HATCH

Canning Highway Duck & Dive Proposal: Socio-Economic Impact Assessment

City of Melville

City of Melville

Canning Highway Duck & Dive Proposal: Socio-Economic Impact Assessment

The analysis set out within this report is based upon the best available information at the time of writing in relation to the for construction and operation of the Main Roads Duck & Dive Proposal for the Canning Highway, as well as local economic and social metrics. It has been necessary to apply a number of input assumptions and parameter values throughout the analysis that could be subject to future variation once further information and/or detail becomes available. The outputs are intended to provide a broad indication of the potential scale of impacts of the Scheme within the Canning Bridge Activity Plan Area but should not be relied upon as detailed quantitative assessment of the potential monetary impacts. All pictures taken and provided by the City of Melville for inclusion in this report.

May 2023

www.hatch.com.au

Contents

Executive Summary

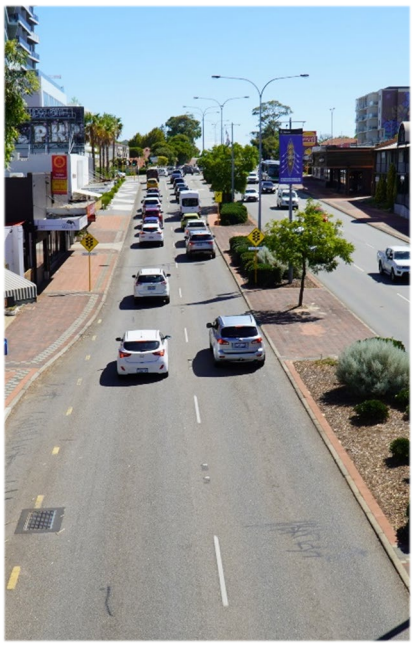
i. Hatch were commissioned by the City of Melville to undertake an assessment of the local economic, social and environmental impacts of a Duck & Dive proposal ('the Proposal') for the Canning Highway ('the Highway') by Main Roads Western Australia ('Main Roads'). The aim of the study was to identify the type and scale of local impacts that can be expected in and around Canning Highway as a result of the construction and operation of the Proposal.

ii. The impact assessment for the Duck & Dive proposal was undertaken in two phases being the eastern section of Canning Highway associated with the Canning Bridge Activity Centre (CBAC) from Reynolds Road to Canning Bridge reported in June 2021 and the western section of Canning Highway from Reynolds Road to west of Riseley Street in August 2022. This report consolidates the information from both phases of the investigation.

Background

iii. The CBAC incorporates a large area of the City of South Perth. The part that sits within the City of Melville, and which is the focus of this study, includes the Kintail and Ogilvie Quarters.

iv. The Canning Highway is a 17km arterial road that runs from Victoria Park in the north-east of Perth, through the CBAC to the port city of Fremantle in the south-west, carrying a mix of general and commercial traffic. The Highway is primarily a four-lane route, with some six lane sections.



v. Within the City of Melville's portion of the CBAC, the Highway is immediately surrounded by a mix of different uses, ranging from high density commercial, hotels, leisure uses, residential, low-density residential dwellings, and river foreshore.

vi. Main Roads commissioned BG&E in 2015 to consider options for upgrading the stretch of the Highway that runs alongside the CBAC. The identified preferred option ('the Proposal') involves building Duck & Dive structures that would separate Canning Highway through-traffic from local roads. It includes two separate segments of trench structures, being Reynolds Road to Canning Bridge (1,070 metres long) and under Riseley Street (420 metres long). The Highway reverts to an at-grade cross section between these two Duck & Dive structures with an eight-lane cross section.

vii. The City of Melville has a range of concerns relating to the local impacts of the Proposal and considers that more assessment work should be undertaken and alternatives considered.

viii. This study assesses the impacts of the Highway Proposal in and around Canning Highway, referred to as Study Area 1 and 2, articulating the local economic, social and environmental impacts, as well as implications for accessibility and movement. It also considers how negative impacts can be mitigated and benefits maximised.

Context

Socio-economic Characteristics

ix. To understand the characteristics of the area, economic, social and environmental datasets have been analysed, focusing on the following four themes:

People	population, demography, labour market, income, community health and wellbeing and safety;
Place	urban realm, open space, public buildings & amenities, and the environment;
Prosperity	jobs, sectors, productivity; and,
Property	existing and future residential and commercial land uses, property /rental values, and vacancies.

x. The identified key context related to '***people***' is as follows:

- Study Area 1 is home to around 2,700 people and Study area 2 is home to around 4,200 people[1]; and,
- Both areas have more Older Adults relative to Greater Perth; Study Area 1 has more Young Adults relative to Greater Perth and Study Area 2 has a higher percentage of Children and Youth compared to Study Area 1
- Residents are more highly educated and highly paid than most adults in the City of Melville and Perth.

xi. The identified key context related to '***place***' is as follows:

- Study Area 1 is generally characterised by a mix of housing types;
- Study Area 2 has a similar mix of housing as Melville and the Greater Perth Area with separate houses making up nearly three quarter of all dwelling types and,
- The area is lacking in large expanses of open spaces but benefits from a wide range of public amenities.

xii. The identified key context related to '***prosperity***' is as follows:

[1] Census, 2021

- There are estimated to be just over **2,660** jobs in the CBAC and a further **4,220** jobs around the Riseley Activity Centre (RAC); and,
- The local economy has strong representation from economically productive sectors.

xiii. The identified key context related to '***property***' is as follows:

- Study Area 1 has around 1,120 homes, with median prices far higher than the Perth average; and,
- A number of major residential developments have come forward in recent years

Local Accessibility

xiv. An assessment of local accessibility was also undertaken based on existing research and additional techniques. Key observations include:

- Canning Highway performs a dual-function for through trips and local traffic;
- Canning Highway and Kintail Road are important express and local bus service routes; and,
- There are six formal pedestrian crossing points along the Highway within the study area, with some informal crossing opportunities which are used during less busy periods.

Impact of Duck & Dive Proposal on Accessibility

Operational Phase

xv. Our analysis shows that once operational, the Proposal will have the following direct impacts upon local accessibility across the study area:

- Closure of Kintail Road from Canning Highway for general traffic will mean many trips will have travel at least an additional 300m and, in some instances, up to 1.3km further;
- A new left-turn out from Moreau Mews will require the reduction in lane capacity for other vehicles travelling eastbound from between Reynolds Road and Sleat Road;
- Buses will need to be diverted away from Canning Highway which could add between 1 and 3 minutes to bus journey times; and,
- Walk times to and from bus stops previously located on Canning Highway will increase, particularly for those living to the south of Canning Highway.
- Connection from North to the South of Canning Highway is severely impacted where current signalised crossings are removed, impacting both pedestrians and car drivers

Construction Phase

xvi. There will also be impacts upon strategic highway, as well as local car, bus, pedestrian and cycling movements during the construction phase. Whilst at this stage detailed construction plans have not yet been developed by Main Roads, it is worth recognising the following potential key implications:

- The Highway will be subject to reduced lane running throughout the majority, if not all, of a three-to-four-year construction period. The width of the lanes is also likely to be reduced;

- Some complete road closures will be required for works such as the reinstatement of road crossovers at Sleat Road, Reynolds Road, Ardross Street and Riseley Street;
- Speed restrictions will apply throughout the construction works; and
- The pedestrian bridge at Ogilvie Road needs to be removed to permit construction.

xvii. Any reductions in capacity will inevitably create increased levels of congestion, in particular during peak travel periods. In addition, reduced speed limits, with narrow lane running, will add significantly to journey times – potentially up to 30 seconds over a 1km stretch of the Highway.

xviii. Whilst the implications for bus services remain unknown. It is clear that services will be subject to disruption and diversions.

xix. The demolition of the pedestrian bridge will also result in an immediate loss in connectivity and accessibility for pedestrians. More generally, pedestrian movements across and along the Highway will be severely restricted.

Socio-Economic Impact Framework

xx. A socio-economic impact framework was developed to capture the range of potential economic, social and environmental effects of the Proposal during both the construction and operational phases.

xxi. This was based around the four themes (people, place, property, prosperity) with a total of 14 separate indicators identified against which to assess the impacts within the study area.

Summary of Key Findings

xxii. The identified impacts of the Proposal during the construction and operational phase are summarised below. The following categories of impact have been used to undertake the assessment:

- **Major Positive:** Construction/operation results in a clear and substantial positive impact across the whole area;
- **Moderate Positive:** Construction/operation is likely to have a substantial positive impact within part of the study area, or a smaller positive impact across the whole study area;
- **Minor Positive:** Construction/operation is likely to have a small positive impact within part of the study area;
- **No Impact:** Construction/operation is likely to have neither a positive nor negative impact;
- **Minor Adverse:** Construction/operation is likely to have a small negative impact within part of the study area;

- **Moderate Adverse:** Construction/operation is likely to have a substantial negative impact within part of the study area, or a smaller negative impact across the whole study area; and,
- **Major Adverse:** Construction/operation results in a clear and substantial negative impact across the whole study area.

Where possible the impacts have been quantified in Part B and C respectively.

Table i: Summary of key impacts in Study Area 1 and 2 during the operational phase

Summary of Key Impacts Study Area 1

- The closure of Kintail Road / Canning Beach Road to Canning Highway to general traffic will substantially reduce accessibility to the north side of the Canning Bridge Activity Centre (CBAC);
- The expanded highway footprint will further deteriorate the local environment for pedestrians and create more barriers to movement, with only three pedestrian and cyclist crossing points within a 1km stretch of an urban centre; and
- The CBAC has been identified as a priority for growth and urban consolidation in a wide range of regional policy documents. The delivery of the Proposal, which is expected to create an urban expressway environment rather than the proposed commercial and residential activity centre, may make it more difficult to realise these ambitions. This alongside the potential reduction in residential and commercial property values may make it less attractive to developers and loss of commercial viability for future investment.

Summary of Key Impacts Study Area 2

- The removal of informal pedestrian crossings, and formal pedestrian crossing such as the intersection of Ardross Street and Canning Highway creates a barrier for accessibility between local neighbourhoods to the south and north;
- The 3-4 year period for construction will have short-term constraints to accessibility of businesses along Canning Highway, which can have long lasting financial impacts for the current businesses; and
- The urban environment of the Riseley Activity Centre will transform to one dominated by vehicle access, decreasing walkability, safety for pedestrians and urban environment which can impact usership and ultimately the economic development of the area.

xxiii. The identified impacts of the Proposal during the construction and operational phase for all criteria are summarised in the table below.

Table ii.: Summary of impacts during the construction and operational phase

			Category of Impact	Study Area 1	Study Area 2
Construction Phase	People	C-1	Local Transport User		
		C-2	Employment		
		C-3	Education		
		C-4	Services and Amenities		
		C-5	Health and Wellbeing		
	Place	C-6	Urban Environment		
		C-7	Ecology		
		C-8	Emissions		
	Property	C-9	Housing Blight		
		C-10	Commercial Property Lost		
		C-11	Commercial Property Blight		
	Prosperity	C-12	Local Business and Employees		

			Category of Impact	Study Area 1	Study Area 2
Operational Phase	People	O-1	Local Transport User		
		O-2	Employment		
		O-3	Education		
		O-4	Services and Amenities		
		O-5	Health and Wellbeing		
	Place	O-6	Urban Environment & Heritage		
		O-7	Open Space		
		O-8	Noise		
		O-9	Local Air Quality		
	Property	O-10	Housing Blight		
		O-11	Commercial Property Blight		
	Prosperity	O-12	Local Businesses		
		O-13	Future Investment		
		O-14	Local Government		

Positive: Major | Moderate | Minor

No Impact

Adverse: Minor | Moderate | Major

Delivering Better Outcomes

xxiv. While the Duck & Dive Proposal may bring strategic connectivity benefits to Greater Perth, the analysis set out in this document illustrates that it will bring significant economic, social and environmental costs for both study areas. It will restrict movement, damage livelihoods, impact investability and increase pollution.

xxv. An alternative option for consideration is to deliver a tunnel rather than Duck & Dive structure. Whilst a full impact assessment has not been undertaken, this option will deliver fewer negative impacts than the Duck & Dive Proposal, notably:

- **People:** Fewer community facilities disrupted or lost and a reduced feeling of severance and separation between either side of the Canning Highway;
- **Place:** Fewer visibility issues (owing to design and layout) and most construction work can occur underground meaning less noise and air pollution ;
- **Property:** Fewer residential and commercial properties lost to construct scheme, with minimal impact to current operation of commercial units, and less noise and air pollution (as most traffic is underground) meaning fewer blight issues for properties; and,
- **Prosperity:** Minimal loss of commercial units and, therefore, economic activity.

xxvi. A full and independent comparative analysis of this tunnel option should be undertaken.

xxvii. If the Duck & Dive Proposal does come forward it will be important for Main Roads and the City of Melville to agree a suite of mitigation measures to reduce any negative impacts to the Study Areas across five key areas:

- Minimising the **impacts of construction**;
- Ensuring optimal **operational arrangements**;
- Supporting **local businesses and residents**; and,
- Delivering **legacy benefits** from the Proposal.
- Mitigate impacts through inventive **urban design.**

PART A: INTRODUCTION AND CONTEXT

PART A: INTRODUCTION AND CONTEXT

1. Introduction

1.1 Hatch were commissioned by the City of Melville to undertake an assessment of the local economic, social and environmental impacts of a Duck & Dive proposal ('the Proposal') for the Canning Highway ('the Highway') by Main Roads Western Australia ('Main Roads'). The aim of the study was to identify the type and scale of local impacts that can be expected in and around Canning Highway, as a result of the construction and operation of the Proposal.

1.2 The impact assessment considered two distinct study areas as illustrated in Figure 1.1:

1.3 **Study Area 1** noted in yellow on the below map focussed on the Canning Bridge Activity Centre (South) from the bridge to Reynolds Street

1.4 **Study Area 2** noted in a teal colour on the below map focussed on the southern section of the proposal from Reynolds Street to Collier Street including the Riseley Activity Centre.

1.5 The State Government has allocated the City of Melville a target of providing for an additional 10,830 dwellings by 2031 on top of the 40,110 dwellings in existence in 2011.[2] The CBAC and Riseley Activity Centre are key precincts identified to contribute toward achieving future residential dwelling and commercial space infill targets.

[2] Riseley Activity Centre - City of Melville (melvillecity.com.au), City of Melville.

Figure 1.1 Study Areas

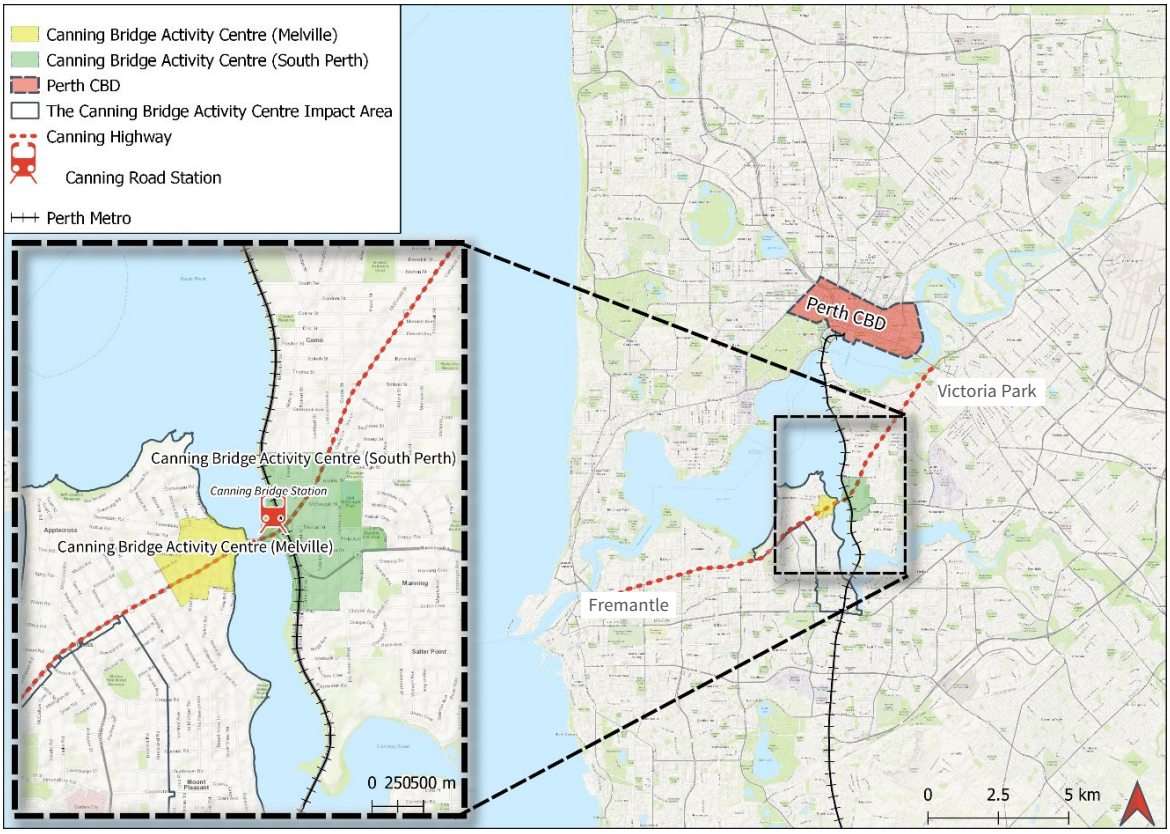
Source: Hatch

Study Area 1 and 2 are distinct due to the difference in their format, activities and anticipated impact and were analysed separately. The economic impact analysis of Study Area 1 is captured in Part B of the report and the economic impact analysis for Study Area 2 is captured in Part C.

Canning Bridge Activity Centre

1.6 The Canning Bridge Activity Centre (CBAC) is less than 8km from Perth City Centre and benefits from direct road, rail, walking and cycling connectivity. It is classified as a District Centre in the Government of Western Australia's *Directions 2031 Plan* and is geographically close to the Secondary Centre of Booragoon and the Specialist Centres of Bentley-Curtin and Murdoch (see Figure 1.2). CBAC is the major centre in the Study Area 1.

Figure 1.2 Location of Canning Bridge Activity Area



Source: Hatch

1.7 Given Perth's ever-growing population, alongside CBAC's favourable location and strong connectivity, the area has been identified as a priority location for residential and commercial development by the State Government, City of Melville, and City of South Perth.

1.8 The boundary of the area incorporates a large area of the City of South Perth from Paterson Street in the south to Saunders Street in the north, Neil McDougall Park in the east and the Swan River to the west. The part that sits within the City of Melville, and which is the focus of this study, includes the Kintail and Ogilvie Quarters.

1.9 This is all captured in the *Canning Bridge Activity Centre Plan* (2016) which sets out an ambition to increase the number of residential dwellings from around 1,900 in 2015 to 12,000 by 2051 and the number of jobs from 1,700 in 2015 to 7,900 in 2051. The vision for the area is as follows:

"The Canning Bridge area will evolve to become a unique, vibrant, creative community centred on the integrated transport node of the Canning Bridge rail station. The area will be recognised by its unique location, its integrated mix of office, retail, residential, recreational, and cultural uses that create areas of excitement, the promotion of its local heritage and as a pedestrian friendly enclave that integrates with the regional transport networks while enhancing the natural attractions of the Swan and Canning Rivers".

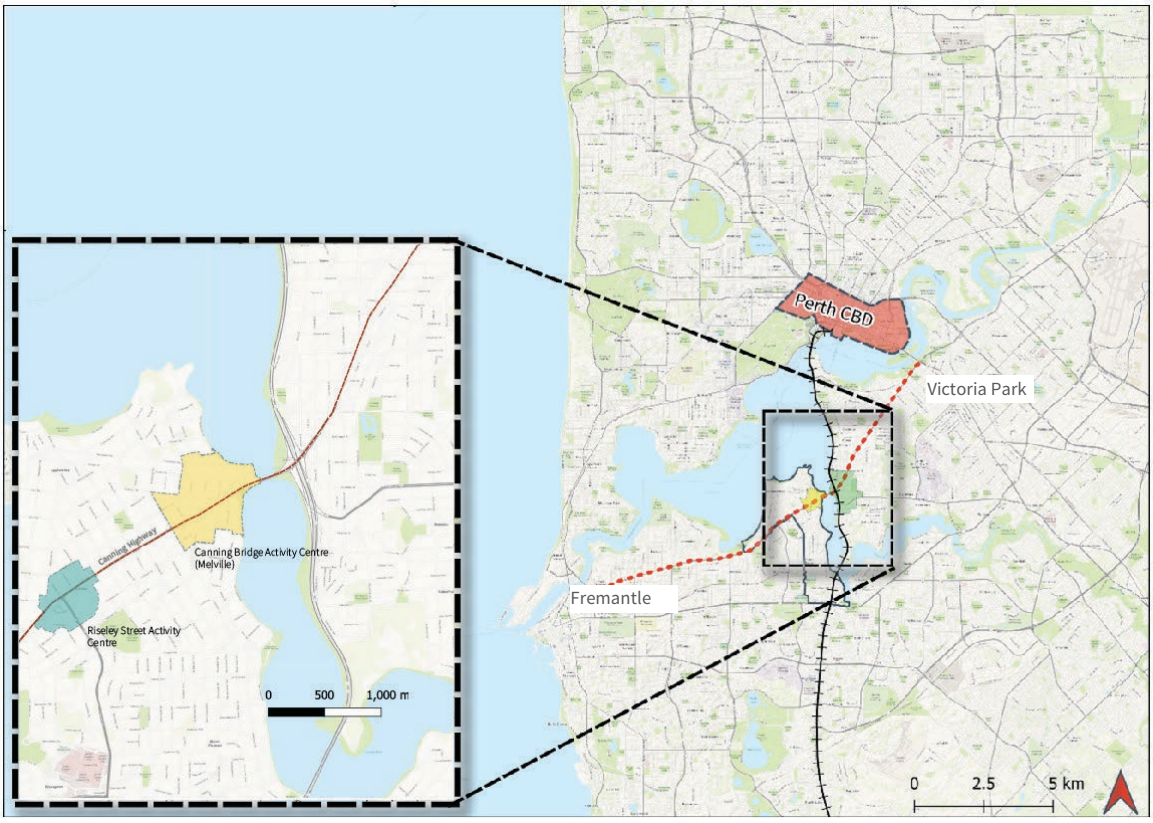
1.10 Since the Plan was published several high-profile and large-scale developments have come forward, such as Finbar Canning Bridge (452 apartments and nine commercial units), Grandton Applecross (94 retirement apartments) and Riviere Residences Canning Beach Road (242 apartments and eight commercial units).

1.11 The Plan is currently being reviewed by the City of Melville and Hatch Roberts Day, which involves a systematic assessment of existing documentation and engagement with a wide range of stakeholders. The Plan will be updated following this exercise, such it better meets the needs of the place and its residents.

Riseley Activity Centre

1.12 The Riseley Activity Centre (RAC) is approximately 11 km from Perth City Centre and benefits from direct road, walking and cycling connectivity. Riseley Activity Centre (RAC) is located on the boundary of suburbs Applecross and Ardross and is already established as a district centre (see Figure 1.3). RAC is the major centre in the Study Area 2.

Figure 1.3 Location of Riseley Activity Centre



Source: Hatch

1.13 The Riseley Activity Centre Structure Plan (2014) is the primary guide for development within the precinct and aims to "act as a catalyst for both private sector and government investment, benefitting visitors, businesses and residents by providing an improved level of amenity, activity and diversity of housing choice and employment."

1.14 The Plan was prepared in consultation with the community to support the growth of the Riseley Activity Centre. The Plan was prepared in alignment with State Governments policy of future growth and development targets.

1.15 The distinct character of the Riseley Core area, which fronts Canning Highway on the south, is envisioned to be a "*vibrant, pedestrian-scaled area with a range of commercial uses sustaining local economies located on ground floors while residential areas are located in the upper levels of*

buildings." This vision is justified to create "*instant walkability inside the core and will result in a reduction on private vehicle reliance for shopping and social trips when compared with the Perth Metropolitan region*."

1.16 The area has been identified as a priority location for commercial and residential development for the City of Melville, as detailed in the City's Local Planning Strategy, a portion of the growth allocated for the City of Melville has been designated within the Riseley Centre which is forecast to yield "an additional 300 dwellings by 2031". [3]

Canning Highway

1.17 The Canning Highway ('the Highway') is a 17km arterial road that runs from Victoria Park in the north-east of Perth to the port city of Fremantle in the south-west (see Figure 1.3). It runs directly through the CBAC and RAC and provides an important link between Perth City Centre and Fremantle via State Route 2. It carries a mix of general and commercial traffic serving a range of activity centres including Booragoon and Como. The Highway is primarily a four-lane route, though it has six lanes close the Victoria Park Bus Transfer Station and on much of the Canning Bridge.

1.18 In the City of Melville's portion of the CBAC, Study Area 1, the Highway is immediately surrounded by a mix of different uses:

- The eastern and central area (between Sleat Road and Canning Bridge) is characterised by high density commercial units (e.g., IGA, Nando's and Shell), hotels (e.g., Raffles), leisure uses (e.g., Rowing WA), residential apartments (e.g., the Precinct Mount Pleasant) and river foreshore; and,
- The western area (west of Sleat Road) is home to some commercial units and low-density residential dwellings.

Duck & Dive Proposal

1.19 Main Roads commissioned BG&E to produce an options paper focused on upgrading the stretch of Canning Highway that runs alongside the CBAC in 2015 (*Canning Highway Planning Study: Collier Street to Henley Street, 2015*). The objective of the study was to alight on an option that:

- Improves road safety;
- Meets future traffic demands;
- Alleviates congestion;
- Enhances access to public transport;
- Encourages people to use public transport; and,
- Discourages rat running.

[3] Riseley Activity Centre - City of Melville (melvillecity.com.au), City of Melville.

1.20 Main Roads' preferred option (Figure 1.4 and Figure 1.5), which has been presented to the City of Melville alongside a series of visualisations, involves building Duck & Dive structures that separate Canning Highway through-traffic from local roads ('the Proposal').

1.21 This option includes two separate segments of trench structures, the first of which is within the study area of this commission (see Figure 1.4 and Figure 1.5):

- Beneath Reynolds Road and Sleat Road, approximately 1070m long; and,
- Beneath Riseley Street, approximately 420m long.

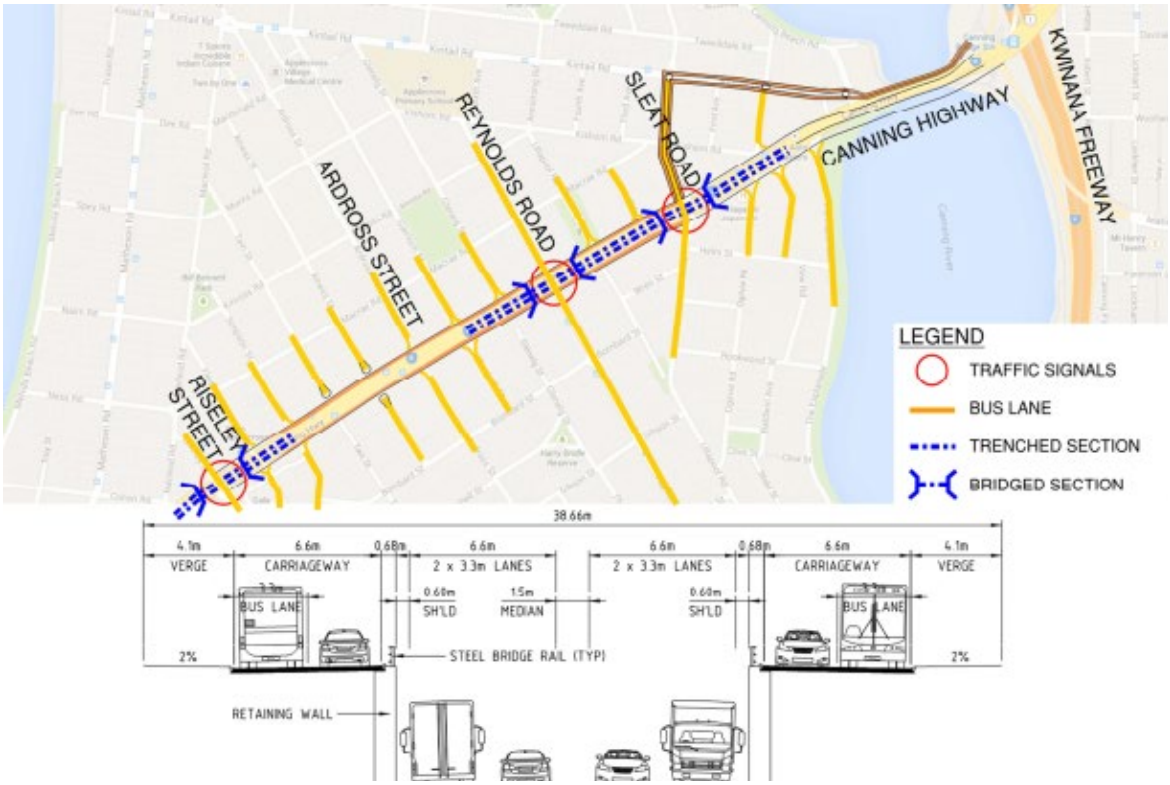
1.22 The Highway reverts to an at-grade cross section between these two Duck & Dive structures with an eight-lane cross section. More detail on the configuration of the Proposal is provided in Appendix 1.

1.23 This was selected as the preferred option because it performed better than others against metrics such as vehicle hours of traffic, average speeds, average travel times, level of service and public transport performance.

1.24 The Duck & Dive Proposal differs significantly from an alternative tunnel option based on a report prepared for the Minister for Transport in 2015 by Airey Taylor Consulting (Canning Highway Pre-Feasibility Study, 2015) and subsequent investigations by Airey Taylor Consulting commissioned by the City of Melville in 2021 (Canning Highway Duplication Option Comparison, 2021)

1.25 The 2021 Option Comparison study compared the alternative tunnel option and the Main Roads Proposal which highlighted that the Duck & Dive Proposal could create significant negative impacts during construction and operation, ranging from land take and visibility issues through to accessibility and traffic problems. The study concludes that the tunnel solution is superior to the Duck & Dive Scheme and that a full comparative analysis of the cost and time requirement of both options should be undertaken.

Figure 1.4 Duck & Dive Layout and Typical Cross Section



Source: Canning Highway Planning Study, 2015 (BG&E)

Figure 1.5 Duck & Dive Layout and Typical Cross Section

Source: Main Roads Western Australia and City of Melville

Scope of Work

1.26 This study assesses the impacts of the Duck & Dive Proposal on both study areas. The assessment will be in more detail than the Airey Taylor Consulting Study. It articulates the local economic, social and environmental impacts as well as the implications for accessibility and movement. It also considers how negative impacts can be mitigated and benefits can be maximised.

1.27 Impacts are considered at the lowest geographical scale possible. For most this involves assessing impacts across four small area geographies in Study Area 1 and eight small area geographies in Study Area 2 in line with Census SA1 boundaries (see 'Canning Bridge Impact Area' in Figure 1.6 below). Other impacts, particularly those related to property, are considered within a 200m buffer around the existing Highway (see 'Canning Highway Buffer' in Figure 1.6 below).

1.28 The ultimate purpose of this work is to provide the City of Melville with relevant and up to date information on the community scale impacts associated with the Canning Highway Duck & Dive Proposal and to inform the community, Main Roads and other key stakeholders regarding the future of Canning Highway and its relationship with surrounding land uses going forward.

Figure 1.6 Impact Assessment Study Areas

Source: Hatch

1.30 The assessment has involved three phases:

- **Phase 1 - Baseline:** Establishing the baseline position for the study area without the proposed Scheme coming forward. By establishing the status quo scenario, the local economic impact of introducing of the Scheme can then be assessed. The baseline has been established through consultation with City of Melville, collation of existing information and evidence and via analysis of available secondary datasets and sources;
- **Phase 2 - Impact Framework:** Establishing an impact framework with clear logic chains that establishes how the introduction of the proposed Scheme may affect economic, social, and environmental outcomes; and
- **Phase 3 - Impact Assessment:** Application of the impact framework to assess and, where possible, quantify the local impacts of the proposed Scheme taking into account a range of economic, social, environmental, and financial/commercial factors.

1.31 The structure of the report is summarised in the box below.

Report Structure

- **PART A**
- **Chapter 2: Local Context** Overarching policy and local socio-economic context of the study area;
- **Chapter 3: Accessibility Impacts** Forecast local accessibility impacts of the Proposal;
- **Chapter 4: Socio-Economic Impact Framework** The process for developing the impact framework to assess the 'Duck & Dive' Proposal;
- **PART B**
- **Chapter 5: Construction Phase Impacts: Study Area 1,** The potential impacts of the construction phase of the 'Duck & Dive' Proposal; and
- **Chapter 6: Operational Phase Impacts: Study Area 1**, Summary of the key economic and social impacts of the 'Duck & Dive' Proposal;
- **PART C**
- **Chapter 7: Construction Phase Impacts: Study Area 2,** The potential impacts of the construction phase of the 'Duck & Dive' Proposal; and
- **Chapter 8: Operational Phase Impacts: Study Area 2**, Summary of the key economic and social impacts of the 'Duck & Dive' Proposal;
- **PART D**
- **Chapter 9: Delivering Better Outcomes** Assessment of potential opportunities to mitigate against negative impacts and maximise local benefits; and,
- **Chapter 10: Conclusion and Recommendations** Overarching conclusion and recommended next steps

Part A: Local Context, Accessibility Impacts and Socio-Economic Impact Assessment Framework

2. Local Context

2.1 This chapter sets out the context of the two Study Areas. It examines the strategic context and provides an overview of its economic, social, and environmental characteristics.

Strategic Context

Regional Planning Policy

2.2 The ***Perth and Peel @ 3.5 Million*** Land Use and Planning Frameworks (2018) aim to enable development that will accommodate 3.5 million people across the region by 2050. They form part of the Government of Western Australia's State Planning Policy and are considered when strategies, policies and plans are produced or reviewed at sub-regional levels. Strategic guidance is provided on land use, land supply, land development, environmental protection, infrastructure investment and the delivery of physical and social infrastructure.

2.3 The overarching framework sets out the following vision for Perth and Peel:

"When Perth reaches a population of 3.5 million people, it will continue to be an innovative 21st century city delivering distinctive Western Australian lifestyle choices and global opportunities".

2.4 Five themes underpin this vision:

1) **Liveable:** A city with an enviable quality of life characterised by a community which is diverse and inclusive; engaged and creative; safe and healthy;

2) **Prosperous:** A city that capitalises on technology and innovation to deliver a strong, competitive economy; efficient infrastructure; and an engaged community and will become a destination of choice for skilled migrants and business investment from around the globe;

3) **Connected:** A well-serviced, accessible, and connected city with strong regional, national, and international links. People will be able to move freely around the city via a choice of efficient transport modes;

4) **Sustainable:** Perth will responsibly manage its ecological footprint and live within its environmental constraints, while improving our connection with and enjoyment of the natural environment; and,

5) **Collaborative:** Government, business and the community will collaborate to progress the aims and objectives of the city as a whole.

2.5 The core principle that runs through all the frameworks is that of connectivity, as articulated via the 'Connected City' spatial pattern. This refers to balancing development within the existing spatial framework with the development of selected peri-urban areas adjacent to the current urban front. The ambition is for **47%** of development to be on in-fill sites versus **53%** on greenfield sites.

2.6 In the ***Perth and Peel @ 3.5 Million: Central Sub-Regional Planning Framework*** (2018), which focuses on Perth's Central Business District and its surrounding local authorities[4], this spatial ambition is translated to 'Urban Consolidation'. This refers to the process of increasing or sustaining the density of housing in established residential areas through infill development.

2.7 The framework identifies activity centres, urban corridors, station precincts and industrial centres as the places where urban consolidation should be prioritised. The CBAC is an activity centre, urban corridor and station precinct so is considered an important location to realise these ambitions. There is a target to deliver 215,000 infill dwellings across the Central Sub-Region over the next thirty years.

Perth and Peel @ 3.5 Million: The Transport Network

The *Perth and Peel @ 3.5 Million: The Transport Network Framework* sets out the transport priorities for the region and summarises the transport components of the Perth and Peel sub-regional land use planning and infrastructure frameworks.

The priority transport investments for the Central Sub-Region relate to the expansion of METRONET and public transport network. Four key passenger rail proposals are highlighted:

- Completing the Forrestfield-Airport Link – an 8.5 km railway spur from Forrestfield to the Perth CBD with three new stations: Redcliffe, Airport Central and Forrestfield;
- The 14.5 km extension of the Thornlie Line to Cockburn Central with two new stations proposed at Nicholson Road and Ranford Road;
- A new rail line from the existing Midland Line to the Ellenbrook town centre with additional stations at Morley, Malaga and Ellenbrook; and,
- Extending the Midland Line to a new station at Bellevue and relocating the existing Midland Station (rail and bus).

The road network is given little attention, but schemes related to Orrong Road, Charles Street, Ellen Stirling Boulevard, Jandakot Airport East Link Road, the Canning Vale Sports Precinct, and the Canning Vale Waste depot are referenced.

City Planning Policy

2.8 The City of Melville's ***Local Planning Strategy (2016)*** translates the aspirations of the ***Perth and Peel @ 3.5 Million Frameworks*** and the proceeding ***Directions 2031*** to the city scale. It defines a framework of land uses and activities for the area and guides sustainable planning and development until 2031.

2.9 The strategy aims to protect the history and environment of the City *and* provide opportunities for population growth, increasing employment and improving self-sufficiency. The vision is to:

- Create a safe, attractive city where the consequences of actions for future generations are taken into account;
- Ensure that natural and built facilities are, where practicable, accessible to everyone;
- Generate a sense of place, belonging and community spirit; and,

[4] Mosman Park, Peppermint Grove, Cottesloe, Claremont, Nedlands, Subiaco, Cambridge, Perth, Vincent, Stirling, Bayswater, Bassendean, Belmont, Victoria Park, South Perth, Canning, Melville, East Fremantle, and Fremantle.

- Ensure that all voices are heard through the creation of opportunities to participate in decisions that affect the lives of the community.

2.10 The vision is underpinned by four themes:

1) **Social and Cultural:** That citizens can lead a safe, healthy active life with opportunities to participate in social and cultural activities;

2) **Economic:** To have a strong, vibrant, diversified, and sustainable local and regional economy with a range of business and employment opportunities;

3) **Environmental:** To meet high standards of compliance and have a healthy and sustainable local environment that makes a positive contribution towards the broader environment; and,

4) **Governance:** To create an environment for excellence in governance and continuous improvement.

2.11 The CBAC features heavily in the Local Planning Strategy and is identified as a **Strategic Development Area** and location for intense urban consolidation. A 50-year vision has been created for the CBAC focused on Transit Oriented Development. Endorsed by the City of Melville, City of South Perth and Western Australia Planning Commission, the vision is:

"The Canning Bridge area will evolve to become a unique, vibrant, creative community centred on the integrated transport node of the Canning Bridge rail station. The area will be recognised by its unique location, its integrated mix of office, retail, residential, recreational, and cultural uses that create areas of excitement, the promotion of its local heritage and as a pedestrian friendly enclave that integrates with the regional transport networks while enhancing the natural attractions of the Swan and Canning Rivers".

2.12 This vision is set out in more detail alongside further objectives, goals and plans in the Canning Bridge Activity Centre Plan (see below).

2.13 The Local Planning Strategy further identifies the **Riseley Street Precinct** as a **Strategic Development Area** within the City of Melville. The **Riseley Activity Centre Structure Plan** was prepared to support the future revitalisation and growth of the Riseley Activity Centre (RAC) that identifies key objectives which form the basis of the structure plan.

Local Planning Policy

2.14 The ***Canning Bridge Activity Centre Plan (2016)*** ('the Plan') has been designed to guide development in the CBAC in line with the 50-year vision referenced in the City of Melville's ***Local Planning Strategy (2016)***.

2.15 It focuses on land within both the City of Melville and the City of South Perth and includes a substantial area of the Canning River (see Figure 2.1). The document establishes a foundation for the future of the area and includes objectives and goals for its ongoing development, as well as guidelines related to the built form and an implementation framework.

2.16 The Plan is structured around a series of objectives. These are:

1) Meet district levels of community need and enable employment, goods, and services to be accessed efficiently and equitably by the community;

2) Support the activity centre hierarchy as part of a long-term and integrated approach to the development of economic and social infrastructure;

3) Support a wide range of retail and commercial premises and promote a competitive retail and commercial market;

4) Increase the range of employment within the area and contribute to the achievement of sub-regional employment self-sufficiency targets;

5) Increase the density and diversity of housing in and around the area to improve land efficiency, housing variety and affordability and support the facilities in the area;

6) Ensure the area provides sufficient development intensity and land use mix to support and increase high frequency public transport;

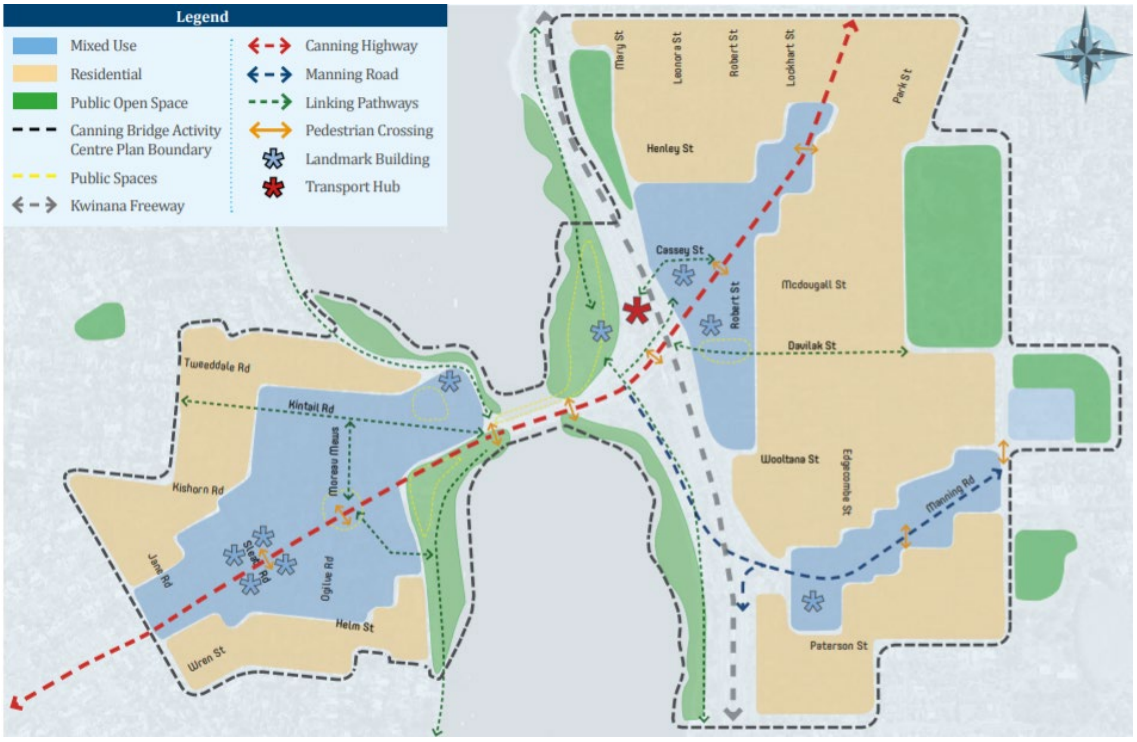
7) Maximise access to and through the area by walking, cycling and public transport while reducing private car trips;

8) Plan development in the CBACP area around a legible street network and quality public spaces; and,

9) Concentrate activities, particularly those that generate steady pedestrian activation, within the area.

2.17 These are accompanied by several goals to communicate the City of Melville and City of South Perth's expectations for the area. Clear design and implementation guidance is also provided alongside them to enable ambitions to be realised (see Figure 2.1). By 2051 this should help deliver **10,000 new homes,** providing accommodation for **20,000 people**, and enough commercial floorspace to house over **6,000 additional jobs**.

Figure 2.1 Canning Bridge Activity Centre Plan



2.18 In recognition that future road infrastructure upgrades will be required along Canning Highway, WAPC approved Planning Control Area 117 in 2015 to achieve development setbacks aligned to the Duck & Dive Proposal. PCA 117 was extended in 2020 and is valid until 2025.

2.19 While there is no explicit discussion of different options for the Highway in the CBAC, there is reference to the need to improve public transport and to encourage active travel as much as possible. There are also clear ambitions to improve public spaces and to ensure development is environmentally sustainable.

Canning Bridge Activity Centre Plan Review

The City of Melville is currently reviewing the ***Canning Bridge Activity Centre Plan (2016)*** with Hatch Roberts Day to ensure that the portion of the area that sits within their authority continues to meet community needs now and into the future. This is being undertaken because in the five years since the Plan was adopted several developments of significant scale have been built. Over this period some members of the local community have raised questions and concerns around the approval processes, particularly in relation to height bonuses and the community benefits offered in exchange.

The review is providing an opportunity for the City of Melville to work collectively with all stakeholders impacted positively or negatively by the Plan to test the current vision and review the validity and effectiveness of current principles and controls based on development outcomes to date.

A significant amount of engagement has been undertaken to date, including a community survey, stakeholder roundtables, community workshops, landowner workshops and engagements with the City of Melville's own staff and councillors. A Place Design Forum is planned for stakeholders to come together to agree the direction of a revised Plan. The six themes that are expected to shape the revised plan are:

1) Extend the natural environment;
2) Bring the village to life;
3) Beautiful buildings with meaning;
4) Policies and frameworks that deliver the promise;
5) Exceptional access and connectivity; and,
6) Improved benefits for intensity.

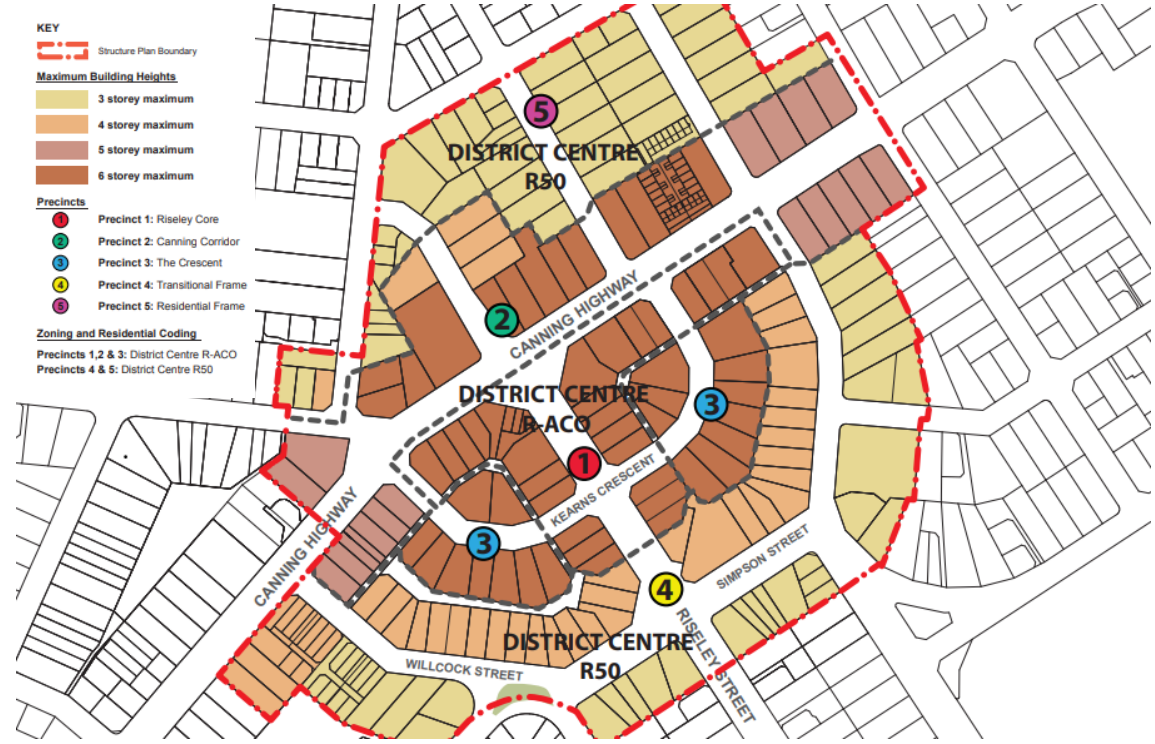
2.20 The **Riseley Activity Centre Structure Plan** identifies a series of key objectives are to create an attractive and sustainable activity centre. Key objectives include:

1) Facilitate viable, enduring and high-quality development;
2) Enhance the character, streetscapes and public spaces;
3) Manage traffic, parking and accessibility;
4) Promote a mix of housing choices;
5) Encourage local and employment and business opportunities; and,
6) Provide certainty to enable investment decisions.

2.21 These are accompanied by several key benefits and features that include the improvement of movement throughout the centre, increase activity levels day and night, encourage the development of distinct character precincts and their urban form and to promote conservation

of resources through alternative transport modes, sustainable production, and onsite storm water management.

Figure 2.2 Riseley Activity Centre Structure Plan



Socio-Economic Context

2.22 This section presents the socio-economic baseline for the **City of Melville's portion of the CBAC[5] (Study Area 1) and the complementary Study Area 2**. It covers the defined study area, made up of local the local geographies defined in Chapter 1 (see Figure 1.4).

2.23 To understand the characteristics of the area, economic, social, and environmental datasets have been used, focusing on the following four themes:

People	population, demography, labour market, income, community health and wellbeing and safety;
Place	urban realm, open space, public buildings & amenities, and the environment;
Prosperity	jobs, sectors, productivity; and,
Property	existing and future residential and commercial land uses, property /rental values, and vacancies.

[5] Hereafter referred to as Study Area 1.

1) People Context

Summary of Key Messages: People

- Study Area 1 is home to around 2,700 people
- Study Area 2 is home to around 4,200 people
- Both areas have more Older Adults relative to Greater Perth; Study Area 1 has more Young Adults relative to Greater Perth and Study Area 2 has a higher percentage of Children and Youth compared to Study Area 1 and less Younger Adults and Adults.
- Residents are more highly educated and paid than most adults in the City of Melville and Perth;
- Both study areas are among the least disadvantaged in the country; and,
- The four main locations for car crashes are close to or connected to the Canning Highway (Between Canning Beach Road and Canning Highway; between Kintail Road and Canning Beach Road; between Sleat Road and Canning Highway; and, around the intersection of Riseley Street and Canning Highway).

Demographics

2.24 The Study Area 1 was home to around **2,100** people[6] in 2016 and is now home to around **2,700 people**[7]. Unlike the City of Melville (+2.5%) and Greater Perth (+6%)[8], the population increased significantly since 2016 and after a slight decline between 2011 and 2016 (see Figures 2.3 and 2.4).

2.25 Study Area 2 was home to around **4,200** people[9] in 2021 and unlike Study Area 1, experienced a relatively stable growth rate of +4.4% and + 5.4% respectively between 2011-2016 and 2016-2021.

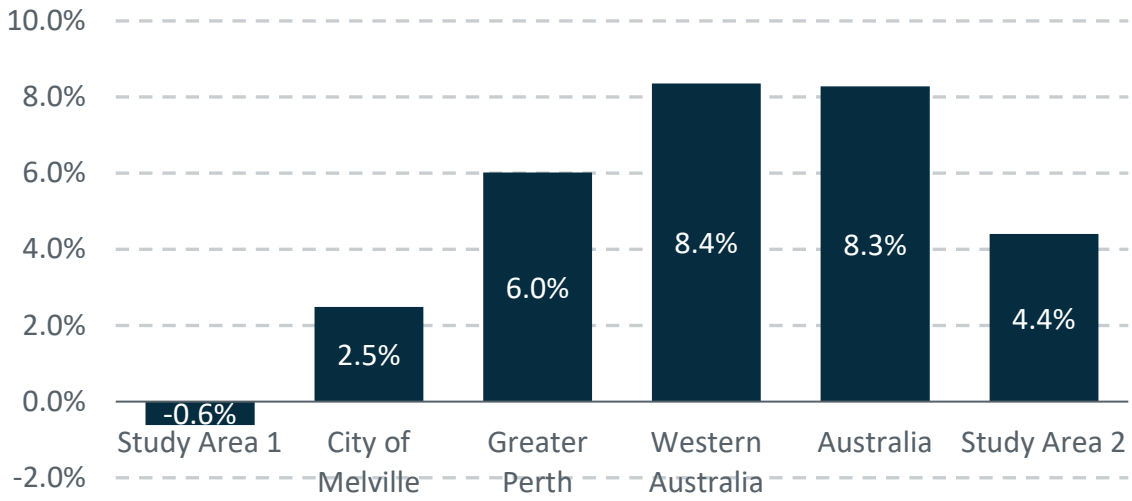
[6] Census, 2016

[7] Census, 2021

[8] Greater Perth is made up of 5 sub-regions: Inner Metro Area, Northeastern Outer Metro Area, Northwestern Outer Metro Area, Southeasten Outer Metro Area, Southwestern Outer Metro Area

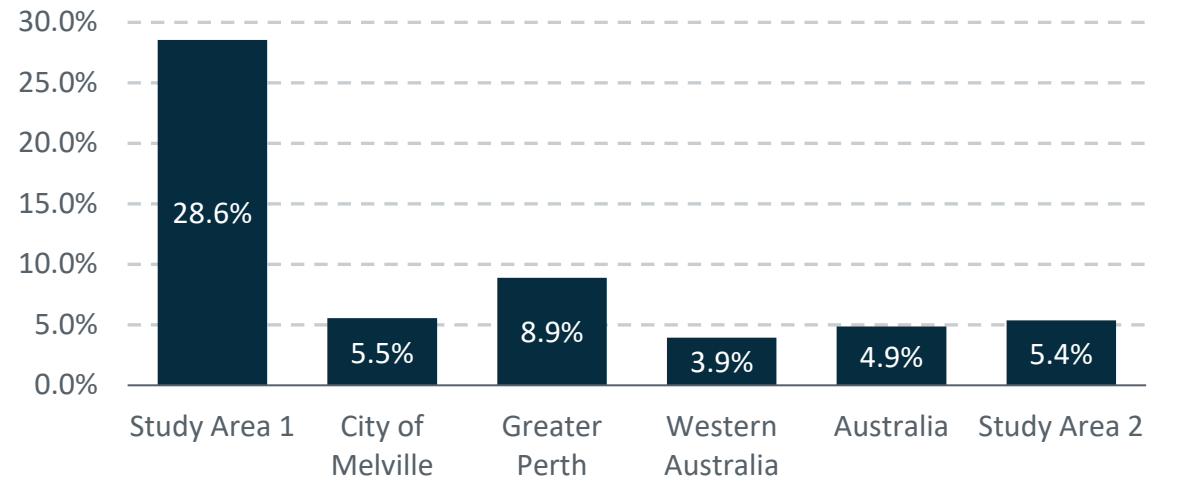
[9] Census, 2021

Figure 2.3 Population Change, 2011-2016



Source: Census, 2011, ABS; Census, 2016, ABS

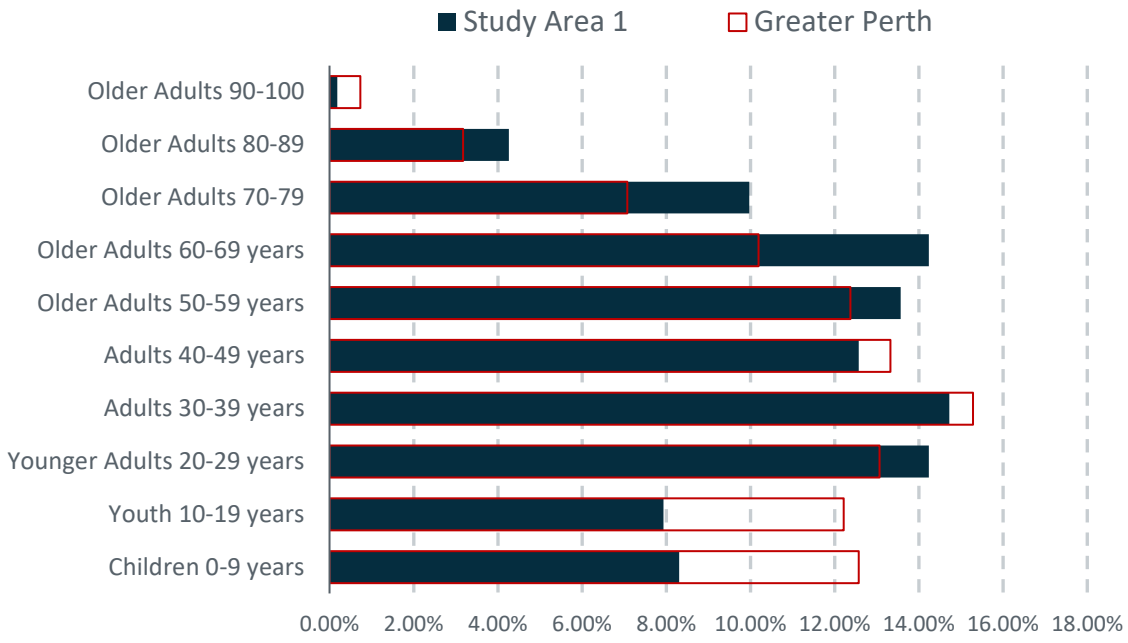
Figure 2.4 Population Change, 2016-2021



Source: Census, 2016, ABS; Census, 2021, ABS

2.26 As shown in Figure 2.5, Study Area 1 has a higher proportion of Young Adults (20-29 Years) and Older Adults (50-100) relative to Greater Perth as a whole. The 60-69 and 70-79 age groups are especially overrepresented.

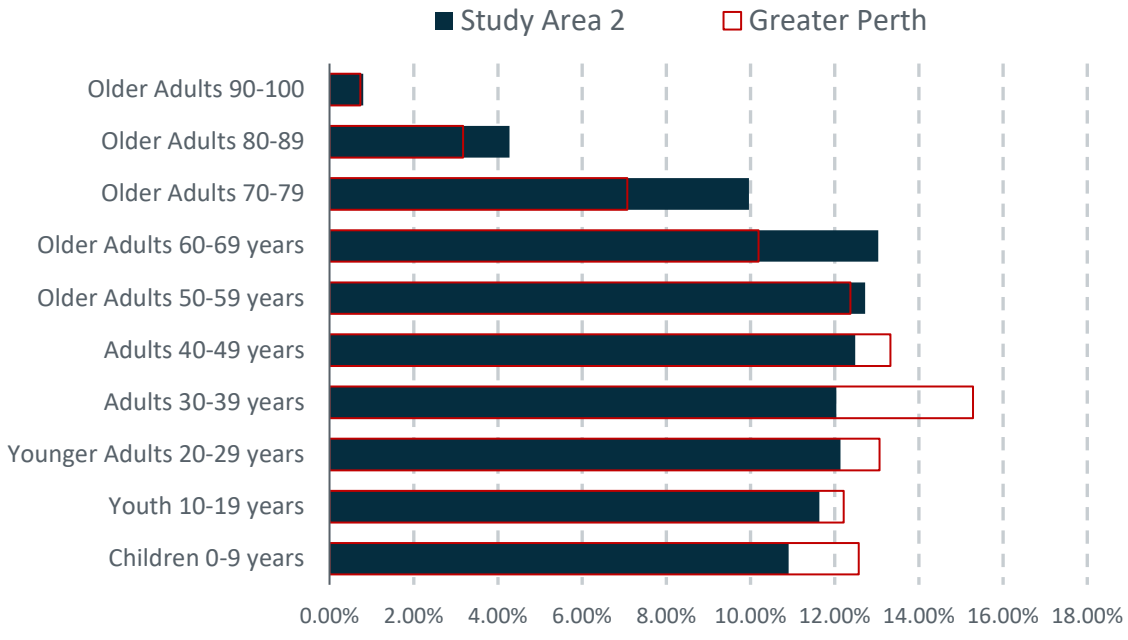
Figure 2.5 Demographic Profile, 2021- Study Area 1



Source: Census, 2021

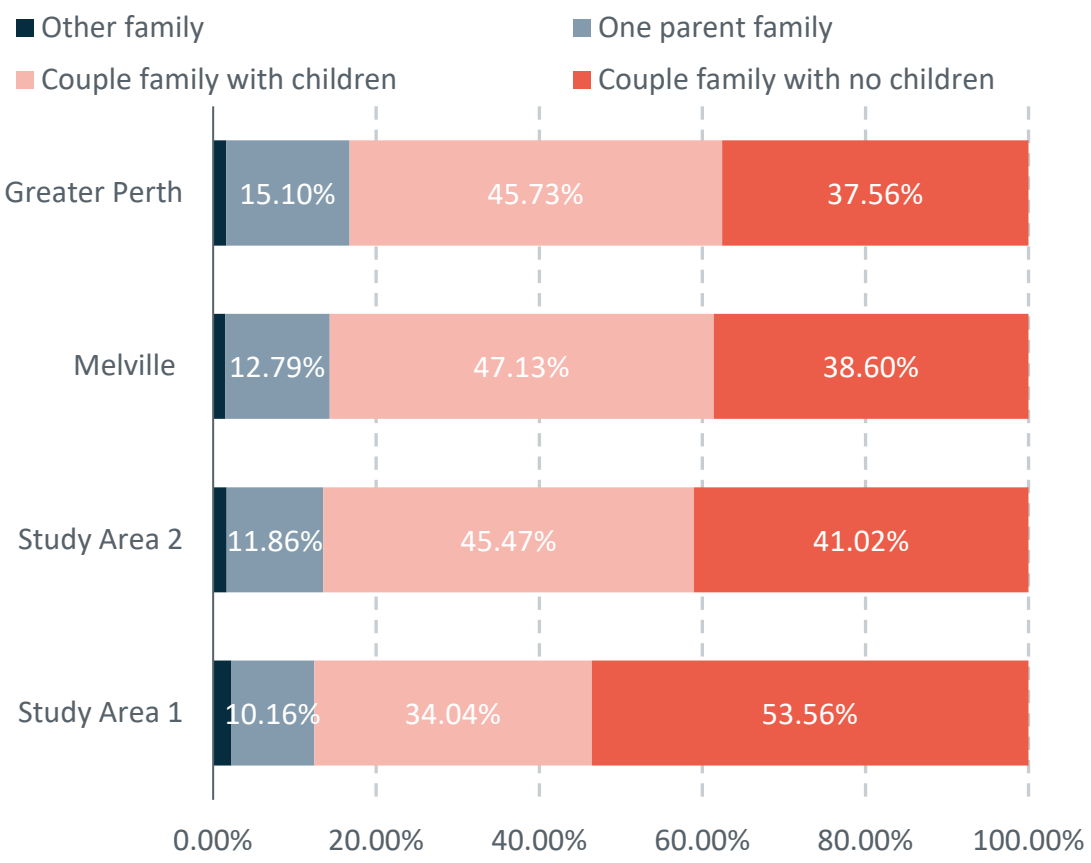
2.27 Study Area 2, as shown in Figure 2.6, has a higher proportion of Older Adults (50-89) relative to Greater Perth as a whole. The 60-69 age group, similar to Study Area 1, is especially overrepresented. Study Area 2 has a higher proportion of Children (0-9) and Youth (10-19) compared to Study Area 2, although they are underrepresented relative to the Greater Perth Area.

Figure 2.6 Demographic Profile, 2021 - Study Area 2



Source: Census, 2021

Figure 2.7 Family Composition, 2021



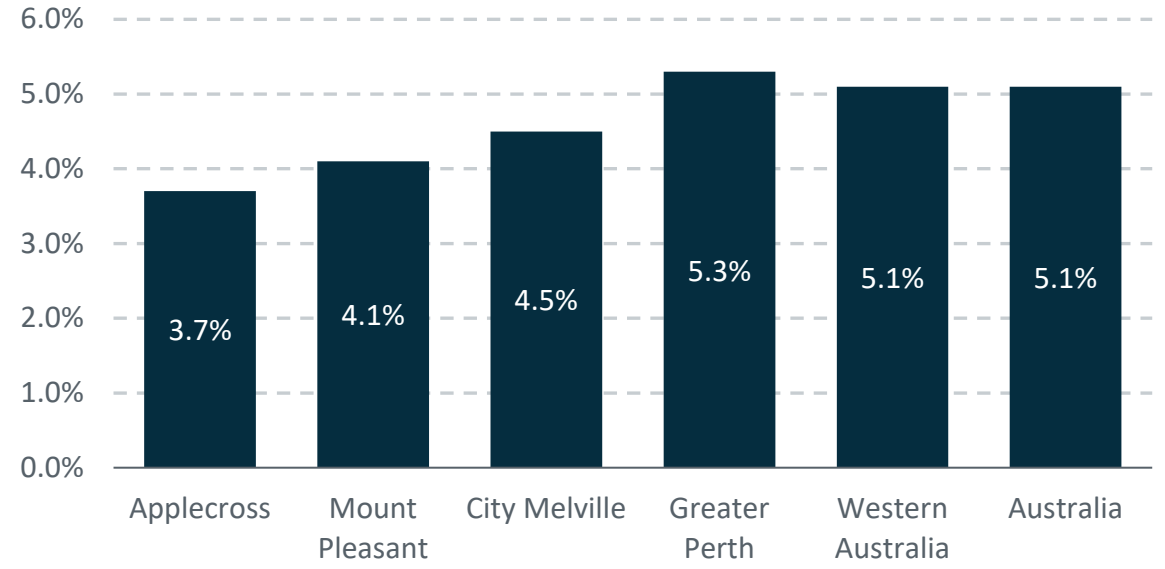
Source: Census, 2016

2.28 There are proportionally far fewer young people (0-19 Years) and middle-aged people than in Greater Perth (30-49 Years). This is reflected in figures related to family composition (Figure 2.7) which shows that there are proportionally far more couples with no children (**53.6%**) in the Study Area 1 than at the City of Melville (38.6%) and Greater Perth scales (37.6%). Study Area 2's family profile is more aligned to the City of Melville and Greater Perth, whilst Study Area 1 has greater representation of families with no children (likely younger or more mature).

Economic Participation and Labour Market

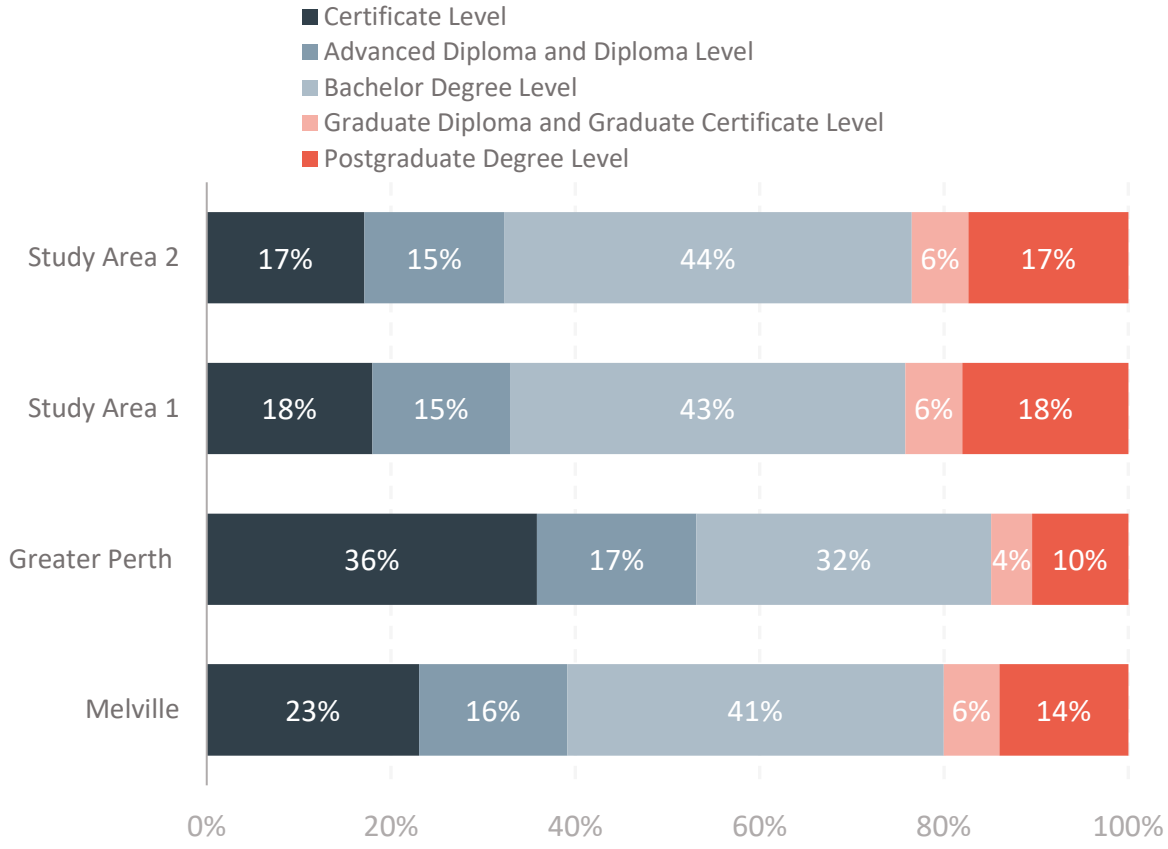
2.29 Figure 2.8 below shows that the unemployment rates in Applecross and Mount Pleasant, which both study areas sit in between, are **3.7%** and **4.1%** respectively. This is lower than the wider City of Melville and Greater Perth areas (4.5% and 5.3% respectively).

Figure 2.8 % Unemployed and Seeking Employment, 2021



Source: Census, 2021

Figure 2.9 Education Levels, 2021

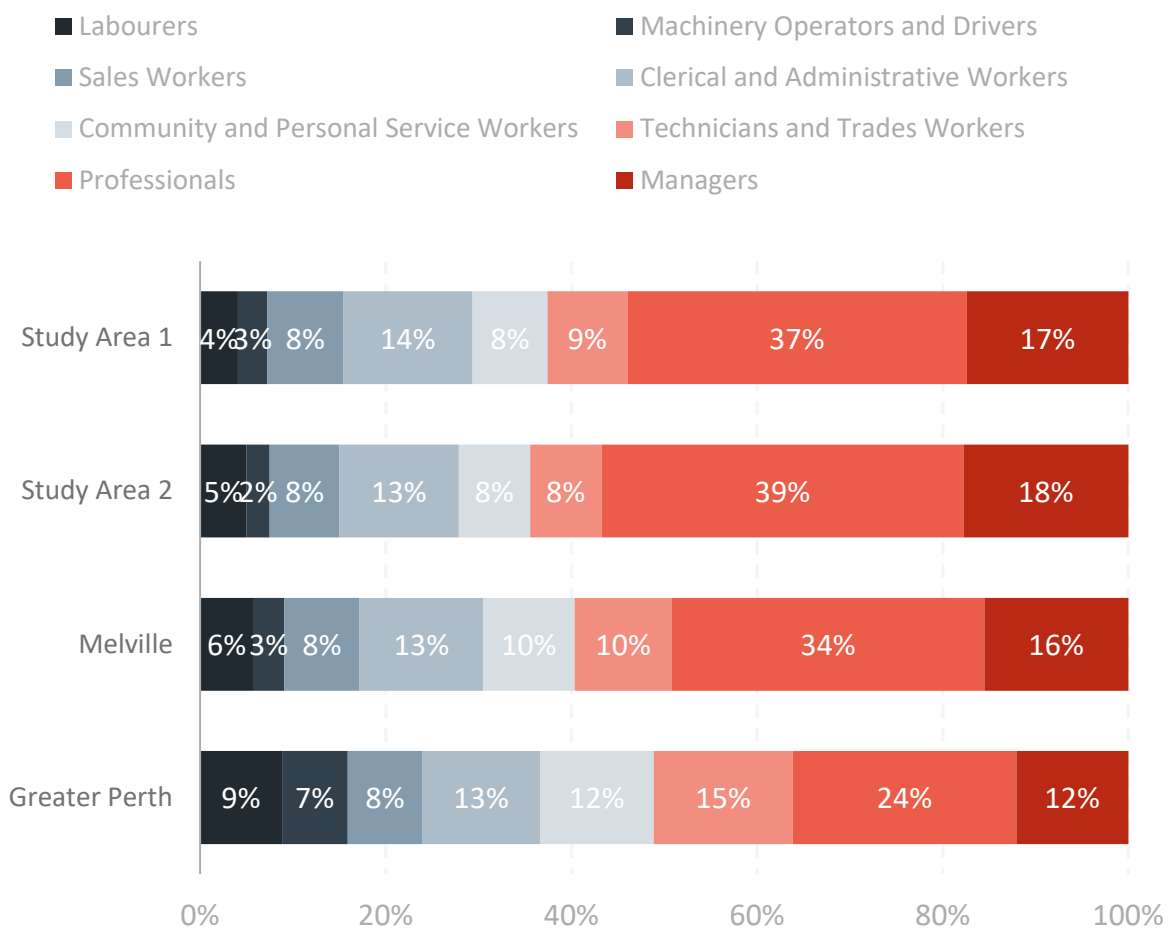


Source: Census, 2021

2.30 The resident population is highly educated with around 43% holding a bachelor's degree, 6% having a graduate diploma and 17% achieving a postgraduate degree (Figure 2.10). This is higher than for the City of Melville (41%, 6% and 14% respectively) and Greater Perth (32%, 4% and10% respectively). Both study areas have similar education trends in the proportional spread of education levels.

2.31 This corresponds with the occupational profile of the area. Over 50% of the population is either classified as a 'Manager' or 'Professional' which is far higher than across Greater Perth more generally (36%).

Figure 2.10 Occupational Profile, 2021

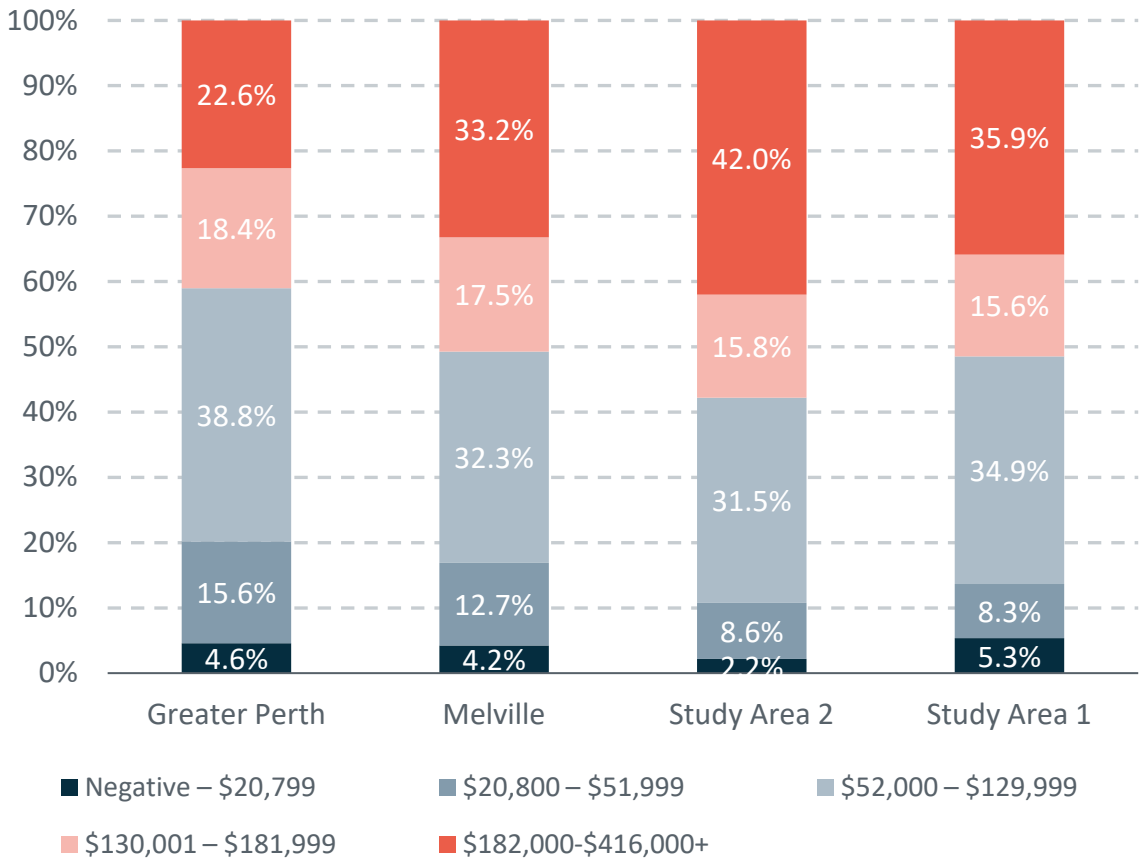


Source: Census, 2021

Income, Disadvantage and Health

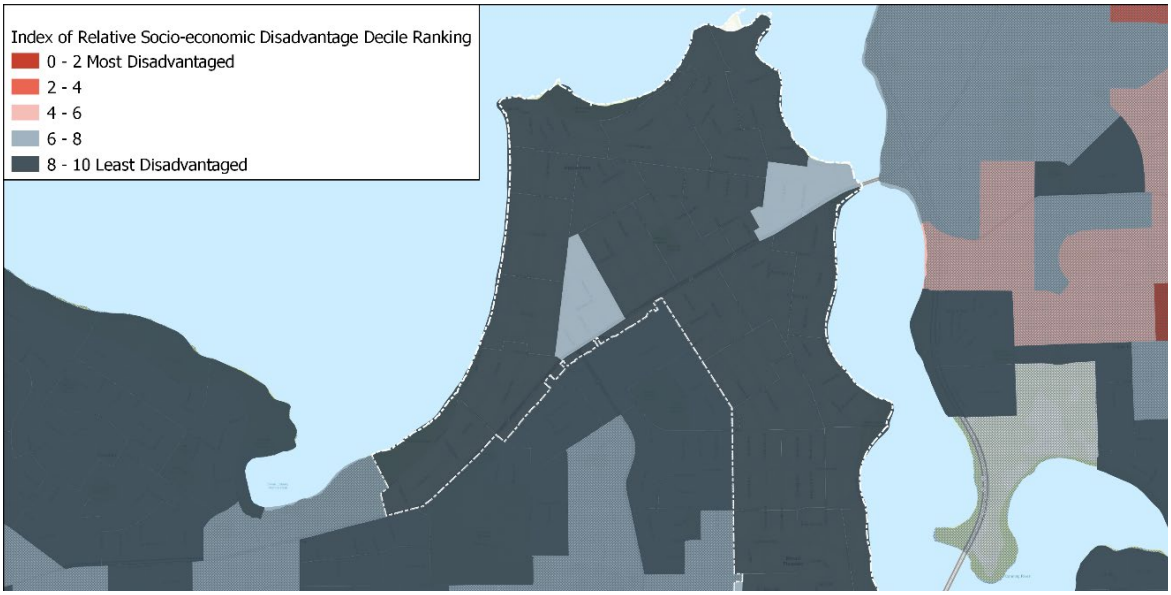
2.32 Both study areas have proportionally more high-income families earning AU$181,000-416,000 (42% and 35.9% respectively) and AU$120,000-180,000 (over 15%) than the City of Melville and Greater Perth (Figure 2.11). This is reflected in patterns of disadvantage (Figure 2.12) - the Study Area 1 and 2 and surrounding areas are amongst the least socio-economically disadvantaged places in the country.

Figure 2.11 Family Income, 2021



Source: Census, 2021

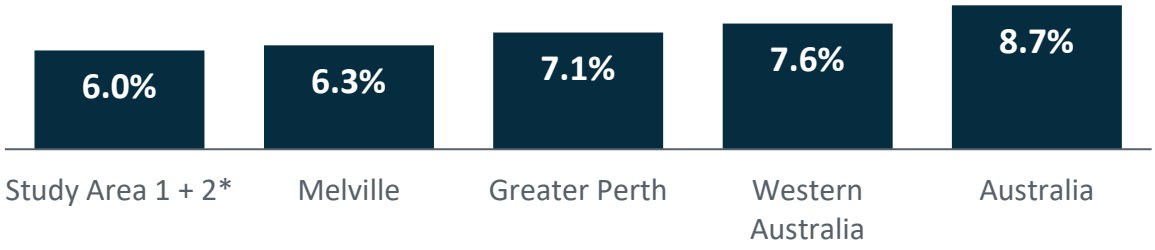
Figure 2.12 Socio-Economic Disadvantage, 2016



Source: Census, 2016 (SEIFA 2016 latest version of this product)

2.33 Health figures are comparatively positive in both study areas. Only **6%** of the population has three or more chronic illnesses versus 6.3%, 7.1% and 8.7% for the City of Melville, Greater Perth, and Australia respectively.

Figure 2.13 Proportion of People with Three or More Chronic Illnesses, 2017-18



*Data collected at SA2 level – Study Area 1 and 2 are situated within the same statistical area, Applecross-Ardross and Booragoon

Source: National Health Survey, 2017-18

Safety & Security

2.34 Figures relates to crashes in the Study Area 1 between 2011 and 2015 illustrate that there are, on average, around **40** crashes per year. The three main hotspots are at the junction between Canning Beach Road and Canning Highway (76), between Kintail Road and Canning Beach Road (47) and between Sleat Road and Canning Highway (46). These are all junctions that are either on or very close to the Canning Highway.

Table 2.1 Crashes Within the CBAC – Study Area 1 (January 2011-December 2015)

Location	Number
Kintail Road/Canning Beach Road	47 (4 hospitalisation, 7 medical, 30 property damage only major (PDO), 6 PDO minor)
Canning Beach Road/Canning Highway	76 (1 hospitalisation, 11 medical, 37 PDO major, 27 PDO minor)
Sleat Road/Canning Highway	46 (1 hospitalisation, 13 medical, 34 PDO major, 28 PDO minor)
Kintail Road/Moreau Mews	6 (1 medical, 2 PDO major, 3 PDO minor)
Kintail Road/Forbes Road	12 (1 hospitalisation, 2 medical, 5 PDO major, 4 PDO minor)
Kintail Road/First Avenue	0
Sleat Road/Kishorn Road/Forbes Road	6 (1 PDO major, 5 PDO minor)
Moreau Mews/Canning Beach Road	3 (2 medical, 1 PDO major)
Moreau Mews/Tweeddale Road	0
Kishorn Road/First Avenue	2 (2 PDO major)
Tweeddale Road/Forbes Road	2 (2 PDO major)
Sleat Road/Healm Street	4 (3 PDO major, 1 PDO minor)
Helm Street/The Esplanade	0

Source: Canning Bridge Masterplan, 2016

Source: Historic Incidents 2016 - 2019 (Points), Main Roads Western Australia | Mainroads, 2020

2) Place Context

Summary of Key Messages: Place

- The study areas are generally characterised by a mix of housing types, with much dating from the 1970s-1990s;
- The area is lacking in large expanses of open spaces, with the notable exception being the Swan and Canning Rivers and Wireless Hill Park;
- Study Area 1 benefits from Canning Bridge Station which connects to Perth CBD in just over ten minutes - this is complemented by a comprehensive bus service provided by Transperth;
- Around 64% of residents use private cars or motorbikes to travel to work, with the rest using the bus service, taking the train, or cycling;
- The Study Areas benefit from a wide range of public amenities - these straddle the areas both north and south of the Canning Highway generating regular trips across the road;
- The Swan-Canning Estuary is deemed an important wetland by the Australian Wetland Database as it is home to a variety of important environmental assets within its riparian vegetation and diverse aquatic ecosystems; and,
- There are a range of culturally important assets in the area including the Swan River, Raffles Hotel and Rowing WA.

Urban Environment

2.35 The Study Areas are generally characterised by a mix of housing types, with much dating from the 1970s-1990s alongside a range of new medium to high-density developments. The commercial stock is ageing and in various states of repair.

2.36 According to the *Canning Bridge Activity Centre Plan (2016)*, the area that sits to the north of the Canning Highway ('Kintail Quarter') is mixed use, with a retail and commercial centre along the Canning Highway itself (Figure 2.14). The commercial centre has day-to-day retail facilities such as supermarkets, a post office and convenience stores, alongside bars, cafes, and restaurants.

2.37 Significant elements of the built form include the heritage listed Raffles Hotel and the Tivoli Theatre. The residential streets are wide, with a good coverage of mature trees. The area is described in the Plan as *"a place of social gathering, where retail and commercial activity come together"*. It is identified as generally being quite 'urban' with few open spaces.

2.38 The area that sits to the south of the Canning Highway ('Ogilvie Quarter') has a strip of retail and commercial premises which bound the Highway with some well-known local restaurants located at the eastern edge. It is characterised by several office developments extending south along Kishorn and Ogilvie Road.

2.39 The built form is generally similar to the area to the north of the Highway with a mix of low-rise residential developments which have been historically developed, gradually being superseded with increased density by newer, multi-storey, multi-occupancy residential and commercial

developments. The scale of the residential streets is generous, but it does not have as many well-established mature street trees as areas to the north.

2.40 Much of the social infrastructure for the area can be found on the foreshore, such as Rowing WA. The foreshore lineal park is well utilised and provides a valuable link for cyclists and recreational users. The Waylen Bay Sea Scout Hall located in Study Area 2 is not on the foreshore, however, is still utilised by the community as social infrastructure and in relatively close proximity to the foreshore lineal park (across Canning Highway). Proximity to the river and larger areas of open space are recognised as key attractors in the Plan, whilst safe access across the Highway is identified as a key challenge.

2.41 Study Area 1 and 2 more broadly are lacking in large expanses of open spaces, with the notable exception being the Swan and Canning Rivers. The Plan sets out that it is *"therefore critical that the public realm of the centre be carefully considered"*. *The Canning Bridge Masterplan (2016)* identifies four public space opportunities as set out in Figure 2.14 below:

a) River foreshore;

b) Market square and community hub (near Raffles and Tivoli Theatre);

c) Re-purposed Canning Bridge Promenade; and,

d) Central Plaza around pedestrian bridge over Canning Highway.

Figure 2.14 CBAC 'Quarters'

Source: Canning Bridge Activity Centre Plan, 2016

2.42 The Masterplan sets out plans for the open spaces should seek to:

- Protect and enhance the environmental, cultural and heritage values of the Canning Bridge;
- Assist with placemaking;

- Create pleasant and welcoming spaces;
- Create safe spaces;
- Provide high quality, well maintained and actively managed space;
- Ensure that they are adaptable, catering for multiple users and types of activities; and,
- Be inclusive and accessible to the whole community.

Figure 2.15 Public Open Space Opportunities

Source: Canning Bridge Masterplan, 2016

Public Transport and Active Travel

2.43 The Study Areas are reliant on public transport access and facilities. Public transport provides fast and efficient transport to regional and other local centres for commuters, residents, and visitors.

2.44 As Figure 2.16 illustrates, Study Area 1 benefits from Canning Bridge Station, which connects to Perth CBD in just over ten minutes. This is complemented by a comprehensive bus service provided by Transperth. This includes local bus services that run along the Highway (111, 114, 115, 160 and the high frequency bus 910) and Kintail Road (148, 158 and 510).

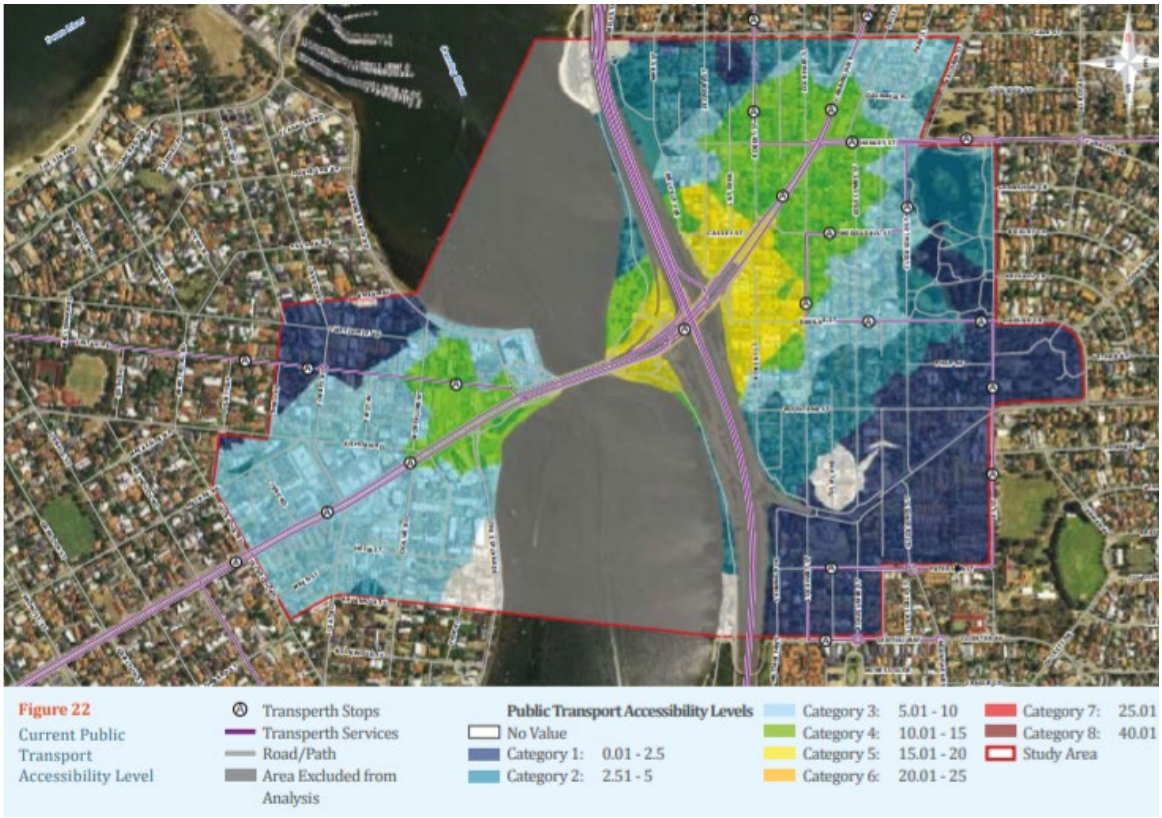
2.45 Public transport accessibility is reasonably good close to the Canning Bridge but drops off further away from the bridge and station. Currently around 64% of residents use private cars or motorbikes to travel to work, with the rest using bus, train, walking or cycling (Figure 2.17). Walking and cycling are valued by residents for commuting and for leisure purposes.

2.46 The *Canning Bridge Activity Centre Plan (2016) and Canning Bridge Masterplan (2016)* identify improving public transport and encouraging modal shift as priorities. The latter provides a series of key features to improve public transport accessibility, including:

- A major dedicated bus route along Kintail Road and Canning Highway which will improve reliability and efficiency;
- Increased frequency of bus and rail services;
- An upgrade of the old Canning Bridge to provide a desirable link pedestrians and cyclists to the relocated Canning Bridge train station; and,
- Provision of cycle racks and lockers at key bus stops and train station locations.

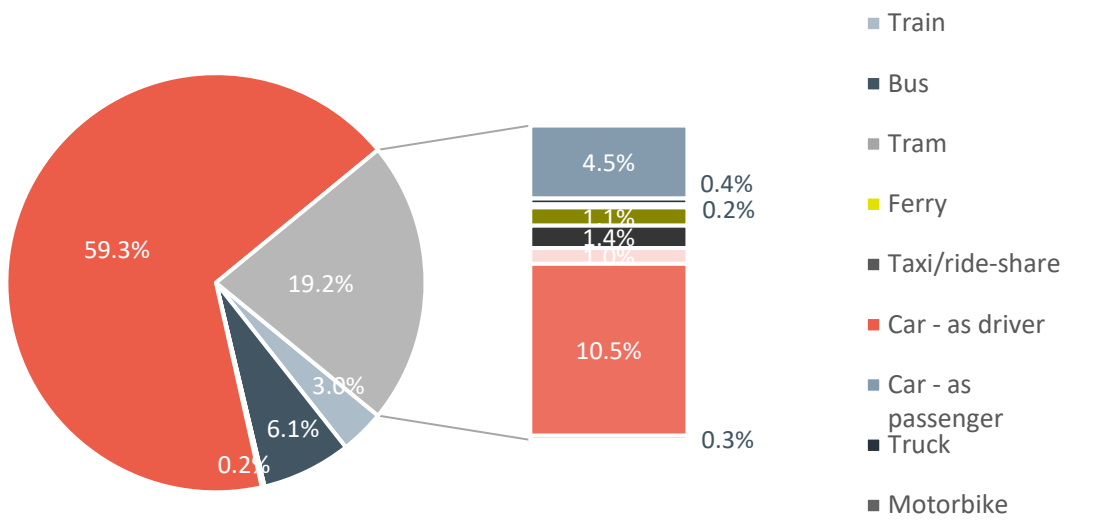
2.47 A series of similar features are identified for both walking and cycling.

Figure 2.16 Public Transport Accessibility



Source: Canning Bridge Activity Centre Plan, 2016

Figure 2.17 Journey to Work Data, 2021 – Applecross, Mount Pleasant and Ardross (Usual Residents)



Source: Census, 2021

2.48 The journey to work data clearly evidence the high private motor vehicle utilisation of the local community with 59.3% using a car as a driver and noting significant single occupant car journeys.

Public Amenities

2.49 Study Area 1 benefits from a wide range of public amenities. These straddle the areas both north and south of the Canning Highway generating regular trips across the road:

- Rowing WA: A rowing club 20m from Canning Highway with hundreds of members from across Greater Perth;
- Swan River Rowing Club: Another regionally significant rowing club that sits adjacent to the Western Australia Rowing Club;
- Applecross Primary School: Primary school with 570 pupils ranging from Kindergarten to Year 6;
- Canning Bridge Express Library: Small self-service library on Kintail Road open weekdays from 9am-4pm;
- Perth Integrated Health Centre: Health centre that offers a wide range of medical services, including - podiatrist, general practitioner, physiologist, chiropractor, cognitive therapist, and occupational therapist;
- Forte School of Music: Multi-sensory music school for children on the Canning Highway itself;
- Cirque Community Space: Community space used for a wide range of activities including yoga, meditation, arts, crafts, and workshops;

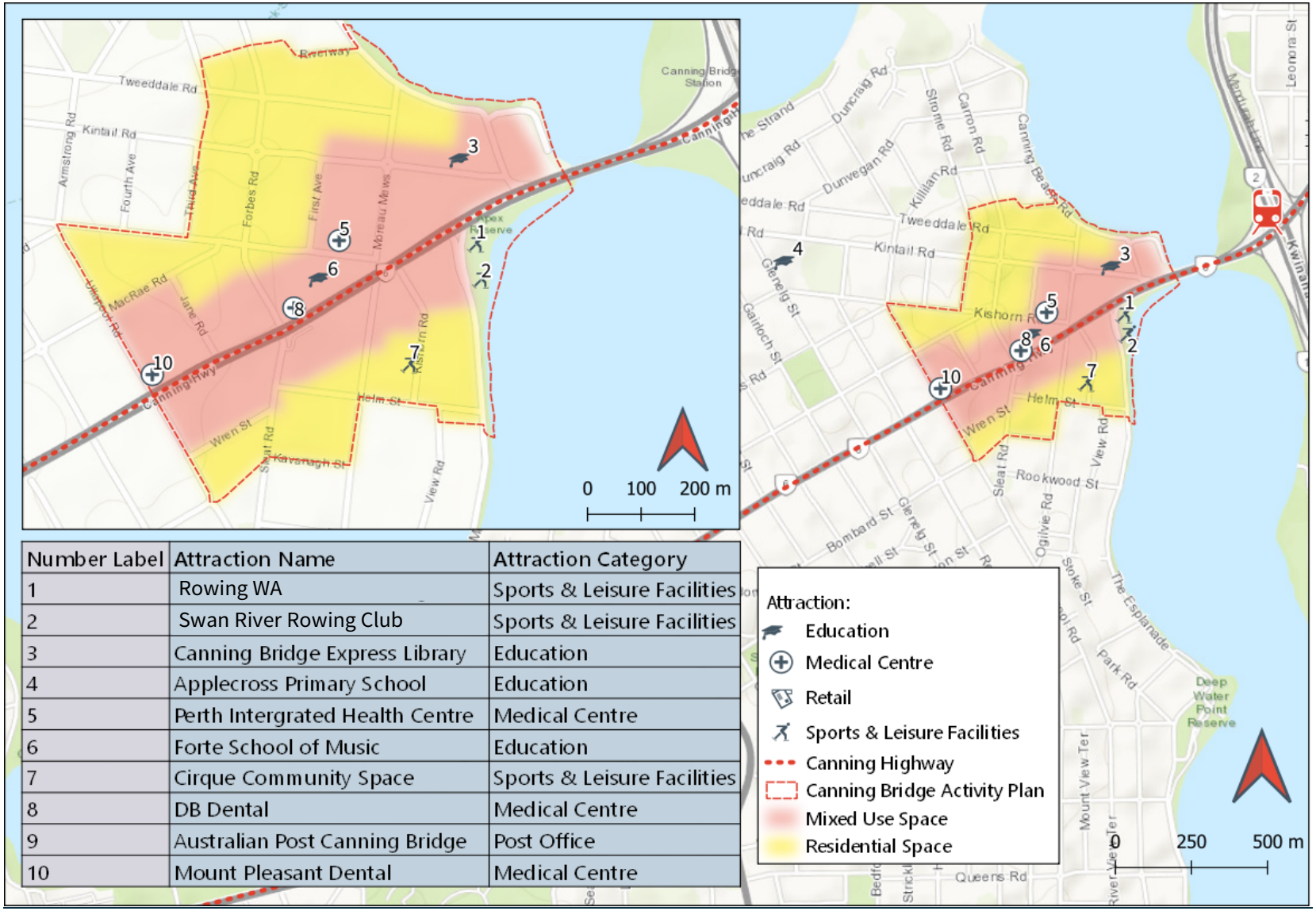
- DB Dental: Dental service on the Canning Highway that offers general dental treatments, cosmetic services, children's dentistry, and orthodontic treatments;
- Australia Post Canning Bridge: Only post office in the Study Area 1 located on the Canning Highway itself; and,
- Mount Pleasant Dental: Dentist offering general, cosmetic, and reconstructive services as well as skin health treatments.

2.50 These are complemented by a range of shops, hotels, restaurants, bars, and other leisure facilities.

2.51 Study Area 2 also benefits from a wide range of public amenities, located to the north and south of the Canning Highway.

- Applecross PreKindy & Kindy: PreKindy & Kindy school is located within 50m of Canning Highway with pupils ranging from 2 years – 6 years
- Saint Benedicts School: Primary School with approximately 240 students ranging from Kindergarten to Year 6.
- Waylen Bay Sea Scout Hall: located within the Study Area 2 provides community space for Joeys, Clubs, Venturers, Rovers clubs as well as hireable space for the wider community
- Southern Districts Gaelic Football: Located adjacent to Study Area 2, providing sporting facilities for amateur Mens & Womens Gaelic Football
- Fremantle Rebel Softball Club: Located adjacent to Study Area 2, participates in the 'Perth Softball Leagues' (PSL) and the 'South East Metropolitan Softball Association' (SEMSA), FRSC currently have 6 Senior Mens sides, 4 Female Womens sides and 10 Junior sides with Men's competitions predominately occuring in winter and Female competitions predominately in summer.

Figure 2.18 Public Amenities and Services – Study Area 1



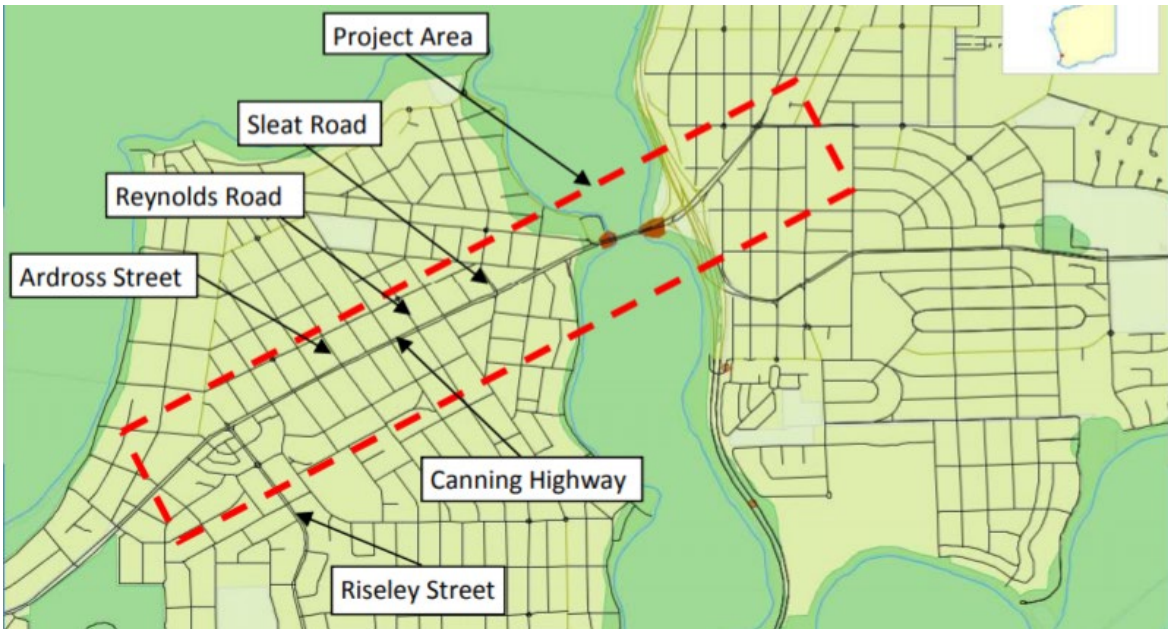
Number Label	Attraction Name	Attraction Category
1	Rowing WA	Sports & Leisure Facilities
2	Swan River Rowing Club	Sports & Leisure Facilities
3	Canning Bridge Express Library	Education
4	Applecross Primary School	Education
5	Perth Intergrated Health Centre	Medical Centre
6	Forte School of Music	Education
7	Cirque Community Space	Sports & Leisure Facilities
8	DB Dental	Medical Centre
9	Australian Post Canning Bridge	Post Office
10	Mount Pleasant Dental	Medical Centre

Source: Hatch

Environment

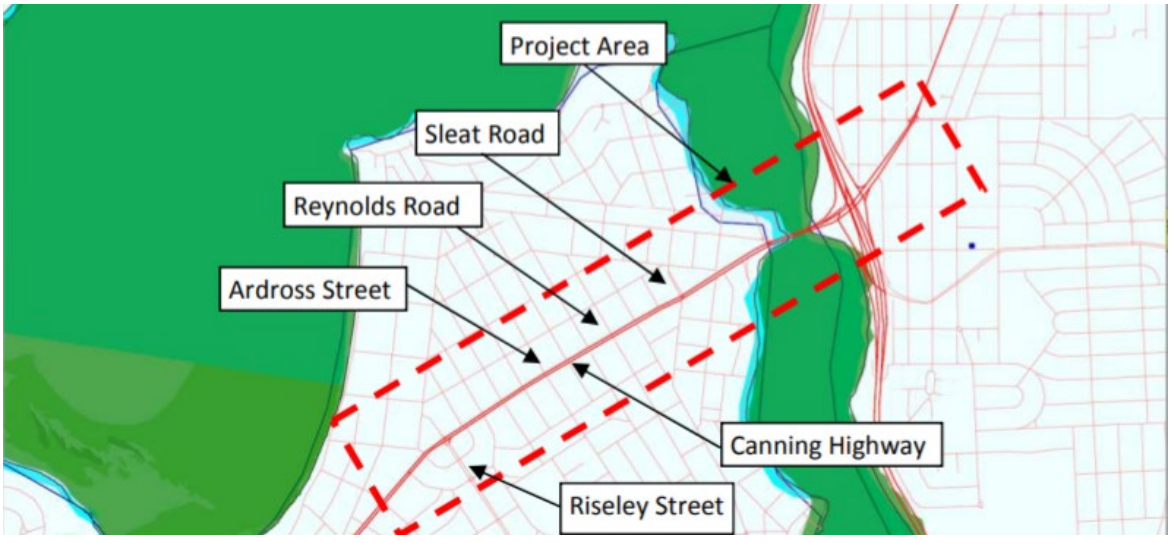
2.52 There are no significant environmentally sensitive sites within the CBAC – Study Area 1. Native vegetation clearing permits have been granted for the two areas hatched in red near the Canning River within the red box displayed in Figure 2.19.

Figure 2.19 Environmentally Sensitive Areas



Source: Canning Highway Planning Study, 2015 (BG&E)

Figure 2.20 Waterways and Wetlands



Source: Canning Highway Planning Study, 2015 (BG&E)

2.53 The Swan-Canning Estuary is deemed as an important wetland by the Australian Wetland Database. The estuary has a variety of important environmental assets within its riparian vegetation and diverse aquatic ecosystems. The Canning River discharges into the estuary, but no other wetlands or river systems are present in the impact area.

Heritage Assets

2.54 The Swan-Canning Estuary and river system is listed as a Mythical site in the Department of Aboriginal Affairs Heritage Inquiry System (Figure 2.21). Because of this, the construction over the river may require a Section 18 application under the Aboriginal Heritage Act 1972.

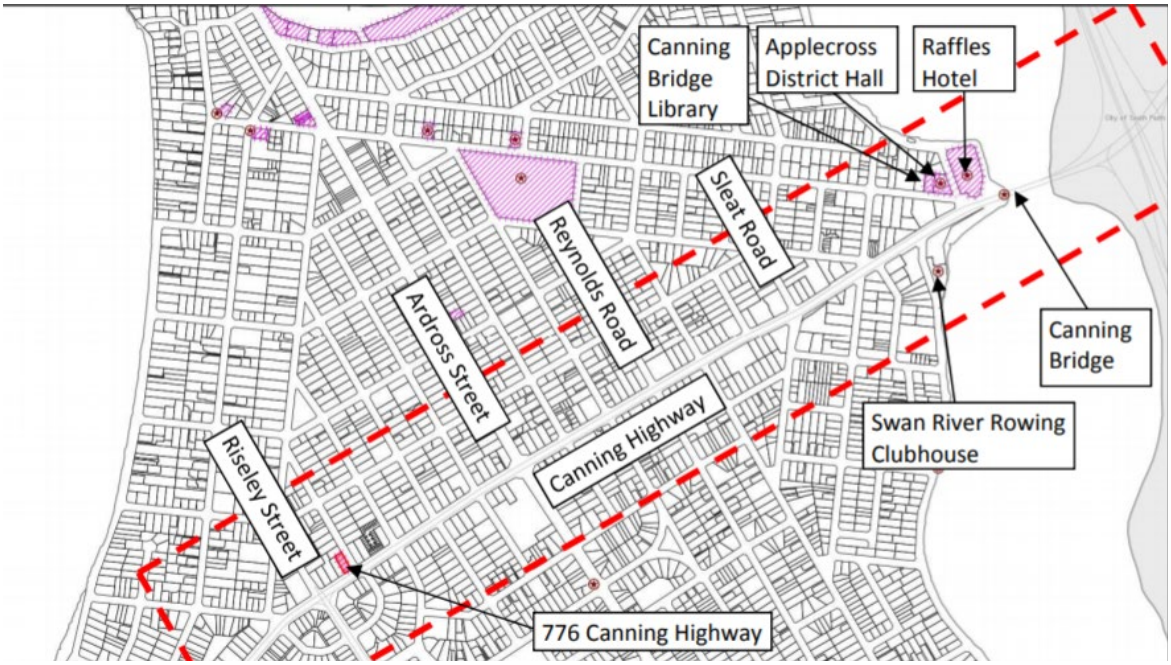
Figure 2.21 Aboriginal Heritage

Source: Canning Highway Planning Study, 2015 (BG&E)

2.55 European heritage is shown in Figure 2.22 with heritage places labelled. These include:

- **Raffles Hotel**: Category A site listed for "Aesthetic Value";
- **Canning Bridge Library**: Although this site documented by the City of Melville as a heritage asset, it is not listed on the local government inventory or State Register;
- **776 Canning Highway**: As above, this site is documented by the City of Melville as a heritage asset but is not listed on the local government inventory or State Register;
- **Swan River Rowing Clubhouse**: A significant site of historic importance as the second oldest rowing club in Western Australia; and,
- **Canning Bridge**: The bridge is deemed a Category A heritage site due to its aesthetic, historic and representative value alongside its rarity cultural heritage significance. The bridge is one of only a few remaining timber pile-driven bridges in Greater Perth.

Figure 2.22 Heritage Places



Source: Canning Highway Planning Study, 2015 (BG&E)

3) Prosperity Context

Summary of Key Messages: Prosperity

- There are just over 2,660 jobs within Study Area 1;
- There are just under 4,220 jobs within Study Area 2;
- The three most prominent employment sectors are Health Care and Social Assistance; Professional, Scientific and Technical Activities; and Education and Training;
- The local economy has strong representative from employment sectors that are economically productive; and,
- The City of Melville's Gross Regional Product has increased by 80% since 2001.

Employment

2.56 There are currently just over **2,660** jobs within Study Area 1 (Table 2.2). The three largest sectors by employees are:

- Health Care and Social Assistance (192 employees, 7.2% of jobs);
- Professional, Scientific and Technical Activities (179 employees, 6.7% of jobs); and,
- Education and Training (113 employees, 4.2% of jobs).

2.57 These sectors are typically prominent in Activity Centres alongside Retail Trade and Public Administration and Safety.

Table 2.2 Employment by Sector, 2021 – Study Area 1[10]		
Sector	**Employees**	**Proportion**
Agriculture, Forestry and Fishing	3	0.1%
Mining	124	4.6%
Manufacturing	69	2.6%
Electricity, Gas, Water and Waste Services	12	0.4%
Construction	94	3.5%
Wholesale Trade	26	1.0%
Retail Trade	93	3.5%
Accommodation and Food Services	72	2.7%
Transport, Postal and Warehousing	40	1.5%
Information Media and Telecommunications	11	0.4%
Financial and Insurance Services	54	2.0%
Rental, Hiring and Real Estate Services	36	1.3%
Professional, Scientific and Technical Services	179	6.7%
Administrative and Support Services	25	0.9%
Public Administration and Safety	73	2.7%
Education and Training	113	4.2%
Health Care and Social Assistance	192	7.2%
Arts and Recreation Services	28	1.0%
Other Services	43	1.6%
Inadequately Described Industry or N/A	1,380	51.7%
Total	**2,667**	**100.0%**

2.58 There are currently just over **4,220** jobs within Study Area 2 (Table 2.3). The three largest sectors by employees are:

- Health Care and Social Assistance (323 employees, 7.6% of jobs);
- Professional, Scientific and Technical Activities (280 employees, 6.6% of jobs); and,
- Education and Training (193 employees, 4.6% of jobs).

[10] Census, 2021

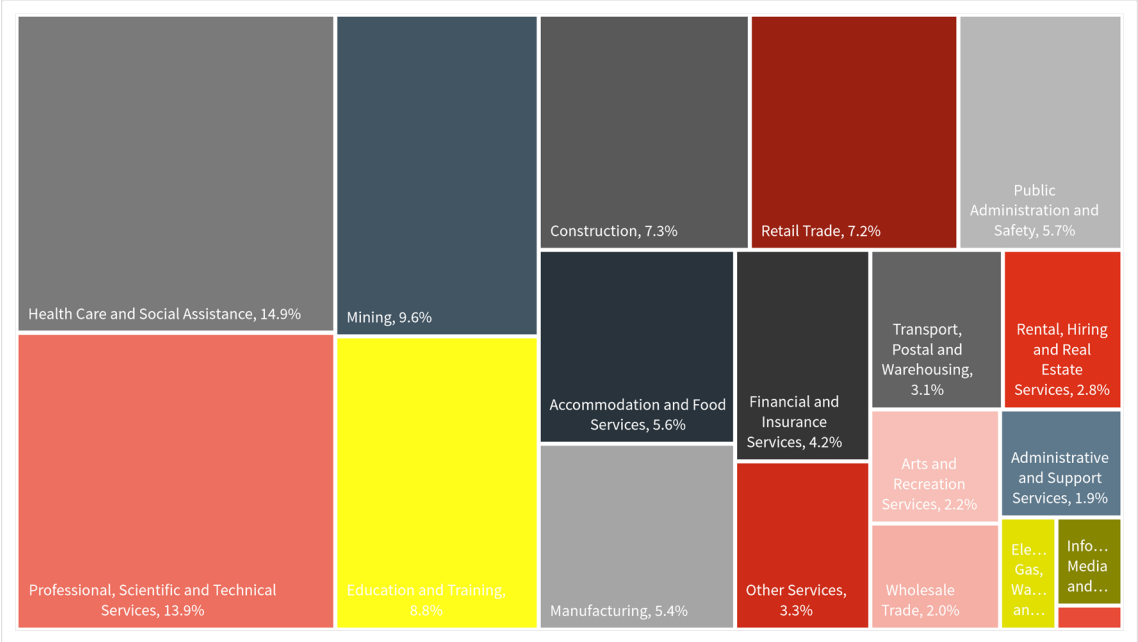
Table 2.3 Employment by Sector, 2021 – Study Area 2[11]		
Sector	**Employees**	**Proportion**
Agriculture, Forestry and Fishing	5	0.1%
Mining	150	3.5%
Manufacturing	58	1.4%
Electricity, Gas, Water and Waste Services	18	0.4%
Construction	123	2.9%
Wholesale Trade	46	1.1%
Retail Trade	154	3.6%
Accommodation and Food Services	143	3.4%
Transport, Postal and Warehousing	70	1.7%
Information Media and Telecommunications	17	0.4%
Financial and Insurance Services	79	1.9%
Rental, Hiring and Real Estate Services	62	1.5%
Professional, Scientific and Technical Services	280	6.6%
Administrative and Support Services	47	1.1%
Public Administration and Safety	127	3.0%
Education and Training	193	4.6%
Health Care and Social Assistance	323	7.6%
Arts and Recreation Services	39	0.9%
Other Services	69	1.6%
Inadequately Described Industry or N/A	2,225	52.6%
Total	**4,228**	**100.0%**

2.59 While data related to productivity is not available for the study areas, the prominence of employment within productive economic sectors (e.g., Professional, Scientific and Technical Activities) suggests that the areas are economically productive.

2.60 Data for the City of Melville shows that Gross Regional Product for the local authority area has increased by **80%** from AU$3,505 million in 2001 to **AU$6,326 million in 2019.**

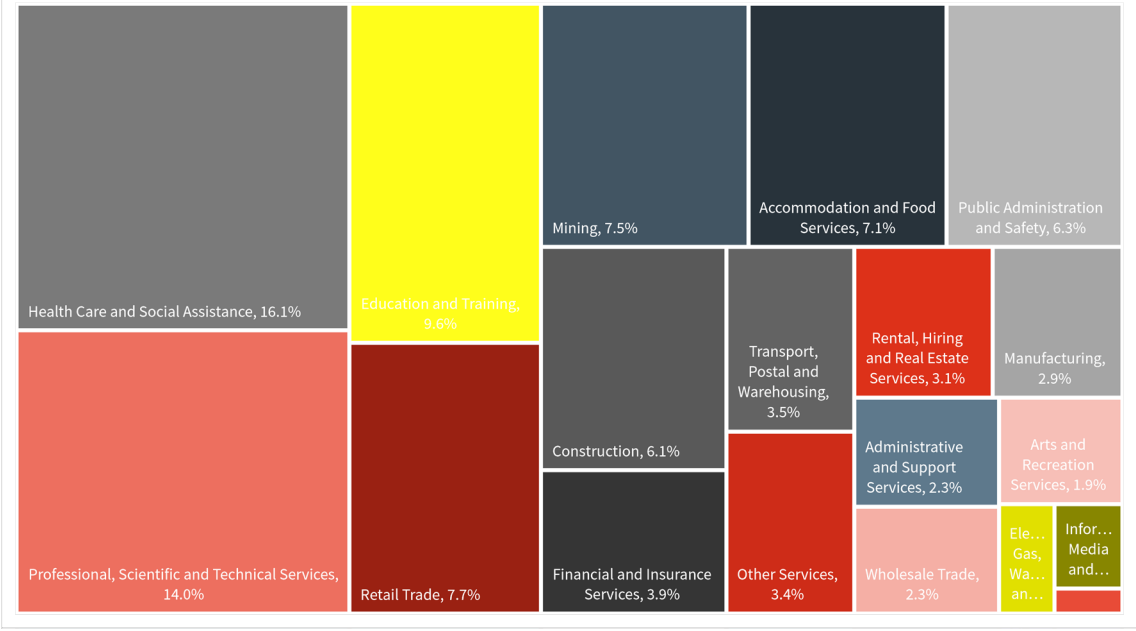
[11] Census, 2021

Figure 2.23 Study Area 1- Proportional Employment by Sector, 2021



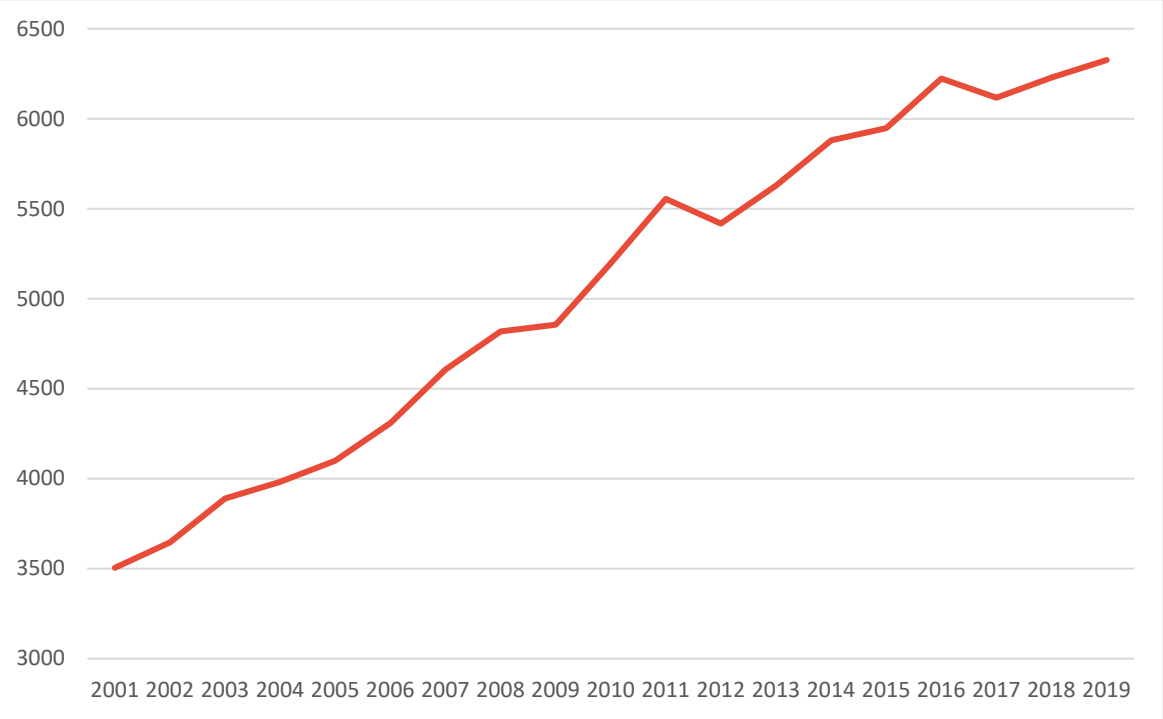
Source: Census, 2021 (excluding inadequately Described Industry or N/A)

Figure 2.24 Study Area 2 - Proportional Employment by Sector, 2021



Source: Census, 2021 (excluding inadequately Described Industry or N/A)

Figure 2.25 City of Melville Gross Regional Product, 2001-2019 (AUD $M)



Source: National Institute of Economic and Industry Research (NIEIR), 2019

4) Property Context

Summary of Key Messages: Property

- The Study Area 1 has around 1,120 homes and Study Area 2 has around 1,750 homes;
- There are far more flats/apartments in Study Area 1 compared to Study Area 2 and Greater Perth more generally (54%, 13% and 9% respectively) ;
- There are more houses in Study Area 2 than flats/apartments (87% versus 13%);
- Median prices for houses and flats/apartments in the Applecross, Ardross and Mount Pleasant suburbs, which the study areas fall between, are far higher than across the Perth Metropolitan Region;
- A number of major residential developments have come forward in recent years;
- Ten major schemes have been approved, but are not yet or partially in construction, which will deliver in the region of 787 new apartments across the Study Area 1;
- There are a range of housing challenges across the City of Melville (prices, lack of mixed-use development, ageing population etc);
- Study Area 1 has 45,700m2 of commercial floorspace, with around 40,000m2 of occupied commercial floorspace within that; and,
- Office space is by far the most prominent form of commercial space in Canning Bridge (Study Area 1) (24,000 m^2) and is also the most prominent in Riseley Street (Study Area 2), although Shop/Retail also takes up a large percentage of commercial floorspace in the commercial complex of Riseley Street

Housing Market

2.61 **Study Area 1** has over **1,570** homes. Around **46%** of these are houses and **54%** are flats/apartments. The area has a far higher proportion of flats than the City of Melville (6%) and Greater Perth (9%) and fewer houses (Figure 2.26).

2.62 **Study Area 2** has over **1,890** homes. Around **87%** of these are houses and around **13%** are flats/apartments.

2.63 Median house prices in the Applecross, Ardross and Mount Pleasant suburbs, which the Study Areas 1 and 2 fall between, are far higher than the Greater Perth[12] average: **AU$1.6m, AU$0.9** and **AU$1.2m** respectively versus AU$500k (Figure 2.27). Prices in both locations have increased since 2016 from AU$1.45m and $1.15m respectively.

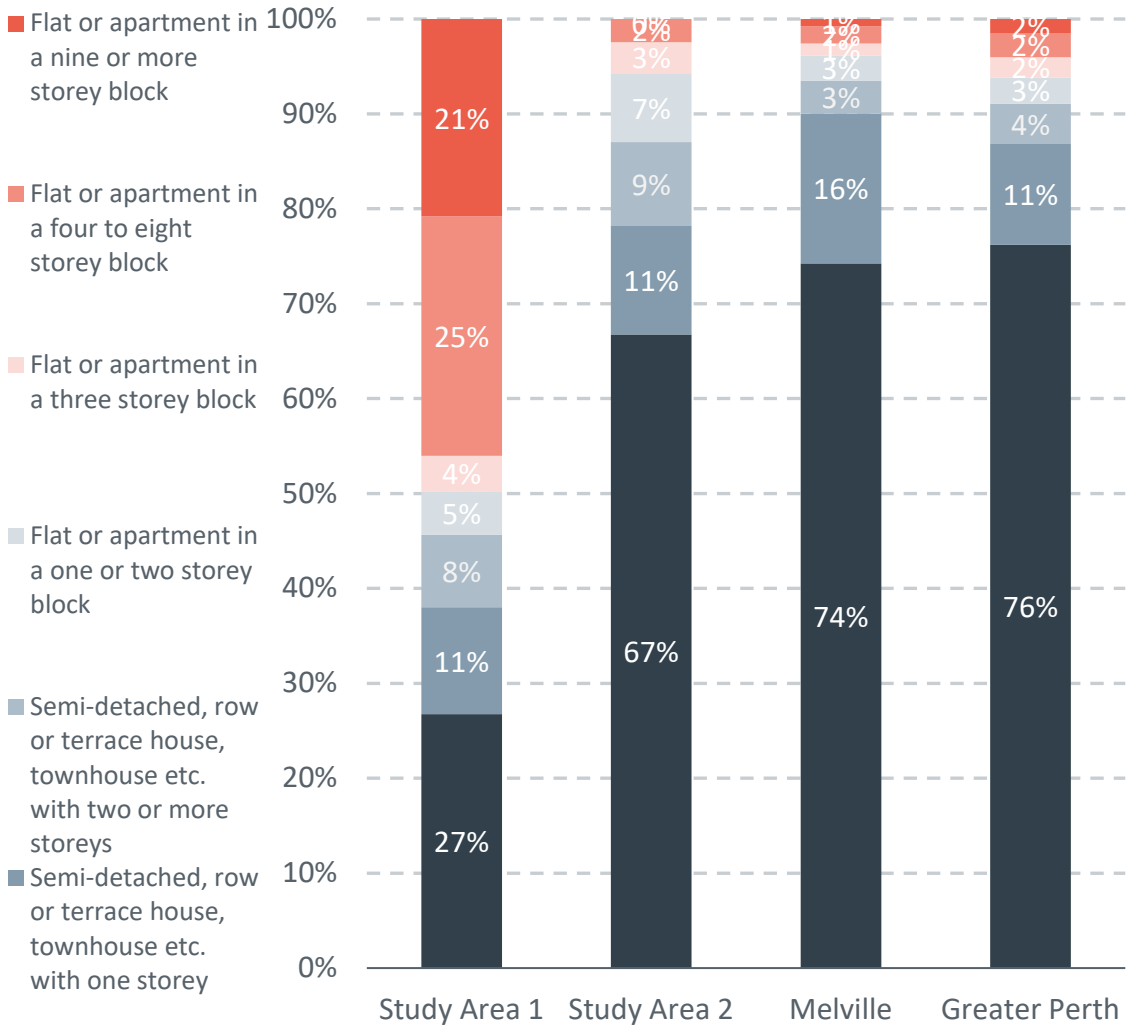
2.64 Median flat/apartment prices in Applecross, Ardross and Mount Pleasant are also higher than the Perth Metropolitan Region average: **AU$600k** and **AU$800k** respectively versus just under AU$400k (Figure 2.28). Median prices have fallen slightly in both locations since 2016.

2.65 A number of major residential developments have come forward across the Study Area 1 and to a lesser extent in Study Area 2 in recent years as Figure 2.26 illustrates. Examples include the first stage of Cirque (111 apartments), the first and second phases of The Precinct (34 and 193

apartments respectively), the first stage of Sabina (179 apartments) and the completion of Matheson on Kearns (46 apartments).

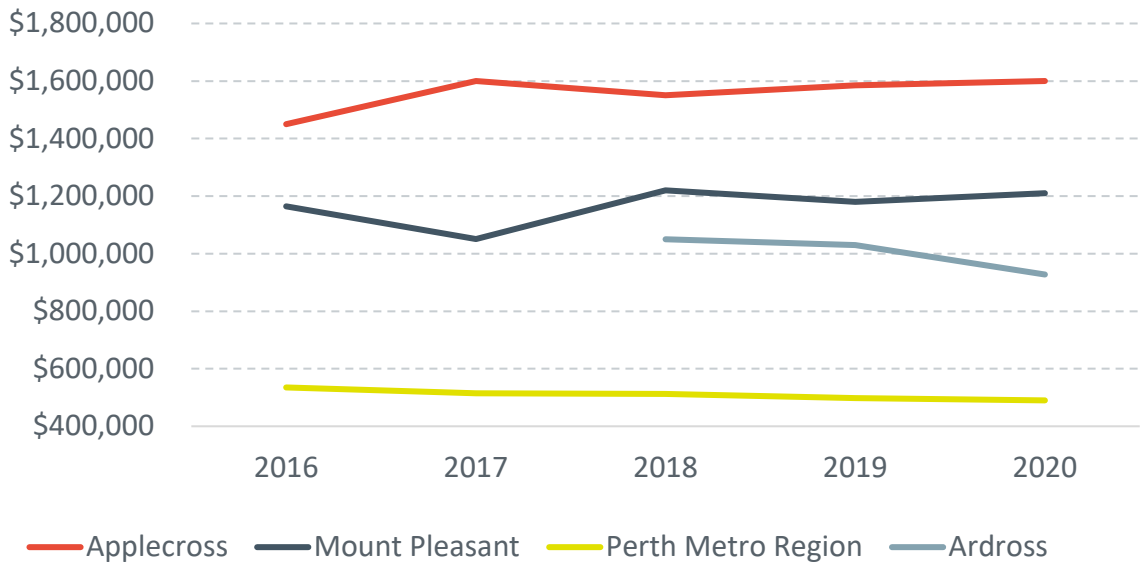
2.66 Several schemes also currently under construction including Sanctuary Apartments (47 apartments), 8 Macre Road (30 apartments) and 21 Kishorn Road (21 apartments). An additional ten major schemes have been approved by the City of Melville, but are not yet or currently under construction, which will deliver in the region of **787** new apartments across the activity centre around Canning Highway.

Figure 2.26 Study Area 1 and 2 Housing Dwelling by Type, 2021



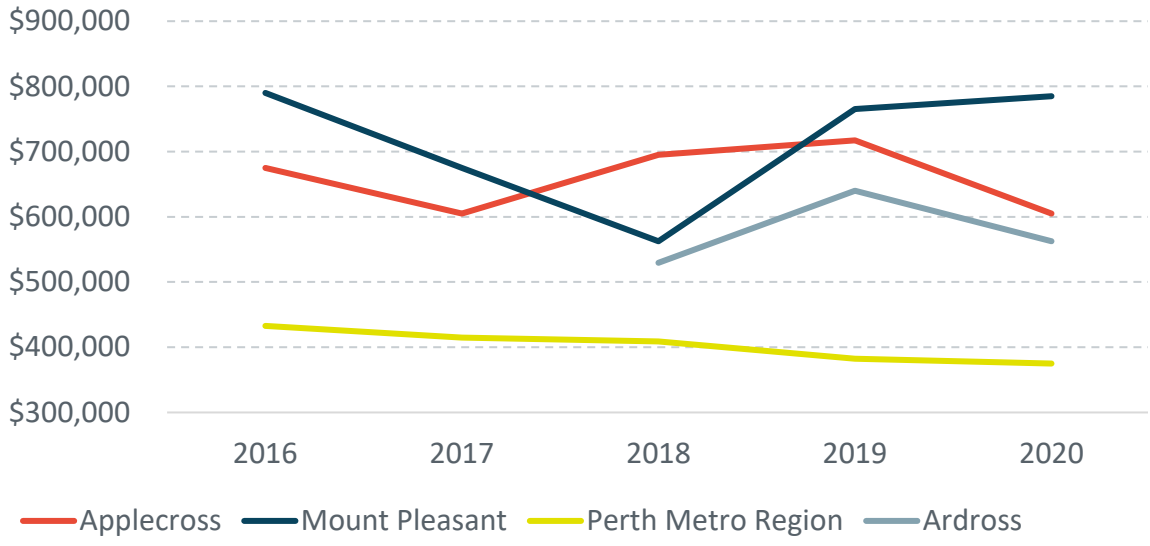
Source: Census, 2016 ABS

Figure 2.27 Median House Prices, 2016-2020



Source: Reiwa, 2021

Figure 2.28 Median Unit Prices, 2016-2020



Source: Reiwa, 2021

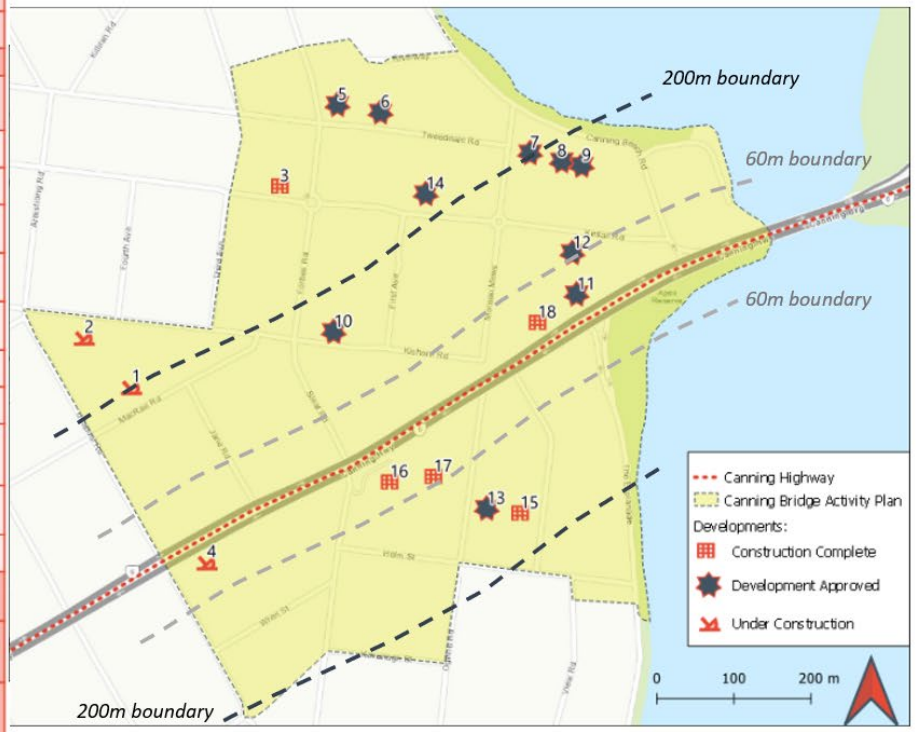
Housing Challenges

The City of Melville's *Local Housing Strategy (2018)* identifies several major challenges relating to housing across the city. The most significant are set out below.

- **Land costs**: Median house prices in suburbs of Melville are significantly higher than the median house price for the Perth Metropolitan Area. Applecross and Attadale have the highest median house prices in the City.
- **Aging Population**: There are a range of issues in the City of Melville that are similar for seniors across Australia, particularly in relation to downsizing. The chief barrier to downsizing is the lack of suitable housing stock in familiar, accessible locations, with many seniors considering their downsizing options to be inappropriate, unaffordable, or unsuitably located.
- **Lack of mixed-use Development**: At present there are only a few true mixed-use residential developments across the City of Melville. Planning policy and the plans for the Canning Bridge precinct, Riseley Activity Centre, Melville District Centre, Booragoon secondary centre and Willagee provide the kind of planning framework that can deliver more mixed-use developments and catalyse the benefits associated with these types of development.
- **Suburban amenity**: The City of Melville is well known for its green streetscapes and its low-key suburban atmosphere. These qualities are highly prized by residents. Residents in and around the CBAC are concerned about the potential impact of major development on the suburban amenity. The plans for the Canning Highway could significantly impact the character and feel of the place.

Figure 2.29 Recent Completed, Planning or In Construction Developments in CBAC – Study Area 1

Number	Development Stage	Development Name	Description	Zone
1	Under Construction	8 Macre Road	4 Storeys 30 Apartments	H4
2	Under Construction	21 Kishorn Road	4 Storeys 21 Apartments	H4
3	Construction Complete	36 Kintail Road	4 Storeys 14 Apartments	H4
4	Under Construction	Sanctuary Apartments (3-5 Wren Street)	8 Storeys 47 Apartments	H8
5	Development Approved	18 Tweedale Road	4 Storeys 10 Apartments	H4
6	Development Approved	12 Tweedale Road	4 Storeys 5 Apartments	H4
7	Development Approved	Canning Beach Road (Stage 3)	15 Storeys 59 Apartments	M10
8	Development Approved	Canning Beach Road (Stage 2)	15 Storeys 80 Apartments	M10
9	Development Approved	Canning Beach Road (Stage 1)	15 Storeys 85 Apartments	M10
10	Development Approved	Forbes Residences	13 Storeys 57 Apartments	M10
11	Development Approved	Sabina (Stage 2)	26 Storeys 151 Apartments	M15
12	Development Approved	Sabina (Stage 3, South Eastern Tower)	26 Storeys 122 Apartments	M15
13	Development Approved	Cirque Stage 2 (Ogilvie Road)	20 Storeys 124 Apartments	M15
14	Development Approved	Grandton Applecross	15 Storeys 94 Apartments	M10
15	Construction Complete	Cirque Stage 1 (Kishorn Road)	20 Storeys 111 Apartments	M15
16	Construction Complete	The Precinct Stage 2 (Canning Highway)	22 Storeys 193 Apartments	M15
17	Construction Complete	The Precinct Stage 1 (Ogilvie Road)	9 Storeys 34 Apartments	M15
18	Construction Complete	Sabina (Stage 1)	30 Storeys 179 Apartments	M15

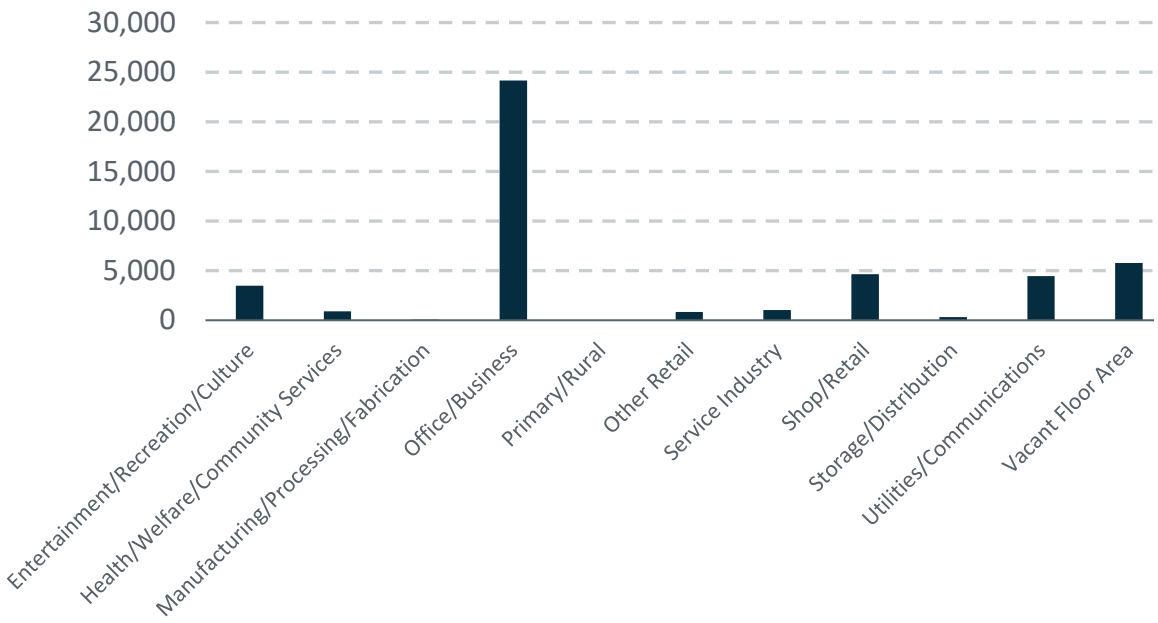


Source: City of Melville, 2021

Commercial Space

2.67 Study Area 1 has **45,700m²** of commercial floorspace. The main commercial use is office space (24,000 m²) followed by retail space (4,600 m²) and utility/communication uses (Figure 2.30).

Figure 2.30 Commercial Property Floorspace m2 (2015/17) - Canning Bridge



Source: Land Use and Employment Survey 2015/17, Western Australia Planning Commission

2.68 Around 80% of the retail space in Study Area 1 has exposure to the Highway illustrating its importance as a centre of commerce. In terms of other uses and geographies:

- 67% of total commercial space is located north of Canning Highway in Applecross, which is dominated by office uses. The main office locations are Sleat Road, Kishorn Road, Kintail Road and Moreau Mews; and,
- 33% of total commercial space is located south of Canning Highway in Mount Pleasant, which is characterised by a mix of office and retail units. The main office locations are Oglivie Road and Kishorn Road[13].

Property Located Within Canning Highway Buffer Area – Study Area 1

2.69 Within the 200m Canning Highway buffer, defined in Chapter 1 (see Figure 1.4), it has been identified that there are around 800 residential properties and nearly 42,300 sqm of commercial floorspace. Applying average occupancy data these properties are estimated to be home to around 1,750 residents and 1,335 workers.

2.70 Based upon average property values, the residential properties have an estimated value of AU$767 million, whilst the commercial properties have an annual rental value of AU$12.1 million.

[13] City of Melville Canning Bridge Market & Economic Profile (2009)

3. Accessibility Impacts

3.1 This chapter provides a summary of current local transport provision within the study area and the potential impact of the Proposal on levels of local accessibility and connectivity.

Current Local Transport Context

Summary of Key Messages: Local Transport Context

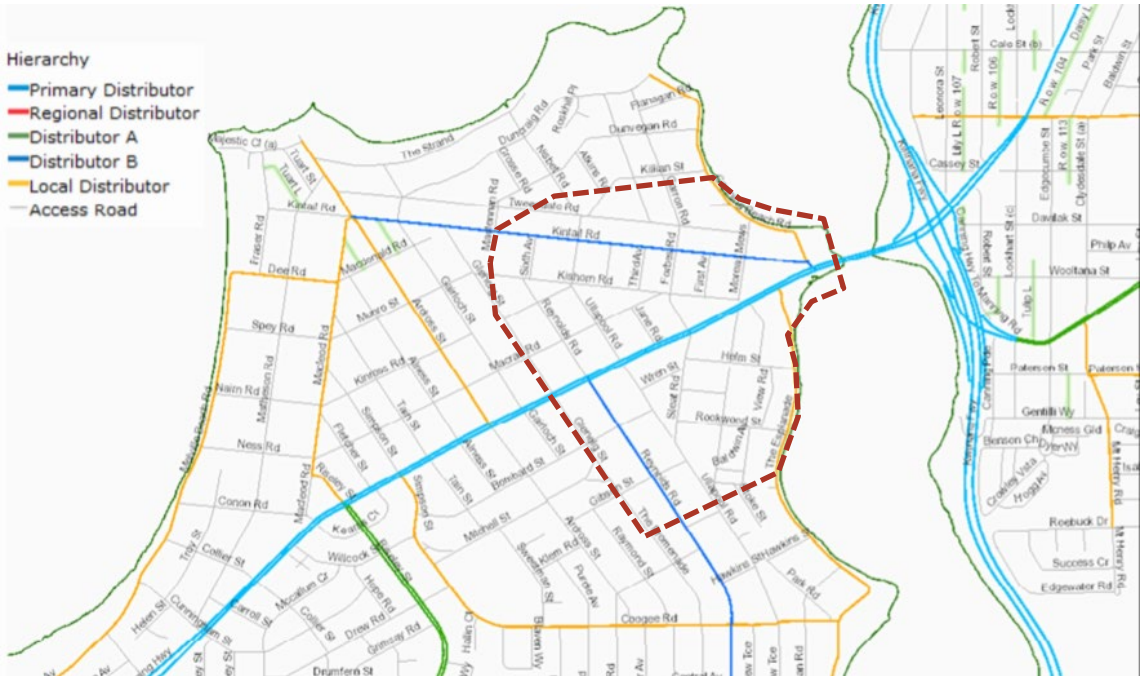
- Canning Highway currently has a dual function of serving strategic through trips along the designated State Route 6 and providing local access;
- Kintail Road, Sleat Road and Reynolds Road all have signalised junctions with Canning Highway and provide local access to Study Area 1. These are used to access both the main commercial core, as well as local amenities and residential areas;
- There are a range of bus services current serving Study Area 1 and 2, including express services and local services. Most of these run along Canning Highway, although some serve Kintail Road;
- The network of local access roads provides connectivity for walking and cycling across the Study Areas. There is a dedicated walking and cycling route along the riverfront, running parallel to The Esplanade, under Canning Bridge, and alongside Canning Beach Road;
- Canning Highway does not provide specific provision for cycling, but a network of cycle route runs along parallel routes and connects to Canning Bridge; and,
- There are currently six formal crossing points for pedestrians along the section of Canning Highway from Riseley Street to Canning Bridge, including a pedestrian bridge linking into the heart of the commercial centre. Additional informal crossing locations are also available.

Current Road Hierarchy

3.2 The Canning Highway currently has a dual function of serving strategic through trips along the designated State Route 6 and providing local access. Figure 3.1 provides an overview of the current road hierarchy.

3.3 The Highway is designated as a 'Primary Distributor' road, with access onto Kintail Road and Reynolds Road ('Distributor B') and The Esplanade and Canning Beach Road ('Local Distributors'). All other roads within the study area are 'Local Access'. Speed limits along the Canning Highway are 60kph, with 50kph on all other routes.

Figure 3.1 Canning Bridge Area Road Hierarchy

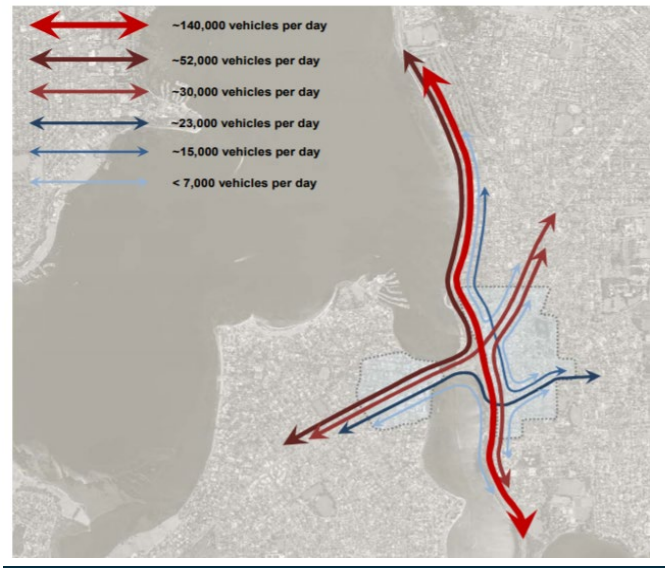


Source: Canning Highway Planning Study, 2015 (BG&E)

Current Strategic Road Network

3.4 Figure 3.2 provides an overview of strategic traffic movements across the Canning Bridge. Whilst the data relates to 2014, it indicates the relative importance of strategic movements across the area.

Figure 3.2 Indicative Strategic Traffic Flows



Source: CBSP Integrated Transport Strategy (2014)

3.5 Predominate flows across Canning Bridge relate to trips to and from the north (State Route 2) towards Perth CBD, but there are also relatively strong east-west flows along State Route 1 (toward Como and Victoria Park) and State Route 26 (towards Manning and Waterford).

3.6 Current traffic flows (based off previous 2016 traffic counts) on the Canning Bridge are estimated at 65,000 per day (both directions combined), whilst along the Canning Highway (at a point to the east of Sleat Road) there are estimated to be 49,400 trips per day, with around 94% trips by car and 6% trucks.

Current Local Road Network

3.7 Kintail Road, Sleat Road and Reynolds Road all have signalised junctions with Canning Highway and provide local access to the CBAC. In addition, Canning Beach Road and The Esplanade

provide access along the riverfront. Current traffic data for Reynolds Road (to the south of Canning Highway) indicates there are around 7,071 daily traffic movements[14]. Table 3.1 provides additional traffic flow estimates for other local roads within Study Area 1.

Table 3.1 Traffic Flow Data (2016 and 2051 forecast)

Local Road	Estimated 2016 Volume	Estimated 2051 Volume
Canning Beach Road (north of Kintail Rd)	3,610	6,634
Kintail Road	8,226	15,118
Kishorn Road (north of Canning Highway)	749	1,377
Forbes Road	4,570	8,399
Sleat Road (north of Canning Highway)	4,663	8,570
Moreau Mews	1,523	2,799
The Esplanade	4,699	8,907
Kishorn Road (south of Canning Highway)	543	1,030
Ogilvie Road	1,496	2,835
Sleat Road (south of Canning Highway)	4,699	8,907

Source: Canning Bridge Activity Centre Masterplan

3.8 Around 19% of trips on local roads to the north of Canning Highway were estimated to be related to an origin/destination within Study Area 1, with 26% to the south of Canning Highway. These local trips are forecast to increase by 250% by 2051, as a result of the Canning Bridge Activity Plan. This compares to other traffic movements, that are forecast to increase by 168% by 2051.

Local Access onto Canning Highway

3.9 Current access arrangement from local roads to and from Canning Highway are summarised within Table 3.2.

Table 3.2 Current Local Highway Access Arrangement to/from Canning Highway

Local Street	**Current Permitted Vehicle Movement to / from Canning Highway**
Canning Beach Road	Left-turn out, left turn in to Kintail Rd. No right-turn in, right-turn out of Kintail Rd.
Kintail Road	Left turn in, left-turn out. Right-turn from Canning Highway (westbound) (No right-turn from Kintail Road into Canning Highway)
The Esplanade	Left-turn in, left-turn out.
Kishorn Road (north) / Moreau Mews	(No access to/from Canning Highway)
Kishorn Road (south)	Left-turn in, left-out
Ogilvie Road	Left-turn in only (no left-turn out)
Sleat Road	All movements signalised junction
Jane Road	Left-turn in, left-out
Ullapool Road (north)	Left-turn in, left-out

[14] Data retrieved February 2023 from Mainroads Western Australia trafficmap - Main Roads WA

Ullapool Road (south)	(No access to/from Canning Highway)
Reynolds Road	All movements signalised junction
Glenelg Street	Left-in/ Left-out, Cul-de-sac South of Canning Highway
Gairloch Street	Left-in/ Left-out
Ardross Street	Full access – signalised junction
Alness Street	Left-in/ Left-out
Tain Street	Left-in/ Left-out and Cul-de-sac South of Canning Highway
Kearns Crescent (E)	Left-in/ Left-out
Fletcher Street	Left-in/ Left-out
Riseley Stret	Full access – signalised junction
Kearns Crescent (W)	Left-in/ Left-out
Conon Road	Left-in/ Left-out
Willcock Street	Full access
Collier Street	Left-in/ Left-out

Source: Google Maps, Canning Highway Planning Study, 2015 (BG&E)

3.10 In addition, there are a range of accesses to residential and commercial properties located throughout the length of Canning Highway within the CBAC. Within the route section from Reynolds Road to Canning Bridge there are estimated to be around 20 residential properties and 5 commercial properties that only currently have access onto Canning Highway. This are mainly located between Reynolds Road and Sleat Road.

Current Local Bus Network

3.11 There are a range of bus routes currently serving Study Area 1, including express services and local services. The majority of these run along the Canning Highway, although some serve Kintail Road. These are summarised within Table 3.3.

Table 3.3 Existing Bus Services through Study Area 1

Route	Type	Local Route	Frequency
910	Local	Canning Bridge / Canning Highway	12 min
111	Local	Canning Bridge / Canning Highway	10 min
114	Local	Canning Bridge / Canning Highway	30 min
115	Local	Canning Bridge / Canning Highway	15 min
148	Local	Canning Bridge / Kintail Road	60 min
158	Local	Canning Bridge / Kintail Road	Variable*
160	Local	Canning Highway / Reynolds Road (south)	20 min

Source: Google Maps / Transperth * the service levels vary considerably throughout the day

Note: it is understood that Route 510 no longer serves the Canning Highway / Kintail Road corridor

3.12 Between Canning Bridge and Gairloch Street (to the west of Reynolds Road), there are three westbound bus stops along the Canning Highway. On the eastbound route there are four stops. There is also a north and southbound stop on Reynolds Road, just to the south of Canning Highway, for the 160 bus route. Along Kintail Road there are three eastbound and three westbound stops between Canning Bridge and Sixth Avenue.

3.13 Whilst patronage data is not available by bus route, there is boarding and alighting data for stops along Canning Highway, presented within Table 3.4.

Table 3.4 Boarding and Alighting Data at Bus Stops along Canning Highway

Bus Stop		Direction	Boarding	Alighting
10245	Canning Hwy After Ogilvie Rd	Westbound	71	212
10246	Canning Hwy After Sleat Rd	Westbound	34	115
10247	Canning Hwy After Reynolds Rd	Westbound	43	87
Westbound Buses (sub-total)			**148**	**414**
25894	Canning Hwy After Gairloch St	Eastbound	94	38
10321	Canning Hwy Before Ullapool Rd	Eastbound	108	50
10322	Canning Hwy After Sleat Rd	Eastbound	80	44
10323	Canning Hwy Before Kishorn Rd	Eastbound	179	119
Eastbound Buses (sub-total)			**461**	**252**

Source: Public Transport Authority

3.14 This indicates that the predominate direction of travel is to/from the east, with eastbound boardings nearly double the number of alightings, and vice versa in the westbound direction.

Current Walking & Cycling Network

3.15 The network of local access roads provides connectivity for walking and cycling across the CBAC area. There is a dedicated walking and cycling route along the riverfront. This is highlighted in the figure to the right alongside other routes within the City of Melville's Long Term Cycle Map.

Figure 3.3 Long Term Cycle Map

Source: City of Melville

3.16 The Canning Highway itself is not designated a cycle route. However, it does currently provide east-west pedestrian connectivity across the area. It provides direct access between prominent land-uses within both study areas. This includes providing direct connectivity to Canning Bridge and across to the rail station on the east side of the river.

3.17 Canning Highway currently provides a significant barrier to north - south pedestrian and cyclist movements. Whilst a relatively open environment (e.g., no physical barriers to movements) the three-lane highway, in each direction, means that informal crossing is a challenge even with an open central median along most of the route.

3.18 Formal crossing points are provided in the following locations (as shown in Figure 3.4):

- Pedestrian / Cycle underpass at Canning Bridge;
- Pedestrian Bridge at Kishorn Road / Moreau Mews / Ogilvie Road;
- Crossing facilities at signalised junction at Sleat Road;

- Crossing facilities at signalised junction at Reynolds Road;
- Crossing facilities at signalised junction at Ardross Street; and
- Crossing facilities at signalised junction at Riseley Street.

Figure 3.4 Current Pedestrian Crossing Points

Source: Hatch

3.19 In addition, informal crossing provision is located at Ullapool Road, Simpson Street, Kearns Crescent, Willcock Street and Collier Street, but with no controls on vehicle movements. Whilst no pedestrian provision is included at the traffic lights between Canning Highway and Kintail Road / Canning Beach Road, it is understood that some pedestrians make use of the controls to vehicle movements to cross at this location.

3.20 No comprehensive data is available with which to assess potential walking and cycling movements across the Canning Highway. Figures 3.5 and 3.6 present recent Strava data which provides some indication of the popularity of different routes; however, this data tends to be more distorted towards recreational walking and cycling as opposed to all trip purposes.

3.21 The analysis has applied a Central Case 7-minute walk catchment around stop locations, but also considered a 10-minute catchment. These catchments are shown below as dark and light blue, respectively.

Figure 3.5 Indicative Pedestrian Movement

Source: Strava 2021

Figure 3.6 Indicative Cycle Movements

Source: Strava 2021

3.22 The Strava data highlights the importance of the riverfront walking and cycling route, as well as the pedestrian bridge over Canning Highway at Kishorn Road. Kintail Road is also a popular route for cyclists.

3.23 This analysis was not extended to include Study Area 2, although similar trends are expected west of Study Area 1.

North – South Connectivity

3.24 Travel across the Canning Highway, north and south, is undertaken by pedestrians to access key services within and beyond the immediate impact area. Whilst this occurs at all four of the formal crossing locations in Study Area 1, the pedestrian bridge linking Moreau Mews and Ogilvie Road is particularly important for access to the heart of the CBAC.

Figure 3.7 North–South Connections via Pedestrian Bridge

Source: Hatch

3.25 Figure 3.7 highlights the location of the bridge and key destinations and active commercial frontages along the highway and areas of local employment. The core 'zone' in which trips north-south across the pedestrian bridge will take place is highlighted, demonstrating the importance of this connection.

Operational Phase Accessibility Impacts

Summary of Key Messages: Potential Accessibility Impacts

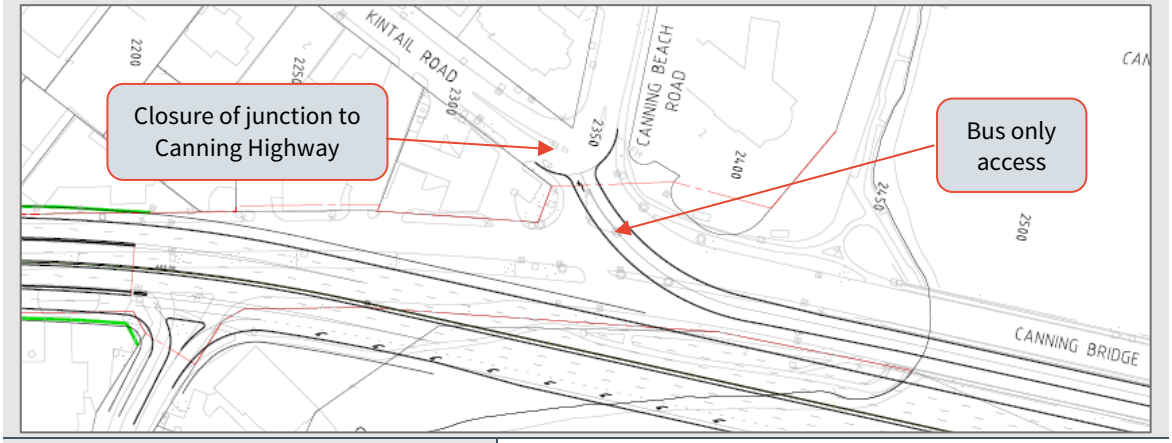
- The closure of Kintail Road / Canning Beach Road to Canning Highway to general traffic will substantially reduce accessibility to the north side of the CBAC, with many journeys requiring at least an additional 300m and, in some instances, up to 1.3km;
- Whilst creating a left-turn movement from Moreau Mews onto Canning Highway may assist some eastbound traffic, it will require the reduction in lane capacity for other vehicles travelling eastbound from between Reynolds Road and Sleat Road;
- The diversion of buses could add between 1 and 3 minutes of in-vehicle journey time for all through passengers, as well as between 30 seconds to 1½ minutes, on average, for local trips by bus. In addition, there may be increased walk times to and from bus stops, particularly for those living to the south of Canning Highway (by up to 4 minutes);
- The removal of the signalised pedestrian crossing at the intersection of Canning Highway and Ardross Street will have significant impacts on accessibility and connectivity between north and south
- The expanded highway footprint will further deteriorate the local environment for pedestrians and create more barriers to movement, with only three pedestrian and cyclist crossing points within a 1km stretch of an urban centre; and,
- In the event that the pedestrian bridge at Moreau Mews/Ogilvie Road is not replaced, this would add up to 4 minutes walk time for pedestrians currently using this route.

Change in Local Road Access

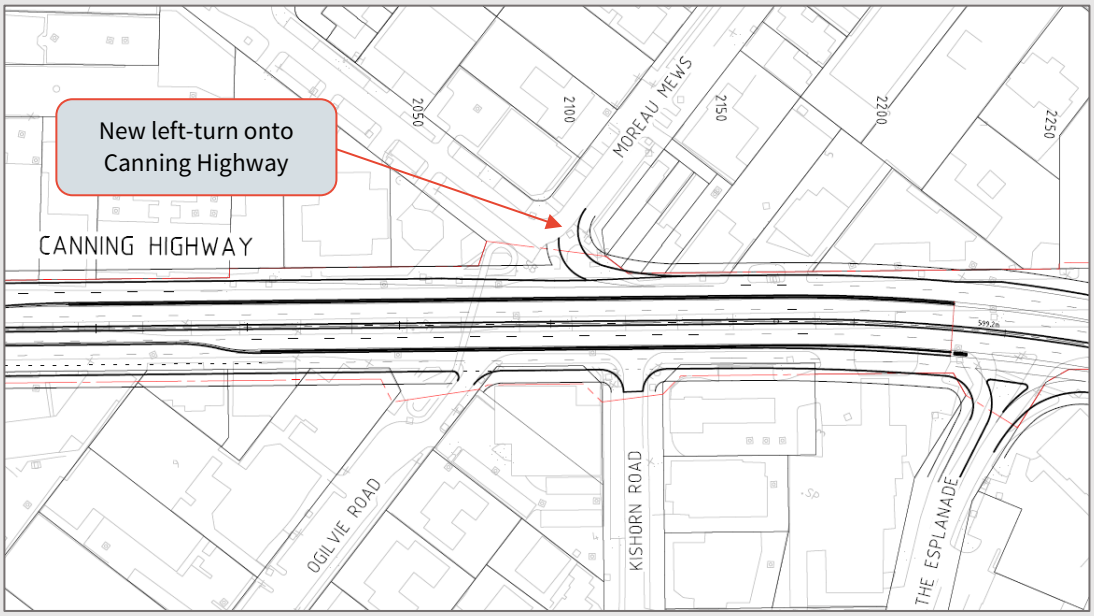
3.26 The Proposal will not only impact upon the capacity of Canning Highway for strategic traffic, but it will also affect local access. The impact upon access from local roads to and from Canning Highway is summarised in Table 3.5.

Table 3.5 Current Local Highway Access Arrangement to/from Canning Highway

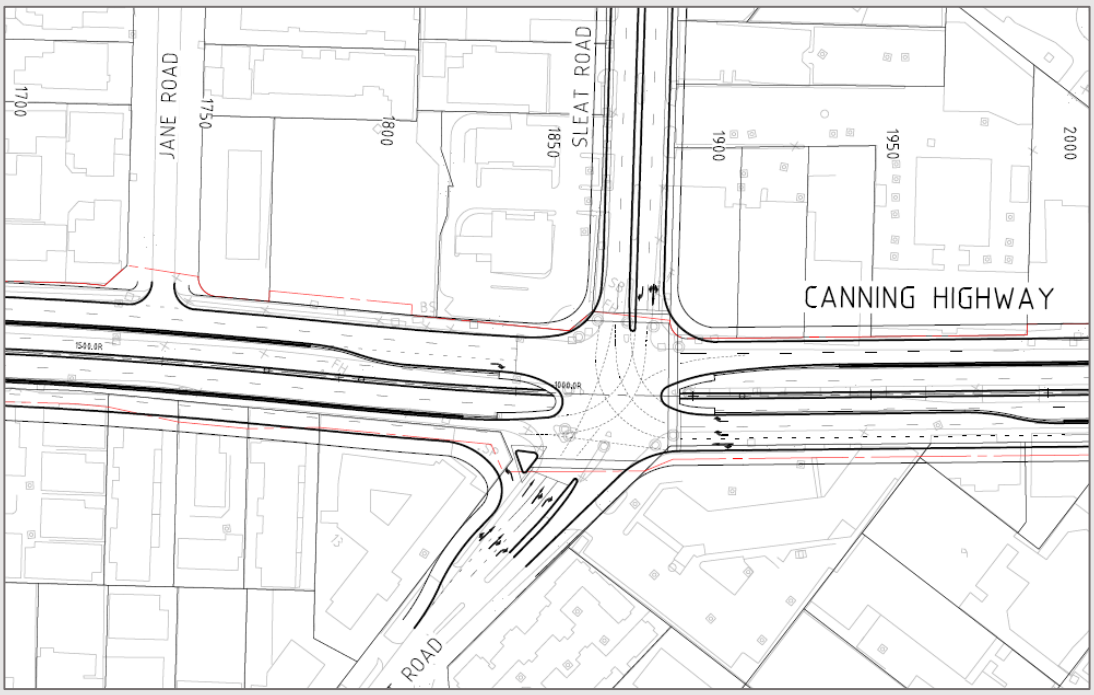
Local Street	Change in Permitted Vehicle Movement to / from Canning Highway
Canning Beach Road	Access to / from Kintail Road only for general traffic
Kintail Road	Access to / from Canning Bridge only for general traffic



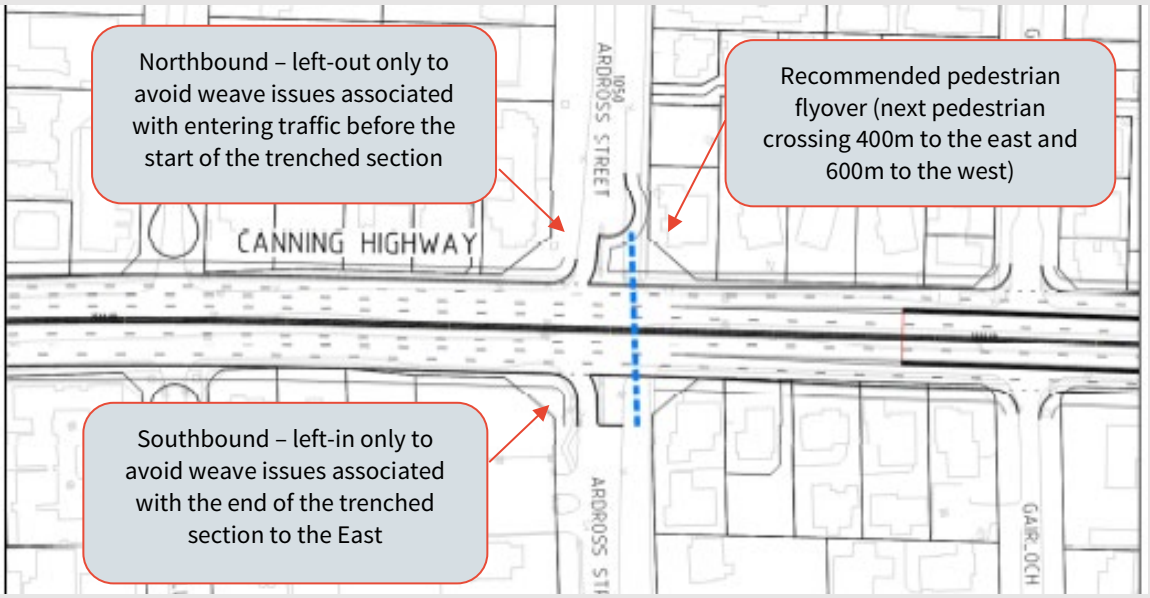
The Esplanade	Left in / out remains Left-turn out will not be able to access dive structure
Moreau Mews	New left-turn out onto Canning Highway only
Kishorn Road (north)	Unchanged (no access to Canning Highway, as per design below)



Kishorn Road (south)	Left in / out remains Left-turn out will not be able to access dive structure
Ogilvie Road	Unchanged
Sleat Road	All movements signalised junction No access dive structure



Jane Road	Unchanged but no access dive structure
Ullapool Road (north)	Unchanged but no access dive structure
Ullapool Road (south)	Unchanged
Reynolds Road	All movements signalised junction No access dive structure
Glenelg Street	Unchanged
Gairloch Street	Unchanged
Ardross Street	Access to/ from Canning Highway left-in (North)/ left-out (South) only



Alness Street	Cul-de-sac, Local access only
Tain Street	South access remains unchanged, North side changed to cul-de-sac, no access to or from Canning Highway
Simpson Street	Full access removed – left-out (North) and left-in (South) only
Kearns Crescent	Unchanged, No access dive structure
Fletcher Street	Unchanged, No access dive structure
Riseley Street	All movements signalised junction No access dive structure
Kearns Crescent	Unchanged, No access dive structure
Conon Road	Unchanged
Wilcock Street	No access to Canning Highway, changed to cul-de-sac

Source: Canning Highway Duplication Option Comparison, 2021; Canning Highway Planning Study, 2015 (BG&E)

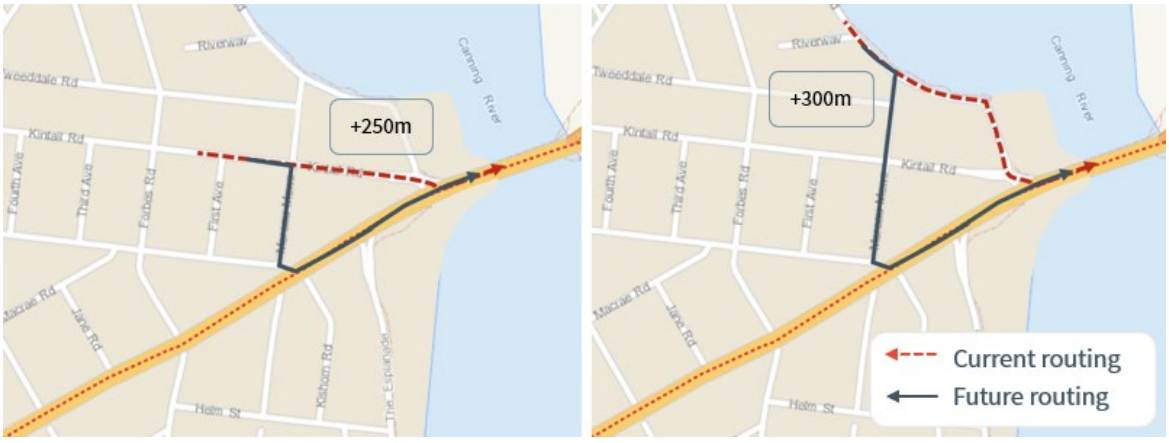
3.27 The primary impact will be the closure of Kintail Road / Canning Beach Road to general traffic from Canning Highway. Vehicles wishing to access Kintail Road, and Canning Beach Road, will be required to use the junction with Sleat Road. This could add up to a maximum of **1.3km** additional distance to a journey, and at least **300m** to any westbound trip to / from Kintail Road or further north.

Figure 3.8 Impact of Closure of Kintail Road Junction on Highway Movements

Source: Hatch with inputs from Canning Highway Planning Study, 2015 (BG&E)

3.28 The opening of Moreau Mews to allow left-turn movements onto Canning Highway may, in part, off-set some impacts of closing Kintail Road for eastbound traffic travelling from the north side of Canning Highway; however, most trips from Kintail Road will still experience an increase in distance of **250m-300m** (see Figure 3.9).

Figure 3.9 Combined Impact of Kintail Road Closure and new Left-turn out from Moreau Mews on Highway Movements

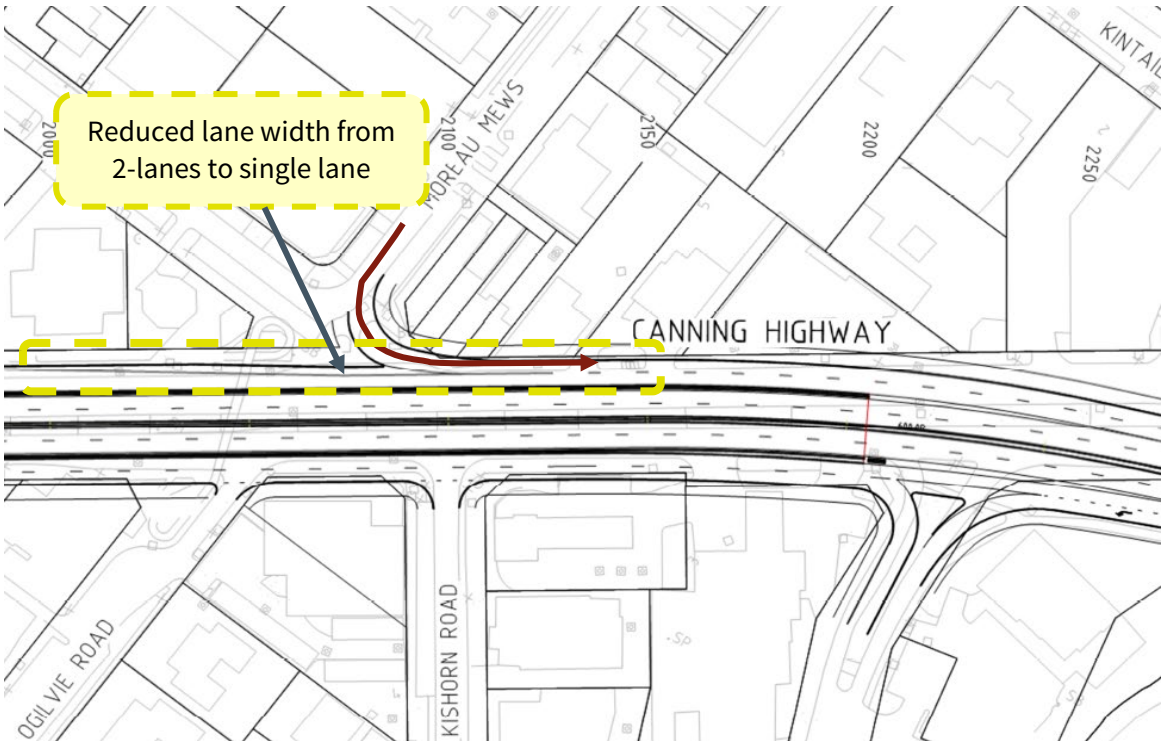


Source: Hatch with inputs from Canning Highway Planning Study, 2015 (BG&E)

3.29 The resulting increase in traffic flows along Moreau Mews could also have a range of negative impacts upon safety, air quality and noise as discussed later in this report.

3.30 To enable the left-turn out of Moreau Mews, the number of eastbound lanes on Canning Highway must be reduced from two to one. This will impact upon all traffic generated from the CBAC that has to access Canning Highway between Reynolds Road and Sleat Road, since this traffic cannot access the dive structure.

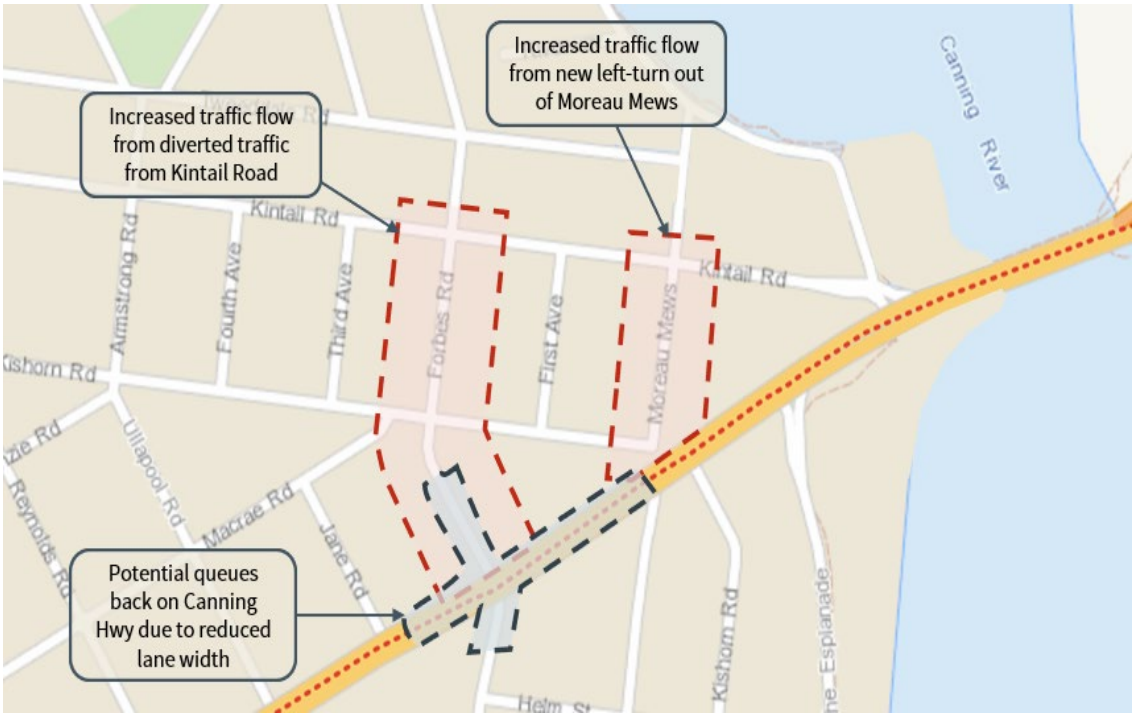
Figure 3.10 Proposed design for Moreau Mews Left-turn onto Canning Highway



Source: Canning Highway Planning Study, 2015 (BG&E)

3.32 If traffic levels are too high along this stretch of road, the filter could result in queues forming back along Canning Highway towards the junction with Sleat Road. This could have significant detrimental impacts upon the operation of the local highway network within this area. Figure 3.11 provides a summary of the key impact areas of the Proposal upon local highway operations.

Figure 3.11 Local Highway Key Impact Areas

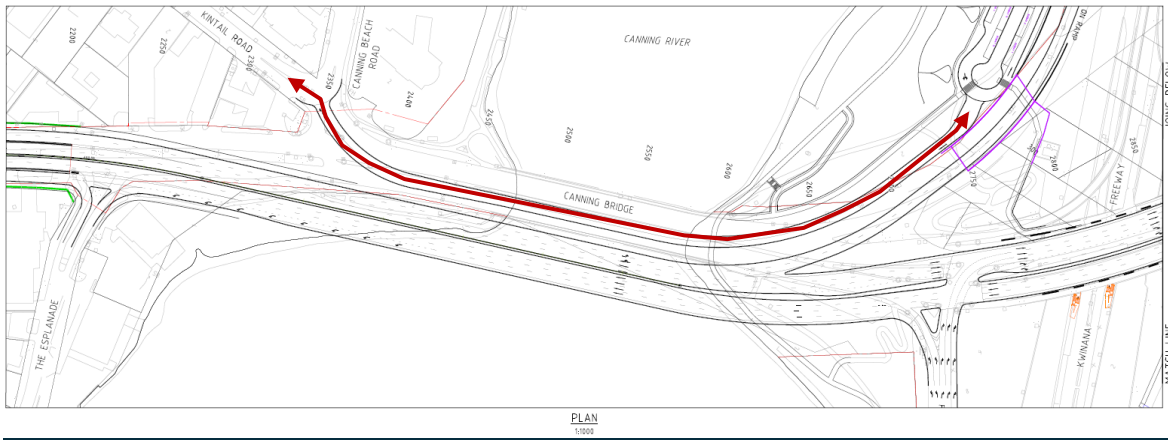


Source: Hatch

Change in Local Bus Services

3.33 As part of the Proposal, Main Roads are setting out that no buses will use the Canning Highway between Sleat Road and Canning Bridge. The proposals include a new dedicated bridge structure alongside the existing Canning Bridge to permit buses to access Canning Bridge Rail Station which connects into Kintail Road via a bus gate. Figure 3.12 presents the proposed new bridge crossing for buses and the link into Kintail Road. Although, the bus boulevard may be subject to change following the finalisation of the location of the new bus interchange for Canning Bridge.

Figure 3.12 Proposed bridge crossing arrangements for buses



Source: Canning Highway Planning Study, 2015 (BG&E)

3.34 From Kintail Road, all buses will be required to travel up to the junction with Forbes Street, before accessing Canning Highway at the junction with Sleat Road. This will add an additional **500m**, or around **1 minute** of free-flow journey time, for the following bus routes: 910, 111, 114, 115, 160.

3.35 In addition, this route is anticipated to incur additional congestion as a result of the wider reconfiguration of the local road network and so buses are likely to be subjected to additional delay as well. Whilst the scale of this delay has not been formally modelled, a halving of average speeds would add up to a further 2 minutes of additional journey time to the five bus routes diverted through the area.

3.36 Total additional bus journey times, as a result of increased distance travelled and delays, could be between 1 and 3 minutes per bus.

Figure 3.13 Indicative Change in Bus Routings

Source: Hatch

3.37 This will not only impact upon bus operations but will add between one and three minutes of in-vehicle journey times for every passenger on a bus passing through the area, and between **30 seconds to 1½ minutes** for all passengers boarding and alighting buses in CBAC.

In addition, removal of bus stops from Canning Highway is likely to impact upon individuals walk access times to and from buses. Figure 3.14 presents the change to bus stop locations as a result of the bus diversions.

3.38 For those residents living in close proximity to Canning Highway, or workers employed in businesses located along the corridor, the diversion of buses will require most to walk further to access services. This is particularly true for those with an origin or destination to the south of Canning Highway (e.g., on Kishorn Road), who could previously directly access buses on Canning Highway (using the pedestrian bridge for eastbound services) but would have to walk to Sleat Road instead under the new proposals. Figure 3.15 provides an indication of the relative distances between current and proposed access and egress locations for bus services.

Figure 3.14 Changes in Bus Stop Locations

Source: Hatch

Figure 3.15 Distances between current and proposed bus stop locations

Source: Hatch

3.39 The changes could add up to least **340m (4 minutes),** and potentially further - depending on where the bus stop could be safely located on Sleat Road. The issues of increased in-vehicle journey times and walk access times is explored further later in this report.

3.40 For residents and business owners living close to the Riseley Activity Centre, the relocation of the bus stop (eastbound) from east of Riseley Street to east of Fletcher could increase walk times

by about **150m (2min)** for passengers using the affected bus stop. However, this increase in travel time impact is partially offset by the passengers who will now have closer access to the upgraded bus stop as it is along the same road.

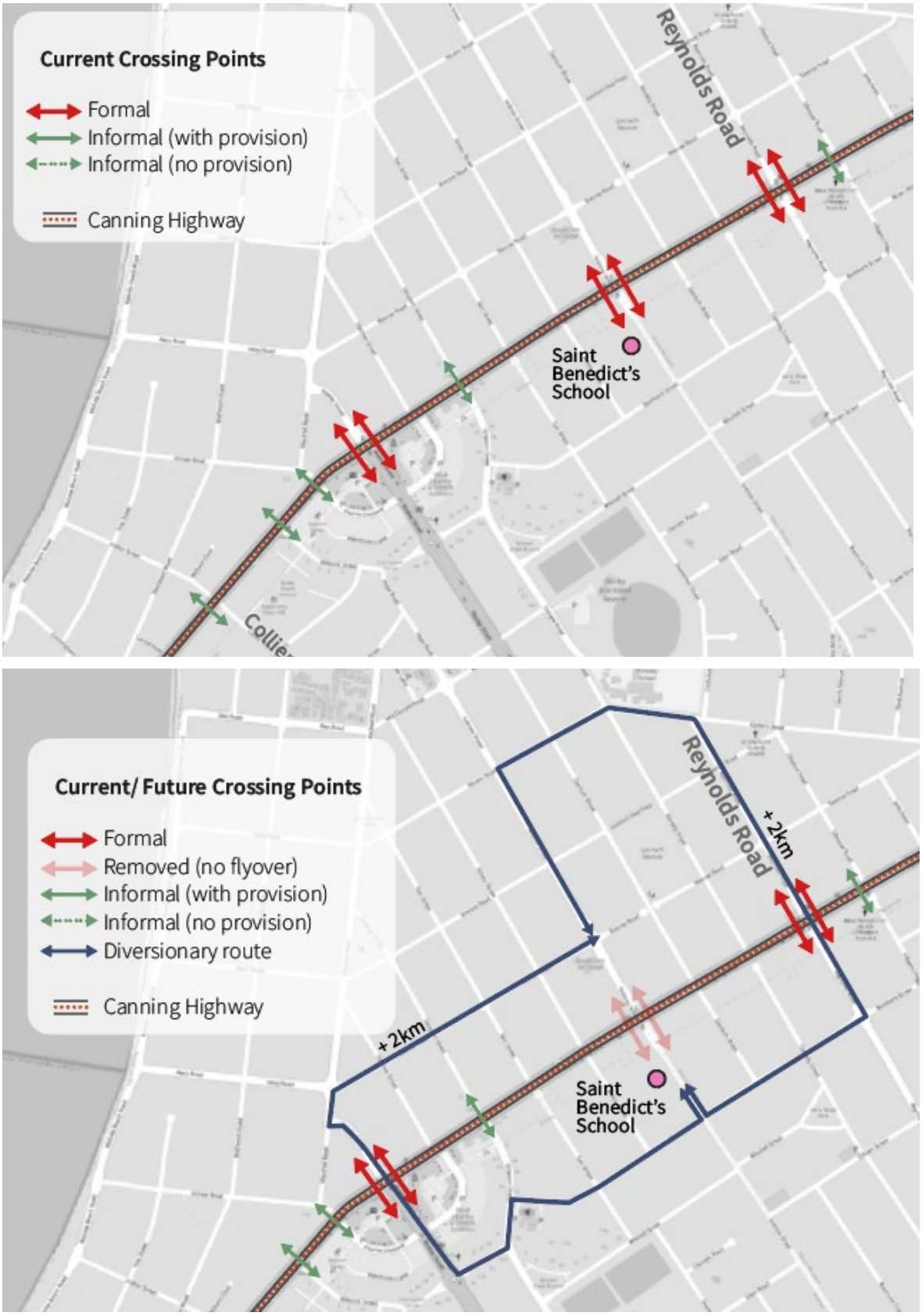
Changes to Walking & Cycling Accessibility

3.41 The Duck & Dive Proposal will result in significant changes to the pedestrian environment along Canning Highway and will affect north-south connectivity. The Highway will be widened to eight-lanes of traffic, with four lanes within the dive structure. This will create a much wider expanse of urban highway not only substantially changing the urban realm but also creating an additional physical barrier for pedestrian and cyclist movements.

3.42 Whilst footways will be retained along both sides of the highways, the local environment will have considerably deteriorated. This is discussed further later in this report.

3.43 The removal of the signalised pedestrian crossing at the intersection of Canning Highway and Ardross Street, without the delivery of a flyover structure, can add up to **1700m** in walk distance or up to **19-minute** walk time– see Figure 3.16 below.

Figure 3.16 Change in Pedestrian Crossing - Existing Access – Ardross Street



Source: Hatch

3.44 It is understood the that pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will be removed to enable the highway to be expanded. This is an important crossing point and will require pedestrians to divert west to utilise the crossing points at Sleat Road instead. If the bridge were not replaced, this could add up to **300m** in walk distance or up to **4-minute** walk time.

3.45 For those residents or workers within the identified core 'zone' of pedestrian bridge usage (see adjacent figure), the potential loss of the bridge could add significant additional distance to walk trips across the Canning Highway and, potentially, discourage levels of active travel, with individuals choosing to drive to their destinations instead.

3.46 Even in the event of a replacement bridge being provided, there will still be considerable disruption during the construction phase.

Figure 3.17 Change in Pedestrian Crossing Provision

Source: Hatch from information from Canning Highway Planning Study, 2015 (BG&E)

3.47 The informal pedestrian crossing located at Ullapool Road (see Figure 3.17) will also be removed as a result of the Proposal - as will any opportunities to cross the Highway at locations other than Reynold Road, Sleat Road of under Canning Bridge. This will leave just three crossing locations within a 1km length of dense urban environment creating significant north-south severance.

Construction Phase Accessibility Impacts

3.48 The construction phase of the of Proposal will result in a range of direct impacts upon both strategic traffic movements along the Canning Highway, as well as local car, bus, pedestrian and cycling movements.

3.49 Whilst at this stage detailed construction plans have not yet been developed by Main Roads, the City of Melville commissioned Airey Taylor Consulting to provide some initial insight into the potential types of impact. The following elements are important when considering the potential implication for local access and movements within the Canning Bridge Activity Plan area and Riseley Activity Centre:

- The overall duration of the construction period could be between three to four years;
- Major aspects of the works will be service relocation, as well as demolition, and carriageway expansion, all prior to the actual construction of the Duck & Dive structure;
- Canning Highway will be subject to reduced lane running throughout the majority, if not all, of this period. This may primarily be two-lane running in either direction but could reduce to a single lane for extended periods. The width of the lanes is also likely to be reduced;
- The southern carriageway will need to be widened to provide the two lanes for traffic use whilst the trench is being constructed. This process will be disruptive for east to west traffic movements. Less disruption will occur for the northern carriageway as this is already three lanes wide;
- Some complete road closures will be required for works such as the reinstatement of road crossovers at Sleat Road, Reynolds Road and Riseley Street, but these are unlikely to extend for more than 3 days at a time, and would, no doubt, be scheduled across weekend periods; and,
- Speed restrictions will apply throughout the construction works.

3.50 For the section of Canning Highway between Canning Bridge and Reynolds Road the construction phase will result in the reduction in capacity to a maximum of two lanes. This represents a **33%** loss in capacity for traffic running west to east across the whole route and some loss in capacity in the opposite direction. For the periods of the reduction to 1 lane this represents a **67%** loss in capacity for west to east movements and, at least, **33%** in the east to west direction. East to west traffic movements are likely to be reduced to one lane whilst the southern carriageway is expanded. Similar impacts, such as the loss in capacity for traffic, are anticipated for the trenched section around Riseley Street during the construction phase.

3.51 The reduction in capacity will, inevitably, create increased levels of congestion in particular during peak travel periods. In the absence of detailed traffic modelling it is challenging to quantify these potential impacts, however, throughput of the signalised junctions at Sleat Road, Reynolds Road and Riseley Street will be reduced throughout the construction phase and, for some periods of time, this capacity reduction will be substantial. This could have significant impacts upon local highway access to and from the CBAC.

3.52 In addition to loss of capacity, there will also be reduced speed limits imposed within the roadworks. Current speed restrictions along Canning Highway are 60 km/hr and, with narrow lane running, these could perceivably reduce to **40 km/hr**. Over a 1km stretch of highway this would equate to an additional **30 seconds** travel time.

3.53 It is unclear at what stage the Canning Highway junction with Kintail Road would be closed to general traffic. The right-turn from Canning Bridge into Kintail Road may need to be closed relatively early in the construction phase as the central section of the Canning Highway carriageway will represent the main construction works area. If this were to occur it would create significant delays to general traffic and buses wishing to access Kintail Road as they would be required to divert via Canning Highway / Sleat Road and be subject to the delays through the roadworks. The left-turn out of Kintail Road could, perceivably, remain open for a longer period and so west to east traffic may not be as affected.

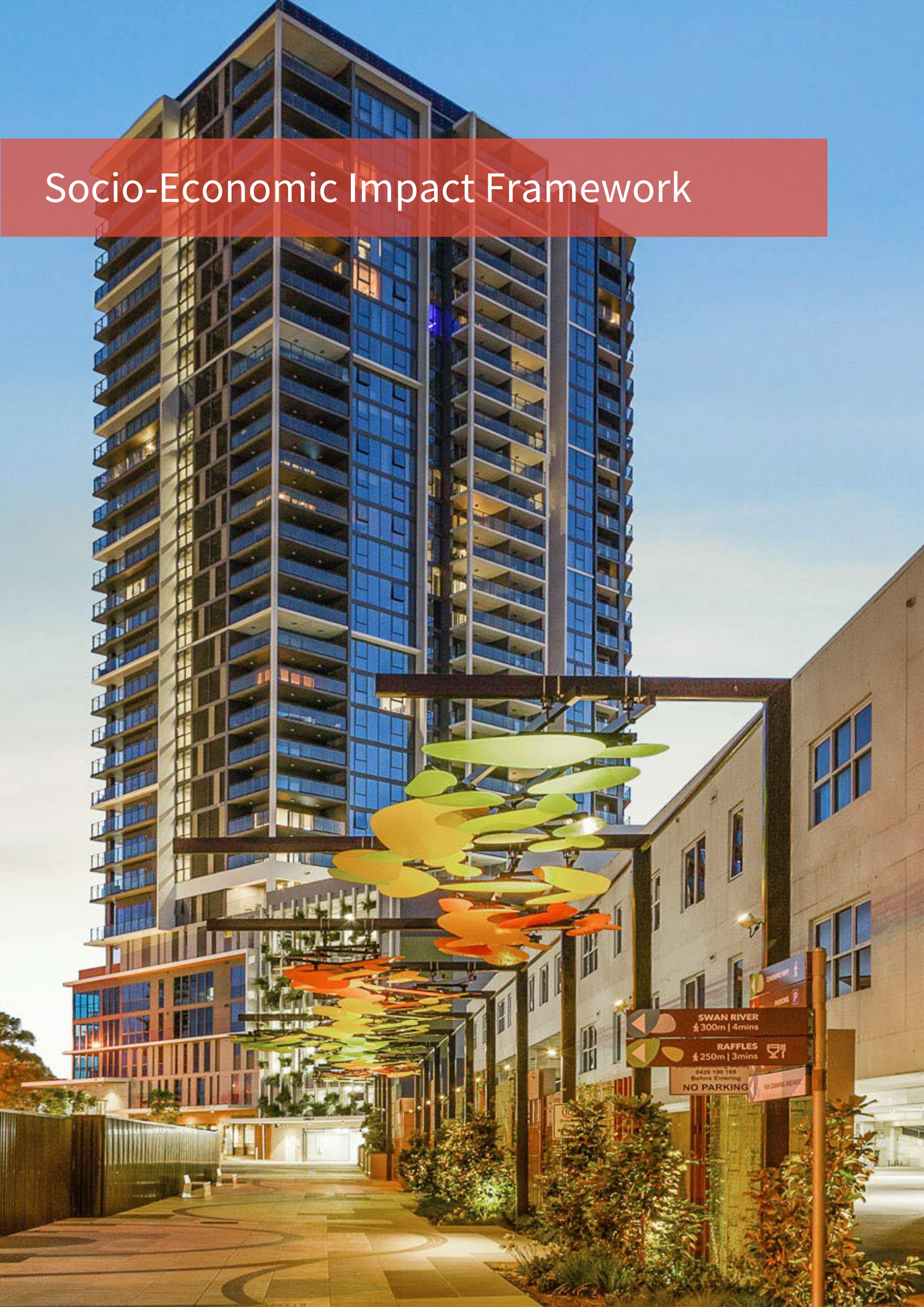
3.54 It is also unclear what would happen to bus services during the construction phase. It is considered unlikely that services could continue to call at bus stops along Canning Highway, as these will need to be removed as part of the carriageway widening works and the reduced lane running.

3.55 Buses could continue to run along Canning Highway but not stop. The alternative would be to divert via Kintail Road / Sleat Road from the outset of the construction phase. Whilst this would be feasible for west to east movements, it is less certain for east to west movements if the right-turn from Canning Bridge into Kintail Road is removed. If the new bus-only bridge crossing to the north of the existing Canning Bridge is constructed prior to the Proposal this would provide access for buses to and from Kintail Road.

3.56 It is envisaged that the pedestrian bridge over Canning Highway will be demolished as part of the first phase of construction works to enable the expansion of the southern carriageway. This will result in an immediate loss in connectivity and accessibility for pedestrians (as outlined within Figure 3.17 above). Even in the event of a replacement bridge being proposed, there is likely to be a considerable period without the connection during the construction phase.

3.57 Furthermore, the demolition, service relocation, and carriageway expansion works will result in immediate, and significant, loss of pedestrian accessibility along Canning Highway itself. This will significantly impact upon the southern side of the highway, but also is likely to affect the northern side as well. This combined phase of works could last up to 18 months, severely affecting local pedestrian movements and access throughout this period.

Socio-Economic Impact Framework



4. Socio-Economic Impact Framework

4.1 The baseline research summarised in Chapter 2 and the local accessibility impacts discussed in Chapter 3 have informed the development of a bespoke impact framework to assess the economic, social and environmental impacts of the Proposal for both study areas, Figure 4.1.

4.2 There is no single set of guidance relating to the assessment of local impacts of major infrastructure projects. The Australian Transport Assessment and Planning (ATAP) Guidelines outline best practice for transport planning and assessment in Australia but focuses predominantly on macro level transport impacts, rather than local economic, social, and environmental impacts.

4.3 As a result, while the framework takes into account and aligns with standard appraisal and impact assessment methodologies, it also reflects a highly tailored response to the local conditions and priorities within the CBAC and RAC.

The Role of Access and Movement in Local Economies and Communities

4.4 Good transport provision acts as an enabler across local economies and communities, permitting residents, workers, and businesses to access opportunities to live, work and make connections.

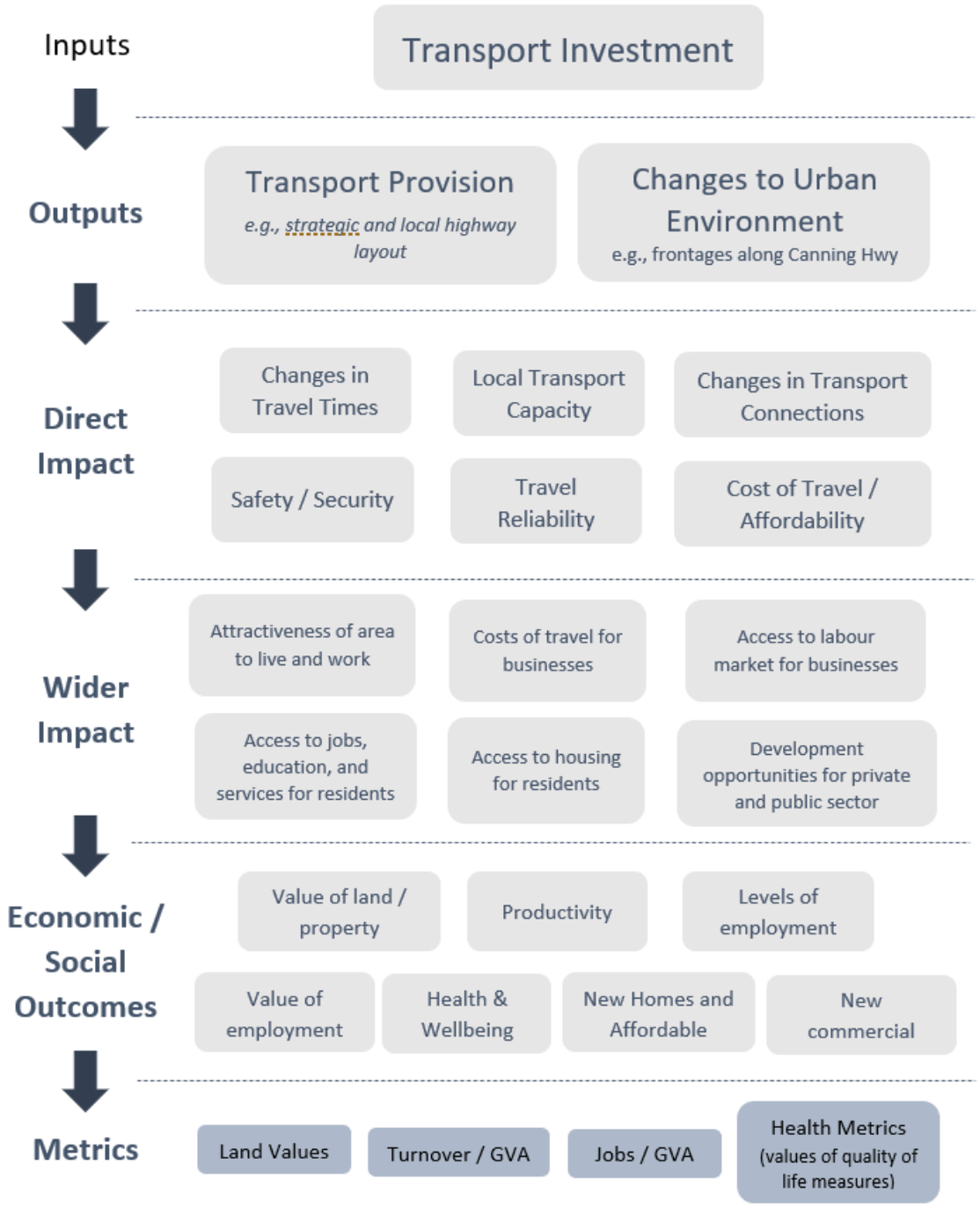
4.5 Whilst investment in new strategic transport infrastructure offers the potential to act as a stimulus to economic and social activity, if it does not take into consideration the local context and all potential impacts it can result in increased severance and reduced accessibility for local people and workers.

4.6 This can not only affect individual and business travel choices but also how they view the attractiveness of areas to live, work, learn or socialise. This can influence the demand for property, goods and services in an area and therefore impact on local economic and social activity.

4.7 Figure 4.1 sets out this 'theory of change' from a transport investment in a diagrammatic format demonstrating the links from:

- **Inputs** The funding investment in transport;
- **Outputs** The actual transport provision delivered;
- **Direct Impacts** How the transport provision directly affects travel opportunities;
- **Wider Impacts** The ways in which this may change the attractiveness of an area;
- **Economic / Social** How this translates into a change in economic or social activity outcomes; and,
- **Metrics** How these changes can be measured.

Figure 4.1 Theory of Change Diagram



Source: Hatch

4.8 The diagram indicates that a range of potential wider impacts and associated economic and social outcomes can occur as a result of transport-related investments. Some of these can be measured in direct monetary terms (land values and GVA), whereas others can be reported through qualitative mechanisms.

Impact Framework

Assumptions

4.9 The following overall assumptions have informed the development of the impact framework:

- The scope of this study means that the focus of the framework has been on impacts of the Proposal within the CBAC;
- The framework allows for the collation of both quantitative and qualitative data. Impacts are quantified where possible, but in other places qualitative assessments of the types and magnitudes of potential impacts has been necessary;
- In quantifying impacts, a number of different types of value have been considered, recognising that a broad range of different stakeholders will be affected and that each of these will perceive value in different ways;
- To ensure truly local assessment of impacts, the framework has been designed to allow for a bottom up and 'site by site' approach to the measurement of impacts. However, given sensitivities relating to some of the local development and regeneration conditions, all reporting has been at aggregated levels (see Figures 4.2 and 4.3 for details):
    - 60m Canning Highway buffer;
    - 200m Canning Highway buffer; and,
    - Canning Bridge Activity Centre.
- The impact framework has been designed to assess, and differentiate, the respective impacts during both the ***construction*** and ***operational*** phases of the Proposal.

Impact Areas

4.10 The primary aim of the study is to identify potential economic, social, and environmental impacts within the City of Melville's portion of the CBAC on the western bank of the Canning River (referred to within this report as the CBAC and depicted within Figure 4.2) and the Riseley Activity Centre referred to as the RAC.

Figure 4.2 Activity Centres within the Study Areas

Source: Hatch

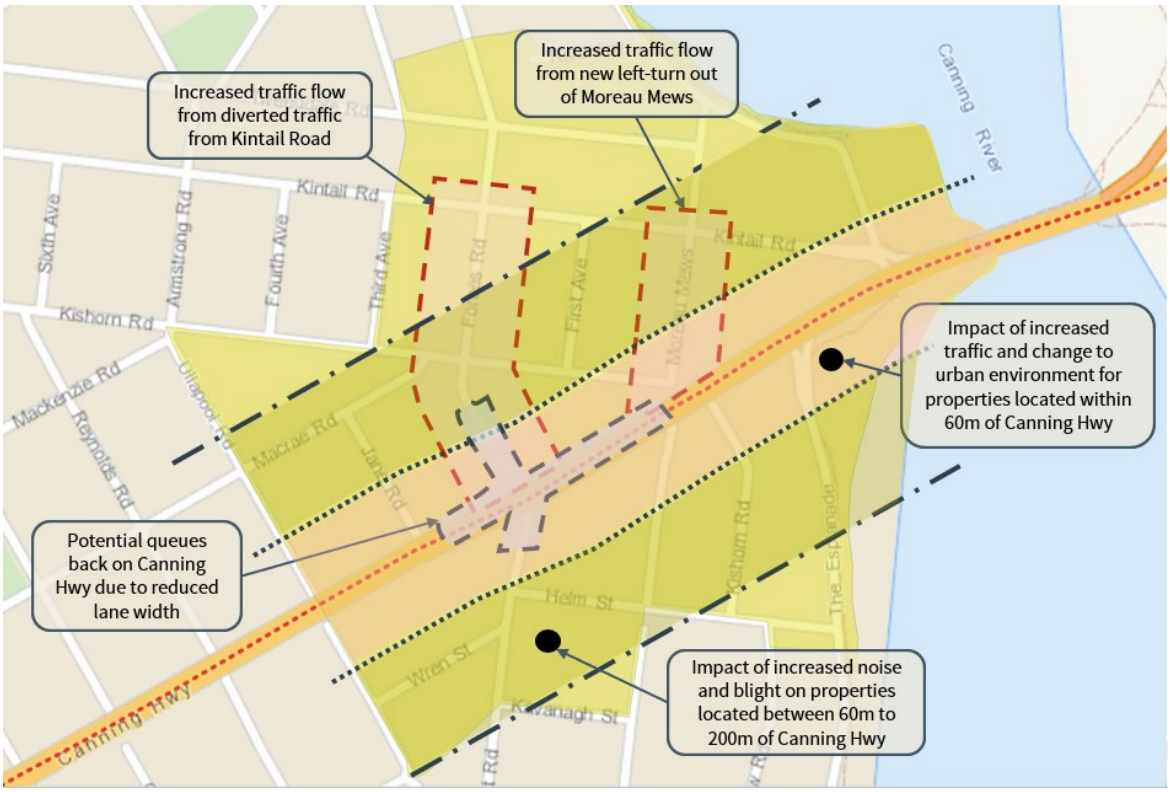
4.11 All impacts assessed are aggregated up to the CBAC and RAC area, with a specific focus upon how changes in accessibility will affect local businesses and the community within this area. Whilst some impact may extend beyond the CBAC and RAC area these are not currently captured within this assessment.

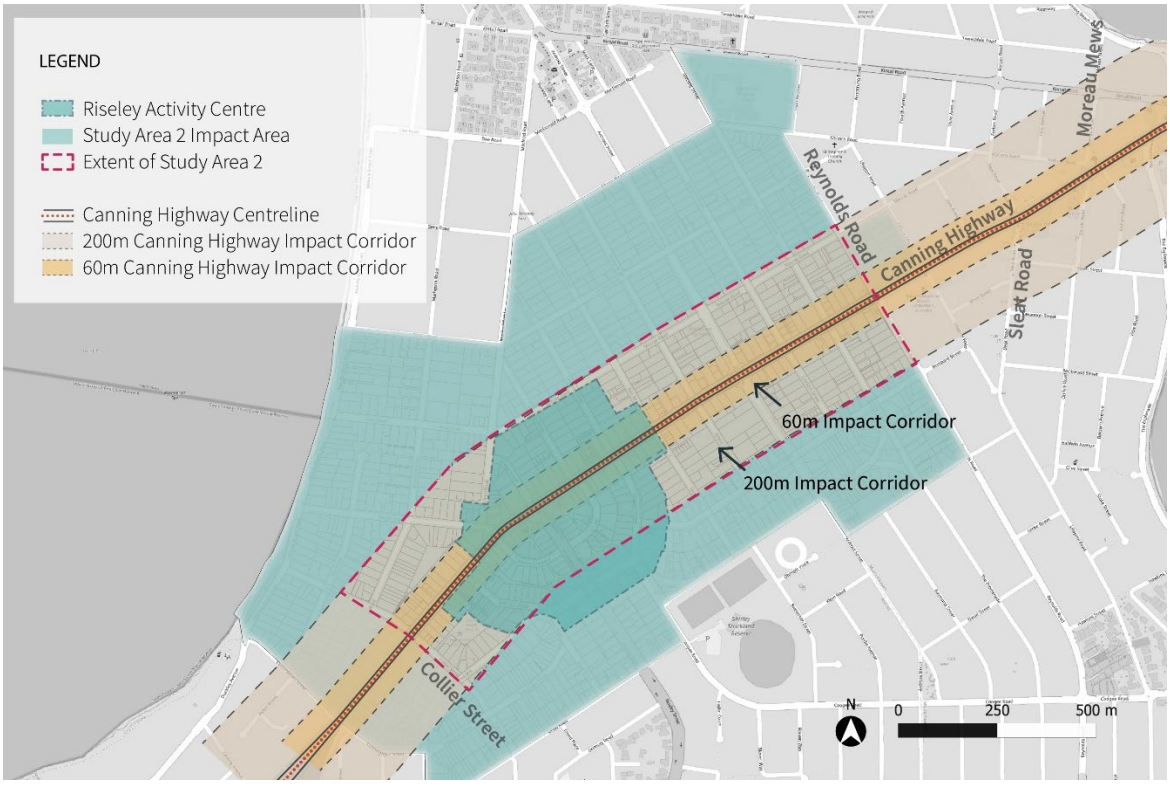
4.13 Some impacts have initially been assessed at lower geographies, prior to being aggregated to the CBAC and RAC area. These lower geographies are referred throughout the report and include:

- The direct impacts upon property within 60m along the Canning Highway corridor;
- The potential impact of additional congestion along the Canning Highway around the junction with Sleat Road;
- The potential impact of additional vehicle trips along Sleat Road and Moreau Mews resulting from the revised local highway configuration; and,
- The impact upon property located within 200m of the Canning Highway corridor of changes in noise, air quality and the urban environment.

4.14 These varying impact areas are presented within Figure 4.3.

Figure 4.3 Lower Geography Impact Areas – Study Area 1 and 2





Source: Hatch

Impact Framework

4.15 The overall impact framework is summarised below, which is disaggregated into the four core themes of:

- **People** – impacts upon individuals and the community;
- **Place** – impacts upon the urban realm and environment;
- **Property** – impacts upon residential and commercial land and value; and
- **Prosperity** – impact upon local businesses, investment, and government finances.

Figure 4.4 Overarching Impact Framework

	Construction Phase Impacts (Canning Bridge Activity Centre Area)	Operational Phase Impacts (Canning Bridge Activity Centre Area)
People	**Community** **C-1:** Local transport user impacts **C-2:** Impact on employment **C-3:** Impact on education **C-4:** Impact on services and amenities	**Community** **O-1:** Local transport user impacts **O-2:** Impact on employment **O-3:** Impact on education **O-4:** Impact on services and amenities
	Health & Wellbeing **C-5:** Impact on health & wellbeing	**Health & Wellbeing** **O-5:** Impact on health and wellbeing
Place	**Urban Realm** **C-6:** Urban Environment	**Urban Realm** **O-6:** Urban Environment & Heritage **O-7:** Access to Open Space
	Environment **C-7:** Ecology **C-8:** Emissions	**Environment** **O-8:** Noise **O-9:** Local Air Quality
Property	**Residential** **C-9:** Housing blight	**Residential** **O-10:** Housing blight
	Commercial **C-10:** Commercial property lost **C-11:** Commercial property blight	**Commercial** **O-11:** Commercial property blight
Prosperity	**Local Economy** **C-12:** Local business and employees	**Local Economy** **O-12:** Local Business **O-13:** Future Investment
		Local Finances **O-14:** Local Government

Source: Hatch

4.16 Further details on the individual impact indicators are provided on the following pages. This sets out indicators where impacts can be quantified and those where a more qualitative approach has been taken.

Theme 1: People

4.17 The 'People' theme focuses upon the impact of the Duck & Dive Proposal upon individuals and the local communities they are part of. The impacts upon education, services and health and wellbeing are considered across both the construction and operational phases.

4.18 The metrics used to aggregate these impacts in monetary terms are personal prosperity and social wellbeing. Figure 4.5 provides a summary of each indicator for 'community' and 'health & wellbeing'.

Figure 4.5 'People' Indicators and Metrics

Indicator	Overview	Ref.	Scale	Focus for assessment *(quantified metrics in bold)*
Community				
Local transport user benefits	Impacts on individuals in terms of connections to jobs and services`	C-1	CBAC Area	• Transport impacts during construction
		O-1	CBAC Area	• **Changes in journey time for residents** • Modal shift and wider associated impacts to individuals
Local access to employment, education, services and amenities	Impact upon individuals' abilities to access employment or training opportunities, or to access services and amenities	C-2 C-3 C-4 O-2 O-3 O-4	CBAC Area	• Reduced access to local employment opportunities due to travel constraints • Reduced access to, and physical impact upon, schools and other training facilities • Reduced access to, and physical impact upon, key public service facilities and amenities
Health & Wellbeing				
Physical and mental health and wellbeing	Potential for decreased physical activity, reduced access to healthcare facilities, reduced air quality, as well as negative impacts of severance upon personal wellbeing.	C-5 O-5	200m CH Corridor CBAC Area	• Increased severance and poor urban environment discourages walking and cycling trips and reduces levels of active travel • Reduced access to healthcare facilities and amenities due to travel constraints • Increased traffic levels impacting upon levels of vehicle emissions, affecting personal health, particularly for those with respiratory illnesses • Deterioration of mental health and wellbeing as a result of reduced access to employment or education opportunities, alongside a poorer urban environment • Wider impact upon community integration as a result of increase severance

Source: Hatch

Theme 2: Place

4.19 The 'Place' theme focuses upon the impact of the Duck & Dive Proposal upon the local urban realm, in terms of how it affects the sense of place and the quality of the local environment.

4.20 The assessment primarily utilises qualitative metrics. Figure 4.6 provides a summary of each indicator for 'urban realm' and 'environment'.

Figure 4.6 'Place' Indicators and Metrics

Indicator	Overview	Ref.	Scale	Focus for assessment *(quantified metrics in bold)*
Urban Realm				
Urban Environment & Heritage	Effects of the scheme delivery on the urban environment and heritage assets	C-6 O-6	60m CH Corridor, CBAC Area	• Impact upon the urban realm along the corridor • Impact upon heritage assets • Overall effect on attractiveness of the area
Access to Open Space	Impact of the scheme upon the overall amount, and access to, open space	O-7	60m CH Corridor, CBAC Area	• Loss of open space • Reduced access to open space due to travel constraints
Environment				
Ecology	Effects of construction of the scheme upon existing local ecology, both immediately and over time	C-6	60m CH Corridor	• Impact upon biodiversity, habitats and water environment along the corridor • Overall effect on the environmental resilience of area
Climate & Emissions	Impact of the scheme on overall levels of noise and particulate emissions and climate change targets	C-7 O-8 O-9	200m CH Corridor	• Air quality and noise levels – both during construction and operation • Net impact upon carbon emissions, including potential mode shift towards private car trips

Source: Hatch

Theme 3: Property

4.21 The 'Property' theme focuses upon the impact of the Duck & Dive Proposal upon the local property market, including both existing land uses and future development potential. The metrics used to aggregate these impacts in monetary terms is underlying land values. Figure 4.7 provides a summary of each indicator for both residential and commercial uses.

Figure 4.7 'Property' Indicators and Metrics

Indicator	Overview	Ref.	Scale	Focus for assessment *(quantified metrics in bold)*
Residential				
Housing	Impact of construction and future accessibility upon existing and future housing stock	C-9	60m CH Corridor	• Development land lost for housing development • **Number of properties affected by construction blight** • **Impact upon residual land values**
		O-10	60m CH Corridor, 200m CH Corridor	• **Number of properties affected by blight** • **Development land for housing affected by blight** • **Impact upon residual land values**
Commercial				
Commercial Property	Impact of construction and future accessibility upon existing and future office and retail stock	C-10 C-10	60m CH Corridor	• **Commercial floorspace lost** • Development land lost for commercial development • **Commercial floorspace affected by construction blight** • **Impact upon residual land values**
		C-11 O-11	60m CH Corridor, 200m CH Corridor	• **Commercial floorspace affected by blight** • **Development land for commercial development affected by blight** • **Impact upon residual land values**

Theme 4: Prosperity

4.22 The 'Prosperity' theme focuses upon the impact of the Duck & Dive Proposal upon local economic development, in terms of job retention and on-going business investment.

4.23 The metrics used to aggregate these impacts in monetary terms are jobs and Value Added (as per NIEIR Guidance). Figure 4.8 provides a summary of each indicator for 'local economy' and 'local finance'.

Figure 4.8 'Prosperity' Indicators and Metrics

Indicator	Overview	Ref.	Scale	Focus for assessment *(quantified metrics in bold)*
Local Economy				
Local business	Potential for loss in employment as a result to changes in commercial activities across the area	C-12 O-12	60m CH Corridor, CBAC Area	• **Number of jobs lost as a result of lost commercial buildings** • Additional jobs lost as a result of changes in accessibility to commercial properties • Nature of jobs lost and the extent to which these may have translate into longer term implications for the area • Value of supply chains and multiplier benefits associated with lost commercial jobs • Reduced busines-to-business efficiency as a result of reduced connectivity • Reduced labour market efficiency as a result of reduce access to jobs
Future Investment	Potential for less certainty in future investment across the area	O-13	CBAC Area	• Reduced rates of residential development and commercial investment within the area as a result of uncertainty generated by the local impact of the scheme.
Local Finances				
Local Government	Reduced accrual of local government revenue sources as a result of reduced economic activities occurring across the area	O-14	CBAC Area	• **Reduced local taxes from lower rental returns on residential properties** • **Reduced local taxes from lower rental returns from commercial activities**

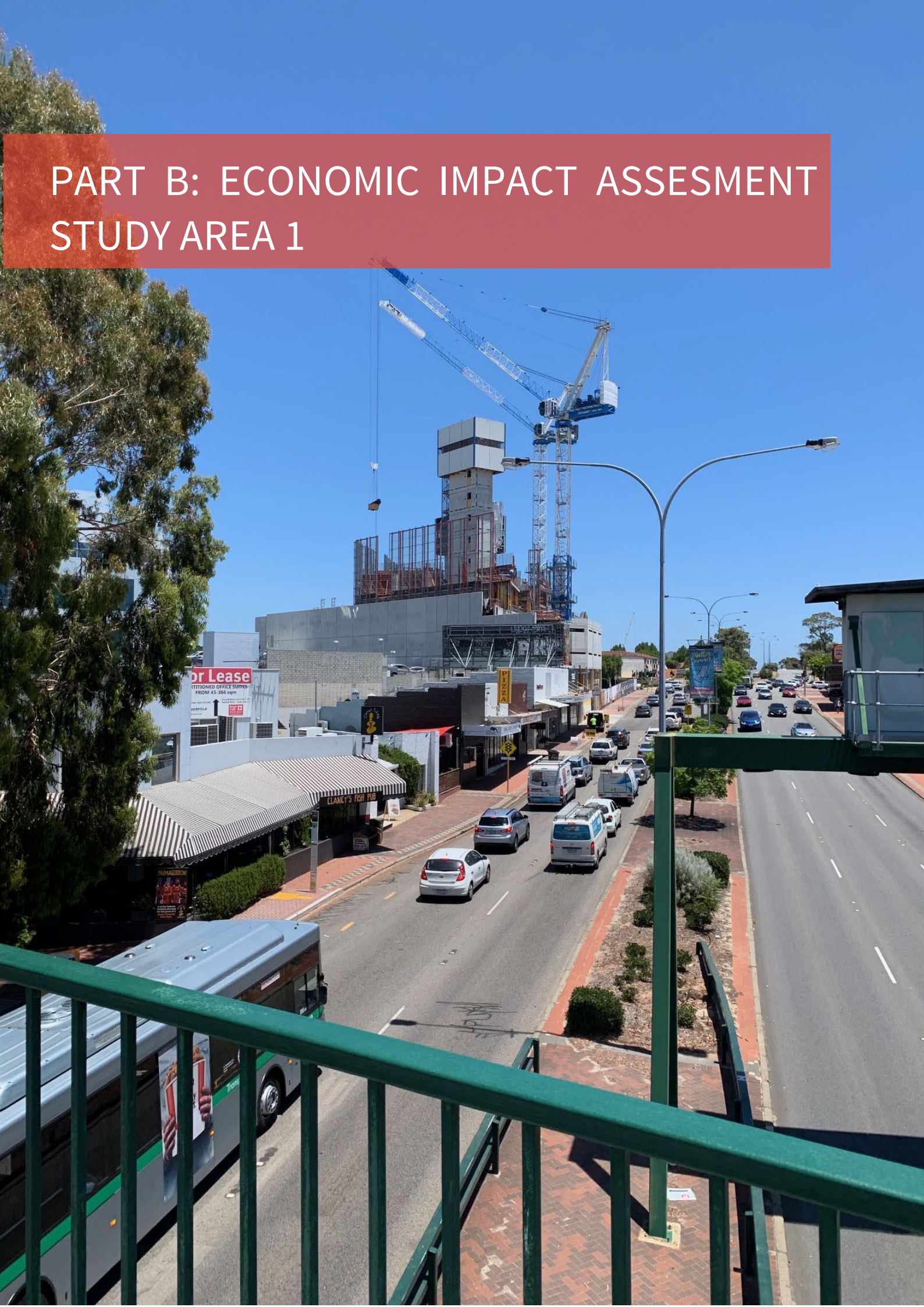
Source: Hatch

Technical Methodology

4.24 The technical approach to assessing local economic impacts has applied the latest ATAP appraisal guidance, as well as locally sourced input parameters.

4.25 In assessing local impacts, research from past transport scheme investments have been taken into account, including post completion evaluations, research studies and full business cases. References to key evidence, and how it has been applied within the analysis, is set out within the individual assessment of impacts.

PART B: ECONOMIC IMPACT ASSESMENT STUDY AREA 1



PART B: ECONOMIC IMPACT ASSESMENT STUDY AREA 1

Summary of Key Impacts

Summary of Key Impacts

- The closure of Kintail Road / Canning Beach Road to Canning Highway to general traffic will substantially reduce accessibility to the north side of the Canning Bridge Activity Centre (CBAC);
- The expanded highway footprint will further deteriorate the local environment for pedestrians and create more barriers to movement, with only three pedestrian and cyclist crossing points within a 1km stretch of an urban centre; and
- The CBAC has been identified as a priority for growth and urban consolidation in a wide range of regional policy documents. The delivery of the Proposal, which is expected to create an urban expressway environment rather than the proposed commercial and residential activity centre, may make it more difficult to realise these ambitions. This alongside the potential reduction in residential and commercial property values may make it less attractive to developers and loss of commercial viability for future investment.

5. Construction Phase Impacts: Study Area 1

Introduction

5.1 This chapter focuses on the construction phase of the Proposal and how it could create economic, social and environmental costs.

5.2 As outlined in Chapter 3, there is currently limited detail around the approach and duration of construction. It is anticipated, however, that an infrastructure project of this nature will significantly reduce road capacity and require closure of sections of the Highway for limited periods.

5.3 Whilst many of the dates relating to the scheme currently remain unknown, and it may not come forward for 10 to 15 years, for the purposes of the analysis, the following key assumptions have been made in relation to the section of Canning Highway between Canning Bridge and Reynolds Road:

- It will be closed for short periods of up to three days at a time;
- It will have capacity reductions of between 33% and 66% for up to four years; and,
- Speed restrictions will be in place for up to four years.

Impact Areas

5.4 The identified impacts of the Proposal during the construction phase are summarised below.

5.5 As outlined within Chapter 4, the construction of the Proposal is anticipated to have a range of impacts upon 'people', 'place', 'property', and 'prosperity':

People **Overall Impact = Moderate to Major Adverse**

- C-1: Local Transport User Impacts: **Major adverse**
  - Pedestrians: AU$200,000 pa annum
- C-2: Impact on Employment: Major adverse
- C-3: Impact on Education: Moderate adverse
- C-4: Impact on Services and Amenities: Moderate adverse
- C-5: Impact on Health and Wellbeing: Minor adverse

Place **Overall Impact = Moderate to Major Adverse**

- C-6: Urban Environment: Major adverse
- C-7: Ecology: Moderate adverse
- C-8: Emissions: Moderate to major adverse

Property **Overall Impact = Moderate to Major Adverse**

- C-9: Housing Blight: Moderate to Major adverse
  - 4 homes lost, 10 residents displaced
  - 750 homes directly blighted, 200 significantly impacted
- C-10: Commercial Property Lost: Major adverse
  - 3,150 sqm floorspace (GEA) lost, with 65 jobs lost
  - AU$23.7m loss in economic value
- C-11: Commercial Property Blight: Moderate adverse
  - 38,000 sqm commercial floorspace (NIA) affected, 18,000 significantly

Prosperity **Overall Impact = Major Adverse**

- C-12: Local Business and Employees: Major adverse

5.6 A summary and narrative for each individual element is presented in the sub-sections below.

People Impacts

5.7 This sub-section considers the impact of the construction phase on the CBAC's people and community. It focuses on impacts related to local transport users, education, services and health and wellbeing. Impacts fall into two main categories:

- **Direct impacts:** demolition / loss of properties and land; and,
- **Indirect impacts**: blight on community facilities caused by the construction of the Proposal and disruption to accessibility.

5.8 There are no industry-wide accepted methods for assessing the community effects of infrastructure projects. Determining the significance of impacts has therefore been developed using existing guidance and methods established for other infrastructure projects. This has involved assessing the ***significance*** of a community effect by considering the ***magnitude*** of the impact and the ***sensitivity*** of users.

5.9 The ***magnitude*** of an impact is its severity or scale considering the spatial extent, the number of people affected and the duration of the impact. To determine the magnitude, the characteristics of impacts have been assessed and classified as high, medium, low, or negligible.

Table 5.1 Magnitude of Cost Impact

Impact magnitude	**Definition**
High	A very adverse cost impact that is very likely to affect large numbers of people (with the number depending on the local context and nature of the impact) and that will usually constitute a long-term impact on baseline conditions
Medium	A cost impact that is likely to affect a moderate number of people (with the number depending on the local context and nature of the impact)
Low	A cost impact that is likely to affect a small number of people and/or the base case is not affected beyond the short or medium-term duration
Negligible	A cost impact that is temporary in nature and/or is anticipated to have a slight or no effect on the well-being of people

Source: HS2 Ltd (2018): HS2 Phase 2b - Scope and Methodology Report

5.10 The ***sensitivity*** of a user has been determined by assessing the extent to which users of the facility have the capacity to adapt to any adverse impacts. This relates to the importance, scarcity, and size of community facilities. Sensitivity will be classified as high, medium, or low.

Table 5.2 Sensitivity of Effects

Impact magnitude	**Definition**
High	Individuals or user groups that have little or no capacity to experience the impact without incurring a significant effect
Medium	Individuals or user groups that have a limited or average capacity to experience the impact without incurring a significant effect
Low	Individuals or user groups that generally have adequate capacity to experience impacts without incurring a significant effect

Source: HS2 Ltd (2018): HS2 Phase 2b - Scope and Methodology Report

5.11 The ***significance*** of a community effect is determined by the magnitude of the impact and the sensitivity of users as Table 5.3 below illustrates.

5.12 Significant impacts are those considered to have major adverse or moderate adverse effects on people and/or facilities. Major adverse effects occur if both the magnitude and sensitivity are considered to be high or medium. Effects are moderate adverse if the magnitude is high and the sensitivity is low (or vice versa). Where a facility or service needs to be demolished to make way for the Highway it is classified as an ***Extreme Adverse Effect***, which is even more significant than a Major Adverse Effect.

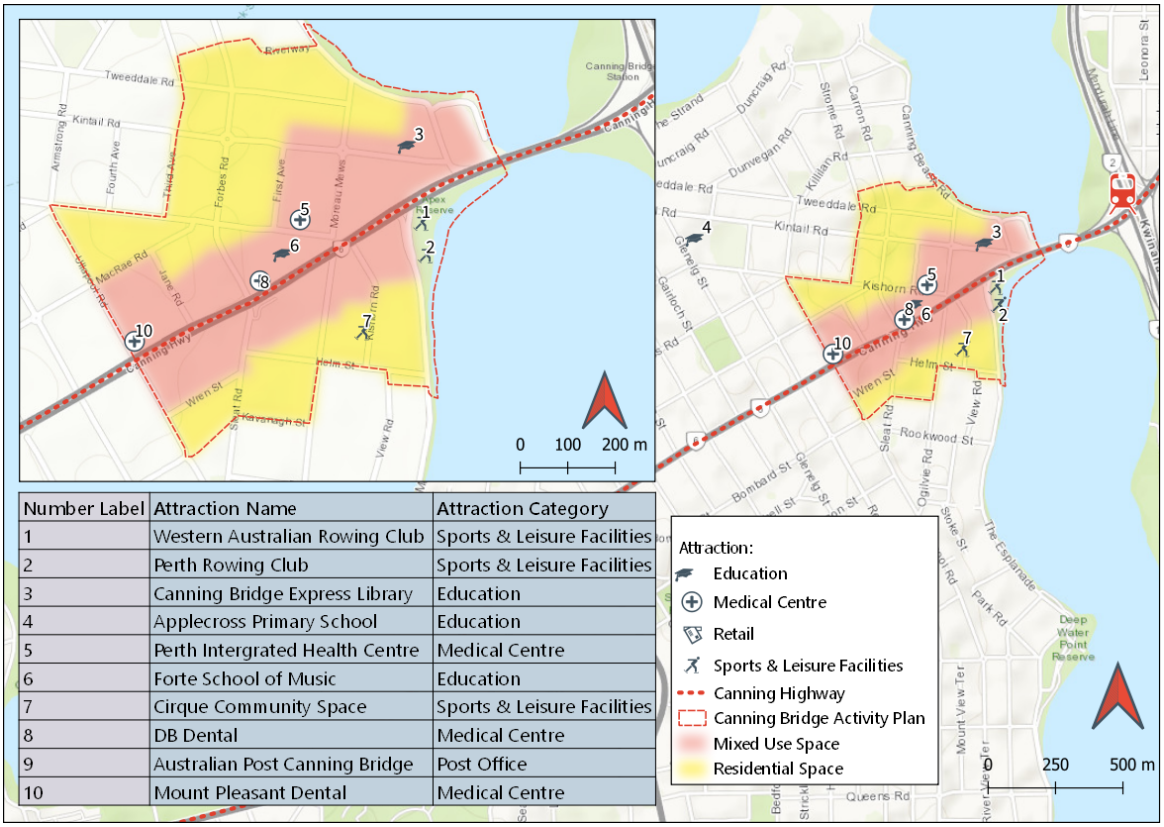
Table 5.3 Significance of effects

Significance		**Impact magnitude**			
		High	**Medium**	**Low**	**Negligible**
Sensitivity of users	**High**	Major adverse (significant)	Major adverse (significant)	Moderate adverse (significant)	Minor adverse (not significant)
	Medium	Major adverse (significant)	Moderate adverse (significant)	Minor adverse (not significant)	Negligible (not significant)
	Low	Moderate adverse (significant)	Minor adverse (not significant)	Negligible (not significant)	Negligible (not significant)

Source: HS2 Ltd (2018): HS2 Phase 2b - Scope and Methodology Report

5.13 A detailed breakdown of the assessment that has informed this sub-section is provided in Appendix B. This illustrates how judgements have been reached for each focus area and community facility. The figure below illustrates some of the specific facilities that were considered as part of the analysis.

Figure 5.1 Community Services and Amenities



Number Label	Attraction Name	Attraction Category
1	Western Australian Rowing Club	Sports & Leisure Facilities
2	Perth Rowing Club	Sports & Leisure Facilities
3	Canning Bridge Express Library	Education
4	Applecross Primary School	Education
5	Perth Intergrated Health Centre	Medical Centre
6	Forte School of Music	Education
7	Cirque Community Space	Sports & Leisure Facilities
8	DB Dental	Medical Centre
9	Australian Post Canning Bridge	Post Office
10	Mount Pleasant Dental	Medical Centre

Source: Hatch

Impact of Construction on Local Transport Users (C-1)

5.14 The construction phase of the Proposal will have a range of impacts upon local highway, bus and walking & cycling movements across the CBAC area. Whilst some of these will mirror the longer-term operational effects outlined in Chapter 6, there will be a range of direct impacts along the Canning Highway that will disrupt access and movement.

5.15 Whilst there are many unknowns around the construction plan for the Proposal, it is clear that it will require significant capacity reduction along the Canning Highway and speed restrictions whilst works are completed. In addition, pedestrian movements will be restricted affecting movements both along the Canning Highway, as well as across.

5.16 It is estimated that at least **30 seconds** could be added to journey times between Canning Highway and Reynolds Road as a result of speed restrictions, whilst congestion from capacity reductions are likely to result in further delays (e.g., a further 30 seconds). There are estimated to be 19,500 local vehicle trips accessing CBAC each day that may be affected by these delays.

5.17 Travel delays can be translated into potential economic losses by applying an economic value of people's time that accounts for activities they could otherwise be undertaking (e.g., working or leisure time)[15]. An average delay of 1 minute per trip across 19,500 individuals would equate

[15] Australian Transport Assessment and Planning calculate Average Weekly Earnings rate as AU$37.46 per hour (June 2013) and that private travel is valued at 40% of this rate.

to just under AU$2million per annum. This does not take into account delays to through traffic not associated with the CBAC area.

5.18 Bus users will also be affected, not least as it is anticipated that the bus stops located along the Canning Highway will be immediately removed. Around 700 bus passengers are estimated to use these stops and will experience disruption. It is unclear whether buses will immediately be diverted from Canning Highway (via Sleat Road / Kintail Road), which will in part relate to access arrangements at the junction of Kintail Road with Canning Highway. If buses are diverted then the impacts will mirror those in the operational phase, as set out within Chapter 6. If buses are not immediately diverted, the impacts could be even more significant as there may be very limited access to buses from the CBAC area.

5.19 The removal of the pedestrian bridge at Ogilvie Road as part of the construction phase will have a significant adverse impact upon pedestrian movements within this area. Whilst the bridge may, at some stage, be replaced (either during or upon completion of the main highway construction works), the analysis within Chapter 3 demonstrates the extent of the impact that the closure will have upon walking connectivity across the highway. It is estimated that the requirements to travel via the pedestrian crossing facilities at Sleat Road will add up to 4 minutes to many of the current trips. No footfall surveys are available with which to determine the scale of this impact, however, if the bridge was used for 500 walk trips per day this would translate to an economic loss of up to **AU$200,000 per annum**.

5.20 Whilst there is insufficient data to quantify the full scale of impacts, it is clear that the construction of the Proposal will have a **major adverse** impact upon travel times and journey reliability through the full three to four years of construction.

Impact of Construction on Employment (C-2)

5.21 As well as the direct loss of commercial properties and the long-term loss of associated employment within them (discussed further within the property section below), the construction phase will impact upon access to and from employment locations, as well as the quality of working environment, within the CBAC.

5.22 The noise and disruption associated with the construction will affect employment locations and the workers within them. There are 18,000 sqm of commercial floorspace within 60m of the Canning Highway and around a further 29,000 sqm with 200m. All of these will be affected by blight during construction which could have a negative impact upon workers (this is discussed further within the 'prosperity' section below)

5.23 Direct pedestrian access to premises fronting the Canning Highway will be affected for long periods during the works to widen the carriageway. Whilst many of these premises have secondary access points to the side and rear, the general levels of disruption will affect those workers accessing the area on foot. This particularly includes those currently using the pedestrian footbridge to cross over the Canning Highway which will need to be removed during construction.

5.24 In addition, vehicular access by both private car and bus will be affected to and from the area. It is anticipated that the combined loss in road capacity and speed restrictions will significantly slow traffic along Canning Highway and affect access to and from the CBAC. Whilst the phasing of works has yet to be defined, the potential loss of access via Kintail Road could also immediately affect access to employment locations.

5.25 It is anticipated that bus stops will immediately be removed from Canning Highway and it is unclear how services will operate through the construction phase, but this is likely to result in a reduced accessibility for workers accessing the area by bus.

5.26 These combined impacts are anticipated to have a **major adverse** impact upon access to employment opportunities within the CBAC area.

Impact of Construction on Education (C-3)

5.27 One of the nearest schools to the CBAC is Applecross Primary School, which is around 1km north of the Canning Highway on Kintail Road. The school has around 570 students ranging from Kindergarten through to Year 6. The catchment area is the Applecross suburb which runs from Tompkins Park in the west to Canning Bridge in the east.

5.28 It is anticipated that the magnitude of impact from the construction phase will be low for users. Congestion and road closures on the Canning Highway are likely to push traffic onto Kintail Road, which will impact noise levels and air quality, and therefore the ability of children to learn, but these impacts are likely to be most acute further east. The displacement of traffic will also impact the accessibility of the school for those using private vehicles and public transport, particularly for those coming from the east.

5.29 The sensitivity of users at the school is, however, high given that they are children with little ability to avoid the negative effects and who are more likely to feel the effects of issues like air and noise pollution. This means that the construction phase is likely to have a significant **moderate adverse effect** for the school.

5.30 Saint Benedict's Primary School is also relatively close to the CBAC on Alness Street and provides education for 400 children from the local area. This school is likely to experience similar effects to Applecross Primary School, particularly in terms of noise and accessibility. It is also likely to suffer from the reduced accessibility for users traversing the highway from the north, particularly pedestrians who are likely to lose informal and formal crossing points during the construction phase. Those accessing the school from the east are also likely to suffer a significant increase travel times if using the Canning Highway, particularly during road closures and when traffic is restricted to single lanes.

5.31 The Forte School of Music will also be adversely impacted as it fronts directly onto the Highway. It is likely that access will be limited from the Highway due to the construction, which will push most users to access it from the back via access on Kishorn Road.

Impact of Construction on Services and Amenities (C-4)

5.32 The CBAC offers a range of services and amenities for residents from sports clubs to community centres. The construction of the Proposal is expected to have a significant **moderate adverse effect** on these services. This is because it is likely to create a significant amount of noise, construction traffic and air pollution which will impact on the enjoyment of services by users and their ability to use them effectively. It will also temporarily, but significantly, reduce accessibility due to reduced road capacities, increased congestion from lane restrictions on the Highway and phased road closures, exacerbated by the displacement of traffic onto side roads. This is illustrated by the examples below.

Rowing WA and Swan River Rowing Club

5.33 These two rowing clubs are located on the Esplanade and are within 25m of the Highway and Canning Bridge. They collectively have hundreds of members who travel from across Greater Perth and CBAC to access them.

5.34 The construction of the Highway is expected to have a significant **major adverse effect** on the clubs. The noise and air quality issues associated with the work are likely to effect users' enjoyment of the facilities as well as their ability to physically perform when training. The potential land take of parts of the adjoining green space is also likely to disrupt day-to-day activities of the clubs, particularly if any deep groundwork needs to be undertaken and/or if utilities need to be re-routed.

5.35 Increased congestion is also likely to impact accessibility to the clubs, particularly for those to the north of the Canning Highway who are likely to find it harder to cross the main corridor. Those coming from the west will also experience increased travel times due to lane restrictions. It is likely that a lot of traffic will also be displaced onto the Esplanade from Canning Bridge during construction which will create significant disruptions for users.

Canning Bridge Express Library

5.36 This is a small self-service library that opens on weekdays from 9am to 4pm. It is about 100m from Canning Highway and Canning Bridge and is accessed via Kintail Road. The construction of the Highway is likely to have a significant **major adverse effect** on the operation of the facility.

5.37 The phased construction, particularly on Kintail Road which will undergo some significant changes close the Library, will create noise and air pollution issues. This is a major issue for library users who are sensitive to these stressors. Much traffic will also be displaced onto Kintail Road from Canning Bridge during construction, until it is closed to general traffic, which will temporarily increase noise pollution and make it more difficult for users to access the amenity.

Australia Post Canning Bridge

5.38 This post office fronts onto Canning Highway and Kishorn Road. It is the only facility of this type in the CBAC with the nearest alternatives being in the north of Applecross or Ardross. The construction of the Proposal is anticipated to have a significant **extreme adverse effect** on the facility. This it is likely to be demolished to make way for a way for a new left-hand turn onto the Canning Highway from Kishorn Road and Moreau Mews.

Impact of Construction on Health and Wellbeing (C-5)

5.39 It is anticipated that the construction phase of the Proposal will increase noise and air pollution for the many residents that live in the CBAC and the employees that work in the area.

5.40 It is recognised that noise and air pollution have direct impacts upon both physical and mental wellbeing. High concentrations of pollutants from vehicles are well documented as causing respiratory impacts and there is a growing evidence base related to the negative impacts of noise as referenced in the UK's Department for Transport's Transport Analysis Guidance (TAG):

"there is growing evidence on the links between environmental noise, defined by the World Health Organisation (WHO) as 'noise emitted from all sources except industrial workplaces', and health outcomes. The 2011 WHO report Burden of disease from environmental noise identified environmental noise as the second largest environmental risk to public health in Western Europe."

5.41 These impacts will be felt most acutely by people working and living on or close to the Canning Highway itself, as well as those roads that will undergo significant changes. These include Kintail Road, Kishorn Road (North) and Sleat Road.

5.42 The physical severance created during the construction phase will affect walking, and to a certain extent, cycling. This may impact upon individuals' decisions on whether to walk or cycle across the area and could deter overall levels of active travel. If this were to occur then the health benefits associated with these activities would be lost, potentially affecting local health outcomes. Whilst there is no data on current walking and cycling levels with which to assess potential impacts, the overall impact is likely to be a **minor adverse** impact on health outcomes.

5.43 It is also anticipated that the construction phase will have a significant **minor adverse effect** on healthcare facilities in the area. The two most impacted facilities are set out in more detail below.

DB Dental

5.44 This dental surgery fronts onto Canning Highway and Sleat Road and offers general dental treatments, cosmetic services, and orthodontic treatments. The construction of the Proposal is likely to have a significant **moderate adverse effect** on the surgery as it expected that it will need to be fully or partially demolished to make way for the Highway. It may also experience a fall in accessibility before being demolished due to increased congestion for lane restrictions and a lack of alternative access options. While this would typically be classified an extreme adverse effect, the new Woolworths development provides health services, there are other local dentist surgeries, and it is expected that DB would find an alternative local premises should this occur.

Place Impacts

5.45 This sub-section considers the impact of the construction of the Proposal on the CBAC's local urban environment. It focuses on direct impacts of constructing the Proposal upon the local ecology, as well as emissions associated with construction and vehicles.

5.46 At this stage, the construction plans for the Proposal are relatively high level. Available Proposal information, alongside industry best-practice, has been used to determine how the construction phase could potentially proceed, but it is acknowledged that this will be subject to variation. As such, the environmental assessment considers broad criteria that will need to be considered in terms of the impacts and does not seek to provide any quantitative rigour at this stage.

5.47 In the absence of a detailed assessment, the analysis has considered the scale of potential impacts in terms of the following seven-point scale:

- **Major Positive:** Construction results in a clear and substantial positive impact across the whole area
- **Moderate Positive:** Construction is likely to have a substantial positive impact within part of The study area, or a smaller positive impact across the whole study area
- **Minor Positive:** Construction is likely to have a small positive impact within part of the study area
- **No Impact:** Construction is likely to have neither a positive nor negative impact
- **Minor Adverse:** Construction is likely to have a small negative impact within part of the study area

- **Moderate Adverse:** Construction is likely to have a substantial negative impact within part of the study area, or a smaller negative impact across the whole study area
- **Major Adverse:** Construction results in a clear and substantial negative impact across the whole study area

5.48 This scale has been utilised within the assessment applying best available professional judgement.

Urban Environment (C-6)

5.49 The three-to-four-year construction phase will create an extremely poor urban environment along Canning Highway. Initial works will focus upon the demolition of properties and widening of the carriageway before an extensive period of moving utilities. Once complete, the main excavation of the trench and the works for constructing the dive structure will commence. Throughout all of this period, the urban realm will be significantly affected, along with all pedestrian movements (north-south across the highway and east-west along it).

5.50 This will represent and ***major adverse*** impact upon the urban environment through the construction phase.

Ecology (C-7)

5.51 Whilst the Proposal is located within a dense urban environment, the additional land requirements and the excavation work could still have some impacts upon local ecology, water and drainage.

5.52 The Canning Highway corridor has areas of green verge, trees, and shrubs throughout, including within the central median. The construction of the Proposal will require the complete removal of the central verge and all associated vegetation. Land take is also required on either side of the current Highway alignment affecting green space around residential properties and is likely to require the removal of a number of trees and shrubs. It is estimated that around **100** trees would be lost during the construction period which would introduce some economic and wellbeing costs.

5.53 The completed Proposal will offer limited opportunities to replace any of this lost green space due to the constraints of the corridor and the fact that the Duck & Dive structure will not be covered, creating 8-lanes of open highway and footways.

5.54 The Proposal is also likely to affect local water and drainage patterns along the corridor. The dive structures will create a water trap that is inherently subject to flooding during high intensity rain events. This will, therefore, require new pit and pipe network, underground retention tanks, pumps and pump stations to manage runoff. The impacts upon surrounding drainage and natural water courses will require careful management, so as not to have any detrimental impact.

5.55 Whilst no detailed assessment of ecological impacts has been undertaken, the loss of habitat within an already urban area is likely to have further negative implications upon the natural environment. It is concluded that the Proposal could have a ***moderate adverse*** impact upon ecology across the study area, subject to more detailed assessment.

Emissions (C-8)

5.56 The construction of the Proposal will require a range of activities that will impact upon the levels of emissions across the study area in terms of noise levels, dust particulates and vehicle emissions. These include (amongst other elements):

- Demolition of existing properties and pedestrian bridge;
- Excavation of Duck & Dive trench;
- Construction of retention walls;
- General highway construction activities;
- Truck and heavy plant movements associated with transporting equipment to and from the site, excavation of soil, deliver of construction materials;
- Vehicle movements associated with transporting workers to and from site; and,
- Lane closures along Canning Highway and traffic diversions.

5.57 The close proximity of the Proposal to existing residential and commercial properties means that the emissions associated with construction activities will have a significant impact upon the local community.

5.58 Around 200 residential units and 13,500sqm of commercial floorspace within the CBAC area are located within 60m of the highway. These properties will be highly susceptible to dust and noise emissions throughout the 3-to-4-year construction process. A further 600 residential properties and 28,800 sqm of commercial space within the CBAC area are located within 200m of the highway, still well within a distance in which construction noise levels will have a considerable negative impact.

5.59 The Proposal will also require significant movement of equipment and materials to and from the site. Whilst the number of truck movements have not been estimated, this will create additional vehicle emissions across the local highway network. Transporting workers to and from site could also add to this issue, unless suitably managed.

5.60 Perhaps more significantly, the reduced lane capacity along Canning Highway (and potential for short closures) during construction will result in either slower (and potentially stationary) traffic along Canning Highway or the diversion of traffic onto local roads. Stationary traffic will result in significant increased levels of build-up of tailpipe emissions affecting local air quality. The diversion of traffic will also create additional traffic emissions in residential and recreational areas, impacting upon local people.

5.61 Even if subject to careful management, the construction phase of the Proposal will undoubtedly generate significant levels of noise, dust and vehicle emissions that will impact upon local people and businesses. It is concluded that the Proposal could have a ***moderate to major adverse*** impact upon emissions across the study area during the construction phase, subject to more detailed assessment.

5.62 Whilst not related to impacts within the CBAC area, it is also worth noting that the extensive levels of concrete required to construct the retaining walls will have a significant carbon footprint.

Property Impacts

5.63 The construction of the Proposal will require land take within the CBAC, which includes greenfield sites but also brownfield commercial sites. This includes several important community and retail services that are valued by local residents, visitors, and businesses. This sub-section sets out the scale of commercial and residential properties lost as a result of this land take.

Residential

Housing Loss and Blight (C-9)

5.64 Using the City of Melville's Canning Highway Development Control Area as a basis[16], it is expected that **four** residential properties will need to be removed for the construction of the Proposal. This will result in the displacement of around **10** residents.

5.65 There are also around **200** residential properties on the Highway itself and c.**550** within the wider 200m buffer. These are anticipated to experience ***moderate to major negative impacts*** from the construction blight as a result of the noise, dust and increased construction-related traffic associated within demolition and construction processes.

5.66 Due to the limitation in available data relating to the construction phase a specific quantified assessment of the blight impacts has not been feasible. A proxy assessment has been captured as part of the assessment of the operational phase (see Chapter 7); however, these are likely to be an under-representation of the impacts as it is likely that the construction phase will result in considerably higher levels of blight than the operational phase.

Commercial

Commercial Property Lost (C-10)

5.67 Based on the City of Melville's Development Control Area, alongside GIS layers[17] and professional judgement, it is estimated that around **450 sqm GEA** of office space (350 sqm NIA) and **2,700 sqm GEA** of non-office commercial space (1,650 sqm NIA) (e.g., retail, restaurants, cafes, gyms etc) will need to be fully or partially taken to make way for the upgraded Canning Highway. The exact arrangements would be agreed on a case-by-case basis, but it is likely to involve most buildings being taken by compulsory purchase (probably through the Land Administration Act, 1997)[18].

[16] The Development Control Area (DCA) zones are already in place and planned to be formalised through amendments to the Metropolitan Region Scheme (MRS) in the latter part of 2021. They reflect the highway reservation requirements set out in BG&E's *Canning Highway Planning Study: Collier Street to Henley Street* (2015) which was undertaken on behalf of Main Roads.

[17] Bing Maps Building layer alongside up-to-date Google Hybrid Satellite View.

[18] It is recognised that many buildings will only need to be partially demolished given the amount of land required. In most cases whole buildings would, however, have to be compulsory purchased and would remain unproductive for a significant period of time while elements of the buildings are demolished. Plots and buildings are likely to be resold following the removal of the portion of the structure that encroaches onto the widened reserve, but this is likely to take a number of years. This impact assessment illustrates the impact of removing the productive space in full at a point in time and considers the impact should the space remain unutilised for an extended period of time. This provides a clear indication of the potential scale of impact the Scheme could have on the commercial property market and economy.

5.68 There are also several properties that will be impacted but are unlikely to require demolition. Some of these will require adjustments to their frontages for construction, but it should be possible for the buildings to remain standing. Examples include the Canning Bridge Commercial Centre and the Shell Garage next to the Esplanade.

5.69 On the basis of the scale and type of the commercial property that will be demolished, likely employment impacts can be established[19]. These impacts are derived from floorspace per employee guidance set out in the Perth and Peel Land Use and Employment Survey (2017). To ensure conservatism we have applied the prevailing commercial property vacancy rate of 8% to these figures. Based on this calculation around **65 jobs** will be lost through the direct land take of the Proposal.

5.70 Assigning these jobs to their respective sectors allows for an estimation of the productive value that will be lost as a result of the Proposal. We estimate that these jobs contribute around **AU$4.7m** in Value Added per annum, which equates to around **AU$23.7m** over 5 years taking into account projected inflation[20].

Commercial Property Blight (C-11)

5.71 GIS data and professional judgement indicates that in the region of **18,000 sqm NIA** of commercial floorspace sits alongside the Canning Highway and around further **29,000 sqm NIA** of floorspace sits within a 200m buffer of the Highway.

5.72 Those properties that sit alongside the Highway are likely to experience significant blight issues during construction. As set out in the previous sub-section, these properties will be highly susceptible to dust, noise, and vehicle emissions throughout the 3-4 year construction process.

5.73 Whilst it is recognised that commercial properties are less susceptible to blight than residential properties it is still anticipated that these commercial properties will experience a ***moderate to major adverse*** impact from blight during the construction phase.

5.74 Those within 200m of the Proposal will also suffer from blight during construction but given their distance from the Highway the impact is likely to ***minor to moderate negative*** in terms of blight. As with the residential construction blight, no attempt to quantify the monetary impacts of construction blight upon commercial properties has been made.

5.75 Overall construction blight is forecast to have a ***moderate adverse*** impact upon properties across the area.

Prosperity Impacts

Local Businesses and Employees (C-12)

5.76 The CBAC is an important employment cluster for the City of Melville and Greater Perth. It is home to around **45,700m²** of commercial floorspace and the dominant uses are office (24,000 m^2) and retail space (4,600 m^2). This sub-section considers the impacts of the construction phase on businesses and employees.

[19] The Gross External Area (GEA) of each building has been converted into a Gross Internal Area (GIA) by reducing 5% from the GEA. NIA has been established by taking 80% of the GIA in line with HCA's Employment Density Guide, 3rd edition, 2015.

[20] Analysis based on a start date in the mid 2020s

5.77 The main employment areas of the CBAC are:

- **Canning Highway** which is dominated by office and retail uses. Businesses with offices fronting onto the road include Property ESP, Helm Capital Pty, Capital Legal and Sheridan Settlements. Businesses with retail units include Nando's, Hungry Jacks, IGA and Cakes Delight.
- **Sleat Road (North)** which has several offices and is dominated by the presence of Mineral Resources Limited's headquarters.
- **Kishorn Road (North)** which is home to a number of different serviced office blocks. Businesses in this location include Western Property Developments, InterWest and Peter Griffin and Co.
- **Kintail Road** which has several large office blocks dispersed along the corridor. Businesses with a presence on the road include Macallum Group, acQuire Technology Solutions Ltd, WA Property Project Marketing, PDC Engineering and DBM Vircon.
- **Ogilvie Road** which has a mix of older and newer office accommodation, including the new 15 Ogilvie Road development. Businesses in the area include Lawrence Group Business Advisors and Accountants, SF Design and M2 Corporate Accountants.

5.78 Using the methodology applied in the 'People' sub-section, it is expected that the construction phase of the Proposal will have a significant **major adverse effect** on employers and employees across the five employment areas (full assessment set out in Appendix A: Community Impact Assessment).

5.79 This is primarily because the noise and pollution associated with construction will make many commercial units unpleasant and difficult places to work and be productive. This is particularly the case for businesses that front onto the Canning Highway. Businesses on Kintail Road, Kishorn Road and Sleat Road will also suffer as significant changes are planned on these roads as part of the Proposal.

5.80 Accessibility will also be severely impacted for employees. Businesses on the Canning Highway itself will experience significantly reduced accessibility due to phased road closures and a lack of alternative options. Those on side roads, particularly Sleat Road and Kintail Road, are also likely to experience a significant uplift in traffic and journey times as traffic will most likely be diverted onto them during construction. It will be difficult for most employees to avoid these impacts as few will have alternative locations to work and most will attend five days a week.

5.81 It is important to note that many businesses on the Canning Highway itself will experience significant extreme adverse effects from demolition. As set out in the property section, it is estimated that **3,150 sqm GEA** of commercial floorspace (2,000 sqm NIA) will be lost impacting around **65 employees.**

6. Operational Phase Impacts: Study Area 1

Introduction

6.1 This chapter focuses upon the operational impacts of the Proposal. This utilises the assessment of how the Proposal will affect direct accessibility across the study area as set out in Chapter 3, as well as an understanding of the physical land take requirements of the Proposal (sourced from the City of Melville's Canning Highway Development Control Area[21]).

Impact Areas

6.2 The identified impacts of the Proposal during the operational phase are summarised below. The same categories of impact have been utilised.

People — Overall Impact = Moderate to Major Adverse

- O-1: Local Transport User Impacts: Moderate to major adverse
  - Traffic- AU$1 million per annum
  - Bus Users - AU$370,000 per annum
  - Pedestrians – significant, if pedestrian bridge not replaced
- O-2: Impact on Employment: Major adverse
- O-3: Impact on Education: Moderate adverse
- O-4: Impact on Services: Moderate adverse
- O-5: Impact on Health and Wellbeing: Moderate adverse

Place — Overall Impact = Moderate Adverse

- O-6: Urban Environment & Heritage: Moderate to major adverse
- O-7: Open Space: Minor to moderate adverse
- O-8: Noise: Minor to Moderate adverse
- O-9: Local Air Quality: Moderate adverse

Property — Overall Impact = Moderate Adverse

- O-10: Housing Blight: Moderate to major adverse
  - 'Existing housing' one-off loss = AU$ 26.7m to AU$ 37.6m
  - 'Forthcoming housing' one-off loss = AU$ 34m to AU$ 50m
  - 'Aspirational housing' one-off loss = AU$ 80m to AU$ 110m
- O-11: Commercial Property Blight: Moderate adverse
  - 'Existing commercial' loss = AU$ 5.2m to AU$7m *(NPV over 10 years)*
  - 'Aspirational commercial' loss = AU$ 7m to AU$9.5m *(NPV over 10 years)*

[21] The Development Control Area (DCA) zones are already in place and planned to be formalised through amendments to the Metropolitan Region Scheme (MRS) in the latter part of 2021. They reflect the highway reservation requirements set out in BG&E's *Canning Highway Planning Study: Collier Street to Henley Street* (2015) which was undertaken on behalf of Main Roads.

Prosperity **Overall Impact = Moderate Adverse**

- O-12: Local Businesses: Moderate adverse
  - Up to 65 jobs lost
  - AU$ 23.8m economic value lost per annum
- O-13: Future Investment: Moderate adverse
- O-14: Local Government: Minor to moderate adverse
  - Commercial tax income lost= AU$ 400k to AU$ 940k over 10 years
  - Residential tax income lost = AU$ 680k to AU$ 980k over 10 years

6.3 As outlined within the impact framework within Chapter 4, the completed Proposal is anticipated to have a range of impacts upon 'people', 'place', 'property', and 'prosperity':

- People
  - O-1: Local Transport User Impacts
  - O-2: Impact on Employment
  - O-3: Impact on Education
  - O-4: Impact on Services
  - O-5: Impact on Health and Wellbeing
- Place
  - O-6: Urban Environment & Heritage
  - O-7: Open Space
  - O-8: Noise
  - O-9: Local Air Quality
- Property
  - O-10: Housing Blight
  - O-11: Commercial Property Blight
- Prosperity
  - O-12: Local Businesses
  - O-13: Future Investment
  - O-14: Local Government

6.4 A summary and narrative for each individual element is presented within the sections below.

People Impacts

6.5 This sub-section considers the impact of the operational phase of the Proposal on the CBAC's people and communities. As with the construction phase, it focuses on impacts related to local transport users, education, services, health and wellbeing and employment.

6.6 Determining the significance of effects has followed the same methodology set out for the construction phase (see Chapter 5). A detailed breakdown of the assessment that has informed this analysis is provided in Appendix B. The section that focuses on the impact of local transport users draws on evidence from Chapter 3 and provides quantitative measures of impact.

Impact on Local Transport Users (O-1)

6.7 As outlined in Chapter 3, the Proposal will have a range of impacts on local highway, bus, walking and cycling movements across the CBAC.

General Traffic

6.8 The reconfiguration of local access to and from the Highway will physically add distance, and time, to vehicle trips travelling to and from the north side of the area, particularly around Kintail Road and Canning Beach Road.

6.9 Increases in traffic flows along specific routes, such as Sleat Road / Forbes Road, could also result in increased congestion at junctions. The reduced lane capacity heading eastbound on Canning Highway from Sleat Road (required to accommodate the new left-turn from Moreau Mews) could also result in additional congestion for local road users.

6.10 Whilst traffic modelling data is unavailable to directly quantify these impacts, to provide an indication of the potential scale of the impacts it is estimated from the traffic data presented in Chapter 3 that there are currently around 19,500 daily vehicle trips using Canning Highway to access the CBAC area. A potential weighted average for each vehicle has been estimated based upon:

- The requirement to travel additional journey distance (estimated an increase in around 400m for around 45% of trips to the area);
- The potential for delay on the eastbound carriageway on Canning Highway from Sleat Road (assumed 15 seconds delay affecting 17.5% of trips); and,
- General delay across the local highway network (assumed 5 seconds delay affecting all local vehicle movements).

6.11 This generates an estimated average delay of ***32 seconds per vehicle***, or roughly 175 hours lost per day across the 19,500 travellers.

6.12 Travel delays can be translated into potential economic losses by applying an economic value of people's time that accounts for activities they could otherwise be doing (e.g., working or leisure time)[22]. Applying these values of time to the lost hours translates to up to ***AU$1 million per annum in lost economic value*** based on annual vehicle trips.

6.13 Applying the forecast local traffic growth rates associated with the *Canning Bridge Activity Centre Plan* (up to 250% by 2051), it is estimated that the number of trips could increase to above 50,000. The annual economic loss associated with an average 32 second delay to all these additional vehicles could equate to in excess of ***AU$2.5 million per year***.

6.14 Whilst these are only indicative figures, they are based upon existing traffic flows and a clear assessment of additional distances travelled and so have an element of rigour. They demonstrate that the Proposal could have a significant negative impact upon existing and future local highway users.

[22] Australian Transport Assessment and Planning calculate Average Weekly Earnings rate as AU$37.46 per hour (June 2013) and that private travel is valued at 40% of this rate.

Bus Users

6.15 Chapter 3 also indicates that the Proposal will impact upon bus routings and the location of bus stops. This will have a number of impacts:

- Increased walk times to / from the affected bus stops;
- Increased in-vehicle bus journey times for passengers using the affected bus stops; and,
- Increased in-vehicle bus journey times for passengers travelling through the area using other bus stops on Canning Highway within the CBAC.

6.16 It is also worth noting that there will be impacts for through passengers travelling to and from destinations outside the CBAC area, but these have not been assessed within this scope of work.

6.17 Chapter 3 presents an estimate of those passengers boarding and alighting at the affected stops (705 daily trips). The additional walk distances required to access the new stops (see Figure 3.15) have been applied to assess additional journey time (assuming a 5kph walk speed). This generates a potential estimated total additional walk time for these bus users of over **11,200 hours** per annum.

6.18 Chapter 3 also highlights this impact of bus diversions upon additional in-vehicle journey time. These are estimated to add over **5,300 hours** journey time per annum across all impacted passengers. There is also anticipated to be additional congestion along the bus diversion route, albeit the scale of this delay is not fully known at this time. It is estimated that this could add a further **3,300 passenger hours** per annum, on average.

6.19 Overall, it is estimated that bus users within the CBAC area could travel up to an **additional 19,800 hours per year**, equating to a **loss in economic value of over AU$370,000 per annum.** Whilst specific forecasts of bus passenger growth are not available, if the same value is applied as for the traffic growth (250% by 2051) this would generate an additional cost of over AU$925,000 per year. Whilst these are only indicative figures, they demonstrate a significant impact associated with bus users within the area.

6.20 The changes in bus routes and journey times may also have wider implications for bus network provision. Interchange of buses at rail stations may be affected by changes in bus timings, whilst additional journey times may require extra buses to enable the same level of service to be provided.

Pedestrians

6.21 Figure 3.16 in Chapter 3 demonstrates the impact that a permanent removal of the pedestrian bridge near Ogilvie Road would have upon walking connectivity across the Highway. Whilst it is recognised that the bridge may be replaced - without it, pedestrians could face an additional **4 minutes** to cross Canning Highway This would increase an existing 10-minute walk by 40% or a 15-minute walk by 27%. This would be a sufficiently large impact to affect travel behaviours, with some individuals potentially choosing not to make the same trip or to use a car instead.

6.22 This clearly demonstrates the importance of replacing the footbridge with an equivalent level of provision.

Impact on Employment (O-2)

6.23 The operation of the Proposal is anticipated to have a **major adverse effect** on employers and employees located in the CBAC's main employment areas (Canning Highway, Sleat Road (North), Kishorn Road (North), Kintail Road and Ogilvie Road). A breakdown of impacts for the four most affected areas is set out below.

Canning Highway

6.24 Businesses and employees located on the Canning Highway are likely to experience **extreme adverse effects** from the Proposal.

6.25 This is because around **3,150 sqm GEA** (2,000 sqm NIA) of commercial floorspace will be lost to deliver the upgrades impacting around **65** employees. Whilst it is feasible that some of these businesses may seek alternative locations within the CBAC area, this may not occur within the short to medium term due to the disruption caused by the construction of the Proposal. Some businesses will be permanently lost, resulting in adverse impacts upon local employment opportunities.

6.26 The businesses that remain are likely to suffer from a long-term increase in noise levels and air pollution from the higher capacity highway, making it more challenging for employees to work effectively. Some may also see a drop in trade if passing traffic falls due to the construction of the dive structures and the adverse impacts upon the local urban realm.

6.27 Accessibility will also be impacted, particularly for pedestrians and public transport users. If crossing are lost it will make it difficult for pedestrians to access businesses on either side of the road. This could increase journey times for employees, particularly when coupled with the re-routing of busses from Canning Highway onto Kintail Road.

Sleat Road (North)

6.28 Businesses and employees located on Sleat Road (North) are also likely to experience **major adverse effects** from the Proposal.

6.29 Like the Canning Highway some land and building take is required to deliver the Proposal. As significantly, most vehicles coming from the east will be re-routed via Sleat Road to access the northern side of the Highway given the anticipated closure of Kintail Road to general traffic.

6.30 Buses will also be re-routed off the main stretch of the Canning Highway running through the CBAC via Kintail Road, Forbes Road and Sleat Road. Whilst this might provide some increased accessibility (depending upon the location of bus stops), it will also add to the noise, pollution, and congestion along this route.

6.31 The combination of changes is likely to substantially increase traffic which will increase journey times for employees, as well as potentially making it a more unpleasant place to work and run a business.

Moreau Mews

6.32 The operation of the Proposal is expected to have a **moderate adverse effect** on businesses on Moreau Mews.

6.33 The area is set to experience an increase in traffic as many local vehicles will be diverted down the road to access a new left turn onto Canning Highway which is likely to increase noise and air pollution. Whilst access on to Canning Highway eastbound will be improved by the new access,

access to Moreau Mews from Canning Highway will be reduced due to the closure of the junction with Kintail Road.

6.34 Like the Canning Highway the loss of crossing points and the re-routing of bus services will also increase journey times for pedestrians coming from the south and public transport users.

Kintail Road (eastern end)

6.35 The operation of the Proposal is expected to have a **minor to moderate adverse effect** on businesses at the eastern end of Kintail Road.

6.36 The closure of the junction with Canning Highway will reduce accessibility to the eastern end of Kintail Road, increasing journey times for some employees accessing work locations by car. Buses will continue to be able to access this route and all bus services from Canning Highway will be diverted along this route, so bus provision will increase.

6.37 Whilst the pedestrian environment around the eastern end Kintail Road may improve, due to lower traffic flows, access to the area from south of Canning Highway will be significantly reduced with the removal of crossing points.

Impact on Education (O-3)

6.38 The Proposal is unlikely to have a major impact on Applecross Primary School and St Benedict's Primary School both of which are outside the CBAC boundary.

6.39 In relation to the former, the re-routing of bus routes from the Canning Highway onto Kintail Road could increase air pollution and impact journey times for those coming from the east. This could impact on learning and enjoyment at school. The magnitude of impact is likely to be low, however, as most impacts will be experienced further to the east.

6.40 In relation to the latter, air pollution could increase given its proximity to the higher capacity Highway and accessibility could reduce for pedestrians due to the loss of informal crossings. Unlike Applecross Primary School students come from both the north and south sides of the Canning Highway.

6.41 While the magnitude of impacts is likely to be low, the sensitivity of users is high given that they are children with little ability to avoid the negative effects. This means that the operational phase is likely to have a significant **moderate adverse effect** on the two schools.

6.42 The higher level of noise from the upgraded Highway could also impact on the Forte School of Music. Users of this facility are highly sensitive to noise impacts.

Impact on Services and Amenities (O-4)

6.43 The operation of the Proposal is expected to have a **moderate adverse effect** on services in the CBAC.

6.44 The operation of a higher capacity Highway is likely to increase air and noise pollution which will impact users' enjoyment and changes to local accessibility will make it more difficult for some groups to access amenities. This is illustrated by the example below.

Rowing WA and Swan River Rowing Club

6.45 The operation of the Proposal is expected to have a **major adverse effect** on these two clubs. This is because the likely increase in air and noise pollution from a higher capacity Highway will

impact on the enjoyment and physical performance of all users who have few alternative facilities to use locally and across Greater Perth.

6.46 The loss of informal crossing points over Canning Highway at Ogilvie Road and the re-routing of buses along the Canning Highway will also impact on those who walk and/or take public transport to access the clubs. These changes will significantly increase journey times for those walking from the north of the Highway or those taking buses from the west which will divert down Sleat Road.

Impact on Health and Wellbeing (O-5)

6.47 The operation of the Proposal is likely to have a range of impacts on the health and wellbeing of CBAC residents, employees and visitors. It is expected to have a ***moderate adverse*** impact on health and wellbeing overall.

6.48 Some of the most prominent impacts are set out below:

Propensity to Walk

6.49 The loss of pedestrian crossings along the Canning Highway will increase journey times for walkers who will have to travel further to cross the road. In the event that the pedestrian bridge at Ogilvie Road is not replaced, this would be particularly problematic, as users would incur a 4-minute increase in walk time. There will similarly be an impact upon current users of the informal crossing at Ullapool Road.

6.50 Any loss in pedestrian connectivity may impact on the willingness of people to walk, which will impact health and wellbeing, since active travel brings a wide range of physical and mental health benefits.

Healthcare Services

6.51 The operation of the Proposal is expected to have significant moderate adverse effects on healthcare services. This is because it is likely that DB Dental will need to be demolished to make way for the Highway upgrades and Mount Pleasant Dental may become less accessible to pedestrians, drivers, and public transport users. The effects on the Perth Integrated Health Centre, which is on Kishorn Road, are expected to be minor adverse as any negative impacts are only like to impact a relatively small number of patients.

Increased Air Pollution

6.52 The upgraded Canning Highway will have a greater capacity to carry traffic and it is anticipated that daily traffic flow could increase by more than double in and around the CBAC by 2051. While detailed modelling of air quality impacts is not yet available from Main Roads, it is likely that there will be a significant increase in background pollutants from the current baseline when operational. This can cause significant respiratory issues – according to the World Health Organisation long-term exposure to PM2.5 (a pollutant released by most vehicles) is associated with an increase in the long-term risk of cardiopulmonary mortality by 6–13% per 10 µg/m3 of PM2.5. The most vulnerable groups are those with pre-existing lung or heart diseases, as well as elderly people and children[23].

[23] Health Effects of Particulate Matter, World Health Organisation (2013)

Loss of Commercial Space

6.53 The loss of commercial space along the Canning Highway is likely to create physical and mental stress for businessowners who will need to look to find other space to operate in. This stress will flow through to employees who will also have to move with the business, which could have significant implications for some peoples' lives and wellbeing.

Community Cohesion

6.54 The Proposal will create an even stronger physical barrier across the CBAC than already exists. This will impact on the ability and willingness of residents to access friends, social networks, and services on different sides of the Highway. Similar schemes delivered in cities elsewhere indicate that building large highway structures can create perceptions of increased isolation. There are a range of negative health and wellbeing impacts associated with isolation, particularly in terms of mental wellbeing.

Place Impacts

6.55 This sub-section considers the impact of the operation of the Proposal on the CBAC's local urban environment. It focuses on the impacts the new Highway will have upon the urban realm, in terms of the sense of place, whilst also considering on-going environmental impacts in relation to noise and local air quality.

6.56 The analysis has utilised all available Proposal information, including plans and descriptions of the proposed layouts, alongside industry best-practice, to determine how the Proposal will be delivered, but it is acknowledged that this will be subject to variation. As such, the assessment of public realm and environmental impacts considers broad criteria that will need to be considered in terms of the impacts, and does not seek to provide any quantitative rigour, at this stage.

6.57 In the absence of a detailed assessment, the analysis has considered the scale of potential impacts in terms of the seven-point scale previously outlined in Chapter 5. This scale has been utilised within the assessment applying professional judgement.

Urban Realm

6.58 The Proposal is expected to have two broad impacts upon the urban realm in terms of the quality of the overall provision and ability to access key public spaces.

Urban Environment and Heritage (O-6)

6.59 The Proposal is expected to have a ***moderate to major adverse*** impact upon urban environment and heritage across the study area.

6.60 The Proposal will significantly increase the overall footprint of the Canning Highway, creating 8-lanes of highway. Within the study area, 4 lanes will predominantly be within the dive structure, although this will only commence to the west of The Esplanade, creating an 8-lane, at-grade, section that then leads down from the Canning Bridge.

6.61 Alongside the removal of the central median and open space on either side of the carriageway, which includes the potential loss of around **100** trees, this will create a significant change in the

urban setting, particularly for frontages along Canning Highway and properties with views over the alignment.

6.62 The Proposal is also likely to induce some additional vehicle trips along the corridor, be that new trips or re-routed trips from alternative strategic routes (e.g., from State Route 1 to Fremantle). There are also concerns identified that the reduction in lane capacity on the at-grade, eastbound carriageway leading from Sleat Road (reducing from 2-lanes to a single lane to permit the new left-turn out of Moreau Mews) could create slow of stationary traffic in peak periods.

6.63 The combined impact of physical change and traffic is likely to create an urban setting that is more akin to an urban expressway, as opposed to a commercial and residential activity centre. As outlined further within the 'property' sub-section, this will affect the value of existing properties located along the frontage (200 residential units and 18,000 sqm NIA of commercial floorspace). Whilst these properties already front onto a busy highway, the Proposal will remove any sense of an urban realm designed for people as opposed to vehicles.

6.64 It would also change the character of centre from a high-amenity, high-quality "leafy" riverside environment to a precinct dominated by a hostile, hard road infrastructure with associated heat island characteristics. This will make the area less appealing to visit and spend time in for both residents and visitors.

6.65 The Proposal will also create changes within the urban environment within other areas of the CBAC area. The proposed changes to the local highway network at Kintail Road junction and Moreau Mews will result in changes to traffic flows around the local streets. Whilst some areas may see positive reductions in traffic (the eastern end of Kintail Road and southern end of Canning Beach Road), Moreau Mews and Sleat Road/Forbes Road are predicted to have large increases in traffic levels. In the case of Moreau Mews, this will substantially change the nature of this road from a low-traffic urban setting, suitable for cycling and walking, to one more dominated by vehicular through movements.

6.66 Whilst the Proposal will not physically impact upon any heritage sites, there are a number of listed heritage places within the CBAC area that will be affected, including the Raffles Hotel, Applecross District Hall, Canning Bridge Library, and the Rowing WA. The increased physical structure of the Canning Highway will impact upon views of, and from, all of these places. Whilst the closure of the Kintail Road junction may reduce direct traffic flows past Applecross District Hall, Canning Bridge Library, and, to a lesser degree, the Raffles Hotel, it will also reduce accessibility to these localities.

Conflicts with Canning Bridge Activity Centre Plan Review

The primary motivations for the Canning Bridge Activity Centre Plan Review ('the Review') were to address community discontent about the height, scale, and quality of new development, as well as the amenity impacts of new development on surrounding communities - particularly to the south of the precinct. A place-based methodology was used to identify, understand, and reimagine the many elements that will enrich the character and amenity of the precinct for it to succeed as a destination and perform its planning role as a transit-oriented development.

A fundamental shift in thinking toward the importance of the public realm guided the resolution of the matters that motivated the Review. All stakeholders contributing to the Review have declared that the quality of public spaces like the foreshore reserve, civic places and streets are crucial to creating an attractive destination for local community and visitors, whether they be workers or people seeking out entertainment – among other things. It was agreed that new buildings alone would not create the outcome everyone desired.

The Review proposes the introduction of a logical calibration of open spaces and street types, each paired to a complimentary rule of land use and building types that would form the built environment. This, in simple terms, creates the foundation for logical development control as well as a basis for vital and orderly Government investment in the public realm, which is vital to attract quality design and development outcomes, as well as business and other private investment into the area.

The challenge for the precinct is how it will accommodate growth of regional commuters without compromising on the place values held by the community and investment in the place to deliver on the expectation of the community and its visitors. The public realm investment necessary to support the precinct (as an agreed outcome of the Review) is at risk from the impacts of the Proposal.

The challenge for the Review is that land use planning remains disconnected from transport planning from the perspective of regional infrastructure investment. The Review has progressed despite invited agency contributions, suggesting poor infrastructure integration with the Activity Centre Plan remains a high risk. If this risk materialises, poor design responses to increasing the capacity of Canning Highway will:

- Significantly impact on the amenity of the street network that connects to Canning Highway - the cornerstone to the place creation strategy of the Review;
- Deter business and private investment, diluting the mixed-use intent for the precinct to localise employment opportunities and reduce car dependency; and
- Lead to further segregation of the community south of Canning Highway (in and adjoining the Activity Centre) from the community services and infrastructure like public transport.

In this event, it is likely that the precinct will never succeed in its role as a transit-oriented development, and the Activity Centre Plan, as required by the State, could fail at the expense of the local community.

Access to Open Space (O-7)

6.67 Whilst the Proposal does not result in any loss in designed public or green space, the expansion of the Highway footprint does encroach on some areas of public open space, in particular around Kishorn Road (north) / Moreau Mews. This area is identified as an opportunity to create an enhanced public space as part of the *Canning Bridge Masterplan*, but this would be negated by the Proposal.

6.68 There will also be considerable loss of green open space around the Swan River Rowing Club, next to the existing pedestrian cycleway that cuts under Canning Bridge. Whilst this may not be a particularly high utilised space currently, it will still represent a key loss of green space within the urban environment.

6.69 The physical aspect of the Proposal will also create additional north-south severance across the CBAC. As outlined within Chapter 3, the loss of the pedestrian bridge and some informal crossing locations will reduce connectivity between the separate communities located north (Applecross) and south (Mount Pleasant) of the Canning Highway. Access to and from the public open space around Kishorn Road (north) / Moreau Mews will be significantly reduced, as well as potentially routes to and from the river foreshore.

6.70 Overall, it is concluded that the Proposal could have a ***minor to moderate adverse*** impact upon access to open space across the study area.

Environment

6.71 Once operational, the Proposal is anticipated to result in higher overall levels of traffic flow along the Canning Highway corridor, be that new trips or re-routed trips from alternative strategic routes (e.g., from State Route 1 to Fremantle).

6.72 In addition, local traffic movements are forecast to be substantially changed with a number of roads likely to have substantially higher vehicular flows (Moreau Mews and Sleat road / Forbes Road). These changes in traffic flows will have impacts upon local emissions, in terms of noise levels and air quality.

6.73 In the absence of specific traffic forecasts for all roads it is not feasible to assess the potential impacts quantitatively, however, the analysis below identifies the scale of potential impacts and sensitive receptors that could be affected.

Noise (O-8)

6.74 The Proposal is expected to have a ***minor to moderate adverse*** impact upon noise levels across the CBAC area.

6.75 Table 6.1 sets out the number of residential properties (with residents) and commercial floorspace (with workers) located within the CBAC area along the streets affected by increased traffic levels.

Table 6.1 Properties and People Impacted by Increased Traffic Volumes

Street	Catchment	Residential Properties	Estimated Residents	Commercial Floorspace	Estimated Workers
Canning Highway	60m	200	360	18,000	450
Locally Impacted Roads	60m	50	120	8,800	320

Source: Hatch

6.76 All these properties and individuals could be affected by increased noise levels associated additional traffic. Furthermore, if future development proposals are taken into account, the number of residents and workers impacted will rise over time.

6.77 Whilst no specific sensitive receptors (e.g., schools) have been identified within these areas, there will still be significant impacts upon residents and workers. There may be some streets where traffic flows will reduce (eastern end of Kintail Road and southern end of Canning Beach Road) and these areas could benefit from marginal improvements to overall noise levels from traffic.

Air Quality (O-9)

6.78 The Proposal is expected to have a ***moderate adverse*** impact upon local air quality.

6.79 Table 6.1 above sets out the number of residential properties (with residents) and commercial buildings (with workers) located within the CBAC area along the streets affected by increased traffic levels.

6.80 Like noise, all these properties and individuals could be affected by reduced air quality associated with increased traffic emissions. Furthermore, if future development proposals are taken into account, the number of residents and workers impacted will rise over time. Whilst no specific sensitive receptors (e.g., schools) have been identified within these areas, there will still be significant impacts upon residents and workers.

6.81 Of particular concern is the potential for stationary traffic forming along the eastern carriageway of Canning Highway leading from Sleat Road. This is where the carriageway will narrow from 2-lanes to a single lane to permit the new left-turn out of Moreau Mews. Slow moving, or stationary traffic, results in much higher densities of vehicle emissions forming that could particularly affect the local area.

6.82 As with noise levels, there could be some improvement to local air quality at the eastern end of Kintail Road and southern end of Canning Beach Road.

Property Impacts

6.83 The operation of the Proposal will impact on the quality of place as set out in the previous sub-section, particularly in relation to noise, air pollution, accessibility, and the urban environment. These impacts tend to have an adverse impact on sale and rental values of residential and commercial properties, resulting in a financial cost for residents, property developers and investors.

6.84 Analysis from PwC[24] indicates that major transport infrastructure developments that increase blight in an area can cause property values to fall by 10% within a 120m catchment and up to 6% within a 500m catchment. Further research from the UK by Hamptons International[25] indicates that property values within 500m of a proposed major train line (HS2) fell by 4.5% in absolute terms and 8.9% in relative terms versus wider house price trends. The PwC analysis also concluded that rental values may fall from the national average of 5% to 7% down to between 3% to 5%, suggesting a range of percentage loss in rental income from properties of between 29% to 40%.

6.85 It is recognised that these blight impacts relate to an entirely new infrastructure scheme being constructed, whereas the Duck & Dive Proposal represents an expansion of an existing highway, albeit substantially changing the urban environment.

6.86 Using the research as an underlying basis, we have estimated a range of potential impacts upon property values within the defined areas outlined below and shown diagrammatically within Figure 6.1.

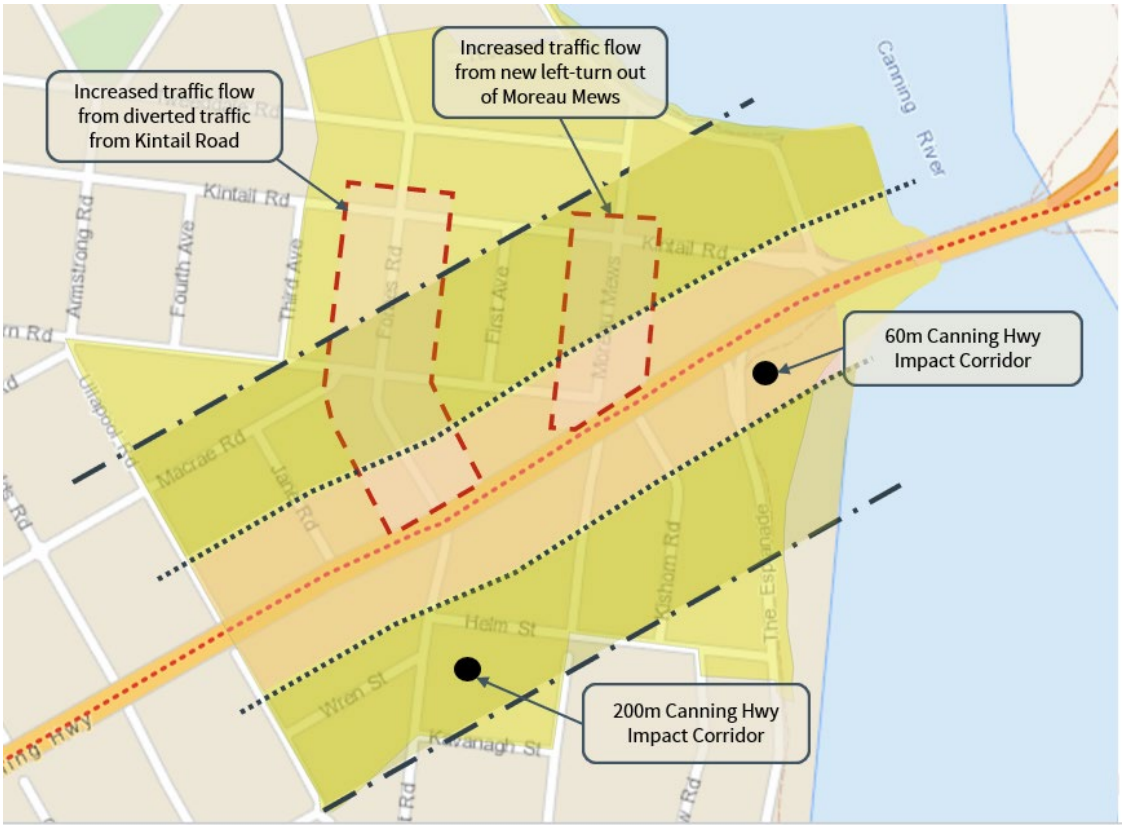
- Within 60m of Canning Highway (e.g., properties located directly off the carriageway)
- Within 60m to 200m of Canning Highway
- Within 60m of Moreau Mews (e.g., properties located directly off the carriageway)

[24] HS2 Property Bond Cost Report, PwC (2014)

[25] Linking Housing Markets: The effect of transport infrastructure on housing, Hamptons International (2014)

- Within 60m of Sleat road (north) / Forbes Road (e.g., properties located directly off the carriageway)

Figure 6.1 Property Impact Areas



Source: Hatch and Canning Highway Planning Study, 2015 (BG&E)

6.87 It is assumed that properties within 60m of the Canning Highway will experience the greatest fall in value owing to blight, as they will experience both the substantial increase in the physical structure of the road, as well as the increased noise and negative impact of air quality. Properties located further back from the highway (60m to 200m) are still within a range to be affected by noise and air quality, but perhaps less affected by visual blight.

6.88 Properties located along Moreau Mews and Sleat Road (north)/Forbes Road are not only, generally, within the 200m catchment of Canning Highway, but will also be affected by significant additional local road traffic, in terms of noise and air quality.

6.89 On this basis, a range of impacts have been identified and are presented within Table 6.2. It should be noted that the residential and commercial value are not directly comparable, as follows:

- For residential property, the impacts relate to a one-off loss in property value and so are applied to the estimated total value of the property.
- For commercial property, the impacts relate to annual rental values and so are applied on an annual basis (over 10 years) on average rental values achieved by the property.

Table 6.2 Forecast Property Blight Impacts				
Impact Area	**Residential Property Value Impact**		**Commercial Rental Property Impact**	
	Low	**High**	**Low**	**High**
60m Canning Highway	5.50%	8.00%	8.00%	11.00%
60m Moreau Mews	3.25%	4.50%	4.50%	6.25%
60m Sleat/Forbes Road	2.75%	4.00%	4.00%	5.75%
200m Canning Highway	2.50%	3.50%	3.50%	5.00%

Source: Hatch

6.90 These values are applied within the individual assessment of residential and commercial blight within the sub-sections below.

6.91 The impacts for Moreau Mews and Sleat Road / Forbes Road have been combined within the reporting (referenced as 'locally impacted roads) as these are smaller impacts due to the number of properties affected

Residential Blight (0-10)

6.92 The impact of blight upon overall residential property values has been estimated for three separately defined types of housing:

- **Existing Housing:** estimated levels and values of residential properties currently within the CBAC and RAC area
- **Forthcoming Housing:** recently constructed properties or housing approved for construction
- **Aspirational Housing:** longer-term targets for housing delivery across the CBAC area

Existing Housing

6.93 Using a combination of the Bing Maps GIS layer and desktop research, it is estimated that there are around **200** residential properties within 60m of the Canning Highway and **50** fronting onto locally impacted roads. Using evidence from Reiwa[26] (2019) it is estimated that these properties have a combined current value of around **AU$241m**.

6.94 A loss in value for the properties within 60m of Canning Highway across could see a theoretical one-off loss of value of between **AU$11.5m** and **AU$16.5m** for residents and investors based on current values.

6.95 A loss in value for the properties within 60m of the locally impacted roads could see a further theoretical one-off loss of value of between **AU$2.2m** and **AU$3.1m** for residents and investors.

6.96 There are an additional **550** residential properties within a 200m radius of the Proposal. It is estimated that these properties have a combined current value of around **AU$526m** and that a

[26] Data from Reiwa (2020) indicates the latest house prices. The average house and unit price for Applecross and Mount Pleasant was applied respectively to each residential premises counted

fall in value attributed to the new highway Proposal could see a theoretical loss of value of between **AU$13m** and **AU$18m.**

6.97 This analysis is summarised within Table 6.3.

Table 6.3 Existing Housing Blight Impact

Area	Number of Properties	Estimated Combined Value	Estimated Reduction in Value	Estimated Loss of Value
60m Canning Highway	200	AU$ 169m	5.50% - 8.00%	AU$11.5m - AU$16.5m
Locally Impacted Roads	50	AU$ 72m	2.75% - 4.50%	AU$ 2.2m - AU$ 3.1m
200m Canning Highway	550	AU$ 526m	4.00% - 6.00%	AU$ 13.0 - AU$ 18.0m

Source: Hatch, Reiwa, and PwC

Recently Completed and Forthcoming Housing

6.98 Planning data from the City of Melville indicates that there are around **725** residential properties that have either been recently completed, currently in construction or approved for construction within 60m of the Highway and **55** on locally impacted roads. The combined value of these once complete is estimated to be **AU$473m** in current prices and the new proposed highway Proposal could see a theoretical loss of value of between **AU$25m** and **AU$37m** significantly impacting developers' profit margins[27].

6.99 A further **490** residential properties have been recently completed, are in construction or approved for construction, within the 200m buffer which could see a theoretical loss of between **AU$9m** and **AU$12.5m** as a result of the new highway.

Aspirational Housing

6.100 The *Canning Bridge Activity Centre Plan (2016)* sets out a target to deliver around 4,273 new residential dwellings in the City of Melville's portion of the CBAC by 2051. Removing the 1,270 properties currently in construction or approved for construction within the 200m buffer leaves around **3,000** further homes to come forward over the next thirty years.

6.101 Assuming that around **30%** are delivered within 60m of the Canning Highway or fronting onto the locally impacted road network it is estimated that these properties would have a value of around **AU$545m** in today's prices. A fall in prices could see a theoretical loss of **AU$44m** and **AU$55m** which is significant loss of value. The actual loss value is likely to be far higher due to inflation and expected continued property price growth.

6.102 An additional **AU$36m** and **AU$55m** of value could be lost within a wider catchment on the basis that around **50%** of homes are delivered within the 200m buffer[28].

[27] These values ae provided in current prices but are subject to change over time in line with inflation and changing market conditions.

[28] Excluding the properties within the 60m buffer.

Commercial Property Blight (O-11)

6.103 The impact of blight upon overall commercial property rental values has been estimated for two separately defined types of properties:

- **Existing Commercial Property:** estimated levels and values of commercial properties currently within the CBAC area.
- **Aspirational Commercial Property:** longer-term targets for commercial property delivery across the CBAC area.

6.104 It should be noted that no 'forthcoming' commercial property that has either recently been completed, or has been approved, has been identified within the CBAC area.

Existing Commercial Property

6.105 There is around **18,000 sqm NIA** of employment floorspace within 60m of the Canning Highway and **9,000 sqm NIA** fronting onto locally impacted roads. It is estimated that these properties have a combined annual rental value of c.**AU$7.1m** based on evidence generated from a desktop review of prevailing rents locally.

6.106 A fall in rental values associated with blight for the properties along Canning Highway could see a theoretical reduction in rent of between **AU$380k** and **AU$520k** per annum based on current prices. This equates to between **AU$3.0m** and **AU$4.0m** over a ten-year period (Net Present Value)[29].

6.107 A fall in rental values associated with blight for the properties along the locally impacted roads could see a theoretical reduction in rent of **AU$100k** to **AU$140k** per annum. This equates to **AU$0.75m** to **AU$1.0m** over a ten-year period (Net Present Value)[30].

6.108 There are an additional **20,000 sqm** of commercial floorspace within a 200m radius of the Proposal. It is estimated that these properties have a combined annual rental value of **AU$5.6m** and that a fall in prices could see a theoretical loss of value of between **AU$200k** and **AU$280k** per year. This equates to **AU$1.5m** and **AU$2.1m** over a ten-year period (Net Present Value)[31].

6.109 This analysis is summarised within Table 6.4.

Table 6.4 Existing Commercial Property Blight Impact

Area	Volume of Commercial Floorspace	Estimated Combined Rental Value pa	Estimated Reduction in Value	Potential Theoretical Reduction in Rent pa	Theoretical Reduction in Rent Over Ten Years
60m Canning Highway	18,000	AU$4.7m	8-11%	AU$ 380k – AU$ 520k	AU$ 3m - AU$ 4m
Locally Impacted Roads	8,800	AU$2.3m	4-6.3%	AU$ 100k – AU$ 140k	AU$ 0.75m - AU$ 1m

[29] Commercial loss has been estimated to commence in the mid 2020s and has been discounted to today's prices using a nominal local government discount rate

[30] As above

[31] As above

200m Canning Highway	20,000	AU$5.6m	3.5-5%	AU$ 200k – AU$ 280k	AU$ 1.5m - AU$ 2.1m

Source: Hatch, Reiwa, and PwC

Aspirational Commercial Property

6.110 The *Canning Bridge Activity Centre Plan (2016)* sets out a target to deliver around 2,750 new jobs in the City of Melville's portion of the CBAC by 2051. Given most of these will be office-based roles it is assumed that this will require around **66,000 sqm** of office space to be built across the area based on the aforementioned density guidance.

6.111 Assuming that around 30% of this floorspace will be built within 60m of the Canning Highway or fronting onto locally affected roads it is estimated that these properties would have a combined annual rental value of around **AU$5.6m** in today's prices.

6.112 A fall in values due to blight could see a theoretical loss of **AU$450k** and **AU$566k** in rental value per annum. Over ten years this could be a loss of **AU$3.8m** to **AU$4.8m** (Net Present Value)[32]**.**

6.113 An additional **AU$377k** and **AU$565k** of annual rental value could be lost within a wider catchment on the basis that around 50% of floorspace is delivered within the 200m buffer. This equates to between **AU$3.1m** and **AU$4.7m** over ten years (Net Present Value).

[32] As above

Prosperity Impacts

6.114 The operation of the Proposal will impact on the CBAC's businesses and economy, primarily due to the loss of commercial assets, business disruption and potentially adverse impacts on the strategic perceptions of the area as a place to invest and do business. As set out under the 'People' subsection the impact to employers and employees is anticipated to be **major adverse.** This is explored in more detail in this sub-section.

Local Business (O-12)

6.115 As set out in the previous chapter on construction impacts, it is estimated that around **450 sqm GEA** of office space (350 sqm NIA) is expected to be lost and **2,700 sqm GEA** of non-office commercial space (1,650 sqm NIA) (e.g., retail, restaurants, cafes, gyms etc) will fully or partially taken to make way for the Proposal.

6.116 It is estimated that this will lead to the loss of around **65** full time equivalent jobs in the CBAC based on aforementioned employment densities. This represents an annual productivity fall of **AU$4.7m** per year for the area and **AU$23.8m** over 5 years taking into account projected inflation[33].

6.117 The operation of the Proposal could also harm performance for those businesses that are not affected by demolition. This is because some businesses will become less accessible and encounter less passing trade as result of changes to traffic routing. For example:

- The funnelling of through traffic beneath the Canning Highway is likely to reduce the amount of passing trade at ground level. This could negatively impact the financial performance of shops, restaurants, cafés, and services in the commercial heart of the CBAC;
- The closure of the Kintail Road junction to general traffic will inevitably reduce the number of cars travelling down Kintail Road and Canning Beach Road which is likely to have knock-on impacts for business performance (e.g., for Steamab Coffee and Tea); and,
- A failure to replace the pedestrian bridge at Moreau Mews / Ogilvie Road (as yet unconfirmed), as well as the removal of informal crossing points, will restrict pedestrian movements across the Canning Highway which may reduce trade for some businesses that are difficult to access and not on natural desire lines.

6.118 Changes in traffic routing will also increase travel times to and from some businesses creating additional financial costs for some businesses and employees. This is particularly the case for businesses located on Kintail Road (e.g., Hexagon Resources, Macallum Group, acQuire Technology Solutions Ltd, WA Property Project Marketing and PDC Engineering) owing to the closure of the Kintail Road junction to general traffic. Every employee or visitor travelling by private vehicle will have to traverse an additional 300m to 1.5km each trip which equates to a significant quantum of additional time and money when grossed up to the total number of employees and visitors over the course of a year (Figure 3.8).

6.119 Employees and visitors travelling by public transport to and from businesses on the Canning Highway will also experience increased travel times. The re-routing of busses off the Canning

[33] Analysis based on a start date in the mid 2020s

Highway via Kintail Road, Forbes Road and Sleat Road could add between one and three minutes to every journey (Figure 6.2). The re-positioning of bus stops could also add up to four minutes to the walk time of users potentially impacting business productivity and the take up of public transport (Figure 6.3).

6.120 There is also a risk that that the increased volume of traffic on the Canning Highway could increase the number of major road crashes on the route. This would impact the productivity of local businesses due to disruptions to journey times and it would also create a range of additional economic and social costs. An increase of 20% from the baseline of 40 per annum (one crash every 9 days) would equate to 8 additional accidents per annum (one crash every 8 days); an increase of 40% would equate to an additional 16 accidents per annum (one crash every 6.5 days); and an increase of 60% would equate to 24 additional accidents per annum (one crash every 5.5 days).

Future Investment (O-13)

6.121 The CBAC has been identified as a priority for growth and urban consolidation in a wide range of regional policy documents (including *Perth & Peel @ 3.5Million: Central Sub-Region Planning Framework; City of Melville Local Planning Strategy; Canning Bridge Activity Centre Plan; and Canning Bridge Masterplan*).

6.122 The current Canning Bridge Activity Centre Plan sets out that the City of Melville's portion of the CBAC should accommodate around 4,200 new dwellings and 2,750 additional jobs by 2051. Attracting inward investment from developers, businesses and investors is an important part of realising this ambition and this is intimately linked to proposals to improve the urban realm, local amenity offer, environment and transport options.

6.123 The delivery of the Proposal, which is expected to create an urban expressway environment rather than the proposed commercial and residential activity centre, may make it more difficult to realise these ambitions.

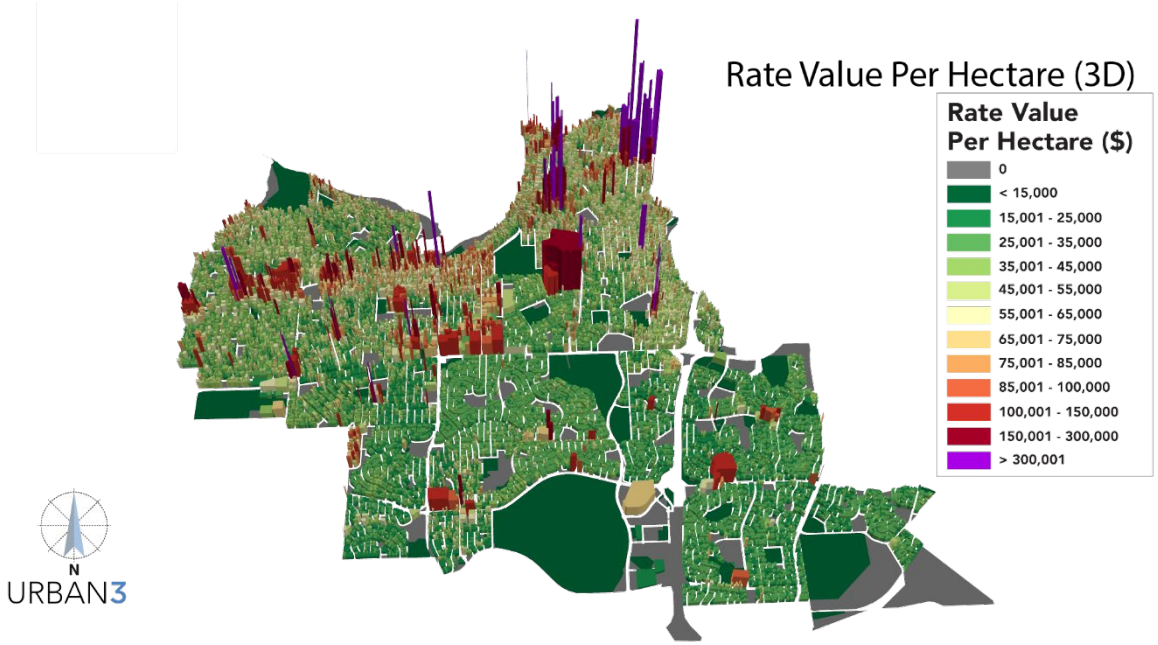
6.124 This is because the blight associated with the Proposal (i.e., noise, pollution, and dust) could make the CBAC less attractive to people to live, work and visit. This may be exacerbated by a reduction in public transport accessibility along the Canning Highway, which is currently a major attractor for the area, and reduced walkability across the activity area.

6.125 This, alongside potential reductions in residential and commercial property values, may make the area less attractive to developers. This is particularly the case if profit margins, and viability, are affected. Coupled with the direct loss of commercial space this will make it more difficult to achieve development ambitions for the area.

Local Finances (O-14)

6.126 The CBAC has the most productive land in the City of Melville owing to its high development density and land values. This money is used to fund a wide range of important city-wide services such as waste, libraries, leisure centres, parks, community health, social housing, and transport. The relative importance of the area to the City's finances is illustrated in the figure below.

Figure 6.2 Rateable Value Per Hectare, City of Melville (2020)



Source: Urban Three

As set out in the previous sub-section, blight from the operation of the Proposal is likely to cause sale and rental values to fall from the baseline position. This will impact on local tax income which is directly tied to gross rental values.

While other factors and market pressures are likely to bring sale and rental values back to and beyond their current position should the Proposal come forward, the new highway is expected to create a one off 'shock' to values which would lower the baseline position. The values achieved over the long term therefore would be lower than they would have been without the shock.

Existing Tax Income

6.127 In relation to commercial property, it is estimated that there could be a total theoretical reduction in rent of **AU$675k to AU$940k** each year within 200m of the Proposal which equates to **AU$5.2m to AU$7.2m** over ten years[34].

6.128 It is estimated that this reduction in commercial rents could lead to a fall of **AU$52k** to **AU$73k** each year in local tax income based on current rates[35]. This could mean a reduction in the net present value of **AU$400k** to **AU$940k** over ten years[36].

[34] Analysis based on a start date in the mid 2020s

[35] City of Melville Corporate Budget 2020-2021

[36] Commercial loss has been estimated to commence in 2024 and both these values and business rates have been discounted to today's prices using a nominal local government discount rate. Commercial business rates have been applied at 7.73 cents in the dollar against the prevailing rental values for each premises identified.

6.129 In relation to residential property, while many of the properties are owner-occupied gross rental value has been estimated by applying the prevailing rental yield for Applecross (2% for house and 3.6% for a unit) and Mount Pleasant (2.2% for a house and 3.3% for a unit)[37].

6.130 If values fall as per the reductions set out in the previous sub-section, there could be a reduction of up to **AU$45k** to **AU$64k** each year in local tax income based on current rates[38]. This equates to a fall in the net present value of **AU$344k** to **AU$490k** over ten years[39].

Forthcoming Tax Income

6.131 As previously discussed, there are around **725** residential properties that have either been recently completed, are currently in construction, or approved for construction within 60m of the Highway and **55** fronting onto locally impacted roads. An additional **490** residential properties are in construction or approved for construction within the 200m buffer.

6.132 Based on the prevailing values and rental yields, these premises will pay a total of around AU$2m in rates per annum. A fall in gross rental values for properties within 60m of the Highway and the remaining properties within the 200m buffer would equate to a total theoretical loss of **AU$90k-AU$128k** per year. This could reduce the net present value of expected local tax income by between **AU$680k** and **AU$980k** over ten years.

[37] Yield values taken from Realestate.com

[38] City of Melville Corporate Budget 2020-2021

[39] Analysis based on a start date in the mid 2020s

PART C ECONOMIC IMPACT ASSESSMENT: STUDY AREA 2

PART C: ECONOMIC IMPACT ASSESSMENT: STUDY AREA 2

Summary of Impacts

Summary of Key Impacts

- Removal of informal pedestrian crossings, and formal pedestrian crossing such as the intersection of Ardross Street and Canning Highway creates a barrier for accessibility between local north and south neighbourhoods;
- The 3-4 year period for construction will have both short-term constraints to accessibility of businesses along Canning Highway, which can have long lasting financial impacts of the current businesses; and
- The urban environment of the Riseley Activity Centre will transform to one more dominated by vehicle access, decreasing walkability, safety for pedestrians and urban environment which can impact usership and ultimately the economic development of the area.

Construction Phase Impacts

People

Overall Impact = Moderate to Major Adverse

- C-1: Local Transport User Impacts: Moderate adverse
- C-2: Impact on Employment: Major adverse
- C-3: Impact on Education: Major adverse
- C-4: Impact on Services and Amenities: Moderate adverse
- C-5: Impact on Health and Wellbeing: Moderate adverse

Place

Overall Impact = Moderate to Major Adverse

- C-6: Urban Environment: Major adverse
- C-7: Ecology: Moderate adverse
- C-8: Emissions: Moderate to major adverse

Property

Overall Impact = Moderate to Major Adverse

- C-9: Housing Blight: Moderate to Major adverse
  - 7 homes lost, 16 residents displaced
  - 800 homes directly blighted, 200 significantly impacted
- C-10: Commercial Property Lost: Major adverse
  - 11,550 sqm floorspace (GEA) lost, with 255 jobs lost
  - AU$30m loss in economic value per annum
- C-11: Commercial Property Blight: Moderate adverse
  - 44,000 sqm commercial floorspace (NIA) affected, 22,700 significantly affected

Prosperity **Overall Impact = Major Adverse**

- C-12: Local Business and Employees: Major adverse

Operational Phase Impacts

xxviii. The identified impacts of the Proposal during the operational phase are summarised below. The same categories of impact have been utilised.

People **Overall Impact = Moderate to Major Adverse**

- O-1: Local Transport User Impacts: Moderate to major adverse
  - Pedestrians – significant, if pedestrian bridge at crossing Ardross St/ Canning Highway is not build
- O-2: Impact on Employment: Moderate adverse
- O-3: Impact on Education: Moderate to major adverse
- O-4: Impact on Services: Moderate adverse
- O-5: Impact on Health and Wellbeing: Moderate adverse

Place **Overall Impact = Moderate Adverse**

- O-6: Urban Environment & Heritage: Moderate to major adverse
- O-7: Open Space: Minor to moderate adverse
- O-8: Noise: Minor to Moderate adverse
- O-9: Local Air Quality: Moderate adverse

Property **Overall Impact = Moderate to Major Adverse**

- O-10: Housing Blight: Moderate to major adverse
  - 'Existing housing' one-off loss = AU$ 32m to AU$ 45.5m
  - 'Forthcoming housing' one-off loss = AU$ 2.3m to AU$ 3.3m
  - 'Aspirational housing; one-off loss = AU$3.3m to $4.7m
- O-11: Commercial Property Blight: Moderate adverse
  - 'Existing commercial' loss = AU$6.5m to AU$9m *(NPV over 10 years)*
  - 'Aspirational commercial' loss = AU$ 1.6m to AU$2.2m *(NPV over 10 years)*

Prosperity **Overall Impact = Moderate Adverse**

- O-12: Local Businesses: Moderate adverse
  - Up to 255 jobs lost
  - AU$ 30.7m economic value lost per annum
- O-13: Future Investment: Moderate adverse
- O-14: Local Government: Minor to moderate adverse
  - Commercial tax income lost= AU$ 500k to AU$ 700k over 10 years
  - Residential tax income lost = AU$ 490k to AU$ 685k over 10 years

Notable differences that the proposal is likely to have on Study Area 2 compared to Study Area 1 are summarised below:

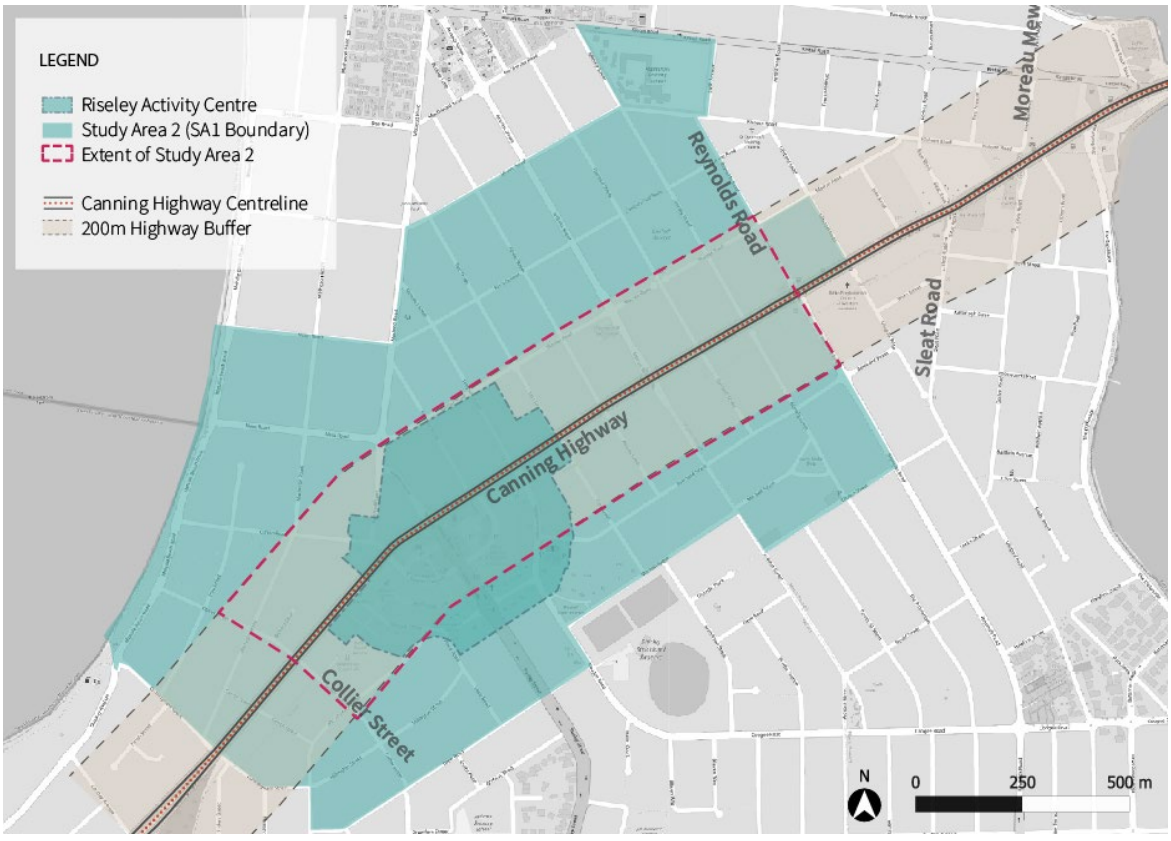
- Existing Public Transport remains largely unchanged in Study Area 2;
- The impact on Education is greater as the primary school and kindergarten are located adjacent to Canning Highway;
- Comparing the commercial property impacts of the two study areas, Study Area 2 notes a significantly larger footprint although some buildings will only be partially affected the disruption of business activity could still result in significant job and productivity losses;
- Residential housing blight for forthcoming and aspirational housing is lower in Study Area 2 in comparison to Study Area 1 which is likely a result of the lower density and residential dwelling targets.

7. Construction Phase Impacts: Study Area 2

Introduction

7.1 Similar to Part B, this chapter focuses on the construction phase of the Proposal and how it could create economic, social and environmental costs, for the section of the Proposal between Reynolds Road and Collier Street. The area will be called 'Study Area 2 for the purpose of consistency in this Chapter.

Figure 7.1 Study Area 2



Source: Hatch

7.2 As outlined in Chapter 3, there is currently limited detail around the approach and duration of construction. It is anticipated, however, that an infrastructure project of this nature will significantly reduce road capacity and require closure of sections of the Highway for limited periods.

7.3 Whilst many of the dates relating to the scheme currently remain unknown, and it may not come forward for 10 to 15 years, for the purposes of the analysis, the following key assumptions have been made in relation to the section of Canning Highway between Reynolds Road and Collier Street.

- It will be closed for short periods of up to three days at a time;
- It will have capacity reductions of between 33% and 66% for up to four years; and,
- Speed restrictions will be in place for up to four years.

Impact Areas

7.4 The construction of the Proposal is anticipated to have a range of impacts upon 'people', 'place', 'property', and 'prosperity':

- People
  - C-1: Local Transport User Impacts
  - C-2: Impact on Employment
  - C-3: Impact on Education
  - C-4: Impact on Services and Amenities
  - C-5: Impact on Health and Wellbeing
- Place
  - C-6: Urban environment
  - C-7: Ecology
  - C-8: Emissions
- Property
  - C-9: Housing Blight
  - C-10: Commercial Property Lost
  - C-11: Commercial Property Blight
- Prosperity
  - C-12: Local Business and Employees

7.5 A summary and narrative for each individual element is presented in the sub-sections below.

People Impacts

7.6 This sub-section considers the impact of the construction phase on the people and community within and surrounding the Proposal boundary. It focuses on impacts related to local transport users, education, services and health and wellbeing. Impacts fall into two main categories:

- **Direct impacts:** demolition / loss of properties and land; and,
- **Indirect impacts**: blight on community facilities caused by the construction of the Proposal and disruption to accessibility.

7.7 There are no industry-wide accepted methods for assessing the community effects of infrastructure projects. Determining the significance of impacts has therefore been developed using existing guidance and methods established for other infrastructure projects. This has involved assessing the ***significance*** of a community effect by considering the ***magnitude*** of the impact and the ***sensitivity*** of users.

7.8 The ***magnitude*** of an impact is its severity or scale considering the spatial extent, the number of people affected and the duration of the impact. To determine the magnitude, the characteristics of impacts have been assessed and classified as high, medium, low, or negligible.

Table 7.1 Magnitude of Cost Impact

Impact magnitude	Definition
High	A very adverse cost impact that is very likely to affect large numbers of people (with the number depending on the local context and nature of the impact) and that will usually constitute a long-term impact on baseline conditions
Medium	A cost impact that is likely to affect a moderate number of people (with the number depending on the local context and nature of the impact)
Low	A cost impact that is likely to affect a small number of people and/or the base case is not affected beyond the short or medium-term duration
Negligible	A cost impact that is temporary in nature and/or is anticipated to have a slight or no effect on the well-being of people

Source: HS2 Ltd (2018): HS2 Phase 2b - Scope and Methodology Report

7.9 The ***sensitivity*** of a user has been determined by assessing the extent to which users of the facility have the capacity to adapt to any adverse impacts. This relates to the importance, scarcity, and size of community facilities. Sensitivity will be classified as high, medium, or low.

Table 7.2 Sensitivity of Effects

Impact magnitude	Definition
High	Individuals or user groups that have little or no capacity to experience the impact without incurring a significant effect

Medium	Individuals or user groups that have a limited or average capacity to experience the impact without incurring a significant effect
Low	Individuals or user groups that generally have adequate capacity to experience impacts without incurring a significant effect

Source: HS2 Ltd (2018): HS2 Phase 2b - Scope and Methodology Report

7.10 The ***significance*** of a community effect is determined by the magnitude of the impact and the sensitivity of users as Table 7.3 below illustrates.

7.11 Significant impacts are those considered to have major adverse or moderate adverse effects on people and/or facilities. Major adverse effects occur if both the magnitude and sensitivity are considered to be high or medium. Effects are moderate adverse if the magnitude is high and the sensitivity is low (or vice versa). Where a facility or service needs to be demolished to make way for the Highway it is classified as an ***Extreme Adverse Effect***, which is even more significant than a Major Adverse Effect.

Table 7.3 Significance of effects

Significance		**Impact magnitude**			
		High	**Medium**	**Low**	**Negligible**
Sensitivity of users	**High**	Major adverse (significant)	Major adverse (significant)	Moderate adverse (significant)	Minor adverse (not significant)
	Medium	Major adverse (significant)	Moderate adverse (significant)	Minor adverse (not significant)	Negligible (not significant)
	Low	Moderate adverse (significant)	Minor adverse (not significant)	Negligible (not significant)	Negligible (not significant)

Source: HS2 Ltd (2018): HS2 Phase 2b - Scope and Methodology Report

7.12 A detailed breakdown of the assessment that has informed this sub-section is provided in Appendix B. This illustrates how judgements have been reached for each focus area and community facility. The figure below illustrates some of the specific facilities that were considered as part of the analysis.

Figure 7.2 Community Services and Amenities

Source: Hatch

Impact of Construction on Local Transport Users (C-1)

7.13 The construction phase of the Proposal will have a range of impacts upon local highway, bus and walking & cycling movements across Study Area 2. Whilst some of these will mirror the longer-term operational effects outlined in Chapter 10, there will be a range of direct impacts along the Canning Highway that will disrupt access and movement.

7.14 Whilst there are many unknowns around the construction plan for the Proposal, it is clear that it will require significant capacity reduction along the Canning Highway and speed restrictions whilst works are completed. In addition, pedestrian movements will be restricted affecting movements both along the Canning Highway, as well as across.

7.15 Similar to study area 1 effects, It is estimated that at least **30-40 seconds** could be added to journey times between Reynolds Road and Collier Street Street as a result of speed restrictions, whilst congestion from capacity reductions are likely to result in further delays (e.g., a further 30 seconds). The Canning Highway carries approximately 41,333[40] vehicles per day Study Area 2 each day that may be affected by these delays.

7.16 Travel delays can be translated into potential economic losses by applying an economic value of people's time that accounts for activities they could otherwise be undertaking (e.g., working

[40] Riseley Street Activity Centre Master Plan – Streetscapes, 2017

or leisure time)[41]. An average delay of 1 minute per trip 41,333 individuals would equate to just under AU$3.8 million per annum.

7.17 Bus users will not be impacted severely by changes to the bus routes. Bus stops will remain in their current locations with the exception of the bus stop East of Riseley which is moved to east of Fletcher (going Eastbound) in the operational phase.

7.18 It is anticipated that bus stops will be impacted during the construction phase as they are temporarily moved for part of the construction phase which will have a **minor adverse** impact upon travel times. It is unclear how services will operate through the construction phase.

7.19 The removal of the four-way intersection on Ardross Street and Canning Highway intersection as part of the construction phase will have a significant adverse impact upon pedestrian movements within this area. When the project is complete, it is understood a proposal for a pedestrian bridge at the Ardross Street intersection is being considered. If the proposal does not materialise the significant pedestrian adverse effect will be sustained into the operational phase. During the construction phase, there may be a temporary period of time for the removal of the existing pedestrian crossing and construction of the bridge which will impact pedestrian travel. The two closest formal crossings are on Riseley Street and Reynolds Road which are both around a 5-7 min walk from Ardross St for an able bodied person. Crossings at both these intersections will also be impacted during construction. It is recommended that temporary access be provided to minimise disruption. No footfall surveys are available with which to determine the scale of this impact, however, if the intersection was used for 500 pedestrian trips per day this would translate to an economic loss of up to **AU$200,000 per annum**.

7.20 Whilst there is insufficient data to quantify the full scale of impacts, it is clear that the construction of the Proposal will have a **major adverse** impact upon travel times and journey reliability through the full three to four years of construction.

Impact of Construction on Employment (C-2)

7.21 As well as the direct loss of commercial properties and the long-term loss of associated employment within them (discussed further within the property section below), the construction phase will impact upon access to and from employment locations, as well as the quality of working environment, within the Study Area 2.

7.22 The noise and disruption associated with the construction will affect employment locations and the workers within them. There are 22,721 sqm of commercial floorspace within 60m of the Canning Highway and around a further 21,445 sqm within 60m to 200m of the Canning Highway.

7.23 All of these will be affected by blight during construction which could have a negative impact upon workers (this is discussed further within the 'prosperity' section below)

7.24 Direct pedestrian access to premises fronting the Canning Highway will be affected for long periods during the works to widen the carriageway. Whilst many of these premises have secondary access points to the side and rear, the general levels of disruption will affect those workers accessing the area on foot. This particularly includes those residing or parked on the opposite side of Canning Highway to their destination of choice.

7.25 In addition, vehicular access by both private car and bus will be affected to and from the area. It is anticipated that the combined loss in road capacity and speed restrictions will significantly

[41] Australian Transport Assessment and Planning calculate Average Weekly Earnings rate as AU$37.46 per hour (June 2013) and that private travel is valued at 40% of this rate.

slow traffic along Canning Highway and affect access to and from the Study Area 2 during the construction phase. The construction of the intersections and existing secondary road entry/exit on/off Canning Highway will have significant impact on workers journey to and from work. Whilst the phasing of works has yet to be defined, the potential loss of access (Figure 7.3) includes:

- Simpson Street have no access impediments, other than oncoming traffic, the proposal will only be left out
- Ardross Street existing is a signalised four-way intersection, the proposal will only be left in (north side) and left out (south side)
- Willcock Street (south side) currently is a left in and left out, through the proposal it will be converted to a left out only
- Alness Street existing is a left in and left out, the proposal will be a cul de sac
- Tain Street on the north side is currently a left out, the proposal is for the access to change to a cul de sac

Figure 7.3 Side Road Modification and Accessibility Changes

Road	Side of Canning Highway	Current Access	Proposed Access
Collier Street	Both	Left-in/left-out	Left-in/left-out
Willcock Street	South	Full	Cul-de-sac
Conon Road	North	Left-in/left-out	Left-in/left-out
Kearns Crescent (W)	South	Left-in/left-out	Left-in/left-out
Riseley Street	Both	Full	Full
Fletcher Street	North	Left-in/left-out	Left-in/left-out
Kearns Crescent (E)	South	Left-in/left-out	Left-in/left-out
Simpson Street	North	Full	Left-out
	South	Full	Left-in
Tain Street	North	Left-in/left-out	Cul-de-sac
	South	Cul-de-sac	Cul-de-sac
Alness Street	North	Left-in/left-out	Cul-de-sac
	South	Left-in/left-out	Cul-de-sac
Ardross Street	North	Full	Left-in

Source: Canning Highway Planning Study, 2015

7.26 It is anticipated that with the multiple changes to street access of local roads, there will be traffic diversion to Riseley Street and Reynolds Road. Specifically, the loss of the signalised four-way intersection at Ardross Street will have a significant impact of access and traffic congestion on the parallel streets.

7.27 It is unclear how services will operate through the construction phase, but this is likely to result in a reduced accessibility for workers accessing the area by bus.

7.28 These combined impacts are anticipated to have a **major adverse** impact upon access to employment opportunities within Study Area 2.

Impact of Construction on Education (C-3)

7.29 Study Area 2 includes multiple schools both within and in close vicinity to the area. The three education facilities within the area are the Saint Benedict's School, Growin Early Education Centre and Applecross Pre-Kindy & Kindy. All these facilities are located within 100m of Canning Highway. The number of students at St Benedict's School is 240, the number of children attending Kindergarden and Daycare Centres are unknown. The students at both education facilities range from 2 years to Year 6.

7.30 The nearest schools outside Study Area 2 are the Ardross Primary School and Applecross Senior High School, which are around 1km south of the Canning Highway on Links Road. The two schools combined have 2009 students ranging from Kindergarten through to Year 12. The catchment areas are Ardross, Applecross, Brentwood, Booragoon, Mount Pleasant and Winthrop Primary.

7.31 It is anticipated that the magnitude of impact from the construction phase will be high for parents and children attending Applecross PreKindy, Growin Early and Saint Benedict's School. Congestion and road closures on the Canning Highway are likely to extend drop off and pick up times for parents and push traffic onto Reynolds Road and Riseley Street, which will impact noise levels and air quality of surrounding residents. The displacement of traffic will impact the accessibility of the school for those using private vehicles and public transport, particularly for those coming from the east and north.

7.32 It is anticipated that the magnitude of impact from the construction phase will be low for users to Ardross Primary School and Applecross Senior High School. Congestion and road closures on the Canning Highway are likely to extend drop off and pick up times for parents and push traffic onto Riseley Street, which will impact noise levels and air quality of surrounding residents.

7.33 The sensitivity of users at the Applecross PreKindy & Kindy is high, given that they are children with little ability to avoid the negative effects and who are more likely to feel the effects of issues like air and noise pollution being directly adjacent Canning Highway. This means that the construction phase is likely to have a significant **major adverse effect** for the school.

7.34 Saint Benedict's School is likely to experience similar effects to Applecross PreKindy & Kindy, particularly in terms of noise and accessibility. It is also likely to suffer from the reduced accessibility for users traversing the highway from the north, particularly pedestrians who are likely to lose informal and formal crossing points during the construction phase. Those accessing the school from the east are also likely to suffer a significant increase travel times if using the Canning Highway, particularly during road closures and when traffic is restricted to single lanes.

7.35 The Ardross Primary School and Applecross Senior High School will also be adversely impacted as its major access points come off the Canning Highway. It is likely that access will be limited from the Highway due to the construction.

Impact of Construction on Services and Amenities (C-4)

7.36 Proposal area 2 offers a range of services and amenities for residents from sports clubs to community centres. The construction of the proposed project is expected to have a significant **moderate adverse effect** on these services. This is because it is likely to create a significant amount of noise, construction traffic and air pollution which will impact on the enjoyment of services by users and their ability to use them effectively. It will also temporarily, but significantly, reduce accessibility due to reduced road capacities, increased congestion from lane restrictions on the Highway and phased road closures, exacerbated by the displacement of traffic onto side roads. There will be further reduction of accessibility permanently in the operations phase, this will be discussed in the next section.

Riseley Activity Centre

7.37 Riseley Activity Centre is a commercial precinct surrounding the intersection Riseley Street and Canning Highway. City of Melville currently have a Riseley Activity Centre Structure Plan 2015-2023 and Streetscape Masterplan 2017.

7.38 The construction of the Highway is expected to have a significant **moderate adverse effect** on the activity centre. The noise and air quality issues associated with the work are likely to effect users' access and enjoyment of the centre. Increased congestion is likely to impact accessibility to the centre.

7.39 Pedestrian walkability and cyclist infrastructure will be adversely impacted during the construction period. The Riseley activity centre has a unique urban form that is known for its tree filled neighbourhood character. The impact of the construction on noise and air pollution may have disruptive implications of the experience of the centre, causing people to choose alternative centres for preferred services and facilities.

Southern Districts Gaelic Football and Camogie Club and the Fremantle Rebel Softball Club

7.40 These two sports clubs are both located approximately 600m from Canning Highway.

7.41 The construction of the Highway is expected to have a **minor adverse effect** on the clubs. The noise and air quality issues associated with the work are likely to not effect users' access and enjoyment of the facilities.

7.42 Increased congestion is likely to impact accessibility to the clubs, particularly for those to the north of the Canning Highway who are likely to find it harder to cross the main corridor. Those coming from the west will also experience increased travel times due to lane restrictions.

Waylen Bay Sea Scout Hall (Joeys, Cubs, Venturers, Rovers)

7.43 This is a small scouts hall that opens on a per use and hire basis. It is about 400m from Canning Highway and is accessed via McCallum Crescent. The construction of the Highway is likely to have a **moderate adverse effect** on the operation of the facility.

7.44 Traffic will also be displaced onto McCallum Crescent from Canning Highway during construction, which will temporarily increase noise pollution and make it more difficult for users to access the amenity.

Australia Post Applecross LPO

7.45 The post office has already been configured to have its back facing Canning Highway and accessed from the back road. It is the only facility of this type in the Riseley Activity Centre with the nearest alternatives being in the north of Applecross or east near Canning Bridge. The

construction of the Proposal will impact the building footprint and is anticipated to have a **major adverse effect**. This facility is likely to be partly of fully demolished to make way for a way for widening of the Canning Highway after the upgraded Riseley Street intersection and will need to be relocated.

Impact of Construction on Health and Wellbeing (C-5)

7.46 It is anticipated that the construction phase of the Proposal will increase noise and air pollution for the many residents that live in Study Area 2 and the employees that work in the area.

7.47 It is recognised that noise and air pollution have direct impacts upon both physical and mental wellbeing. High concentrations of pollutants from vehicles are well documented to cause respiratory impacts and there is growing evidence base related to the negative impacts of noise as referenced in Part B of the report.

7.48 These impacts will be felt most acutely by people working and living on or close to the Canning Highway itself, as well as those roads that will become key transient of access points.

7.49 The physical severance created during the construction phase will affect walking, and to a certain extent, cycling. This may impact upon individuals' decisions on whether to walk or cycle across the area and could deter overall levels of active travel. If this were to occur then the health benefits associated with these activities would be lost, potentially affecting local health outcomes. Whilst there is no data on current walking and cycling levels with which to assess potential impacts, the overall impact is likely to be a **minor adverse** impact on health outcomes.

7.50 It is also anticipated that the construction phase will have a significant **major adverse effect** on healthcare facilities in the area. There are multiple health care facilities impacted which are set out in more detail below.

7.51 Health services impacts along Canning Highway within Study Area 2 include Health Assured Australia, Beyond Health, and Applecross Medical Centre. The construction of the Proposal is likely to have a significant **major adverse effect** on these health practices as it expected that the sites of all precincts will be impacted to lose traffic, access, exposure or portions of building footprints to make way for the Highway widening. They may also experience a reduced accessibility before being demolished due to increased congestion for lane restrictions and a lack of alternative access options.

7.52 Other health facilities that are not directly impacted by Canning Highway but will have minor adverse effects include Kern Allied Health Applecross north of the Highway, Pharmacy 777 Applecross, Applecross Wrinkle Treatments and Fernandez Hearing Audiology Clinic south of Canning Highway. Increased congestion is likely to impact accessibility to these health services, particularly for those who will be impacts to lane changes and street closures.

Place Impacts

7.53 This sub-section considers the impact of the construction of the Proposal on Study Area 2 area local urban environment. It focuses on direct impacts of constructing the Proposal upon the local ecology, as well as emissions associated with construction and vehicles.

7.54 At this stage, the construction plans for the Proposal are relatively high level. Available Proposal information, alongside industry best-practice, has been used to determine how the construction phase could potentially proceed, but it is acknowledged that this will be subject to variation. As

such, the environmental assessment considers broad criteria that will need to be considered in terms of the impacts and does not seek to provide any quantitative rigour at this stage.

7.55 In the absence of a detailed assessment, the analysis has considered the scale of potential impacts in terms of the following seven-point scale:

- **Major Positive:** Construction results in a clear and substantial positive impact across the whole area
- **Moderate Positive:** Construction is likely to have a substantial positive impact within part of The study area, or a smaller positive impact across the whole study area
- **Minor Positive:** Construction is likely to have a small positive impact within part of the study area
- **No Impact:** Construction is likely to have neither a positive nor negative impact
- **Minor Adverse:** Construction is likely to have a small negative impact within part of the study area
- **Moderate Adverse:** Construction is likely to have a substantial negative impact within part of the study area, or a smaller negative impact across the whole study area
- **Major Adverse:** Construction results in a clear and substantial negative impact across the whole study area

7.56 This scale has been utilised within the assessment applying best available professional judgement.

Urban Environment (C-6)

7.57 As discussed in Part B, the three-to-four-year construction phase will create an extremely poor urban environment along Canning Highway. Initial works will focus upon the demolition of properties and widening of the carriageway before an extensive period of moving utilities. Once complete, the main excavation of the trench and the works for constructing the dive structure will commence. Throughout all of this period, the urban realm will be significantly affected, along with all pedestrian movements (north-south across the highway and east-west along it).

7.58 This will represent and ***major adverse*** impact upon the urban environment through the construction phase.

Ecology (C-7)

7.59 Whilst the Proposal is located within a dense urban environment, the additional land requirements and the excavation work could still have some impacts upon local ecology, water and drainage.

7.60 The Canning Highway corridor has areas of green verge, trees, and shrubs throughout, including within the central median. The construction of the Proposal will require the complete removal of the central verge and all associated vegetation. Land take is also required on either side of the current Highway alignment affecting green space around residential properties and is likely to require the removal of a number of trees and shrubs. It is estimated that around **110** trees would be lost during the construction period which would introduce some economic and wellbeing costs.

7.61 The completed Proposal will offer limited opportunities to replace any of this lost green space due to the constraints of the corridor and the fact that the Duck & Dive structure will not be covered, creating 8-lanes of open highway and footways.

7.62 The Proposal is also likely to affect local water and drainage patterns along the corridor. The dive structures will create a water trap that is inherently subject to flooding during high intensity rain events. This will, therefore, require new pit and pipe network, underground retention tanks, pumps and pump stations to manage runoff. The impacts upon surrounding drainage and natural water courses will require careful management, so as not to have any detrimental impact.

7.63 Whilst no detailed assessment of ecological impacts has been undertaken, the loss of habitat within an already urban area is likely to have further negative implications upon the natural environment. It is concluded that the Proposal could have a ***moderate adverse*** impact upon ecology across the study area, subject to more detailed assessment.

Emissions (C-8)

7.64 The construction of the Proposal will require a range of activities that will impact upon the levels of emissions across the study area in terms of noise levels, dust particulates and vehicle emissions. These include (amongst other elements):

- Demolition of existing properties and pedestrian bridge;
- Excavation of Duck & Dive trench;
- Construction of retention walls;
- General highway construction activities;
- Truck and heavy plant movements associated with transporting equipment to and from the site, excavation of soil, deliver of construction materials;
- Vehicle movements associated with transporting workers to and from site; and,
- Lane closures along Canning Highway and traffic diversions.

7.65 The proximity of the Proposal to existing residential and commercial properties means that the emissions associated with construction activities will have a significant impact upon the local community.

7.66 Around 203 residential units and 22,721 sqm of commercial floorspace within Study Area 2 are located within 60m of the highway. These properties will be highly susceptible to dust and noise emissions throughout the 3-to-4-year construction process. A further 606 residential properties and 21,445 sqm of commercial space within Study Area 2 are located within 200m of the highway, still well within a distance in which construction noise levels will have a considerable negative impact.

7.67 The Proposal will also require significant movement of equipment and materials to and from the site. Whilst the number of truck movements have not been estimated, this will create additional vehicle emissions across the local highway network. Transporting workers to and from site could also add to this issue, unless suitably managed.

7.68 Perhaps more significantly, the reduced lane capacity along Canning Highway (and potential for short closures) during construction will result in either slower (and potentially stationary) traffic along Canning Highway or the diversion of traffic onto local roads. Stationary traffic will result in significant increased levels of build-up of tailpipe emissions affecting local air quality. The

diversion of traffic will also create additional traffic emissions in residential and recreational areas, impacting upon local people.

7.69 Even if subject to careful management, the construction phase of the Proposal will undoubtedly generate significant levels of noise, dust and vehicle emissions that will impact upon local people and businesses. It is concluded that the Proposal could have a ***moderate to major adverse*** impact upon emissions across the study area during the construction phase, subject to more detailed assessment.

7.70 Whilst not related to impacts within the Study Area 2 , it is also worth noting that the extensive levels of concrete required to construct the retaining walls will have a significant carbon footprint.

Property Impacts

7.71 The construction of the Proposal will require land take within the Study Area 2, which includes greenfield sites but also brownfield commercial sites. This includes several important community and retail services that are valued by local residents, visitors, and businesses. This sub-section sets out the scale of commercial and residential properties lost as a result of this land take.

Residential

Housing Loss and Blight (C-9)

7.72 Using the City of Melville's Canning Highway Development Control Area[42] and Canning Highway Carriage Highway Pattern and Profile[43] as a basis, it is expected that **seven** residential properties in Study Area 2 will need to be removed for the construction of the Proposal. This will result in the displacement of around **16** residents. These figures represent a similar number of affected properties and residents than that of Study Area 1.

7.73 There are also around **200** residential properties on the Highway itself and circa **600** within the wider 200m buffer. These are anticipated to experience ***moderate to major negative impacts*** from the construction blight as a result of the noise, dust and increased construction-related traffic associated within demolition and construction processes.

7.74 Due to the limitation in available data relating to the construction phase a specific quantified assessment of the blight impacts has not been feasible. A proxy assessment has been captured as part of the assessment of the operational phase (see Chapter 9); however, these are likely to be an under-representation of the impacts as it is likely that the construction phase will result in considerably higher levels of blight than the operational phase.

[42] The Development Control Area (DCA) zones are already in place and planned to be formalised through amendments to the Metropolitan Region Scheme (MRS) in the latter part of 2021. They reflect the highway reservation requirements set out in BG&E's *Canning Highway Planning Study: Collier Street to Henley Street* (2015) which was undertaken on behalf of Main Roads.

[43] Canning Highway Planning Study, 2015 from BG&E, Appendix G.

Commercial

Commercial Property Lost (C-10)

7.75 Based on the City of Melville's Development Control Area, alongside GIS layers[44] and professional judgement, it is estimated that around **1,200 sqm GEA** of office space (912 sqm NIA) and **10,467 sqm GEA** of non-office commercial space (7,955 sqm NIA) (e.g., retail, restaurants, cafes, gyms, health etc) will need to be fully or partially taken to make way for the upgraded Canning Highway portion in Study Area 2. The exact arrangements would be agreed on a case-by-case basis, but it is likely to involve most buildings being taken by compulsory purchase (probably through the Land Administration Act, 1997)[45]. The scale of commercial properties affected are more significant in Study Area 2 which suggests the economic loss in production and employment will be more significant.

7.76 There are also several properties that will be impacted but are unlikely to require demolition. Some of these will require adjustments to their frontages for construction, but it is possible for the buildings to remain standing given that the majority of these businesses have moved their main entrance to the rear of the building away from Canning Highway. Examples include the commercial centres to either site of Riseley Street (south of Canning Highway) .

7.77 On the basis of the scale and type of the commercial property that will be demolished, likely employment impacts can be established[46]. These impacts are derived from floorspace per employee guidance set out in the Perth and Peel Land Use and Employment Survey (2017). To ensure conservatism we have applied the prevailing commercial property vacancy rate of 8% to these figures. Based on this calculation around **255 jobs** will be lost through the direct land take of the Proposal.

7.78 Assigning these jobs to their respective sectors allows for an estimation of the productive value that will be lost as a result of the Proposal. We estimate that these jobs contribute around **AU$30m** in Value Added per annum in current values, which equates to around **AU$155m** over 5 years taking into account projected inflation[47].

7.79 When comparing the commercial property impacts of the two study areas. Study Area 2 notes a significantly larger footprint although some buildings will only be partially affected the disruption of business activity could still result in significant job and productivity losses.

[44] Medium Scale Topo Building (Polygon) (LGATE-105), Large Scale Topo Building (Polygon) (LGATE-139) layer alongside up-to-date Google Hybrid Satellite View.

[45] It is recognised that many buildings will only need to be partially demolished given the amount of land required. In most cases whole buildings would, however, have to be compulsory purchased and would remain unproductive for a significant period of time while elements of the buildings are demolished. Plots and buildings are likely to be resold following the removal of the portion of the structure that encroaches onto the widened reserve, but this is likely to take a number of years. This impact assessment illustrates the impact of removing the productive space in full at a point in time and considers the impact should the space remain unutilised for an extended period of time. This provides a clear indication of the potential scale of impact the Scheme could have on the commercial property market and economy.

[46] The Gross External Area (GEA) of each building has been converted into a Gross Internal Area (GIA) by reducing 5% from the GEA. NIA has been established by taking 80% of the GIA in line with HCA's Employment Density Guide, 3rd edition, 2015.

[47] Analysis based on a start date in the mid 2020s

Commercial Property Blight (C-11)

7.80 GIS data and professional judgement indicates that in the region of **22,721 sqm NIA** of commercial floorspace sits alongside the Canning Highway and around further **21,445 sqm NIA** of floorspace sits within a 200m buffer of the Highway.

7.81 Those properties that sit alongside the Highway are likely to experience significant blight issues during construction. As set out in the previous sub-section, these properties will be highly susceptible to dust, noise, and vehicle emissions throughout the 3-4 year construction process.

7.82 Whilst it is recognised that commercial properties are less susceptible to blight than residential properties it is still anticipated that these commercial properties will experience a ***moderate to major adverse*** impact from blight during the construction phase.

7.83 Those within 200m of the Proposal will also suffer from blight during construction but given their distance from the Highway the impact is likely to ***minor to moderate negative*** in terms of blight. As with the residential construction blight, no attempt to quantify the monetary impacts of construction blight upon commercial properties has been made.

7.84 Overall construction blight is forecast to have a ***moderate adverse*** impact upon properties across Study Area 2, noting a similar scale of impacts than Study Area 1.

Prosperity Impacts

Local Businesses and Employees (C-12)

7.85 The Riseley Activity Centre is an important employment hub for the City of Melville. It is home to around **36,160m²** of commercial floorspace and the dominant uses are office (16,500 m^2) and retail space (8,000 m^2)[48]. This sub-section considers the impacts of the construction phase on businesses and employees.

7.86 The main employment areas of the Riseley Activity Centre are:

- **Canning Highway** has a mix of older and newer commercial spaces which are dominated by office, retail and medical/ health uses. Businesses with offices fronting onto the road include Beyond Health, Stretched, Anytime Fitness, Lifecare, Physio & Pilates, Eastcourt Property Group, Applecross Medical Group ANL House, Hot Chilli Limited, Wesley Training, LNG Recruitment, Pulse Property Group, The Health Linc, ABA, Neo Settlements and Applecross Pre-kindy and kindy. Businesses with retail units include Good Year, Quarter Acre Hotel, Small Farms, Ciao, Kirrajane Boutique, Stride, Pharmacy 777, Atika, Vinnies, Subway, Absolute Cosmetic, Florist, Code Red, Dee Black, Thai Corner Restaurant.
- **Riseley Street** homes a number of different services and retailers. Businesses fronting the road include MGP Property, Fresh Markets Applecross, Medaesthetics, Homm, Cellarbrations, Grand Cru, Travel & Cruise, Joyce Kitchens, Mim & Co, Bad Apples Bar, Grill'd and the Risely Square development that offers smaller office and retail spaces, Realmark, Golden Plates, Westpac, Applecross Massage, C15 Espresso, Dome and BOQ, Engineering Dynamics Consultants Pty Ltd and the new six-story mixed use commercial development Castelli.

[48] Riseley Street Activity Centre Master Plan – Streetscapes, 2017

- **Kearns Crescent** has a mix of older and newer commercial spaces, predominantly occupied by food retailers and service offices. Businesses with a presence fronting the road include Applecross Pizza, Ohnamiya Japanese Cuisine, Basket Robbins, Health Freak Café, Hoodburger, L'Opera Café, Poolwerx, Majestic Central, Ardross Dry Cleaners, Lifeline Corporation, Himali Gurkha, Sensations, Actons, Hairr Design, Domino's, Elements Beauty Spa, AOS, Northern Marine, Urban Capital, Kuiper, Gelare, Melting, Shendals, Taking Shape, Paris Skin Clinic, Saudara, Theressa Designs, Elders.
- **Willcock Street** has a mix of older and newer office accommodation which are scattered around Willcock Street.

7.87 Consistent with the methodology applied in the 'People' sub-section, it is expected that the construction phase of the Proposal will have a significant **major adverse effect** on employers and employees across the five employment areas (full assessment set out in Appendix A: Community Impact Assessment).

7.88 This is primarily because the noise and pollution associated with construction will make many commercial units unpleasant and difficult places to work and be productive. This is particularly the case for businesses that front onto the Canning Highway. Businesses on Riseley Street and Kearns Crescent will also be impacted due to the proximity of business to the Canning Highway.

7.89 Accessibility will also be severely impacted for employees. Businesses on the Canning Highway itself will experience reduced accessibility due to phased road closures and a lack of alternative options. Those on side roads, particularly Riseley Street and Kearns Crescent, are also likely to experience a significant uplift in traffic and journey times as traffic will most likely be diverted onto them during construction. It will be difficult for most employees to avoid these impacts as few will have alternative locations to work and most will attend five days a week.

7.90 It is important to note that many businesses on the Canning Highway itself will experience significant extreme adverse effects from demolition. As set out in the property section, it is estimated that **11,667 sqm GEA** of commercial floorspace (8,867 sqm NIA) will be lost impacting around **255 employees.**

8. Operational Phase Impacts: Study Area 2

Introduction

8.1 This chapter focuses upon the operational impacts of the Proposal. This utilises the assessment of how the Proposal will affect direct accessibility across the study area as set out in Chapter 3, as well as an understanding of the physical land take requirements of the Proposal (sourced from the City of Melville's Canning Highway Development Control Area[49] and Canning Highway Carriage Highway Pattern and Profile[50]).

Impact Areas

8.2 As outlined within the impact framework within Chapter 4, the completed Proposal is anticipated to have a range of impacts upon 'people', 'place', 'property', and 'prosperity':

- People
  - O-1: Local Transport User Impacts
  - O-2: Impact on Employment
  - O-3: Impact on Education
  - O-4: Impact on Services
  - O-5: Impact on Health and Wellbeing
- Place
  - O-6: Urban Environment & Heritage
  - O-7: Open Space
  - O-8: Noise
  - O-9: Local Air Quality
- Property
  - O-10: Housing Blight
  - O-11: Commercial Property Blight
- Prosperity
  - O-12: Local Businesses
  - O-13: Future Investment
  - O-14: Local Government

8.3 A summary and narrative for each individual element is presented within the sections below.

[49] The Development Control Area (DCA) zones are already in place and planned to be formalised through amendments to the Metropolitan Region Scheme (MRS) in the latter part of 2021. They reflect the highway reservation requirements set out in BG&E's *Canning Highway Planning Study: Collier Street to Henley Street* (2015) which was undertaken on behalf of Main Roads.

[50] Canning Highway Planning Study, 2015 from BG&E, Appendix G.

People Impacts

8.4 This sub-section considers the impact of the operational phase of the Proposal on the people and communities within Study Area 2. As with the construction phase, it focuses on impacts related to local transport users, education, services, health and wellbeing and employment.

8.5 Determining the significance of effects has followed the same methodology set out for the construction phase (see Chapter 9). A detailed breakdown of the assessment that has informed this analysis is provided in Appendix B. The section that focuses on the impact of local transport users draws on evidence from Chapter 3 and provides quantitative measures of impact.

Impact on Local Transport Users (O-1)

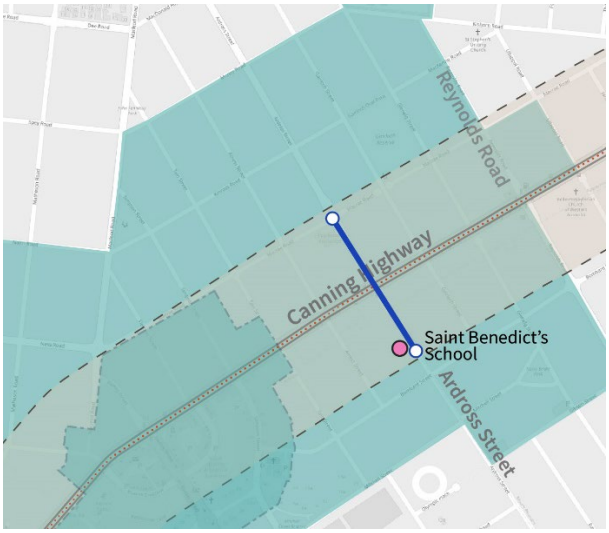
8.6 The Proposal will have a range of impacts on local highway, bus, walking and cycling movements across Study Area 2.

General Traffic

8.7 Increases in traffic flows along specific routes, such as Riseley Street and Reynolds Road, could result in increased congestion at junctions due to proposed access changes, such as the removal of full access into and out of Ardross Street.

8.8 The change to Ardross Street has a **moderate to severe impact** on local transport users. Whilst traffic modelling data is unavailable to directly quantify these impacts, to provide an example of the potential scale of the impacts. Figure 8.1. and 8.2 illustrate a scenario of people that would access Saint Benedict School form the North Side of the Highway. Currently this would be a 1min journey by car (300m) and would increase to a 4min journey by car (2km) by using alternative options as shown in Figure 8.1 and 8.2.

Figure 8.1 Existing Access – Ardross Street



Source: Hatch

Figure 8.2 Proposed Access – Ardross Street

Source: Hatch

Bus Users

8.9 The changes to the bus stops within Study Area 2 include:

- Bus stop east of Riseley is moved to east of Fletcher (going Eastbound)
- All other bus stops remain in similar location
- Dedicated bus lanes between Riseley and Sleat Road in the kerb-side along Canning Highway

8.10 The Proposal will have minor impacts upon bus routing and the location of bus stops. One stop has moved (east of Riseley moved to east of Fletcher) which will increase travel time and walk times for passengers using the affected bus stop. However, this increase in travel time impact is offset by the passengers who will now have closer access to the upgraded bus stop as it is along the same road.

8.11 The dedicated bus lanes between Riseley and Sleat Road will likely have a decrease in travel time for passengers, as the dedicated bus lanes will provide quicker journeys if not impacted by the private vehicle lanes.

Pedestrians

8.12 Currently pedestrian access across Canning Highway in Study Area 2 is restricted to formal signalised crossings at Reynolds Road, Ardross Street and Riseley Street. There are also minor crossings with half-way rest at Simpson Street, Kerns Street, Collier Street, Conon and Wilcock Street. The proposal includes many changes to these pedestrian crossings. The minor pedestrian crossings will be lost due to the duck and dive structure, this will create longer walking distances to cross the Canning Highway between impacting on visitation on foot for local employment and encouraging private car use.

8.13 The proposal does include a pedestrian bridge at Ardross Street. This would be a beneficial addition to the area due to the location of St Benedict School on Ardross Street and it sits in the middle of Riseley Street and Reynold Street, the two pedestrian signalised crossings.

Impact on Employment (O-2)

8.14 The operation of the Proposal is anticipated to have a **major/moderate adverse effect** on employers and employees located in Study Area 2's main employment areas (Riseley Street and Reynolds Road). A breakdown of impacts for the four most affected areas is set out below.

Canning Highway

8.15 Businesses and employees located on the Canning Highway are likely to experience **major adverse effects** from the Proposal.

8.16 This is because around **8,867 sqm** of commercial floorspace will be lost to deliver the upgrades impacting around **255** employees. Whilst it is feasible that some of these businesses may seek alternative locations, either within the Riseley Activity Centre or surrounding area, this may not occur within the short to medium term due to the disruption caused by the construction of the Proposal. Some businesses will be permanently lost, resulting in adverse impacts upon local employment opportunities.

8.17 The businesses that remain are likely to suffer from a long-term increase in noise levels and air pollution from the higher capacity highway, making it more challenging for employees to work effectively. Some may also see a drop in trade if passing traffic falls due to the construction of the dive structures and the adverse impacts upon the local urban realm.

8.18 Accessibility will also be impacted, particularly for pedestrians users. If crossings, particularly informal crossing, are lost it will make it difficult for pedestrians to access businesses on either side of the road. This could increase journey times for employees.

Riseley Street

8.19 Businesses and employees located on Riseley Street are also likely to experience **moderate adverse effects** from the Proposal.

8.20 Due the reduction of access on Ardross Street, Tain Street, Simpson Street, Alness Street and Wilcock Street, traffic will be diverted to Riseley Street to access local destinations including education and parks. Due the diversion of traffic, the traffic will increase on Riseley Street hence impacting the pedestrian safety crossing the street, walkability and enjoyable experience on Riseley Street. Currently Riseley Street is difficult to cross for pedestrians, due to a lack of formal crossings. This causes pedestrians to cross unsafely across the road. With the increase in traffic this will have an adverse impact on pedestrians and visitation to businesses on foot.

8.21 The changes are likely to substantially increase traffic which will increase journey times for employees, as well as potentially making it a more unpleasant place to work and run a business.

Reynolds Road

8.22 Businesses and employees located on Reynolds Road are also likely to experience **minor adverse effects** from the Proposal.

8.23 Although a less activated street in comparison to Riseley Street, having fewer commercial offerings that face the road, Reynolds Road will also experience an increase in traffic due to diversion of traffic to allow north-south access across the highway. This street is mainly commercial properties including Woolworths on the south side, and Macdonalds and petrol station on the north side. Although not as significant an activity centre, it will still have an impact on pedestrian safety crossing the road, similar to Riseley Street.

8.24 The changes are likely to substantially increase traffic which will increase journey times for employees, as well as potentially making it a more unpleasant place to work and run a business.

Impact on Education (O-3)

8.25 The Proposal is likely to have a **major impact** on Applecross PreKindy and a **moderate impact** on Saint Benedict's School.

8.26 Air pollution could increase given its proximity to the higher capacity Highway and accessibility could reduce for pedestrians due to the loss of informal crossings. Students come from both the north and south sides of the Canning Highway to access both the education facilities. The changes on Ardross Street to a left in only (previously four-way intersection) and Simpson Street now a left turn out (previously four-way intersection) will increase access time for each facility. Ardross Street in the main access street to St Benedicts school, and Simpson Street is currently the main access to Applecross Pre Kindy & Kindy.

8.27 The magnitude of impact for Applecross PreKindy is likely to be major. As it is directly adjacent Canning Highway, the education facility may incur partial or full demolition. This can cause employment loss for staff, condensing of amenity space for children, loss of children attendance and closure of facility.

8.28 The magnitude of impact for Saint Benedict School is less severe than Applecross PreKindy. Although the site sits adjacent to Canning Highway, the building is unlikely to incur major demolition to teaching spaces as the car park is between the buildings and Canning Highway. However, removal of part of the car parking facilities could occur, due to road widening of the Highway, which impacts accessibility to the School.

8.29 The sensitivity of users is high given that they are children with little ability to avoid the negative effects. This means that the operational phase is likely to have a significant **major/moderate adverse effect** on the two schools mainly due to safety and pollution associated with high traffic volumes.

8.30 Ardross Primary School and Applecross Senior High School are likely to have minor impacts in comparison to the other two education facilities, as they are both about 1km south of Canning Highway. However, they will incur a reduction in accessibility, due to the increase in traffic congestion on Riseley Street, as the only four way intersection after Reynolds Road in the Proposal Area.

Impact on Services and Amenities (O-4)

8.31 The operation of the Proposal is expected to have a **moderate adverse effect** on services in Study Area 2.

8.32 The operation of a higher capacity Highway is likely to increase air and noise pollution which will impact users' enjoyment and changes to local accessibility will make it more difficult for some groups to access amenities. This is illustrated by the examples below.

Riseley Activity Centre

8.33 The operation of the Proposal is expected to have a **moderate adverse effect** on the Riseley Activity Centre. This is because the likely increase in air and noise pollution from a higher capacity Highway will impact on the enjoyment and physical performance of all users who have few alternative activity centres to use locally as the activity centre is also being majorly impacted.

8.34 The pedestrian crossings will remain over the bridge on Riseley Street over Canning Highway which is a better result than if this was taken away. However, the increase of road infrastructure on Canning Highway detracts from the pedestrian experience. Although currently the pedestrian experience at Canning Highway in the Risely Activity Centre is currently not prioristised, an alternative approach for a tunnelling of the road infrastructure, or integration of public transport would increase of allowable space for local roads, active transport, tree coverage, public/green space and ground floor activation to provide greater pedestrian amenity then the Proposal.

Southern Districts Gaelic Football and Camogie Club and the Fremantle Rebel Softball Club

8.35 The operation of the Highway is expected to have a **minor adverse effect** on the clubs. The noise and air quality issues associated with the Proposal are likely to not effect users' enjoyment of the facilities.

8.36 Increased congestion is likely to impact accessibility to the clubs, particularly for those to the north of the Canning Highway who are likely to find it harder to cross the main corridor.

Waylen Bay Sea Scout Hall (Joeys, Cubs, Venturers, Rovers)

8.37 The operation of the Highway is likely to have a **moderate adverse effect** on the operation of the facility. The facility can be accessed by McCallum Crescent, however due to its proximity to the Highway may incur an increase in air and noise pollution, which can impact the enjoyment of its users, which would be largely children, as well as attraction for hiring for community events hence loss of income. As it is a community facility, the ability to provide an attractive community space for events can be assumed to be significant for the financial sustainability of the facility.

8.38 Local traffic will also be displaced onto McCallum Crescent from Canning Highway as motorists needs to find alternative routes to access main roads that will cross or provide access to Canning Highway in the desired direction of travel and will make it more difficult for users to access the amenity.

Australia Post Applecross LPO

8.39 The post office has already been configured to have its back facing Canning Highway and accessed from the back road. It is the only facility of this type in the Riseley Activity Centre with the nearest alternatives being in the north of Applecross or east near Canning Bridge. The sustained effect of the Proposal will impact the building footprint and is anticipated to have a **major adverse effect**. This facility is likely to be partly of fully demolished to make way for a way for widening of the Canning Highway after the upgraded Riseley Street intersection and will need to be relocated.

Impact on Health and Wellbeing (O-5)

8.40 The operation of the Proposal is likely to have a range of impacts on the health and wellbeing of Study Area 2 residents, employees and visitors. It is expected to have a ***moderate adverse*** impact on health and wellbeing overall.

8.41 Some of the most prominent impacts are set out below:

Propensity to Walk

8.42 The loss of informal minor and signalised pedestrian crossings along the Canning Highway will increase journey times for walkers who will have to travel further to cross the road. In the event that the pedestrian bridge at Ardross Street is not built, this would be particularly problematic,

as users would incur a 12-18-minute increase in walk time to get to the opposite side of Caning Highway. There will similarly be an impact upon current users of the informal crossings at Simpson Street, Kerns Crescent, and Willcock Street. Pedestrians at the Collier Street intersection with Canning Highway could see up to 6mins walking time added to their journey.

8.43 Any loss in pedestrian connectivity may impact on the willingness of people to walk, which will impact health and wellbeing, since active travel brings a wide range of physical and mental health benefits.

Healthcare Services

8.44 Health services impacts along Canning Highway within Study Area 2 include Health Assured Australia, Beyond Health, and Applecross Medical Centre. The Proposal is likely to have a significant sustained **major adverse effect** on these health practices as it expected that the sites of all precincts will be impacted to lose traffic, access, exposure or portions of building footprints to make way for the Highway widening. They may also experience a reduced accessibility before being demolished due to increased congestion for lane restrictions and a lack of alternative access options. Practices including Kern Allied Health Applecross, Pharmacy 777 Applecross, Applecross Wrinkle Treatments and Fernandez Hearing Audiology Clinic may become less accessible to pedestrians, drivers, and public transport users.

Community Cohesion

8.45 The Proposal will create an even stronger physical barrier across the Riseley Activity Centre and further the north and southern neighbourhoods along Canning Highway than already exists. This will impact on the ability and willingness of residents to access friends, social networks, and services on different sides of the Highway. Similar schemes delivered in cities elsewhere indicate that building large highway structures can create perceptions of increased isolation. There are a range of negative health and wellbeing impacts associated with isolation, particularly in terms of mental wellbeing.

Place Impacts

8.46 This sub-section considers the impact of the operation of the Proposal on the local urban environment in Study Area 2. It focuses on the impacts the new Highway will have upon the urban realm, in terms of the sense of place, whilst also considering on-going environmental impacts in relation to noise and local air quality.

8.47 The analysis has utilised all available Proposal information, including plans and descriptions of the proposed layouts, alongside industry best-practice, to determine how the Proposal will be delivered, but it is acknowledged that this will be subject to variation. As such, the assessment of public realm and environmental impacts considers broad criteria that will need to be considered in terms of the impacts, and does not seek to provide any quantitative rigour, at this stage.

8.48 In the absence of a detailed assessment, the analysis has considered the scale of potential impacts in terms of the seven-point scale previously outlined in Chapter 9. This scale has been utilised within the assessment applying professional judgement.

Urban Realm

8.49 The Proposal is expected to have two broad impacts upon the urban realm in terms of the quality of the overall provision and ability to access key public spaces.

Urban Environment and Heritage (O-6)

8.50 The Proposal is expected to have a ***moderate to major adverse*** impact upon urban environment and heritage across the study area.

8.51 The Proposal will significantly increase the overall footprint of the Canning Highway, creating 8-lanes of highway. Within the study area, 4 lanes will predominantly be within the dive structure except where Canning Highway reverts to an at-grade 8-lane section between the two duck and dives structures (Simpson Street to Gairloch Street).

8.52 Alongside the removal of the central median and open space on either side of the carriageway, which includes the potential loss of around **110** trees, this will create a significant change in the urban setting, particularly for frontages along Canning Highway and properties with views over the alignment.

8.53 The combined impact of physical change and traffic is likely to create an urban setting that is more akin to an urban expressway, as opposed to a commercial and residential activity centre. As outlined further within the 'property' sub-section, this will affect the value of existing properties located along the frontage (472 residential units and 22,721 sqm NIA of commercial floorspace). Whilst these properties are already fronting onto a busy highway, the Proposal will remove any sense of an urban realm designed for people as opposed to vehicles.

8.54 It would also change the character of centre from a high-amenity, high-quality "leafy" riverside environment to a precinct dominated by a hostile, hard road infrastructure with associated heat island characteristics. This will make the area less appealing to visit and spend time in for both residents and visitors.

8.55 The Proposal will also create changes within the urban environment within the Riseley Activity Centre area by increasing the traffic along Riseley Street and other local roads. The outcome will detract pedestrian activity and walkability, promoting people private vehicle use, reducing flexibility and dwell times. This will substantially push the nature of this road to one dominated by vehicular through movements and increasing the unwalkability and enjoyment of the precinct for pedestrians.

Conflicts with Riseley Activity Centre Structure Plan Review

The primary motivations for the Riseley Activity Centre Structure Plan, 2014, was to "act as a catalyst for both private sector and government investment, benefitting visitors, businesses and residents by providing an improved level of amenity, activity and diversity of housing choice and employment."[51]

The Plan was prepared in consultation with the community to support the growth of the Riseley Activity Centre. The Plan has been prepared in alignment with State Governments policy of future growth, for an additional 10,830 dwellings by 2031 on top of the 40,110 dwellings in

[51] Riseley Activity Centre - City of Melville (melvillecity.com.au)

existence in 2011.[52] City of Melville designated a portion of this growth for Riseley Activity Centre, which is forecast to yield "an additional 300 dwellings by 2031".[53]

A significant priority for the Centre was the economic growth and livability of the Centre towards a mixed-use precinct, serving not only commercial purpose but growing to serve the surrounding neighborhoods and provide a destination of a walkable, livable and interactive Centre.

Within the Structure Plan, the distinct character of the Riseley Core area, which fronts Canning Highway on the south, is envisioned to be a "vibrant, pedestrian-scaled area with a range of commercial uses sustaining local economies located on ground floors while residential areas are located in the upper levels of buildings." This vision is justified to create "instant walkability inside the core and will result in a reduction on private vehicle reliance for shopping and social trips when compared with the Perth Metropolitan region." Although this area does extend further inward away from Canning Highway, a large percentage of this proposed character identity will be directly impacted by the Proposal.

The character area of Canning Corridor is the dedicated area for the Canning Highway sections that cuts through the Riseley Activity Centre. The character identity is proposed to be benefiting from high exposure to passing traffic "therefore the focus is on various types of commercial uses on 'eye' level." The proposal for this section of Canning Highway will have an opposite effect on the 'exposure of passing traffic' where private cars will only view these buildings who have intentionally decided to drive on the 'local' roads as opposed to the more 'expressway' roads. Residential use will be difficult to make enjoyable, facing the highway due to the increase in vehicle activity will make it unpleasant to view over, even if the ground floor was to be activated.

[52] Riseley Activity Centre - City of Melville (melvillecity.com.au)

[53] https://www.melvillecity.com.au/our-city/publications-and-forms/urban-planning/city-of-melville-local-planning-strategy

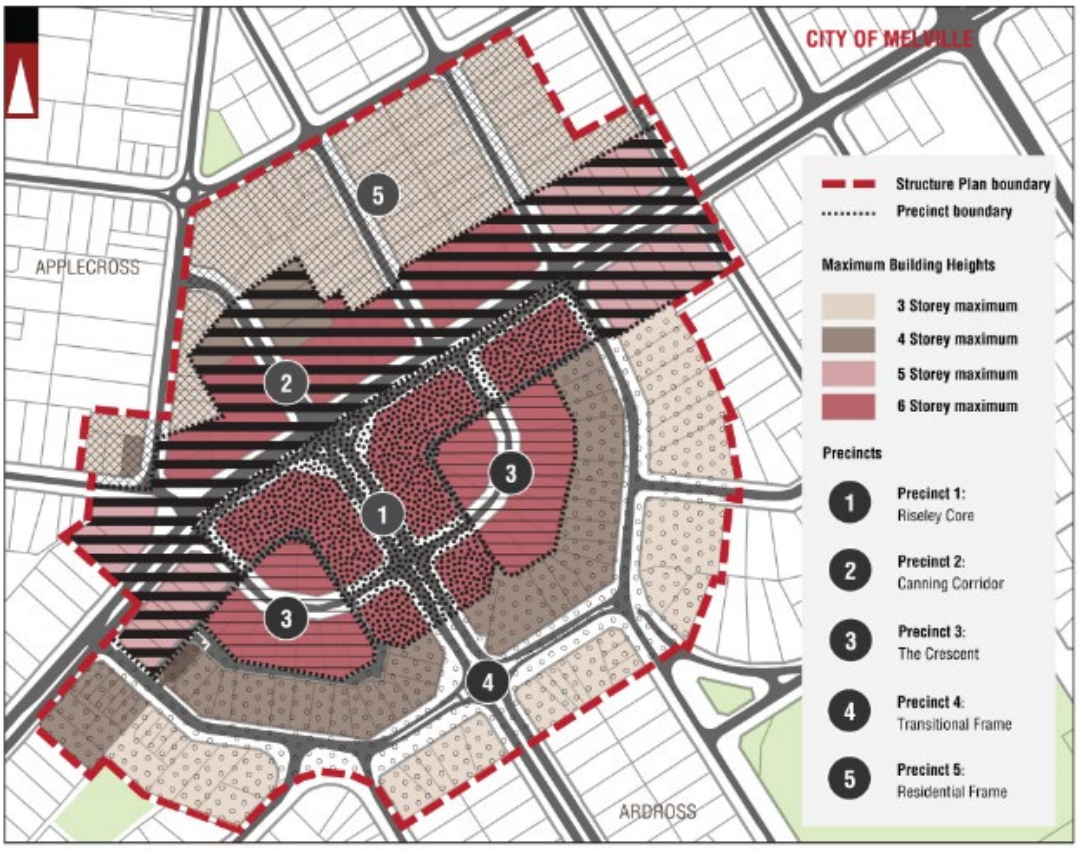


Figure 01 - Map showing location of the proposed precincts and allowed building heights

The streetscape design principles offer insight into the expected experience from the City of Melville of the Activity Centre, which contrasts with the Proposal. For the section on Canning Highway, the Plan recognises the function of the Highway requires high movement given the significance of the road. However, by investing in the enhancement of the place function, through land use allocation, building heights and specifically streetscape improvements toward healthy neighbourhood and pedestrian friendly, the Council sees will be "crucial" for the longevity of the area.[54]

The challenge for the precinct is how it will accommodate growth of regional commuters without compromising on the place values held by the community and investment in the place to deliver on the expectation of the community and its visitors. The public realm investment necessary to support the precinct is at risk from the impacts of the Proposal.

Poor design responses to increasing the capacity of Canning Highway will:

- Significantly impact on the amenity of the street network that connects to Canning Highway; a major corridor of commercial investment within the Activity Centre;
- Deter business and private investment, diluting the mixed-use intent for the precinct to localise employment opportunities and reduce car dependency; and

[54] Riseley Centre Masterplan Plan and Structure Plan, 2014, City of Melville, p17

- Lead to further segregation of the community north of Canning Highway (in and adjoining the Activity Centre) from the community services and commercial precinct that is proposed largely south of Canning Highway. Although the accessibility remains (four way intersection) in the Proposal, the perception of unfriendly pedestrian experience with the introduction of the varying levels and car dominated 'expressway' promotes a segregation between the community north and south of the highway.

It is recognized in the Plan that the existing experience along Canning Highway is not pedestrian friendly and does not promote walkability, staying longer and a destinational experience. However, what the plan recognises is the need for diversity of building heights, density, streetscape improvements and placemaking, to foster a pedestrian and active transport friendly environment. The Plan recognises that this will promote the Activity Centre's economic and social sustainability, understanding the enjoyability of the place creates a more competitive commercial and residential market.

The Proposal will have a significant impact on the desired approach for the Riseley Activity Centre Structure Plan. In this event, it is likely that the precinct will never succeed in its role as a mixed-use development, and the density requirement of the Activity Centre Plan, as required by the State, could fail at the expense of the local community.

Access to Open Space (O-7)

8.56 The Wireless Hill Park is in proximity to Study Area 2 and will be impacted by the Proposal upgrades, which is a heritage site of exceptional significance. The Park also contains the Museum, Four Houses, Heritage Trails, and Moreton Bay Fig Tree and Eucalyptus Tree that have heritage significance. The increased physical structure of the Canning Highway will impact upon views of, and from, all of these places. It will reduce accessibility to this park, as well as increasing noise and air pollution on not only a heritage site, but key public green space for the surrounding neighbourhoods of Ardross, Booragoon and Alfred Cove.

8.57 Access to and from the public open space Wireless Hill Park will as well as routes to and from the river foreshore at Tompkins Park north of the Highway will be impacted.

8.58 Overall, it is concluded that the Proposal could have a ***minor to moderate adverse*** impact upon access to open space within and surrounding the study area.

Environment

8.59 Once operational, the Proposal is anticipated to result in higher traffic movements along the Canning Highway corridor, be that new trips or re-routed trips from alternative strategic routes (e.g., from State Route 1 to Fremantle). More highway capacity could also redirect traffic from public transport back onto the roads.

8.60 In addition, local traffic movements are forecast to be substantially changed with a number of roads likely to have substantially higher vehicular flows (Riseley Street and Reynolds Road). These changes in traffic flows will have impacts upon local emissions, noise levels and air quality.

8.61 In the absence of specific traffic forecasts for all roads it is not feasible to assess the potential impacts quantitatively, however, the analysis below identifies the scale of potential impacts and sensitive receptors that could be affected.

Noise (O-8)

8.62 The Proposal is expected to have a ***minor to moderate adverse*** impact upon noise levels across Study Area 2.

8.63 Table 8.1 sets out the number of residential properties (with residents) and commercial floorspace (with workers) located within Study Area 2 along the streets affected by increased traffic levels.

Table 8.1 Properties and People Impacted by Increased Traffic Volumes

Street	Catchment	Residential Properties	Estimated Residents	Commercial Floorspace	Estimated Workers
Canning Highway	60m	203	472	22,721	752

Source: Hatch

8.64 All these properties and individuals could be affected by increased noise levels associated additional traffic. Furthermore, if future development proposals are taken into account, the number of residents and workers impacted will rise over time.

8.65 The increase of traffic along Riseley Street and Reynolds Road will see an increase of noise pollution that impacts the employment and residential properties along these streets.

Air Quality (O-9)

8.66 The Proposal is expected to have a ***moderate adverse*** impact upon local air quality.

8.67 Table 8.1 above sets out the number of residential properties (with residents) and commercial buildings (with workers) located within Study Area 2 along the streets affected by increased traffic levels.

8.68 Like noise, all these properties and individuals could be affected by reduced air quality associated with increased traffic emissions. Furthermore, if future development proposals are taken into account, the number of residents and workers impacted will rise over time. Sensitive receptives such as the Kindergarten, Daycare Centres and St Benedicts School have been identified within these areas and be significantly impacted, in conjunction with surrounding workers and residents.

8.69 As with noise levels, there could be some improvement to local air quality at the roads which have been converted to cul de sacs (Alness, Tain and Willcock Street) which will see a reduction in vehicle traffic.

Property Impacts

8.70 The operation of the Proposal will impact on the quality of place as set out in the previous sub-section, particularly in relation to noise, air pollution, accessibility, and the urban environment. These impacts tend to have an adverse impact on sale and rental values of residential and commercial properties, resulting in a financial cost for residents, property developers and investors.

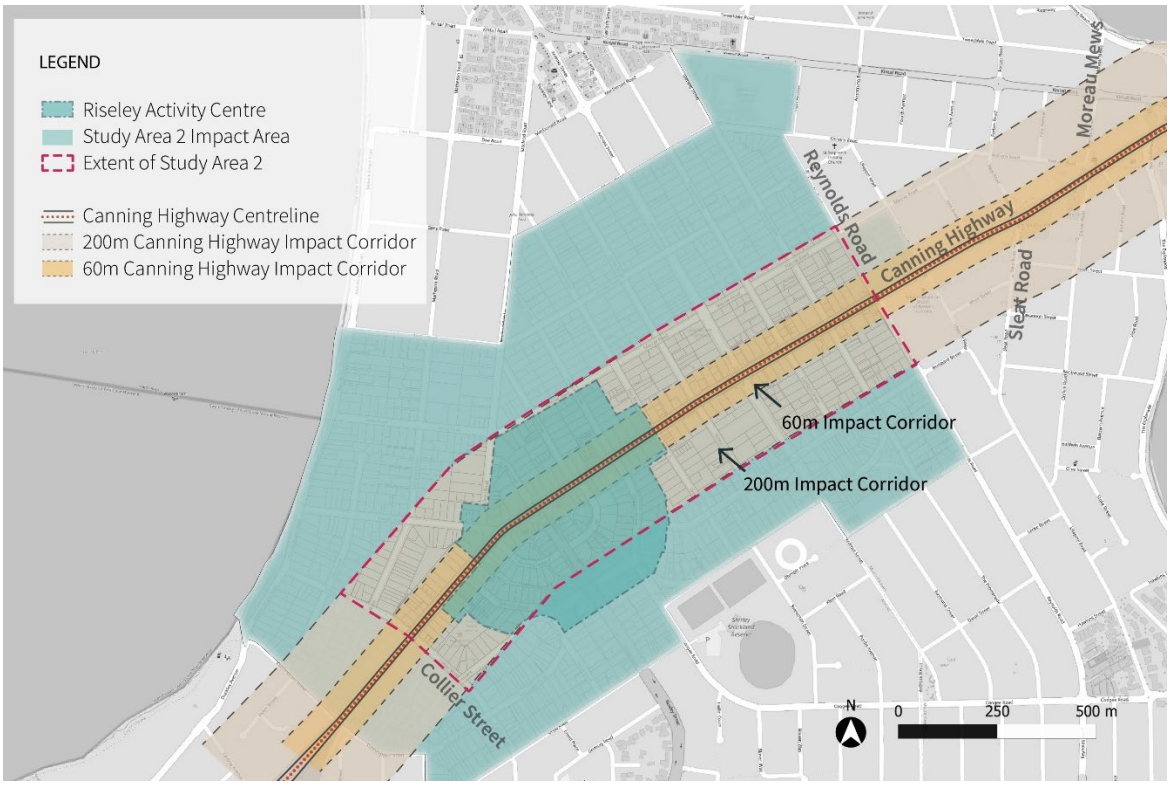
8.71 Analysis from PwC[55] indicates that major transport infrastructure developments that increase blight in an area can cause property values to fall by 10% within a 120m catchment and up to 6% within a 500m catchment. Further research from the UK by Hamptons International[56] indicates that property values within 500m of a proposed major train line (HS2) fell by 4.5% in absolute terms and 8.9% in relative terms versus wider house price trends. The PwC analysis also concluded that rental values may fall from the national average of 5% to 7% down to between 3% to 5%, suggesting a range of percentage loss in rental income from properties of between 29% to 40%.

8.72 It is recognised that these blight impacts relate to an entirely new infrastructure scheme being constructed, whereas the Duck & Dive Proposal represents an expansion of an existing highway, albeit substantially changing the urban environment.

8.73 Using the research as an underlying basis, we have estimated a range of potential impacts upon property values within two defined areas outlined below and shown diagrammatically within Figure 8.3.

- Within 60m of Canning Highway (e.g., properties located directly off the carriageway)
- Within 60m to 200m of Canning Highway

Figure 8.3 Property Impact Areas – Study Area 2



Source: Hatch and Canning Highway Planning Study, 2015 (BG&E)

8.74 It is assumed that properties within 60m of the Canning Highway will experience the greatest fall in value owing to blight, as they will experience both the substantial increase in the physical structure of the road, as well as the increased noise and negative impact of air quality.

[55] HS2 Property Bond Cost Report, PwC (2014)

[56] Linking Housing Markets: The effect of transport infrastructure on housing, Hamptons International (2014)

Properties located further back from the highway (60m to 200m) are still within a range to be affected by noise and air quality, but perhaps less affected by visual blight.

8.75 Properties located along Riseley Street (south) that are not generally located, within the 200m catchment of Canning Highway, will also be affected by significant additional local road traffic, in terms of noise and air quality.

8.76 On this basis, a range of impacts have been identified and are presented within Table 8.2. It should be noted that the residential and commercial value are not directly comparable, as follows:

- For residential property, the impacts relate to a one-off loss in property value and so are applied to the estimated total value of the property.
- For commercial property, the impacts relate to annual rental values and so are applied on an annual basis (over 10 years) on average rental values achieved by the property.

Table 8.2 Forecast Property Blight Impacts

Impact Area	Residential Property Value Impact		Commercial Rental Property Impact	
	Low	High	Low	High
60m Canning Highway	5.50%	8.00%	8.00%	11.00%
200m Canning Highway	2.50%	3.50%	3.50%	5.00%

Source: Hatch

8.77 These values are applied within the individual assessment of residential and commercial blight within the sub-sections below.

Residential Blight (0-10)

8.78 The impact of blight upon overall residential property values has been estimated for three separately defined types of housing:

- **Existing Housing:** estimated levels and values of residential properties currently within the CBAC area
- **Forthcoming Housing:** housing approved for construction
- **Aspirational Housing:** longer-term targets for housing delivery across the Study Area C in particular the Riseley Activity Centre Area

Existing Housing

8.79 Using a combination of GIS layers from Western Australian Land Information Authority (Landgate) and desktop research, it is estimated that there are around **200** residential properties

within 60m of the Canning Highway. Using evidence from Reiwa[57] (2019) it is estimated that these properties have a combined current value of around **AU$225m**.

8.80 A loss in value for the properties within 60m of Canning Highway across could see a theoretical one-off loss of value of between **AU$12** and **AU$18** for residents and investors based on current values.

8.81 There are an additional **600** residential properties within a 200m radius of the Proposal. It is estimated that these properties have a combined current value of around **AU$793m** and that a fall in value attributed to the new highway Proposal could see a theoretical loss of value of between **AU$20m** and **AU$27.5m.**

8.82 This analysis is summarised within Table 8.3.

Table 8.3 Existing Housing Blight Impact

Area	Number of Properties	Estimated Combined Value	Estimated Reduction in Value	Estimated Loss of Value
60m Canning Highway	200	AU$ 225m	5.50% - 8.00%	AU$12m - AU$18m
200m Canning Highway	600	AU$ 793m	2.50% - 3.50%	AU$ 20 - AU$ 27.5m

Source: Hatch, Reiwa, and PwC

Forthcoming Housing

8.83 Planning data from the City of Melville indicates that there are around **5** residential properties that are approved for construction within 60m of the Highway. The combined value of these once complete is estimated to be **AU$12m** in current prices and the new proposed highway proposal could see a theoretical loss of value of between **AU$0.7m** and **AU$1m** significantly impacting developers' profit margins[58].

8.84 A further **106** residential properties are in construction or approved for construction, within the 200m buffer. The combined value of these once complete is estimated to be **AU$66m** in current prices which could see a theoretical loss of between **AU$1.6m** and **AU$2.3m** as a result of the new highway.

Aspirational Housing

8.85 The *Riseley Activity Centre Masterplan* sets out a target to deliver around 300 new residential dwellings in the Riseley Activity Centre by 2031. Removing the 115 properties currently in construction or approved for construction within the 200m buffer leaves around **185** further homes to come forward over the next ten years.

8.86 Assuming that around **30%** are delivered within 60m of the Canning Highway it is estimated that these properties would have a value of around **AU$34m** in today's prices. A fall in prices could

[57] Data from Reiwa (2020) indicates the latest house prices. The average house and unit price for Applecross and Mount Pleasant was applied respectively to each residential premises counted

[58] These values ae provided in current prices but are subject to change over time in line with inflation and changing market conditions.

see a theoretical loss of **AU$1.9m** and **AU$2.7m** which is significant loss of value. The actual loss value is likely to be far higher due to inflation and expected continued property price growth.

8.87 An additional **AU$1.4m** and **AU$2m** of value could be lost within a wider catchment on the basis that around **50%** of homes are delivered within the 200m buffer[59].

Commercial Property Blight (O-11)

8.88 The impact of blight upon overall commercial property rental values has been estimated for two separately defined types of properties:

- **Existing Commercial Property:** estimated levels and values of commercial properties currently within Study Area 2.
- **Aspirational Commercial Property:** longer-term targets for commercial property delivery across the Riseley Activity Centre area.

8.89 It should be noted that no 'forthcoming' commercial property that has either recently been completed, or has been approved, has been identified within the CBAC area.

Existing Commercial Property

8.90 There is around **22,721 sqm NIA** of employment floorspace within 60m of the Canning Highway. It is estimated that these properties have a combined annual rental value of circa **AU$7.4m** based on evidence generated from a desktop review of prevailing rents locally.

8.91 A fall in rental values associated with blight for the properties along Canning Highway could see a theoretical reduction in rent of between **AU$595k** and **AU$819k** per annum based on current prices. This equates to between **AU$4.7m** and **AU$6.4m** over a ten-year period (Net Present Value)[60].

8.92 There are an additional **21,445 sqm** of commercial floorspace within a 200m radius of the Proposal. It is estimated that these properties have a combined annual rental value of **AU$6.7m** and that a fall in prices could see a theoretical loss of value of between **AU$236k** and **AU$337k** per year. This equates to **AU$1.8** and **AU$2.6** over a ten-year period (Net Present Value)[61].

8.93 This analysis is summarised within Table 8.4.

Table 8.4 Existing Commercial Property Blight Impact

Area	Volume of Commercial Floorspace	Estimated Combined Rental Value pa	Estimated Reduction in Value	Potential Theoretical Reduction in Rent pa	Theoretical Reduction in Rent Over Ten Years
60m Canning Highway	22,721	AU$7.4m	8-11%	AU$ 595k – AU$ 819k	AU$ 4.7m - AU$ 6.4m

[59] Excluding the properties within the 60m buffer.

[60] Commercial loss has been estimated to commence in the mid 2020s and has been discounted to today's prices using a nominal local government discount rate

[61] As above

200m Canning Highway	21,445	AU$6.7m	3.5-5%	AU$ 236k – AU$ 337k	AU$ 1.8m - AU$ 2.6m

Source: Hatch, Reiwa, and PwC

Aspirational Commercial Property

8.94 The *Riseley Activity Centre Masterplan* sets out a target to deliver around **17,210 sqm (GFA)** of additional commercial space including a mix of land uses, office, retail, restaurants and food, medical centre, health clubs and showrooms.

8.95 Assuming that around 30% of this floorspace will be built within 60m of the Canning Highway or fronting onto locally affected roads it is estimated that these properties would have a combined annual rental value of around **AU$1.3m** in today's prices.

8.96 A fall in values due to blight could see a theoretical loss of **AU$104k** and **AU$130k** in rental value per annum. Over ten years this could be a loss of **AU$0.9m**to **AU$1.1** (Net Present Value)[62]**.**

8.97 An additional **AU$87k** and **AU$130k** of annual rental value could be lost within a wider catchment on the basis that around 50% of floorspace is delivered within the 200m buffer. This equates to between **AU$0.7** and **AU$1.1** over ten years (Net Present Value).

Prosperity Impacts

8.98 The operation of the Proposal will impact on Study Area 2 businesses and economy, primarily due to the loss of commercial assets, business disruption and potentially adverse impacts on the strategic perceptions of the area as a place to invest and do business. As set out under the 'People' subsection the impact to employers and employees is anticipated to be **major adverse.** This is explored in more detail in this sub-section.

Local Business (O-12)

8.99 As set out in the previous chapter on construction impacts, it is estimated that around **1,200 sqm GEA** of office space (912 sqm NIA) and **10,467 sqm GEA** of non-office commercial space (7,955 sqm NIA) (e.g., retail, restaurants, cafes, gyms, health etc) will fully or partially taken to make way for the Proposal.

8.100 It is estimated that this will lead to the loss of around **255** full time equivalent jobs in Study Area 2 based on aforementioned employment densities. This represents an annual productivity fall of **AU$30.7m** per year for the area and **AU$155.5m** over 5 years taking into account projected inflation[63].

8.101 The operation of the Proposal could also harm performance for those businesses that are not affected by demolition. This is because some businesses will become less accessible and encounter less passing trade as result of changes to traffic routing. For example:

- The funnelling of through traffic beneath the Canning Highway is likely to reduce the amount of passing trade at ground level. This could negatively impact the financial

[62] As above

[63] Analysis based on a start date in the mid 2020s

performance of shops, restaurants, cafés, and services reliant on exposure and discretionary visits from high traffic volumes.

- The closure of direct access to Riseley Street and left in left out restrictions will inevitably reduce the number of cars accessing the precinct from transient traffic which is likely to have knock-on impacts for business performance (e.g., for Subway and other businesses that require convenient access); and,
- Other key precincts to be impacted will be the Applecross local activity centre down Ardross street with the restricted access which will inevitably constrain the market for potential visitors that are residing south of Canning Highway.

8.102 Changes in traffic routing will also increase travel times to and from some businesses creating additional financial costs for some businesses and employees. This is particularly the case for businesses located on main and backstreets at the Riseley Activity Centre. Every employee or visitor travelling by private vehicle will have a detour which could ranger between 300m to 1.5km each trip depending on the origin and destinations which equates to a significant quantum of additional time and money when grossed up to the total number of employees and visitors over the course of a year (Figure 3.8).

8.103 Employees and visitors travelling by public transport to and from businesses on the Canning Highway (Riseley Activity Centre) will also experience increased travel times. The re-positioning of the bus stop East of Riseley to East of Fletcher Street could also add up to three minutes to the walk time of users potentially impacting business productivity and the take up of public transport.

8.104 In line with Study Area 2, there is also a risk that that the increased volume of traffic on the Canning Highway could increase the number of major road crashes on the route. This would impact the productivity of local businesses due to disruptions to journey times and it would also create a range of additional economic and social costs. An increase of 20% from the baseline of 40 per annum (one crash every 9 days) would equate to 8 additional accidents per annum (one crash every 8 days); an increase of 40% would equate to an additional 16 accidents per annum (one crash every 6.5 days); and an increase of 60% would equate to 24 additional accidents per annum (one crash every 5.5 days).

Future Investment (O-13)

8.105 The Riseley Activity Centre has been identified as a priority for growth, density and as a mixed-use precinct in a wide range of regional policy documents (including *Riseley Street Activity Centre Structure Plan, Perth & Peel @ 3.5Million: Central Sub-Region Planning Framework; City of Melville Local Planning Strategy*).

8.106 The current City of Melville Local Planning Strategy sets out that the City of Melville's portion of the Riseley Activity Centre should accommodate an additional 300 dwellings by 2031. Attracting inward investment from developers, businesses and investors is an important part of realising this ambition and this is intimately linked to proposals to improve the urban realm, local amenity offer, environment and transport options.

8.107 The delivery of the Proposal, which is expected to create an urban expressway environment rather than the proposed commercial and residential activity centre, may make it more difficult to realise these ambitions.

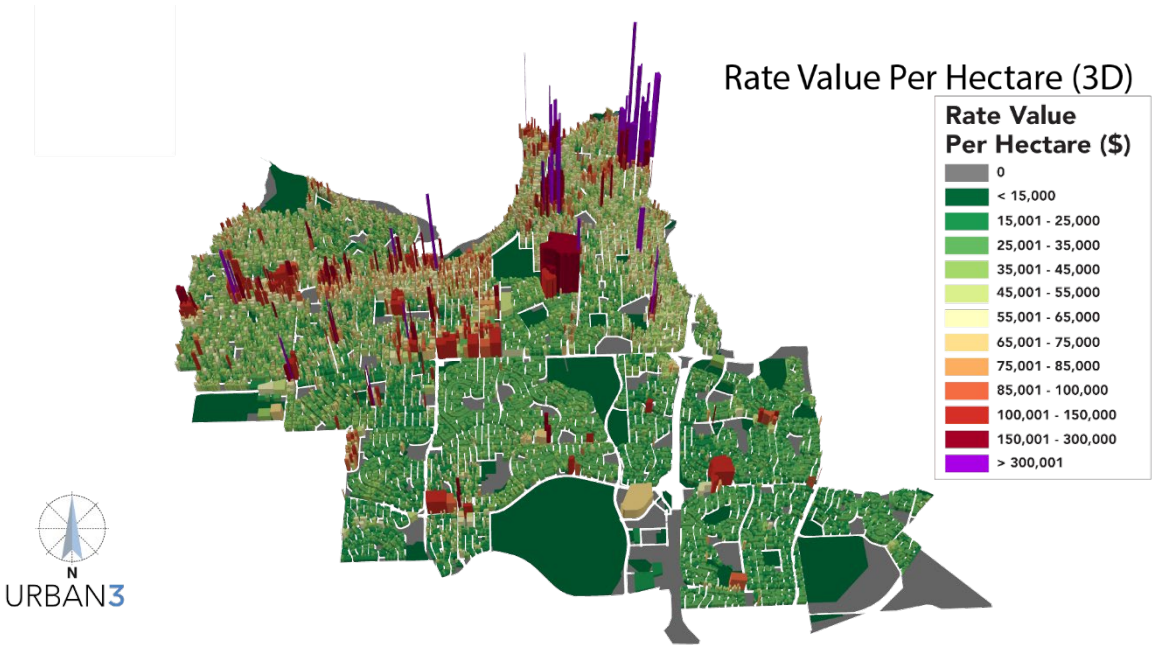
8.108 This is because the blight associated with the Proposal (i.e., noise, pollution, and dust) could make the Study Area 2, including the Riseley Activity Centre less attractive to people to live, work and visit. This may be exacerbated by reduced walkability across the activity area.

8.109 This, alongside potential reductions in residential and commercial property values, may make the area less attractive to developers. This is particularly the case if profit margins, and viability, are affected. Coupled with the direct loss of commercial space this will make it more difficult to achieve development ambitions for the area.

Local Finances (O-14)

8.110 The Riseley Activity Centre has one of the most productive land in the City of Melville, see Figure 8.4. This money is used to fund a wide range of important city-wide services such as waste, libraries, leisure centres, parks, community health, social housing, and transport. The relative importance of the area to the City's finances is illustrated in the figure below.

Figure 8.4 Rateable Value Per Hectare, City of Melville (2020)



Source: Urban Three

As set out in the previous sub-section, blight from the operation of the Proposal is likely to cause sale and rental values to fall from the baseline position. This will impact on local tax income which is directly tied to gross rental values.

While other factors and market pressures are likely to bring sale and rental values back to and beyond their current position should the Proposal come forward, the new highway is expected to create a one off 'shock' to values which would lower the baseline position. The values achieved over the long term therefore would be lower than they would have been without the shock.

Existing Tax Income

8.111 In relation to commercial property, it is estimated that there could be a total theoretical reduction in rent of **AU$830k to AU$1.1k** each year within 200m of the Proposal which equates to **AU$6.5m to AU$9m** over ten years[64].

8.112 It is estimated that this reduction in commercial rents could lead to a fall of **AU$64k** to **AU$89k** each year in local tax income based on current rates[65]. This could mean a reduction in the net present value of **AU$500k** to **AU$700k** over ten years[66].

8.113 In relation to residential property, while many of the properties are owner-occupied gross rental value has been estimated by applying the prevailing rental yield average for Applecross (2% for house and 3.6% for a unit), Mount Pleasant (2.2% for a house and 3.3% for a unit) and Ardross (3.3% for a house and 4.4% for an apartment)[67].

8.114 If values fall as per the reductions set out in the previous sub-section, there could be a reduction of up to **AU$63k** to **AU$89k** each year in local tax income based on current rates[68]. This equates to a fall in the net present value of **AU$490k** to **AU$685k** over ten years[69].

Forthcoming Tax Income

8.115 As previously discussed, there are around **9** residential properties that have either been recently completed, are currently in construction, or approved for construction within 60m of the Highway. An additional **106** residential properties are in construction or approved for construction within the 200m buffer.

8.116 Based on the prevailing values and rental yields, these premises will pay a total of around AU$200k in rates per annum. A fall in gross rental values for properties within 60m of the Highway and the remaining properties within the 200m buffer would equate to a total theoretical loss of **AU$6k-AU$8k** per year. This could reduce the net present value of expected local tax income by between **AU$45.5k** and **AU$63k** over ten years.

[64] Analysis based on a start date in the mid 2020s

[65] City of Melville Corporate Budget 2020-2021

[66] Commercial loss has been estimated to commence in 2024 and both these values and business rates have been discounted to today's prices using a nominal local government discount rate. Commercial business rates have been applied at 7.73 cents in the dollar against the prevailing rental values for each premises identified.

[67] Yield values taken from Realestate.com

[68] City of Melville Corporate Budget 2020-2021

[69] Analysis based on a start date in the mid 2020s

PART D: RECOMMENDATIONS

PART D: RECOMMENDATIONS

9. Delivering Better Outcomes

9.1 While the Duck & Dive Proposal may bring strategic connectivity benefits to Greater Perth, the analysis set out in this document illustrates that it will bring significant economic, social, and environmental costs for both study areas and in particular the CBAC and Riseley Activity Centre. It will restrict movement, damage livelihoods, impact investability, and increase pollution.

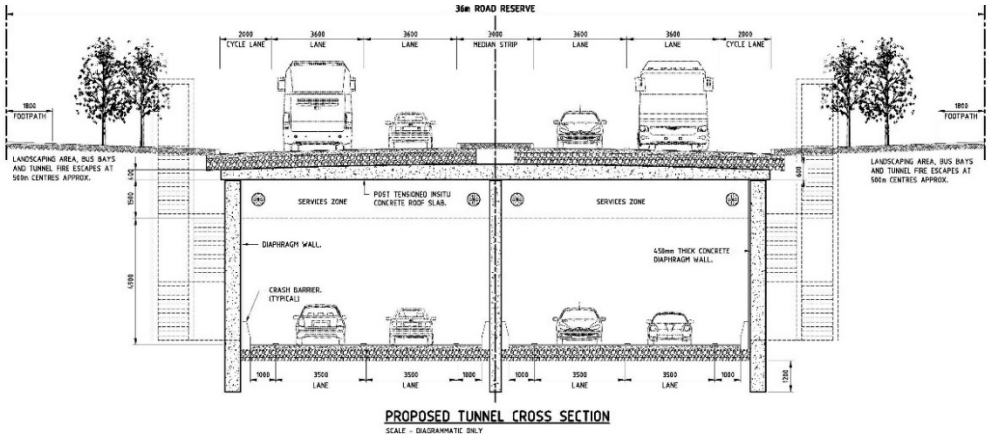
9.2 An alternative option, or comprehensive set of mitigation measures, is therefore required to reduce negative impacts for the affected study areas and deliver better outcomes. This chapter considers the potential benefits of an alternative option as well as the types of mitigation measures that could be pursued if the original Proposal comes forward.

Alternative Option

9.3 The City of Melville is seeking an alternative option to be developed by Main Roads that better aligns with the aspirations of the current and revised *Canning Bridge Activity Centre Plan* (2016).

9.4 One option, which is set out in a report by Airey Taylor Consulting (*Canning Highway Tunnel Pre-Feasibility Study, 2015*), is to deliver a tunnel rather than Duck & Dive structure. This would be preferred by the City of Melville should grade separation be required.

Figure 9.1 Cross Section of Tunnel Option



Source: Airey Consulting, 2021

9.5 This alternative option involves diverting through traffic into a tunnel below the existing Canning Highway while local traffic uses the above-ground road as before (see figure above). Suggested entry and exit points are adjacent to Wireless Hill Park and to the west of the Canning Highway and Canning Bridge Road intersection in the east.

9.6 While a full impact assessment has not been undertaken, a high-level assessment from Airey Taylor Consulting *(Canning Highway Duplication Option Comparison, 2021)* sets out that this option *"…is a superior option to the Duck and Dive option"* (p.31). This is because it is likely to deliver fewer economic, social and environmental costs to the CBAC and is deemed technically more practical.

9.7 The table below illustrates how Airey Consulting's alternative option delivers fewer costs than the Duck & Dive Proposal using the impact framework set out earlier in this report as a basis.

Table 9.1 Tunnel Option vs Duck & Dive

Impact Area	Tunnel Option vs Duck & Dive
People	• Fewer community facilities disrupted or lost • Current pedestrian access maintained, including Ogilvie Road pedestrian bridge which provides a key linkage to the heart of the commercial district • Reduced feeling of severance and separation between either side of the Canning Highway • Fewer lane closures and traffic delays during construction meaning less impact on accessing services and amenities
Place	• Creates fewer visibility issues owing to design and layout • Less likely to lead to major flooding events • Most construction work can occur underground meaning less disruption, noise and air pollution during the construction period and sustained lower noise and air pollution in the operational stage
Property	• Fewer residential and commercial properties will be impacted to construct scheme • Minimal impact to current operation of commercial units • Less noise and air pollution as most traffic is underground meaning fewer blight issues for properties
Prosperity	• Minimal loss of commercial units and therefore economic activity • Increased regional connectivity and strengthened local connectivity.

Airey Consulting, 2021

9.8 It is important to note that while the City of Melville prefer the tunnel option to the Duck & Dive proposal, there are other options that do not primarily focus on increasing car capacity in the CBAC. These include improving public transport, encouraging active travel (e.g., cycling, walking and running) and shifting traffic to other roads further south (e.g., Leach Highway and South Street). These options align better with aspirations for the current and revised *Canning Bridge Activity Centre Plan.*

9.9 The next step should be to undertake a full and independent comparative analysis of the economic, social and environmental impacts of all options as well as an assessment of their respective financial costs, technical feasibility and timescales.

Mitigation Measures

9.10 If the Duck & Dive Proposal does come forward it will be important for Main Roads and the City of Melville to agree a suite of mitigation measures to reduce any negative impacts to the study areas. Some of these should also be considered if an alternative option comes forward if this also creates some negative impacts.

9.11 The four areas that should be focused on are:

1) Minimising the impacts of **construction**;

2) Ensuring optimal **operational** arrangements;

3) Supporting local **businesses and residents**;

4) Ensuring **local connectivity**; and,

5) Delivering **legacy benefits** from the Proposal.

9.12 These are set out in more detail in this sub-section. Further discussions would need to be held with stakeholders should the Proposal come forward in relation to these areas and further work and research would need to be undertaken to agree the best course of action.

Minimising the Impacts of Construction

9.13 The construction phase of the Proposal will create a range of negative impacts from demolishing community assets, closing or reducing road capacity, creating pedestrian severance, disruption access and creating noise and air pollution. To reduce these impacts for the Study Area businesses, residents and visitors it will be important for Main Roads to go beyond statutory regulations to reduce harm. Potential mitigation measures that could be explored in more detail include:

1) Phasing construction to ensure disruption to local access for residents, businesses, workers, and visitors is minimised, as well as reducing peak levels of noise, dust, and air pollution;

2) Minimising permitted hours of construction to reduce blight for residents, businesses, and visitors;

3) Providing public or consolidated transport options for construction workers to reduce potentially harmful increases in traffic, including establishing a safer and more direct connection to Canning Bridge train station;

4) Procurement of contractors that use environmentally friendly vehicles and construction practices;

5) Consider opportunities to use marine transport for spoil, materials, and equipment to minimise the number of HGV movements to and from the area; and

6) Real time monitoring of noise and air quality alongside agreed rules and thresholds with contractor;

Ensuring Optimal Operational Arrangements

9.14 The current design of the Proposal will deliver sub-optimal outcomes for accessibility and the local environment once operational. The alternative option will address many of these issues, but if this is deemed technical unfeasible the City of Melville should work with Main Roads to identify a series of changes to the current Proposal design to deliver better outcomes for the Study Areas.

9.15 Potential options include:

1) Building more safe pedestrian crossings along the Highway at a minimum every 500m;

2) Implementing smart speed limits to manage noise and air pollution, and achieving a low speed environment for surface level streets;

3) Exploring options to expand the public transport infrastructure and connectivity by allowing some bus services to run the entire length of the Highway or consider the option of alternative public transport such as light rail (either immediately or adequately allowing for future retrofitting);

4) Improve bus stop infrastructure, access and convenience;

5) Identifying opportunities for enhanced north-south connectivity for drivers, cyclists, and pedestrians; which could include an additional road crossing at Ardross Street to ensure access to and from the schools, daycare and other activity centres are not significantly impacted;

6) Extend surface areas achieved by cantilevering over trench by 2.5m-3m each side, potentially including low level planting to cantilevered sections to reduce visual impact of concrete barriers, promote lower speeds and improve pedestrian friendliness;

7) Dense tree canopy cover over verges to reclaim some lost amenity and combat heat island effect;

8) Concerted efforts to combat vibration and acoustic amenity issues in a manner that does not itself create amenity issues, for example artistic feature screening, and the strategic location of noise-baffling features

9) Extend “lids” at road crossings with flexible spaces incorporated to include landscaping, pop-up activation opportunities, protected seating areas and

10) Providing incentives for low emission vehicles to use the Highway.

Supporting Local Businesses and Residents

9.16 Communities and businesses will be hit hard by the Proposal. The former will face disrupted access to schools, healthcare, and amenities. The latter will suffer from fluctuating levels of trade, particularly during construction, loss of premises and noise disruption. The City of Melville should look to secure funding from a range of sources, including Main Roads, to support these stakeholder groups. Potential mitigation measures include:

1) Ensuring the design as implemented created a low speed environment conducive to pedestrian amenity and passing trade for businesses;

2) Providing business rate holidays or discounts during the construction phase to reduce the impacts of lost trade or productivity;

3) Supporting displaced businesses to identify alternative accommodation in the Study Area and providing financial support to ease the transition;

4) Incentivising local firms to create new employment opportunities for displaced employees via loans and grants;

5) Identifying alternative sites for displaced health services within the Study Area;

6) Providing grants or loans to community schemes focused on bringing people from across the Study Area together and building social capital

7) Strengthen focus on Kishorn Road north of Canning Highway as a pedestrian friendly community heart, and a potential destination for displaced businesses; and

8) Consider extending requirements for full acquisition of residential properties that are significantly affected, losing their main access or needing to flip the use of their property from front to back.

Ensuring Local Connectivity

9.17 The Proposal will significantly increase the overall footprint of the Canning Highway likely to create an urban setting that is more akin to an urban expressway, as opposed to a commercial and residential activity centre. Further increases in traffic flows along specific local routes, such as Riseley Street and Reynolds Road, could result in increased congestion which will detract pedestrian activity and walkability, promoting people private vehicle use, reducing flexibility and dwell times. Potential mitigation measures include:

1) Investigate the full spectrum of alternative solutions to moving people, as opposed to vehicles, to and through the Proposal area;

2) Ensure appropriate community consultation is included in considering local connectivity and place impacts to promote transparency and communication with the local community;

3) Heavily landscaped verges with dense canopy coverage to enhance pedestrian experience and encourage walkability, *however this may compromise pedestrian, cyclist and public transport space within the road corridor*;

4) Provide increase in formal pedestrian crossings across Canning Highway to promote walkability and active transport for local residents and users; and

5) Ensure the pedestrian bridge on Ardross Street is committed if the Duck and Dive Proposal is approved.

Delivering Legacy Benefits from the Proposal

9.18 To offset the negative impacts of the Proposal the City of Melville should look to secure investment from Main Roads and other stakeholders for projects and programmes that will leave a positive legacy for the Study Area.

9.19 These projects and programmes will need to be identified by the City of Melville early on and should align closely with the principles of the current and revised version of the *Canning Bridge Activity Centre Plan and Riseley Activity Centre Plan*, particularly in relation to extending the natural environment, restoring a village atmosphere, and creating exceptional accessibility. Example projects could include cycling infrastructure, new green spaces and community facilities that promote social capital.

Conclusion and Recommendations

10. Conclusion and Recommendations

10.1 This report assesses the economic, social and environmental impacts of Main Roads' Duck & Dive proposal for the Canning Highway. It demonstrates that it will have **moderate** to **major** negative impacts on People, Place, Prosperity and Property during both the construction and operational phases.

10.2 Given this, the City of Melville should attempt to work closely with Main Roads and other partners to either (a) develop a new proposal or (b) amend the proposal to reduce the negative impacts. Our recommendations to achieve this are set out below.

(1) Advocate for an Alternative Approach

10.3 This report, coupled with the *Airey Taylor Consulting Canning Highway Duplication Option Report*, the *Canning Bridge Activity Centre Plan Review and Riseley Street Activity Centre Plan*, comprehensively demonstrate the negative impacts that the Proposal could have on the Study Area. These findings should be used as part of an advocacy campaign to bring Main Roads to the table to explore alternative approaches. The campaign should raise awareness of the issues and focus on engaging positively and proactively. This campaign could involve:

- Focusing all efforts on expediting the conclusion of the CBAC Plan Review and legitimise the outcomes of the Canning Bridge Precinct and Place Report (CBPPR), expected to be considered by Council in April 2023;
- Continuing with the implementation of the Riseley Activity Centre Plan to drive positive social and economic outcomes, and, where possible, use this process to demonstrate the opportunity costs associated with the Duck and Dive proposal;
- Preparing succinct campaign collateral that bridges the CBPPR (particularly, the Precinct Themes, Objectives + Principles) with the findings of the *Canning Highway Duck and Dive Proposal: Socio-Economic Impact Assessment*. The focus of this work should ensure the integrity of the Revised Activity Centre Plan is not compromised by proposals for Canning Highway and how the Activity Centre Plan can improve the utilisation of the train station and proposed bus port;
- Build on community awareness of the Duck and Dive proposal, gained through the CBAC Plan review process to assist with or complement a campaign seeking a better outcome for Canning Highway; and,
- Making representations to Western Australian Planning Commission and the Minister for Planning utilising above-described collateral requesting a collaborative working group (Department of Planning, Lands, and Heritage; Main Roads; City of Melville; City of South Perth; South West Group; Department of Transport and Perth Transport Authority) to prepare a holistic intermodal transport solution for Canning Bridge and Canning Highway that respects the proposed revised CBAC Plan and CBPPR.

10.4 If this is not successful in creating positive dialogue, the City of Melville should proceed with exploring alternative options in more detail. Once a preferred option has been identified this should be the subject of a wide-scale communications campaign to influence regional decision makers.

10.5 Ensure Infrastructure WA is aware of the alternative proposal and is assessing it with due regard to social, economic and environmental impacts.

(2) Explore Alternative Options

10.6 If Main Roads are not open to assessing the feasibility of alternative options, the City of Melville could begin this process internally. There are a wide range of options that could be considered that would meet both the objectives of Main Roads (i.e., around road safety, traffic demand and congestion) and those coming from the Canning Bridge Activity Centre Plan Review including they Precinct and Place Report. Options range from a tunnel scheme to a fundamental shift in focus to active travel.

10.7 Main Roads investigated a few options as part of the BG&E *Canning Highway Planning Study: Collier Street to Henley Street* study but there is scope to look at a broader range of potential solutions. We recommend:

- Working with relevant consultants to identify options that better meet the objectives of the Canning Bridge Activity Centre Plan Review;
- Undertaking a high-level comparative analysis of the financial costs, technical feasibility and timescales involved in bringing forward each option and using this to create a shortlist, where possible this should build on any analysis undertaken by Main Roads, filling gaps and shortcomings as required;
- Comparing the economic, social and environmental impacts of the shortlist to arrive at a preferred option(s); and,
- Undertaking a full feasibility study and design work on the preferred option(s).

The preferred option(s) could then be promoted as part of a bespoke advocacy campaign as discussed above.

(3) Develop Strategy for 'Worst Case' Scenario

10.8 If Main Roads proceed with the Duck & Dive Proposal, rather than an alternative option, it will be important for the City of Melville to develop a strategy and suite of 'tasks' to reduce any negative impacts for the Study Area.

10.9 As discussed, we recommend that this should focus on five main areas:

1. **Minimising the Impacts of Construction**

➢ E.g., transport options for workers; reduced working hours; environmentally-friendly contractors; careful phasing; and real time monitoring of noise and pollution

2. **Ensuring Optimal Operational Arrangements**

➢ E.g., more pedestrian crossings; smart speed limits to limit pollution; exploring options for Highway bus routes; enhancing N-S connectivity; better use of space over the trench; combating noise and amenity impacts; and incentives for low emission vehicles

3. **Supporting Local Businesses and Residents**

➢ E.g., business rate holidays for disrupted businesses; commercial property brokerage; site identification for displaced organisations; and grant/loans for community schemes

4. **Ensuring Local Connectivity**

E.g., more pedestrian crossings, ensuring the Ardross Street pedestrian crossing proceeds, inclusion of more amenity such as landscaping and public space to promote walkability, ensuring transparent communication with community

5. **Delivering Legacy Benefits from the Proposal**

- E.g., identifying projects and programmes that can create positive impacts for CBAC

10.10 Any strategy that comes forward should be designed with the local community and important stakeholders. The final document should again be used as part of an advocacy campaign and in negotiations with Main Roads.

10.11 It may also worth doing something similar for a preferred option should this create any negative impacts.

Appendix A - Duck & Dive Scheme Description

A.1 "This option maintains full connectivity at the intersection of Reynolds Road and Canning Highway - recognising the greater significance Reynolds Road as a Distributor B Road compared to Ardross Street (a local distributor).

A.2 Reynolds Road links major traffic generators such as Applecross Senior High School and Brentwood Primary School, serves as a bus route between Booragoon Shopping Centre and Perth, and provides connection through to Leach Highway (via Moolyeen Road).

A.3 Riseley Street, Reynolds Road and Sleat Road are maintained as a signalised intersection, with modification to the traffic signal operation to reflect the changed volumes. Due to the proximity between Ardross Street and the end of the trenched section, Ardross Street is changed to left-out (for eastbound traffic) and left-in (for westbound traffic) only, thus minimising the potential for weaving manoeuvres between traffic in the centre lanes (from the trench) and traffic in the outside lanes (from the surface road). Left-in left-out access is maintained to most local side roads to and from the surface roads, with the exception of Tain Street and Alness Street, which are proposed to be cul-de-sac-ed.

A.4 Public transport are provided between Riseley Street and Sleat Road, where they turn to follow Sleat Road, Forbes Road and Kintail Road. This allows an additional left-in access from Moreau Mews to Canning Highway eastbound for general traffic.

A.5 All lanes are proposed to be 3.3m wide, and shoulders and median widths are minimised. This has been done to minimise the impact on the adjacent properties as far as practicable"[70].

[70] Canning Highway Planning Study: Collier Street to Henley Street, 2015

Appendix B - Detailed Community Impact Assessment

Table B.1 Community Impacts

Study Area 1

Resource	Resource Description	Phase	Impact on Facility	Impact on Accessibility	Magnitude	Sensitivity	Significance
Services and Amenities							
Rowing Club WA	• A rowing club 20m from Canning Highway, accessed via The Esplanade. • Well used club with over 200 members from across Perth.	Construction	• Reduced enjoyment of facility due to changes in noise levels, air quality and construction traffic • Potential land take on adjacent green space is likely to disrupt day-to-day activities of the club	• Reduced accessibility due to lane restrictions/congestion on Highway, particularly for those to the north of the Canning Highway and to the west • Congestion on The Esplanade likely to increase during construction due displaced traffic	**Medium:** impacts will continue for the duration of the construction period and will affect all users		**Significant** major adverse effect
		Operational	• Potential long-term increase in noise levels and air pollution owing to higher capacity highway may permanently reduce enjoyment and impact physical performance	• Loss of pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will reduce accessibility for pedestrians • Loss of bus routes along the Canning Highway will impact accessibility for public transport users	**Medium:** impacts will be permanent and will affect many users		**Significant** major adverse effect
Swan River Rowing Club	• A rowing club around 100m from Canning Highway, accessed via The Esplanade. • Well used rowing club which has existed since 1933.	Construction	• Reduced enjoyment of facility due to changes in noise levels, air quality and construction traffic	• Reduced accessibility due to lane restrictions/congestion on Highway, particularly for those to the north of the Canning Highway and to the west • Congestion on The Esplanade likely to increase during construction due displaced traffic	**Medium:** impacts will continue for the duration of the construction period and will affect all users	**High:** rowers are members of the club which has no alternative bases	**Significant** major adverse effect
		Operational	• Potential long-term increase in noise levels and air pollution owing to higher capacity highway may permanently reduce enjoyment and impact physical performance	• Loss of pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will reduce accessibility for pedestrians • Loss of bus routes along the Canning Highway will impact accessibility for public transport users	**Medium:** impacts will be permanent and will affect many users	**High:** rowers are members of the club which has no alternative bases	**Significant** major adverse effect

Cirque Community Space	• Under 200m from Canning Highway on Kishorn Road (South). • Community space used for a wide range of activities including yoga, meditation, arts and crafts and workshops.	Construction	• Reduced enjoyment of facility due to changes in noise levels, air quality and construction traffic	• Reduced accessibility due lane restrictions/congestion on Highway, particularly for those to the north of the Canning Highway and to the west • Congestion on Kishorn Road (South) likely to increase during construction due to displaced traffic	**Low:** impacts will continue for some of the construction period	**Low:** a small number of people will be affected	**Minor** adverse effect which is *not* significant
		Operational	• Potential long-term increase in air pollution owing to higher capacity highway	• Loss of pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will reduce accessibility for pedestrians, particularly for those from the north • Loss of bus routes along the Canning Highway will impact accessibility for public transport users • Users will not be able to access dive structure when turning left out of Kishorn Road (South)	**Medium:** impacts are likely to be permanent and will impact a reasonable proportion of users	**Low:** a small number of people will be affected, and facility only used at limited times	**Minor** adverse effect which is *not* significant
Australia Post Canning Bridge	• Fronts onto Canning Highway and Kishorn Road.	Construction	• Increased noise levels and air pollution from construction on the adjacent Canning Highway may make it a more unpleasant place to visit • Expected to be fully or partially demolished to allow left turn onto Canning Highway to be constructed	• Lane restrictions/congestion on Highway likely to push some traffic onto side roads reducing accessibility for users	**High:** impacts will continue for the some of the construction period and will affect a small number of users	**Medium:** nearest alternative is at the north end of Ardross Street	**Significant** extreme adverse effect
		Operational	• Likely permanent loss of facility	• Likely permanent loss of facility	**High:** if demolished it is likely to be permanent and will affect all users	**Medium:** there are few alternatives so many users will be affected	**Significant** extreme adverse effect
Canning Bridge Express Library	• Around 100m from Canning Highway, accessed via Kintail Road. • Small self-service library open weekdays from 9am-4pm.	Construction	• Increased noise levels and air pollution from construction on the adjacent Canning Highway may make it a more unpleasant place to be	• Congestion on Highway will push traffic onto Kintail Road while still open reducing accessibility for users	**Medium:** impacts will continue for the duration of the construction period	**High:** the nearest alternative library is in Manning or Booragoon meaning many users will be affected	**Significant** major adverse effect
		Operational	• Potential long-term increase in noise levels and air pollution owing to higher capacity Highway may permanently make it a more unpleasant place to visit • The re-routing of all bus services along Kintail Road will improve	• Kintail Road and Canning Beach Road will be closed to general traffic on the Canning Highway and private vehicles will be required to use the junction with Seat Road, which could add up to 1.3km to a journey	**Medium:** impacts will be permanent and will affect most users	**High:** the nearest alternative library is in Manning or Booragoon meaning many users will be affected	**Significant** major adverse effect

			public transport accessibility but will impact noise and pollution	• Loss of pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will reduce accessibility for pedestrians, particularly those from south of the Highway			
Educational Services								
Applecross Primary School • Around 1000m from Canning Highway on Kintail Road. • Primary school with 570 pupils ranging from Kindergarten to Year 6. • Has large and well-used playing fields fronting onto Kintail Road. • Catchment is for residents of Applecross.		Construction	• Road closures on Canning Highway likely to push traffic onto the Kintail Road which will increase noise levels and air quality impacting learning and enjoyment, particularly given the prominent outdoor space	• Congestion on Highway will push traffic onto Kintail Road reducing accessibility for users	**Low:** changes will adversely affect a small number of school users	**High:** children are the primary users of this facility and it is difficult to change schools. Increased local traffic, resulting in changes in journey lengths, and increasing the unpredictability of commuting times will create problems for many children. Environmental effects may also affect learning.	**Moderate** adverse effect which is significant
		Operational	• Bus routes to be diverted from the Canning Highway onto the lower end of Kintail Road which could increase air pollution	• Re-routing of buses from Canning Highway onto Kintail Road may impact journey times, particularly for those travelling from the east of the CBAC	**Low:** changes will adversely affect a small number of school users	**High:** children are the primary users of this facility and it is difficult to change or move schools	**Moderate** adverse effect which is significant
Forte School of Music • Fronts onto Canning Highway. • Multi-sensory music school for children.		Construction	• Increased noise levels from construction will make it difficult to teach and learn	• Significantly reduced accessibility due to land restrictions/congestion	**Medium:** changes will affect many users	**Low:** Will still be able to use and access facility	**Minor** adverse effect
		Operational	• Increased noise levels from construction will make it difficult to teach and learn	• May be more difficult to access to loss of crossings	**Medium:** changes will affect many users	**Low:** Will still be able to use and access facility	**Minor** adverse effect
Employment								
Canning Highway • Retail and office hub. • Retailers include Nando's, Hungry Jacks, IGA and Cakes Delight. • Businesses with offices include		Construction	• Increased noise levels from construction could make it very difficult to concentrate and be productive • Will have to fully or partially demolish some employment sites to allow Highway upgrades to be constructed	• Significantly reduced accessibility to employers due to lane restrictions/congestion on Highway and lack of alternative access options	**High:** impacts will continue for the duration of the construction period and will impact a large number of people	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** extreme adverse effect
		Operation	• Potential permanent loss of some employers	• Loss of pedestrian bridge over Canning Highway at Moreau	**High:** permanent change likely to	**High**: Permanent and only place of work for many	**Significant** extreme adverse effect

		Property ESP, Helm Capital Pty, Capital Legal and Sheridan Settlements.		• Potential long-term increase in noise levels and air pollution owing to higher capacity Highway may permanently make it a more unpleasant and difficult place to work • Introduction of Duck & Dive Structure will reduce passing traffic and potentially passing trade for some businesses	• Mews / Ogilvie Road will reduce accessibility for pedestrians • Re-routing of buses from Canning Highway onto Kintail Road reduces public transport accessibility • Loss of informal crossings likely to make it harder for pedestrians to access • Difficult to leave and enter the Duck & Dive structure from certain points along the road	occur creating high costs and loss	people so will be difficult to avoid impact	
Sleat Road	• Office hub. • Organisations with offices include New Zealand Consulate, Mineral Resources Limited and Delta Computers.		Construction	• Increased noise levels and air pollution from construction on the adjacent Highway may make it (a) a more unpleasant place to work and (b) more difficult to concentrate and be productive	• Lane restrictions/congestion on Highway will push traffic onto side roads reducing accessibility for users • Road closures expected for several days at the Sleat Road junction • Congestion on Highway will make it more difficult to access for employees, particularly those coming from the east	**High:** impacts will continue for the duration of the construction period and will impact a large number of people	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** extreme adverse effect
			Operation	• All buses and cars looking to access the north side of Canning Highway are to be re-routed via Sleat Road which is likely to permanently increase noise levels and air pollution potentially making it a less pleasant and productive place to work • Some land take will be required from retailers operating close to the Canning Highway	• Loss of pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will reduce accessibility for pedestrians • Loss of informal crossings likely to make it harder for pedestrians to access • Not possible to enter dive structure from Sleat Road • Journey times of bus users coming from the east may increase as buses diverted along Kintail Road, Forbes Road and Sleat Road rather than straight down the Canning Highway	**High:** permanent change likely to occur creating high costs and loss	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** extreme adverse effect
Kishorn Road	• Office hub. • Businesses with offices include Western Property Developments, InterWest and Peter Griffin and Co.		Construction	• Increased noise levels and air pollution from construction on the adjacent Canning Highway may make it (a) a more unpleasant place to work and (b) more difficult to concentrate and be productive	• Lane restrictions/congestion on Highway onto side roads reducing accessibility for users • Congestion on Highway will make it more difficult to access for employees, particularly those coming from the east or south	**Low:** impacts will continue for the some of the construction period	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Moderate** adverse effect which is significant
			Operation	• Kishorn Road and Moreau Mews are likely to experience a significant increase in traffic due to new left turn onto Canning Highway which is likely to	• Loss of pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will reduce accessibility for pedestrians	**Medium:** permanent negative change likely to occur for some people	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** major adverse effect

					increase noise, busyness, and air pollution	• Loss of informal crossings likely to make it harder for pedestrians to access • New left turn onto Canning Highway may improve access for car users			
Kintail Road	• Office hub. • Businesses with offices include Macallum Group, acQuire Technology Solutions Ltd, WA Property Project Marketing, PDC Engineering and DBM Vircon.		Construction	•	Increased noise levels and air pollution from construction on the adjacent Canning Highway may make it (a) a more unpleasant place to work and (b) more difficult to concentrate and be productive	• Lane restrictions/congestion on Highway will push traffic onto side roads reducing accessibility for users • Congestion on Highway will make it more difficult to access for employees, particularly those coming from the east or south	**Medium:** impacts will continue for the duration of the construction period	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** major adverse effect
			Operation	•	Potential long-term increase in noise levels and air pollution owing to higher capacity Highway and re-routing of bus services onto the road may permanently make it a more unpleasant and difficult place to work	• Kintail Road and Canning Beach Road will be closed to general traffic on the Canning Highway and private vehicles will be required to use the junction with Seat Road, which could add up to 1.3km to a journey • Loss of pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will reduce accessibility for pedestrians, particularly those from south of the Highway • Public transport accessibility may be improved due to bus re-routing	**Medium:** permanent negative change likely to occur for some people	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** major adverse effect
Ogilvie Road	• Office hub • Businesses with offices include Lawrence Group Business Advisors and Accountants, SF Design and M2 Corporate Accountants.		Construction	•	Increased noise levels and air pollution from construction on the adjacent Canning Highway may make it (a) a more unpleasant place to work and (b) more difficult to concentrate and be productive	• Lane restrictions/congestion on Highway will push traffic onto side roads reducing accessibility for users • Congestion on Highway will make it more difficult to access for employees, particularly those coming from the east or north	**Low:** impacts will continue for the some of the construction period	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Moderate** adverse effect which is significant
			Operation	•	Potential long-term increase in noise levels and air pollution owing to higher capacity Highway may permanently make it a more unpleasant and difficult place to work • Some land take may be required from businesses close to the Canning Highway by accessed via Ogilvie Road	• Loss of pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will reduce accessibility for pedestrians, particularly for those from the north • Loss of bus routes along the Canning Highway will impact accessibility for public transport users	**Medium:** permanent negative change likely to occur for some people	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** major adverse effect

Health and Wellbeing								
DB Dental	• Fronts onto Canning Highway. • Dental service offering general dental treatments, cosmetic services, children's dentistry, and orthodontic treatments.	Construction	• Increased noise levels and air pollution from construction may make it a more unpleasant place to receive care • Expected to be fully or partially demolished to allow Highway upgrades to be constructed BUT recent new provision in area at Woolworths	• Significantly reduced accessibility due to lane restrictions/congestion on Highway and phased road closures	**High:** if demolished it is likely to be permanent and will affect all users	**Low:** other similar services exist in the area which will not be lost reducing the effect for users	**Moderate** adverse effect which is significant
		Operational	• Likely permanent loss of facility and medical services BUT recent new provision in area at Woolworths •	• Likely permanent loss of facility and medical services	**High:** if demolished it is likely to be permanent and will affect all users	**Low:** other similar services exist in the area which will not be lost reducing the effect for users	**Moderate** adverse effect which is significant
Perth Integrated Health Centre	• Around 90m from Canning Highway on Kishorn Road. • Health centre that offers a wide range of services, including: podiatrist, general practitioner, physiologist, chiropractor, cognitive therapist, and occupational therapist.	Construction	• Increased noise levels and air pollution from construction on the adjacent Canning Highway may make it a more unpleasant place to receive care •	• Lane restrictions/congestion likely to push some traffic onto side roads reducing accessibility for patients	**Low:** impacts will continue for the some of the construction period and will affect a small number of sensitive users	**Low:** there a range of alternative facilities and only a small number of sensitive individuals will be affected	**Negligible** adverse effect which is *not* significant
		Operational	• Potential long-term increase in noise levels and air pollution owing to higher capacity highway may permanently make it a more unpleasant place to receive care • Kishorn Road and Moreau Mews are likely to experience a significant increase in traffic due to new left turn onto Canning Highway which is likely to increase noise, busyness and air pollution and contribute to a negative user experience	• Loss of pedestrian bridge over Canning Highway at Moreau Mews / Ogilvie Road will reduce accessibility for pedestrians, particularly those coming from the south of the Highway • New left turn onto Canning Highway may improve access for car users	**Medium:** impacts will be permanent and will affect most users	**Low:** there a range of alternative facilities and only a small number of sensitive individuals will be affected	**Minor** adverse effect which is *not* significant

Study Area 2

Services and Amenities							
Riseley Activity Centre	Commercial precinct surrounding the intersection Riseley Street and Canning Highway. City of	Construction	• The noise and air quality issues associated with the work are likely to effect users' enjoyment of the centre.	• Increased congestion is likely to impact accessibility to the centre	**Medium:** impacts will be permanent and will affect most users	**Medium:** impacts will be permanent and will affect most users	**Moderate** adverse effect which is significant

	Melville currently have a Riseley Activity Centre Structure Plan 2015-2023 and Streetscape Masterplan 2017.		• Unique urban form that is known for its tree filled neighbourhood character. • Noise and air pollution may have disruptive implications of the experience of the centre, causing people to choose alternative centres for preferred services and facilities.				
		Operational	• increase in air and noise pollution from a higher capacity Highway will impact on the enjoyment and physical performance of all users who have few alternative activity centres to use locally as the CBAC is also being majorly impacted.	• increase of road infrastructure on Canning Highway detracts from the pedestrian experience. • Physical four way intersection will remain however the psychological barrier of the duck and dive structure may deter people from accessing the Centre form the north of Canning Highway	**Medium:** impacts will be permanent and will affect most users	**Medium:** impacts will be permanent and will affect most users	**Moderate** adverse effect which is significant
Southern Districts Gaelic Football and Camogie Club and the Fremantle Rebel Softball Club	These two sports clubs are both located approximately 600m from Canning Highway.	Construction	• The noise and air quality issues associated with the work are likely to not effect users' enjoyment of the facilities.	• Increased congestion is likely to impact accessibility to the clubs, particularly for those to the north of the Canning Highway who are likely to find it harder to cross the main corridor. Those coming from the west will also experience increased travel times due to lane restrictions.	**Low:** only a small number of sensitive individuals will be affected	**Low:** only a small number of sensitive individuals will be affected	**Minor** adverse effect which is *not* significant
		Operational	• The noise and air quality issues associated with the Proposal are likely to not effect users' enjoyment of the facilities.	• Increased congestion is likely to impact accessibility to the clubs, particularly for those to the north of the Canning Highway who are likely to find it harder to cross the main corridor.	**Low:** only a small number of sensitive individuals will be affected	**Low:** only a small number of sensitive individuals will be affected	**Minor** adverse effect which is *not* significant
Waylen Bay Sea Scout Hall (Joeys, Cubs, Venturers, Rovers)	This is a small scouts hall that opens on a per use and hire basis. It is about 400m from Canning Highway and is accessed via McCallum Crescent.	Construction	• The construction of the Highway is likely to have a significant moderate adverse effect on the operation of the facility.	• Much traffic will also be displaced onto McCallum Crescent from Canning Highway during construction, which will temporarily increase noise pollution and make it more difficult for users to access the amenity.	**Medium:** impacts will be permanent and will affect most users	**Medium:** impacts will be permanent and will affect most users	**Moderate** adverse effect which is significant

		Operational	• Much traffic will also be displaced onto McCallum Crescent from Canning Highway during construction, which will temporarily increase noise pollution and make it more difficult for users to access the amenity.	• The facility can be accessed by McCallum Crescent however due to its proximity to the Highway may incur an increase in air and noise pollution, which can impact the enjoyment of its users, which would be largely children, as well as attraction for hiring for community events hence loss of income. As it is a community facility, the ability to provide an attractive community space for events can be assumed to be significant for the financial sustainability of the facility.	**Medium:** impacts will be permanent and will affect most users	**Medium:** impacts will be permanent and will affect most users	**Moderate** adverse effect which is significant
Australia Post Applecross LPO	This post office fronts onto Canning Highway. It is the only facility of this type in the Riseley Activity Centre with the nearest alternatives being in the north of Applecross or east near Canning Bridge.	Construction	• it is likely to be partly demolished to make way for a way for widening of the Canning Highway after the upgraded Riseley Street intersection.		**Medium:** impacts will be permanent and will affect most users	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** major adverse effect
		Operational	• It is the only post office servicing the Riseley Activity Centre and surrounding neighbourhood. This will count for a loss of employment if fully demolished, loss of access and usership from customers.	• This it is likely to be partly demolished to make way for a way for widening of the Canning Highway after the upgraded Riseley Street intersection. •	**Medium:** impacts will be permanent and will affect most users	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** major adverse effect
Educational Services								
Saint Benedict School	Saint Benedict School is a primary school of 240 children range from kindergarten to Year 6. It is located within 100m of Canning Highway with the carparking	Construction	• Congestion and road closures on the Canning Highway are likely to extend drop off and pick up times for parents and push traffic onto Reynolds Road	• The displacement of traffic will also impact the accessibility of the school for those using private vehicles and public transport, particularly for those coming from the east. • It is also likely to suffer from the reduced accessibility for users traversing the highway from the north, particularly pedestrians	**Medium:** impacts will be permanent and will affect most users	**Medium:** impacts will be permanent and will affect most users.	**Moderate** adverse effect which is significant

	fronting Canning Highway.				who are likely to lose informal and formal crossing points during the construction phase.			
		Operational	• The site sits adjacent to Canning Highway, the car parking is fronting the Highway and the building offset, the building is unlikely to incur major demolition to teaching spaces. However, removal of part of the car parking facilities could occur, due to road widening of the Highway, which impacts accessibility to the School.	• Access to the site has now been impacted as Ardross Street has changed from a four way intersection to a left in road. This will impact on traffic congestion, access of residents in the northern suburbs accessing the School and residents coming from the east. • A pedestrian bridge is proposed to cut across canning Highway along Ardross Street which will help to alleviate the pedestrian traffic accessing the site.	**Medium:** impacts will be permanent and will affect most users	**Medium:** impacts will be permanent and will affect most users however if a pedestrian bridge is included can alleviate pressure on pedestrians, but private vehicle access will be impacted.	**Moderate** adverse effect which is significant
Applecross PreKindy & Kindy	Applecross PreKindy & Kindy is located within 100m of Canning Highway, that is access off Ardross Street but has part of the building and outdoor space on Canning Highway.	Construction	• The sensitivity of users at the Applecross PreKindy and Kindy is, however, high given that they are children with little ability to avoid the negative effects and who are more likely to feel the effects of issues like air and noise pollution being directly adjacent Canning Highway.	• The displacement of traffic will also impact the accessibility of the school for those using private vehicles and public transport, particularly for those coming from the east. • It is also likely to suffer from the reduced accessibility for users traversing the highway from the north, particularly pedestrians who are likely to lose informal and formal crossing points during the construction phase.	**Medium:** permanent negative change likely to occur for some people	**High**: Permanent and only place of work for many people so will be difficult to avoid impact. Could be only place for prekindy/kindy facilities for existing customers.	**Significant** major adverse effect
		Operational	• Air pollution could increase given its proximity to the higher capacity Highway • it is directly adjacent Canning Highway the education facility may incur partial or full demolition. This can cause employment loss for staff, condensing of amenity space for children, loss of children attendance and closure of facility. • The sensitivity of users is high given that they are children with little ability to avoid the negative effects.	• Access to the site has now been impacted as Simpson Street has changed from a four way intersection to a left out road. This will impact on traffic congestion, access of residents in the northern suburbs accessing the education facility and residents coming from the east.	**Medium:** permanent negative change likely to occur for some people	**High**: Permanent and only place of work for many people so will be difficult to avoid impact. Could be only place for prekindy/kindy facilities for existing customers.	**Significant** major adverse effect
Employment								

Canning Highway	There are currently 752 jobs and around 22,721 sqm of commercial floorspace in the 60m catchment of Canning Highway.	Operational	• Around 8,867 sqm of commercial floorspace will be lost to deliver the upgrades impacting around 255 employees. • Some businesses will be permanently lost, resulting in adverse impacts upon local employment opportunities. • The businesses that remain are likely to suffer from a long-term increase in noise levels and air pollution from the higher capacity highway, making it more challenging for employees to work effectively.	• Some may also see a drop in trade if passing traffic falls due to the construction of the dive structures and the adverse impacts upon the local urban realm • Accessibility will also be impacted, particularly for pedestrians users. If informal crossings are lost in particular it will make it difficult for pedestrians to access businesses on either side of the road.	**Medium:** permanent negative change likely to occur for some people	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** major adverse effect
Riseley Street	Riseley Street is perpendicular to Canning Highway. Canning Highway cuts through the centre of Riseley Street which has commercial on either side of Canning Highway. Riseley Street is planned as an activity centre with the plan for future growth and streetscape improvements to promote the experience and economic sustainability of the activity centre.	Operational	• Due the diversion of traffic, the traffic will increase on Riseley Street hence impacting the pedestrian safety crossing the street, walkability and enjoyable experience on Riseley Street. • Currently Riseley Street is difficult to cross for pedestrians, due to a lack of formal crossings causing pedestrians to cross unsafely across the road. With the increase in traffic this will have an adverse impact on pedestrians and visitation to businesses on foot. • The changes are likely to substantially increase traffic which will increase journey times for employees, as well as potentially making it a more unpleasant place to work and run a business.	• Due the reduction of access on Andross Street, Tain Street, Simpson Street, Alness Street and Wilcock Street, traffic will be diverted to Riseley Street to access local destinations including education and parks	**Medium:** impacts will be permanent and will affect most users	**Medium:** impacts will be permanent and will affect most users	**Moderate** adverse effect which is significant
Reynolds Road	This street is mainly commercial properties including Woolworths on the south side, and Macdonalds and petrol station on the		• Although a less activated street then Riseley Street of commercial offerings facing the road, Reynolds Road will also experience an increase in traffic due to	• The changes are likely to substantially increase traffic which will increase journey times for employees, as well as potentially making it a more unpleasant place to work and run a business.	**Medium:** impacts will be permanent and will affect most users	**Low:** there a range of alternative facilities and only a small number of sensitive individuals will be affected	**Minor** adverse effect which is significant

	north side. Although not as significant an activity centre, it will still have an impact on pedestrian safety crossing the road, similar to Riseley Street.			diversion of traffic to access the southern suburbs.				
Health and Wellbeing								
Health Assured Australia, Beyond Health, and Applecross Medical Centre.		Construction	•	Expected that they will need to be fully or partially demolished to make way for the Highway.	• They may also experience a fall in accessibility before being demolished due to increased congestion for lane restrictions and a lack of alternative access options during construction	**Medium:** impacts will be permanent and will affect most users	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** major adverse effect
		Operational	•	it is likely that health services including Health Assured Australia, Beyond Health and Applecross Medical centre will need to be fully or partly demolished to make way for the Highway upgrades	• They may also experience a fall in accessibility before being demolished due to increased congestion for lane restrictions and a lack of alternative access options. When not operational.	**Medium:** impacts will be permanent and will affect most users	**High**: Permanent and only place of work for many people so will be difficult to avoid impact	**Significant** major adverse effect

HATCH

www.hatch.co.uk