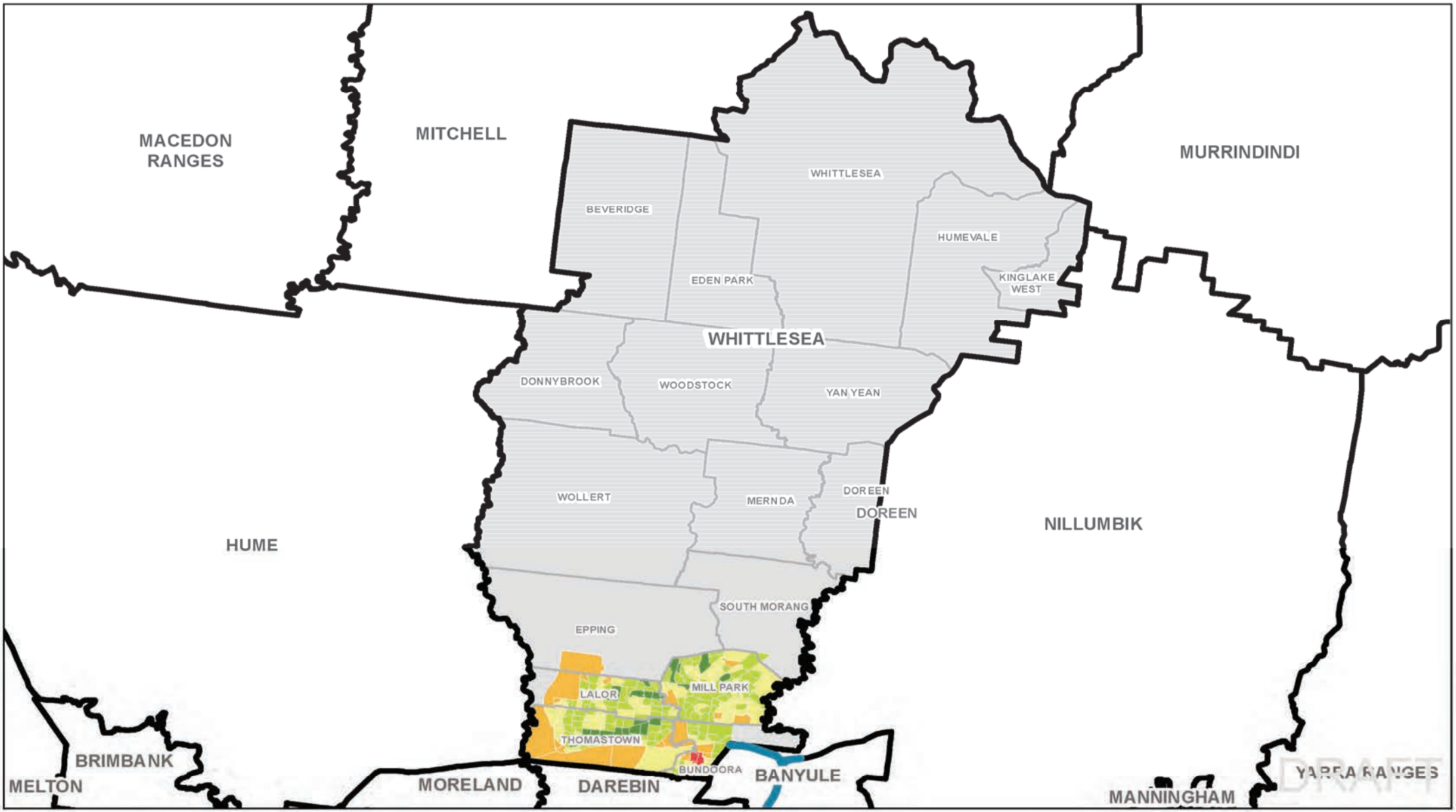
Whittlesea includes a number of state significant open space areas (Plenty Gorge Park and Yan Yean Reserve), regional open space of Merri Creek and Darebin Creek Linear Trails, and many municipal and local open spaces throughout the municipality. A list of community infrastructure facilities close to the project are provided in Section 6.9.8.

The *2017 Annual Community Survey* (Metropolis Research, 2017c) found that residents considered access to local shops and supermarkets, quality parks and open spaces as very important. The majority of residents were very satisfied with current access to these services and facilities. Access to entertainment, cafes and restaurants, sport and recreation facilities are important to residents, while access to community centres, childcare and kindergartens are considered moderately important. Around half of residents considered current access to these services were good.

Services and facilities are generally located in the south of Whittlesea, resulting in SA1s outside of this region being rated as limited and low accessibility areas by the Metro Accessibility/Remoteness Index of Australia (Metro ARIA) combined index[9], which reflects the ease or difficulty people face in accessing basic services (AURIN & University of Adelaide, 2014). Figure 6-48 shows the north-eastern areas of Whittlesea have lower levels of accessibility highlights the necessity of connectivity for those residents, who would rely on the ability to access facilities in other areas to fulfil their needs.

Note that a considerable area of Whittlesea is not covered by the Metro ARIA index, as it is not defined as a 'metropolitan area' under the remoteness area classification used by the ABS (*.ibid*). These areas are defined as 'Other' in Figure 6-48.

[9] The Metropolitan Accessibility/Remoteness Index of Australia (Metro ARIA) provides six indices to comparatively evaluate metropolitan accessibility both within and across all Australian Capital Cities (AURIN & University of Adelaide, 2014). The index aims to reflect the ease or difficulty people face accessing basic services within metropolitan areas, derived from the measurement of road distances people travel to reach different services. The five different service themes are education, health, shopping, public transport, and financial/postal services.



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- NEL Alignment
- LGA
- Suburb
- Other
- Very High Accessibility
- High Accessibility
- Moderate Accessibility
- Low Accessibility
- Limited Accessibility
- Other

North East Link Project

Metro Accessibility/Remoteness Index of Australia (ARIA) combined index - Whittlesea

Figure 6-48

Job Number	31-35006
Revision	F
Date	06 Dec 2018

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, MetroARIA data 2018, Data Custodian, Data Set Name/Title, Version/Date. Created by:Cjauniau

6.9.5 Connectivity

Plenty Road, Wallan Road, Epping Road, Merriang Road and the Hume Freeway provide the primary north-south routes through Whittlesea. The M80 Ring Road, Cooper Street, McDonalds Road, Craigieburn Road East, Bridge Inn Road, Donnybrook Road and Whittlesea-Yae Road intersect as east-west routes. A small section of the M80 Ring Road borders Bundoora within the City of Whittlesea. The major access to metropolitan Melbourne is provided by the M80 Ring Road via High Street, Epping Road, Merriang Road or Plenty Road. These roads are key connections between the urban areas within Whittlesea including Thomastown, Lalor, Mill Park, Epping and South Morang and the community services, shopping and industrial centres within these areas.

The *2017 Annual Community Survey* (Metropolis Research, 2017c) found that traffic management was a significant issue in Whittlesea particularly in the southern suburban areas. This included issues around congestion, commuting times, and access to major roads and freeways. In 2016, it was reported that 17.7 per cent of residents spent 90 minutes or more commuting to work, up from 15 per cent in 2015 (Metropolis Research, 2017a). Public transport was also an important issue for residents. From 2016 to 2017, traffic management issues and access to public transport increased in importance among residents (Metropolis Research, 2017b). Infrastructure challenges faced by residents include geographic isolation, limited services and infrastructure and increasing pressure on existing infrastructure in both established and new growth areas due to rapid population growth.

Public transport between the urban areas in the north of Whittlesea and metropolitan Melbourne is primarily provided by the Mernda rail line which includes stations at Keon Park, Thomastown, Lalor, Epping, South Morang, Middle Gorge, Hawkstone and Mernda. Whittlesea has a lower rate of public transport usage than Greater Melbourne, with 10.2 per cent of residents commuting by train compared with 12.4 per cent in Greater Melbourne. The majority of the population of Whittlesea (87 per cent) are within 400 metres of a local bus or Smart bus, while only 7.4 per cent are within 800 metres of a railway station (Metropolis Research, 2017c). No bus or rail routes within Whittlesea are close to the project.

Whittlesea's network of bicycle trails include main on-road dedicated bike lanes along Dalton Road, High Street and Plenty Road. The main dedicated bike tracks include the M80 Ring Road trail, Darebin Creek Linear Reserve Trail and Hendersons Road Drain Trail. Some sections of Plenty Road also have a dedicated bike trail. The M80 Ring Road trail and off road section on Plenty Road are within the vicinity of North East Link. Access to walking and cycling paths were only rated as very important by 7.21 per cent of respondents in 2017.

6.9.6 Trust and cohesion

Whittlesea's indicators of social cohesion and trust are lower than the state average according to the *VicHealth Indicators Survey 2015 Results* (VicHealth, 2016b). The results show that 60 per cent of people in the community believe that others can be trusted compared with the state estimate of 72 per cent. A lower proportion of residents feel the community are willing to help each other (69 per cent compared with the state estimate of 74 per cent) and that they live in a close knit neighbourhood (52 per cent compared with the state estimate of 61 per cent).

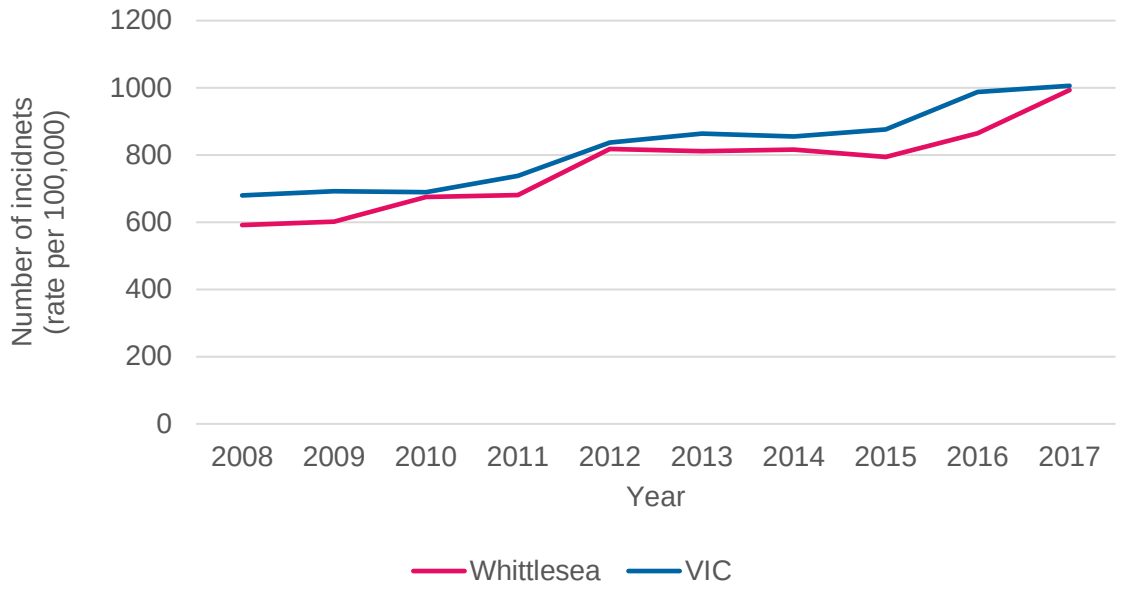
The level of migration in Whittlesea was similar to state averages with:

- 79 per cent of people in 2016 living at the same address as one year ago compared with 77 per cent in Greater Melbourne
- 54 per cent of people in 2016 living at the same address as five years ago consistent with Greater Melbourne.

People's perception of safety can influence their feelings of trust and cohesion. When places are designed and maintained to be safe, people are encouraged to access and use them, which can increase opportunities for social interaction and cohesion.

According to the VicHealth Indicators Survey 2015 Results, Whittlesea residents felt safe walking alone in their local area during the day (88 per cent compared with the state average of 93 per cent) whereas 47 per cent felt safe walking alone after dark (lower than the state average of 55 per cent).

As shown in Figure 6-49, there is a similar level of crimes against the person experienced in Whittlesea to the state, which could reflect the lower levels of perceived safety among residents.



Source: (Crime Statistics Agency Victoria, 2018)

Figure 6-49 Crimes against the person, City of Whittlesea and Victoria, 2008-2017

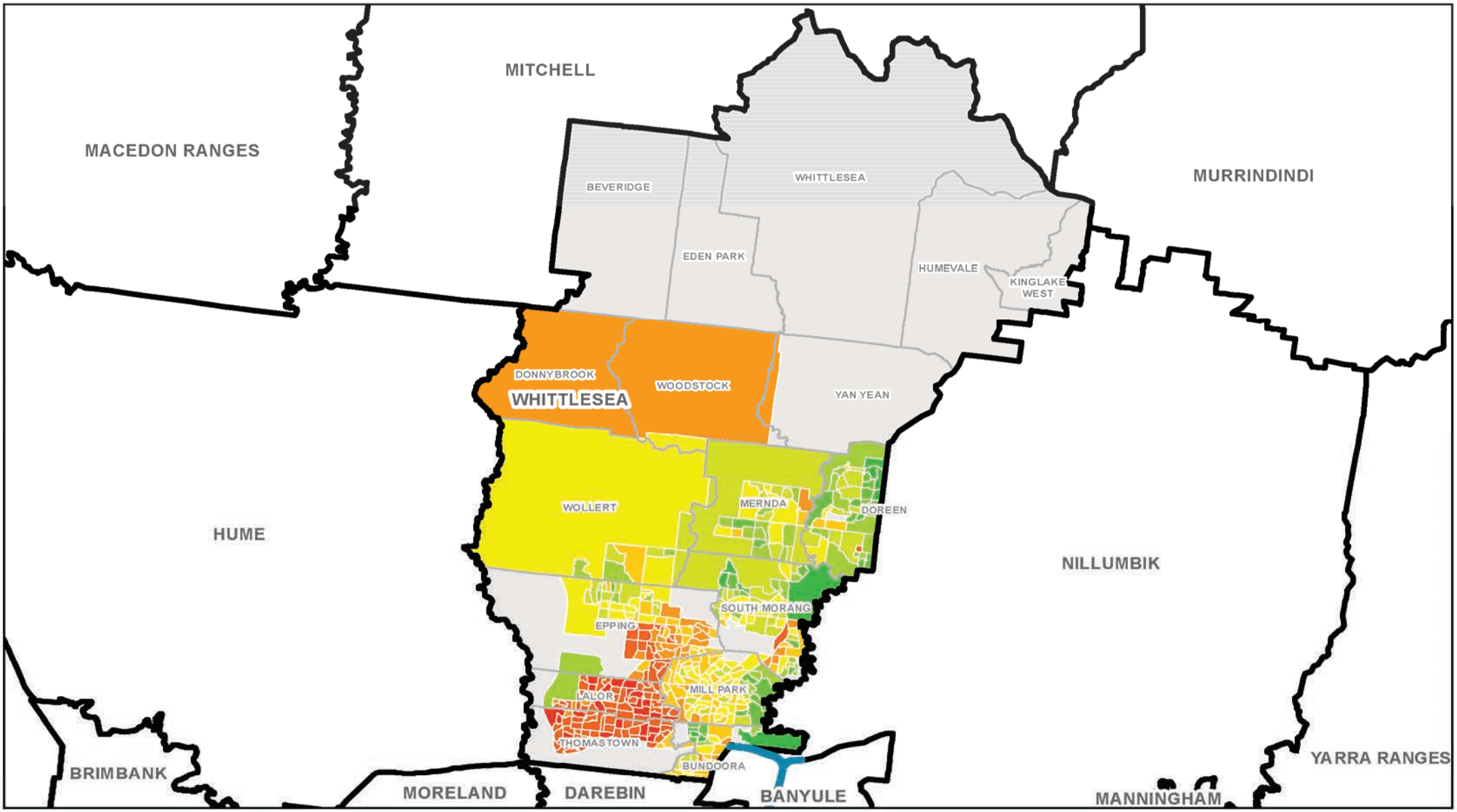
6.9.7 Vulnerable communities

As shown in Figure 6-50, SA1s within Whittlesea range across the SEIFA Index although there are large concentrations of SA1s that scored below the fifth decile, indicating high levels of disadvantage. Areas in Whittlesea that have higher levels of disadvantage include Epping, Lalor, Thomastown, Blossom Park, Bundoora, Mill Park and South Morang. Epping, Lalor and Thomastown have significant rates of low income households, unemployment, households experiencing mortgage stress, households from non-English speaking grounds and single parent families (City of Whittlesea, 2013a). These areas also have the highest disadvantage in the municipality. Whittlesea has a lower proportion of state housing dwellings (1 per cent compared with 2 per cent in Greater Melbourne (ABS, 2018a) although a lack of social housing is identified as a key issue in the area (City of Whittlesea, 2012).

Whittlesea has a significant proportion of people from CALD backgrounds, with the most common birthplace after Australia being India (6 per cent), Italy (3 per cent) and Macedonia (3 per cent) (ABS, 2018a).

Whittlesea has a lower proportion of older residents with 11.7 per cent of the population aged 65 years and over compared with 15.6 per cent in Greater Melbourne. Despite this, the council recognises the overall number of people within this age will increase with population growth (City of Whittlesea, 2016). The ageing population will include the migrant population who moved to Whittlesea in the 1950s and 1960s as well as new residents moving into the area. Challenges faced by older people were reported by the council to include loneliness, isolation, health and mobility issues. It also reported that ways to address these issues could be improvements to public transport, parks and walking tracks.

Whittlesea's population of people who need assistance with core activities such as self-care, movement and communication due to a severe or profound disability (6 per cent) is higher than Greater Melbourne (5 per cent). Large proportions of Mill Park and Bundoora, which surround the project boundary have proportions of people who require assistance with core activities between 5 and 10 per cent. In the north of Mill Park and in the south of South Morang, there are small concentrations of SA1s with proportions of people who require assistance over 15 per cent, as illustrated in Figure 6-51.



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Legend

NEL Alignment
LGA
Suburb

SEIFA (SEDA) by SA1 2016

Other
1
2
3
4
5
6
7
8
9
10

North East Link Project

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SEIFA (IRSD) Deciles by SA1 - Whittlesea

Figure 6-50

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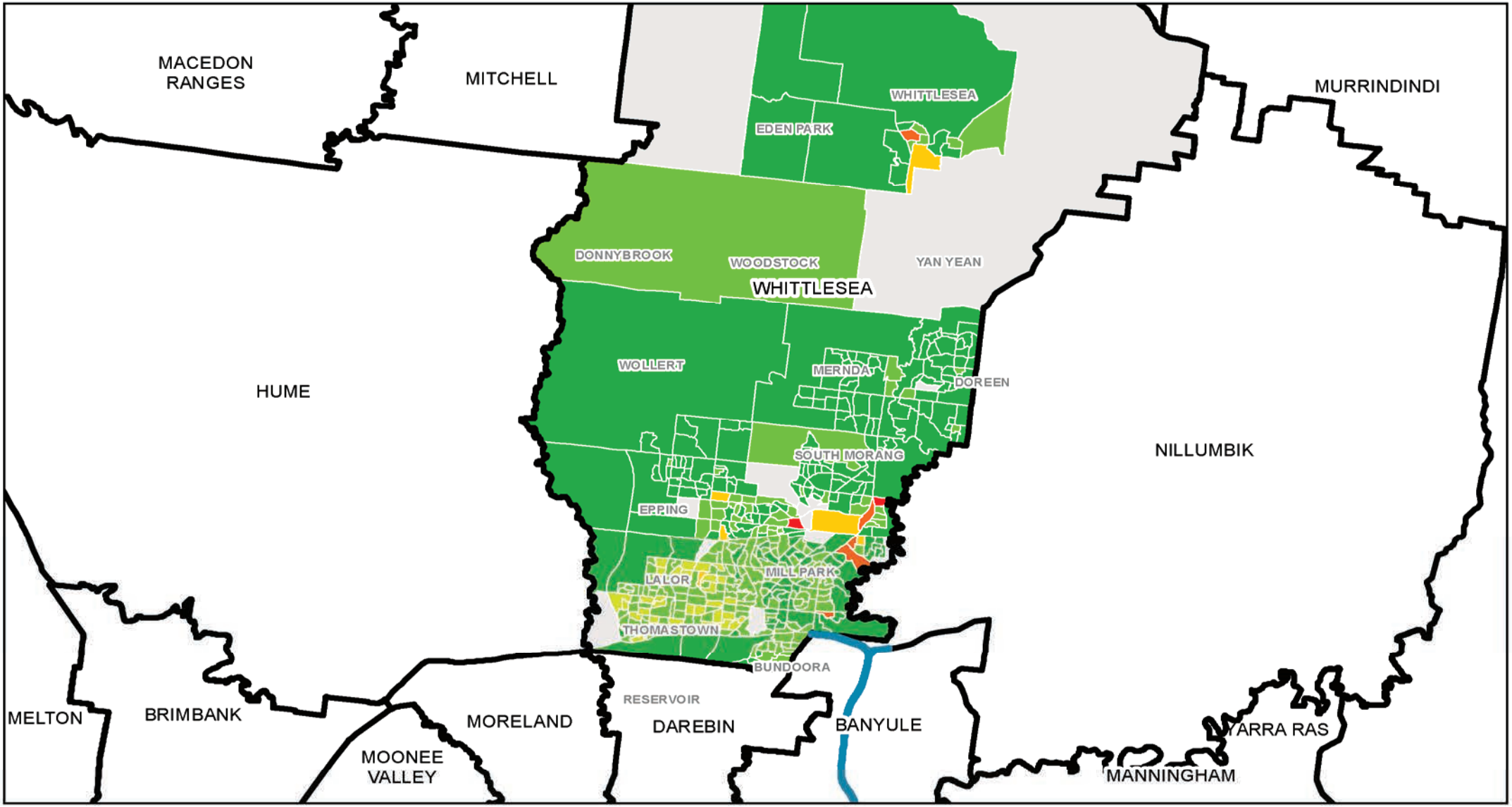
Data source: VicMap 2018: Localities, LGA; ABS SA1; 2016, SEIFA data 2018. Created by:xlee



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

- NEL Alignment
- LGA

Disability %

- 0 - 5%
- 5.01% - 10%
- 10.01% - 15%
- 15.01% - 20%
- 20.01% - 40%
- 40.01% - 60%

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Revision H
Date 06 Feb 2019

People who require assistance with core activities - Whittlesea

Figure 6-51

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: VicMap 2018: API, POI points, Localities, LGA; GHD: Survey Data 2018. Created by:xlee

6.9.8 Key community infrastructure relative to North East Link

Key community infrastructure facilities in Whittlesea located near the project are listed in Table 6-8 and shown in Figure 6-52.

Table 6-8 Key community infrastructure relative to North East Link in the Shire of Whittlesea

Suburb	Map code	Facility name
Bundoora	1	Plenty Road Path
	2	Unnamed open space area, 22 Enterprise Drive Bundoora
	3	Unnamed reserve, 40 Worcester Crescent, Bundoora
	4	Apostolic Church
	5	Northpark Private Hospital

Figure 6-52

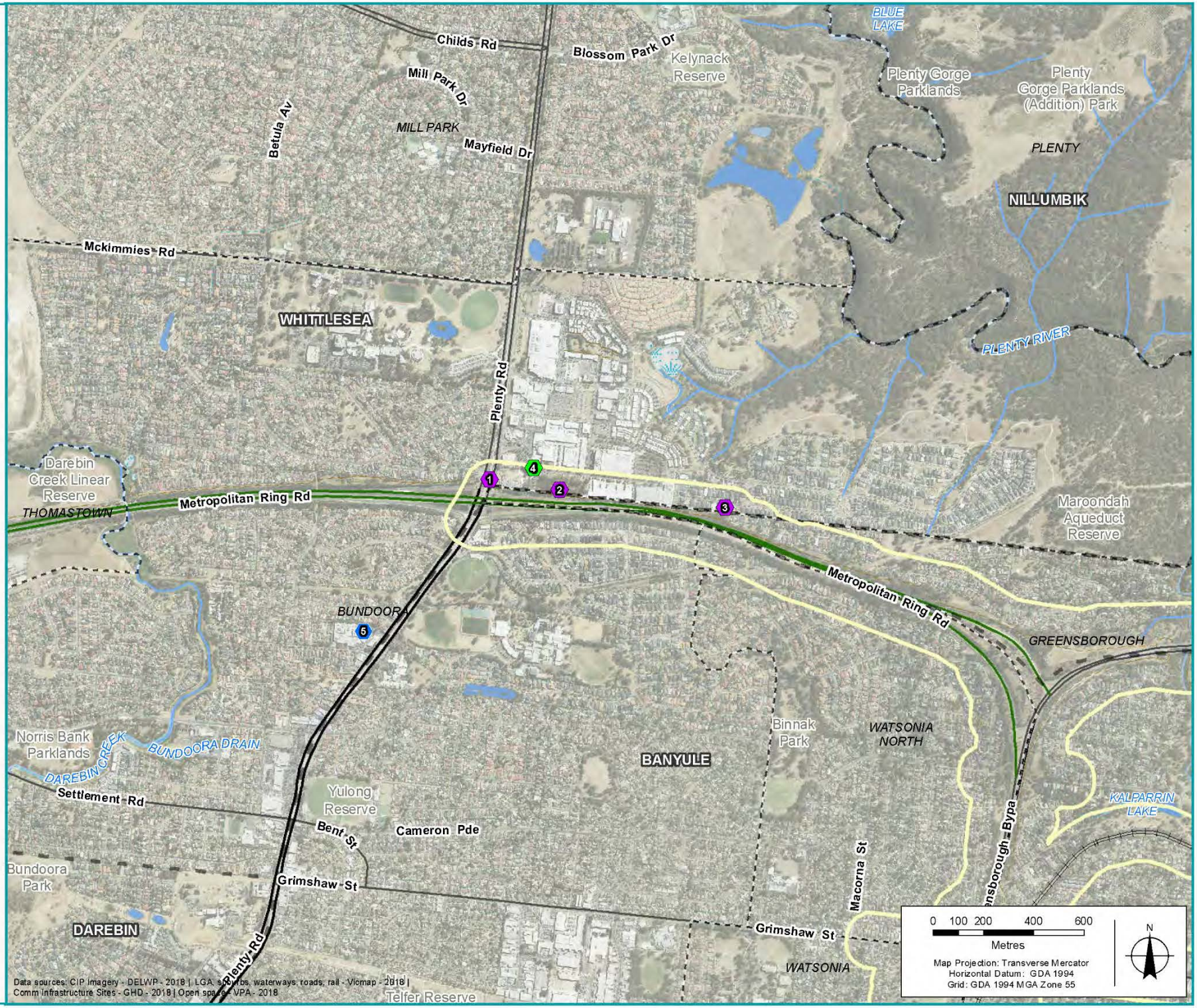
Whittlesea community infrastructure facilities

Community Infrastructure

1 - Plenty Road Path
2 - Unnamed open space area, 22 Enterprise Drive
3 - Unnamed reserve, 40 Worcester Cres
4 - Apostolic Church
5 - Northpark Private Hospital

Legend

- Emergency
- Library and Cultural Space
- Open Space and Recreation
- Social Impact Assessment Area (SIA)
- Open Space
- LGA Boundaries
- Suburb Boundary



7. Risk assessment

A risk assessment of project activities was performed in accordance with the methodology described in Section 5.5. The risk assessment has been used as a screening tool to prioritise the focus of the impact assessments and development of EPRs. The risk pathways link project activities (causes) to their potential effects on the environmental assets, values or uses that are considered in more detail in the impact assessment. Risks were assessed for the construction and operation phases of the project.

The identified risks and associated residual risk ratings are listed in Table 7-1. The likelihood and consequence ratings determined during the risk assessment process and the adopted EPRs are presented in Appendix D. There are no planned events within the social impact assessment.

Table 7-1 Social impact assessment risks

Risk ID	Potential threat and effect on the environment	Risk rating
Construction		
Risk SO01	Acquisition of residential properties leading to relocation of residents from existing place of residence and neighbourhood that may disrupt established social networks, and residents will have to re-establish and adapt to a different place of residence.	Medium
Risk SO02	Acquisition of residential properties causes social isolation and increase vulnerability if people have to move out of the area due to unaffordability or unavailability of properties to buy within the same area.	Low
Risk SO03	Construction and location of infrastructure closer to private residential properties leading to changes to amenity and lifestyle.	Medium
Risk SO04	Construction and location of infrastructure such as ramps near or surrounding residential communities leads to a sense of loss of connectivity and access to other areas.	Low
Risk SO05	Noise, air emissions and visual changes including overshadowing generated due to construction activities, construction traffic and redistribution of traffic, affect the amenity of the nearby residents and reduce the overall liveability and attractiveness of the area causing inconvenience, changes to lifestyle, disruption to daily life and activities.	Medium
Risk SO06	Changes to traffic conditions during construction such as road, lane, or shared path closures and detours may cause safety concerns, disruption to access areas and properties, increase travel time, cause delays and inconvenience for road users.	Medium
Risk SO07	Changes to traffic conditions during construction such as road, lane, or shared path closures and detours impacting on the vulnerable population such as the elderly, those that use mobility aid (wheelchairs) by reducing travel accessibility, causing isolation, deterioration of mental and physical health.	Medium

Risk ID	Potential threat and effect on the environment	Risk rating
Risk SO08	Full or partial land acquisition of sporting, open space and recreational facilities reduces the function and viability of the facility and in turn reduces opportunities for an active lifestyle and impacts on social networks that people create through participation in sporting and recreational activities.	Low
Risk SO09	Noise, air emissions and visual changes including overshadowing generated during construction reduces the overall amenity of community infrastructure facilities, leading to reduce enjoyment of the facility and impacting on the function and viability of the place.	Medium
Risk SO10	Disruption to and change in public transport services may lead to users having to change their travel routes and adapt to temporary relocation of bus stops and bus and train routes.	Medium
Risk SO11	Acquisition of commercial properties increases unemployment in the local area, as some people may choose to quit their jobs as the commercial operations relocate to another area.	Medium
Risk SO12	Acquisition of commercial properties would lead to relocation of businesses or closure of businesses leading to disruption or breakdown in the social networks created by the businesses owners and staff in the area.	Medium
RkskSO13	Relocation of businesses would diminish access to those goods and services for the surrounding community.	Low
Operation		
Risk SO14	Infrastructure such as ramps near or surrounding the residential communities leading to a sense of isolation.	Low
Risk SO15	Changes to amenity (noise, air and visual including overshadowing) of nearby residents due to road infrastructure being located nearer their homes slowly deteriorate lifestyle, increasing vulnerability over a period of time as the road achieves its full capacity.	Low
Risk SO16	Increase in traffic on feeder roads or on roads designated for re-distribution of traffic can deteriorate amenity (noise and air quality) for nearby residents over a period of time, increasing their sense of disadvantage.	Medium
Risk SO17	The grade separated shared path crossings can deter some vulnerable groups from making the journey, increasing their isolation and sense of disadvantage.	Low
Risk SO18	Full or partial land acquisition of sporting and recreational facilities leads to permanent loss of the facility and in turn reduces opportunities for an active lifestyle, deteriorate social networks that people create through participation in sporting and recreational activities causing isolation, increasing sense of frustration.	Low

8. Impact assessment – social regional study area

8.1 Context

This section describes the social impacts of the project's construction and operation on the regional study area, as described in Section 6.2. This section has been informed by the findings of the *North East Link Business Case, 2018* (North East Link Authority, 2018).

A detailed assessment of the social impacts on communities along the project are described in Sections 9 and 10.

8.2 Construction impacts

8.2.1 Employment and business development

The *North East Link Business Case, 2018* estimates that construction of North East Link would generate 10,300 direct and indirect jobs in the Melbourne metropolitan region, state of Victoria and interstate (North East Link Authority, 2018). These employment opportunities would be available to people across the regional study area at various skill levels and would span from the project's planning to its operation.

The construction of North East Link would generate demand for various goods and services within the regional study area, creating business development opportunities for regional businesses through project procurement.

8.2.2 Access and connectivity

The M80 Ring Road, Greensborough Bypass, Bulleen Road and Eastern Freeway offer connectivity for the wider regional communities to various parts of Melbourne. Construction of North East Link would require road and lane closures, and changes to public transport within the project boundary, which is likely to cause traffic congestion, queueing and disruption to public transport along the project boundary. This could cause temporary traffic delays for those living in the wider region who travel along these roads.

8.3 Operation impacts

Once operating, North East Link is not expected to impact on the way of life of people who live in the wider region. The project would deliver a number of positive impacts to the wider region and Victoria. These benefits would include:

- ***Improved travel times across the north-east*** – all modes of transport including cars, trucks, public transport, cyclists and pedestrians would experience reduced travel times, which would allow people living in the wider region to have more leisure time. Residents in the wider region who use public transport to access the inner and central city would also benefit from reduced travel times due to the dedicated Doncaster Busway.

- ***Economic growth*** – providing a fast, reliable and direct orbital connection to key employment areas in the north, east and south-east would attract more investment in these areas and improve the ability of businesses to access skilled workers, participate in supply chains and share inputs, ideas and innovation. Businesses moving goods and services would be able to access Melbourne Airport and key distribution facilities in the city's north more efficiently.
- ***Increased economic opportunity for households in the north, east and south-east*** – improved accessibility would give residents more job choices and more options for working closer to home, boost income levels and support the development of employment hubs that can generate new economic opportunities from Melbourne's expanding services sectors. This includes providing better access for residents in the wider region to the La Trobe NEIC. This would also provide residents with greater accessibility to educational opportunities, such as major tertiary education facilities across the wider region, which could lead to greater participation in work, education and community activities.
- ***Improved competitiveness of the state*** – greater orbital connectivity would allow improvements and efficiencies in freight movements and supply chains, which would flow through to reduced business costs and lower consumer prices. This would deliver productivity benefits across the Melbourne and Victorian economies.
- ***Improved liveability and thriving communities in the north-east*** – decreased reliance on local and arterial roads, as key orbital routes through Melbourne's north-east would enhance amenity in these areas through reduced noise pollution, improved air quality, safer local roads, less time sitting in traffic and better connections to local destinations. North East Link is expected to move trucks off local roads significantly improving local amenity.

Benefits of the project are also discussed in Section 10.

9. Impact assessment (construction) – social local study area

9.1 Context

This section has been prepared in accordance with the method described in Section 5 and includes a detailed description of social impacts followed by an assessment of impacts and determination of impact significance rating.

9.2 Land acquisition and relocation

9.2.1 Context

This section describes the potential social impacts arising from residential and commercial land acquisition and assesses impacts at the household, neighbourhood and community levels. Section 5.6 outlines the significance rating of the social impacts used in this social impact assessment.

Land acquisition and associated relocation has been considered in this social impact assessment primarily on the understanding that people develop a sense of place and form social ties based on where they live and work (Forrest & Kearns, 2001). More specifically, 'people socialise and interact in their local environment, be it in the village…or in the suburb, and they build social networks among their neighbours' (Castells, 1997), These networks, which are largely based on where people live and work, are likely to be disrupted by relocation instigated by land acquisition.

Social impacts of land acquisition on community infrastructure facilities (including open spaces and sporting and recreational areas) and their users are considered in Section 9.5.

All property acquisition would be undertaken in accordance with the *Land Acquisition and Compensation Act 1986* ('LAC Act') and the *Major Transport Projects Facilitation Act 2009* ('MTPF Act').

Consultation with key stakeholders, including with relevant councils about temporary occupation requirements is ongoing.

9.2.2 Impacts of residential property acquisition and relocation

Residential property acquisition requirements

This section outlines the land acquisition requirements of North East Link based on the reference project. The land acquisition requirements discussed in this report are considered to be a conservative approach and further design refinements are ongoing as part of the EES process, with a view to ensuring optimal environmental, economic and social outcomes, including the potential for a smaller project footprint.

Based on the reference project, the project would require the acquisition of 36 residential properties across the entirety of North East Link. Residential property acquisition would be limited to the project's M80 Ring Road to northern portal and northern portal to southern portal elements (see Section 3.1 for a definition of these areas). No residential property acquisition would be required in the Eastern Freeway element. Residential properties acquired for the project would be within the municipalities of Banyule and Manningham, more specifically in the suburbs of Macleod, Yallambie, Greensborough, Watsonia and Bulleen.

Potential impacts to households and individuals

At a household level, the involuntary nature of acquisition of residential properties under the LAC Act and subsequent relocation of residents is likely to result in lifestyle disruption and pose demands on individual and family time. Specifically, working through the project's compensation and negotiation process, finding and purchasing a new home and moving would generate demands on time, disrupt established lifestyles and cause inconvenience (risk SO01 and risk SO02). Additionally, it is likely that people may not be able to relocate within the same neighbourhood (that is, the same street or within the next few streets) and therefore may experience a loss of the social ties within their neighbourhood. Generally people that have lived at the same residence for a long time would likely have stronger ties and attachment to the area. The baseline assessment indicates there are slightly lower levels of migration in the municipalities of Banyule and Manningham compared with Greater Melbourne (see Section 6.4.6 and 6.5.6). Initial consultation undertaken by NELP with residents who would be subject to acquisition has found that not all residents would seek to relocate within the same community or neighbourhood, indicating that for some residents, neighbourhood social ties could be replaced or may not be important.

The severity of these effects would vary depending on the individuals and their circumstances, noting that vulnerable households would experience these impacts at a higher level of intensity. The baseline assessment has identified low levels of vulnerability in the overall study areas subject to acquisition such as disability, low levels of English, elderly populations (see Section 6.4.7 and Section 6.5.7). However, consultations for the social impact assessment found that some of the areas near the project are home to some vulnerable people (such as people with disability, aged residents and people with limited English skills). Consequently, it is possible that some individuals could experience higher levels of disruption and loss of social ties and support than others who are less vulnerable. Conversely, not all vulnerable households would experience a higher level of impact – for example, relocation may be viewed favourably, as it would for non-vulnerable households.

The potential for disruption to household lifestyles is expected to be managed through EPR SC1 (see Section 13) using the following approach:

- Use a case-management approach for project interactions with affected land owners and occupants
- Endeavour to reach agreement on the terms for possession of the land
- Consider the relative vulnerability and special needs of land owners and occupants.

In addition, it is possible the decisions required to be made for compensation and relocation, along with potential loss of social ties, disruption to lifestyle and demand on time would result in stress and worry for some individuals. The potential for this is discussed and assessed in Technical report J – Human health.

Impact rating

Based on the above discussion, and following the implementation of relevant EPRs as discussed in the above section, residential land acquisition is generally expected to have a minor to moderate social impact of reduced or loss of social ties on individuals and households. The social impact on vulnerable individuals or households and some long-term residents or households is expected to range from minor to major, depending on the circumstances of the household subject to acquisition.

Potential impacts to neighbourhoods and communities

Relocation of households introduces the potential for reduced or loss of social ties at the neighbourhood and community level. Neighbourhood level refers to the area or street/s that immediately surround a residence, whereas community level refers to the suburb. This impact is more likely to occur in instances where several households from an area would be relocated. Expected residential acquisition requirements are generally located immediately adjacent to the project, and dispersed in a linear fashion through the suburbs of Greensborough, Watsonia, Macleod, Balwyn North, and Bulleen. However, there are some areas in the City of Banyule where residential property acquisition would occur in clusters within a neighbourhood. In these areas, social ties at the neighbourhood level are likely to diminish, because it is likely that some residents who continue to live in the neighbourhood would lose their neighbours to relocation and miss the existing social networks. However, even when acquisition would cluster at the neighbourhood level, it is not at a scale to result in impacts at the community level.

The significance of this impact is related to the existing strength of social ties, contextualised by the community's capacity to adapt to change. As outlined in Section 6.4.6, the City of Banyule is recognised to have slightly higher than average social cohesion indicators, which was also confirmed through consultations for the social impact assessment. However, the community is also highly urbanised and mobile, with around 40 per cent of the population moving (having changed address) within the last five years (see Section 6.4.6). This indicates that neighbourhoods are dynamic urban communities and such change already occurs in Banyule at much higher levels than proposed by the project. In addition, the socio-economic advantage in the area, as measured by SEIFA (deciles 6 and 7 – see Section 6.4.7) indicates that people are likely to have greater capacity to adapt to change. Specifically, higher socio-economic advantage indicates that people are likely to have broader social networks and unlikely to rely on neighbourhood ties (Ferragina, 2013). However, it is recognised there could be individuals who have lived in the area for a long time, for whom the changes instigated by project acquisition would result in a loss of local social support and ties. Similarly, vulnerable individuals identified in the area (see Section 6.4.7 and Section 6.5.7) could experience these impacts at a higher level of intensity.

Recognising the potential for a loss of social ties and support, the design and construction of the project would limit direct acquisition of residential property as far as practicable, as per EPR LP1 and SC1 (see Section 13).

Impact rating

Based on the above discussion it is assessed that following the implementation of relevant EPRs as discussed in the above section, land acquisition is expected to have a minor social impact at the neighbourhood level due to reduced or loss of social ties. Impacts to social ties at the community level are expected to be negligible. However, as discussed above, the impact to vulnerable individuals would range from minor to moderate, depending on their individual circumstances.

Potential change to supply and demand for housing in the area

Residential property acquisition and associated relocation for the project is unlikely to reduce supply and increase demand for similar housing in the area, because:

- The property acquisition process would occur over an extended period of time, likely preventing an increase in demand at one point in time.
- The properties that would be acquired are interspersed throughout the project
- Initial consultation undertaken by NELP with households that may be affected by acquisition indicated that not all households would seek to relocate within the same area, further reducing the potential for an increase in demand for housing in the same area.

Real estate data for these areas at the time of this report's preparation identified 315 properties were on the market and approximately 3,000 properties were sold from September 2017 to September 2018 in the municipalities of Banyule (2,000 properties) and Manningham (1,000 properties) (RP Data, 2018). This indicates there would likely be a sufficient supply of properties for people to relocate to within the area, should they choose to. However, it is acknowledged that a number of different factors will be at play beyond availability of properties at the time of acquisition, which would determine people's relocation choices.

Impact rating

Based on the above discussion, changes to the supply and demand for housing in the study area due to project-related residential property acquisition is expected to be minimal, resulting in a negligible to minor social impact.

9.2.3 Impacts of commercial property acquisition and relocation

Commercial property acquisition requirements

According to Technical report F – Business, North East Link would require permanent land acquisition or temporary occupation of properties affecting:

- 96 businesses, which would experience whole-of-property acquisition, resulting in permanent displacement in the municipalities of Banyule and Manningham. Businesses affected include a fuel service station, fast food restaurant, café, paver and bricks retailer and a building suppliers, hardware store and businesses in the Bulleen Industrial Precinct.
- Three businesses in Manningham, which would experience partial permanent land acquisition. Businesses affected include public and private sporting and recreational clubs and education centres.
- Three businesses, which would be affected through temporary occupation of a property in Manningham. Businesses affected include public sporting and recreational clubs attached to education centres.

The business impacts of commercial property acquisition are assessed in Technical report F – Business. The potential social impacts of commercial property acquisition and displacement are discussed in this section within the context of the impacts to the owners and employees, and the surrounding general community.

Potential impacts to business owners and employees

All businesses affected by acquisition and subsequent displacement are likely to experience disruption. Business owners and employees would need time to work through the project's compensation and negotiation process, and the relocation or future of the actual business, which would result in stress and worry for some individuals and would vary based on individual circumstances. For example, consultation with some business owners indicated this would be an opportunity to retire or to relocate to a better place, while for some others it would affect the viability of their business. EPR B2 developed as part of Technical report F – Business would be in place to minimise the disruption to businesses from permanent land acquisition or temporary occupation of land as much as practicable and work with the affected businesses and land owners to reach agreement on the terms of possession of land. Depending on individual and business circumstances the disruption impacts of commercial land acquisition on business owners and employees would vary from minor to major. The potential for stress and worry type of impacts to occur is discussed and assessed in Technical report J – Human health.

Potential impacts on local employment opportunities

Displacement of businesses due to land acquisition would reduce local employment opportunities (risk SO11). According to Technical report F – Business, the acquisition of businesses would result in the displacement of the following:

- 77 jobs (55 full-time employees) in the Watsonia and Greensborough in the City of Banyule
- 830 jobs (653 full-time employees) in Bulleen in the City of Manningham.

In addition to these direct impacts, the anticipated displacement could potentially affect the viability of a few of the 30 or so remaining businesses in the Bulleen Industrial Precinct, particularly smaller food and coffee outlets that rely on custom from the precinct businesses for a share of their business.

The total number of jobs displaced from the Bulleen Industrial Precinct may be minimised if businesses found relocation opportunities that were close to their original location (as discussed further in Technical report F – Business). However, it is acknowledged that many businesses in the Bulleen Industrial Precinct are reliant on appropriately zoned land.
The precinct is zoned Industrial 1 Zone, whereas the vast majority of the businesses can be, from a planning perspective, located within other zones that are more readily available such as Mixed Use Zone, Commercial 1 and 2 Zones and Industrial 2 and 3 Zones. As noted in the Business impact assessment (Technical report F – Business), there is a limited number of sites available in the Manningham and surrounding area and likely an increase in demand for new sites when a large number of businesses are displaced at approximately the same time.

Depending on, if and where the businesses relocate, the displacement of local businesses could result in loss of employment opportunities if employees choose not to continue to work with the business due to its relocation, or if the business does not continue to operate due to land acquisition. The loss of employment opportunities would increase the labour pool seeking employment and potentially increase unemployment, especially for those who may be vulnerable to unemployment such as those close to retirement age, those with limited skill sets, or those who rely on local employment (such as persons with limited mobility).

The potential social impacts of unemployment on the individual and the community are generally well understood. For individuals, unemployment has the potential to increase social isolation, challenge personal identity and life satisfaction, reduce living standards through a reduction in income and ultimately result in detrimental health and wellbeing outcomes (discussed further in Technical report J – Human health) (Waddell & Burton, 2006; World Bank Group, 2013). These impacts have the potential to radiate outwards from the individual, resulting in loss of family income and living standards and reduced household and community wellbeing.

EPRs developed as part of Technical report F – Business, would support the mitigation of these social impacts. As identified in Technical report F – Business, EPR B1 would:

- Inform and regularly update affected businesses of the planning and design progress for the project
- Prior to construction, work with councils to identify alternative location options for displaced businesses
- Implement support programs to build business resilience and implement a range of marketing and promotional activities to encourage awareness and patronage of businesses located near construction sites.

Early engagement with the business community would assist businesses to plan for relocation. If businesses can be relocated within the vicinity of their current location the disruption to business relationships and displacement of local jobs can be kept to a minimum. In addition, the project would aim to facilitate opportunities for economic development through local procurement and employment opportunities and, provide for a skilled local workplace and promote diversity and inclusion, as per EES Attachment I – Sustainability approach.

Impact rating

Overall, across the regional study area, the potential social impact of displacement and loss of employment opportunities (jobs) due to commercial land acquisition is expected to be minor, because as discussed above, this would not necessarily increase unemployment as people would seek and gain employment elsewhere. However, for the City of Manningham, the social impact would be moderate to major, reflecting the loss of available choices for locally accessible employment. Similarly, the displacement of employment for people who may be vulnerable such as those close to retirement age, those with limited skill sets, or those who rely on local employment options (such as persons with limited mobility) would be major.

Potential impacts to access to services

Displacement of businesses would result in community members having to find other service providers, which may be inconvenient and potentially add travel time for the local community to access those services elsewhere (risk SO13). The severity of this impact is contextualised by the following factors present in the City of Manningham:

- As noted in the baseline (Section 6.5.7) the community is relatively advantaged as defined under the SEIFA index and so likely to have the capacity to adapt to changes. For example, additional travel costs are unlikely to introduce financial difficulty for the community or community forgoing accessing those type of services.

- The community has a significantly high level of car ownership (Appendix B) and consultations for the social impact assessment found that many travel reasonable distances (within the municipality and surrounding municipalities) to access non-essential services. Therefore, the community is likely to have the capacity to access services further away with minor changes in lifestyle.

Impact rating

Given the type of goods and services currently offered by these businesses and the moderating factors outlined above, the loss of access to services provided by the businesses subject to land acquisition is expected to have a minor social impact on the surrounding community.

Social ties

Local businesses generally form part of the social fabric of a community. For this report and Technical report F – Business, consultation with businesses affected by land acquisition identified these businesses develop synergic relationships with surrounding businesses and communities, wherein they rely on each other for customer base, supply chain and employment. Many businesses in the Bulleen Industrial Precinct and businesses along the project's M80 Ring Road to northern portal element have been noted to have high levels of social capital, with relationships developed in some cases over many decades with other business operators around the area and their employee base (risk SO12).

In addition to social ties with surrounding businesses and community, consultations for the social impact assessment found that local businesses are valued by the community for their service as well as for the longevity of relationships between businesses and their customer base. Overall, the displacement of businesses would result in the loss of social ties between businesses, their supply chain and their customer and employment base. The loss of these social relationships for businesses and the surrounding community in Manningham and to a smaller extent in Banyule would be noticeable and experienced over a period of time.

EPRs developed as part of Technical report F – Business would support the mitigation of these social impacts. As identified in Technical report F – Business, early engagement with the business community would assist businesses to plan for relocation.

The successful relocation of displaced businesses would potentially reduce the disruption of business to business linkages. If businesses can be relocated within the vicinity of their current location the disruption to business relationships and displacement of local jobs can be kept to a minimum.

It would be beneficial if businesses were able to relocate to a location that is near the Bulleen Industrial Precinct, so businesses enjoy similar locational advantages to their current location, local job provision is maintained as well as business-to-business cooperation. Local advertisement of job opportunities for the project's construction may also assist with mitigating impacts of business displacement on the local job market.

Impact rating

Based on the discussion above, the impact on social ties is likely to vary between individuals and businesses and community. However, considering the overall dynamic nature of urban communities in the study area it is considered the project would have minor to moderate impact on social ties.

People who have a high reliance on the social ties formed between the businesses and the community, such as people who have worked at these businesses for a long period of time, people from vulnerable groups and those who would have difficulty in finding alternative employment, would experience a moderate to major impact on social ties.

9.3 Amenity and character

9.3.1 Context

As defined in Section 5.3, amenity and character includes the noise, air quality, and visual amenity of the area. Amenity provides for the enjoyment of the surroundings by the residents and creates a recognisable and distinctive character.

This section assesses the potential social impacts on residents and general community members near the project due to changes to amenity and character. It is noted the degree to which residents would experience social impacts due to amenity changes would vary between individuals based on various factors, such as perception, underlying sensitivity to change, distance from the project, and people's value of the amenity and character of an area. Where relevant, potential social impacts on residents, general community and specific vulnerable communities (as defined in Section 5.3) are described.

As defined in Section 5.6, the assessment takes into consideration the social impacts of changes in the environment discussed in other technical reports (mainly Technical report B – Air quality, Technical report C – Surface noise and vibration, Technical report D – Tunnel vibration and Technical report H – Landscape and visual) on people's ability to continue with their day-to-day lifestyle and their level of enjoyment of the natural and built environment. Sections 9.3.2 to 9.3.4 have assessed the potential social impacts of change to visual, noise and air quality amenity separately, as not all residents and general community would experience combined changes. Section 9.3.5 provides an assessment of the combined changes that would likely be limited to residents living adjacent to the project's construction activities.

Section 6 describes the amenity and character of the communities within the local study area. In summary, the existing amenity and character of the communities in Nillumbik, Banyule, Manningham, Boroondara, Whitehorse, Yarra and Whittlesea adjoining the project is generally influenced by the M80 Ring Road, Greensborough Bypass and the Eastern Freeway. Areas in the north-east that are adjoining the project between the M80 Ring Road and Eastern Freeway typically have a suburban feel while areas west of Yarra Bend Park have an inner city feel with higher density living. There are also schools and substantial open space and recreational areas adjacent to the project in Bulleen near the Eastern Freeway that provide amenity in the area. Light industrial uses are located along arterial roads of Bulleen Road and Manningham Road, which are dominated by road traffic noise.

Residences that are located close to the project are generally exposed to high levels of road traffic noise and increasing dust due to proximity to the existing freeways and highway, especially in areas which do not have noise mitigation controls. The interface between dwellings and the adjacent freeways and arterial roads commonly includes parks, reserves, roadside mounds or acoustic noise walls, which provides a sense of green buffer in some areas. Consultations for the SIA identified that local residents value the buffer and leafy feel provided by these parks and reserves.

9.3.2 Visual amenity impacts

The degree of amenity change (visual, noise and air quality) is largely dependent on the proximity of residents to the project and the type of project works undertaken at a given location. Construction activities such as the removal of existing vegetation within the project boundary, presence of construction sites, construction screening and lighting could temporarily result in direct views of construction activities for nearby residents. According to Technical report H – Landscape and visual, residential areas where the existing environment would be highly modified, or existing screening trees and vegetation are removed, residents would experience greater changes to the visual environment. These include residents living adjacent to project boundary (refer to Table 9-1 for locations where these changes would occur).

In addition to the direct views of construction activities, removal of vegetation could be perceived by nearby residents as changing the character of their area and streetscape. The loss of vegetation would result in an overall canopy loss, potentially making the areas less attractive and would reduce shade provided by tree cover, which is also understood to have potential flow on health impacts (discussed in Technical report J – Human health). Construction fencing may screen trees and vegetation that contribute to the surrounding amenity. Some residents would also experience loss of views onto open space due to temporary occupation by compounds or loss of open space area to accommodate the project such as at Borlase Reserve. Some residents' views would also change due to the removal of properties at locations along the project (refer to Table 9-1 for approximate locations where these changes would occur).

Permanent or temporary partial acquisition and occupation of parks and reserves along the project would reduce the visual amenity of surrounding residents, such as AK Lines Reserve, Musca Street Reserve, Koonung Creek Linear Reserve and Elgar Park. These visual changes would be limited to mainly the linear urban strip along these reserves and adjacent residential areas along the project. It is likely that nearby residents with direct views to the construction activities would notice the change in character of the area from a leafy buffer to that of a construction site, which could diminish their sense of pride in the surroundings of their residence. Such social impacts would be more pronounced where residents would be exposed to a change in character for an extended period of time, such as at AK Lines Reserve which is proposed for temporary occupation. However, it is not anticipated this noticeable change in character would extend much further from adjacent residential properties along the project boundary into the broader communities.

The EPRs identified in Technical report H – Landscape and visual include measures to minimise adverse visual impact of project works and provide visual appeal. These include temporary measures during construction, such as temporary landscaping (EPR LV2), and the establishment of urban design and landscape plans generally in accordance with the Urban Design Strategy (EPR LV1), enabling affected residents to restore their visual amenity and character of the area where possible. Further guidance to reduce visual impacts is included in EES Attachment II – Urban Design Strategy.

Direct views of construction activities could reduce people's enjoyment of their properties, particularly their backyards or outdoor spaces. To a very small extent, some residents could choose to spend less time in their yards and change in their neighbourhood character would lead to potentially diminished sense of pride in their area. The degree to which residents would experience these visual changes would vary between individuals, but generally it is considered unlikely the visual change would impact people's ability to continue with their day-to-day activities and functionally continue to use outdoor spaces and neighbourhoods.

The glow from night-time lighting for construction could be visible from indoors or outdoors for nearby residents. This can lead to residents needing to close their curtains or blinds, which would reduce the flow of breeze especially during summer. Areas that would experience this impact are listed in Table 9-1.

Technical report E – Land use planning has identified and discussed potential overshadowing from the construction of noise walls and elevated infrastructure. Social impacts of overshadowing from project infrastructure are discussed in Section 10.2.1.

With the implementation of EPR LV3, measures would be developed to minimise light spill during construction to protect the amenity of adjacent neighbourhoods. This would reduce the need for residents to close curtains or blinds, and provide the opportunity for residents to provide feedback to the project to address any impacts. The degree to which residents would likely be affected would vary between individuals and households. There is potential for some people to be more sensitive to the glow particularly vulnerable groups such as older people, children and people with medical conditions, which could affect sleep. Sleep disturbance could impact people's capacity to participate in community activities, such as work, education, recreation and social activities. Reduced community participation would result in fewer opportunities for social interactions. Health impacts of construction night-time lighting and glow are discussed in Technical report J – Human health.

Impact rating

Based on the discussion above and with the implementation of EPRs discussed above, the social impact from overall visual amenity changes on residents immediately adjacent to construction activities is expected to be negligible to minor, social impacts on residents in the vicinity is expected to be negligible.

In the case of vulnerable groups who would be more sensitive to night-time glow, the social impacts on them are expected to be minor to moderate.

Table 9-1 Visual amenity changes – indicative locations

Expected visual amenity changes	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• Direct views of construction activities from residential properties	• Residential properties directly adjacent to the project boundary along the M80 Ring Road, such as Healy Court and Killarney Ridge • Residential properties at the M80 Ring Road interchange in the south-west and south-east, including Gillingham Street • Adjacent residential properties at Grimshaw Street • Residential properties along Greensborough Bypass to the east	• Residential properties along Greensborough Road to the east • Residential properties directly adjacent to the northern portal to the east and west, due to loss of Borlase Reserve altering the character of the existing landscape. These include residents living on Borlase Street and Greensborough Road • Residential properties directly adjacent to construction compounds at Bulleen Road and Manningham Road interchange • Residential properties to the south-west and south-east at the Eastern Freeway interchange, including Highview Road and Bulleen Road	• Properties directly adjacent to the project boundary on the south along the Eastern Freeway, including Doncaster Park and Ride facility
• Loss of views onto vegetation and open space as a result of occupation by construction compounds	• Residential properties surrounding AK Lines Reserve, including Grimshaw Street • Residential properties surrounding Winsor Reserve, including Somers Avenue • Residential properties surrounding Gabonia Avenue Reserve • Residential properties along Greensborough Road to the west, opposite the Simpson Barracks	• Marcellin College and Trinity Grammar School Sporting Complex • Bulleen Oval • Residents directly adjacent to the northern portal to the east and west around Borlase Reserve, including Borlase Street and Greensborough Road	Residential properties surrounding: • Musca Street Reserve • Koonung Creek Reserve • Katrina Street Reserve • Elgar Park • Eastern Freeway Linear Reserve
• Potential glow from night-time lighting for construction	Residential properties adjacent to: • M80 Ring Road interchange • Grimshaw Street interchange • Watsonia railway station to Lower Plenty Road	Residential properties adjacent to: • Manningham Road interchange • Eastern Freeway interchange	• Residential properties adjacent to the Eastern Freeway between Bulleen Road to Doncaster Road due to the Doncaster Busway on the northern side

Expected visual amenity changes	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• Changed views as a result of removal of residential properties on the east side of Greensborough Road, and the Bulleen Industrial Precinct	• NA	• Residential properties along Greensborough Road and surrounding the Manningham Road industrial precinct, including Bulleen Road	• NA

Note: these are indicative locations derived from the findings of Technical report H – Landscape and visual; refer to Technical report H for details.

9.3.3 Noise amenity impacts

The noise amenity of residents and community members would be affected by surface and sub-surface construction activities. Generally, all residents living near the project would likely experience similar changes to noise amenity due to construction and so similar social impacts from the change in amenity. Refer to Technical report C – Surface noise and vibration for detailed locations of noise amenity change.

As outlined in Technical report C – Surface noise and vibration, a buffer of 400 metres on either side of the project's construction activities is sufficient to capture changes in the noise environment due to the project. Beyond this buffer, the noise environment would be less influenced by the project compared with other environmental sources, such as local road traffic. Specific noise management levels for the project have been established as per the *NSW Interim Construction Noise Guideline (ICNG)*. For residential properties located up to approximately 200 metres on either side of the alignment, increase in noise levels is expected to be more noticeable due to their proximity to construction activities. As the distance between the residential properties and construction works increases, it is likely the noise would decrease and be less noticeable. Perception and sensitivity to changes in noise levels is also subjective and varies from person to person. Generally construction activities and equipment are likely to move within the construction sites and along the linear project, and so associated increase in noise levels is expected to be temporary in duration and sporadic in frequency.

According to Technical report C – Surface noise and vibration, construction during the daytime without the implementation of mitigation measures, would result in some exceedances of the construction noise management levels in the project's M80 Ring Road to northern portal element, followed by the Eastern Freeway element and the northern portal to southern portal element (refer to Technical report C – Surface noise and vibration for number of exceedances). Receivers adjacent to the alignment in Watsonia North, Greensborough, Watsonia and Macleod would be affected. Small exceedances are predicted at some receivers in Rosanna near Lower Plenty Road, and pockets of receivers adjacent to the alignment in Bulleen, Balwyn North, Mont Albert North, Doncaster, Box Hill North, Doncaster East, Kew East and Kew. As outlined in EPR NV4, mitigation measures would be implemented to ensure the project would comply with the noise and vibration EPRs.

Generally noise intensive works during the daytime would include operation of a rock-breaker, tub grinder and concrete saw for clearing and excavation works. These works are predicted to affect residential properties that are located immediately adjacent to clearing and excavation activities that would occur within the project's M80 Ring Road to northern portal and Eastern Freeway elements. The duration of these activities is anticipated to be one to three months along these sections of the alignment but predicted noise level increases at any one receiver would be expected for a shorter duration as construction would move along the linear project. Further, some equipment is only likely to be required for several days before it is relocated to another area.

Trucks would also generate noise level increase along haulage routes during the daytime (refer to Section 9.4.2 for haulage routes). However, the various haulage planning and management strategies that would be in place, such as distribution of haulage routes across the road network, avoidance of already busy roads, adhering to road capacity limits and managing truck movement times to avoid peak traffic are expected to assist with limiting the overall traffic noise levels.

Residents adjacent to the project's construction areas are likely to perceive vibration impacts at times during construction works. Technical report D – Tunnel vibration indicates that temporary

vibration impacts would be noticeable to residential properties directly above and close to the alignment of the proposed tunnels from tunnelling works. The duration that a resident could be affected is expected to be less than several days as the tunnelling works move along the linear project. Specific locations where vibration impacts would occur are identified in Technical report D – Tunnel vibration.

Many residential areas feature existing noise walls particularly along the M80 Ring Road and the Eastern Freeway. Construction would involve replacement of all noise walls along the M80 Ring Road between Plenty Road and the Greensborough Bypass, and some walls along the Eastern Freeway. Where possible, new noise walls would be installed before existing walls were demolished. However, in a number of locations between the Eastern Freeway and residential areas, this would not be possible due to engineering and space restrictions. As a result, there would be no noise walls for a temporary period (two to six weeks) and nearby residents would likely experience a noticeable increase in traffic noise during this time.

Some construction activities would be required outside daytime construction hours to ensure public and construction worker safety, design and quality, and avoid significant traffic interruptions to the M80 Ring Road, Eastern Freeway and the surrounding road network. Outside of hours works may affect properties located near the project with the majority of these works expected to be temporary and intermittent at any one location. Site-specific Construction Noise and Vibration Management Plans (CNVMP) would be developed during the project's detailed design phase which would include all instances where works are proposed outside standard construction hours (EPR NV4). These plans would provide a detailed assessment of potential noise levels and site-specific measures to control these to minimise potential disturbance at affected receivers. The CNVMP must comply with and address the noise and vibration EPRs developed for the project, including construction noise and vibration targets (refer to Technical report C – Surface noise and vibration for detailed noise and vibration EPRs).

According to Technical report C – Surface noise and vibration, outside of hours construction would result in the most noise management level exceedances within the project's M80 Ring Road to northern portal precinct, followed by the Eastern Freeway precinct and northern portal to southern portal precinct (refer to Technical report C – Surface noise and vibration for number of exceedances). Receivers adjacent to the alignment in Watsonia North and Greensborough would be affected. Receivers close to the Doncaster Road bridge would be affected due to bridge demolition works. Small exceedances are predicted at receivers in Balwyn North due to the viaduct construction works.

The most noise intensive outside of hours works would include bridge demolition works and earthworks. These are predicted to affect residential properties that are located adjacent to the activities within the M80 Ring Road to northern portal and the Eastern Freeway precincts. The duration of these activities is anticipated to be one to three months along these sections of the alignment although predicted noise level increases at any one receiver would be expected for a shorter duration as construction would move along the linear project.

According to Technical report D – Tunnel vibration, vibration from potential tunnelling works outside of daytime hours would be noticeable to residential properties located directly above the alignment between the northern portal and Homewood Court (approximately 780 metres), and around 15 properties located above the northern cross passages.

It is recognised that construction noise levels would be maintained within permissible levels of noise criteria at all times. However, increase in noise levels from baseline conditions (even if they are under the noise criteria) can potentially lead to social impacts. Temporary and

intermittent increase in noise levels (daytime and night time) from baseline conditions (but within noise objectives) could potentially lead to residents in those areas near construction activities to sometimes spend less time outdoors in backyards or balconies, or close windows while indoors, which may reduce the flow of breeze especially in Summer. Increased noise also has the potential to at times disturb or interfere with normal activities of nearby residents such as conversations, relaxing at home, night-time peacefulness, reading, listening to the radio or watching television and sleep. These changes would at times reduce people's ability to enjoy their properties and go about their day-to-day life.

Disturbance to conversation, relaxation or sleep at home has the potential to cause inconvenience and annoyance to nearby residents which could impact their capacity to participate in work and community activities, affect personal and social relationships, and reduce social interactions. It could also potentially deter their family and friends from visiting some residents. These social impacts may lead to the risk of social isolation for some of these residents, particularly vulnerable groups, such as people with a disability or special needs, older people and children, as well as shift workers. Vulnerable groups may also be more sensitive to increase in noise levels and have less capacity to adapt to the change. Shift workers could be affected as the daytime increase in noise may disturb their resting and sleep during the day. Prolonged exposure to increase in noise levels and potential sleep disturbance can have health impacts which are discussed in the Technical report J – Human health. It is acknowledged that any health impacts due to noise changes from the project would have social implications to people's day-to-day life.

The EES has developed a number of EPRs to manage construction noise and vibration impacts, which include EMF2, NV3, NV4, NV8, NV9, NV10, NV11. The Communications and Community Engagement Plan (EPR SC2) and the Community Liaison Group (EPR SC3) would include early engagement with facility operators, provide stakeholders with project updates and work schedule to assist with planning activities with consideration to noise changes, and opportunity to provide feedback to the project about noise and vibration issues to seek additional impact management measures on a case-by-case basis. Consultation would target vulnerable members and sensitive receptors near the project. According to Technical report C – Surface noise and vibration, additional temporary measures such as temporary noise walls may be utilised by the construction contractor to minimise both traffic and construction noise in some locations where noise walls could be temporarily unavailable due to replacement works. Temporary relocation of potentially affected residential stakeholders for several days would also be considered where required.

Impact rating

Based on the discussion above and with implementation of the project's EPRs, the social impacts from overall noise amenity change on residents immediately adjacent to construction activities is expected to be minor to moderate, social impacts on residents in the vicinity is expected to be negligible to minor and social impacts on vulnerable groups is expected to be minor to moderate.

9.3.4 Air quality amenity impacts

According to Technical report B – Air quality, intermittent dust and odour would be generated by:

- The removal, transport and disposal of spoil due to tunnelling works at the northern tunnel boring machine (TBM) launch site at Lower Plenty Road extending north to Blamey Road and the southern TBM launch site at Bridge Street extending south to Golden Way. Spoil from both sites would be transported by trucks along haulage routes (identified in Section 9.4.2).
- Surface works along the alignment, including site clearing, construction, operation of equipment and demolition activities.

The intermittent dust and odour generated during construction would temporarily reduce the amenity of residents living along the alignment and close to these construction activities. This could require residents to close doors and windows, which may reduce the flow of breeze especially during Summer. Increased dust could lead to nearby residents needing to spend more time cleaning outdoor and indoor surfaces of homes. These changes may reduce people's ability to enjoy their properties, which is likely to vary according to individual circumstances. However overall, it is considered likely that residents would be able to continue with their daily lives and use of indoor and outdoor spaces. Residents whose properties are located near areas where the removal of vegetation or occupation of open space is proposed may perceive the project to affect air quality, including residential properties surrounding Borlase Reserve, AK Lines Reserve, Koonung Creek Linear Reserve and Elgar Park.

According to Technical report B – Air quality, finer dust particles can disperse at greater distances from the construction source and have the potential for human health impacts if not adequately controlled. There is potential for some vulnerable groups to be more sensitive to dust impacts, such as children, older people, and people with medical conditions sensitive to changes in air quality. Any health impacts due to change in air quality would be assessed in Technical report J – Human health. It is acknowledged that any health impacts due to the air quality changes from the project would have social implications to people's day-to-day life.

According to Technical report B – Air quality, a number of EPRs (EMF2, AQ1, CL1, CL3) would be implemented to minimise and monitor the level of construction dust, such as a Construction Environmental Management Plan, a Dust and Air Quality Management and Monitoring Plan, an Odour Management and a Spoil Management Plan. The assessment also proposes additional controls to minimise dust emissions, such as site barriers and management of construction vehicles. The Communications and Community Engagement Plan (EPR SC2) and the Community Liaison Group (SC3) would allow the project to engage with residents before and during construction to inform them about the project activities and provide a feedback mechanism for residents.

Impact rating

Based on the discussion above and with implementation of the project's EPRs, the social impacts from overall air quality change on residents immediately adjacent to construction activities is expected to be minor, social impacts on residents in the vicinity is expected to be negligible and social impacts on vulnerable groups is expected to minor to moderate.

9.3.5 Combined amenity impacts

There is potential for construction activities to result in combined changes to visual, noise and air quality amenity, in turn potentially impacting the ongoing use and enjoyment of residential spaces adjacent to the construction activities. Residents that would experience combined changes to visual, noise and air amenity would likely experience cumulative social impacts such as feeling annoyed, inconvenienced and at a greater disadvantage than before the project's construction. They could experience a diminished sense of pride and contentment in the area where they live or work and may choose to spend less time at home or less time in pursuing day-to-day activities in and around their homes.

Combined amenity changes are likely to occur in residential areas adjacent to surface construction activities along the alignment and construction compounds, including at AK Lines Reserve, Winsor Reserve, Borlase Reserve, Musca Street Reserve, Koonung Creek Linear Reserve, Katrina Street Reserve and Elgar Park. The length of occupancy for each construction compound would range from one to six years.

As identified in Sections 9.3.2 to 9.3.4, changes to amenity would be perceived differently by different people and some vulnerable groups living close to construction activities would be more sensitive to change in amenity than others, particularly older people, children, people with a disability or special needs or people with medical conditions.

Changes to amenity would be managed through the project's EPRs discussed in Sections 9.3.2 to 9.3.4, which include but are not limited to, the development of Urban Design and Landscape Plans generally in accordance with the Urban Design Strategy (LV1), temporary landscaping (EPR LV2), Construction Noise and Vibration Management Plan (EPR NV4) and Construction Environmental Management Plan (EMF2). Refer to Technical report B – Air quality, Technical report C – Surface noise and vibration, Technical report D – Tunnel vibration and Technical report H – Landscape and visual for detailed EPRs, which would manage amenity changes and minimise adverse impacts on residents and neighbourhoods. In addition, construction traffic would be managed through a Transport Management Plan (EPR T2), which would assist in limiting the overall construction traffic-related noise level (refer to Technical report A – Traffic and transport for detailed EPRs).

In addition, to address specific sensitivities of residents, the Communications and Community Engagement Plan (EPR SC2) and the Community Liaison Group (EPR SC3) would allow the project to engage with residents before and during construction to inform them about the project activities and provide a feedback mechanism so that residents could seek additional management measures on a case-by-case basis.

Overall, construction activities are expected to be temporary and sporadic in nature as construction activities and equipment are likely to move within the construction sites and along the linear project. It is noted however that residents living near construction compounds are unlikely to experience these variations in construction activities.

From a social impact perspective, people have a higher degree of adaptability to visual change and are able to continue to go about their day-to-day activities, with minor modifications. Any health impacts due to change in air quality and noise level would be assessed in Technical report J – Human health.

With the implementation of the mitigation strategies and project EPRs identified in the EES report and technical reports mentioned above that address construction visual, noise and air quality amenity changes, it is considered that generally most of the nearby residents would be

able to continue with their usual activities. It is acknowledged that impacts on health due to amenity changes would have social implications on people's day-to-day life.

Impact rating

Based on the discussion above and with the implementation of a number of project EPRs discussed in Sections 9.3.2 to 9.3.4, the combined social impacts from overall changes in amenity of residents immediately adjacent to construction activities and residents in the vicinity are expected to be minor to moderate and social impacts on vulnerable groups is expected to be minor to major.

9.4 Access and connectivity

9.4.1 Context

As defined in Section 5.3, connectivity refers to people's ability to move through their community and access a range of places in and outside their community safely and conveniently. Section 6 describes the existing access and connectivity environment of the communities along North East Link.

In summary, most of the study area is well serviced by road network, public transport and shared use paths. However, there are common concerns among communities across the study area about traffic congestion along the Eastern Freeway, arterial roads and real or perceived barriers to community connectivity across busy roads, particularly during peak times (consultations for the social impact assessment and Technical report A – Traffic and transport). Real or perceived connectivity barriers identified during consultations for the social impact assessment included Greensborough Road, Rosanna Road and Bulleen Road, due to significant levels of traffic and trucks and limited pedestrian connections. Rat running and queueing were also raised as concerns in neighbourhoods around busy roads. Pedestrian crossings across arterial roads, such as Greensborough Bypass, Greensborough Road and the Eastern Freeway, are important to community connectivity as they provide walking access between residential areas and community facilities.

This section describes and assesses the potential social impacts specifically on residents and general community in proximity to the project due to access and connectivity changes during the project's construction. As defined in Section 5.6, this section has assessed the social impacts of people's ability to get from one place to another and its repercussions on social ties and isolation brought about by changes to access and connectivity.

9.4.2 Roads and traffic impacts

Based on a review of the project description and the findings of Technical report A – Traffic and transport, construction of North East Link is likely to occur over seven years, with construction broken down in sections allowing sequencing of works where different construction segments mobilise and demobilise throughout that time. Construction activities would generate additional truck traffic in areas required for construction works, construction compounds and haulage routes; require temporary lane and road closures to facilitate public safety and safety of workers; create detours to ensure continual flow of traffic and access; and change traffic and signalling arrangements. Indicative locations where these changes would occur are presented in Table 9-2 with full details provided in Technical report A – Traffic and transport.

EPRs identified in Technical report A – Traffic and transport, specifically T2 and T3, include the development and implementation of Transport Management Plan(s) to minimise disruption to affected local land uses, traffic, car parking, public transport (rail, tram and bus), pedestrian and bicycle movements and existing public facilities during all stages of construction. As part of the Transport Management Plans, suitable measures would be developed in consultation with emergency services to ensure access of emergency services is not inhibited by the project construction activities. A Traffic Management Liaison Group (TMLG) (EPR T3) would also be established before any works started that may impact on existing roads, paths or public transport infrastructure. Refer to Technical report A – Traffic and transport for detailed EPRs.

Construction-related traffic volumes would be managed to be generally within the existing capacity of roads and during off-peak hours. Lane and road closures would be kept at a minimum and as far as possible during off-peak hours. Transport Management Plan(s) (EPR T2) would be developed for all closures, which would identify the detour route and traffic engineering assessments of the impacts would be undertaken. Mitigation measures would be developed for adverse traffic impacts identified, as discussed in Technical report A – Traffic and transport. EPRs SC2 and SC3 would provide stakeholders with project updates and work schedules to assist with planning activities with consideration to access and connectivity changes and opportunity to provide feedback to the project about access issues.

For residents and general community, traffic changes due to construction activities would temporarily increase their travel times for daily commute or for usual trips they make using these roads, including commutes to Melbourne CBD. Temporary occupation of the Watsonia railway station car park and Doncaster Park and Ride facility for construction works would require parking bays to be temporarily relocated to other locations (discussed in Section 9.4.4). This would increase travel distance for some park and ride users.

Additional time spent travelling is likely to reduce the time people spend with families and undertaking leisure and social activities. These social impacts would be more pronounced for residents who access multiple roads that would be used as haulage routes for the project, including the M80 Ring Road, Greensborough Road, Bulleen Road and Eastern Freeway. Construction sites and changed traffic conditions along some roads such as Greensborough Road, Bulleen Road and Eastern Freeway would likely increase the existing real or perceived barriers to travel across or along these roads.

To manage road safety risk or concern, the Transport Management Plan(s) (EPR T2) would provide measures to ensure connectivity and safety for pedestrians and cyclists during construction. It would also include a monitoring program to monitor impacts of construction activities to all modes of active and passive transport and develop practicable mitigation measures if adverse impacts were identified.

At times, increased travel times, changed traffic conditions and real or perceived barriers could deter some people, particularly vulnerable groups, from making some trips at certain times. As seen in Section 6, there is considerable ageing population in the municipalities of Nillumbik, Banyule, Boroondara and Whitehorse living near the project in suburbs such as Watsonia, Macleod, Rosanna, Greensborough, Bulleen, Doncaster, Doncaster East and Kew. This deterrence in some cases, especially among older residents, could mean they are deprived of social interactions. EPRs SC2 and SC3 would ensure that residents are engaged before and during the project's construction. This would allow nearby residents, vulnerable groups and general community near the project to anticipate traffic changes and plan their journeys ahead. Since these traffic changes would be temporary and alternative routes and access would be available, it is unlikely that temporary and infrequent deterrence would lead to social isolation or impact on community ties.

Impact rating

Based on the discussion above and with implementation of the project's EPRs, the social impact of overall road traffic changes on access and connectivity of nearby residents and general community near the project is expected to be minor and social impacts on vulnerable groups is expected to be minor to moderate.

Table 9-2 Access and connectivity changes – indicative locations

Impact type	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• Increased trucks accessing laydown sites	• AK Lines Reserve • Gabonia Avenue Reserve • Winsor Reserve • Petrol station site at Yallambie Road • Simpson Barracks • North of the M80 Ring Road interchange	• Bridge Street site • Land within Bulleen Park • Land within Marcellin College and Trinity Playing Fields	• Three sites within the Chandler Highway interchange • Two sites within the Burke Road interchange • Land within Eastern Freeway Linear Reserve and Koonung Creek Reserve • Doncaster Road interchange • Doncaster Park and Ride • Site on Kampman Street • Land within Elgar Park • Katrina Street Reserve
• Increased trucks along haulage routes	• M80 Ring Road • Hume Freeway • Greensborough Road • Greensborough Bypass • Haulage routes for contaminated materials from sites north of Lower Plenty Road: • Rosanna Road • Bulleen Road • Eastern Freeway • EastLink	• M80 Ring Road • Hume Freeway • Bulleen Road • Chandler Highway • Bell Street • Sydney Road • High Street • Plenty Road • Albert Street • Eastern Freeway • EastLink	• Eastern Freeway west of Doncaster Road: • Bulleen Road • Chandler Highway • Bell Street • Sydney Road • High Street • Plenty Road • Albert Street • M80 Ring Road • Hume Freeway • Eastern Freeway east of Doncaster Road: • Eastern Freeway • EastLink

Impact type	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• Changes to traffic arrangements near construction sites	Site access points would be located along: • Greensborough Road • Drysdale Street • Erskine Street • Blamey Road • Access via Drysdale Street and Blamey Road intersections may require temporary signals	Site access points would be located at: • Intersection of Bulleen Road and Greenaway Street requiring a traffic signal • Intersection of Manningham Road and Greenaway Street • The project may require temporary traffic signals to be installed at the intersections of Carey Grammar Sports Complex access road and Marcellin College access road to facilitate truck movements	Site access points would be located: • Via the Chandler Highway interchange • Via the Eastern Freeway at dedicated entry and exit locations
• Localised impacts on traffic flow due to temporary closures	• M80 Ring Road interchange • Kempston Street bridge • Hurstbridge rail line tunnel under Greensborough Road • Drysdale Street	• Manningham Road interchange • Bridge Street • Bulleen Road north of Eastern Freeway	• Eastern Freeway interchange • Chandler Highway and Burke Road due to busway works • Doncaster Road interchange with the Eastern Freeway • Ramps between Tram Road and Middleborough Road

Note: these are indicative locations derived from the findings of Technical report A – Traffic and Transport, refer to Technical report A for details.

9.4.3 Shared use paths

Construction of North East Link would require temporary relocation, diversions and potentially closure to shared use paths and pedestrian facilities including trails, bridges and footpaths. Temporary road closures would also affect pedestrian and cycling access (as identified in Section 9.4.2). Indicative locations where these changes would occur are listed in Table 9-3.

As identified during consultations for the social impact assessment, shared use paths provide important connectivity across the M80 Ring Road, Greensborough Road and Eastern Freeway for the communities on either side of the roads, including access to Watsonia Village Neighbourhood Centre, public transport services and community infrastructure facilities near the project (discussed in Section 6). These changes to shared use paths and pedestrian facilities would result in temporary disruption or increased travel time to users such as pedestrians, commuters, active recreational users and people with mobility aids such as wheelchairs and electric scooters. Changes could potentially deter some people especially vulnerable users such as people with disability, elderly and children from making some trips and impede on people's active lifestyle or active transport to schools (refer to Section 9.5.3 for discussion on access to schools).

To minimise temporary disruption, Transport Management Plan(s) (EPR T2) would need to identify a detour route for any road or shared use path closures. There are also other alternative recreational trails and cycling lanes available in the general area for people to access. However, it is noted in some locations where alternative trails are not within proximity, such as sections of the Koonung Creek Trail, appropriate detours would be provided during construction to maintain active travel within the community.

As seen in Section 6, the study area includes a sizable vulnerable population including elderly, people needing assistance and children and a number of age care facilities. Even temporary disruption to shared use paths and pedestrian facilities could cause social isolation in vulnerable individuals who use the paths to make necessary trips to shops, medical centres, public transport services and social activities. As per the project's EPRs T2, T3, SC2 and SC3, the project must engage with cycling and walking groups and vulnerable groups to address any disruption to shared use paths prior to construction.

Impact rating

Based on the discussion above and following with implementation of the project's EPRs, the social impacts from changes to shared use paths and pedestrian bridges is expected to be minor on the general users of these facilities and moderate on vulnerable users of these facilities.

Table 9-3 Shared use path changes locations

Impact type	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• Construction of new shared use paths	• On the south-western side of the M80 Ring Road and Greensborough Bypass interchange from the Macorna Street pedestrian and cyclist bridge to the Hakea Street pedestrian and cyclist bridge • Along the west side of North East Link between Kempston Street and the Greensborough Road/Watsonia Road intersection • Along the east side of North East Link between Grimshaw Street and the Greensborough Road and Watsonia Road intersection • Between the Greensborough Road and Watsonia Road intersection and Lower Plenty Road	• A path from Banksia Street adjacent the Yarra River, to the Avon Street/Bulleen Road intersection • A shared path along Bulleen Road from Avon Street and Bulleen Road intersection to Thompsons Road and a continuous footpath on the opposite side of Bulleen Road • A new path between the Lower Plenty Road and Martins Lane intersection and the realigned Greensborough Road Path via Drysdale Street.	• The proposed North East Bicycle Corridor (NEBC) path from the Main Yarra Trail at Merri Creek to where the Main Yarra Trail re-joins the freeway alignment east of Chandler Highway • A proposed path at freeway level under the Belford Road Bridge, bypassing the existing grade and width issues and at-grade crossing of Belford Road • A proposed path adjacent the Doncaster Busway bypassing the circuitous route around the Burke Road Billabong Reserve • A new path connecting the proposed path along Bulleen Road to the existing Koonung Creek Trail east of Thompsons Road
• Potential diversions due to realignment and reconstruction of shared use paths	• The Greensborough Bypass Path on the eastern side of the Greensborough Bypass between Plenty River and Grimshaw Street • The M80 Ring Road Path on the northern side of M80 Ring Road in the vicinity of Killarney Ridge • The M80 Ring Road Path on the northern side of M80 Ring Road east of the Macorna Street Bridge	• The Greensborough Bypass Path between the northern portal and Lower Plenty Road	• Sections of the Koonung Creek Trail, north of the Eastern Freeway between the Bullen Road and Doncaster Road interchanges • Path between Belford Road and the Burke Road off-ramp • Sections of the Koonung Creek Trail, south of the Eastern Freeway, between the Elgar Road and Tram Road interchanges • Koonung Creek Trail, south of the Eastern Freeway, west of the Koonung Creek Wetlands

Impact type	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• Potential temporary closure of shared use paths due to replacement of existing crossings	• The existing pedestrian bridge connecting Macorna Street to the M80 Ring Road path over the M80 Ring Road • The existing at-grade crossing of the Greensborough Bypass Path at Kempston Street	• NA	• The Estelle Street footbridge located between Bulleen Road and Doncaster Road • The Heyington Avenue footbridge across the Eastern Freeway between Doncaster Road and Elgar Road • The Eram Road footbridge located approximately midway between Tram Road and Middleborough Road • The footbridge near Boronia Grove Reserve located approximately midway between Middleborough Road and Blackburn Road • The Kett Street footbridge located west of the Springvale Road

Note: these are indicative locations derived from the findings of Technical report A – Traffic and transport, refer to Technical report A for details.

9.4.4 Public transport

Construction works would require temporary changes to public transport services along the project boundary. This includes changes to the location of bus stops and bus routes, temporary occupation of the Watsonia railway station car park and Doncaster Park and Ride facility for construction works, and temporary disruption to Hurstbridge rail line due to road widening works where North East Link would cross the rail line.

It is likely that at least half the existing Watsonia railway station car park would be removed and temporarily unavailable for two to three years due to construction works. This would require relocation of at least half of the carpark to the east of the station, within the Frensham Road reserve. Up to 534 bays could be accommodated within the reserve. Walking distance between the temporary carpark and Watsonia railway station would increase by up to 310 metres. As pedestrians would need to cross Greensborough Bypass, this would potentially increase travel times by up to eight minutes for park and ride users.

The Doncaster Park and Ride facility would be temporarily occupied by a construction compound. Options under consideration for the facility include maintaining the current facility with reduced car parking available, temporary relocation to the Doncaster Shopping Town or temporary relocation to the Koonung Creek Reserve (area bounded by Doncaster Road, Gardenia Road and the Eastern Freeway). Temporary relocation would be for two to three years.

Should the current facility be maintained during construction, there would be reduced access to parking available for park and ride users which could lead to reduced bus usage. Potential temporary relocation to Doncaster Shopping Town would be subject to negotiation with the property owner. This option would increase travel distance of around two kilometres (three minutes) for some park and ride users.

The relocation to Koonung Creek Reserve is considered the most likely solution as it would provide the same number of bays and a bus turn-around near the existing facility, and access to the Eastern Freeway. This option would require temporary works to provide an equivalent priority service to the existing facility, such as a dedicated bus lane on Doncaster Road, temporary signals and new access arrangements for buses and cars. This option would add approximately 400 metres (three minutes) of travel for cars and buses.

For the Hurstbridge rail line, it is anticipated that a mix of after last (train) and before first (train), weekend and extended week-long occupation would be required to complete these works. In addition, changed traffic conditions and increased travel time on roads along and near the project would mean that buses along these routes would also experience delays (see Section 9.4.2 for detail). Changes to bus stop locations, bus routes and train timetables can be stressful for some especially vulnerable groups such as the elderly, children, people with disabilities and people with English language difficulties. These changes could also increase travel times.

Temporary increased travel times is likely to reduce the time people spend with families and undertaking leisure and social activities. At times, increased travel times and access changes could deter some people, particularly vulnerable groups (older people and people who need assistance) from making some trips at certain times.

With implementation of the project's EPR T2, the project must minimise disruption to public transport (rail, tram and bus) during all stages of construction. Transport Management Plan(s) (EPR T2) will include measures to ensure connectivity and safety for all transport network users during construction. EPR T3 will establish a Transport Management Liaison Group, which would convene prior to the commencement of any works that may impact on public transport infrastructure. Changes to public transport would be communicated to rail and bus passengers as per EPR SC2. This would allow people to anticipate access changes and plan their journeys ahead. Signage would be provided where changes to park and ride facilities, bus stops and routes are proposed. Accessibility would be maintained so that people with mobility issues could continue to access bus stops.

Impact rating

Based on the above discussion and with implementation of the project's EPRs, social impacts from changes to public transport are expected to be minor on general users, and may be minor to moderate on vulnerable users.

9.4.5 Combined access, connectivity and amenity impacts

Construction of the project would result in access, connectivity and amenity changes and the social impacts from these changes are discussed in Sections 9.3 and 9.4. It is further acknowledged that combined amenity, access and connectivity changes could lead to cumulative social impacts, where residents who may experience all of the above changes at the same time would experience a higher degree of annoyance and inconvenience and would feel like they are at a greater disadvantage compared with their amenity, access and connectivity conditions before the project's construction.

EPRs to manage amenity, access and connectivity changes and reduce the social impacts are discussed in Section 9.3 and 9.4 and would be applicable to address these cumulative effects. EPRs would include but are not limited to, the development of Urban Design and Landscape Plans generally in accordance with the Urban Design Strategy (LV1), temporary landscaping (EPR LV2), Construction Noise and Vibration Management Plan (EPR NV4), Construction Environmental Management Plan (EMF2) and Transport Management Plan(s) (EPR T2).

In addition, to address specific sensitivities of residents, the Communications and Community Engagement Plan (EPR SC2) and the Community Liaison Group (EPR SC3) would allow the project to engage with residents before and during construction to inform them about the project activities and provide a feedback mechanism so that residents could seek additional management measures on a case-by-case basis.

Impact rating

Based on the discussion above and with implementation of the project's EPRs, the cumulative social impacts from overall changes in access, connectivity and amenity are expected to be minor to moderate for residents and general community in the vicinity of the project and is expected to be minor to major on vulnerable groups.

9.5 Community infrastructure facilities and users

9.5.1 Context

Community infrastructure facilities serve an important function to meet the social needs of communities and to maximise their potential and enhance community wellbeing. A definition of community infrastructure facilities and parameters for inclusion in this assessment is outlined in Section 5.3. A detailed list of community infrastructure facilities included in this assessment is provided in Section 6.

This section discusses potential impacts on the function and viability of community infrastructure facilities, such as the ability of facilities to continue providing community services due to the following changes caused by the project's construction:

- Permanent acquisition and temporary occupation – giving consideration to the potential loss of or reduced space available to the facilities and its users
- Changes in amenity and character – giving consideration to how the functionality of the facility would be impacted due to amenity changes. Based on a review of Technical report H – Visual and Technical report B – Air quality, it is generally recognised that project-related changes to visual amenity and air quality are unlikely to impact on the functionality of the community infrastructure facilities and the ability of its users to continue usage. Visual and air quality changes have thus not been predominantly considered in the assessment, but are discussed where relevant. Changes in amenity therefore primarily focus on noise impacts experienced at the facilities.
- Changes in access and connectivity through alterations to roads and traffic conditions, parking and active travel infrastructure – giving consideration to the ability of users to continue to access the services provided by the facilities.

A facility-by-facility social impact assessment is provided in Appendix E. A summary of that detailed assessment in captured in Sections 9.5.2 to 9.5.6. For the purpose of this section, the various community infrastructure facilities identified in the project area are categorised in the following five groups, where facilities with similar service and user characteristics have been combined:

- Open spaces and recreational facilities – includes parks, reserves, active and passive recreational areas and sporting facilities
- Educational and child care facilities – includes schools, tertiary education facilities and child cares
- Emergency services – includes services such as hospitals, medical centres, police, fire and rescue and ambulance
- Age care facilities (other disability centres) – includes age care centres and multiple sclerosis respite and retirement
- Community meeting places – includes community halls, libraries, places of worship, art and cultural centres.

9.5.2 Open space and recreational facilities

Land acquisition and temporary occupation requirements

The construction of North East Link would require land acquisition and temporary occupation of open space and recreational areas as outlined in Table 9-4 (risk SO08) and discussed per facility in Appendix E. This land would generally be used to locate North East Link infrastructure and construction compounds. Temporary occupation and permanent acquisition of open space and recreational areas would be required for a number of activities.

Table 9-4 Land acquisition and temporary occupation of open spaces and recreational areas and facilities

Name	Construction %*	Operation %*	Municipality
Open spaces and recreational areas			
AK Lines Reserve	96	3	Banyule
Borlase Reserve	100	58	Banyule
Creekbend Reserve	24	1	Banyule
Frensham SEC Reserve	100	5	Banyule
Gabonia Avenue Reserve	94	0	Banyule
Gillingham Reserve	26	4	Banyule
Trist Street Reserve	100	4	Banyule
Unnamed reserve in power easement west of Watsonia railway station	100	0	Banyule
Unnamed reserve located at 48A Sellars Street in Watsonia North, in the road reserve area of the Greensborough Bypass	100	0	Banyule
Watsonia Road Reserve	100	20	Banyule
Watsonia Station Carpark Reserve	100	76	Banyule
Winsor Reserve	95	0	Banyule
Jack O'Toole Reserve	32	0	Boroondara
Kate Campbell Reserve	15	0	Boroondara
Muscat Street Reserve	50	0	Boroondara
Unnamed reserve behind the Boroondara Tennis Centre, bordered the Bulleen Swim Centre	100	35	Boroondara
Leonis Avenue Reserve	99	5	Boroondara
Unnamed reserve to the north of Earl Street, between Peel Street to the east and Princess Street to the west	1	0	Boroondara
Columba Street Reserve	5	0	Boroondara
Koonung Creek Reserve (Balwyn North)	83	19	Boroondarra

Name	Construction %*	Operation %*	Municipality
Banksia Park	14	0	Manningham
Boronia Grove Reserve	23	0	Manningham
Bulleen Park	15	7	Manningham
Katrina Street Reserve	18	0	Manningham
Koonung Reserve	64	14	Manningham
Park Avenue Reserve (Manningham Park Reserve)	27	3	Manningham
Stanton Street Reserve	100	4	Manningham
Tram Road Reserve	12	2	Manningham
Unnamed reserve eastern side of Bulleen Road between Avon Street and Golden Way	48	0	Manningham
Unnamed reserve eastern side of Bulleen Road, between Golden Way and Trinity Grammar School Sports Complex	58	1	Manningham
Unnamed reserve following the western side of Bulleen Road, from Ilma Court following the residential area	100	0	Manningham
Koonung Creek Reserve (Doncaster East/Blackburn North)	19	0	Manningham
Pipeline Reserve', running mostly parallel to Sefton Street, from Edgevale Road to Estelle Street	3	0	Manningham
Unnamed reserve western side of Bulleen Road, between Tao's restaurant and Ilma Court	100	0	Manningham
Yarra Flats (Northern)	2	0	Manningham
Yarra Flats (Southern)	5	0	Manningham
Koonung Creek Linear Park (Doncaster/Donvale/Box Hill North)	60	8	Manningham/ Whitehorse
Koonung Creek Linear Park 2 (Blackburn North)	48	9	Manningham/ Whitehorse
Koonung Creek Reserve adjacent to Doncaster Park and Ride, south of Doncaster Road	100	49	Whitehorse
Eastern Freeway Linear Reserve	65	1	Whitehorse
Elgar Park	43	9	Whitehorse
Frank Sedgman Reserve	10	0	Whitehorse
Dights Falls Reserve	2	0	Yarra
Fairlea Reserve	25	4	Yarra
Gray Street Reserve	51	0	Yarra

Name	Construction %*	Operation %*	Municipality
Maugie Street Reserve	100	0	Yarra
Yarra Bend Park	3	0	Yarra
Recreational facilities			
Carey Grammar School Sports Complex	9	3	Manningham
Trinity Grammar School Sports Complex	26	4	Manningham
Marcellin College	20	1	Manningham
Bulleen Swim Centre	100	100	Manningham
Boroondara Tennis Centre	100	100	Boroondara
Veneto Club	16	4	Manningham
Freeway Public Golf Club	9	2	Boroondara

*Note that the percentages are based on GIS mapping and may have anomalies.

Land acquisition and temporary occupation impacts

The project's full and partial temporary occupation and permanent acquisition requirements would affect an area that is an active recreational precinct. The precinct includes the sports fields provided by Carey Grammar School, Trinity Grammar School and Marcellin College; Bulleen Park; Bulleen Swim Centre; Boroondara Tennis Centre; the Veneto Club; and the Freeway Public Golf Club. In addition to these facilities, a number of other facilities are used for recreational sporting that would be impacted by temporary occupation, which are dispersed across North East Link study area, including Gabonia Avenue Reserve, Winsor Reserve, AK Lines Reserve and Elgar Park. The recreational facilities within Banyule, Manningham, Boroondara and Whitehorse Council that would be displaced by the reference project have been subject to a Sport and Recreation Options Assessment that has been prepared by NELP. The Sport and Recreation Options Assessment (attached in Appendix F to this report) has been prepared in consultation with each of the relevant Councils and provides further detail to supplement this social impact assessment report.

The Sport and Recreation Options Assessment documents the approach that has been adopted in consultation with facility operators, local councils and relevant State authorities to identify relocation opportunities. Solutions to address this include increasing the capacity at nearby sites to enable them to accommodate increased use for a temporary period. NELP has also undertaken consultation with Sport and Recreation Victoria, and the State Sporting Associations so that relevant sporting requirements are considered throughout this process. The objective of this work is to accommodate impacted facilities in alternative locations and where practicable, to maintain the continuity of the facilities. The options assessment represents the work that has been completed to date consistent with EPR SC4. It is noted however that this social impact assessment does not consider the impacts of the relocation opportunities identified in the Sport and Recreation Options Assessment.

Through this process, NELP and the councils have held the common objectives of accommodating displaced facilities and maintaining the continuity of those recreational activities. The Sport and Recreation Options Assessment is however, preliminary in nature and does not present a definitive solution for each recreational facility or club. Further consultation and assessment of the feasibility of these options is required before this work is completed.

Once preferred options have been selected, the implications for the recreational facilities and user groups would be further considered and NELP would work with these groups to reduce impacts as much as possible. This social impact assessment report represents a more conservative approach compared to the Sport and Recreation Options Assessment. This is because the Sport and Recreation Options Assessment identifies situations where some recreational facilities may be retained in situ.

For the Bulleen Park Area Sport & Recreation Options Assessment, impacts on recreation facilities in this area (including the Bulleen Oval, Freeway Public Golf Course and Boroondara Tennis Centre) have been assessed together with the level of community use. Due to the relationship with the Veneto Club and Bulleen Park, it has also been included in this assessment.

NELP has developed seven relocation options within the Bulleen Park Area. Principles and Evaluation Criteria have also been developed to enable an objective options assessment process. The development of both these options and the principles and criteria has included consultation and feedback from Council officers. It is acknowledged that any advice received from officers has been to assist this process but should not be understood to represent the formal position of the Councils.

The Sport and Recreation Options Assessment excludes impact to private schools along Bulleen Road (Trinity College, Marcellin College and Carey Grammar) as there has been separate consultation with each private school to address temporary and permanent impacts on their respective facilities and needs.

In addition, the reference project would require the acquisition of Bulleen Swim Centre and the relocation of this facility has not been considered in the Sport and Recreation Options Assessment or this social impact assessment. The function the facility provides would cease. The displacement of this business may result in inconvenience to community members and users of the facility who would have to access similar services elsewhere.

The aim for the sporting and recreation impacts along the project boundary is to allow continued access to equivalent facilities for the users and minimise disruption due to land acquisition and temporary occupation. It is therefore anticipated that availability of sporting facilities and clubs would not be reduced due to the project's land requirements. Depending on where the facilities are relocated, it is possible that if facilities are located further away from their existing location some users from the immediate surrounding area could be deterred from travelling the additional distance to access the facilities. However, it was noted through consultations for the social impact assessment with managers/operators and users of the facilities that generally people travel a fair distance to use them and that most users would continue to use the facilities at their new location.

Where a full or partial but larger percentage of area of open spaces would be subject to temporary occupation or land acquisition, it is highly likely the neighbouring community would experience reduced availability of open spaces or shared use paths (where shared use paths are part of open spaces) for active or passive recreation during construction works which could potentially reduce the immediate opportunity to have an active lifestyle or community interaction for some. Similarly, open space provides opportunities to connect with nature, which is now understood to have positive effect on wellbeing (Capaldi, Passmore, Nisbet, Zelenski, & Dopko, 2015). This may for example, occur in areas near Borlase Reserve, AK Lines Reserve, Boronia Grove Reserve, Eastern Freeway Linear Reserve, Frensham SEC Reserve, Gray Street Reserve, Jack O'Toole Reserve Koonung Creek Linear Park, Koonung Creek Reserve, Koonung Reserve (refer to Table 9-4 for a full list of open spaces subject to land requirements of the project). The effect of this would increase for neighbourhoods where there is limited

access to alternative facilities. Specifically, there would be limited open space available at the local level in the south-east of Watsonia and the north of Balwyn North during the project's construction.

It is recognised that reduced availability of active or passive open spaces at walking distance would discourage some people from pursuing an active lifestyle. However, other alternative avenues would continue to be available in the vicinity to pursue an active lifestyle, access open space and interact with community in the general surroundings in the municipalities of Manningham, Boroondara and Banyule. In many instances, partial areas within affected open spaces would be available for its existing use such as at Park Avenue Reserve, Muscat Street Reserve, Banksia Park, Boronia Grove Reserve, Creekbend Reserve and Koonung Creek Linear Park. Although the area of the open spaces would be reduced, the primary function would continue to be available for users. However, some users may not find the remaining area attractive enough for usual recreational purpose and may reduce avenues to pursue active lifestyle in the neighbourhood. In the short term this could affect active lifestyles of people in the neighbourhood (see Technical report J – Human health) but people would be able to adapt over a period of time and find alternatives and may choose to go elsewhere to access similar facilities.

It is recognised that vulnerable groups are users of community infrastructure facilities that may experience changes due to acquisition. There is potential the effects outlined above would be higher for vulnerable peoples.

Amenity and character impacts

As described in the existing environment (Section 6), the open spaces and recreational areas along North East Link are generally characterised by highly urbanised setting and exposure to existing freeways, highways and busy roads. As described in Section 9.3.3, construction activities would likely generate noticeable levels of noise temporarily and intermittently especially in areas directly adjacent to construction activities. This may have the potential to sometimes temporarily and discontinuously disturb active and passive recreational and sporting activities but only when the timing of high noise generating construction activities would coincide with these activities (risk SO09). Disturbance would mean the passive recreational spaces may temporarily be unappealing for the neighbourhood community to take walks or walk their dogs along the construction areas. For sporting areas, disturbance may mean that call outs during games and training may not be easily audible at times and construction noise may become a deterrent for spectators or family members to watch the games.

As mentioned in Section 9.3.3, a number of project EPRs would be implemented to reduce and manage noise impacts on receivers, including:

- A Construction Environmental Management Plan (EMF2)
- Noise management measures as per NV3, NV4, NV8, NV9, NV10, NV11 and additional temporary measures
- A Communications and Community Engagement Plan (SC2), which would provide stakeholders with project updates and work schedule to assist with planning activities with consideration to noise changes and opportunity to provide feedback to the project about noise and vibration issues (see Section 13).

Access and connectivity impacts

A review of Technical report A – Traffic and transport suggests that by implementing the project's EPRs T2 and T3, construction-related traffic volumes would be managed to be generally within the roads capacity and during off-peak hours and temporary lane and road closures would be kept at a minimum and as far as possible during off peak hours.

However, it is likely that traffic conditions would change along the road network near construction sites due to temporary lane and road closures, detours and additional construction traffic especially on local and arterial roads, where a number of recreational and open space areas are located. Specifically, there would be increased truck movements along Bulleen Road and Manningham Road and the Eastern Freeway. These changed conditions would cause congestion and delays in accessing recreational facilities located within the Bulleen Park sports precinct (such as activities within unaffected parts of Carey Grammar School, Trinity Grammar School and Marcellin College and Bulleen Park sporting grounds). It is notable these facilities are used on the weekends and in off-peak periods for training, games and events, when potential queuing and delays would increase if this use coincided with construction-related traffic changes. People would have to factor in additional travel times while accessing these facilities. To minimise access impacts on recreational facilities, consultation with facility managers should be undertaken as per EPR SC2, which would enable people to effectively plan their travel around changes to traffic conditions.

Further to these broader changes, Technical report A – Traffic and transport has noted the road that provides access to the Marles Playing Fields within the Trinity College Sports Complex would be closed for approximately 52 weeks to allow for the construction of the North East Link tunnels. An alternative access route would be provided in accordance with EPR T2 to avoid any access issues.

The temporary presence of construction activities and changes to traffic conditions to access the open spaces and recreational facilities (as mentioned above) and the relocation of some of the sporting facilities further from their existing location could potentially deter some people from accessing these facilities and reduce their involvement, particularly elderly people who socialise at venues such as the Veneto Club or volunteer at various impacted sports clubs. These changes have the potential to isolate vulnerable people. Impacts to access for vulnerable people to such facilities should be managed through the project's engagement with the facility operators and user groups in accordance with EPR SC2 (see Section 13).

Impact rating

A number of open spaces and recreational areas would be affected by land acquisition, temporary occupation, amenity changes particularly increased noise levels, in addition to changes in connectivity as discussed above. With implementation of the project's EPRs discussed above, the overall significance of impacts on the functionality of open spaces and recreational areas and overall availability of active and passive recreational facilities for the community is expected to be negligible to moderate.

Social impacts on the users of these facilities living in the neighbourhood are expected to be minor to moderate and impacts on overall general community are expected to be minor, with the exception of Watsonia and Balwyn North where the impact on the general community are expected to be moderate. Impacts on users from vulnerable groups are expected to be moderate.

Refer to Appendix E for a facility-by-facility assessment of social impacts.

9.5.3 Educational and child care facilities

Land acquisition impacts

There are 16 educational facilities and 13 child care facilities within 100 metres of the project boundary. A further five educational facilities are outside this area, but have been included in this social impact assessment as the project would intersect their catchment.

Aside from the partial acquisition and partial temporary occupation impacts to Marcellin College, Trinity Grammar School and Carey Grammar School sporting facilities, which are discussed in Section 9.5.2, the land requirements of North East Link would affect an area of Watsonia Primary School. Partial land acquisition at Watsonia Primary School would remove a small strip section along the eastern boundary of the school, which would reduce the school's space available for the school grounds. The portion of land acquired is unlikely to impact the school's functionality. NELP has engaged with the school and the Department of Education to discuss the management of land acquisition.

Amenity and character impacts

As noted in Section 9.3.3, a range of project activities would increase noise in the study area. Adverse impacts from these activities are expected to be higher for facilities near construction activities. The majority of educational and child care facilities are at a sufficient distance from North East Link construction activities to reduce the potential for noise amenity impacts. However, there are some exceptions to this where the facility is adjacent to North East Link. These include the Watsonia Primary School, St Mary's Parish Primary School, St Martin of Tours Catholic Primary School, Belle Vue Primary School, Greensborough Road Early Learning and Kinder, Macleod Preschool, Creative Play Early Learning Centre, Kalker Montessori Centre and Wonderland Childcare and Kinder.

These facilities would likely experience a change in the noise environment, which has the potential to impact users and managers of these facilities. All schools except for Birralee Primary School are expected to experience noise level changes below the noise management levels for the project (see Technical report C – Surface noise and vibration). Temporary and intermittent increase in noticeable levels of daytime noise (from the baseline conditions) could disturb concentration, conversation, impact people's capacity to participate in work and learning activities, and outdoor play and learning activities. The EPRs outlined in Technical report C – Surface noise and vibration would manage noise changes at community facilities to be within noise objectives, as listed in the Construction Noise and Vibration Management Plan (EPR NV4). However, it is recognised that noise changes (within the limits detailed in the Construction Noise and Vibration Management Plan) could result in temporary and intermittent disruption due to increased noise levels from baseline conditions. However, noise changes overall are unlikely to impact the functionality of the community infrastructure facility. Consequently, it is unlikely that amenity changes would impact the overall functionality of the schools and child care centres.

However, consultations for the social impact assessment found all facilities provide services for children, who may be more sensitive to noise changes. In addition, a number of these facilities have vulnerable users (particularly children with disabilities and learning difficulties) that would be sensitive to noise changes. Given the sensitivity of the facility users and their proximity to the North East Link construction footprint, the project would engage with each facility's management to seek inputs to the Construction Environmental Management Plan and continue engagement before and during construction as per EPR SC2.

As noted above, a marginal exceedance of the daytime noise management levels is predicted for the Birralee Primary School in Technical report C – Surface noise and vibration before the implementation of mitigation measures. Although the noise generated by the construction of North East Link would be managed to meet the noise targets listed in the Construction Noise and Vibration Management Plan (EPR NV4), the vulnerability of the school's population increases their sensitivity to noise level changes. Engagement with school management, particularly around the potential for exceedance periods as per EPR SC2 would be required, in addition to the project EPRs identified in Technical report C – Surface noise and vibration.

Access and connectivity impacts

It is likely that traffic conditions would change along the road network near construction sites due to temporary lane, road and shared path closures, detours and additional construction traffic on local and arterial roads, where a number of educational facilities are located. There are also some schools located near the project that receive students from local and broader catchments who may need to cross busy roads to access the schools. These changes would temporarily increase travel times during school pick up and drop off times or may need people using the shared use paths to make alternative arrangements to travel to schools and child care centres near the project. The most significant of these include the project's temporary occupation of Koonung Creek Reserve, which provides connectivity to Belle Vue Primary School. Similarly, the project's construction may present as a connectivity barrier, particularly for pedestrian and cyclists who may need to cross roads to Marcellin College, St Mary's Parish Primary School, St Martin of Tours Catholic Primary School and Greensborough Secondary College.

As discussed in Section 9.4, traffic impacts across the area surrounding North East Link are expected to be managed through the implementation of various project EPRs (see Section 9.4 and Technical report A – Traffic and transport).

Given the sensitivity of the facility users and their proximity to the North East Link construction footprint, the project would engage with each facility's management to seek inputs to the Construction Environmental Management Plan and continue engagement before and during construction as per EPR SC2. In addition, as detailed in Technical report A – Traffic and transport, the project would require temporary traffic signals to be installed at the intersections of Carey Grammar School Sports Complex access road and Marcellin College access road to facilitate truck movements. The implementation of traffic signals would enable safe crossing of Bulleen Road, which is expected to improve the safety of school children and young people near the Carey Grammar Sports Complex and Marcellin College.

In addition there are a number of schools included in this assessment outside the 100-metre buffer from the project. These have been included as their catchment is intersected by the project. For the duration of construction, users may need to cross busy roads and the project boundary to access the school. These changes may temporarily increase travel time during school pick up and drop off times or may need people using the shared use paths to make alternative arrangements. EPRs detailed in Technical report A – Traffic and transport would be implemented to mitigate and manage traffic and connectivity changes

Impact rating

A number of educational facilities and child care centres would be affected by land acquisition, temporary occupation, amenity changes particularly increased noise levels, in addition to changes in connectivity as discussed above. With the implementation of project EPRs discussed above, the overall significance of social impacts on the functionality of educational facilities and child care centres and community access to these facilities is expected to be minor to moderate, with the exception of Watsonia Primary School which may experience a moderate impact to its functionality due to the impacts associated with the cumulative effect of acquisition, changes in amenity and accessibility.

Social impacts on the users including vulnerable users and staff of these facilities are expected to be minor to moderate.

Refer to Appendix E for a facility-by-facility assessment of social impacts.

9.5.4 Emergency services

Land acquisition and temporary occupation impacts

No emergency services would be impacted due to land acquisition or occupation for the project.

Amenity and character impacts

There are 13 emergency services identified within 500 metres of North East Link. The buffer for identifying emergency services was extended, recognising the sensitivity of these services to adverse changes in the traffic network. This includes hospitals, medical centres and day surgeries, police stations, ambulance and fire stations. Consequently, all facilities except the Greensborough Road Surgery, Thomas Embling Hospital and Royal Talbot Rehabilitation Centre are at a sufficient distance from the construction footprint of North East Link and their functionality is not expected to be affected due to amenity changes.

The Greensborough Road Surgery is located adjacent to the project boundary. Although no exceedances are predicted (see Technical report C – Surface noise and vibration), the surgery would likely experience a change in the noise environment, which has the potential to impact on users and managers. The facilities is used only during daytime hours. Temporary and intermittent increase in noticeable levels of daytime noise could disturb conversation, impact people's capacity to participate in work activities.

Thomas Embling Hospital is located immediately north of the works on the Eastern Freeway. Given the distance between the project boundary and the facility buildings and natural noise attenuation present between the project and the facility[10] as well as the EPRs that would be implemented to manage noise levels (EMF2, NV3, and NV4) it is unlikely the functionality of the facilities would be impacted due to project-related amenity changes. Although the noise generated by the construction of North East Link would be minimised, the vulnerability of the hospital's population increases their sensitivity to noise level changes, for example, an increase in noise during the daytime or night has the potential to disturb the rest and sleep of hospital patients. Engagement with hospital management, particularly around the potential for exceedance periods as per EPR SC2 would be undertaken to allow for early engagement with the facility managers and the identification and management of project-related noise impacts.

[10] The Eastern Freeway boundary features a berm, which acts to attenuate noise generated at the site. In addition Thomas Embling Hospital has a 90 m greenspace buffer between the facility and the Eastern Freeway, which would further reduce noise at the site.

A marginal exceedance of the daytime noise management levels is predicted for the Royal Talbot Rehabilitation Centre in Technical report C – Surface noise and vibration. Although the noise generated by the construction of North East Link would be minimised through EPRs NV3 NV4, the vulnerability of the hospital's population increases their sensitivity to noise level changes. Engagement with hospital management as per EPR SC2 would be undertaken, in addition to the EPRs identified in Technical report C – Surface noise and vibration. As the exceedance is marginal and temporary, it is unlikely to impact the functionality of the facility or significantly impact its users.

Access and connectivity impacts

Access to emergency facilities and provision of emergency services are time sensitive. The construction of North East Link is expected to result in temporary lane and road closures across the study area (see Section 9.4.2) that would require diversions and may increase travel times, which has the potential to impact response times. As per EPR T2, suitable measures would be developed in consultation with emergency services and facilities so that emergency service access was not inhibited due to construction activities.

Impact rating

Based on the discussion above and with implementation of project EPRs, the overall impacts on the functionality of emergency facilities and services and community access to these facilities and services is expected to be minor. Refer to Appendix E for a facility-by-facility assessment of social impacts.

9.5.5 Age care facilities

Land acquisition and temporary occupation impacts

No age care facilities would be impacted by land requirements for the project.

Amenity and character impacts

There are six aged care, retirement or respite facilities near the project. These facilities include Regis Macleod, Assisi Centre Aged Care, Japara Rosanna Views Nursing Home, Applewood Retirement Village, and the MS Respite Services. The latter three facilities are located adjacent to the project boundary.

Given the residential nature of these facilities and vulnerabilities of their inhabitants, users of these facilities would likely experience similar amenity impacts to vulnerable residents living near North East Link, as outlined in Sections 9.3.2 to 9.3.5. Visual changes from North East Link are expected to be higher for facilities near construction activities. These changes would include direct views of construction activities reducing people's enjoyment of their properties, including outdoor areas, and a change in street amenity, particularly through the removal of trees. These changes have the potential to reduce people's use of outdoor spaces and enjoyment of their neighbourhood. Adverse visual changes would be minimised for surrounding communities as far as possible with the implementation of various EPRs detailed in Technical report H – Landscape and visual and Section 9.3.2. As such, these changes would unlikely impact the functionality and use of age care facilities or the enjoyment of properties for most residents.

As discussed in Section 9.3.3, a range of project activities would increase noise levels, particularly for residents and facilities near construction activities. Aged care facilities, particularly those located near construction works (as mentioned above) may experience a

noticeable change in noise levels during day and night times, when increased noise may impede people's ability to sleep, relax or engage in conversation, limiting their lifestyle and social interactions. It is likely that some within this vulnerable group of users could be more sensitive to increases in noise levels and may have less capacity to adapt to changes in the noise environment. As noted in Section 9.3.3, the implementation of EPRs NV3, NV4, NV8, NV9, NV10, NV11 and SC2 would manage construction noise and vibration impacts to sensitive receivers. Early engagement with facilities would be required to address particular project-related amenity issues.

As noted in Section 9.3.4, intermittent dust and odour would be generated by activities associated with construction works at the northern TBM launch site between Lower Plenty Road to Blamey Road. Baptcare Strathallan is located in this area. The intermittent dust and odour generated from construction works would temporarily reduce the amenity of residents living along the alignment and close to these construction activities. This may require residents to close doors and windows, which may reduce the flow of breeze especially during summer. These changes could reduce people's ability to enjoy their properties, which is likely to vary according to individual circumstances. Although, it is considered likely that residents would be able to continue on with their daily lives and use of indoor and outdoor spaces, the vulnerability of residents of Baptcare Strathallan means there may be people who are more impacted by the change in air quality.

According to Technical report B – Air quality, finer dust particles can disperse at greater distances from the construction source and has the potential for human health impacts if not adequately controlled. There is potential for some vulnerable groups to be more sensitive to dust impacts, such as residents of aged care and respite facilities. Health impacts due to change in air quality are assessed in Technical report J – Human health.

As noted in Section 9.3.4, a number of EPRs (EMF2, AQ1, CL1, CL3) would be implemented to minimise and monitor the level of construction dust, such as a Construction Environmental Management Plan, a Dust and Air Quality Management and Monitoring Plan, and a Spoil Management Plan. Technical report B – Air quality also notes that additional controls may be appropriate to minimise dust emissions, including site barriers and management of construction vehicles. The Communications and Community Engagement Plan (EPR SC2) and the Community Liaison Group (SC3) would facilitate engagement with aged care and respite facilities before and during construction to inform them about project activities and provide a feedback mechanism.

Access and connectivity impacts

As discussed in Section 9.4.2, the construction of North East Link would result in temporary delays and additional travel time along some roads. Aged care facilities in Watsonia and Rosanna (Baptcare Strathallan, the MS Respite Services, Regis Macleod, Assisi Aged Care and the Japara Rosanna Views Nursing Home) may experience increased travel times due to haulage, lane closures and diversions on Greensborough Road, Lower Plenty Road and Drysdale Street and disruption to the Hurstbridge rail line at Watsonia railway station. Remaining aged care facilities are expected to experience changes to access and connectivity across the broader road network connecting to North East Link. Residents of age care centres often rely on public transport and construction works may require temporary changes to the location of bus stops, bus routes, trains at Watsonia railway station and access to the station. In addition, aged care facilities are understood to have a higher requirement for emergency services access and connectivity compared with other facilities.

Temporary changes to access to public transport and increased travel times across the road network surrounding North East Link and the noted changes in Watsonia and Rosanna could deter some elderly people from making some trips due to congestion and a reduced sense of road safety. It could also potentially deter their family and friends from visiting them. In turn, this could reduce the ability of aged care residents to maintain social and community networks and conveniently (as per their usual public transport modes and routes) access essential services they need.

Similarly, aged care facilities are sensitive to changes in the traffic network that may reduce the accessibility to emergency facilities.

With the implementation of various traffic management EPRs (refer to Technical report A – Traffic and transport and Section 9.4) it is expected that access and connectivity to and from these facilities would be maintained which would allow community members to continue travelling safely on roads. Early engagement with the managers and residents of these facilities would be required as per SC2 to identify and address any particular access and connectivity issues and related potential social isolation issues.

Impact rating

Based on the discussion above and with implementation of the project's EPRs, the overall significance of social impacts on the functionality of age care facilities is expected to be minor to moderate.

Social impacts on the users and staff of these facilities are expected to be minor to moderate, and on the vulnerable users are expected to be minor to major. Refer to Appendix E for a facility-by-facility assessment of social impacts.

9.5.6 Community halls, libraries, art and culture centres, and community centres

Land acquisition and temporary occupation impacts

The land on which Bulleen Art and Garden in located will be required for the North East Link and as a result the Bulleen Art and Garden will be acquired. As a result the business service and community function it provides (refer to Section 6.5.4) would cease. As a business, the business owners are likely to experience disruption and stress and worry due to the acquisition. Depending on if and where the business relocates, its displacement could result in potential loss of some local employment opportunities if employees choose not to continue to work with the business due to its relocation, or if the business closes as a result of land acquisition.

The loss of employment opportunities would increase the labour pool seeking employment and potentially increase unemployment, especially for those who may be vulnerable to unemployment such as those close to retirement age or those with limited skill sets. The potential social impacts of unemployment on the individual and the community are well understood. For individuals, unemployment has the potential to increase social isolation, challenge personal identity and life satisfaction, reduce living standards through a reduction in income and ultimately result in detrimental health and wellbeing outcomes (discussed further in Technical report J – Human health) (Waddell & Burton, 2006; World Bank Group, 2013). These impacts have the potential to radiate outwards from the individual, resulting in loss of family income and living standards, and reductions in household and community wellbeing.

The displacement or cessation of this business may inconvenience users of the facility, particularly because of the unique community activities it provides. The users wold have to find other facilities that may provide a similar function, if available in the area.

Further impacts to the business are discussed Technical report F – Business.

Amenity and character impacts

There are 21 facilities of this type near the project, including

- Libraries
- RSL centres
- Community outreach services
- Scout halls
- Places of worship
- Arts and cultural centres
- Community gardens and nurseries
- Fitness centres
- Community services, advocacy and outreach centres.

As discussed in Section 9.3.3, a range of project activities would mean community facilities would experience increased noise levels, particularly those near construction sites. A number of facilities discussed in this section would be sensitive to changes in the noise environment, based on aspects of their function that values low noise levels such as places of worship or because they cater to vulnerable groups such as people with disabilities and aged populations. Facilities located near construction works of may experience a noticeable change in noise levels during the day (these facilities are generally not expected to be used at night time), where increased noise may impede people's ability to engage in conversation, listen to religious ceremonies or engage in contemplative practice. It is likely that some within this vulnerable group could be particularly sensitive to increases in noise levels and may have less capacity to adapt to changes in the noise environment. As noted in Section 9.3.3, the implementation of EPRs NV3, NV4, NV8, NV9, NV10, NV11 and SC2 would manage construction noise and vibration impacts to sensitive receivers. Early engagement with these facilities would be required to address particular project-related amenity issues.

Access and connectivity impacts

As discussed in Section 9.4.2, the construction of North East Link would result in temporary delays and additional travel times along some roads. Facilities in Greensborough, Watsonia, Macleod and Rosanna (approximately 14 facilities) may experience increased travel time due to increased traffic, lane and road closures and diversions on Greensborough Road, Lower Plenty Road and Drysdale Street. Similarly, facility users in Heidelberg and Bulleen would likely experience increased travel times due to haulage activities along Bulleen Road and lane closures and diversions on Manningham Road and Bridge Street. It is notable these facilities are used on the weekends and in off-peak periods. People may have to factor in additional travel times while accessing these facilities. To minimise access impacts on these facilities, consultation with facility managers should be undertaken as per EPR SC2.

Construction works may require temporary changes to the location of bus stops, bus routes and operation of Watsonia railway station, which is near a number of facilities that services vulnerable groups who rely on public transport, including places of worship and the Watsonia RSL.

Temporary changes in access to public transport and increased travel times across the road network surrounding North East Link and the noted changes in Greensborough, Watsonia, Macleod, Rosanna, Heidelberg and Bulleen may deter some elderly people from making some trips due to congestion and a reduced sense of road safety. In turn, this could reduce the ability of elderly populations to maintain social and community networks and conveniently (as per their usual public transport modes and routes).

With the implementation of various traffic management EPRs (refer to Technical report A – Traffic and transport and Section 9.4) it is expected that access and connectivity to and from these facilities would be maintained which would allow community members to continue travelling safely on roads. Early engagement with the managers and residents of these facilities would be required as per EPR SC2, to identify and address any particular access and connectivity issues and related potential social isolation issues.

Impact rating

Based on the discussion above and with implementation of the project's EPRs, the overall significance of social impacts on the functionality of these community infrastructure facilities is expected to be negligible to moderate.

Social impacts on the general users and staff of these facilities are expected to be minor, and on the vulnerable users are expected to be minor to moderate.

Refer to Appendix E for a facility-by-facility assessment of social impacts.

10. Impact assessment (operation) – social local study area

This section describes the potential social impacts of North East Link once it was operation.

10.1 Land acquisition and relocation

Residential and commercial land acquisition required for North East List that would generate social impacts before and during the construction of North East Link are discussed in Section 9.2.

While the Bulleen Industrial Precinct is currently a local employment hub and would continue to be a site for significant employment during the project's construction, its long-term post-construction role has yet to be decided.

Social impacts of land acquisition on community infrastructure facilities including open spaces and sporting and recreational areas and their community implications are considered in Section 10.4.

10.2 Amenity and character

10.2.1 Visual amenity

Similar to Section 9.3.2, this section assesses the visual amenity changes to residential communities. North East Link would create new infrastructure such as noise walls, viaducts, elevated road structures, shared use overpasses and lighting and would require the permanent removal of some open spaces which currently provide leafy views for nearby residents. New road infrastructure would expose nearby residents to views of the infrastructure, altering their views due to loss of some open spaces, overshadowing from the noise walls and light spill. These changes are discussed in detail below.

During the design process, Urban Design and Landscape Plans are to be developed for permanent works, which will be generally in accordance with the Urban Design Strategy (EPR LV1). These Plans would avoid or minimise landscape and visual, overlooking, and shading impacts and maximise opportunities for enhancement of public and private receptors including public amenity, open space and facilities resulting from the project.

The impact assessment undertaken for Technical report H – Landscape and visual shows that due to height difference between residences and new infrastructure and their proximity to residential backyards along the M80 Ring Road and interchange, there would be varying degrees of views (some clear and dominating) of the project from nearby residences. Project infrastructure would be less dominating from the Eastern Freeway due to topography and open spaces that would partially screen views. Table 10-1 provides an indicative list of areas that would experience visual changes.

Residential areas, where road infrastructure would remain visually dominating coupled with a lack of screening vegetation, would experience greater visual change in the long term. These areas are identified in Table 10-1. This may permanently alter the character of the area and streetscape. Some residents would also lose existing views to open space due to the permanent loss of open space area to accommodate the project, such as residences facing Borlase Reserve.

Due to these visual and character changes in some residential areas near the project, residents would likely experience reduced enjoyment and sense of pride in their properties, particularly their backyards or outdoor spaces and would feel they are at a greater disadvantage than before the project's construction. The degree to which residents' enjoyment of their properties would be affected would vary, but it is considered unlikely it would impact on people's ability to continue with their day-to-day lives. Most people tend to adjust to visual changes over time. It is expected that areas where re-established vegetation would mature and filter views of the infrastructure, residents would likely adjust to these visual changes over time, compared with areas without revegetation. However, it is likely that while vegetation is maturing, there would be a time when residents would experience reduced amenity. Residents who live further from the infrastructure would also likely adjust to the change in visual amenity over time and potentially in some cases re-establish their use of residential open spaces.

Some residential areas are likely to experience overshadowing from the noise walls and road infrastructure. Indicative locations where overshadowing would be experienced are listed in Table 10-1. The extent of overshadowing would vary depending on the use of the area of the property affected by overshadowing and the duration and time when shadowing would occur. This would likely occur more prominently in areas where the noise walls are close to the property boundary and more likely to cast shadowing across yards. The blocking of direct sunlight in yards and through windows would diminish people's enjoyment of their property and the use of outdoor spaces. Maintaining gardens and certain plants that need direct sunlight in the yards would become challenging for some residents. Overshadowing of a residence could alter the temperature regulation in the house, potentially increasing the need for indoor heating during Winter and potentially reducing the sun exposure of roof solar panels on, which would in turn reduce energy production.

Overshadowing from noise walls and elevated structures on residential properties, community facilities, open spaces, and waterways would be minimised through detailed design (EPR LP4), which would allow residents to continue to enjoy their dwellings and outdoor spaces and continue sun exposure on solar panels. Impacts of overshadowing are also discussed in Technical report E – Land use planning.

Potential light spill was identified in locations where there would be additional infrastructure, or where infrastructure was closer to residences or the existing landscape was highly modified. Indicative locations where light spill would be experienced are identified in Table 10-1. The glow from night-time lighting from North East Link could be visible from indoor and outdoor spaces for nearby residents (refer to Table 10-1 for locations). There is potential for some people to be more sensitive to the glow particularly vulnerable groups such as older people, children and people with medical conditions. This can lead to some residents needing to close their curtains or blinds during sleep time, which could obstruct the flow of breeze especially during summer. However, generally for privacy and security reasons people tend to close their windows and curtains and blinds at night. As per EPR LV4, lighting designs would need to adhere relevant standards, including but not limited to AS 4282 – 1997 Control of the obtrusive effects of outdoor lighting. It is generally considered unlikely to impact on people's ability to continue with their day-to-day lives over the long term for most people.

Impact rating

Based on the discussion above and with the implementation of the project's EPRs, the social impacts from visual amenity changes on some residents immediately adjacent to the project are expected to be minor to moderate and the social impacts on the nearby community are expected to be minor.

Table 10-1 Visual amenity changes – indicative locations

Impact type	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• Direct views of new infrastructure, such as new noise walls, viaducts or the elevated road corridor	• Residential properties directly adjacent to the project boundary along the M80 Ring Road such as Healy Court and Killarney Ridge • Residential properties at the M80 Ring Road interchange in the south-west and south-east, including Gillingham Street • Adjacent residential properties at Grimshaw Street • Residential properties along Greensborough Road to the east, including Service Road and Kay Court • Residential properties along Greensborough Road to the west between Yallambie Road and Lower Plenty Road	• Residential properties along Greensborough Road to the east • Residential properties directly adjacent to the northern portal to the east and west, due to loss of Borlase Reserve altering the character of the existing landscape. These include residents living on Borlase Street and residential properties to the south-west and south-east at the Eastern Freeway interchange, including Highview Road and Bulleen Road	• Properties directly adjacent to the project boundary on the south along the Eastern Freeway, including Columba Street and Eram Road (Box Hill North)
• Potential glow from night-time lighting from new road infrastructure	Residential properties adjacent to: • M80 Ring Road interchange, including Gillingham Street • Grimshaw Street interchange • Watsonia railway station to Lower Plenty Road.	Residential properties adjacent to: • Watsonia railway station to Lower Plenty Road • Manningham Road interchange, including Bulleen Road • Eastern Freeway interchange, including Highview Road and Bulleen Road.	• Residential properties adjacent to the Eastern Freeway between Bulleen Road to Doncaster Road due to the Doncaster Busway on the northern side

Impact type	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• Potential overlooking impacts due to introduction of interchanges and overpasses	Residential properties adjacent to: • The M80 Ring Road interchange in the south-west, including Gillingham Street • South of the M80 Ring Road shared use overpass • East and west of Yando shared use overpass • East of the Watsonia railway station shared use overpass • East of the Nell Street shared use overpass and Watsonia Primary School	• Residential properties located north-east and south-east of the Eastern Freeway interchange	• Residential properties located north of the Stanton Street overpass
• Potential overshadowing impacts	Residential properties adjacent to: • Intersection of Plenty Road and M80 Ring Road • South of M80 Ring Road – Boylan Walk, Brandon Crescent, Rahill Walk, Healy Ct, Tevlin Court, Fernlea close, • West of Greensborough Bypass Vincent Court, Blanchard Court. • East of Greensborough Sellars Street, Hamlet Street.		• Residential properties adjacent to South of Eastern Freeway Old Burke Road, Mountain view Road and Conrad Court

Note: these are indicative locations derived from the findings of Technical report E – Land use planning and Technical report H – Landscape and visual; refer to these reports for details.

10.2.2 Noise amenity

Variable noise amenity change is predicted along the project's alignment as well as in areas on either side of the alignment. As a result, locations of noise amenity change are generally discussed within this section to identify the social impacts of the change. Refer to Technical report C – Surface noise and vibration for detailed locations of noise amenity change.

As per Technical report C – Surface noise and vibration, the operation of North East Link would reduce traffic-related noise on a number of local and arterial roads in the surrounding road network. This would be due to traffic diverting to North East Link, particularly heavy vehicles, and the implementation of noise mitigation measures along the alignment such as noise walls (refer to Technical Report A – Traffic and transport and Section 10.3.1 of this report for locations where traffic volumes would decrease, and Technical report C – Surface noise and vibration for detailed locations of noise reduction initiatives). Reduced traffic volume on local and arterial roads would reduce traffic noise along those roads, such as along Greensborough Road, Rosanna Road, Lower Plenty Road, Banksia Street and Bulleen Road based on noise modelling for years 2026 and 2036. Refer to Technical report C – Surface noise and vibration for details on locations and noise reduction levels.

Reduced traffic noise is expected to improve the noise amenity of residential areas close to these roads. Specifically 2,300 properties would experience noticeable reductions in road traffic noise as a result of North East Link's proposed noise mitigation measures.

This may contribute to quieter residential amenity, in line with the amenity values of residents identified in Section 6 and encourage residents to enjoy outdoor spaces.

Conversely, Technical report C – Surface noise and vibration indicates that some residential areas located near the project would experience increased surface noise from increased traffic volumes along some non-project local roads in 2036. These roads include Emond Rice Parade, Eastgate Drive (Greensborough), Furneaux Grove (Bulleen), Bulleen Road (Bulleen), Hender Street (Doncaster), Jocelyn Avenue (Balwyn Avenue), Stanton Street (Doncaster), Paul Avenue (Box Hill North), Norfolk Circuit (Doncaster), Lyndhurst Crescent (Box Hill North), Eram Road (Box Hill), Boronia Grove (Doncaster East) and Kellett Grove (Kew), Keystone Crescent (Kew East) (refer to Technical report C – Surface noise and vibration for details). In some of these locations, the noise environment is currently dominated by traffic noise. As per the findings of Technical report C – Surface noise and vibration, these increases have been predicted for North East Link in year 2036 and compared with a 'no project' scenario. The maximum noise level increase is predicted to be minimal, which would generally be unnoticeable from the current noise environment by nearby residents. Noise change is also likely to occur gradually over time. Perception and sensitivity to changes in noise levels is subjective and varies from person to person. Vulnerable groups such as elderly people and children may be more sensitive to changes in noise levels and have less capacity to adapt to the change. Health impacts from noise are discussed in Technical report J – Human health.

With the implementation of EPRs NV1, NV2, NV6 and NV7 measures would verify compliance with noise and vibration requirements for traffic and tunnel ventilation system noise. Remedial action would be required as soon as practicable if the external traffic noise performance requirements set out in NV1 are not met. Similarly, contingency measures would be identified and implemented if noise level targets for tunnel ventilation system were not met.

Technical report C – Surface noise and vibration has predicted that in 2036 noise objectives could be exceeded at some nearby residential properties and may need further noise treatment at the property. At-property treatments would be considered at the detailed design phase of the project. Treatments would be undertaken in consultation with the property owner and could include courtyard screen walls, upgrades to doors or glazing, seals on doors and windows and roof insulation or mechanical ventilation systems.

It is expected that across the alignment 159 residential and noise sensitive properties near the project would qualify for noise treatment. Of these, the largest number of properties is expected along the Eastern Freeway, followed by properties within the M80 Ring Road to northern portal precinct as well as a small number in the northern portal to southern portal precinct. This may include some properties in Watsonia, Macleod, Bulleen, Blackburn North and Doncaster that are located near existing arterial roads and where the noise environment is already dominated by traffic noise. Some of these residents could spend less time outdoors in their backyards or on balconies, or close windows while indoors. Perception and sensitivity to changes in noise levels is subjective and varies from person to person although it is generally considered that vulnerable groups particularly older people, children and people with disability could be more sensitive to noise level change. It is recognised that prolonged exposure to increased noise levels has health implications, which are assessed in Technical report J – Human health.

Impact rating

Overall the project would generate positive social impacts due to improved noise amenity along the majority of the project.

Based on the discussion above and with the implementation of the project's EPRs, the social impacts of increase in noise levels on those residents whose properties would be identified for further noise treatment including vulnerable groups who would experience increase in noise levels would be moderate. Social impacts to some residents located near the project including vulnerable groups are expected to be negligible to minor.

10.2.3 Air quality

According to Technical report B – Air quality, improved air quality is predicted for the 2026 and 2036 scenarios along many roads due to decreased traffic as listed in Table 10-2. These roads include arterial roads that are currently used by the community to travel between the M80 Ring Road and Eastern Freeway, such as Lower Plenty Road and Rosanna Road. Significant improvements are predicted along Albert Street, Fitzsimons Lane, Lower Plenty Road, Plenty Road and Rosanna Road. Air quality improvements are also expected from 2026 to 2036.

Improved air quality due to decreased traffic is expected to enhance the air quality amenity of residential areas located near these roads. From a social impact perspective, the change is expected to be minimal and therefore not expected to alter people's day-to-day life.

Small increases in air emissions are predicted along some roads, including the M80 Ring Road, Eastern Freeway and Middleborough Road as listed in Table 10-2. Maximum concentrations along each road are generally expected near intersections. Due to the diversion of traffic to North East Link, increases in PM_{10}[11] and $PM_{2.5}$[12] is predicted along Greensborough Bypass between Grimshaw Street and Lower Plenty Road, with maximum impacts occurring at the Watsonia Road interchange.

According to Technical report B – Air quality, 2017 background concentrations of PM_{10} and $PM_{2.5}$ exceeded the design criteria on multiple occasions (without contribution from the project). Proposed ventilation structures would be located at Simpson Barracks (northern structure) and Bulleen (southern structure) near the exits of the North East Link tunnels. Modelling predicts the tunnel ventilation structures would not generate additional PM_{10} exceedances to the existing background concentration. However, the project would result in one additional exceedance of $PM_{2.5}$ applicable air quality management design criteria in the 2026 and 2036 scenarios in the surrounding area, such as residential areas of Macleod and Bulleen (refer to Section 9.7 of Technical report B – Air quality for detail).

EPR AQ5 requires monitoring of in-tunnel air quality and ventilation structure emissions to demonstrate compliance with standards outlined in EPR AQ3, SEPP (Air Quality Management) and the EPA Victoria licence to the satisfaction of EPA Victoria. Remedial action would be taken if the applicable standards were not met.

Given the existing background concentrations of PM_{10} and $PM_{2.5}$ (without contribution from the project), small increases in air emissions predicted on roads identified in Table 10-2 and surrounding ventilation structures are not expected to be noticeable to most residents near the project and is therefore not likely to change people's day-to-day activities from a social impact perspective. However, there is potential for some vulnerable groups to be more sensitive to air quality change, such as children, older people and people with medical conditions sensitive to changes in air quality. Health implications of changes in air quality including stress and worry are assessed in Technical report J – Human health.

Impact rating

Based on the discussion above and with implementation of the project's EPRs, the social impacts of increase in air emissions at some locations along the project are expected to be negligible.

[11] Particulate matter with an equivalent aerodynamic diameter less than 10 microns. Common sources include sea salt, pollen and combustion activities such as motor vehicles and industrial processes (EPA, 2018).

[12] Particulate matter with an equivalent aerodynamic diameter less than 2.5 microns. Motor vehicles, power plant emissions and bushfires are major sources of fine particles (EPA, 2018).

Table 10-2 Air quality changes – indicative locations

Impact type	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• Improved air quality due to decrease in traffic volume	• Albert Street • Banksia Street • Bell Street • Bolton Street • Broadway • Fitzsimons Lane • Grange Road • High Street • Lower Plenty Road • Main Road • Plenty Road • Reynolds Road • Rosanna Road • Station Street • Williamsons Road	• NA	• Chandler Highway
• Decreased air quality due to increase in traffic volume	• Dalton Road • Keon Parade • Grimshaw Street • M80 Ring Road • Greensborough Road	• Bulleen Road	• Eastern Freeway • Middleborough Road

Note: these are indicative locations derived from the findings of Technical report B – air quality; refer to Technical report B for details.

10.2.4 Combined amenity impacts

The operation of North East Link has the potential to generate combined changes to visual, noise and air quality amenity in some locations along the alignment, in turn potentially impacting the ongoing use and enjoyment of residential spaces adjacent to the alignment. Residents that would experience combined changes would likely experience cumulative social impacts such as feeling annoyed, inconvenienced and at a greater disadvantage than before the project. They would likely experience a diminished sense of pride and contentment in the area where they live or work and may choose to spend less time at home or less time in pursuing day-to-day activities in and around their homes. Refer to Sections 10.2.1 to 10.2.3 for locations where likely changes would occur.

Generally, many residential areas along the M80 Ring Road between Plenty Road and the Greensborough Bypass and some sections of the Eastern Freeway where new noise walls would be installed, there would be some reduced traffic-related noise level on nearby receivers. Therefore, while most of these residents would experience visual change in their environment, they would also experience improved noise amenity.

Impact rating

The project would bring overall positive social impacts due to improved noise amenity along the majority of the project despite visual changes associated with new road infrastructure.

Based on the discussion above and with implementation of the project's EPRs, the combined social impacts from overall changes in amenity of residents including vulnerable groups at some locations where there would be combined changes to visual, noise and air quality amenity would be moderate.

10.3 Access and connectivity

10.3.1 Roads and traffic impacts

Based on a review of the project description and the findings detailed in Technical report A – Traffic and transport, traffic volumes would decrease on almost every road between the M80 Ring Road and Eastern Freeway as medium and longer, cross-city trips would divert from the north-east's existing road network to North East Link. Diverted traffic would result in reduced travel times for residents and general community for trips between Melbourne CBD and the north-east.

Large decreases in traffic movements are predicted across the project along:

- Greensborough Road
- M80 Ring Road west of the Plenty Road interchange
- Roads between Plenty Road (both north and south of the freeway)
- Rosanna Road
- Parallel routes of Rosanna Road
- Manningham Road
- Roads serving the La Trobe precinct (Plenty Road, Waiora Road, Upper Heidelberg Road, Waterdale Road, Kingsbury Drive)

- Yarra River crossings (Chandler Highway, Burke Road, Manningham Road, Fitzsimons Lane and Warrandyte Bridge)
- Main Road.

The largest reductions in traffic are predicted on Greensborough Road and parallel routes of Rosanna Road. The operation of North East Link would improve traffic flow and faster travel times for residents and community members in the north-east, as well as reduce travel times between Melbourne CBD and the north-east. This would benefit road users including cars, trucks, buses, cyclists and pedestrians.

Faster travel times along these roads would allow more time available for many people in the north-east to spend with families and undertake leisure and social activities. Improved traffic conditions would improve people's connectivity to destinations and community facilities generally across Melbourne and the north-east. Faster travel would also improve connectivity to employment areas in the north-east and metropolitan Melbourne (discussed in Section 8.3). This would improve access for residents and general community to more job choices and more options for working closer to home, boost income levels and support the development of employment hubs within the north-east. As per Technical report A – Traffic and transport, improved accessibility to employment would be seen generally across Melbourne and is most pronounced for Templestowe, Bulleen and the La Trobe NEIC. This would further support access to major health and education facilities including public and private hospitals, La Trobe University, Northern College of the Arts and Technology, and Melbourne Polytechnic campuses at the La Trobe NEIC. It would also improve connectivity to the significant sport and recreational facilities at Bulleen Park as well as surrounding schools (discussed in the social baseline assessment). These benefits could lead to greater participation in work, education and community activities and more opportunities for social interaction, which can help strengthen ties within and across communities.

Technical report A – Traffic and transport predicts the volume of trucks would decrease along arterial and local roads in the north-east due to their diversion to North East Link. Large decreases in truck volumes are predicted along:

- Greensborough Road
- Rosanna Road
- Manningham Road
- Bulleen Road.

Based on consultations for the social impact assessment, some residents and representatives of community facilities raised concern that Greensborough, Rosanna and Bulleen Roads act as real or perceived barriers between both sides of the road due to high levels of traffic and truck noise. During the consultations, concerns were raised about the safety of community members, particularly school children, who walk along these roads close to truck traffic. Less trucks along these roads may improve community perceptions of road and pedestrian safety and amenity, which may increase connectivity across these roads.

Technical report A – Traffic and transport predicts the total number of crashes across the north-east would reduce due to the decreased traffic on a number of key routes and the diversion of traffic to the North East Link. This would improve community safety, particularly for vulnerable road users, such as children, older residents, people with a disability, cyclists and pedestrians.

The proposed upgrade to the Eastern Freeway would further improve road safety via ramp metering and overhead lane control, which would benefit the broader community using the Eastern Freeway.

Increased traffic is predicted along some feeder routes and arterial roads south of the Eastern Freeway. These include:

- The M80 Ring Road between Plenty Road and the Greensborough Bypass
- Grimshaw Street
- Greensborough Bypass
- Watsonia Road
- Eastern Freeway between Bulleen Road and Doncaster Road
- Arterial roads south of the Eastern Freeway, including Bulleen Road, Elgar Road, Surrey Road and Springvale Road, during off-peak periods.

Truck volumes are also forecast to increase along feeder routes to North East Link, including the M80 Ring Road, the Greensborough Bypass east of M80 Ring Road and Eastern Freeway. A small increase in trucks is forecast along Erskine Road, which may be caused by trucks travelling from the La Trobe precinct.

Residents living along these roads may experience marginally increased travel times due to increased traffic by 2036. Increased travel times could cause some annoyance to residents and community members, and potentially marginally reduce time available for leisure activities but are unlikely to impact most people's ability to continue with their day-to-day lives over the long term and ability to access various destinations. Given the broader community benefit provided by North East Link through overall reduced travel times in the north-east and to/from Melbourne CBD, increase in traffic along some of the feeder routes and other arterial roads mentioned above is not expected to impact the majority of road users in the north-east.

The project would alter traffic and access arrangements as identified in Table 10-3. Due to the removal of direct road access to Watsonia railway station from Elder Street, residents and people accessing the station from the east would need to take an alternative route using Greensborough Bypass, which would increase travel by 900 metres or two minutes. However, given the availability of an alternative route, this is unlikely to impact people's ability to continue with their day-to-day lives over the long term.

Other altered access arrangements are expected at Oban Way and Greensborough Road, Greensborough Road between Edward Street and Sydney Street, Greensborough Road between Nell Street and Nepean Street, and Avon Street. These changes would alter local travel patterns of residents requiring them to take an alternative route in the local road network. For example, these changes would require residents along Oban Way, Edward Street, Strathallan Road and Edward Street to take an alternative route, such as Erskine Road or Torbay Street. This could increase the daily travel times of these residents. This would add approximately one kilometre of travel or three minutes.

Modifications to Greensborough Road in Greensborough would remove the connection between the western end of Nell Street, Thompson Street and Temby Street. Given that nearby alternative routes such as Longmuir Road and Greta Street are available to residents for travel in the local road network, this is not expected to impact people's overall connectivity.

During consultations for the social impact assessment it was noted that some residents found it difficult to turn onto Greensborough Road, so it is likely that some residents already take alternative routes in the local road network to turn onto Greensborough Road. Residents wishing to turn right in or out at Oban Way would similarly need to use Erskine Road approximately 600 metres to the south. Avon Street would no longer have direct access to Bulleen Road and residents would need to use Austin Street and York Street.

With availability of nearby alternative travel routes in the local road network, these permanent changes are unlikely to impact the ability of local residents to continue with their daily destinations and carry on with their day-to-day activities over the long term. With the implementation of EPR SC2 these changes would be communicated to users in advance, taking into consideration vulnerabilities of the users.

Table 10-3 identifies new traffic arrangements, such as the installation of new traffic signals and new links to North East Link. Technical report A – Traffic and transport predicts that new traffic signals at Bridge Street and Templestowe Road would improve access from the east, including residents from Bulleen and Templestowe.

The proposed link between Greensborough Road and Lower Plenty Road would provide connectivity for residents living in Yallambie to North East Link, which may improve their access to Melbourne CBD and locations connected by North East Link.

According to Technical report A – Traffic and transport, the North East Link tunnels may require night-time closures for routine maintenance activities. People that would usually use North East Link during these times would need to divert onto arterial roads such as Bulleen Road, Rosanna Road, Fitzsimons Lane and Burke Road. This would require people to temporarily take a detour route, which could increase travel times. However, this is not expected to impact people's overall connectivity.

Impact rating

Based on the discussion above, the project would generate positive social impacts for communities in the local and regional study area.

In areas that would experience increased traffic and with the implementation of the project's EPRs, the social impacts on users of those roads is expected to be negligible.

Table 10-3 Access and connectivity changes on specific locations

Impact type	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• New traffic arrangements	• A new ramp to Plenty Road for northbound and westbound traffic from Greensborough Bypass • New link between Greensborough Road and Lower Plenty Road with connectivity to Drysdale Street	• A new traffic signal at Bridge Street and Templestowe Road • Improved signals and phasing arrangements at the intersection of Bridge Street and Manningham Road	• NA
• Altered access arrangements	• Elder Street to Watsonia railway station • Oban Way and Greensborough Road • Greensborough Road between Edward Street and Sydney Street • Greensborough Road to maintain connectivity between the western end of Hobson Street, Santon Street, Teresa Street and Doris Street	• Avon Street	• NA
• Night-time closures	• NA	• North East Link tunnels	• NA

10.3.2 Shared use path impacts

New shared use paths are proposed along Greensborough Road between the M80 Ring Road and the Eastern Freeway, and between the Merri Creek and Chandler Highway. New paths would complete missing links along Greensborough Road, provide a continuous connection along the project separated from road traffic and create a more direct shared use corridor between the city and eastern suburbs. The continuous link would benefit commuter cyclists in the north-east travelling to and from Melbourne CBD. Table 10-4 provides more detail about the proposed shared use paths.

New shared use paths would increase pedestrian and cyclist connectivity, particularly north-south connectivity in the north-east, and east-west connectivity between the north-east and Melbourne CBD. According to Technical report A – Traffic and transport, time savings are also expected for cyclists between Chandler Highway and Hoddle Street, and near Burke Road. The separation of cyclists from general traffic would reduce the likelihood of crashes with vehicles along the study area and enhance the safety of cyclists.

Fewer disruptions from road traffic, time savings and continuous travel along shared use paths would encourage active travel and lead to more time available for people to spend with families and to undertake leisure and social activities. Increased access to shared use paths for residents living near the project area may lead to more active lifestyles and access to nearby community facilities. This could lead to increased opportunities for social interactions for communities.

During consultations with Manningham City Council, it was noted the existing environment around Bulleen Park does not have adequate facilities for walking and cycling. The proposed footpath along the western side of Bulleen Road between North East Link and Thompsons Road would provide a new walking connection between the Bulleen residential area and community facilities in Bulleen Park, including the Veneto Club and Carey Grammar School Sports Complex. This would improve the walking access of residents and users of these facilities. It would also improve connectivity across Bulleen Road and increase safety of pedestrians crossing Bulleen Road.

Pedestrian bridges, land bridges and signalised crossings across a number of arterial roads would improve east-west connectivity for the community, such as at the Greensborough Bypass and Greensborough Road. Community members who rely on pedestrian facilities are generally expected to benefit from these crossings and they may lead to more walking. Increased active travel would provide greater passive surveillance along shared use paths and pedestrian facilities along the alignment, benefitting the broader community in the long term.

Consultations for the social impact assessment identified that the preference to use the pedestrian facilities by older people and people with a disability may reduce due to the increased distance to walk over the land bridges (approximately 30 metres across the alignment). However, given the additional connections provided by the land bridges to the new shared use path along Greensborough Road, this is overall considered to improve pedestrian connectivity.

Overall, it is highly likely that improved connectivity through the new shared path network would increase opportunities for vulnerable people to travel.

Impact rating

Based on the discussion above, improvements in the shared use path network and the addition of pedestrian connectivity across arterial roads and the Eastern Freeway would generate positive social impacts for the general community. The increase in the end-to-end distance of land bridges and grade separated crossings is expected to have a negligible to minor impact on some vulnerable users (elderly and children).

Table 10-4 Access and connectivity changes on specific locations

Impact type	M80 Ring Road to northern portal	Northern portal to southern portal	Eastern Freeway
• New or upgraded shared use paths	• New shared use paths along: • The southern side of the M80 Ring Road and western side of North East Link between Macorna Street and Grimshaw Street • Western and eastern sides of North East Link between Grimshaw Street and Watsonia Road • Structure over North East Link, connecting Elder Street to Watsonia railway station • Between Watsonia Road and Yallambie Road, and widening of the existing path between Yallambie Road and Lower Plenty Road • Within the reserve north of Drysdale Street between Greensborough Road and Lower Plenty Road.	• New shared use paths: • At Manningham Road interchange • Along the eastern side of Bulleen Road between North East Link and Thompsons Road • Thompsons Road, between Bulleen Road and the Koonung Creek Trail east of the Thompsons Road outbound on-ramp • Along the eastern side of the Bulleen Road overpass at the Eastern Freeway.	• New shared use paths: • Under Chandler Highway parallel to the Eastern Freeway • Near the Burke Road interchange, to short-cut the existing trail which currently detours around the Burke Road Billabong Reserve • Upgrades to the existing Main Yarra Trail between Belford Road and Burke Road.
• New or upgraded pedestrian facilities	• An upgraded pedestrian bridge over the M80 Ring Road near Macorna Street. • Grade separated crossings on both sides of North East Link under Grimshaw Street. • New traffic signals along Greensborough Road, at Drysdale Street, Strathallan Road and Wattle Drive. • Grade-separated crossing of Lower Plenty Road to the River Gum Walk trail, removing cyclists from the Lower Plenty Road interchange.	• A new footpath along the western side of Bulleen Road between Manningham Road and the Eastern Freeway. • New traffic signals along Bulleen Road, at the North East Link ramps, the Veneto Club and the Marcellin College Centre access road.	• Crossings at Yarra Bend Road, Yarra Boulevard, Chandler Highway and Burke Road.
• Land bridges	• Five new land bridges between Watsonia Road and Blamey Road.	• NA	• NA

10.3.3 Public transport

As discussed in Section 10.3.1, improved traffic flow and reduced travel times are anticipated in the north-east, as well as reduced faster travel times between the Melbourne CBD and the north-east. This would benefit public transport users, including bus and on-road tram users. This could improve people's public transport connectivity to destinations and community facilities in the north-east, and between Melbourne CBD and the north-east. This may particularly benefit community members who generally have a higher reliance on public transport services, such as children, older people and people with disability. The proposed Doncaster Busway would provide access for buses from Doncaster Road via the new Doncaster Park and Ride facility. According to Technical report A – Traffic and transport, the Doncaster Busway between Doncaster Road and Hoddle Street would result in:

- Increased Doncaster Busway service frequencies, representing a large increase in total passenger capacity, particularly in off-peak periods. This would benefit routes between the city and eastern suburbs, such as The Pines (Doncaster East), Warrandyte and Mitcham
- Faster travel times
- Increased patronage across the Doncaster Busway routes – the largest uplift would be along The Pines Shopping Centre (Doncaster East) to the CBD via Templestowe and the Eastern Freeway route.

A new Bulleen Road park and ride facility with a bus station would accommodate approximately 300 to 400 commuter vehicles. This would increase community access to bus services between Bulleen, The Pines Shopping Centre and the Melbourne CBD.

These public transport improvements would positively impact community accessibility and connectivity along these routes, including connections to other public transport and active transport options along the corridor. This may increase the use of these other modes.

Increased traffic is predicted along some feeder routes to North East Link and arterial roads south of the Eastern Freeway (discussed in Section 10.3.1). Public transport users may experience minor increased travel times due to increased traffic along these roads, which could cause some annoyance and potentially marginally reduce time available for leisure activities. However this is generally unlikely to impact most people's ability to continue with their day-to-day lives over the long term and nor their ability to access various destinations.

Impact rating

Based on the discussion above and with implementation of the project's EPRs, the overall improvements to public transport would generate positive social impacts for residents and the general community including vulnerable users who generally rely more on public transport services, such as older people, children and people with disability.

10.4 Community infrastructure facilities and users

Due to the overall positive benefits the project would generate during its operation as detailed in Sections 10.2 and 10.3, it is considered the social impacts on most types of community infrastructure facilities (as categorised in Section 9.5.1) would be similar, with the exception of open spaces and recreational facilities. This section therefore provides a separate assessment of open spaces and recreational facilities and an overall combined assessment for other facilities.

10.4.1 Open spaces and recreational areas

Land acquisition impacts

As outlined in Table 9-4 in Section 9.5.2, the project's land requirement impacts on open space and recreation areas during its operation would be significantly less than during its construction (risk ID SO21). Impacts related to permanent acquisition would occur at the time of construction (risk ID SO08) and have been discussed in Section 9.5.2 and Appendix E. All temporarily occupied open spaces and recreational areas required during construction would be reinstated. Through a series of urban design workshops, NELP has held discussions with relevant councils to explore options about how the project could make a positive contribution to the open spaces impacted during construction through high quality urban design as well as passive and active open space landscaping.

New open space would be created by the land bridges built over North East Link in Watsonia. They would create approximately 8,450 square metres of new open space (excluding adjacent landscape buffers and the roadside currently in the public realm) and would provide north-south linear parkland between Wittman Reserve and Winsor Reserve. The area would provide informal parkland for recreation and active transport opportunities with a series of walking paths and a north-south cycling and walking route. Trees and landscape planting would reinforce the green character of the area, providing shade, enhancing biodiversity and habitat and filtering views towards infrastructure from adjacent residential areas and roads.

The project would require the permanent acquisition of combined total 182,300 square metres of open space and recreational areas across the municipalities of Banyule, Manningham, Boroondara, Yarra and Whitehorse. This includes acquisition of large proportions of Borlase Reserve and the Watsonia Railway Carpark Reserve, along with strip acquisition of other open space areas.

Borlase Reserve would be acquired to the extent the current use would no longer be viable (see Section 9.5.2). The railway reserve has limited recreational/open space value while Borlase Reserve provides a small area that acts as a green space buffer and is also used recreationally. However, following the removal of these areas, it is worth noting that residents would retain access to open space at a neighbourhood level. Similarly, in the case of the removal of Borlase Reserve, residents would have access to a range of open space areas including River Gum Walk, Colleen Street Reserve and Marigolds Road Reserve, all of which are within 400 metres radius of Borlase Reserve. In addition, there are larger, multi-functional parklands within one kilometre of Borlase Reserve, including Rosanna Parklands, Macleod Park and Price Park. Consequently, the acquisition of these open space areas would unlikely impact the neighbourhood or community access to open space.

Although a large proportion of the Watsonia Railway Carpark Reserve would be acquired (see Section 9.5.2), this would allow for the construction of a shared use path and potentially reconfiguration of the surrounding car park.

For all remaining open space areas affected by acquisition, the land acquired within each open space area is minimal and includes strip acquisition along existing road infrastructure for the purpose of widening roads, in addition to small areas of open spaces acquired for to establish shared use paths and trails. Partial acquisition of open space is concentrated on linear open spaces located adjacent to the Eastern Freeway.

Amenity and character impacts

Visual amenity along the open spaces and recreational areas would be enhanced where possible along the project as detailed in Section 10.2.1 and Technical report H – Landscape and visual.

As discussed in Technical report E – Land use and planning, the establishment of noise walls along much of North East Link would result in overshadowing on open space and recreational areas. The majority of open space areas that would experience shadowing are linear reserves and parks established along the Eastern Freeway or the M80 Ring Road and Greensborough Bypass. These areas typically act as a green buffer between major road infrastructure and residential areas. They provide passive recreation or alternatively, host shared use paths used for recreational activity and commuting. Many of these areas have existing noise walls, with associated overshadowing. However, the noise walls would be higher than existing noise walls. Technical report H – landscape and visual notes the change in visual amenity would generally be noticeable at the beginning of the project's operation but as planted vegetation developed the change would become less noticeable and would generally have a negligible impact on views. Visual amenity along open spaces and recreational areas would be enhanced where practicable along the project. There would be visual changes at some locations but it is expected that views of new road infrastructure would not impact the functionality of community infrastructure facilities.

Technical report Q – Ecology notes that vegetation immediately south of noise walls may be affected by shading and has provided a conservative assessment of the potential for vegetation loss in offset calculations. Given the current presence of overshadowing in many areas, increased shadowing is unlikely to impact community use of these areas, although some users may be deterred to use the spaces especially during winter due to the potential obstruction to sun. The loss of vegetation would result in an overall canopy loss, potentially making the areas less attractive to use as open space and may reduce shade provided in these spaces by tree cover, which is also understood to have potential health impacts, as discussed in Technical report J – Human health.

In addition to linear reserves, AK Lines Reserve, Bulleen Park and the Freeway Public Golf Club would experience minor overshadowing along their boundaries with North East Link. Overshadowing is not expected on active areas of these facilities (sporting fields, the golf course) with the exception of a very small portion of the east of AK Lines Reserve. In these spaces it is likely that overshadowing might provide shade for spectators. Given the limited extent of overshadowing on these areas, it is unlikely the extent of shading would change the functionality of these open spaces and recreational areas and community use of these facilities.

During the design process, Urban Design and Landscape Plans are to be developed for permanent works, which would be generally in accordance with the Urban Design Strategy (EPR LV1). These Plans would avoid or minimise landscape and visual, overlooking, and shading impacts and maximise opportunities for enhancement of public and private receptors including public amenity, open space and facilities resulting from the project.

According to Technical report C – Surface noise and vibration and noise and air quality changes to open spaces and recreational areas in 2036 would be mostly positive, with the potential of a small number of open spaces experiencing minor increase in traffic noise, which would be low enough to prevent noticeable changes in noise amenity (see Technical report C – Surface noise and vibration). Specifically, noise walls along much of the project would reduce traffic noise at open space areas. The exception to this is where noise walls would not be

upgraded. The open spaces where noise walls would not be upgraded are expected to experience a negligible increase in traffic noise in 2036.

These open spaces include Katrina Street Reserve Playground, areas in Koonung Creek Linear Park, Boronia Grove Reserve, the Freeway Public Golf Course and Jack O'Toole Reserve. Detail on the projected noise levels in open space areas is provided in Technical report C – Surface noise and vibration.

Similarly, Technical report B – Air quality has generally predicted positive changes to air quality in 2036 for open space and recreational areas although increased dust at Bulleen Park sporting area due to the proximity to the tunnel ventilation structure is predicted in 2036.

Access and connectivity impacts

As discussed in Section 10.3, improved and safer connectivity via roads and shared use paths to all open spaces and recreational areas affected by the project would allow and encourage community participation in active and passive recreational activities and community networking, including for vulnerable groups such as people using mobility aids and children.

Impact rating

Based on the discussion above, some open spaces and recreational areas would experience positive social impacts due to improved noise attenuation, improved access and connectivity and addition of open spaces through land bridges.

Based on the discussion above and with implementation of the project's EPRs, the overall social impacts from land acquisition of open spaces, on the availability and functionality of these spaces and recreational areas would be negligible. The social impact on users of open space and recreational areas would negligible overall.

10.4.2 All other community infrastructure facilities

Temporary land occupation and land acquisition impacts

Land acquisition impacts to community infrastructure facilities are discussed in Section 9.5.

Amenity and character impacts

Changes to visual amenity during the operation of North East Link generally include the changes to direct views due to new infrastructure, including noise walls, viaducts, elevated road corridors, lighting, interchanges and overpasses (Section 10.2.1).

Various locations along the project would have views of new noise walls, including open space reserves adjacent to the M80 Ring Road and the Eastern Freeway. In many cases, these noise walls would be replacing existing noise walls, particularly within linear reserves along the Eastern Freeway. Once planted, buffers would grow to screen new noise walls from view, resulting in a negligible visual change and limiting the impact on the functionality of community infrastructure facilities and their users. As identified in Section 9.5.2, these noise walls would result in shadowing impacts. The impacts identified during construction would extend for the life of North East Link.

Aged care facility users adjacent to the project boundary are expected to experience minimal visual impacts as landscape settings would be similar to the existing environment. It is expected that areas where re-established vegetation would mature and filter views of the infrastructure, residents would likely adjust to visual changes over a shorter period, compared

with areas without revegetation. People would therefore likely continue to use their backyards and outdoor spaces over time.

With the implementation of the project's EPRs, detailed urban design would minimise landscape and visual impacts to the extent practicable and maximise opportunities to enhance public amenity. Technical report H – Landscape and visual identifies a number of community infrastructure facilities that would experience improved visual amenity, including:

- Watsonia Shopping Precinct, where the transmission towers would be relocated out of view and vegetation in the car park and buffer planting would screen the noise wall
- Heide, where vegetation would replace the current view of industrial buildings.

As noted in Section 10.2.2, Technical report C – Surface noise and vibration indicates that reduced traffic noise levels may be expected in areas adjacent to Greensborough Road, Rosanna Road, Manningham Road, Banksia Street and Bulleen Road. This would improve noise amenity at a broad range of community infrastructure facilities near North East Link, many of which experience environments dominated by traffic noise. This would particularly improve the value of community infrastructure facilities that engage in outdoor activities, including open space and recreational areas, schools and aged care facilities. Specifically, Technical report C – Surface noise and vibration expects that most community facilities would experience reduced traffic noise once the project was open. A small number would experience increases between 0.5 dBA to 2 dBA, which is not expected to result in a loss of noise amenity or impact the function of these facilities.

However, there are a number of community infrastructure facilities expected to experience higher noise levels in 2036 due to increased traffic on non-project roads. These include:

- St Mary's Parish Primary School and church would experience a reduction of 1 dBA noise generated by the project's infrastructure although the noise environment here is largely influenced by local traffic from Grimshaw Street. As a consequence, noise at this facility would remain high based on the expected 2036 traffic.
- Similarly, the noise mitigation at Belle Vue Primary School would provide a reduction of 4 dBA from the Eastern Freeway but the noise environment, particularly on the west of this facility is influenced by Bulleen Road, where small increases of 1 dBA are expected by 2036.
- Japara Sydney Williams Apartments, where noise levels that exceed the project's noise criteria from Blackburn Road are expected in 2036. However, as the change in traffic noise would not exceed 2 dBA, no further consideration of noise mitigation is warranted.
- Heatherwood School, where noise levels that exceed the project's noise criteria from Springvale Road are expected in 2036. As the change in traffic noise would be less than 2 dBA, no further consideration of noise mitigation is warranted.
- Presbyterian Theological College, where noise levels that exceed the project's noise criteria from Elgar Road are expected in 2036. However, the college would benefit from the new noise walls along the Eastern Freeway, which would ensure the project complied with noise criteria. As the change in traffic noise would be less than 2 dBA, no further consideration of noise mitigation is warranted.

As discussed in Section 10.2.2, implementation of EPRs NV1, NV2, NV6 and NV7 measures would verify compliance with noise and vibration requirements for traffic and tunnel ventilation system noise. Remedial action would be required as soon as practicable if the external traffic noise performance requirements set out in NV1 are not met. Similarly, contingency measures would be identified and implemented if noise level targets for tunnel ventilation system were not met.

The Royal Talbot Rehabilitation Centre is expected to have noise levels 2 dBA lower in 2036 than if the project did not proceed. However, the 2036 noise levels are expected to exceed the project's noise criterion on the eastern façade of the building. Similarly, noise modelling for Applewood Retirement Village has predicted noise levels that would exceed the project's noise criteria on the facility's southern façade. During detailed design, these community infrastructure facilities would be reviewed for consideration of at-property treatments.

According to Technical report B – Air quality and detailed in Section 10.2.3 of this report, improved air quality is predicted for the 2026 and 2036 scenarios along many roads due to reduced traffic. As with improved noise amenity, this would most benefit community infrastructure facilities that engage in outdoor activities. It is expected the value of these facilities would improve in addition to increasing the likelihood that users would visit these facilities. The potential for these facilities to promote social interaction would therefore be supported and improved over the longer term.

However, there would be areas where air quality is expected to decrease, including the M80 Ring Road, Eastern Freeway, Middleborough Road, Greensborough Bypass between Grimshaw Street and Lower Plenty Road and the Watsonia Road interchange. Similarly, the tunnel ventilation structures would result in a small number of additional exceedances in dust (PM_{10}[13] and $PM_{2.5}$[14]) for the 2026 and 2036 scenarios. A range of community facilities are located near these areas, including a number that currently service vulnerable groups and are likely to continue to do so in future. There is potential for some vulnerable groups to be more sensitive to increases in dust, such as children, older people and people with medical conditions that are sensitive to air quality changes. These groups (and others) may reduce their use of the facility in response. However, as the exceedances would be limited it is not expected the extent of air quality changes would be significant enough to result in more than limited changes to behaviour. Health implications of changes in air quality including stress and worry are assessed in Technical report J – Human health.

The minor increase in dust over time is unlikely to affect the functionality of any of the facilities.

Access and connectivity impacts

As detailed in Section 10.3.1, North East Link would significantly reduce traffic volumes along a range of roads in the local study area. The project would improve traffic flow and travel times for residents and community members in the north-east as well as between the Melbourne CBD and north-east. Access to the community facilities discussed in this social impact assessment is expected to substantially improve. This would ensure that community facilities maintain users and their functionality, which would continue to support delivery of key social services in the longer term.

[13] Particulate matter with an equivalent aerodynamic diameter less than 10 microns. Common sources include sea salt, pollen and combustion activities such as motor vehicles and industrial processes (EPA, 2018).

[14] Particulate matter with an equivalent aerodynamic diameter less than 2.5 microns. Motor vehicles, power plant emissions and bushfires are major sources of fine particles (EPA, 2018).

A number of areas may experience increased traffic along some feeder routes as detailed in Section 10.3.1. Small delays on these roads may cause some annoyance to community facility users, but is unlikely to impact on people's ability to continue with their day-to-day lives over the long term.

Similarly, the project would substantially improve the walking and cycling network with better connectivity to and within several community facilities as listed below:

- Connecting Nell Street West on road cycling infrastructure to the Plenty River Trail, which would improve conditions for cyclists between the schools and activity centres in the area.
- A new overpass over across North East Link presently at Greensborough Road (next to Greensborough Bypass) near Greensborough Secondary College and Watsonia Primary School, improving east-west pedestrian connectivity for these vulnerable users.
- A new overpass across North East Link presently at the Greensborough Bypass near the Watsonia railway station, improving east-west pedestrian connectivity to the station, the Watsonia library and a number of other community facilities.
- New grade separate underpasses would bypass the crossing of Grimshaw Street to connect new and existing paths on the east and west sides of North East Link, which would improve the safety and connectivity for users of St Mary's School.
- A new shared use path would connect Bulleen Road to Koonung Creek Trail, which has the potential to increase connectivity for users of Bulleen Park and Marcellin College in addition to users south of the Eastern Freeway such as Belle Vue Primary School.
- A new path would connect to the Main Yarra Trail at Banksia Street as a part of the North East Bicycle Corridor, improving recreational cycling infrastructure in the Yarra Flats Parklands.
- Improved north-south pedestrian access from Balwyn North to Bulleen would improve connectivity for a reasonable number of users of facilities in Bulleen and Balwyn North, including vulnerable users such as school children attending Belle Vue Primary School.
- A new shared use path along the eastern side of Bulleen Road from Avon Road to Thompsons Road. This, along with intersections established along Bulleen Road near Bulleen Park, would improve traffic and pedestrian connectivity in this area, which includes a large number of vulnerable users, including users of Bulleen Park, the Veneto Club and Marcellin College.
- A new path connecting Bulleen Road to Koonung Creek Trail, which has the potential to increase connectivity for users of Bulleen Park and Marcellin College, in addition to users south of the Eastern Freeway such as Belle Vue Primary School. This is expected to generate considerable social value for users in this area, where there are current concerns around pedestrian safety and connectivity.
- Upgrades to paths adjacent to the Eastern Freeway, which would improve east-west movement. This is expected to improve the cycling infrastructure network in a number of parks and reserves that run along the Eastern Freeway
- Improved north-south pedestrian access from Balwyn North to Bulleen, which would improve connectivity for a reasonable number of users of facilities in Bulleen and Balwyn North, including vulnerable users such as school children at Belle Vue Primary School.

- A new shared use path along the eastern side of Bulleen Road from Avon Road to Thompsons Road. This, along with intersections established along Bulleen Road near Bulleen Park, would improve traffic and pedestrian connectivity in this area, which includes a large number of vulnerable users.
- A new connection between Chandler Highway and Merri Creek providing a more direct route for cyclists.
- A new Yarra River crossing near the northern side of the Eastern Freeway that would improve connectivity for Melbourne Polytechnic.

Improved connectivity and accessibility to and between community infrastructure facilities has the potential to positively impact on community sense of wellbeing and ability to engage in active and recreational lifestyles. A complete description of active transport infrastructure provided by the project is provided in Section 10.3.2 of this report and Chapter 7 – Project description of the EES.

Impact rating

Based on the discussion above, users of most community facilities and services would experience positive social impacts from reduced noise and better access and connectivity. In instances where project-induced changes would increase noise or exceed air quality standards at community facilities, the social impact to users is expected to be negligible to minor, reflecting the minor changes in amenity that are predicted. As discussed above, vulnerable users particularly those sensitive to amenity changes may choose to reduce their usage of certain facilities at certain times.

11. Alternative design options

Although the reference project for North East Link has largely been finalised, there are currently two design options being considered for the arrangement of the Manningham Road interchange, and two locations for the launch of the tunnel boring machine (TBM) being considered. For information on the design options, refer to EES Chapter 8 – Project Description.

This section explains how the potential impacts associated with the alternative design options would differ from the impacts associated with the project design assessed in Sections 9 and 10 above.

11.1 Manningham Road interchange alternative

The potential social impacts of the alternative design for the Manningham Road interchange have been reviewed.

There is no change to land acquisition or temporary occupation requirements at the Manningham Road interchange alternative design site compared with the reference project.

Based on a review of review of the air quality (Technical report B – Air quality) and surface noise and vibration (Technical report C – Surface noise and vibration) studies, this design alternative would have no changes to the impacts as described in Section 9.3. Changes to traffic and transport arrangements at this site would remain as described in Section 9.4.

During operation, social impacts as a result of changes in amenity at this site are expected to be the same as described in Section 10.2. With the exception of Bulleen Road, where truck traffic would be further reduced due to a small diversion to North East Link (refer to Technical report A – Traffic and transport for detail). Reduced truck traffic may enhance community perceptions of road and pedestrian safety and amenity, which may increase connectivity across Bulleen Road. This may have flow on benefits for a range of recreational and school facilities along Bulleen Road.

11.2 Northern tunnel boring machine (TBM) alternative launch site

The potential social impacts of the alternative TBM launch site have been reviewed.

The alternative northern TBM launch site option would include primary workshops and storage facilities for the works with access to the northern TBM launch site through Blamey Road to the north and Erskine Road to the south. An acoustic shed would be placed at the adjacent to Moorwatha Street, with the nearest residential receivers along Greensborough Road and Borlase Street approximately 30 metres to 50 metres from TBM launch site facilities.

To provide for the northern tunnel launch site, an alternative TBM launch site is proposed within Banksia Park. The retrieval location would be within the trench created for the North East Link carriageway, within the area already identified for ground improvement works and identified for temporary occupation during construction. Impacts of temporary occupation of land within Banksia Park are discussed in Section 9.5.2 and Appendix E. The TBM retrieval site within the Banksia Park temporary occupation area, would increase the intensity of works at Banksia Park at this site. Based on a review of the traffic and transport (Technical report A – Traffic and transport), air quality (Technical report B – Air quality), surface noise and vibration (Technical report C – Surface noise and vibration) studies, this scenario would reduce amenity values as described in Section 9.5.2 and Appendix E (noise quality, amenity and air quality) in the parts of Banksia Park surrounding the temporarily occupied area. No additional impacts to recreational use of Banksia Park and Heide is expected (see Section 10.4). Refer to Appendix E for a detailed assessment.

It is considered that the EPRs outlined in the noise and air quality assessments would address impacts on Banksia Park due to the TBM retrieval site.

12. Cumulative impacts from other developments

There are no known significant redevelopment or renewal sites within or near the project. However, there are however, a number of development proposals adjacent to the project, which are generally small to medium in scale. These are discussed in Section 8.2.2 of Technical report E – Land use planning.

A development proposal is currently being assessed by Manningham City Council for the proposed redevelopment of the Yarra Valley Country Club and part of the Heide Museum of Contemporary Art to accommodate 202 dwellings and a leisure and recreation facility. The development proposal site is located outside the study area, but within a short distance.

Current and future transport projects identified within Melbourne's north-east include the M80 Ring Road upgrade, Chandler Highway upgrade, E6/OMR, Yan Yean Road duplication, Fitzsimons Lane upgrade and Hurstbridge rail line state 2. In addition to these, a number of smaller-scale residential, commercial and road upgrade projects at the municipal level are proposed in the municipalities of Banyule, Manningham, Whitehorse, Boroondara, Yarra and Nillumbik.

Potential temporary and local cumulative social impacts may arise if the construction of these projects occurred simultaneously with the construction of North East Link, such as:

- Increased construction traffic along haulage routes close to these projects, which may include the M80 Ring Road, Rosanna Road and Bulleen Road as discussed in Section 9.4.2. This would further increase queuing, traffic congestion and delays for residents and road users.
- Increased travel times have the potential to reduce people's time spent with families and undertaking leisure and social activities, or deter some people from making some trips, particularly vulnerable groups. As discussed in Section 6, people who need assistance with core activities living near the project were identified in the western part of the City of Manningham including in Bulleen.
- Further local amenity change, such as increased noise, vibration, air quality and visual change on nearby residences to these projects, such as those adjacent to the M80 Ring Road and residences between the Manningham Road interchange and Yarra Valley Country Club site. This could further reduce the enjoyment of outdoor spaces for these residents. However, it is unlikely to impact on their ability to continue with their day-to-day lives.

While the extract timing and sequencing of construction for these projects is not yet known, these projects, like North East Link, would be required to implement mitigation and management measures to address construction-related impacts on the road network and associated amenity related impacts.

Overall, the operation of North East Link would likely improve access and connectivity for future developments near the project. This would provide better connectivity for community members to their social networks, activities and destinations, including community facilities.

13. Environmental Performance Requirements

Table 13-1 lists the recommended Environmental Performance Requirements (EPRs) relevant to the social impact assessment.

Table 13-1 Environmental Performance Requirements

EPR ID	Environmental Performance Requirement
EPR SC1	**Reduce community disruption** Design and construct the project to reduce disruption to residences and community infrastructure facilities from direct acquisition or temporary occupation of land, as far as is practicable. Where residential land is to be permanently acquired: • Use a case-management approach for project interactions with affected land owners and occupants • Endeavour to reach agreement on the terms for possession of the land • Consider the relative vulnerability and special needs of land owners and occupants.
EPR SC2	**Implement a Communications and Community Engagement Plan** Prior to construction, prepare and implement a Communications and Community Engagement Plan to engage the community and potentially affected stakeholders and communicate progress of construction activities and operation. The plan must include: • A process for identifying community issues and the recording, management and resolution of complaints from affected stakeholders consistent with Australian Standard AS/NZ 10002:2014 Guidelines for Complaint Management in Organisations • Approach to stakeholder identification • Enquiry management and record keeping approach and procedures including making available a 24 hour telephone number, postal address, and an email address and publishing these on the project website • Approach to communicating and engaging with the community and potentially affected stakeholders in relation to: – Construction activities including temporary facilities and impacts that may affect the community, businesses or individual stakeholders (eg dust, noise, vibration and light) and relevant mitigation (eg relocations policy) – Changes to transport conditions and relevant mitigation (eg road closures, detours). • Identifying how stakeholders can access information on environmental performance that is to be made publicly available • Incident and emergency communications, including notification methods and timeframes in the event of a major incident or overrun • Approach and processes to ensure that the workforce has appropriate community awareness and sensitivity • Innovative communications tools and methods to enhance the project's ability to effectively communicate and engage with the community and stakeholders • Approach to engaging with local schools to provide education opportunities on project activities • Approach to making relevant project information available to the community, with specific consideration to vulnerable groups (including culturally and linguistically diverse groups) • How it will evaluate the effectiveness of the communication and engagement under the Communications and Community Engagement Plan.

EPR ID	Environmental Performance Requirement
	The Communications and Community Engagement Plan must consider and where appropriate address matters of interest or concern to the following stakeholders: • Municipalities • Recreation, sporting and community groups • Potentially affected residents and property owners • Potentially affected business • Other public facilities in proximity • Religious and worship groups • Vulnerable groups.
EPR SC3	**Participate in the Community Liaison Group** Contractors to participate in the Community Liaison Group (CLG) that has been established and managed by North East Link Project, to facilitate community and stakeholder involvement for the construction phase of the project. Participation must include: • Attendance at meetings • Regular reporting of design and construction activities • Timely provision of relevant information, including response to issues raised by the group • Regular reporting and monitoring of community feedback, impacts and discussion of mitigation measures and their effectiveness.
EPR SC4	**Minimise impacts on sporting, recreation and other facilities** Where recreation facilities are displaced by the construction or operation of the project, work in collaboration with facility operators, local councils and relevant State authorities to identify relocation opportunities with the objective of accommodating displaced facilities and maintaining the continuity of those recreational activities, where practicable. Where construction or operation activities directly impact on community infrastructure facilities such as schools, child care centres, and aged care centres, consultation must occur with facility operators, owners and user groups of the facilities to understand if any practical measures can be taken to avoid or minimise impacts.

In addition to the above social EPRs, the following additional EPRs as listed in apply to the assessment of social impacts.

Table 13-2 Environmental Performance Requirements – other disciplines

EPR ID	Environmental Performance Requirement
EMF2	Deliver project in accordance with an Environmental Strategy and Management Plans
AQ1	Implement a Dust and Air Quality Management and Monitoring Plan to minimise air quality impacts during construction
AQ3	In-tunnel air quality performance standards
AQ5	Monitor compliance of in-tunnel air quality and ventilation structure emissions
B1	Business support
B2	Minimise disruption to businesses from land acquisition and temporary occupation
CL1	Implement a Spoil Management Plan
CL3	Minimise odour impacts during spoil management

EPR ID	Environmental Performance Requirement
LP1	Minimise land use impacts
LP4	Minimise overshadowing from noise walls and elevated structures
LV1	Design to be generally in accordance with the Urban Design Strategy
LV2	Minimise landscape impacts during construction
LV3	Minimise construction lighting impacts
LV4	Minimise operation lighting impacts
NV1	Achieve traffic noise objectives
NV2	Monitor traffic noise
NV3	Minimise construction noise impacts to sensitive receptors
NV4	Implement a Construction Noise and Vibration Management Plan (CNVMP) to manage noise and vibration impacts
NV6	Design permanent tunnel ventilation system to meet EPA requirements for noise
NV7	Monitor noise from tunnel ventilation system
NV8	Minimise construction vibration impacts on amenity
NV9	Minimise construction vibration impacts on structures
NV10	Minimise impacts from ground-borne (internal) noise
NV11	Minimise amenity impacts from blast vibration
T2	Transport Management Plan(s) (TMP)
T3	Transport Management Liaison Group

14. Conclusion

The purpose of this report is provide an assessment of the potential social impacts of North East Link to inform the preparation of the EES required for the project.

In response to the scoping requirement evaluation objective 'To manage effects of the project on land use and the social fabric of the community with regard to wellbeing, community cohesion, business functionality and access to goods, services and facilities', the social impact assessment has considered the local community values in the study area, assessed the effects of project construction and operation activities on communities and identified a range of EPRs that would contribute to avoiding and managing any effects to community lifestyle, wellbeing and cohesion.

The intensity of social impacts varies between individuals and communities depending on their capacity to adapt to change, which may be influenced by a range of vulnerabilities such as age, disability and relative socio-economic disadvantage.

The project's construction activities are likely to generate largely temporary social impacts that with implementation of the project's EPRs would have a negligible to moderate impact on the ability of residents and general community to continue with day-to-day lives, due to:

- Land acquisition or temporary occupation of residential properties and open spaces and recreational areas
- Changes to amenity due to increased noise levels during daytime and night-time
- Additional time taken to travel due to closure of lanes and roads and changes to public transport arrangements.

However, there is potential for these activities to lead to social impacts on some residents and communities that may be more vulnerable such as elderly people, young children, people from CALD backgrounds and people with a disability. Following implementation of the project EPRs, the social impacts of these changes on vulnerable groups are expected to be minor to major depending on individual circumstances.

Construction would result in changes to community infrastructure facilities and users along North East Link, including from temporary occupation and permanent acquisition, changes in amenity and character and to access and connectivity to facilities, which may result in social impacts to users of these facilities. Following implementation of the project's EPRs, the social impacts of these changes are expected to be negligible to moderate depending on the facility and the vulnerability of users.

The project's operation would likely generate social benefits for residents and communities in the study area and the wider region including vulnerable groups by improving access, reducing travel times and reducing noise in many areas along the project. Some residual amenity changes such as increased noise and dust levels and reduced visual amenity would result in social impacts in some areas immediately adjacent to the project. EPRs to monitor these changes would be implemented to manage these impacts.

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