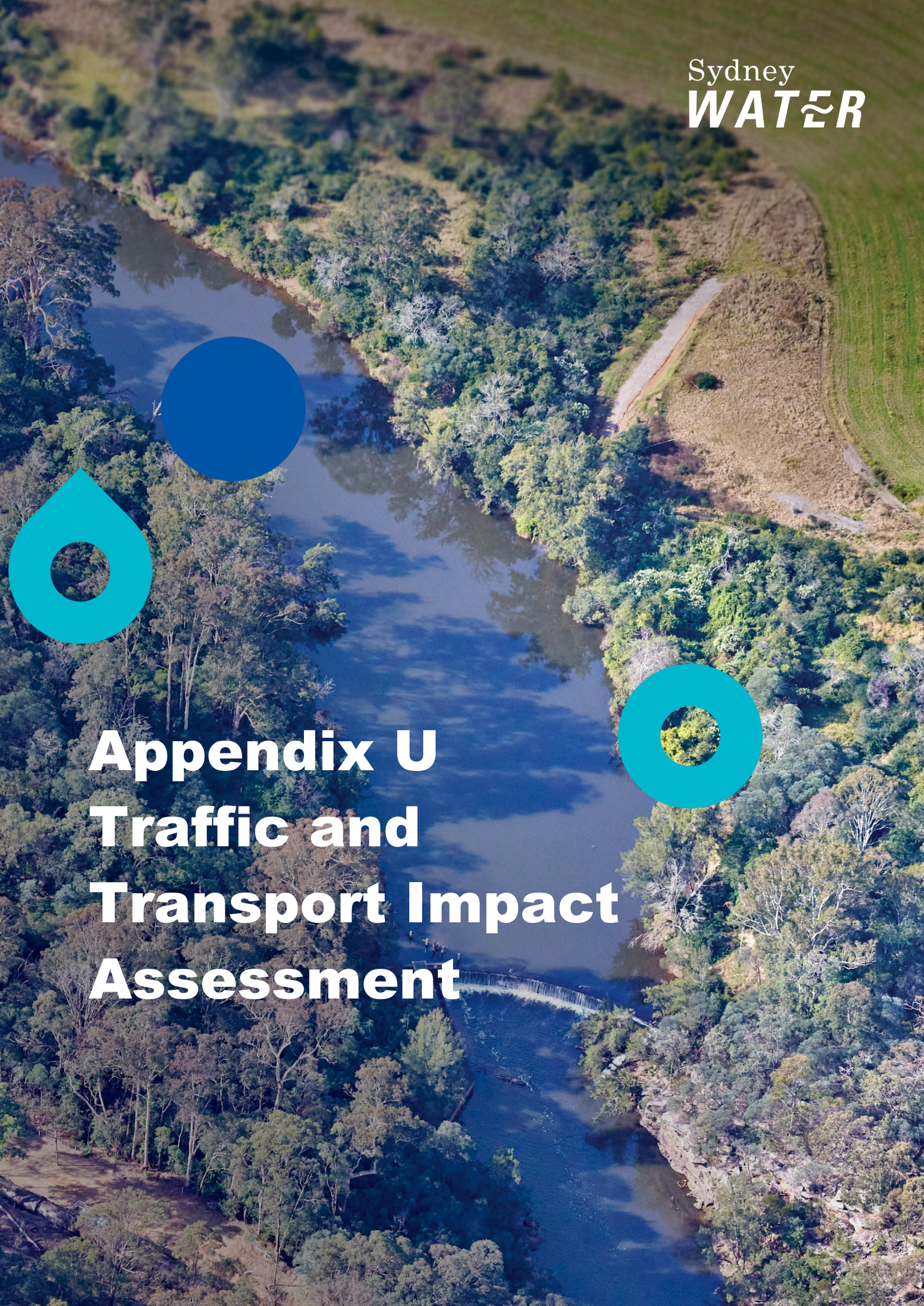

Sydney WATER

# Appendix U Traffic and Transport Impact Assessment

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# Upper South Creek Advanced Water Recycling Centre

## TRAFFIC AND TRANSPORT IMPACT ASSESSMENT

| | | | | | |
|---|---|---|---|---|---|
| **Job title** | | Upper South Creek Advanced Water Recycling Centre | | **Job number** 269002-04 | |
| **Document title** | | Traffic and Transport Impact Assessment | | **File reference:** as above | |
| **Document ref** | | | | | |
| **Revision** | **Date** | **Filename** | USC Water Factory EIS Traffic and Transport | | |
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| | | | **Prepared by** | **Checked by** | **Approved by** |
| | | **Name** | Aimy Nguyen | Sam Oswald | Sam Oswald |
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| | | **Name** | Aimy Nguyen | Sam Oswald | Sam Oswald |
| | | **Signature** |  |  |  |
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| | | **Description** | | | |
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| | | **Name** | Aimy Nguyen | Sam Oswald | Sam Oswald |
| | | **Signature** |  |  |  |
| Issue | 25/06/21 | **Filename** | USC Water Factory EIS Traffic and Transport | | |
| | | **Description** | | | |
| | | | Prepared by | Checked by | Approved by |
| | | **Name** | Aimy Nguyen | Sam Oswald | Sam Oswald |
| | | **Signature** |  |  |  |
| | | | **Issue Document Verification with Document** | | ✓ |

# Table of Contents

# Content and chapter structure

The chapter structure and the associated content are outlined in Table 1.

### Table 1: Content and chapter structure

| Chapter | Content |
|---|---|
| 1. Introduction | Outlines the description and presents the Secretary's Environmental Assessment Requirements (SEARs) which dictate the requirement for this report. The locations within the document where SEARs and agency responses are addressed have been identified. |
| 2. Methodology | Sets out the methodology used to assess the transport impacts of the project on the surrounding environment during construction and operation. Any legislation and policy relevant to the study is outlined in this chapter. |
| 3. Existing environment | Details the existing environment surrounding the project. All modes of transport are addressed in this section, including private vehicles, public transport, cycling and walking. This chapter also highlights any future infrastructure schemes that need to be considered as part of this study. |
| 4. Impact assessment | The impact assessment uses the methodology outlined in chapter two to assess any impacts of the project during construction and operation. This chapter assesses the impacts upon all modes, including private vehicles, public transport, cycling, walking and freight. Key impacts are defined at the end of this chapter |
| 5. Proposed mitigation measures | Following the identification of any key issues, proposed mitigation measures during construction and operation are identified. These mitigation measures are proposed to reduce the impacts of the project upon the surrounding transport network. |

# Glossary of terms and abbreviations

| Term | Meaning |
|---|---|
| AWRC | Upper South Creek Advanced Water Recycling Centre |
| CBD | Central Business District |
| CTMP | Construction Traffic Management Plan |
| DCP | Development Control Plan |
| DoS | Degree of Saturation |
| DPIE | Department of Planning, Industry and Environment |
| EIS | Environmental Impact Statement |
| FTE | Full Time Equivalent |
| GFA | Gross Floor Area |
| HDD | Horizontal Directional Drilling |
| HV | Heavy Vehicle |
| LGA | Local Government Area |
| LoS | Level of Service |
| LV | Light Vehicle |
| MAP | Million Annual Passengers |
| ML | Megalitre |
| NHVR | National Heavy Vehicle Regulator |
| NSW | New South Wales |
| PIC | Place-based Infrastructure Compact |
| PCC | Penrith City Council |
| PCU | Passenger Car Unit |
| RMS | Roads and Maritime Services |
| ROL | Road Occupancy Licence |
| RTA | Roads & Traffic Authority |
| SCATS | Sydney Coordinated Adaptive Traffic System |
| SEARs | Secretary's Environmental Assessment Requirements |
| SMWSA | Sydney Metro – Western Sydney Airport |
| SSCTMP | Site Specific Construction Traffic Management Plan |
| SSFL | Southern Sydney Freight Line |
| SSI | State Significant Infrastructure |
| SWRLE | South West Rail Link Extension |
| TBM | Tunnel Boring Machine |
| TfNSW | Transport for New South Wales |

| Term | Meaning |
|---|---|
| The project | Advanced Water Recycling Centre and associated treated water and brine pipelines |
| Western Sydney Airport | Western Sydney International (Nancy-Bird Walton) Airport |
| WSIP | Western Sydney Infrastructure Plan |

# 1 Introduction

## 1.1 Project description

Sydney Water is planning to build and operate new wastewater infrastructure to service the South West and Western Sydney Aerotropolis Growth Areas. The proposed development will include a wastewater treatment plant in Western Sydney, known as the Upper South Creek Advanced Water Recycling Centre (AWRC). Together, this Water Recycling Centre and the associated treated water and brine pipelines, will be known as the 'project'. An overview of the location of the proposed infrastructure is provided in Figure 1. Further details of each component of the project are provided below.

### 1.1.1 Advanced Water Recycling Centre

- a wastewater treatment plant with the capacity to treat up to 50 Megalitres (ML) of wastewater per day, with ultimate capacity of up to 100 ML per day
- the Advanced Water Recycling Centre will produce:
  - high-quality treated water suitable for a range of uses including recycling and environmental flows
  - renewable energy, including through the capturing of heat for cogeneration
  - biosolids suitable for beneficial reuse
  - brine, as a by-product of reverse osmosis treatment

### 1.1.2 Treated water pipelines

- a pipeline about 17 km long from the AWRC to the Nepean River at Wallacia Weir, for the release of treated water
- infrastructure from the AWRC to South Creek to release excess treated water and wet weather flows
- a pipeline about five kilometres long from the main treated water pipeline at Wallacia to a location between the Warragamba Dam and Warragamba Weir, to release high-quality treated water into the Warragamba River as environmental flows.

### 1.1.3 Brine pipeline

- A pipeline about 24 km long that transfers brine from the Advanced Water Recycling Centre to Lansdowne, in south-west Sydney, where it connects to Sydney Water's existing Malabar wastewater network

Sydney Water is planning to deliver the project in stages, with Stage 1 comprising of:

- building and operating the Advanced Water Recycling Centre to treat an average dry weather flow of up to 50ML per day
- building all pipelines to their ultimate capacity, but only operating them to transport and release volumes produced by the Stage 1 Advanced Water Recycling Centre

The timing and scale of future stages will be phased to respond to drivers including population growth rate and the most efficient way for Sydney Water to optimise its wastewater systems.

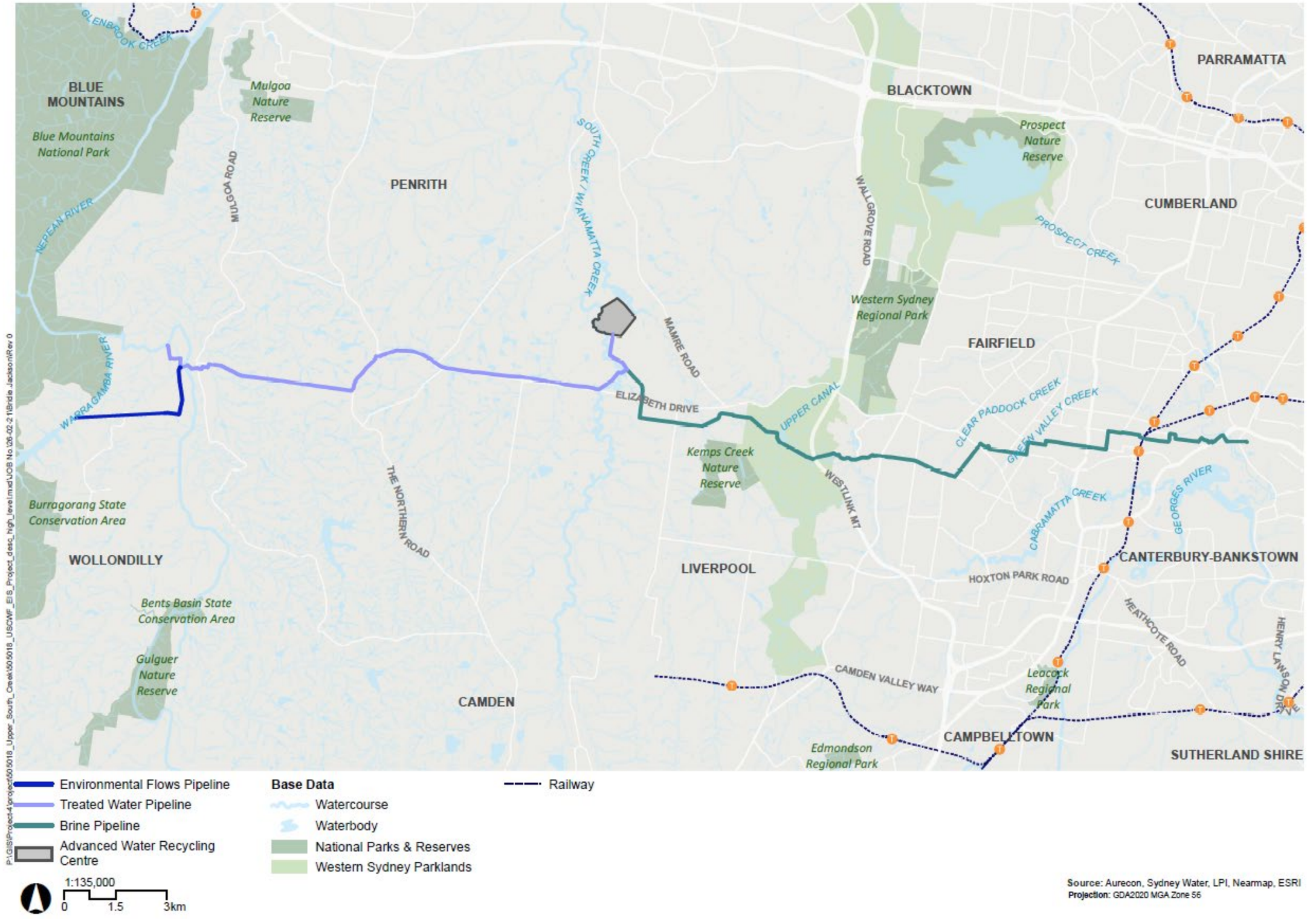



**Figure 1: Project Overview**

## 1.2 Document purpose

This report outlines the traffic and transport impacts associated with the project and mitigation measures to be undertaken during construction and operation to address the impacts identified in order to support the Environmental Impact Statement (EIS) for the Stage 1 development of the AWRC and wastewater pipelines.

## 1.3 Legislative and Policy context

The legislation included in Table 2 has been considered as part of this Traffic and Transport technical report:

**Table 2: Legislation and policy**

| Legislation and policy relevant to the Traffic and Transport technical report | | |
|---|---|---|
| **Legislation/Policy** | **Description** | **Relevance** |
| Guide to Traffic Generating Development (Roads & Traffic Authority, 2002) (RTA) | The Guide examines how to assess traffic generating developments and identify impacts upon the wider transport network. The level of assessment can vary depending on the type of development | This project is a traffic generating development. Therefore, this Guide has been used as it provides the appropriate methodology for assessing all types of traffic generating developments. |
| Guide to Traffic Management Part 12: Traffic Impacts of Developments (Austroads, 2009) | The document guides planners and engineers who design, develop and manage a variety of land use developments in identifying and managing the impacts on the transport network arising from these developments. | This project is a traffic generating development. Therefore, this Guide has been used as it provides the appropriate methodology for assessing all types of traffic generating developments. |
| Traffic Modelling Guidelines (Roads and Maritime Services, 2013) (RMS) | This document provides guidance to develop consistency in traffic modelling practice and promote high quality, accurate model outputs. | This document dictates the appropriate methodology for traffic modelling conducted as part of this assessment. |
| Road Design Guide (RTA, 1988) | The purpose of this document is to provide guidelines to ensure that there is a consistent and safe approach to road design. | This document outlines the appropriate design standards for new and adjusted intersections and has been used by the wider design team. |
| Future Transport 2056 (Transport for New South Wales, 2018) (TfNSW) | The Future Transport Strategy 2056 outlines the need to provide an integrated transport network in the Greater Sydney Metropolitan Area. The document outlines a vision of a 30-minute city, where residents would be within thirty minutes of employment, education, health facilities, services and great places. | This document outlines strategies for across regional NSW and Greater Sydney to align planning of future transport networks. It highlights a number of schemes within the vicinity of the project. |

| Legislation and policy relevant to the Traffic and Transport technical report | | |
|---|---|---|
| Western Sydney Infrastructure Plan (Australian and New South Wales (NSW) Government, 2014) | This plan has been developed to make use of the economic opportunities afforded by Western Sydney Airport (WSA). The plan outlines major road infrastructure to be delivered over the next 10 years within the Western Sydney region. | Infrastructure schemes identified in this plan will be relevant for the construction and operational phases of the project. |
| Western Parkland City Place-based Infrastructure Report (Greater Sydney Commission) | This document provides a model to guide schemes and developments which are planned for the Western Parkland City in the future. | The report will need to be cognisant of the Place-based Infrastructure Compact (PIC) model and ensure the project outcomes align. This will include an appreciation of the committed infrastructure outlined in the report. |
| Western Sydney Aerotropolis Draft Precinct Plans | These documents outline the initial Structure Plans for a range of precincts within the Aerotropolis including information on land use and infrastructure | Land use and infrastructure changes in precincts in the vicinity of the project will impact access particularly in operation. |
| Development Control Plans (DCPs) (Wollondilly Shire, Penrith City, Liverpool City, Fairfield City and Canterbury-Bankstown) | These documents prescribe more detailed planning and design guidelines for developments proposed within the relevant Local Government Area (LGA) | As local councils will be key stakeholders for the project. The relevant DCPs should be referenced to understand potential requirements along certain sections of the pipeline. |

## 1.4 Secretary's Environmental Assessment Requirements (SEARs)

This Traffic and Transport Technical Report has been produced to address Conditions 33-37 associated with SSI-8609189. Conditions 33-37 are presented in Table 3 along with the sections of the report which address each point. It should be noted that Table 3 also references relevant sections of the Draft Framework Construction Traffic Management Plan (CTMP) presented in Appendix F.

**Table 3: Traffic and Transport SEARs**

| Traffic and Transport SEARs | | |
|---|---|---|
| **Condition** | | **Section** |
| **33. Assessment of the construction transport and traffic (vehicle, pedestrian and cyclists) impacts, including, but not necessarily limited to:** | | |
| a) | Construction schedule (stages and timing); | 4.1.3 |
| **b)** | Route identification and scheduling of transport movements; | 4.1, Section 3.4 & 5.4 Appendix F |

| **Traffic and Transport SEARs** | | |
|---|---|---|
| **c)** | The number (daily and peak), frequency and size of construction related vehicles (passenger, commercial and heavy vehicles, including spoil management movements), including consideration of heavy vehicles participating in the Safety, Productivity and Environment Construction Transport Scheme; | 4.1.4, Section 4 Appendix F |
| **d)** | Details of construction site access arrangements and swept path details for relevant turning movements; | 4.1, Section 5.7 Appendix F, swept paths will be detailed in future Site Specific Construction Traffic Management Plans (SSCTMPs) |
| **e)** | Construction worker parking; | Section 5.4 Appendix F |
| **f)** | The nature of existing traffic (types and number of movements) on construction access routes (including consideration of strategic freight routes, peak traffic times, sensitive road users and parking arrangements); | 4.1, Section 2.3, 4.2 & 5.7.4 Appendix F |
| **g)** | Access constraints and impacts on public transport, pedestrian and cyclists; | 4.1.6, Section 5.2 & 5.8 Appendix F |
| **h)** | The need to close, divert or otherwise reconfigure elements of the road and cycle network associated with construction of the project; and | 4.1.7, Section 5.6 & 5.7 Appendix F |
| **i)** | Mitigation of construction vehicle and excavation work on the classified road and rail network.; | 5.1, Section 5.1 Appendix F |
| **34. Assessment (including traffic modelling) of the operational transport impacts of the project, including:** | | |
| a) | Forecast travel demand and traffic volumes for the project and the surrounding road, cycle and public transport network; | 4.2.1 |
| b) | Travel time analysis; | 4.2.4.5 |
| c) | Performance of key interchanges and intersections by undertaking a level of service analysis at key locations; | 4.2.3, 4.2.4.2 |
| d) | Wider transport interactions (local and regional roads, cycling, public and freight transport); | 4.2.4 |
| e) | Induced traffic and operational implications for public transport (particularly with respect to strategic bus corridors and bus routes) and consideration of opportunities to improve public transport; | 4.2.4.5 |
| f) | Impacts on cyclists and pedestrian access and safety; | 4.2.4.6 |
| g) | Opportunities to integrate cycling and pedestrian elements with surrounding networks and in the project; | 4.2.4.6 |
| h) | Impacts on future transport corridors including Greater Sydney Metro, M12 Motorway, The Northern Road, Elizabeth Drive and the Outer Sydney Orbital; and | 3.4, 2.4.5 |

| Traffic and Transport SEARs | | |
|---|---|---|
| i) | Impacts on the M7 Motorway (including any proposed vegetation removal, excavation, construction access, etc). | 4.2.4.3 |
| **36. Preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact of the proposal on road, rail, pedestrian and cyclist corridors and facilities. The Construction Traffic Management Plan should detail construction vehicle routes, numbers of trucks, hours of operation, access arrangements and traffic control.** | | Appendix F |
| **37. Assess the project impact on the 24-hour operations of Western Sydney International (Nancy-Bird Walton) Airport (Airport) considering the projects location within a flight path for the future Airport and airport safety matters.** | | 2.4.5 |

## 1.5 Agency responses

A range of responses were received from government agencies regarding the AWRC. The responses are presented in Table 4-10.

### Table 4: Department of Primary industries response

| Department of Primary Industries response | |
|---|---|
| **Response** | Section |
| Detail the volume and route of traffic movements for the proposed development and how potential impacts on surrounding agricultural land uses are proposed to be mitigated (e.g. noise, dust, volume of traffic). This should include consideration of the movement of livestock or farm vehicles along / across affected roads. | 4.2.1, for the construction phase further detail will be provided in future SSCTMPs |

### Table 5: Fairfield City Council response

| Fairfield City Council response | |
|---|---|
| **Response** | Section |
| Open Space and vegetation removal. Furthermore, access to sports fields / and open space along the route must be maintained during periods of hire or peak periods of recreational and community event use. | 4.1.6, for the construction phase further detail will be provided in future SSCTMPs |

### Table 6: Liverpool City Council responses

| Liverpool City Council responses | |
|---|---|
| **Response** | Section |
| A detailed Construction Traffic Management Plan (CTMP) on the proposed works in the Liverpool LGA is to be prepared and submitted to Council for approval prior to the issue of a Construction Certificate. The CTMP is to outline strategies to minimise construction traffic on the affect road network, including traffic control plans and the need for a Road Occupancy Permit issued by Council or Road Occupancy License by the Transport Management Centre. Works within public road reserves shall not commence until the CTMP construction traffic management plan has been endorsed. | Appendix F |

| Liverpool City Council responses | |
|---|---|
| Pre-construction roads permits, Traffic Control Plans, traffic control measures and dilapidation report. | Section 6.3 Appendix F |
| Consult TfNSW for the proposed water mains along Elizabeth Drive, The Northern Road, Park Road and the M12 Motorway road reserve, on impact of the proposed water main works within these road reserve. In addition, Western Sydney Parklands Trusts is to be consulted on the impact of the proposed works on its planned reconstruction of a section of Range Road. | Consultation has been undertaken with TfNSW throughout the design phase and will continue through the detail design and construction phases. |

### Table 7: Penrith City Council response

| Penrith City Council response | |
|---|---|
| **Response** | Section |
| The applicant should be advised that any works to be undertaken within a public road will require approval from Penrith City Council as the Roads Authority under the Roads Act. This would need to be addressed through conditions of consent if the development was favourably determined. | Section 6 Appendix F |

### Table 8: Transport for New South Wales responses

| Transport for New South Wales responses | |
|---|---|
| **Response** | **Section** |
| Assessment of the construction transport and traffic (vehicle, pedestrian and cyclists) impacts, including, but not necessarily limited to: | |
| a) Construction schedule (stages and timing); | 4.1.3 |
| b) A considered approach to route identification and scheduling of transport movements; | 4.1 |
| c) The number (daily and peak), frequency and size of construction related vehicles (passenger, commercial and heavy vehicles, including spoil management movements), including consideration of heavy vehicles participating in the Safety, Productivity and Environment Construction Transport Scheme; | Section 4 & 5.1 Appendix F |
| d) Details of construction site access arrangements and swept path details for relevant turning movements; | Section 5.7 Appendix F, swept paths will be detailed in future SSCTMPs |
| e) Construction worker parking; | Section 5.4 Appendix F<br>2.4, Section 2.3, 4.2 & 5.7.4 Appendix F |

| **Transport for New South Wales responses** | |
|---|---|
| f) The nature of existing traffic (types and number of movements) on construction access routes (including consideration of strategic freight routes, peak traffic times, sensitive road users and parking arrangements); | 4.1.6, Section 5.2 & 5.8 Appendix F |
| g) Access constraints and impacts on public transport, pedestrians and cyclists; | 4.1.7, Section 5.6 & 5.7 Appendix F |
| h) The need to close, divert or otherwise reconfigure elements of the road and cycle network associated with construction of the project; and | 5.1, Section 5.1 Appendix F |
| i) Mitigation of construction vehicle and excavation work on the classified road and rail network. | |
| Assessment (including traffic modelling) of the operational transport impacts of the project, including: | |
| a) Forecast travel demand and traffic volumes for the project and the surrounding road, cycle and public transport network; | 4.2.1 |
| b) Travel time analysis; | 4.2.4.5 |
| c) Performance of key interchanges and intersection by undertaking a level of service analysis at key locations; | 4.2.3, 4.2.4.2 |
| d) Wider transport interactions (local and regional roads, cycling, public and freight transport); | 4.2.4 |
| e) Induced traffic and operational implications for public transport (particularly with respect to strategic bus corridors and bus routes) and consideration of opportunities to improve public transport; | 4.2.4.5 |
| f) Impacts on cyclists and pedestrian access and safety; | 4.2.4.6 |
| g) Opportunities to integrate cycling and pedestrian elements with surrounding networks and in the project; | 4.2.4.6 |
| h) Impacts on future transport corridors including Greater Sydney Metro, M12 Motorway, the Northern Road, Elizabeth Drive and the Outer Sydney Orbital; and | 3.4, 4.2.4.3 |
| i) Impacts on the M7 Motorway (including any proposed vegetation removal, excavation, construction access, etc). | 4.2.4.3 |
| Preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact of the proposal on road, rail, pedestrian and cyclist corridors and facilities. The Construction Traffic Management Plan should detail construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control. | Appendix F |

### Table 9: WaterNSW responses

| WaterNSW responses | |
|---|---|
| **Response** | **Section** |
| The EIS should include an assessment of the risks to the integrity and security of WaterNSW lands, assets and infrastructure that may result from the proposal, and the proposed measures to mitigate against those risks, including (but not limited to) consideration of:<br>Implications for access and vehicle movements, particularly for both operation and maintenance activities by both WaterNSW and Sydney Water. | WaterNSW will be consulted during detailed design and as part of developing the SSCTMPs to resolve issues and risks. |
| An assessment of the environmental impacts from the formation of any new roads, access tracks, compounds of weirs. | Main Environmental Impact Statement |

### Table 10: Western Sydney Planning Partnership response

| Western Sydney Planning Partnership response | |
|---|---|
| **Response** | Section |
| The Traffic and Transport assessment should address the Sydney Metro Greater West project. | 3.4 |

# 2 Methodology

## 2.1 Methodology Structure

The methodology for the Traffic and Transport technical report was developed using the SEARs and agency responses presented in Section 1.4 and 1.5. Certain parts of the methodology are relevant to the construction and operational phases of the project:

- Review available data and documentation to understand the transport requirements of the project in construction and operation;
- Use historic traffic data and commission additional traffic surveys to understand traffic conditions on the surrounding road network and form a baseline for the assessment. Further details on how this was undertaken despite the impacts of COVID-19 is outlined in Section 3.1.1; and
- Review other infrastructure schemes that overlap with the programme for the project and their likely cumulative impact on the surrounding road network.

However, the assessment methodology for each phase varies as outlined below.

Construction impact assessment:

- Understand the traffic generation related to the construction phase including construction workers;
- Distribute the expected traffic volumes onto the road network within the study area including consideration of access to site compounds;
- Undertake a link-based assessment to identify roads where construction traffic volumes may have a detrimental impact. Due to the broad scale of the project, a link-based assessment was deemed appropriate that considers sections of roads within the study area, providing a broader understanding of the network impacts;
- Undertake intersection modelling for the Clifton Avenue/ Elizabeth Drive intersection to determine potential impact at the interface with Elizabeth Drive and access to other uses that rely upon the Clifton Avenue link. The level of impact will be assessed using modelling parameters such as Degree of Saturation (DoS) and Level of Service (LoS).
- Identify any impacts to the road network, public transport, walking and cycling. The impacts will be classified according to level of significance (low, medium or high) as follows:
  - Low indicates minimal impact and therefore mitigation measures are likely not required;
  - Medium indicates likely impacts to the road network; however, these are generally more localised. It is recommended that these impacts be monitored prior to implementation of mitigation measures; and
  - High indicates impacts that may cover larger areas along the project corridor. Impacts classified as high will require mitigation measures.
  - Develop mitigation measures to manage identified impacts; and
  - Produce a Framework Construction Traffic Management Plan to outline appropriate traffic management controls for the construction phase of the project. This includes identification of key haulage routes.

Operational impact assessment:

- Identify access routes to the project in operation (predominantly the AWRC) considering suitability of roads and restrictions;
- Understand the traffic generation related to the AWRC;
- Undertake traffic modelling at intersections used to access the AWRC to identify any detrimental impacts. The level of impact will be assessed using modelling parameters such as Degree of Saturation (DoS) and Level of Service (LoS);
- Identify impacts to other modes and how these can be mitigated;
- Recommend transport provisions relating to the AWRC including carparking and end of trip facilities; and
- Develop mitigation measures to manage identified impacts.

## 2.2 Study area

From reviewing the transport network surrounding the project it was evident that several roads outside of the standard impact assessment area would be affected. Due to this, a separate study area was developed for this technical report. The transport study area is defined on Figure 2 and identifies locations where the study area extends beyond the impact assessment area.


**Figure 2: Study area**

## 2.3 Assessment years

In order to identify the traffic and transport impacts associated with the project during construction and operation, four scenarios were assessed, as outlined below:

- **2023 baseline** – represents the estimated traffic volumes in 2023 considering background traffic growth and other infrastructure schemes;
- **2023 with construction traffic** – the 2023 baseline scenario with the addition of construction traffic volumes relating to the project;
- **2025 baseline** – represents the estimated traffic volumes in 2025 considering background traffic growth and other infrastructure schemes; and
- **2025 with operational traffic** – the 2025 baseline scenario with the addition of operational traffic volumes relating to the project**.**

For construction, 2023 was selected as this is when the peak volume of construction vehicle movements, were expected to occur. For operation, 2025 was chosen as this is the year when the AWRC is planned to open.

## 2.4 Developing the traffic baseline

Due to the COVID-19 pandemic, the conditions on the transport network surrounding the project were impacted throughout 2020. This meant that a conventional approach, where existing traffic data was collected, could not be used to develop the traffic baseline as the data may not be representative of usual traffic conditions.

Therefore, two different methodologies were used to develop a robust traffic baseline for all roads likely to be impacted by the project. Figure 3 outlines this process.

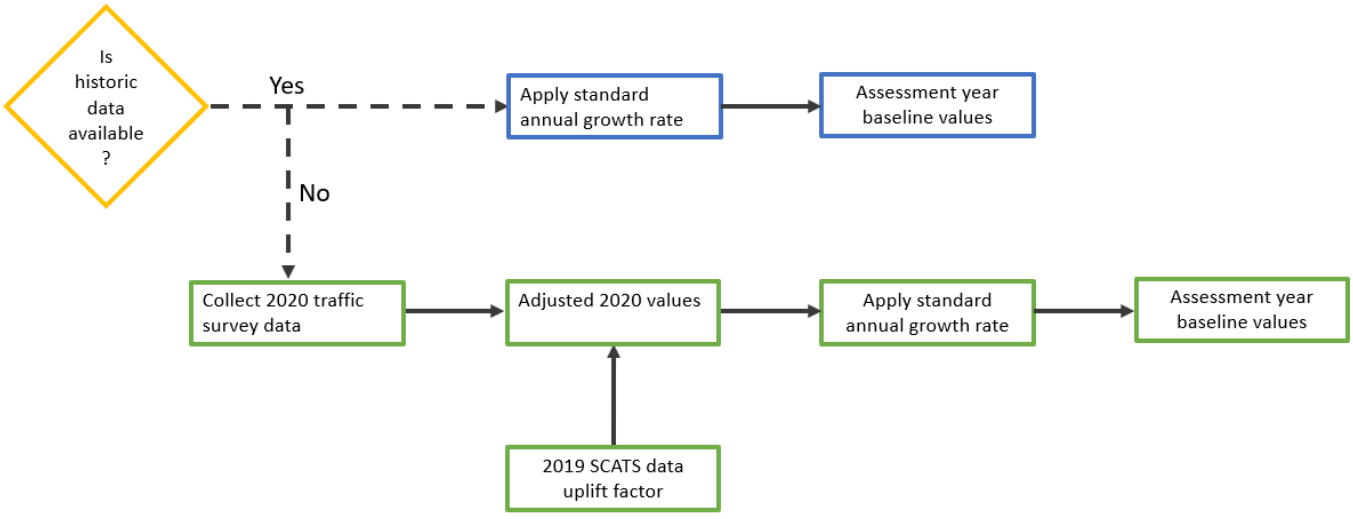



**Figure 3: Developing the traffic baseline**

### 2.4.1 Historic traffic data

Sydney Water sourced historic traffic data from the RMS Traffic Volume Viewer and through engaging with RMS directly. This provided data for a range of roads likely to be impacted by the project including:

- Cross Street;
- Elizabeth Drive;
- Hume Highway;
- Park Road;
- The Horsley Drive;
- The Northern Road; and
- Western Road.

Further details on the location of these surveys are presented on Figure 7.

### 2.4.2 COVID-19 survey adjustment

In some cases, historic data was not available for roads within the study area. For these roads, traffic survey data was collected in March and May 2020. The locations of these surveys are presented on Figure 7.

As this data would not be representative of usual traffic conditions due to COVID-19, Sydney Coordinated Adaptive Traffic System (SCATS) data from March 2019 was collected from nearby intersections as a comparison. The locations where SCATS data was collected are marked on Figure 7. Table 11 presents the comparison of both data sets to estimate the reduction in traffic due to COVID-19.

**Table 11: SCATS factor**

| SCATS factor | | | | |
|---|---|---|---|---|
| **Intersection** | **Approach** | **2019 SCATS flows** | **2020 Surveyed flows** | **% Difference** |
| Lansdowne Road/ Hume Highway | West | 2,545 | 1,845 | -28 |
| | North | 340 | 234 | -31 |
| | East | 1,918 | 1,515 | -21 |
| John Street/ Joseph Street | West | 2,238 | 1,717 | -23 |
| | North | 673 | 325 | -52 |
| | East | 934 | 749 | -20 |
| | South | 123 | 86 | -30 |
| Cabramatta Road West/ Elizabeth Drive | West | 1,025 | 753 | -27 |
| | North | 461 | 374 | -19 |
| North Liverpool Road/ Whitford Road | West | 1,131 | 606 | -49 |
| | East | 506 | 260 | -49 |
| | South | 680 | 219 | -68 |
| **Total** | | **12,574** | **8,683** | **-31** |

Using this information, it was determined that overall the 2020 traffic flows were 31% lower than traffic volumes from March 2019. Therefore, a factor of 1.45 was applied to the 2020 survey data to eradicate any decreases in traffic volumes related to COVID-19. This factor was deliberately conservative due to the uncertainty regarding travel patterns in 2020.

### 2.4.3 Peak hour

The peak hour varied across the traffic data sources with the majority falling between 7 am and 9 am. To ensure consistency across the assessment a peak hour of 7.30 am to 8.30 am was selected. This corresponded to the expected peak hour in construction and operation aligning with the standard hours of operation. Throughout this assessment where the peak hour is referred to it relates to this time range.

### 2.4.4 Growth factors

Growth factors were required to uplift the historic data and adjusted 2020 survey data to the 2023 and 2025 assessment years. An average annual growth rate was calculated for the eastbound and westbound movements on Elizabeth Drive by comparing 2015 traffic data on Elizabeth Drive to 2024 flows provided in the *M12 Motorway* EIS. In order to determine a standard growth rate for both directions, the values  for different sections were then averaged. Table 12 outlines the comparison of the traffic flows and the annual growth rate calculated, which was determined to be 3%. This value has broadly been applied to flows on all links within the assessment.

**Table 12: Annual growth rate**

| **Annual growth rate** | | | | |
|---|---|---|---|---|
| **Location** | **Direction** | **AM peak hour volume** | | **Annual growth rate** |
| | | **2015 Survey** | **M12 EIS 2024** | |
| Elizabeth Drive, east of Mamre Road | Eastbound | 1,178 | 1,213 | 0.3% |
| | Westbound | 831 | 935 | 1.3% |
| Elizbeth Drive, west of Devonshire Road | Eastbound | 1,095 | 1,143 | 0.5% |
| | Westbound | 511 | 588 | 1.6% |
| Elizabeth Drive, east of Luddenham Road | Eastbound | 463 | 980 | 8.7% |
| | Westbound | 435 | 718 | 5.7% |
| **Eastbound average** | | | | **3.2%** |
| **Westbound average** | | | | **2.9%** |
| **Combined average** | | | | **3.0%** |

*Values are subject to rounding*

### 2.4.5 Other infrastructure schemes

A range of infrastructure schemes are planned in the vicinity of the project as outlined in Section 3.4. Where publicly available information was available on the expected transport impact of these projects they have been considered within this assessment. Information was available for the following schemes:

- Western Sydney International Airport (WSIA);
- M12 Motorway; and
- Sydney Metro WSA.

The construction phase of all these schemes are expected to overlap with the construction and operational phases of the project. As the peak construction years for Sydney Metro WSA and the M12 Motorway generally align with the Project, a conservative assumption has been made to apply 100% of the peak construction traffic from both these projects. For WSIA, a factor of 80% has been applied to the construction traffic.

The following assumptions were used when applying the cumulative impacts of the construction traffic related to these schemes:

- All heavy vehicle and site compound construction traffic trips are two-way and distributed evenly throughout the scheduled working hours (Monday to Friday 7 am – 6 pm); and
- 50% of construction worker traffic arrives during the AM peak and departs in the PM peak.

#### 2.4.5.1 WSIA construction traffic

The construction traffic volumes generated by WSIA are outlined in Table 13. These values were derived from Table 15-7 in Chapter 15 of the *Western Sydney Airport EIS* and applied to the links between The Northern Road and the M7 Motorway.

**Table 13: WSIA construction traffic volumes**

| WSIA construction traffic volumes | | |
|---|---|---|
| | **AM Peak light vehicle generation (one-way)** | **AM Peak heavy vehicle generation (two-way)** |
| **Total (peak hour volumes)** | 212 | 21 |

#### 2.4.5.2 Sydney Metro WSA

The construction traffic volumes generated by Sydney Metro WSA are outlined in Table 14. These values have been provided in passenger car units (pcu) as displayed in Table 9-4 in Chapter 9 of the *Sydney Metro – Western Sydney Airport EIS*.

**Table 14: Sydney Metro WSA construction traffic volumes**

| Sydney Metro WSA construction traffic volumes | |
|---|---|
| **Road applicable** | **AM Peak vehicle generation (two-way)** |
| The Northern Road | 150 |
| Elizabeth Drive | 280 |
| **Total (peak hour volumes)** | **430** |

#### 2.4.5.3 M12 Motorway construction traffic

The construction traffic generated by the M12 Motorway compounds are summarised in Table 15. These values were extracted from Table 6-5 in Appendix B of the *M12 Motorway Amended EIS* (October 2020).

To maintain consistency, when distributing construction traffic for the M12 the approach used was similar to the wider assessment. The key assumptions associated with the approach are as follows:

- The traffic volumes have been distributed across five (5) segments to be consistent with the construction impact assessment as shown in Figure 13. These segments have been split according to the location of the Project site compounds and expected pipeline construction works;
- Light vehicles have been assumed to relate to inbound worker trips (one-way) with heavy vehicles assumed to be two-way trips;
- Construction traffic associated with the site compounds will only be applicable to links within their respective segments as outlined in Table 15 and displayed in Figure 13; and
- Roads which overlap between two segments will include construction traffic associated with both segments.

**Table 15: M12 Motorway peak hour construction traffic volumes**

| M12 Motorway construction traffic volumes | | | |
|---|---|---|---|
| **Segment** | **Site compound** | **AM peak hour light vehicle generation (one-way)** | **AM peak hour heavy vehicle generation (two-way)** |
| 1 | AF1/10 | 47 | 10 |
| 2 | AF2/3 | 47 | 8 |
| 3 | AF4/12 | 47 | 4 |
| 3 | AF5 | 47 | 8 |
| 3 | AF6 | 47 | 8 |
| 4 | AF7/8 | 0 | 5 |
| 4 | AF9 | 0 | 6 |
| 2 | AF11 | 47 | 8 |
| 3 | AF13/14 | 47 | 8 |
| 3 | AF15 | 47 | 8 |
| 3 | AF16 | 47 | 10 |
| 4 | AF17 | 0 | 8 |
| 4 | AF18 | 0 | 6 |
| **Total** | | **423** | **97** |

## 2.4.6 Traffic baseline

Using the methodologies and data outlined in the previous sections, the traffic baseline was developed for the assessment years 2023 and 2025.

In some cases, data for local roads have been applied to adjacent links with the same road hierarchy as it was determined to be equivalent to the typical traffic conditions on these links.

A table of the baseline flows for each link in both assessment years can be found in **Appendix D**.

An initial link-based assessment of the 2023 traffic baseline was undertaken to identify the utilisation of all roads in the study area. Utilisation determines the ratio between existing traffic volumes to capacity. Typically, roads which display a utilisation greater than 85% are considered to be at practical capacity and are likely to experience queuing and delays. The capacity of each link has been estimated based on a metric of 900 passenger car units (pcu) per lane per hour in line with *Austroads Guide to Traffic Management Part 3 (*2013). This initial assessment highlighted several links that have a utilisation greater than 100%:

- Elizabeth Drive;
- Cowpasture Road; and
- Hume Highway.

The initial link-based assessment is presented on Figure 4. Similar results were observed for the 2025 traffic baseline.

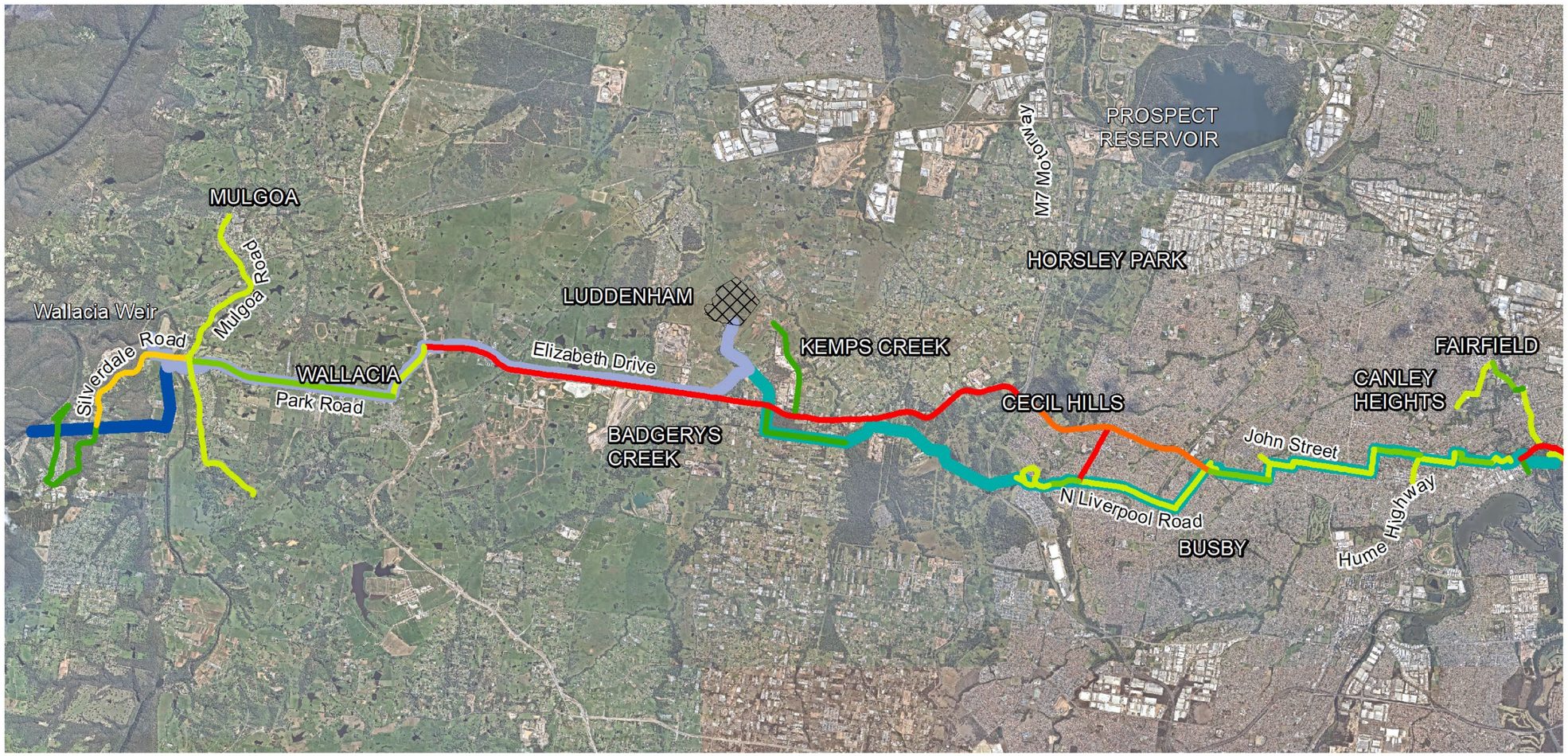



**Figure 4: 2023 traffic baseline link-based assessment**

# 3 Existing environment

The project extends across Western Sydney from Warragamba to Lansdowne. Due to the broad scale of the project, the study area has been divided into two areas; east and west of the M7 Motorway. This reflects the differing contexts of areas either side of the M7 Motorway, providing a better understanding of the likely transport impacts as a result of the project.

## 3.1 Existing road network

In order to understand the purpose a road serves within the wider road network; RMS, now a subsidiary of TfNSW, uses a classification system to categorise roads into the following types:

- Arterial road;
- Sub-arterial road;
- Collector and distributor road; and
- Local road.

This classification is primarily based on their function within the road network ranging from major connecting roads, which carry strategic importance and are associated with high traffic flows, to roads which carry low volumes of traffic and primarily provide access to local developments and residential areas. The functional hierarchy of the wider road network surrounding the project is shown in Figure 5 and Figure 6. Strategic freight routes are highlighted in both diagrams as either Motorways or Arterial roads. **Appendix A** outlines the road hierarchy of all the links assessed as part of this study.

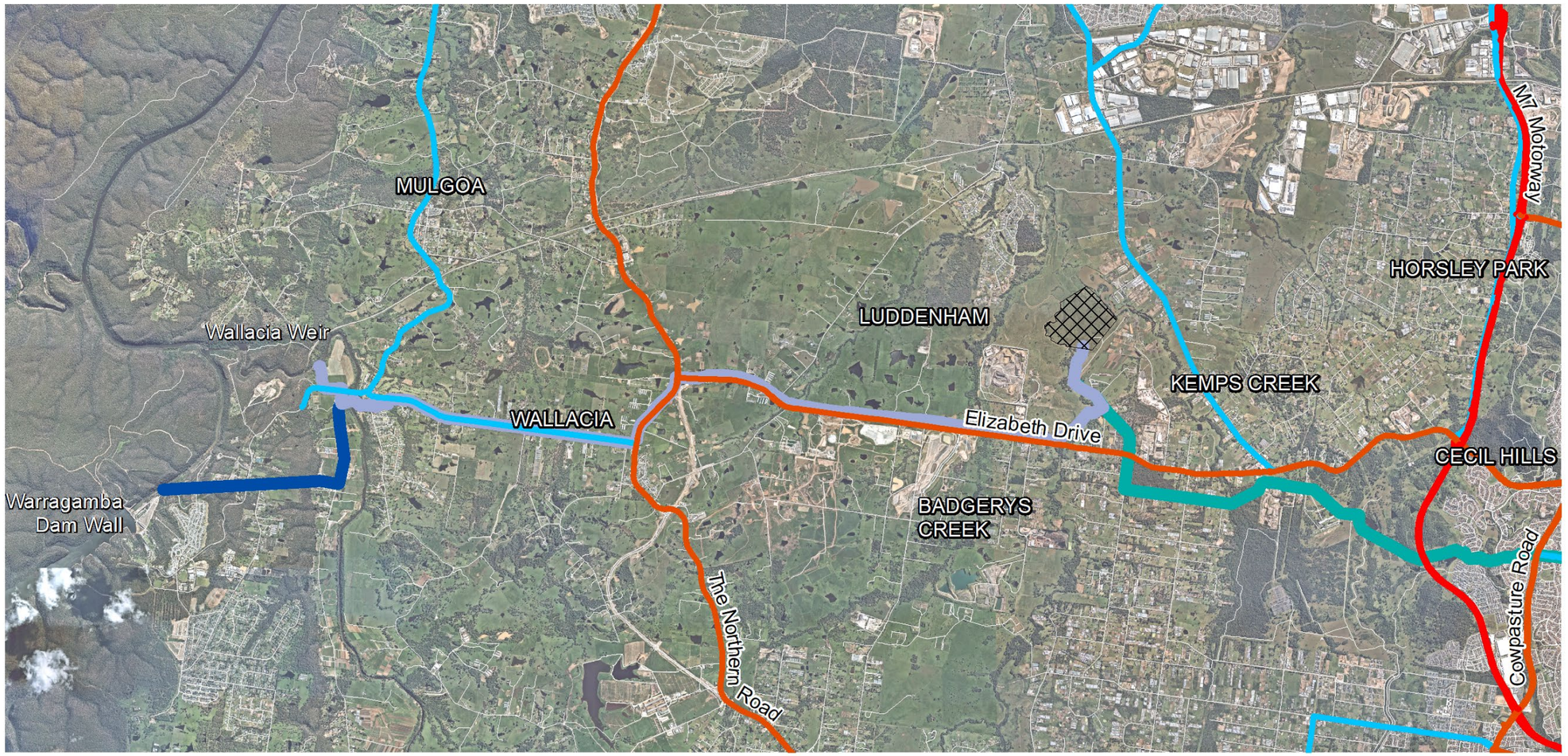



**Figure 5: Functional road hierarchy (west of M7 Motorway)**

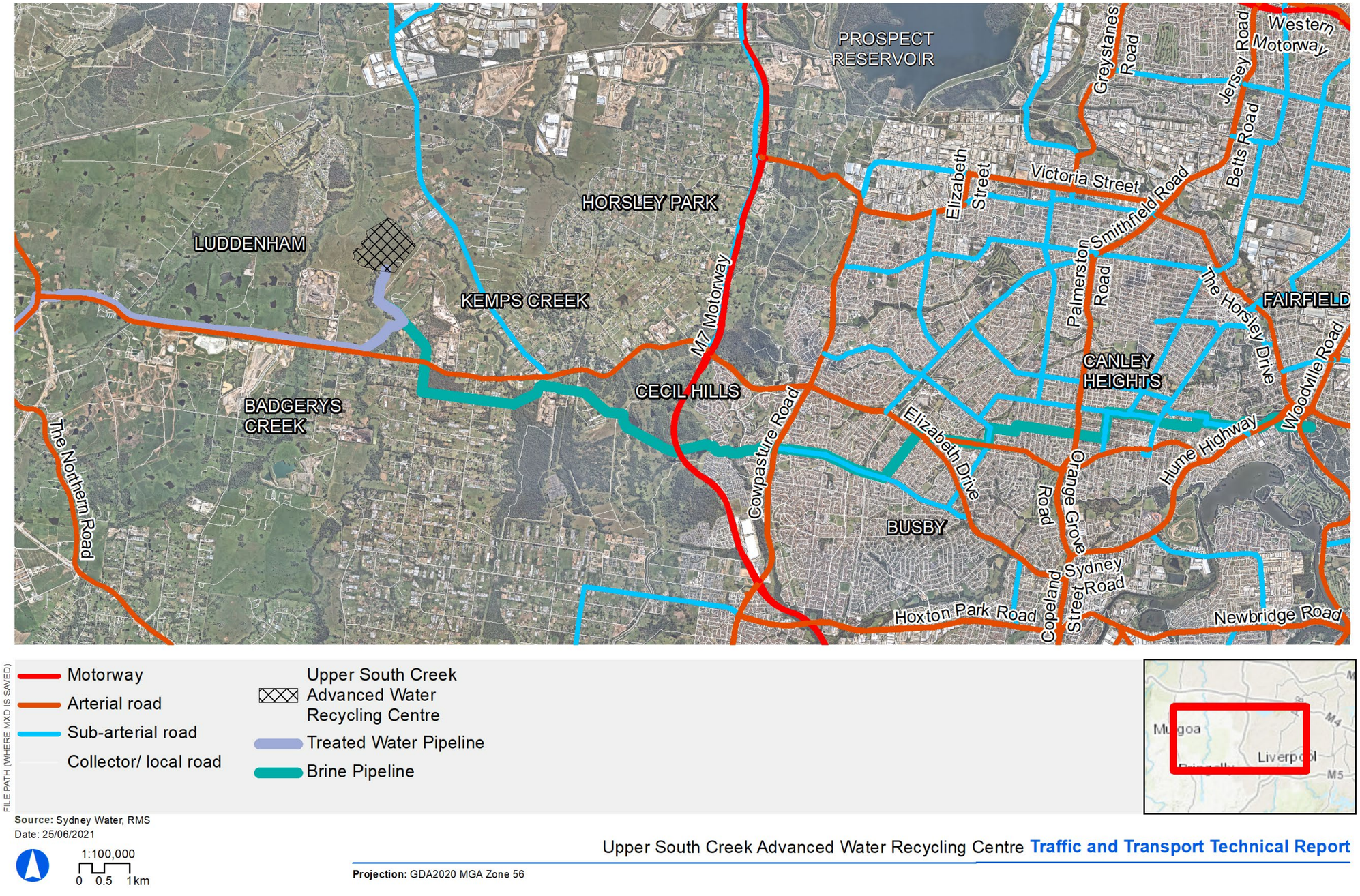



**Figure 6: Functional road hierarchy (east of M7 Motorway)**

The AWRC site is not currently connected to the wider road network via any paved roads. The closest paved road is Clifton Avenue which connects to Elizabeth Drive at its southern end. Elizabeth Drive is a state road and functions as a sub-arterial link connecting two arterial corridors, The Northern Road and the M7 Motorway.

Entry to the AWRC will be via an access road that provides a connection between the AWRC and Clifton Avenue. It should be noted that this access road will be upgraded to a paved road. Clifton Avenue will be realigned as part of the M12 Motorway construction, with the connection point between Clifton Avenue and the AWRC access road remaining the same. During operation, the permanent realignment of Clifton Avenue will be complete and will involve an overbridge across the M12 Motorway. The realigned road has been designed to accommodate vehicles likely to be accessing the facility.

It should be noted that the works related to the AWRC access road are not included in the project and therefore will not form part of this assessment.

### 3.1.1 Traffic survey data

Historic traffic data and commissioning of further traffic surveys were combined to understand the volumes of daily and peak hour traffic in the vicinity of the study area. Further information as to how 2020 survey data would be used due to the impacts of COVID-19 is explained in Section 2.4.2.

The locations of all survey data used is presented in Figure 7 with further details provided in **Appendix B**. The raw data from the 2020 surveys along with historic traffic flows are provided in **Appendix C.**

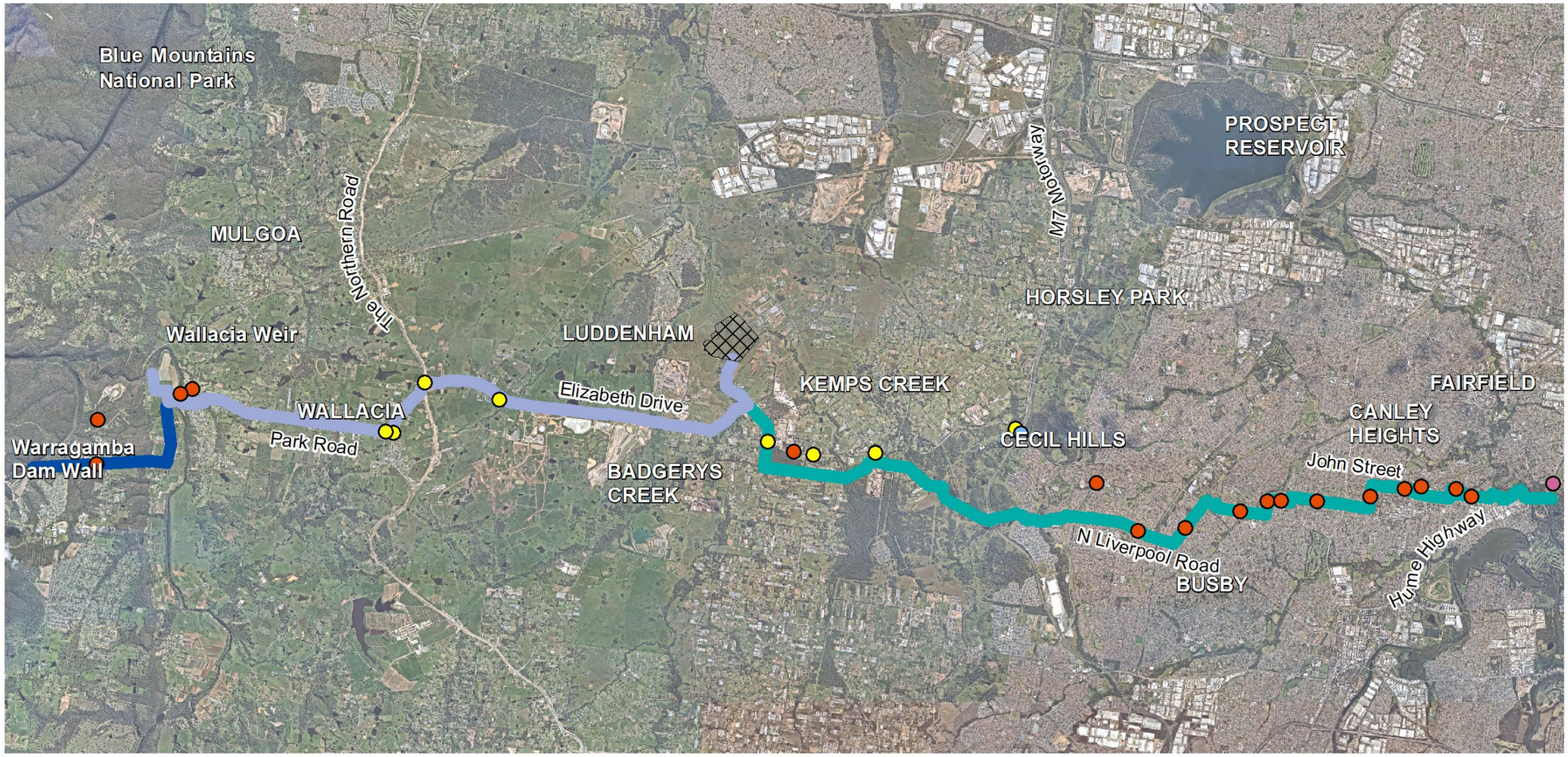



**Figure 7: Traffic survey locations**

### 3.1.2 Parking

#### 3.1.2.1 West of the M7 Motorway

Due to the sparse land use west of the M7 Motorway on-street parking is limited to urban centres such as Wallacia and Warragamba. There is minimal parking on arterial routes as this can create safety issues where traffic is travelling at high speeds.

Wallacia town centre, located adjacent to the pipeline alignment, has on-street parking which provides access to local shops, schools and services. Many businesses and properties provide off-street parking.

Warragamba town centre has on-street parking along many streets, allowing residents and visitors to access various businesses, schools and community services. Off-street parking is not as plentiful throughout the Warragamba town centre and, therefore, many businesses rely on on-street parking. Parking in the Wallacia and Warragamba town centres is not time restricted, reflective of the lower rate of vehicle turnover in these areas.

#### 3.1.2.2 East of the M7 Motorway

Parking is more plentiful in urban areas east of the M7 Motorway with many local roads having carriageways with sufficient width for parking on both sides. This parking is likely utilised by residents and visitors. Arterial roads are marked as clearways on certain roads such as Cabramatta Road and the Hume Highway to deter parking on these key routes.

Public off-street car parks are clustered around stations such as Cabramatta and Liverpool. These urban centres also contain high turnover on-street parking to serve active street frontages.

## 3.2 Public transport

### 3.2.1 West of the M7 Motorway

Currently there are limited public transport options available in the vicinity of the project. The nearest train station is located at Leppington, approximately 15 kilometres from the AWRC site. This station is serviced by the T2 and T5 rail lines and provides connections to the Sydney Central Business District (CBD) and north-western suburbs. Trains operate to and from Leppington station at regular intervals throughout the week and on the weekend.

Bus services operating outside town centres and residential areas generally have limited coverage, as shown in Figure 8. The three bus services which operate in the vicinity of the study area are as follows:

- Route 789: Luddenham to Penrith via The Northern Road;
- Route 795: Warragamba to Penrith via Mulgoa Road; and
- Route 801: Liverpool to Badgerys Creek via Elizabeth Drive.

These bus services operate at low frequencies throughout the week and the 795 operates sporadically on the weekend.

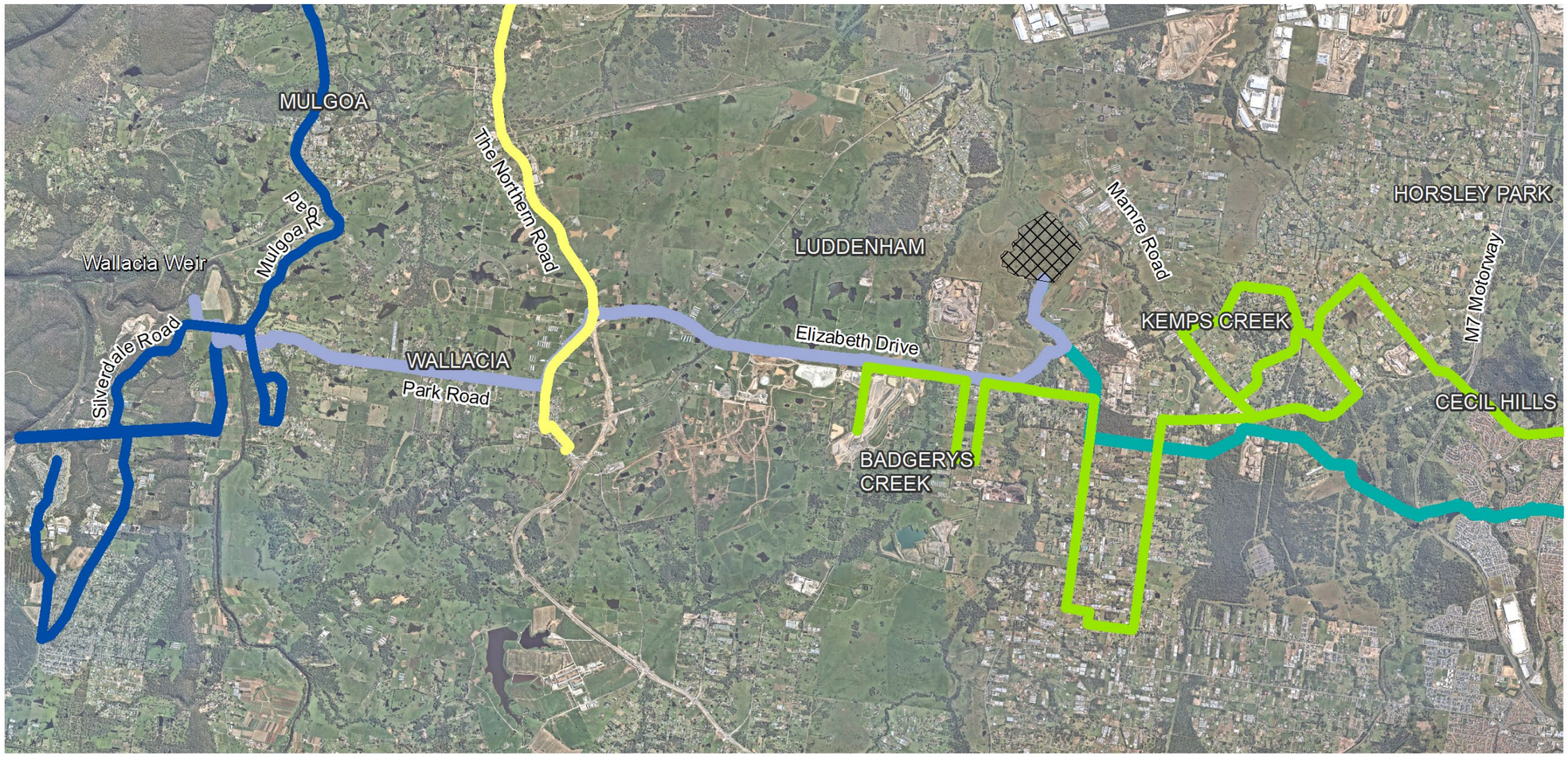



**Figure 8: Existing bus routes west of the M7 Motorway**

### 3.2.2 East of the M7 Motorway

The nearest train stations to the study area are Carramar Station and Cabramatta Station. The stations service the T2, T3 and T5 rail lines (Cabramatta Station only), providing connections to the CBD, north-western and western suburbs.

Numerous bus services operate within the vicinity of the study area, predominantly servicing the neighbouring suburbs and local centres. These services form part of the Transit Systems Western Sydney and the Transdev NSW Parramatta – Liverpool bus networks, as shown in Figure 9 and Figure 10. The number of bus services provide a wide public transport catchment that encompasses the majority of dwellings and workplaces in the area.

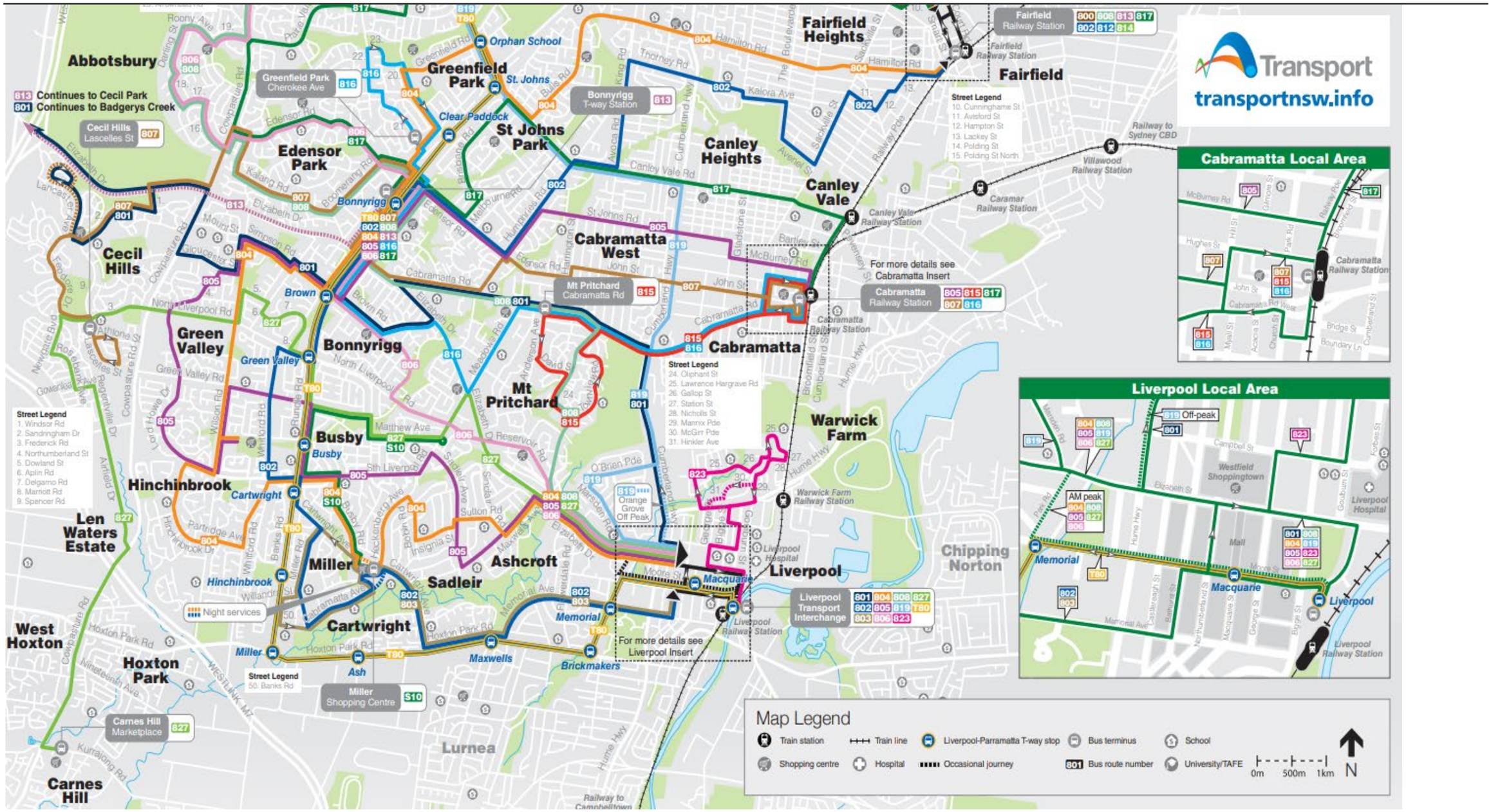



**Figure 9: Existing Transit Systems Western Sydney bus network**

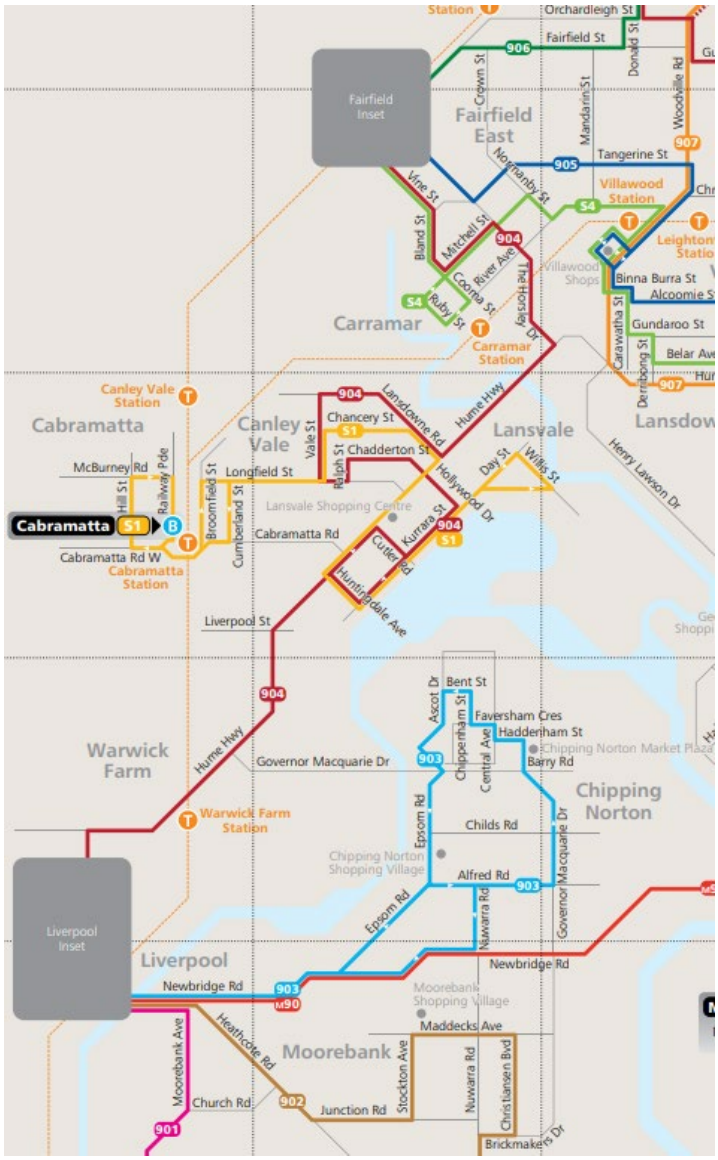



**Figure 10: Existing Transdev NSW Parramatta, Bankstown and Liverpool bus network**

## 3.3 Active transport

### 3.3.1 West of the M7 Motorway

Currently, there is limited walking and cycling infrastructure available in the area as presented in Figure 11. RMS Cycleway finder shows cycleways along sections of Elizabeth Drive, Mamre Road and The Northern Road. This highlights the poor connectivity between the cycleways making it difficult for cyclists to travel between urban centres safely.

However, infrastructure improvements have been planned as part of The Northern Road upgrades which is currently underway. In addition, the Department of Planning, Industry and Environment (DPIE) has recognised the need to improve cycling infrastructure within the surrounding local areas. This is discussedin the Mamre Road Precinct Rezoning Exhibition Discussion Paper which will be one of the first new Western Sydney precincts. As a result, DPIE has identified a potential opportunity for a shared path along creek lines, including the South Creek-Wianamatta corridor as part of the future upgrades for Mamre Road.

Typically, formal pedestrian crossing facilities and footpaths are limited to residential areas or town centres, with minimal to no amenities provided beyond these areas aligning with the rural context.

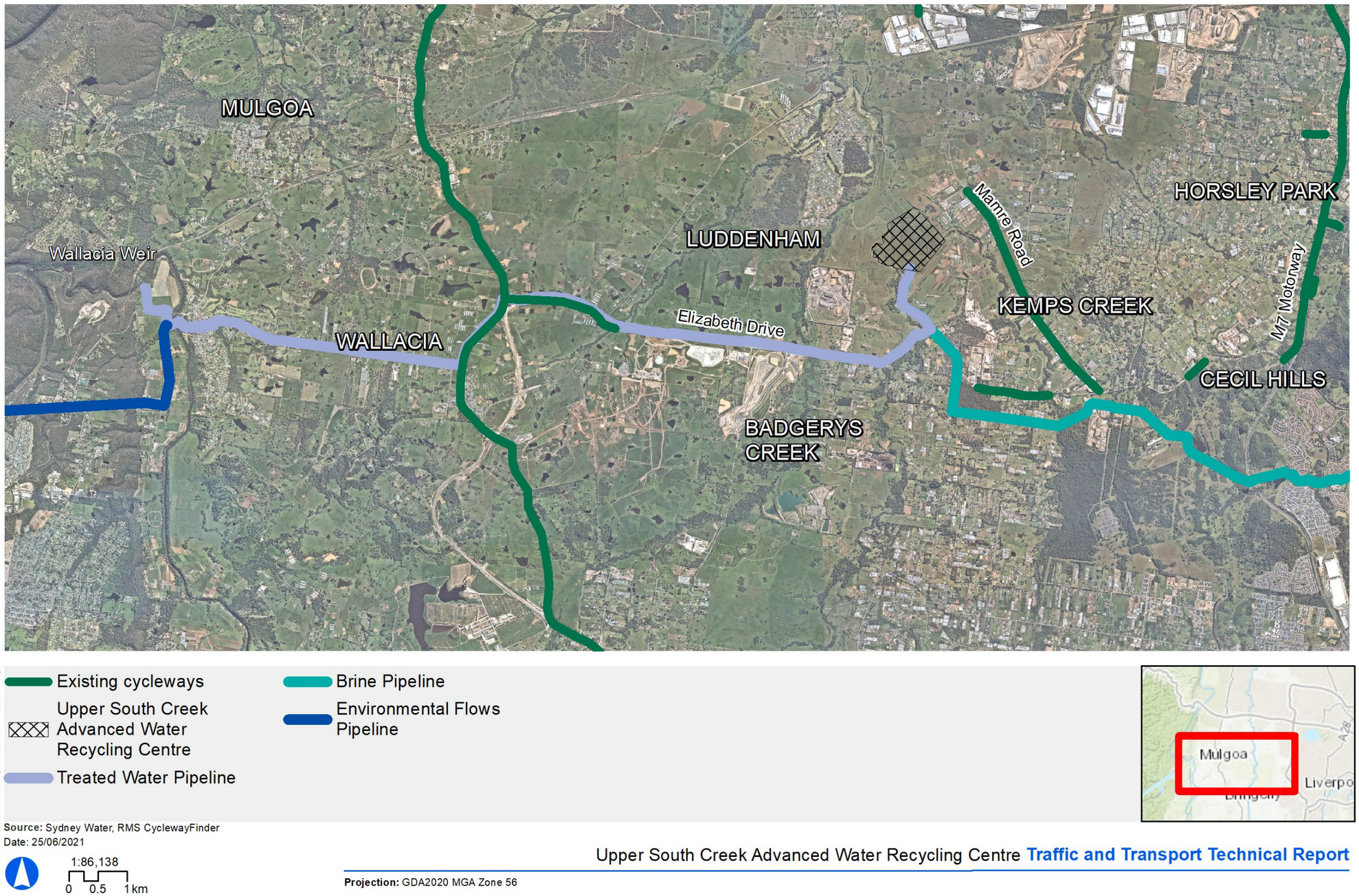



**Figure 11: Existing cycleways west of the M7 Motorway**

### 3.3.2 East of the M7 Motorway

Walking and cycling infrastructure to the east of the M7 Motorway is consistent and well connected. A mix of on and off-road cycleways are available within the vicinity of the project, with the main cycling routes as follows:

- Bay to Mountains shared path – between Mirambeena Regional Park in Bankstown and Prospect Reservoir in Blacktown;
- Cabramatta Creek shared path – between King Park in Wakeley and Cowpasture Road via St Johns Park;
- Prospect Creek shared path – between Holroyd City to the Fairfield Town Centre;
- The Cowpasture Road shared path – between Elizabeth Drive and The Horsley Drive. This path also links into the Bay to Mountains, St Johns Park and T-way shared paths;
- T-Way cycleway – between Parramatta and Liverpool. This path also provides a connection to the Bay to Mountains and St Johns Park shared path; and
- Rail Trail cycleway – between Parramatta and Liverpool. This path also provides a connection to Prospect Creek and the Bay to Mountains shared path.

All these routes are a component of the Fairfield City Council cycling network presented in Figure 12.

Reflective of the higher population density as compared to the area west of the M7 Motorway, pedestrian amenities are provided on the majority of roads, creating a walkable environment. This includes paved footpaths and various crossing types to align different contexts and street environments.

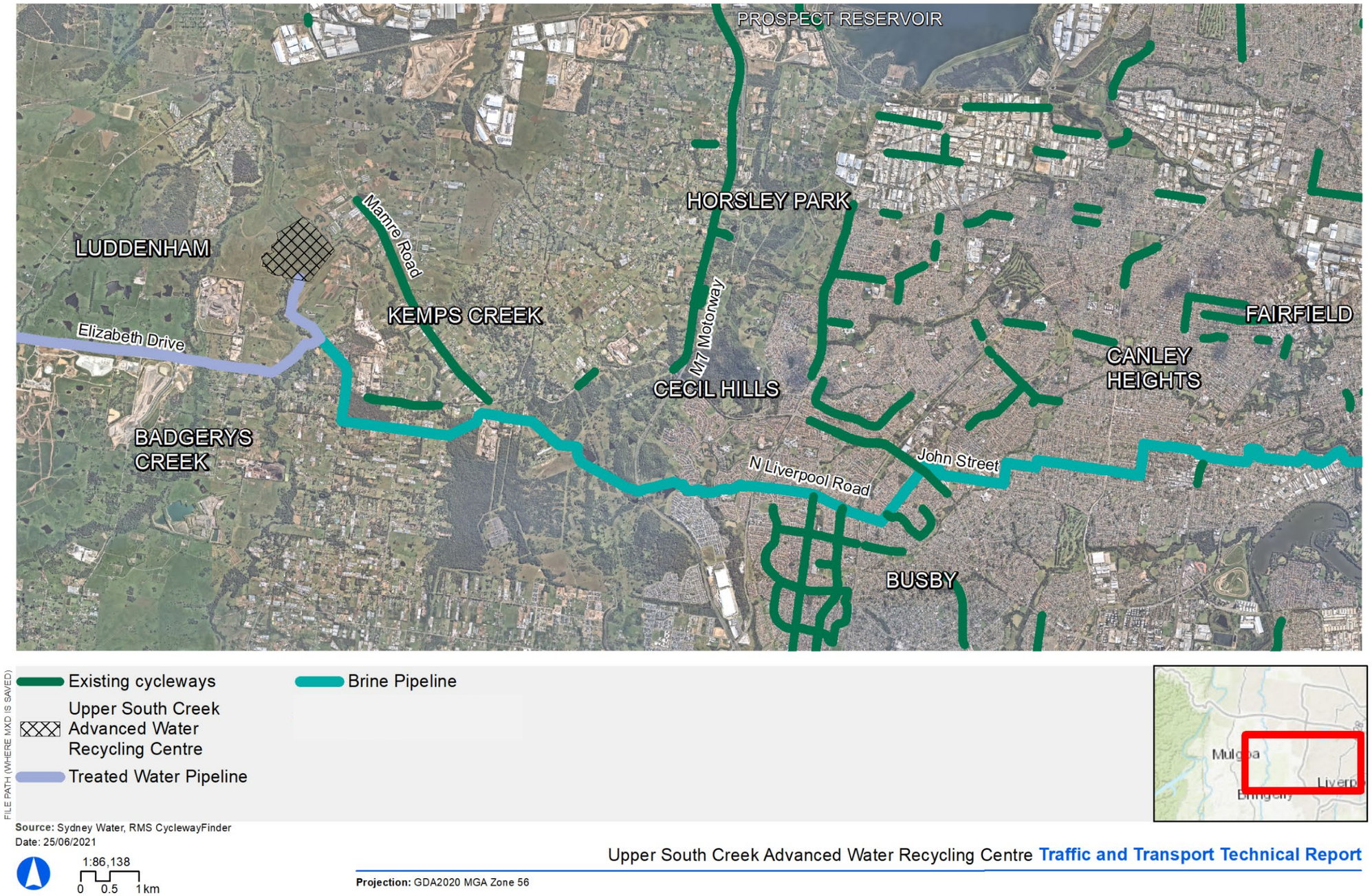



**Figure 12: Existing cycleways east of M7 Motorway**

## 3.4 Future infrastructure schemes

The project spans across Western Sydney, which has been identified as a key growth area within the Greater Sydney Metropolitan Area. Due to this, significant increases in employment and population are expected over the next 30 years. In order to support the growth of development in the region a series of infrastructure projects have been committed within the vicinity of the project site which include but are not limited to Western Sydney Airport, Sydney Metro Western Sydney Airport, The Northern Road upgrade and the M12 Motorway.

These infrastructure projects mean that the Western Sydney transport network will look considerably different in the future. The cumulative impacts of the construction of several of these schemes have been considered as part of this assessment, using information from publicly released documentation.

# 4 Impact assessment

This section details the assessment undertaken to ascertain the traffic and transport impacts of the project during in construction and operation.

Given the linear scale of constructing the project its impact will be widespread throughout this phase. The construction assessment uses a link-based approach to broadly assess the impact on the road network surrounding the full extent of the pipelines and compounds.

## 4.1 Construction impact assessment

The construction assessment has used a link-based approach to identify where uplifts in traffic relating to the construction of the project may cause flows to exceed the estimated link capacity.

### 4.1.1 Construction assessment criteria

Two criteria were used to identify links where construction traffic may have a detrimental impact:

**Criteria 1** - additional construction traffic relating to the project has generated an increase in traffic greater than 5% compared to the baseline flows on the link; and

**Criteria 2** - the traffic flow per lane increases beyond 900 pcu per hour with the addition of construction traffic relating to the project. This value is consistent with the *Austroads Guide to Traffic Management Part 3 (*2013) which provides guidance on the lane capacity of urban roads and traffic lanes

It should be noted that as outlined on Figure 4, this initial link assessment indicated that some links already meet Criteria 2. These links will be assessed in greater detail to understand to what degree project construction traffic volumes are contributing to the detrimental impacts.

### 4.1.2 Construction segments and compounds

Due to the linear nature of the project, the extent of the scheme has been split up into different segments that will be constructed concurrently. Each segment will be served by a range of compounds to enable construction of the pipelines. Due to the size of the C8 compound, the site will likely serve other parts of the Project. The extent of each segment and locations of all site compounds are presented on Figure 13. The proposed site compounds are:

- C1: Warragamba River via Core Park Road – Environmental flows pipeline drilling site;
- C2: Bent Basins Road – Environmental flows pipeline drilling site;
- C3: Treated Effluent release location near Wallacia Weir at Nepean River;
- C4: West of Wallacia drilling site (Fowler Reserve);
- C5: 1 Park Rd, Wallacia - Effluent pipeline site office;
- C6: 344 Park Rd, Wallacia – Main treated water construction compound, alternative – 260 Park Road, Wallacia (two option proposed);
- C7: Elizabeth Drive between The Northern Road and Luddenham Road;
- C8: Water Recycling Centre site;
- C9: Western Sydney Parklands, near Liverpool Offtake Reservoir – multiple small compounds, including M7 underbore;

- C10: Liverpool reservoir, Cecil Hills – Brine satellite compound;
- C11: Plan DP262454 Lot 419, Bonnyrigg - Brine satellite compound;
- C12: East Parade, Fairfield – Brine pipeline satellite compound;
- C13: Cabravale Park - Cabramatta Rail underbore crossing;
- C14: Lansvale Park, Lansdowne - west of Henry Lawson Drive and Prospect Creek; and
- C15: Lansdowne east of Henry Lawson Drive – NGRS connection location.

Currently, two locations have been considered for C6. Roads to access both locations for C6 have been captured to ensure this assessment encompasses the impacts of either option. The preferred option for C6 has been determined as 344 Park Rd, Wallacia.

It should be noted that the proposed compound locations may change in the future as the project design develops or when a contractor is onboarded to construct the scheme. Despite this the assessment has been undertaken in a manner so that provided any future compounds locations are within similar vicinities to the project and serve comparable functions this impact assessment would remain valid. We also note that SSCTMPs will be required as part of the construction phase to assess the local traffic impacts of any compound location once finalised.

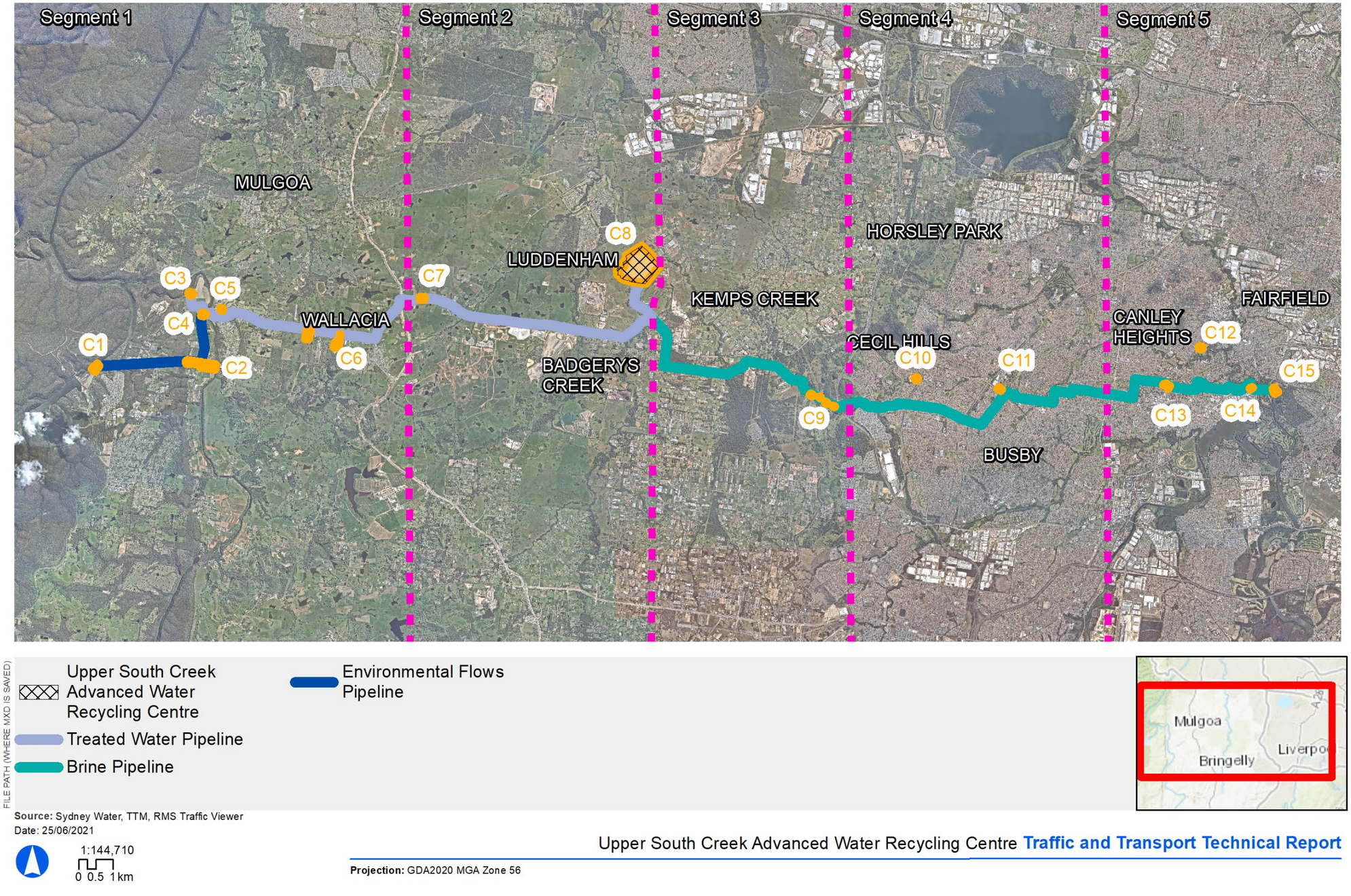



**Figure 13: Site compounds and segments**

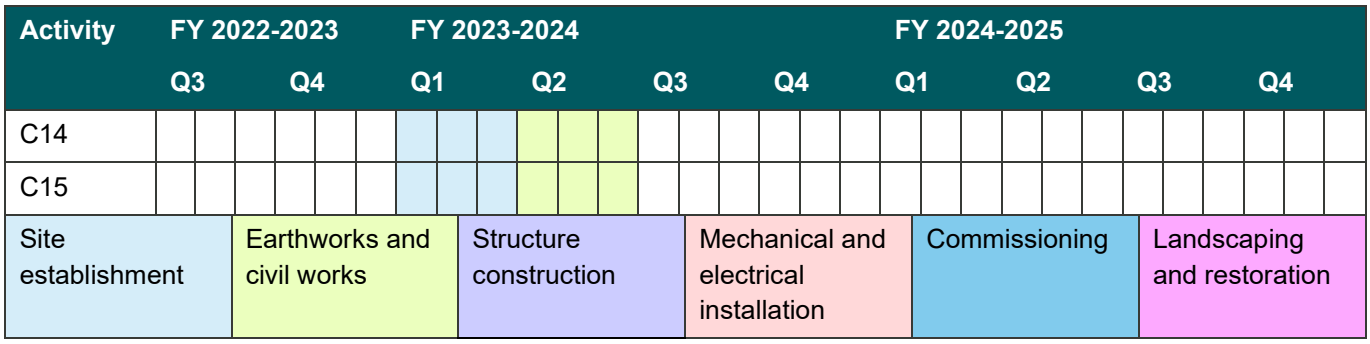
### 4.1.3 Construction phasing and programme

Construction work is set to commence in June 2022, lasting for a period of approximately 36 months. Table 16 provides an indicative timeline of the main construction activities for the project by site compound and pipeline segment. The separate construction phases are highlighted using different colours.

The duration of works will vary by site compound depending on the purpose of the compound. Peak construction traffic volumes are expected to occur in the earthworks and civil works phase when significant volumes of material will be transported to and from work sites. The construction of the AWRC site is expected to occur within the same timeframes as the pipelines. The AWRC works will contain different project phases to the pipelines due to the differing nature of the construction works.

**Table 16: Indicative construction programme**

| Activity | FY 2022-2023 | | | | FY 2023-2024 | | | | | | | | FY 2024-2025 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q3 | | Q4 | | Q1 | | Q2 | | Q3 | | Q4 | | Q1 | | Q2 | | Q3 | | Q4 | | | | | |
| **Segment 1** | | | | | | | | | | | | | | | | | | | | | | | | |
| C1 | | | | | | | | | | | | | | | | | | | | | | | | |
| C2 | | | | | | | | | | | | | | | | | | | | | | | | |
| C3 | | | | | | | | | | | | | | | | | | | | | | | | |
| C4 | | | | | | | | | | | | | | | | | | | | | | | | |
| C5 | | | | | | | | | | | | | | | | | | | | | | | | |
| C6 | | | | | | | | | | | | | | | | | | | | | | | | |
| **Segment 2** | | | | | | | | | | | | | | | | | | | | | | | | |
| AWRC site | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| C8 | | | | | | | | | | | | | | | | | | | | | | | | |
| **Segment 3** | | | | | | | | | | | | | | | | | | | | | | | | |
| C9 | | | | | | | | | | | | | | | | | | | | | | | | |
| **Segment 4** | | | | | | | | | | | | | | | | | | | | | | | | |
| C10 | | | | | | | | | | | | | | | | | | | | | | | | |
| C11 | | | | | | | | | | | | | | | | | | | | | | | | |
| **Segment 5** | | | | | | | | | | | | | | | | | | | | | | | | |
| C12 | | | | | | | | | | | | | | | | | | | | | | | | |
| C13 | | | | | | | | | | | | | | | | | | | | | | | | |




#### 4.1.3.1 Standard hours of operation

Key construction activities will be scheduled within standard work hours, Monday to Friday 7 am – 6 pm and Saturday 8am – 1pm as much as practically possible. However, certain compounds may require activities to occur outside of the standard work hours. Further details on compounds where out of hours work is planned is presented in the Framework CTMP in **Appendix F**.

#### 4.1.3.2 Construction haulage routes

The proposed haulage routes during construction will be guided by the functional hierarchy provided by RMS. All construction vehicles will be encouraged to use arterial and sub-arterial roads where possible as identified on Figure 5 and Figure 6. Collector and local roads will only be used to access site compounds and works sites where arterial or sub-arterial roads are not available.

### 4.1.4 Construction traffic generation

Construction traffic related to the project will be generated by the following activities:

- Worker crews – crews undertaking horizontal directional drilling (HDD) / open trenching along the pipeline alignment;
- Light vehicles accessing site compounds, including the AWRC construction site; and
- Heavy vehicles accessing site compounds, including the AWRC construction site.

Figure 14 and Figure 15 outline the peak daily construction vehicle volumes (one-way) expected within and outside of standard working hours for light vehicles (LV) and heavy vehicles (HV).

It should be noted that these volumes are based on peak construction activity for each compound occurring simultaneously. This method was used to ensure the assessment was robust and due to the uncertainties associated with the construction program as a Contractor is yet to be appointed. In practice, the construction programs for all compounds will vary and therefore the actual traffic impacts are likely to be less than that presented. Further work will be undertaken during the detailed design and construction phases to ensure overlaps between the peak construction activities at different compounds are minimised.

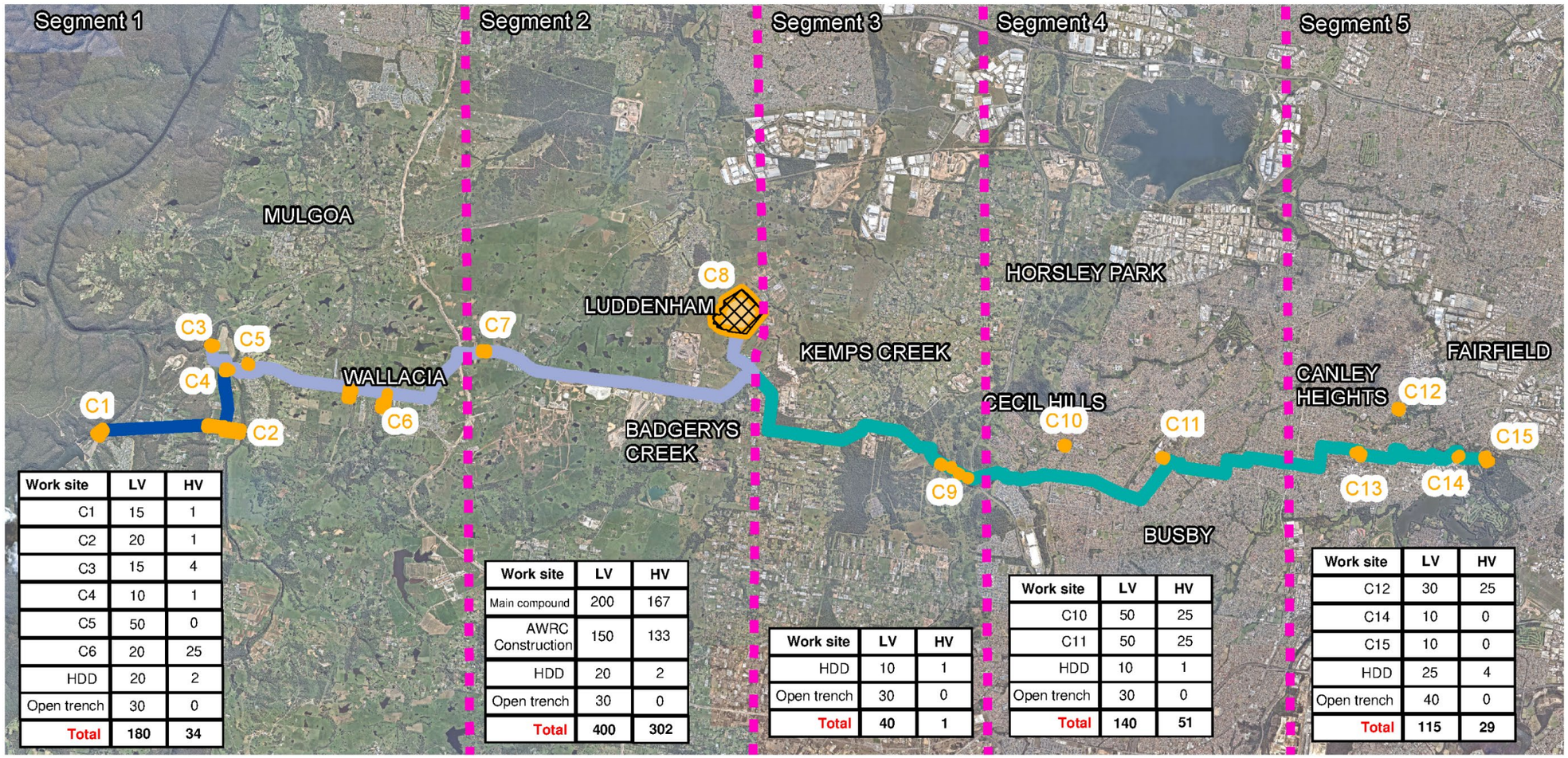



**Figure 14: Peak daily vehicle volumes (one-way) during standard hours of construction**

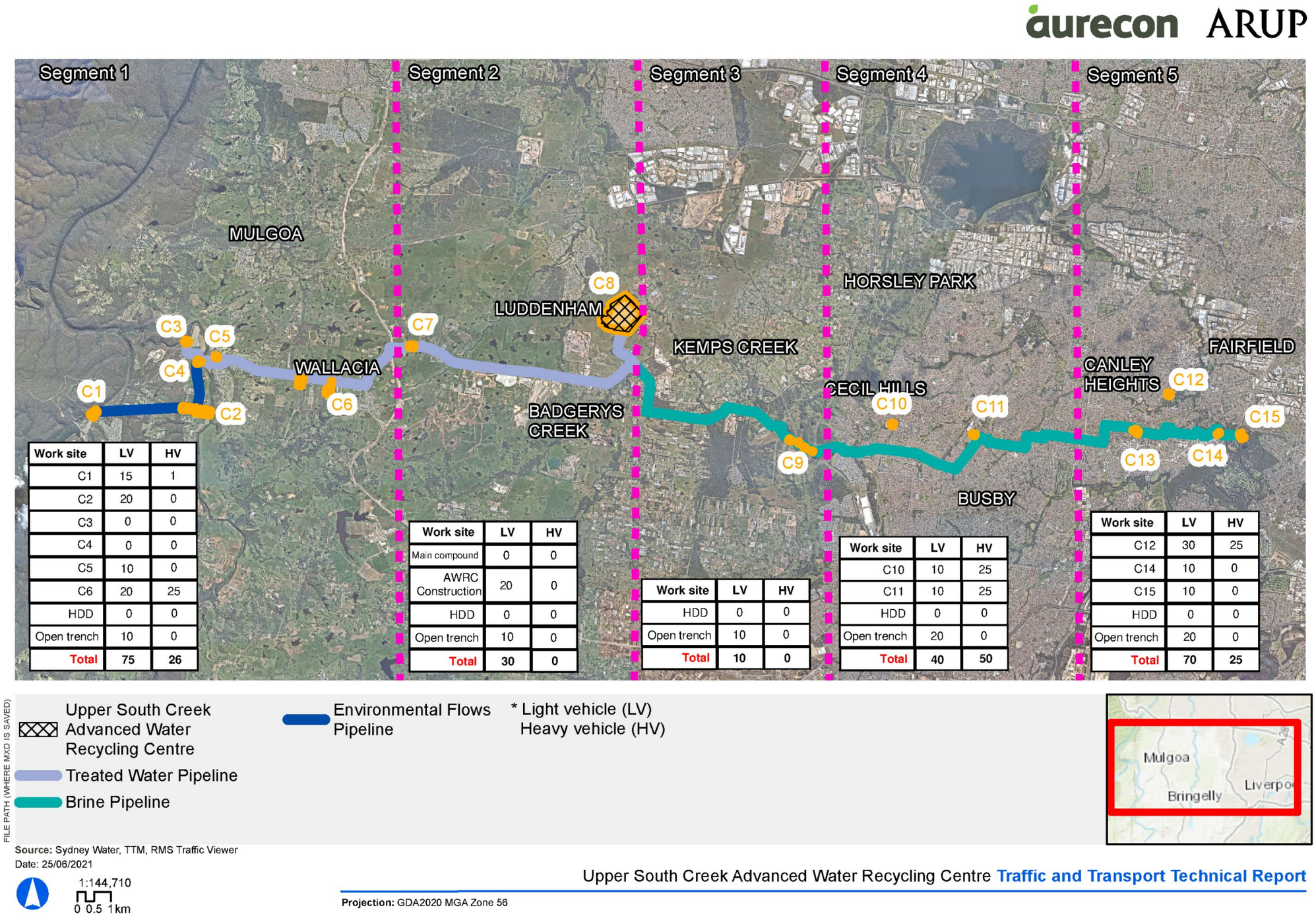



**Figure 15: Peak daily vehicle volumes (one-way) outside standard hours of construction**

### 4.1.5 Construction traffic distribution

The peak daily one-way volumes displayed in Figure 14 have been used to calculate the AM peak volumes using the following assumptions:

- All heavy vehicle and compound volumes have been distributed evenly across standard working hours (Monday to Friday, 7am-6pm). Directionally, these volumes have been split evenly 50% in and 50% out.
- 50% of construction worker and crew traffic arrives during the AM peak hour.

The peak hour volumes have been distributed to the surrounding road network using the following key assumptions:

- Construction traffic associated site compounds, worker crews and the AWRC construction site will only be applicable to links within their respective segments; and
- Roads which overlap between two segments will include construction traffic associated with both segments. These roads have been identified in Table 17.

**Table 17: Roads interfacing segment boundaries**

| **Roads interfacing segment boundaries** | |
|---|---|
| **Segment interface** | **Roads applicable** |
| Segment 1/2 | • Park Road (west of site compound C6 to The Northern Road)<br>• The Northern Road (between Park Road and Elizabeth Drive)<br>• Elizabeth Drive (between The Northern Road and Badgerys Creek Road) |
| Segment 2/3 | • Elizabeth Drive (between Western Road and Clifton Avenue)<br>• Clifton Avenue<br>• Western Road (between Elizabeth Drive and Cross Street) |
| Segment 3/4 | • Elizabeth Drive (east of site compound C9 to the M7 Motorway)<br>• Kensington Close (west of Stirling Street)<br>• Stirling Street (east of Kensington Close)<br>• Feodore Drive (east of Stirling Street)<br>• Frederick Road (between Spencer Road and Cowpasture Road)<br>• Cowpasture Road (between N Liverpool Road and Elizabeth Drive) |
| Segment 4/5 | • Edensor Road (between Meadows Road and Harrington-street)<br>• John Street (between Harrington-street and Gladstone Street) |

Figure 16 presents the distribution of project construction traffic (AM peak) onto the road links within the study area.

This indicates links such as Park Road, The Northern Road, Clifton Avenue and Elizabeth Drive will experience over 100 additional construction vehicles in the AM peak hour..

A full list of the additional construction traffic flows applied to each link can be found in **Appendix D**.

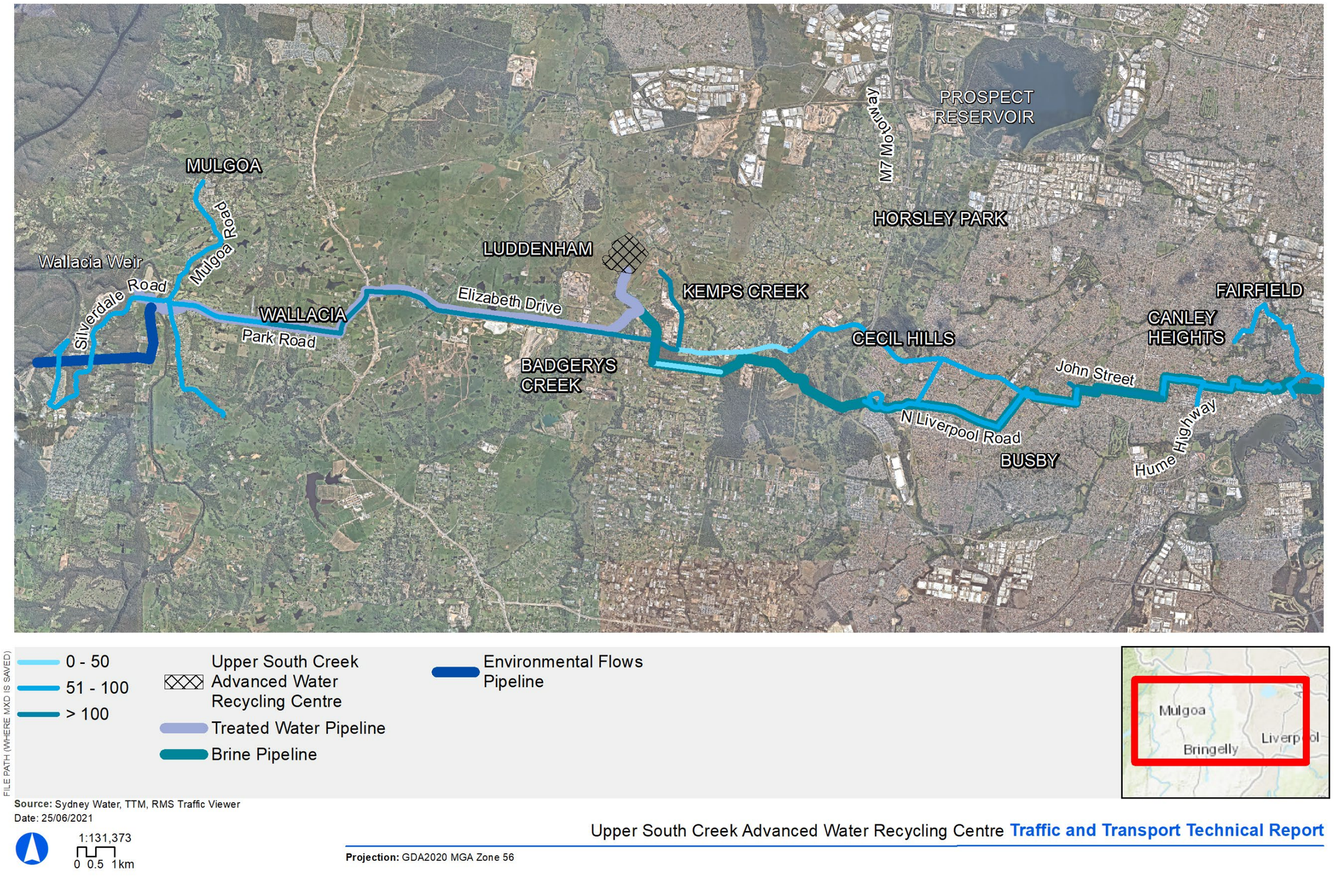



**Figure 16: Additional construction traffic by link**

## 4.1.6 Transport network impacts

This section details the impacts of the construction phase on the surrounding transport network.

### 4.1.6.1 Traffic Impacts

The assessment criteria outlined in Section 4.1.1 have been used to identify links where construction traffic may have a detrimental impact on the operation of the road network

It should be noted that the distributed volumes are based on peak construction activity for each compound occurring simultaneously. This method was used to ensure the assessment was robust. In practice, the construction programs for all compounds will vary and therefore the actual traffic impacts are likely to be less than that presented.

Figure 17, highlights roads in orange where construction traffic has caused an increase in traffic greater than 5% compared to the baseline (Criteria 1). Links highlighted in red indicates the former and that volumes have exceeded the estimated link capacity (Criteria 2).

A number of links are displayed in red, which include Elizabeth Drive (between the Northern Road and the M7 Motorway), Cowpasture Road and Hume Highway. By comparing Figure 4 and Figure 17 it is apparent this is true in the with and without project scenarios. This suggests that although the project will contribute traffic to these links, they are over capacity due to background traffic on the network. In the case of Elizabeth Drive this includes volumes associated with the construction of other infrastructure schemes such as the M12 Motorway. Moreover, all these links are arterial roads that typically experience high volumes of traffic during the peak hour.

Several links which are outlined in orange are located in Segments 1, 2 and 4. These roads will experience the highest increase in construction traffic due to the project as shown in Figure 16. As a result, these links may require mitigation measures to minimise potential impacts. To the east of the M7 Motorway, links which are displayed in orange are those which interface between two segments or are classified as sub-arterial roads such as Bartley Street and Chancery Street. For all these links the increase in traffic is equal to or less than 10%.

These results indicate that links where traffic volumes exceed the estimated road capacity (Criteria 2) are links which are already under stress due to the baseline flows on the surrounding road network. Construction volumes relating to the project are contributing to the impacts on these links but are not the main cause.

On all other links where traffic increases by more than 5% (Criteria 1), volumes remain within the estimated capacity of the links and therefore it is not anticipated that detrimental impacts will occur. Despite this mitigation measures should be considered to further reduce the impact of construction traffic. Suitable measures are outlined in Section 5.1 and the Framework CTMP (**Appendix F**).

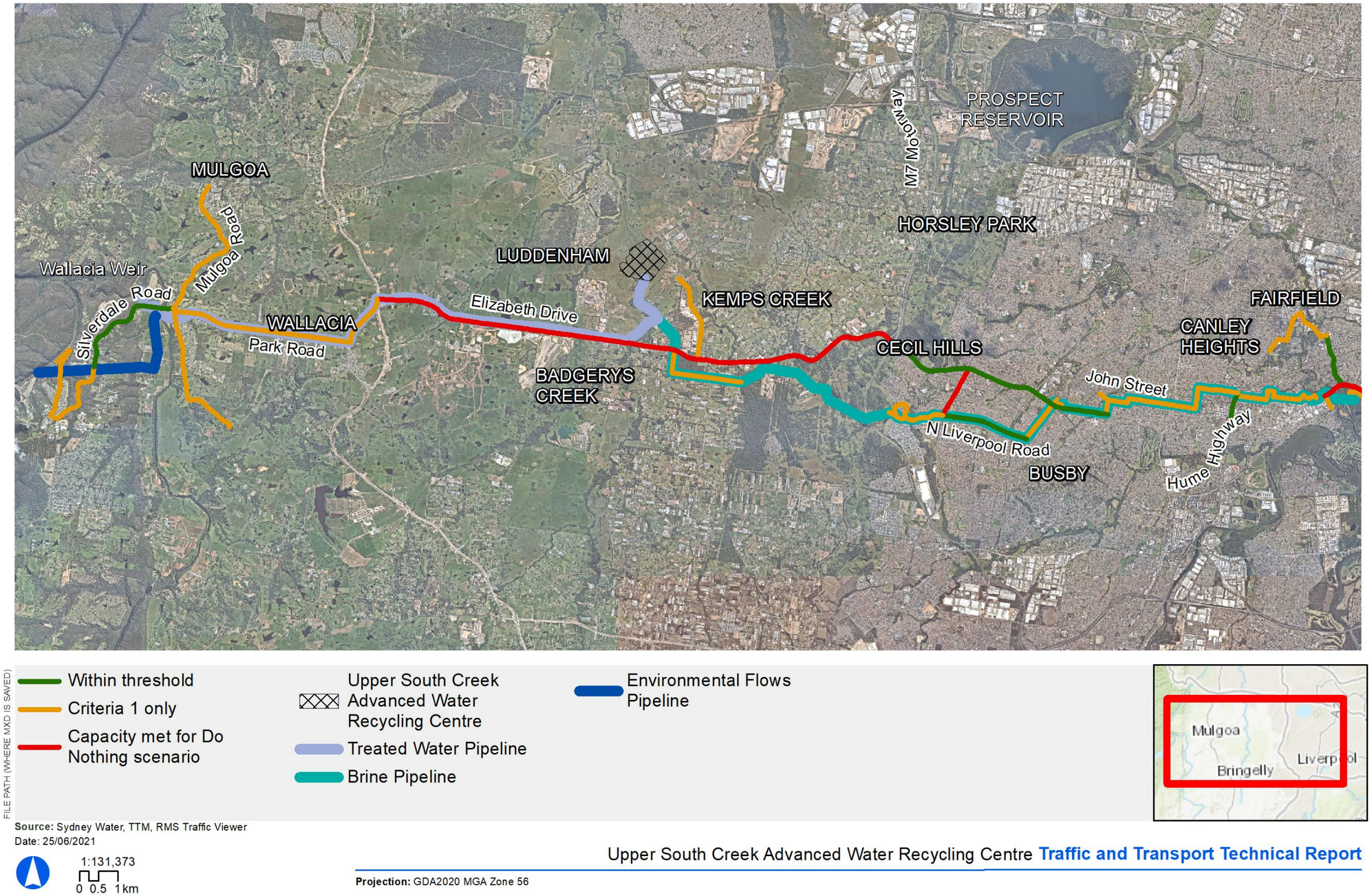



**Figure 17: 2023 Construction traffic link assessment**

#### 4.1.6.2 Clifton Avenue review

Consideration of cumulative impacts from other infrastructure schemes has identified the Clifton Avenue / Elizabeth Drive intersection as a potential pinch point as Clifton Avenue will be serving as the key access route to a number of construction sites which include the AWRC, site compound (C8) and site compounds AF4 and AF12 for the M12 Motorway project.

Currently Clifton Avenue serves as a local road providing access to a number of residential properties and industrial developments. Additional construction traffic may impact the performance of the intersection where the local road interfaces with Elizabeth Drive and access to other uses that rely upon this link. For these reasons, the intersection has been considered for SIDRA intersection modelling.

As the traffic survey for the Clifton Avenue / Elizabeth Drive intersection was undertaken amid the COVID-19 outbreak, the volumes would not accurately present the baseline for the assessment.

To develop baseline traffic volumes in 2023 on Elizabeth Drive, an annual growth rate has been calculated by comparing the 2015 historic data and values for 2024, which are presented in Table 6-6 and Table 6-7 in Appendix B of the *M12 Motorway Amended EIS*. Table 18 outlines the comparison of the traffic flows and the annual growth rate calculated. Generally, the annual growth rates calculated indicated an increase in traffic over time. However, the westbound movement on Elizabeth Drive during the PM peak presented a decrease of -1% per annum.

**Table 18: Annual growth rate on Elizabeth Drive**

| Direction | AM peak hour volume | | Annual growth rate | PM peak hour volume | | Annual growth rate |
|---|---|---|---|---|---|---|
| | 2015 Survey | M12 EIS 2024 | | 2015 Survey | M12 EIS 2024 | |
| Eastbound | 1,095 | 1,143 | 0.5% | 600 | 606 | 0.1% |
| • Westbound | 511 | 588 | 1.6% | 1,018 | 933 | -1% |

The survey of the Clifton Avenue / Elizabeth Drive intersection from 2020 was used to apply turning proportions to the east and westbound traffic volumes. The baseline traffic flows for the construction year at this intersection are presented in Table 19 to Table 20. This includes consideration of the vehicles accessing site compounds AF4 and AF12 for the M12 Motorway via Clifton Avenue. Background flows on Clifton Avenue were not uplifted as no historic data was available and there are only a small number of trip generators associated with this link.

**Table 19: Construction - 2023 baseline traffic (AM peak)**

| | Elizabeth Drive, west of Clifton Avenue | Elizabeth Drive, east of Clifton Avenue | Clifton Avenue |
|---|---|---|---|
| **Elizabeth Drive, west of Clifton Avenue** | - | 1,269 | 59 |
| **Elizabeth Drive, east of Clifton Avenue** | 956 | - | 74 |
| **Clifton Avenue** | 6 | 16 | - |

### Table 20: Construction - 2023 baseline traffic (PM peak)

| | Elizabeth Drive, west of Clifton Avenue | Elizabeth Drive, east of Clifton Avenue | Clifton Avenue |
|---|---|---|---|
| **Elizabeth Drive, west of Clifton Avenue** | - | 1,000 | 10 |
| **Elizabeth Drive, east of Clifton Avenue** | 1,065 | - | 19 |
| **Clifton Avenue** | 61 | 69 | - |

The volume of construction traffic generated by the Project, as outlined in Section 4.1.4, has been distributed to the surrounding road network using the following assumptions:

- All heavy vehicle construction traffic trips are two-way and distributed evenly throughout the scheduled working hours (Monday to Friday 7 am – 6 pm);
- 50% of construction worker traffic arrives during the AM peak and departs in the PM peak, with the remaining 50% evenly split across the shoulder periods (one hour prior to and following the peak hour); and
- All traffic approaching or departing the facility will be split evenly between the east and westbound directions on Elizabeth Drive.

Table 21 and Table 22 outlines the results for the construction year with and without the project, peak hour with additional construction traffic from the project. Detailed modelling outputs are provided in **Appendix E**.

### Table 21: Construction 2023 without project – Traffic modelling results

| Approach | 2023 AM without project | | | | 2023 PM without project | | | |
|---|---|---|---|---|---|---|---|---|
| | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) |
| Elizabeth Drive (E) | 1,030 | A | 0.668 | 18.9 | 1,084 | A | 0.595 | 2.1 |
| Elizabeth Drive (W) | 1,328 | A | 0.735 | 0 | 1,010 | A | 0.553 | 0 |
| Clifton Avenue | 22 | F | > 1 | > 100 | 130 | F | > 1 | > 100 |

### Table 22: Construction 2023 with project – Traffic modelling results

| Approach | 2023 AM with project | | | | 2023 PM with project | | | |
|---|---|---|---|---|---|---|---|---|
| | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) |
| Elizabeth Drive (E) | 1,091 | F | > 1 | > 100 | 1,108 | A | 0.593 | 7.4 |
| Elizabeth Drive (W) | 1,389 | A | 0.773 | 0 | 1,034 | A | 0.572 | 0 |

| Approach | 2023 AM with project | | | | 2023 PM with project | | | |
|---|---|---|---|---|---|---|---|---|
| | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) |
| Clifton Avenue | 70 | F | > 1 | > 100 | 252 | F | > 1 | > 100 |

The baseline scenario demonstrates both approaches on Elizabeth Drive operating efficiently, at a LoS A, during both peak hours. DoS of less than 0.8 s demonstrates there is capacity to accommodate additional demand at the intersection. However, the approach at Clifton Avenue is shown to be failing. A DoS of greater than1demonstrates the capacity of the approach has been exceeded and this is supported by a 95$^{th}$ percentile queue length of over 100m. This outcome is due to the comparatively high through movement on Elizabeth Drive which limits the ability of vehicles to gap seek when turning out of Clifton Avenue.

Table 22 suggests that the western approach on Elizabeth Drive is unlikely to be impacted by the additional construction vehicles from the project, with the approach continuing to operate at a LoS A in the AM and PM peak hours.

The eastern approach, however, fails in the AM peak hour with a LoS F and a DoS of over 1. This can be attributed to construction traffic turning right into Clifton Avenue from the Project and the M12Motorway site compounds. This causes the queue to extend beyond the length of the right turn bay (95th percentile queue of over 100m) and impact through movements along Elizabeth Drive westbound.

This impact will require appropriate mitigation measures to be implemented as part of the SSCTMP for compound C8 which will consider the full extent of Clifton Avenue. To develop appropriate mitigation measures stakeholder engagement will also be required with the M12 project team and TfNSW.

### 4.1.7 Impact assessment outcomes and significance

The construction impact assessment has identified several potential outcomes. These outcomes and their significance are outlined in Table 23 below.

**Table 23: Construction impact assessment outcomes and significance**

| Construction impacts | | |
|---|---|---|
| **Potential impact** | **Reference** | **Impact significance** |
| Congestion at the Clifton Avenue / Elizabeth Drive intersection due to construction traffic and volumes on through movements limiting gap acceptance | Clifton Avenue, Elizabeth Drive | High |
| Congestion related to traffic exceeding the estimated capacity on certain links | Elizabeth Drive, Cowpasture Road, Hume Highway | High |

| **Construction impacts** | | |
|---|---|---|
| Congestion related to traffic increasing by greater than 5% on certain links | Weir Road, Fourth Street, Farnsworth Avenue, Mulgoa Road, Greendale Road, Park Road, Clifton Avenue, Cross Street, Kensington Close, Feodore Drive, Frederick Road, Edensor Road, John Street. Bareena Street, Chancery Street, Gordon-street, Vine Street | Low |
| Temporary disruption to bus stops and routes along the construction corridor | Roads used by bus routes | Medium |
| Temporary removal of on-street parking along the construction corridor | Streets in urban areas | Low |
| Temporary road closures restricting access | Site compounds immediate vicinity | Low |
| Temporary disruption to footpaths and cycle routes | Cycle routes and streets in urban areas | Medium |
| Temporary impacts to dwelling and business access | All dwellings and businesses adjacent to the construction corridor (see sensitive receivers map) | Medium |

## 4.2 Operational impact assessment

Once in operation traffic impacts will be localised to the AWRC and several other locations where access will be required for inspections, maintenance and repairs.

It should be noted that the pipelines will not require any permanent staff. Regular routine inspections and maintenance will be undertaken twice a year with water quality sampling scheduled to occur quarterly. As the vehicle movements associated with these activities will be infrequent and spread across different sections of the pipeline alignments, the traffic impact on the road network is expected to be minimal and therefore has not been included in the operational assessment.

For this reason, the operational assessment focuses on a number of key intersections outlined below, as these intersections are expected to be used daily by staff and delivery vehicles accessing the AWRC. SIDRA intersection analysis was used to understand any adverse impacts on the following inetrseections:

- Clifton Avenue / Elizabeth Drive;
- Clifton Avenue / AWRC access road; and
- AWRC access road / unnamed access road.

### 4.2.1 Operational assessment criteria

The modelling parameters used to analyse the performance of any modelled intersections were:

**Level of Service (LoS)** - a measure that uses the average delay experienced by vehicles to categorically assign each approach and movement with a qualitative ordinal grade (A through F, with A being the best and F being the worst). *RMS Traffic Modelling Guidelines* indicate the average delay relating to each grade. This is outlined in Table 24. Generally, it is desirable to aim at achieving a LoS C or greater at all major road intersections. However, in practice, it is reasonable for some intersections to operate at LoS D at peak times.

**Table 24: Level of service grades / description**

| Grade | Average delay (seconds) | Description |
|---|---|---|
| A | Less than 14 | Good operation |
| B | 15 to 28 | Good with acceptable delays and spare capacity |
| C | 29 to 42 | Satisfactory |
| D | 43 to 56 | Operating near capacity |
| E | 57 to 70 | At capacity. At signals, incidents will cause excessive delays. Roundabouts required as other control mode |
| F | Greater than 71 | Unsatisfactory with excessive queuing |

**Degree of Saturation (DoS)** - a ratio of demand to capacity. A DoS of 1.0 indicates that the demand and capacity at an approach or intersection are equal. The *RMS Traffic Modelling Guidelines* outlines practical DoS for different intersection types. The desirable maximum DoS for different types of intersections are as follows:

- Signalised intersection – 0.9;
- Roundabout – 0.85; and
- Priority intersection – 0.8.

**95th percentile queue length** – this is the queue length that only has a 5% probability of being exceeded during the analysis time period. This parameter is used to calculate lane lengths but is not representative of a queue a normal driver would experience.

#### 4.2.1.1 Public transport

During construction, some bus stops along the pipeline alignment may be impacted and require temporary relocation. These impacts are more likely in the area to the east of the M7 Motorway where a large number of bus routes operate. All work sites within road corridors are anticipated to be temporary in nature and therefore impacts on public transport at any one location would likely be short lived.

Impacts to the occupancy of bus and rail services in the area is expected to be minimal. Workers may use these services to travel to different work sites, but the expected volume of workers are unlikely to have a notable impact.

Bus route 801 travels along Elizabeth Drive in locations that the traffic impact assessment has identified as being over capacity. This bus route may experience delays during construction of the project. It should be noted that the baseline assessment suggests this link would be congested without the project.

Section 5 in the Framework CTMP (**Appendix F**) provides further detail about managing impacts to public transport in construction.

#### 4.2.1.2 Walking and cycling

Impacts on walking and cycling west of the M7 motorway are expected to be minimal. Footpaths are only provided in urban centres and therefore construction of the pipeline within road corridors is less likely conflict with this provision. Construction traffic will be added to several cycle routes identified in Section 3.3.1 but this is not expected to restrict these routes.

To the east of the M7 motorway footpaths are provided on most streets and therefore any construction within road corridors is likely to impact this provision. Similar impacts would apply to cycling routes outlined in Section 3.3.2.

Details on how impacts to walking and cycling will be managed in construction are provided in Section 5 of the Framework CTMP (**Appendix F**).

#### 4.2.1.3 Parking, Access and Road closures

Construction within road corridors may impact on-street parking in urban areas and restrict access to various businesses and dwellings along the pipeline alignment.

A range of sensitive receivers in the vicinity of the project have been identified due to potential impacts to access. The sensitive receiver map can be found in the Social Impact Assessment component of the EIS. The project will aim to maintain access to all businesses and dwellings. Where access must be restricted temporarily appropriate mitigation measures would be agreed with the appropriate stakeholders.

Although no permanent road closures are planned as part of the works it is likely there will be instances where roads may need to be shut temporarily to manoeuvre larger plant.

The relevant state and local authorities will need to be engaged in the case of any road closures or Road Occupancy Licences (ROLs). Section 6 in the Framework CTMP provides further detail around these requirements and which authorities to engage for different areas of the corridor.

### 4.2.2 Operational traffic generation

In operation, the pipelines will require routine inspections, maintenance and repairs. It is expected that vehicles will access the following locations:

- AWRC;
- Environmental flow release structure;
- Flow split valve site;
- Treated water release structure; and
- Brine link release.

The locations of these facilities are presented on Figure 18. Occasional access to other locations may be required for routine inspections, maintenance purposes, water quality sampling or to fix issues with the pipeline. Although these activities will all generate traffic movements, inspections are expected to occur twice a year, with water quality occurring quarterly by a small number of workers and so the infrequent vehicle movements are likely to have a negligible impact on the surrounding road network. The piece of infrastructure that will generate consistent traffic in operation is the AWRC. Therefore, only traffic relating to the AWRC has been assessed for the operational phase.

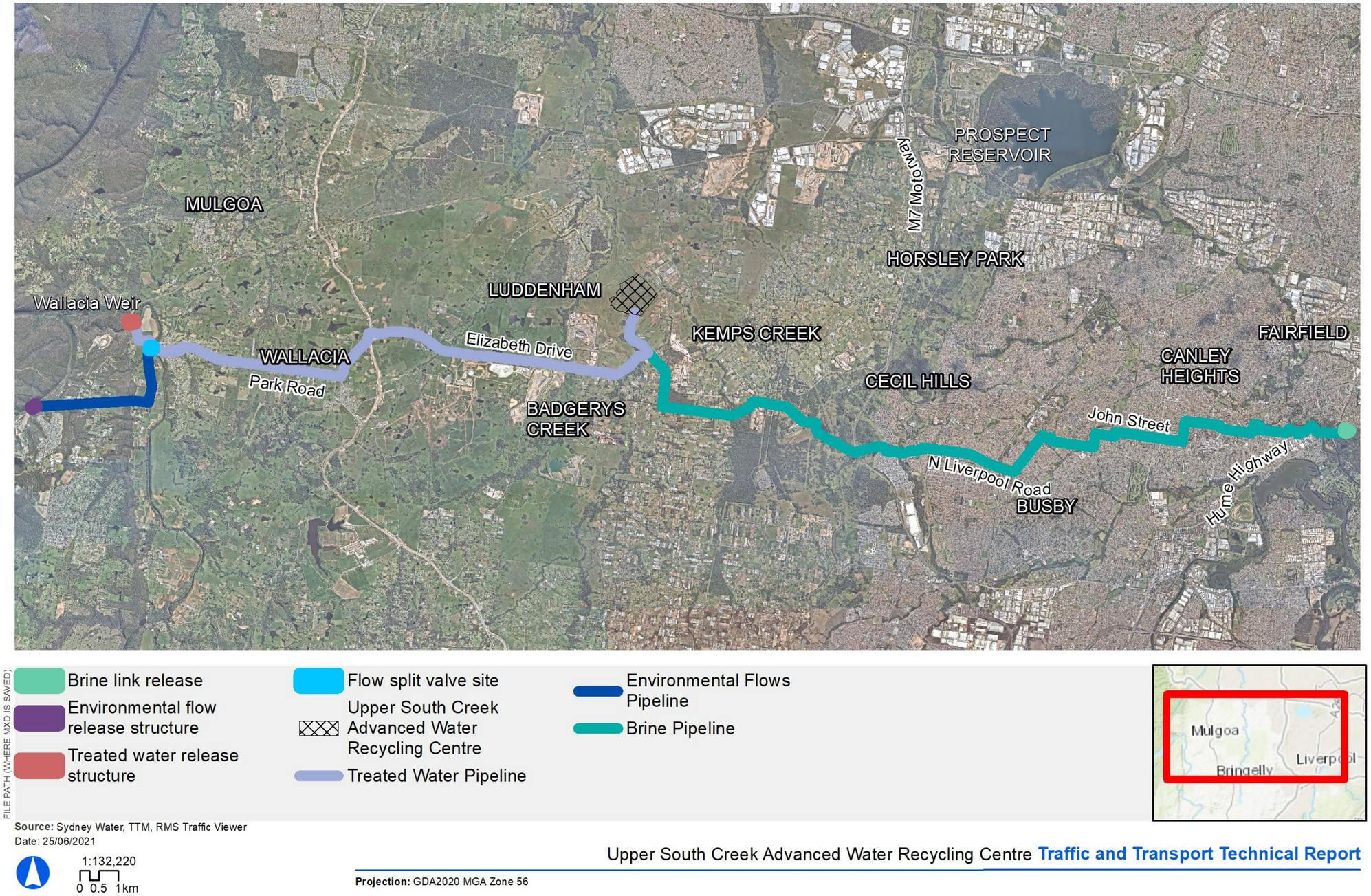



**Figure 18: Operational facilities that require vehicle access**

The AWRC will be operational 24/7 with vehicle movements consisting of staff, material removal, chemical deliveries and general maintenance requirements. It is expected that the AWRC will require up to 15 staff on site during the operation of Stage 1. The majority of staff movements are expected to occur between standard hours of operation, Monday to Friday 7 am to 5 pm. A small number of staff will be present outside work hours in order to run the AWRC.

The daily trips during operation are presented in Table 25. These vehicle movements reflect the peak daily volumes, to ensure the assessment is robust despite a number of activities occurring once a week or fortnight.

**Table 25: AWRC daily traffic movements in operation**

| Activity | Vehicle type | Total daily trip generation (two-way) |
|---|---|---|
| Biosolids outload (50 ML) | Heavy vehicle | 2 |
| Screening removal | Heavy vehicle | 1 |
| Grit removal | Heavy vehicle | 1 |
| Other deliveries (50ML) | Heavy vehicle | 7 |
| Staff trips | Light vehicle | 10 |

The majority of staff are expected to arrive between 6 am and 9 am and depart between 4 pm and 7 pm aligning with the standard hours of operation. Servicing vehicles may arrive at any time throughout the work day but could arrive as early as 6 am.

#### 4.2.2.1 100ML Concept Assessment

There are plans to expand the AWRC to an annual capacity of up to 100ML as the population in Western Sydney grows. An estimation has been made regarding the traffic generation of the future facility. Given the facility will have twice the capacity it is estimated it would produce twice the traffic. A summary of the estimated traffic generation related to the 100ML facility is presented in Table 26.

**Table 26: AWRC daily traffic movements in operation**

| Activity | Vehicle type | Total daily trip generation (two-way) |
|---|---|---|
| Biosolids outload (100 ML) | Heavy vehicle | 4 |
| Screening removal | Heavy vehicle | 2 |
| Grit removal | Heavy vehicle | 2 |
| Other deliveries (100ML) | Heavy vehicle | 14 |
| Staff trips | Light vehicle | 20 |

### 4.2.3 Operational traffic distribution

The key intersections which provide access to the AWRC are as follows:

- Clifton Avenue / Elizabeth Drive;
- Clifton Avenue / AWRC access road; and
- AWRC access road / unnamed access road.

The likely impacts of the AWRC operational traffic on these intersections has been assessed.

#### 4.2.3.1 AWRC access road/ unnamed access road.

This intersection and AWRC access road will be built by Sydney Water as part of the AWRC and operate as a give-way intersection. Note that the extent of the AWRC access road is not within the scope of this EIS. Traffic volumes on the AWRC access road will relate to the facility, a number of private properties and access to the parkland area. The give-way arrangement will appropriately accommodate the daily traffic volumes forecasted for the AWRC (23 two-way trips) and additional background flows. Traffic volumes is not expected to exceed the capacity of this link. Kerb lines for this arrangement will be designed to accommodate larger vehicles associated with chemical deliveries and biosolid outloads.

#### 4.2.3.2 Clifton Avenue/ AWRC access road

Existing peak hour volumes range from 20-30 vehicles in each direction on Clifton Avenue. The addition of operational traffic relating to the AWRC will significantly increase traffic on Clifton Avenue, however, overall flows will be within the estimated capacity of this link. The give-way arrangement with the AWRC access road will be sufficient to accommodate the expected traffic movements. Kerb lines for this arrangement will be designed to accommodate larger vehicles associated with chemical deliveries and biosolid outloads.

#### 4.2.3.3 Elizabeth Drive / Clifton Avenue

The give-way intersection of Elizabeth Drive / Clifton Avenue connects the AWRC to the arterial road network. Traffic modelling was undertaken for this intersection as it will be the key pinch point for vehicle access to the AWRC.

The traffic survey undertaken in March 2020 at the Clifton Avenue/ Elizabeth Drive intersection indicated low traffic volumes on Elizabeth Drive due to COVID-19. In order to account for the impacts of COVID-19, the following methodology was developed to derive appropriate traffic volumes for the intersection:

1. Calculate turning proportions for the intersection using 2020 traffic survey data;
2. Extract appropriate traffic volumes for Elizabeth Drive from historic traffic surveys provided by RMS. As several surveys were available the survey with the highest volumes was selected;
3. Apply turning proportions from Step 1 to the link volumes from Step 2;
4. Apply the growth factor outlined in Section 2.4.4 to uplift the volumes from Step 3 to the operational year of 2025. This formed the 'Without Project' scenario; and
5. Add AWRC operational volumes to the 'Without project' scenario to ascertain any impacts relating to the project.

The baseline traffic flows for the operational year at this intersection are presented in Table 27 and Table 28. Traffic flows are presented as origin-destination matrices so turning movements can be observed.

**Table 27: Operation - 2025 baseline traffic (AM peak)**

| | Elizabeth Drive, west of Clifton Avenue | Elizabeth Drive, east of Clifton Avenue | Clifton Avenue |
|---|---|---|---|
| **Elizabeth Drive, west of Clifton Avenue** | - | 1,279 | 59 |
| **Elizabeth Drive, east of Clifton Avenue** | 973 | - | 75 |

| | Elizabeth Drive, west of Clifton Avenue | Elizabeth Drive, east of Clifton Avenue | Clifton Avenue |
|---|---|---|---|
| **Clifton Avenue** | 6 | 16 | - |

**Table 28: Operation - 2025 baseline traffic (PM peak)**

| | Elizabeth Drive, west of Clifton Avenue | Elizabeth Drive, east of Clifton Avenue | Clifton Avenue |
|---|---|---|---|
| **Elizabeth Drive, west of Clifton Avenue** | - | 1,001 | 10 |
| **Elizabeth Drive, east of Clifton Avenue** | 1,048 | - | 19 |
| **Clifton Avenue** | 61 | 69 | - |

## 4.2.4 Transport network impacts

This section details the impacts of the operational phase on the surrounding transport network.

### 4.2.4.1 Traffic impacts

SIDRA traffic modelling was undertaken to assess the Elizabeth Drive / Clifton Avenue intersection. The existing layout for this intersection is presented in Figure 19.

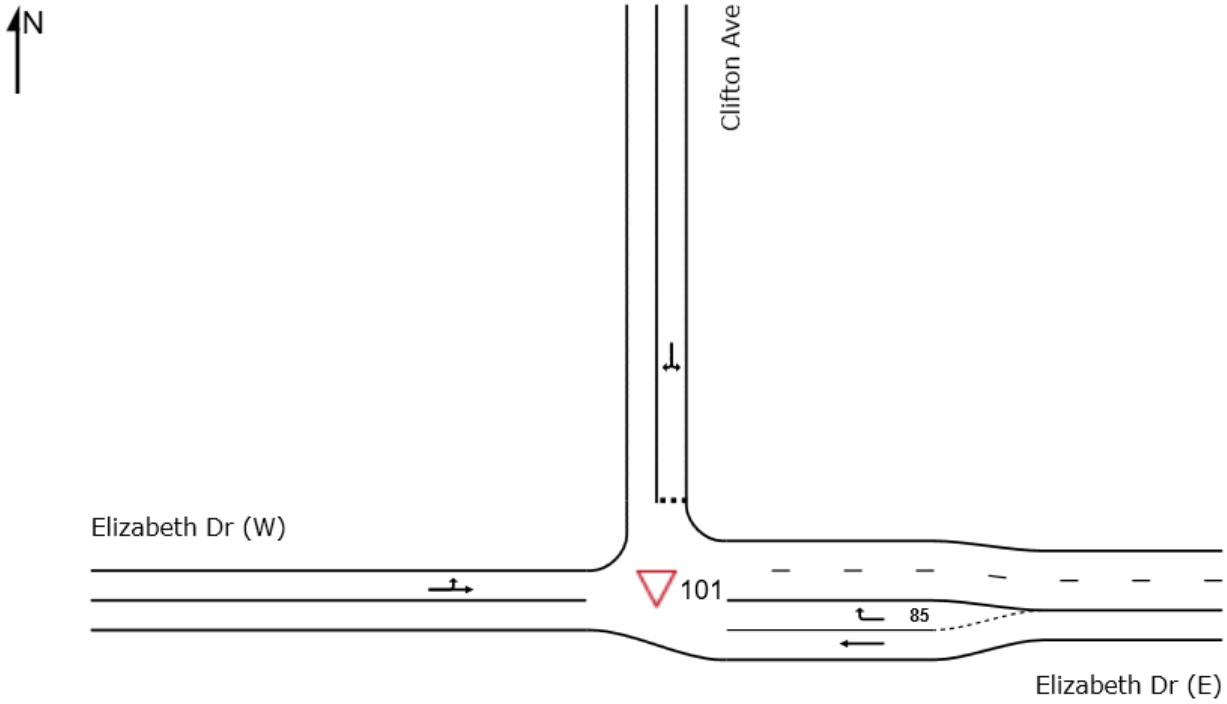



**Figure 19: Elizabeth Drive / Clifton Avenue intersection layout**

#### 4.2.4.2 Traffic modelling results

Table 29 and Table 30 summarise the modelling results for the operational year, 2025, with and without the project. Detailed modelling outputs are provided in **Appendix E**. It should be noted that construction traffic related to the M12 Motorway, WSA and Sydney Metro WSA projects was considered as part of the traffic modelling as construction it expected to continue throughout the year 2025.

**Table 29: Operation 2025 without project – Traffic modelling results**

| Approach | 2025 AM without project | | | | 2025 PM without project | | | |
|---|---|---|---|---|---|---|---|---|
| | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) |
| Elizabeth Drive (E) | 1,048 | A | 0.707 | 20.4 | 1,067 | A | 0.585 | 2.1 |
| Elizabeth Drive (W) | 1,338 | A | 0.740 | 0 | 1,011 | A | 0.554 | 0 |
| Clifton Avenue | 22 | F | > 1 | > 100 | 130 | F | > 1 | > 100 |

**Table 30: Operation 2025 with project – Traffic modelling results**

| Approach | 2025 AM without project | | | | 2025 PM with project | | | |
|---|---|---|---|---|---|---|---|---|
| | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) | Traffic volume (veh/hr) | LoS | DoS | 95%tile queue (m) |
| Elizabeth Drive (E) | 1,052 | A | 0.793 | 25.3 | 1,069 | A | 0.586 | 2.6 |
| Elizabeth Drive (W) | 1,342 | A | 0.743 | 0 | 1,013 | A | 0.555 | 0 |
| Clifton Avenue | 26 | F | > 1 | > 100 | 138 | F | > 1 | > 100 |

The results from the AM and PM peak hour demonstrate that Elizabeth Drive will continue to operate efficiently upon the opening of the facility shown through a LoS A, a low queue length (25m) and DoS of 0.8 which is typically acceptable for a priority intersection. It should be noted that the right turn movement on the east of Elizabeth Drive is shown to be operating at LoS F, however, the 95$^{th}$ percentile queue length of 25m is still within the capacity of the turn. This issue is consistent in both the with and without project scenarios.

The approach at Clifton Avenue is shown to be operating at LoS F, due to the high traffic volumes on Elizabeth Drive in both directions which inhibit vehicles at the Clifton Avenue approach. Similar to the eastern approach on Elizabeth Drive, this issue is consistent in both the with and without project scenarios. TfNSW will be engaged to understand the future arrangements for Elizabeth Drive and how this may impact access to the AWRC in the future.

#### 4.2.4.3 Future transport corridors

A range of existing and future transport corridors exist in the vicinity of the project. These are described in more detail in Section 3.4. Operation of the project will add a small amount of traffic to the surrounding network, associated with workers at the AWRC and vehicle accessing other parts of the pipeline. The level of traffic generated is not expected to have large impacts on any of the future transport schemes identified in this report.

#### 4.2.4.4 Western Sydney Airport

A small number of vehicles will be added to the surrounding network during the operation of the project. It is expected that the project is unlikely to impact the operation of the Western Sydney Airport as access to the AWRC will be maintained via Clifton Avenue which will be separate to the M12, the main road connection to the airport.

#### 4.2.4.5 Public transport

Operation of the project will generate a minimal number of additional vehicles on the road. As a result, the project is not expected to impact the travel time of buses or the operation of strategic bus corridors in the vicinity of the project. Due to its location, the AWRC is unlikely to attract many trips via public transport as the nearest bus stop is not within walkable distance.

#### 4.2.4.6 Walking and cycling

The existing walking and cycling routes in the area are limited and fragmented. Currently, there are various safety issues associated with walking and cycling west of the M7 Motorway, due to a lack of facilities, i.e. footpaths and bicycle paths, and proximity to high volumes of fast-moving traffic. With the small number of trips added to the network during operation of the project, it is not expected that the walking and cycling routes will be impacted.

The Penrith City Council (PCC) DCP specifies that bicycle parking is only required for workplaces with greater than 20 staff and therefore the AWRC is not required to provide these facilities. It is still recommended that end of trip facilities and a small number of cycle parking spaces are provided. These will be integrated into the design for the facility as it develops.

### 4.2.5 Access arrangements

In operation, there are several sites that will require regular vehicle access to facilitate the day to day operations of the project. The locations of these facilities are listed below and presented on Figure 18:

- AWRC;
- Environmental flow release structure;
- Flow split valve site;
- Treated water release structure; and
- Brine link release.

#### 4.2.5.1 AWRC

Internal roads within the AWRC will be one lane in each direction, facilitating circulation around each of the facilities within the 50 ML plant area.

The administration building and car park are situated near the entrance to the site, on the south-eastern extent of the AWRC. The PCC DCP states business or office premises are required to provide 1 bay per 40m$^2$ Gross Floor Area (GFA). To align with this standard, the parking requirement for the administration building would be 22 parking spaces.

However, due to the unique nature of the land use of the site, a first principles approach has been used to determine an appropriate parking quantum for the facility. The AWRC is expected to have 10 Full Time Equivalent (FTE) staff plus contractors visiting the site on an irregular basis. It is proposed that 10 spaces are provided for FTE staff plus five for contractors. This would mean 15 parking spaces are required in total.

Although not required to align the PCC DCP, end of trip facilities should be provided in the administration building, providing an opportunity for staff to access the facility via active transport modes.

#### 4.2.5.2 Environmental flow release structure

The release structure will be located between Core Park Road and Warragamba River, to the east of the Warragamba Dam wall and access will be provided via Core Park Road. This road will be maintained by Sydney Water who has operational access up to the Dam spillway. Permanent access from a sealed access track at the end of Core Park Road to the release structure will be required. All vehicles accessing Core Park Road will need to travel through the Warragamba town centre. Vehicle movements to and from the release structure are expected to be infrequent and likely to have a negligible impact on the surrounding network.

#### 4.2.5.3 Flow split valve site

The Flow split valve site is located between Nepean River and Bent Basin Road, opposite Fowler Reserve in Wallacia. Access to the site will be via Bents Basin Road, to the south of Silverdale Road. Bents Basin Road is a local road which currently provides access to several properties in Wallacia.

#### 4.2.5.4 Treated water release structure

The treated water release structure is located between the Nepean River and Silverdale Road. Access to the release structure will be via an easement on private property adjacent to Silverdale Road.

#### 4.2.5.5 Brine link release

The Brine link release will be located within Lansdowne Reserve. Access to the site will be via Lansdowne Road and Tillett Parade, which are accessed via the Hume Highway.

### 4.2.6 Impact assessment outcomes and significance

The operational impact assessment has identified a potential outcome which is outlined in Table 31.

### Table 31: Operational assessment outcomes and significance

| Operational impacts | | |
|---|---|---|
| **Potential impact** | **Reference** | **Impact significance** |
| Clifton Avenue approach is operating at a LoS F with through flows restricting movements at peak times | Intersection of Clifton Avenue and Elizabeth Drive | Medium |

# 5 Proposed mitigation measures

This section outlines potential mitigation measures required to minimise the impacts of the project within the study area.

## 5.1 Mitigation of construction impacts

The SSCTMPs will define the appropriate measures to mitigate the impacts of the project on the transport network during construction. These measures will be driven by the controls outlined in the Framework CTMP.

The impacts of the facility on the transport network during construction will be mitigated using the measures outlined in Table 32.

**Table 32: Mitigation and effectiveness - Construction**

| **Project specific mitigation measures – construction** | | |
|---|---|---|
| Potential Impact | Mitigation measure | Impact significance following mitigation |
| Congestion at the Clifton Avenue / Elizabeth Drive intersection due to construction traffic and volumes on through movements limiting gap acceptance | Liaise with TfNSW and the M12 project team to develop an appropriate solution for the intersection through the C8 SSCTMP<br>Schedule deliveries outside of peak times<br>All construction related vehicles to use the Elizabeth Drive / Clifton Avenue intersection as left in / left out only<br>Consideration of a potential connection from Salisbury Avenue to Clifton Avenue<br>Consolidation of construction movements from the Project and the M12 Motorway works | Medium |
| Congestion related to traffic exceeding the estimated capacity on certain links | Construction traffic management measures to be implemented as part of SSCTMPs compliant with controls outlined in the CTMP | Medium |
| Congestion related to traffic increasing by greater than 5% on certain links | Construction traffic management measures to be implemented as part of SSCTMPs compliant with controls outlined in the Framework CTMP | Low |
| Temporary disruption to bus stops and routes along the construction corridor | Liaison with state authorities, local councils, stakeholders and operators to develop temporary solutions | Low |

| **Project specific mitigation measures – construction** | | |
|---|---|---|
| Potential Impact | Mitigation measure | Impact significance following mitigation |
| Temporary removal of on-street parking along the construction corridor | Liaison with local councils and stakeholders to develop temporary solutions | Low |
| Temporary road closures restricting access | Liaison with state authorities, local councils and stakeholders to develop temporary solutions | Low |
| Temporary disruption to footpaths and cycle routes | Liaison with local councils and stakeholders to develop temporary solutions | Low |
| Temporary impacts to dwelling and business access | Liaison with local councils and stakeholders to develop temporary solutions | Low |

## 5.2 Mitigation of operational impacts

The impacts of the facility on the transport network during operation will be mitigated using the measures outlined in Table 33:

**Table 33: Mitigation and effectiveness - Operation**

| **Project specific mitigation measures – Operation** | | |
|---|---|---|
| Potential Impact | Mitigation measure | Impact significance following mitigation |
| Clifton Avenue approach is operating at a LoS F with through flows restricting movements at peak times | Implement appropriate intersection controls or routing that ties into the future Elizabeth Drive upgrade<br>Develop a Green Travel Plan to encourage workers to travel using sustainable transport modes<br>Schedule deliveries outside of peak times and consolidate movements for the Project and M12 Motorway | Medium |

# Appendix A - Road hierarchy

| Link road hierarchy | |
|---|---|
| **Link** | **Classification** |
| Weird Road | Local road |
| Fourth Street | Local road |
| Farnsworth Avenue | Local road |
| Silverdale Road | Sub-arterial road |
| Mulgoa Road | Sub-arterial road |
| Greendale Road | Collector road |
| Park Road | Sub-arterial road |
| The Northern Road | Arterial Road |
| Elizabeth Drive | Arterial Road |
| Western Road | Local road |
| Clifton Avenue | Local road |
| Cross Street | Local road |
| Kensington Close | Local road |
| Stirling Street | Local road |
| Feodore Drive | Local road |
| Frederick Road | Local road |
| Cowpasture Road | Arterial road |
| North Liverpool Road | Sub-arterial road |
| Montgomery Road | Collector road |
| Monash Place | Local road |
| Hebblewhite Place | Local road |
| Cabramatta Road | Arterial road |
| Meadows Road | Sub-arterial road |
| Edensor Road | Collector road |
| John Street | Local road |
| Gladstone Street | Sub-arterial road |
| Bartley Street | Sub-arterial road |
| Railway Parade | Sub-arterial road |
| Curtin Street | Local road |
| Fairview Road | Local road |
| Bareena Street | Sub-arterial road |
| Chancery Street | Sub-arterial road |

| Link road hierarchy | |
|---|---|
| Bromley Street | Local road |
| Beckenham Street | Local road |
| Willowbank Crescent | Local road |
| Hume Highway | Arterial road |
| Knight Street | Local road |
| The Horsley Drive | Arterial road |
| Gordon-street | Sub-arterial road |
| Vine Street | Sub-arterial road |
| Dale Street | Local road |
| Wilga Street | Local road |
| North Street | Local road |
| East Parade | Local road |
| Lansdowne Road | Local road |
| Tillett Parade | Local road |

# Appendix B - Traffic survey locations

| Traffic survey locations | |
|---|---|
| **Number** | **Location** |
| 1 | Elizabeth Drive/ Wallgrove Road/ M7 NB Off-ramp |
| 2 | Elizabeth Drive/ Mamre Road |
| 3 | Elizabeth Drive/ Devonshire Road |
| 4 | Elizabeth Drive/ Clifton Avenue |
| 5 | Elizabeth Drive/ Western Road |
| 6 | Elizabeth Drive/ Luddenham Road |
| 7 | The Northern Road/ Elizabeth Drive |
| 8 | The Northern Road/ Park Road |
| 9 | Park Road/ Campbell Street |
| 10 | Mulgoa Road, north of Park Road |
| 11 | Silverdale Rd, between Mulgoa Road and Bents Basin Road |
| 12 | Farnsworth Avenue, south of Silverdale Road |
| 13 | Cowpasture Road between Mount Street and Gloucester Street |
| 14 | North Liverpool Road between Currawong Street and Whitford Road |
| 15 | Montgomery Road between Bimbi Place and Brown Road |
| 16 | Cabramatta Road between Katinka Street and Humphries Road |
| 17 | Meadows Road between Edensor Road and Moonshine Avenue |
| 18 | Edensor Road between Katrina Crescent and Yvonne Street |
| 19 | John Street between Water Street and High Street |
| 20 | Gladstone Street between Hughes Street and McBurney Road |
| 21 | Bartley Street between Gilmore Street and Park Road |
| 22 | Railway Parade between Bartley Street and Bareena Street |
| 23 | Bareena Street between Fairview Road and Vale Street |
| 24 | Chancery Street between Munro Street and Bruton Way |
| 25 | Hume Highway just east of Henry Lawson Drive |
| 26 | Hume Highway between Knight Street and Quest Avenue |
| 27 | The Horsley Drive between Alan Street and Fairfield Street |

# Appendix C - Traffic survey data

| Location | Source | Direction | Traffic flows | | |
|---|---|---|---|---|---|
| | | | Average daily | AM peak hour | PM peak hour |
| Farnsworth Avenue | Traffic survey (2020) | Northbound | 1,123 | 73 | 114 |
| | | Southbound | 1,097 | 103 | 91 |
| Silverdale Road | Traffic survey (2020) | Eastbound | 5,382 | 588 | 358 |
| | | Westbound | 5,984 | 337 | 695 |
| Mulgoa Road | Traffic survey (2020) | Northbound | 3,805 | 413 | 261 |
| | | Southbound | 3,993 | 237 | 464 |
| Park Road (between Greendale Road and Campbell Street) | RMS survey (2015) | Eastbound | 2,772 | 463 | 185 |
| | | Westbound | 2,429 | 124 | 360 |
| Park Road (between Campbell Street and The Northern Road) | RMS survey (2015) | Eastbound | 2,473 | 413 | 152 |
| | | Westbound | 2,386 | 119 | 352 |
| The Northern Road (between Park Road and Elizabeth Drive) | RMS survey (2015) | Northbound | 6,268 | 658 | 693 |
| | | Southbound | 6,324 | 425 | 833 |
| Elizabeth Drive (between The Northern Road and Luddenham Road) | RMS survey (2015) | Eastbound | 3,896 | 713 | 254 |
| | | Westbound | 4,318 | 396 | 627 |
| Elizabeth Drive (between Luddenham Road and Western Road) | RMS survey (2015) | Eastbound | 5,487 | 968 | 404 |
| | | Westbound | 5,758 | 328 | 847 |
| Elizabeth Drive (between Western Road and Clifton Avenue) | RMS survey (2015) | Eastbound | 5,994 | 1,017 | 449 |
| | | Westbound | 6,045 | 347 | 859 |
| Clifton Avenue | Traffic survey (2020) | Northbound | - | 22 | 15 |
| | | Southbound | - | 14 | 28 |
| Western Road (between Elizabeth Drive and Cross Street) | RMS survey (2015) | Northbound | 1,202 | 137 | 135 |
| | | Southbound | 985 | 91 | 112 |
| Elizabeth Drive (between Clifton Avenue and Devonshire Road) | RMS survey (2015) | Eastbound | 7,077 | 1,095 | 600 |
| | | Westbound | 7,260 | 511 | 1,018 |
| Elizabeth Drive (between Devonshire Road and Wallgrove Road) | RMS survey (2015) | Eastbound | 11,112 | 1,562 | 893 |
| | | Westbound | 11,268 | 857 | 1,524 |

| Location | Source | Direction | Traffic flows | | |
|---|---|---|---|---|---|
| | | | Average daily | AM peak hour | PM peak hour |
| Elizabeth Drive (between the M7 Motorway and Cabramatta Road West) | RMS survey (2017) | Eastbound | 13,205 | 1,314 | 1,352 |
| | | Westbound | 12,647 | 1,296 | 1,232 |
| Cowpasture Road (between Elizabeth Drive and Frederick Road) | Traffic survey (2020) | Northbound | 19,955 | 1,631 | 1,272 |
| | | Southbound | 19,176 | 1,033 | 1,708 |
| North Liverpool Road (between Cowpasture Road and Montgomery Road) | Traffic survey (2020) | Eastbound | 5,954 | 423 | 561 |
| | | Westbound | 4,475 | 321 | 356 |
| Montgomery Road (between Elizabeth Drive and North Liverpool Road) | Traffic survey (2020) | Northbound | 4,377 | 433 | 319 |
| | | Southbound | 3,517 | 234 | 387 |
| Cabramatta Road West (between Elizabeth Drive and Meadows Road) | Traffic survey (2020) | Eastbound | 6,408 | 410 | 433 |
| | | Westbound | 8.013 | 475 | 748 |
| Meadows Road (between Cabramatta Road West and Edensor Road) | Traffic survey (2020) | Northbound | 5,275 | 373 | 404 |
| | | Southbound | 4,077 | 273 | 366 |
| Edensor Road (between Meadows Road and Harrington-street) | Traffic survey (2020) | Eastbound | 5,032 | 426 | 360 |
| | | Westbound | 4,608 | 297 | 432 |
| John Street (between Harrington-street and Gladstone Street) | Traffic survey (2020) | Eastbound | 3,660 | 387 | 271 |
| | | Westbound | 4,380 | 275 | 455 |
| Gladstone Street (between John Street and St Johns Road) | Traffic survey (2020) | Northbound | 5,437 | 366 | 434 |
| | | Southbound | 5,140 | 326 | 470 |
| Bartley Street (between Sackville Street and Railway Parade) | Traffic survey (2020) | Eastbound | 3,461 | 262 | 225 |
| | | Westbound | 3,611 | 235 | 332 |
| Railway Parade (between Bartley Street to Bareena Street) | Traffic survey (2020) | Northbound | 7,323 | 476 | 564 |
| | | Southbound | 7,366 | 468 | 634 |
| Bareena Street (between Broomfield Street and Vale Street) | Traffic survey (2020) | Eastbound | 3,267 | 203 | 227 |
| | | Westbound | 3,306 | 183 | 296 |
| | | Eastbound | 2,772 | 188 | 184 |

| Location | Source | Direction | Traffic flows | | |
|---|---|---|---|---|---|
| | | | Average daily | AM peak hour | PM peak hour |
| Chancery Street (between Vale Street and Lansdowne Road) | Traffic survey (2020) | Westbound | 3,015 | 165 | 281 |
| Hume Highway (between Lansdowne Road and Henry Lawson Drive) | Traffic Volume Viewer (2018) | Eastbound | 32,373 | 2,302 | 2,004 |
| | | Westbound | 33,471 | 1,715 | 2,584 |
| Hume Highway (between Henry Lawson Drive and Derribong Street) | Traffic Volume Viewer (2018) | Eastbound | 26,857 | 1,781 | 1,843 |
| | | Westbound | 27,101 | 1,621 | 1,945 |
| The Horsley Drive (between Gordon-street and Hume Highway) | Traffic Volume Viewer (2018) | Northbound | 23,350 | 1,262 | 1,750 |
| | | Southbound | 24,024 | 1,596 | 1,714 |

# Appendix D - 'Without project' and 'with project' traffic flows

| Road | AM Peak baseline traffic ('Without Project' scenario) | | | | AM Peak 'With Project' scenario | |
|---|---|---|---|---|---|---|
| | Existing | Year | 2023 | 2025 | 2023 | 2025 |
| Weird Road (between Core Park Road and Fourth Street) | 265 | 2020 | 279 | 296 | 351 | 296 |
| Fourth Street (between Weir Road and Farnsworth Avenue) | 265 | 2020 | 279 | 296 | 351 | 296 |
| Farnsworth Avenue (between Fourth Street and Silverdale Road) | 265 | 2020 | 279 | 296 | 351 | 296 |
| Silverdale Road (between Farnsworth Avenue and Mulgoa Road) | 1,395 | 2020 | 1,465 | 1,555 | 1,537 | 1,555 |
| Mulgoa Road (between Roscrea Drive and Silverdale Road) | 980 | 2020 | 1,029 | 1,092 | 1,101 | 1,092 |
| Greendale Road (between Park Road and Davenport Drive) | 980 | 2020 | 1,029 | 1,092 | 1,101 | 1,092 |
| Park Road (between Mulgoa Road and site compound C5) | 587 | 2015 | 744 | 790 | 816 | 790 |
| Park Road (between site compound C5 and Campbell Street) | 587 | 2015 | 744 | 790 | 1,013 | 790 |
| Park Road (between Campbell Street and The Northern Road) | 531 | 2015 | 674 | 715 | 943 | 715 |
| The Northern Road (between Park Road and Elizabeth Drive) | 1,083 | 2015 | 1,970 | 2,054 | 2,239 | 2,054 |
| Elizabeth Drive (between The Northern Road and Luddenham Road) | 1,109 | 2015 | 2,132 | 2,219 | 2,401 | 2,219 |
| Elizabeth Drive (between Luddenham Road and Western Road) | 1,296 | 2015 | 2,303 | 2,404 | 2,502 | 2,404 |
| Elizabeth Drive (between Western Road and Clifton Avenue) | 1,364 | 2015 | 2,760 | 2,867 | 2,981 | 2,877 |
| Western Road (between Elizabeth Drive and Cross Street) | 228 | 2015 | 289 | 306 | 510 | 316 |
| Clifton Avenue | 54 | 2020 | 112 | 115 | 333 | 125 |
| Cross Street (east of Western Road) | 228 | 2015 | 289 | 306 | 311 | 306 |

| Road | AM Peak baseline traffic ('Without Project' scenario) | | | | AM Peak 'With Project' scenario | |
|---|---|---|---|---|---|---|
| | Existing | Year | 2023 | 2025 | 2023 | 2025 |
| Elizabeth Drive (between Clifton Avenue and Devonshire Road) | 1,605 | 2015 | 2,942 | 3,067 | 2,964 | 3,067 |
| Elizabeth Drive (between Devonshire Road and compound C9) | 2,419 | 2015 | 3,974 | 4,163 | 3,996 | 4,163 |
| Elizabeth Drive (between compound C9 and the M7 Motorway) | 2,419 | 2015 | 3,490 | 3,679 | 3,566 | 3,679 |
| Kensington Close (west of Stirling Street) | 998 | 2020 | 1,048 | 1,113 | 1,124 | 1,113 |
| Stirling Street (between Kensington Close and Feodore Drive) | 998 | 2020 | 1,048 | 1,113 | 1,124 | 1,113 |
| Feodore Drive (between Stirling Street and Frederick Road) | 998 | 2020 | 1,048 | 1,113 | 1,124 | 1,113 |
| Frederick Road (between Spencer Road and Cowpasture Road) | 998 | 2020 | 1,048 | 1,113 | 1,124 | 1,113 |
| Elizabeth Drive (between the M7 Motorway and Cabramatta Road West) | 2,610 | 2017 | 3,542 | 3,734 | 3,596 | 3,734 |
| Cowpasture Road (between Elizabeth Drive and North Liverpool Road) | 4,018 | 2020 | 4,639 | 4,898 | 4,715 | 4,898 |
| North Liverpool Road (between Cowpasture Road and Montgomery Road) | 1,122 | 2020 | 1,178 | 1,250 | 1,232 | 1,250 |
| Montgomery Road (between Elizabeth Drive and North Liverpool Road) | 1,006 | 2020 | 1,056 | 1,121 | 1,110 | 1,121 |
| Monash Place (north of Elizabeth Drive) | 998 | 2020 | 1,048 | 1,113 | 1,102 | 1,113 |
| Hebblewhite Place (east of Monash Place) | 998 | 2020 | 1,048 | 1,113 | 1,102 | 1,113 |
| Cabramatta Road West (between Elizabeth Drive and Meadows Road) | 1,335 | 2020 | 1,401 | 1,487 | 1,455 | 1,487 |
| Meadows Road (between Edensor Road and Cabramatta Road West) | 974 | 2020 | 1,023 | 1,086 | 1,077 | 1,086 |
| Edensor Road (between Meadows Road and Harrington-street) | 1,090 | 2020 | 1,145 | 1,215 | 1,255 | 1,215 |

| Road | AM Peak baseline traffic ('Without Project' scenario) | | | | AM Peak 'With Project' scenario | |
|---|---|---|---|---|---|---|
| | Existing | Year | 2023 | 2025 | 2023 | 2025 |
| John Street (between Harrington-street and Gladstone Street) | 998 | 2020 | 1,048 | 1,113 | 1,158 | 1,113 |
| Gladstone Street (between John Street and St Johns Road) | 1,044 | 2020 | 1,096 | 1,163 | 1,152 | 1,163 |
| Bartley Street (between St Johns Road and Railway Parade) | 750 | 2020 | 787 | 835 | 843 | 835 |
| Railway Parade (between Bartley Street and Bareena Street) | 1,424 | 2020 | 1,495 | 1,587 | 1,551 | 1,587 |
| Curtin Street (between Broomfield Street and Fairview Road) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |
| Fairview Road (between Bareena Street and Curtin Street) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |
| Bareena Street (between Fairview Road and Vale Street) | 582 | 2020 | 611 | 649 | 667 | 649 |
| Chancery Street (between Vale Street and Lansdowne Road) | 532 | 2020 | 559 | 593 | 615 | 593 |
| Bromley Street (between Lansdowne Road and Beckenham Street) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |
| Beckenham Street (between Bromley Street and Willowbank Crescent) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |
| Willowbank Crescent (south of Beckenham Street) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |
| Hume Highway (between Lansdowne Road and The Horsley Drive) | 4,017 | 2018 | 4,662 | 4,948 | 4,718 | 4,948 |
| Knight Street (south of the Hume Highway) | 998 | 2018 | 1,048 | 1,113 | 1,104 | 1,113 |
| Hume Highway (between The Horsley Drive and Lansdown Road) | 3,402 | 2018 | 3,948 | 4,191 | 4,004 | 4,191 |
| The Horsley Drive (between Gordon-street and Hume Highway) | 2,858 | 2018 | 3,317 | 3,521 | 3,373 | 3,521 |
| Gordon-street (between Vine Street and The Horsley Drive) | 582 | 2020 | 611 | 649 | 667 | 649 |
| Vine Street (between Dale Street and Gordon-street) | 582 | 2020 | 611 | 649 | 667 | 649 |
| Dale Street (between Wilga Street and Vine Street) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |

| Road | AM Peak baseline traffic ('Without Project' scenario) | | | | AM Peak 'With Project' scenario | |
|---|---|---|---|---|---|---|
| | Existing | Year | 2023 | 2025 | 2023 | 2025 |
| Wilga Street (between Dale Street and North Street) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |
| North Street (between East Parade and Wilga Street) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |
| East Parade (south of North Street) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |
| Lansdowne Road (between Hume Highway and Tillett Parade) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |
| Tillett Parade (south of Lansdowne Road) | 998 | 2020 | 1,048 | 1,113 | 1,104 | 1,113 |

# Appendix E - Traffic modelling results

# MOVEMENT SUMMARY

## Site: 101 [Elizabeth Dr/ Clifton Ave_2023AM_Baseline]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Elizabeth Dr (E) | | | | | | | | | | | | |
| 5 | T1 | 956 | 14.1 | 0.539 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.8 |
| 6 | R2 | 74 | 12.2 | 0.668 | 66.5 | LOS E | 2.4 | 18.9 | 0.98 | 1.10 | 1.44 | 26.4 |
| Approach | | 1030 | 14.0 | 0.668 | 4.9 | NA | 2.4 | 18.9 | 0.07 | 0.08 | 0.10 | 54.8 |
| North: Clifton Ave | | | | | | | | | | | | |
| 7 | L2 | 16 | 93.8 | 1.264 | 804.7 | LOS F | 9.1 | 113.0 | 1.00 | 1.74 | 3.77 | 3.3 |
| 9 | R2 | 6 | 83.3 | 1.264 | 1137.4 | LOS F | 9.1 | 113.0 | 1.00 | 1.74 | 3.77 | 3.7 |
| Approach | | 22 | 90.9 | 1.264 | 895.5 | LOS F | 9.1 | 113.0 | 1.00 | 1.74 | 3.77 | 3.4 |
| West: Elizabeth Dr (W) | | | | | | | | | | | | |
| 10 | L2 | 59 | 8.5 | 0.735 | 5.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.03 | 0.00 | 57.3 |
| 11 | T1 | 1269 | 11.9 | 0.735 | 0.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.03 | 0.00 | 59.2 |
| Approach | | 1328 | 11.7 | 0.735 | 0.5 | NA | 0.0 | 0.0 | 0.00 | 0.03 | 0.00 | 59.1 |
| All Vehicles | | 2380 | 13.4 | 1.264 | 10.7 | NA | 9.1 | 113.0 | 0.04 | 0.07 | 0.08 | 49.6 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.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# MOVEMENT SUMMARY

## Site: 101 [Elizabeth Dr/ Clifton Ave_2023PM_Baseline]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Elizabeth Dr (E) | | | | | | | | | | | | |
| 5 | T1 | 1065 | 12.5 | 0.595 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.7 |
| 6 | R2 | 19 | 31.6 | 0.070 | 18.9 | LOS B | 0.2 | 2.1 | 0.84 | 0.93 | 0.84 | 42.5 |
| Approach | | 1084 | 12.8 | 0.595 | 0.4 | NA | 0.2 | 2.1 | 0.01 | 0.02 | 0.01 | 59.3 |
| North: Clifton Ave | | | | | | | | | | | | |
| 7 | L2 | 69 | 8.7 | 2.948 | 3562.8 | LOS F | 115.0 | 869.0 | 1.00 | 5.20 | 17.68 | 0.9 |
| 9 | R2 | 61 | 9.8 | 2.948 | 3615.4 | LOS F | 115.0 | 869.0 | 1.00 | 5.20 | 17.68 | 1.0 |
| Approach | | 130 | 9.2 | 2.948 | 3587.5 | LOS F | 115.0 | 869.0 | 1.00 | 5.20 | 17.68 | 0.9 |
| West: Elizabeth Dr (W) | | | | | | | | | | | | |
| 10 | L2 | 10 | 50.0 | 0.553 | 6.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 55.7 |
| 11 | T1 | 1000 | 9.9 | 0.553 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 59.8 |
| Approach | | 1010 | 10.3 | 0.553 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 59.7 |
| All Vehicles | | 2224 | 11.5 | 2.948 | 210.0 | NA | 115.0 | 869.0 | 0.07 | 0.31 | 1.04 | 12.2 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# MOVEMENT SUMMARY

## Site: 101 [Elizabeth Dr/ Clifton Ave_2023AM_with Project]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Elizabeth Dr (E) | | | | | | | | | | | | |
| 5 | T1 | 956 | 14.1 | 1.667 | 1382.6 | LOS F | 656.6 | 5152.8 | 1.00 | 0.00 | 19.13 | 2.2 |
| 6 | R2 | 135 | 17.8 | 1.910 | 1708.4 | LOS F | 86.0 | 693.8 | 1.00 | 5.23 | 18.81 | 1.8 |
| Approach | | 1091 | 14.6 | 1.910 | 1422.9 | NA | 656.6 | 5152.8 | 1.00 | 0.65 | 19.09 | 2.2 |
| North: Clifton Ave | | | | | | | | | | | | |
| 7 | L2 | 40 | 75.0 | 5.491 | 8195.6 | LOS F | 83.3 | 940.6 | 1.00 | 2.85 | 8.17 | 0.4 |
| 9 | R2 | 30 | 66.7 | 5.491 | 8274.1 | LOS F | 83.3 | 940.6 | 1.00 | 2.85 | 8.17 | 0.4 |
| Approach | | 70 | 71.4 | 5.491 | 8229.2 | LOS F | 83.3 | 940.6 | 1.00 | 2.85 | 8.17 | 0.4 |
| West: Elizabeth Dr (W) | | | | | | | | | | | | |
| 10 | L2 | 120 | 16.7 | 0.773 | 6.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.05 | 0.00 | 56.7 |
| 11 | T1 | 1269 | 11.9 | 0.773 | 0.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.05 | 0.00 | 58.9 |
| Approach | | 1389 | 12.3 | 0.773 | 0.8 | NA | 0.0 | 0.0 | 0.00 | 0.05 | 0.00 | 58.7 |
| All Vehicles | | 2550 | 14.9 | 5.491 | 835.1 | NA | 656.6 | 5152.8 | 0.46 | 0.38 | 8.39 | 3.6 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# MOVEMENT SUMMARY

## Site: 101 [Elizabeth Dr/ Clifton Ave_2023PM_with Project]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Elizabeth Dr (E) | | | | | | | | | | | | |
| 5 | T1 | 1065 | 12.5 | 0.593 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.7 |
| 6 | R2 | 43 | 48.8 | 0.218 | 26.4 | LOS B | 0.7 | 7.4 | 0.89 | 0.97 | 0.95 | 38.4 |
| Approach | | 1108 | 13.9 | 0.593 | 1.1 | NA | 0.7 | 7.4 | 0.03 | 0.04 | 0.04 | 58.5 |
| North: Clifton Ave | | | | | | | | | | | | |
| 7 | L2 | 130 | 16.2 | 7.724 | 12146.8 | LOS F | 292.8 | 2342.7 | 1.00 | 5.24 | 17.64 | 0.3 |
| 9 | R2 | 122 | 17.2 | 7.724 | 12172.7 | LOS F | 292.8 | 2342.7 | 1.00 | 5.24 | 17.64 | 0.3 |
| Approach | | 252 | 16.7 | 7.724 | 12159.4 | LOS F | 292.8 | 2342.7 | 1.00 | 5.24 | 17.64 | 0.3 |
| West: Elizabeth Dr (W) | | | | | | | | | | | | |
| 10 | L2 | 34 | 58.8 | 0.572 | 6.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 55.3 |
| 11 | T1 | 1000 | 9.9 | 0.572 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 59.7 |
| Approach | | 1034 | 11.5 | 0.572 | 0.3 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 59.5 |
| All Vehicles | | 2394 | 13.2 | 7.724 | 1280.6 | NA | 292.8 | 2342.7 | 0.12 | 0.58 | 1.87 | 2.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# MOVEMENT SUMMARY

## Site: 101 [Elizabeth Dr/ Clifton Ave_2025AM_Baseline]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Elizabeth Dr (E) | | | | | | | | | | | | |
| 5 | T1 | 973 | 14.2 | 0.548 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.8 |
| 6 | R2 | 75 | 12.0 | 0.707 | 74.1 | LOS F | 2.6 | 20.4 | 0.98 | 1.12 | 1.52 | 26.5 |
| Approach | | 1048 | 14.0 | 0.707 | 5.4 | NA | 2.6 | 20.4 | 0.07 | 0.08 | 0.11 | 54.9 |
| North: Clifton Ave | | | | | | | | | | | | |
| 7 | L2 | 16 | 93.8 | 1.279 | 828.0 | LOS F | 9.3 | 116.0 | 1.00 | 1.76 | 3.83 | 3.6 |
| 9 | R2 | 6 | 83.3 | 1.279 | 1152.3 | LOS F | 9.3 | 116.0 | 1.00 | 1.76 | 3.83 | 3.6 |
| Approach | | 22 | 90.9 | 1.279 | 916.4 | LOS F | 9.3 | 116.0 | 1.00 | 1.76 | 3.83 | 3.6 |
| West: Elizabeth Dr (W) | | | | | | | | | | | | |
| 10 | L2 | 59 | 8.5 | 0.740 | 5.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.03 | 0.00 | 57.3 |
| 11 | T1 | 1279 | 11.9 | 0.740 | 0.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.03 | 0.00 | 59.3 |
| Approach | | 1338 | 11.7 | 0.740 | 0.5 | NA | 0.0 | 0.0 | 0.00 | 0.03 | 0.00 | 59.2 |
| All Vehicles | | 2408 | 13.5 | 1.279 | 11.0 | NA | 9.3 | 116.0 | 0.04 | 0.07 | 0.08 | 50.3 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
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Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# MOVEMENT SUMMARY

## Site: 101 [Elizabeth Dr/ Clifton Ave_2025PM_Baseline]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Elizabeth Dr (E) | | | | | | | | | | | | |
| 5 | T1 | 1048 | 12.5 | 0.585 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.8 |
| 6 | R2 | 19 | 31.6 | 0.070 | 19.0 | LOS B | 0.2 | 2.1 | 0.84 | 0.93 | 0.84 | 43.8 |
| Approach | | 1067 | 12.8 | 0.585 | 0.5 | NA | 0.2 | 2.1 | 0.01 | 0.02 | 0.01 | 59.4 |
| North: Clifton Ave | | | | | | | | | | | | |
| 7 | L2 | 69 | 8.7 | 2.757 | 3218.6 | LOS F | 110.8 | 837.3 | 1.00 | 5.30 | 18.07 | 1.1 |
| 9 | R2 | 61 | 9.8 | 2.757 | 3271.3 | LOS F | 110.8 | 837.3 | 1.00 | 5.30 | 18.07 | 1.1 |
| Approach | | 130 | 9.2 | 2.757 | 3243.3 | LOS F | 110.8 | 837.3 | 1.00 | 5.30 | 18.07 | 1.1 |
| West: Elizabeth Dr (W) | | | | | | | | | | | | |
| 10 | L2 | 10 | 50.0 | 0.554 | 6.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 55.7 |
| 11 | T1 | 1001 | 9.9 | 0.554 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 59.8 |
| Approach | | 1011 | 10.3 | 0.554 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 59.7 |
| All Vehicles | | 2208 | 11.5 | 2.757 | 191.3 | NA | 110.8 | 837.3 | 0.07 | 0.32 | 1.07 | 14.3 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# MOVEMENT SUMMARY

## Site: 101 [Elizabeth Dr/ Clifton Ave_2025AM_with Project]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Elizabeth Dr (E) | | | | | | | | | | | | |
| 5 | T1 | 973 | 14.2 | 0.549 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.8 |
| 6 | R2 | 79 | 13.9 | 0.793 | 94.9 | LOS F | 3.2 | 25.3 | 0.99 | 1.18 | 1.76 | 23.0 |
| Approach | | 1052 | 14.2 | 0.793 | 7.2 | NA | 3.2 | 25.3 | 0.07 | 0.09 | 0.13 | 53.4 |
| North: Clifton Ave | | | | | | | | | | | | |
| 7 | L2 | 18 | 83.3 | 1.669 | 1464.2 | LOS F | 17.1 | 198.1 | 1.00 | 2.11 | 5.26 | 2.2 |
| 9 | R2 | 8 | 62.5 | 1.669 | 1714.5 | LOS F | 17.1 | 198.1 | 1.00 | 2.11 | 5.26 | 2.2 |
| Approach | | 26 | 76.9 | 1.669 | 1541.2 | LOS F | 17.1 | 198.1 | 1.00 | 2.11 | 5.26 | 2.2 |
| West: Elizabeth Dr (W) | | | | | | | | | | | | |
| 10 | L2 | 63 | 11.1 | 0.743 | 5.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.03 | 0.00 | 57.2 |
| 11 | T1 | 1279 | 11.9 | 0.743 | 0.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.03 | 0.00 | 59.2 |
| Approach | | 1342 | 11.8 | 0.743 | 0.5 | NA | 0.0 | 0.0 | 0.00 | 0.03 | 0.00 | 59.1 |
| All Vehicles | | 2420 | 13.6 | 1.669 | 20.0 | NA | 17.1 | 198.1 | 0.04 | 0.08 | 0.11 | 44.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# MOVEMENT SUMMARY

## Site: 101 [Elizabeth Dr/ Clifton Ave_2025PM_with Project]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Elizabeth Dr (E) | | | | | | | | | | | | |
| 5 | T1 | 1048 | 12.5 | 0.586 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.8 |
| 6 | R2 | 21 | 38.1 | 0.085 | 20.5 | LOS B | 0.3 | 2.6 | 0.85 | 0.93 | 0.85 | 43.1 |
| Approach | | 1069 | 13.0 | 0.586 | 0.5 | NA | 0.3 | 2.6 | 0.02 | 0.02 | 0.02 | 59.3 |
| North: Clifton Ave | | | | | | | | | | | | |
| 7 | L2 | 73 | 11.0 | 0.147 | 12.2 | LOS A | 0.5 | 3.8 | 0.76 | 0.90 | 0.76 | 48.5 |
| 9 | R2 | 65 | 12.3 | 2.999 | 3740.7 | LOS F | 61.8 | 477.9 | 1.00 | 2.89 | 9.56 | 0.9 |
| Approach | | 138 | 11.6 | 2.999 | 1768.4 | LOS F | 61.8 | 477.9 | 0.87 | 1.84 | 4.90 | 1.9 |
| West: Elizabeth Dr (W) | | | | | | | | | | | | |
| 10 | L2 | 12 | 58.3 | 0.555 | 6.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 55.4 |
| 11 | T1 | 1001 | 9.9 | 0.555 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 59.8 |
| Approach | | 1013 | 10.5 | 0.555 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 59.7 |
| All Vehicles | | 2220 | 11.8 | 2.999 | 110.3 | NA | 61.8 | 477.9 | 0.06 | 0.13 | 0.31 | 20.9 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
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Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# Appendix F - Framework Construction Traffic Management Plan

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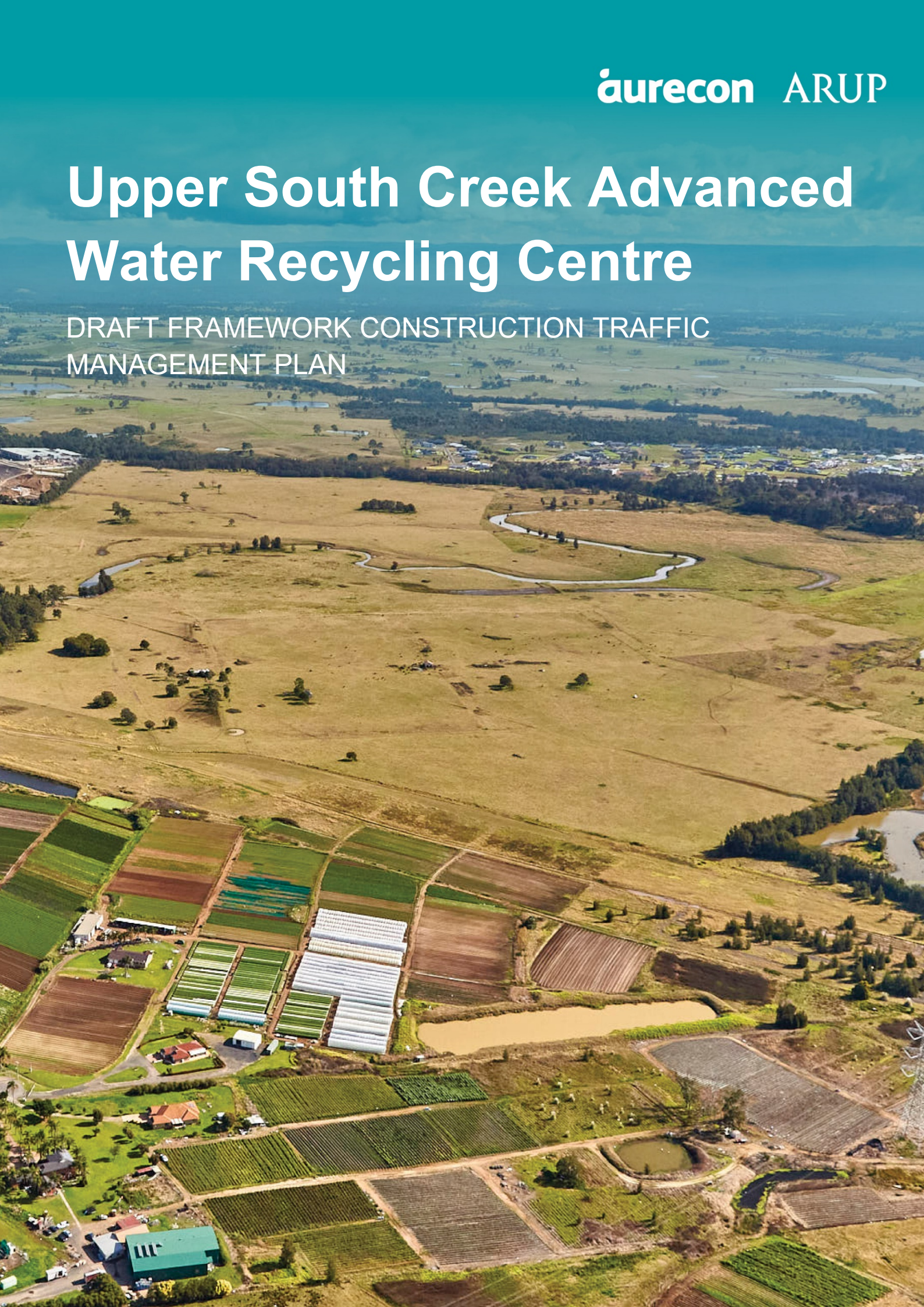
# Upper South Creek Advanced Water Recycling Centre

## DRAFT FRAMEWORK CONSTRUCTION TRAFFIC MANAGEMENT PLAN



| | | | | | |
|---|---|---|---|---|---|
| **Job title** | | Upper South Creek Advanced Water Recycling Centre | | **Job number** 269002-04 | |
| **Document title** | | Construction Traffic Management Plan | | **File reference:** as above | |
| **Document ref** | | | | | |
| **Revision** | **Date** | **Filename** | USC Construction Traffic Management Plan | | |
| Draft 1 | 02/11/20 | **Description** | | | |
| | | | **Prepared by** | **Checked by** | **Approved by** |
| | | **Name** | Aimy Nguyen | Sam Oswald | Sam Oswald |
| | | **Signature** |  |  |  |
| Draft 2 | 01/12/20 | **Filename** | USC Construction Traffic Management Plan | | |
| | | **Description** | | | |
| | | | **Prepared by** | **Checked by** | **Approved by** |
| | | **Name** | Aimy Nguyen | Sam Oswald | Sam Oswald |
| | | **Signature** |  |  |  |
| Draft 3 | 25/05/21 | **Filename** | USC Construction Traffic Management Plan | | |
| | | **Description** | | | |
| | | | **Prepared by** | **Checked by** | **Approved by** |
| | | **Name** | Aimy Nguyen | Sam Oswald | Sam Oswald |
| | | **Signature** |  |  |  |
| Issue | 25/06/21 | Filename | USC Construction Traffic Management Plan | | |
| | | Description | | | |
| | | | **Prepared by** | **Checked by** | **Approved by** |
| | | **Name** | Aimy Nguyen | Sam Oswald | Sam Oswald |
| | | **Signature** |  |  |  |

**Issue Document Verification with Document** ✓

# Table of Contents

# Content and chapter structure

The chapter structure and the associated content are outlined in Table 1.

**Table 1: CTMP content and chapter structure**

| Chapter | Content |
|---|---|
| 1. Introduction | Provides detail around the purpose of the Framework Construction Traffic Management Plan (Framework CTMP) and how it relates to the Environmental Impact Statement (EIS). This chapter also includes an outline of the additional management plans relating to construction traffic |
| 2. Objectives and Principles | Outlines the key objectives of the Framework CTMP and the general principles for traffic management. |
| 3. Construction Works | Provides a summary of the proposed construction works, programme and expected hours of operation. |
| 4. Construction Traffic | Outlines the expected construction traffic volumes relating to the project and the network impacts identified in the project's traffic and transport report. |
| 5. Construction Traffic Management Measures | Details the general construction traffic management measures to be used across all work sites. These controls are to be used by the construction contractor(s) to guide the development of site-specific CTMPs. |
| 6. Consultation and Approvals | This chapter identifies stakeholders to be consulted during the project and provides a summary of the required approvals processes and relevant road authorities. |

# Glossary of terms and abbreviations

| Glossary of terms and abbreviations | |
|---|---|
| **Term** | **Meaning** |
| AWRC | Upper South Creek Advanced Water Recycling Centre |
| CEMP | Construction Environmental Management Plan |
| CTMP | Construction Traffic Management Plan |
| DPIE | Department of Planning, Industry and Environment |
| EIS | Environmental Impact Statement |
| HDD | Horizontal Directional Drilling |
| NHVR | National Heavy Vehicle Regulator |
| PaMP | Parking Management Plan |
| PeMP | Pedestrian Movement Plan |
| RMS | Roads and Maritime Services |
| ROL | Road Occupancy Licence |
| RTA | Roads & Traffic Authority |
| SEARs | Secretary's Environmental Assessment Requirements |
| SPECTS | Safety, Productivity & Environment Construction Transport Scheme |
| SSCTMP | Site-specific Construction Traffic Management Plan |
| SSI | State Significant Infrastructure |
| SZA | Speed Zone Authorisation |
| TCP | Traffic Control Plan |
| TfNSW | Transport for New South Wales |
| TMC | Transport Management Centre |
| The 'project' | Advanced Water Recycling Centre and associated treated water and brine pipelines |
| VMP | Vehicle Movement Plan |
| VMS | Variable Message Sign |
| Western Sydney Airport | Western Sydney International (Nancy-Bird Walton) Airport |
| WSPT | Western Sydney Parklands Trust |

# 1 Introduction

## 1.1 Purpose

The purpose of this Framework Construction Traffic Management Plan (Framework CTMP) is to outline the approach to managing traffic and transport impacts which may arise throughout the construction phase of the project.

This document covers the construction of the Upper South Creek Advanced Water Recycling Centre (AWRC), the pipelines and all associated ancillary facilities including temporary site compounds and access roads. This document is a technical appendix to the project's traffic and transport report and references information from that report.

The requirement for this document was dictated by SEARs 36 which is presented in Table 2.

**Table 2: SEARs relating to the CTMP**

| Traffic and Transport SEARs |
|---|
| 36. Preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact of the proposal on road, rail, pedestrian and cyclist corridors and facilities. The Construction Traffic Management Plan should detail construction vehicle routes, numbers of trucks, hours of operation, access arrangements and traffic control. |

## 1.2 Context

Given the broad extents of the construction works its impact is expected to be widespread across the Western Sydney region. In addition to this construction traffic is a key contributor to congestion and disruption on roads in New South Wales. Therefore, it is vital that controls and measures relating to construction traffic are implemented from the outset across the project.

This document will build upon construction traffic impacts identified in the project's traffic and transport report and present mitigation measures and protocols to ensure construction traffic movements are managed appropriately throughout the construction phase.

## 1.3 Guidelines and legislation

This section outlines legislation, guidelines and standards applicable to the CTMP, building upon Table 2 of the project's traffic and transport report which provides a summary of legislation relevant to the impact assessment.

### 1.3.1 Legislation

Legislation relevant to this document is outlined in Table 3.

**Table 3: Legislation context**

| Legislation context | | |
|---|---|---|
| **Legislation** | **Content Description** | **Relevance** |
| Roads Act (NSW Government, 1993) | This Act addresses requirements related to public roads which include:<br>• process for opening and closing roads;<br>• any activities impacting public roads;<br>• access for the community;<br>• road classification and corresponding road authorities; and<br>• function of the road authorities. | This Act dictates the approval processes required when undertaking any works on public roads and the relevant road authorities. |
| Disability Discrimination Act (Australian Government, 1992) | This Act seeks to eliminate any discrimination against a person based on the grounds of disability ensuring equality as the rest of the community. | This Act dictates the requirements for vulnerable road users. |

### 1.3.2 Guidelines and standards

Table 4 provides a summary of the main guidelines, specifications and policy documents relevant to this CTMP. The guidelines and standards that apply to construction traffic management are not limited to the standards outlined below.

**Table 4: Guidelines and standards context**

| Guidelines and standards context | | |
|---|---|---|
| **Guidelines / standards** | **Content Description** | **Relevance** |
| Traffic Control at Work Sites Manual (Roads and Traffic Authority, 2010) (RTA) | This document outlines the minimum safety requirements for temporary traffic management at Transport for New South Wales (TfNSW) work sites or works carried out on behalf of TfNSW. | This document dictates the health and safety requirements for work sites within New South Wales. |
| Australian Standard AS1742 Parts 1 to 14, Manual of uniform traffic control devices | This standard outlines traffic control requirements. The individual parts within this overarching standard cover usage of each sign. | This document outlines the requirements for traffic controls on work sites including implementation and inspections throughout New South Wales |

| Guidelines and standards context | | |
|---|---|---|
| Development Control Plans (DCPs) (Western Sydney Aerotropolis, Wollondilly Shire, Penrith City, Liverpool City, Fairfield City and Canterbury-Bankstown) | These documents prescribes more detailed planning and design guidelines for developments proposed within the relevant Local Government Area (LGA) or precincts identified in the Western Sydney Airport State Environmental Planning Policies (SEPP) and Aerotropolis Plan (WSAP). | These documents provide guidance in regard to various construction activities such as landscaping, car parking, access and waste disposal. |

## 1.4 Scope

This Framework CTMP presents the overarching objectives and principles that will apply throughout the construction phase. Using these the document outlines measures to manage construction traffic on all work sites within the study area and any public infrastructure adjacent to work sites which may be impacted during construction.

Upon appointment of the construction contractor(s), additional management plans will need to be developed which include (but are not limited to):

- Site Specific CTMPs (SSCTMPs)
- Traffic Control Plans (TCPs)
- Vehicle Movement Plans (VMP);
- Pedestrian Movement Plans (PeMP); and.
- Parking Management Plans (PaMP)

These plans will incorporate detail relating to the work sites where different construction activities may be occurring and provide specific construction traffic management solutions where required.

These more detailed documents will be guided by the principles outlined in this Framework CTMP and any additional requirements outlined by landowners or approving authorities. In addition to these plans, a Construction Environmental Management Plan (CEMP) will be prepared following approval of the EIS. This document will be cognisant of the principles outlined in this Framework CTMP.

### 1.4.1 Hierarchy of management plans

Table 5 presents the hierarchy, scope and responsibilities relating to all construction traffic management plans required across the project lifecycle.

**Table 5: Traffic management plan hierarchy, purpose and document owner**

| Traffic management plan hierarchy, purpose and document owner | | | |
|---|---|---|---|
| Traffic management plan | Scope | Purpose and additional requirements | Document owner |
| Framework Construction Traffic Management Plan (Framework CTMP) | Project-wide | Sets the overarching objectives, principles and measures for traffic management during construction for the project. This will be applicable to all proposed work sites. | Sydney Water, to be reviewed and updated by the construction contractor(s) once appointed |
| Construction Environmental Management Plan (CEMP) | Project-wide | Provides a structured approach to the management of environmental issues during construction of the 'project'. | Construction contractor(s) |
| Site Specific Construction Traffic Management Plan (SSCTMP) | Site specific | Details the traffic management measures specific to each work site. The document will be guided by the CTMP. | Construction contractor(s) |
| Traffic Control Plan (TCP) | Site specific | Outlines devices and signage to be used on work sites and the implementation process.<br>The document must be prepared by an individual who has undertaken the 'Prepare a Work Zone Traffic Management Plan' training course and is certified to the required level. | Construction contractor(s) |
| Vehicle Movement Plans (VMP) | Site specific | Diagram displaying preferred travel paths for vehicles entering, exiting or crossing a traffic stream to a work site. | Construction contractor(s) |
| Pedestrian Movement Plan (PeMP) | Site specific | Diagram outlining pedestrian routes along or through a work site. The plan is to include proposed signs and devices. | Construction contractor(s) |
| Parking Management Plan (PaMP) | Site specific | Outlines parking requirements and arrangements. This document is to be guided by the parking requirements from TfNSW or relevant Local Councils. | Construction contractor(s) |
| Road Occupancy Licence (ROL) | Site specific | Required for any activity on or off-road which may impact traffic flow.<br>The ROL requirements are outlined in the RMS Road Occupancy Manual. | Construction contractor(s) |

#### 1.4.1.1 Framework Construction Traffic Management Plan

This Framework CTMP outlines areas expected to be impacted by the construction works and provides a suite of traffic management measures (Section 5) to be implemented on work sites to minimise impacts to existing road users, pedestrians, cyclists and other relevant user groups. The document is to be used as a guide when developing SSCTMPs and other management plans.

#### 1.4.1.2 Site-specific Construction Traffic Management Plan

The construction contractor(s) will be responsible for preparing SSCTMPs for various work sites guided by the Framework CTMP. A SSCTMP will build upon the Framework CTMP, detailing specific traffic management measures to be implemented for the work site. The contents of the plan will include parking arrangements, access points to and from the site, haulage routes, changes to existing parking, public transport stops, pedestrian and cyclist facilities and general traffic management.

For long-term works, ie activities lasting beyond one standard shift, the document will need to provide an inspection process to ensure the continual safe operation and efficiency of the proposed traffic management schemes. This is not a requirement for short-term works which is defined as works occurring within one standard shift.

These plans are required as part of the construction phase to assess the local traffic impacts of work sites once finalised. Where applicable a SSCTMP may cover a number of work sites depending on a range of factors including proximity and expected activities onsite.

It should be noted that the location of work sites is subject to change. In the event that during the tendering process, the appointed construction contractor(s) proposes compounds that differ from those identified in Figure 14 of the project's traffic and transport report. This plan will need to be updated to capture all compounds proposed.

# 2 Objectives and principles

This section outlines the objectives of the Framework CTMP and the high level principles that can be used to achieve them.

## 2.1 Traffic management objectives

The key aim of this Framework CTMP is to minimise impacts to the surrounding transport network during construction. The following objectives have been developed in order to support this overarching aim:

- ensure safety of pedestrians, cyclists, construction workers, road users and the local community;
- minimise the overall impacts to road users;
- Ensure minimal disruptions to public transport operations, including schedules, stop location and routes;
- maintain access for existing road users, including the local community, public transport operators, pedestrians and cyclists;
- ensure disruption to residents, local businesses and agricultural uses are minimised including appropriate consultation;
- ensure construction vehicle movements remain below the volumes specified in the EIS, particularly during the peak hours;
- minimise disruption to existing road furniture and kerbside provisions including existing bus stops, cycleways and on-street parking; and
- comply with all relevant legislation and other requirements specified by relevant authorities.

## 2.2 Traffic management principles

To achieve the objectives outlined above a set of principles have been developed to guide all construction management measures across the project. The key principles are as follows:

- clear and timely communication in relation to any changes, to affected areas and the expected duration of works via various platforms through the project website, radio, newspapers, social media or direct community engagement;
- implement appropriate traffic controls including signage, line marking and stop lights to direct private vehicles, transport operators, pedestrians and cyclists past work sites. Alternative routes may be provided where existing infrastructure is impacted by the works;
- manage site compounds and work areas to ensure construction traffic and works are primarily contained within these areas and road occupancy is minimised;
- manage pedestrians and other vulnerable road users to ensure safe and continuous movement past the work sites. Consideration of the land uses and key pedestrian desire lines in the surrounds of the work sites will be the key drivers for the type of traffic management strategies implemented;
- where practical, consideration of scheduling construction traffic movements to avoid peak times and smoothing of peaks in construction traffic activity to minimise impacts to the transport network; and

- encourage construction workers, where possible, to use modes other than private vehicle.

These principles are to be communicated to any parties involved in construction traffic management across the project and have been used to develop the measures outlined in Section 5. Any issues arising during the works will also require notification to the users outlined, ensuring transparency across the duration of the construction phase.

## 2.3 Existing user group hierarchy

During preparation of the SSCTMPs, prioritisation of potential user groups is important in providing appropriate construction traffic management measures at each work site. The hierarchy of users is listed below from highest to lowest:

- pedestrians;
- cyclists;
- public transport users;
- service vehicles (relating to businesses and agricultural uses); and
- private vehicles.

The development of the user group hierarchy has been based on similar approaches applied in Framework CTMPs for other large infrastructure schemes. This hierarchy also aligns with Future Transport 2056. This hierarchy will be considered alongside the TfNSW functional road hierarchy provided below, in order of high to low priority roads, during the development of management measures.

- primary arterial roads;
- sub-arterial roads;
- collector roads; and
- local roads.

## 2.4 Governance

The document owner of the Framework CTMP will be appointed during the procurement process and the governance of the construction traffic management process will be discussed and developed with the Department of Planning, Industry and Environment (DPIE) as the project progresses.

# 3 Construction Works

## 3.1 Construction overview

The project will involve a range of activities during the different construction phases as summarised in Table 6.

**Table 6: Overview of construction activities**

| Overview of construction activities | | |
|---|---|---|
| **Construction phase** | **Location** | **Description of works** |
| Site establishment | AWRC site and pipeline construction | • Install environmental controls and delineate sites;<br>• Ancillary construction works such as roads and fencing;<br>• Traffic control measures;<br>• Plant and equipment delivery;<br>• Grubbing and removal of surface vegetation;<br>• Demolish existing buildings (AWRC); and<br>• Contamination management. |
| Earthworks and civil works | AWRC site and pipeline construction | • Cut and fill<br>• Establish temporary site drainage and soil water management controls;<br>• Excavation;<br>• Waste disposal;<br>• Construction of roads, stormwater and permanent OSD infrastructure (AWRC);<br>• Landscaping (AWRC);<br>• Install pipelines (pipeline construction); and<br>• Backfill. |
| Structure construction | AWRC site | • Construction of buildings, treatment infrastructure, erect storage tanks and other treatment process units; and<br>• Treatment equipment installation. |
| Mechanical and electrical installation | AWRC site | • Utility connections; and<br>• Operations equipment installation and testing. |
| Commissioning | AWRC site and pipeline construction | • Equipment testing;<br>• Process proving (AWRC); and<br>• Discharging commissioning wastewater. |
| Landscaping and restoration | Pipeline construction | • Restoring pipeline alignments like-for-like as much as practical including Council requirements for road resurfacing. |

The main construction methodology proposed for the pipelines will be open trenching with trench depths expected to be range between 1.5 – 7 m. Where trenching is required, the construction corridor will typically vary up to 30 m. Horizontal directional drilling (HDD) will be the preferred methodology where sensitive areas have been identified such as under flowing rivers and creeks and locations crossing TfNSW roads, this is referred to as the trenchless methodology. The locations proposed for HDD are outlined in Figure 1, with the remaining sections of the pipeline alignments proposed for open trenching. It should be noted that the locations may change in the future depending on the construction contractor(s).

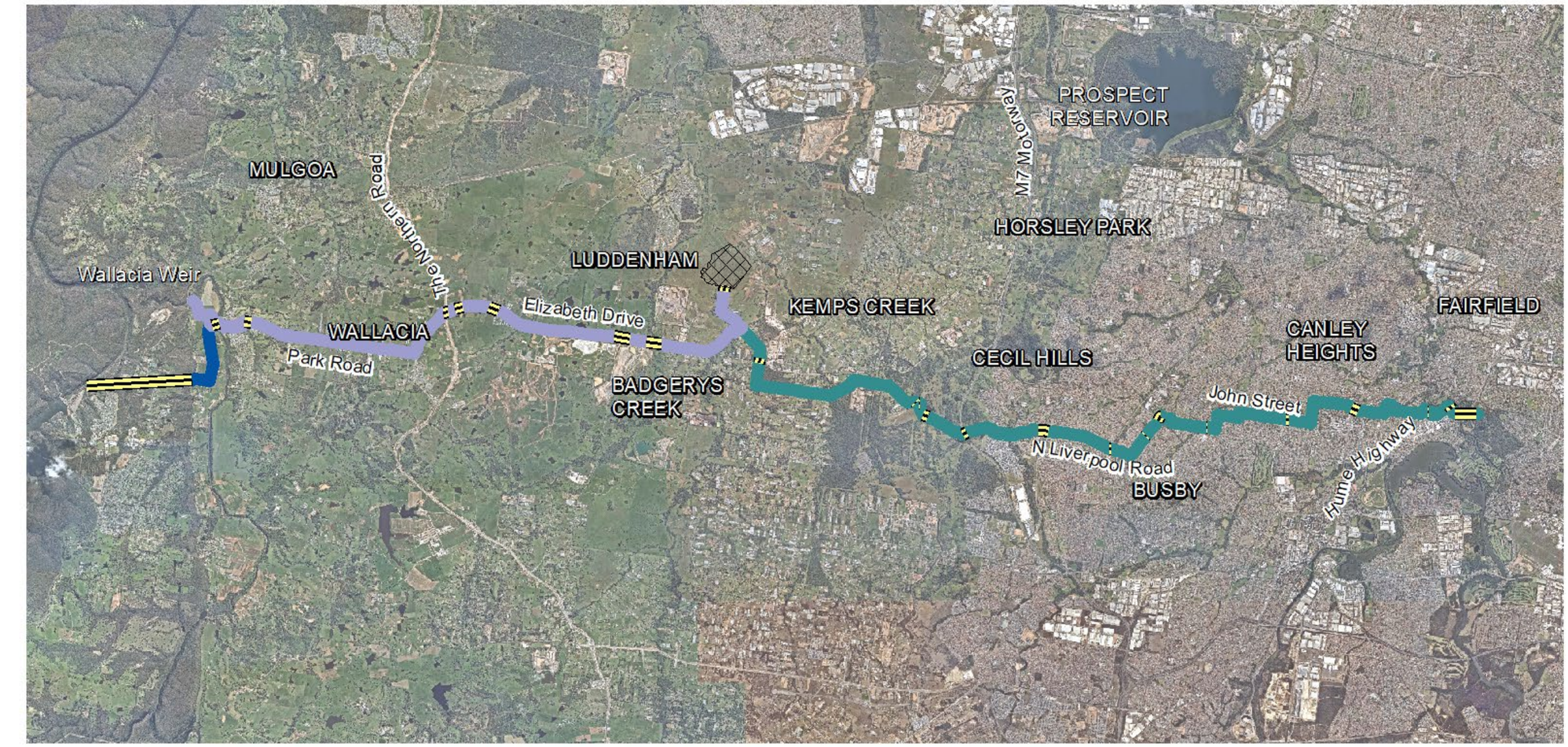



**Figure 1: Proposed locations of HDD drilling**

## 3.2 Site description

Due to the linear nature of the project, the construction works have been segregated into five segments where activities will occur concurrently. Construction compounds have been located to serve various segments of the project. Construction workers and heavy vehicles will be required to access work sites (site compounds and work areas) along the pipeline segments throughout the construction phase. The project segments and all site compounds are presented in Figure 2. Construction of the AWRC will occur on half of the site with the other half used as a compound for Segments 2 and 3.

The site compounds are listed below with Table 8 summarising the works expected to occur at each location.

- C1: Warragamba River via Core Park Road – Environmental flows pipeline drilling site;
- C2: Bent Basins Road – Environmental flows pipeline drilling site;
- C3: Treated Effluent release location near Wallacia Weir at Nepean River;
- C4: West of Wallacia drilling site (Fowler Reserve);
- C5: 1 Park Rd, Wallacia - Effluent pipeline site office;
- C6: 344 Park Rd, Wallacia – Main treated water construction compound, alternative – 260 Park Road, Wallacia (two option proposed);
- C7: Elizabeth Drive between The Northern Road and Luddenham Road;
- C8: Water Recycling Centre site;
- C9: Western Sydney Parklands, near Liverpool Offtake Reservoir – multiple small compounds, including M7 underbore;
- C10: Liverpool reservoir, Cecil Hills – Brine satellite compound;
- C11: Plan DP262454 Lot 419, Bonnyrigg - Brine satellite compound;
- C12: East Parade, Fairfield – Brine pipeline satellite compound;
- C13: Cabravale Park - Cabramatta Rail underbore crossing;
- C14: Lansvale Park, Lansdowne - west of Henry Lawson Drive and Prospect Creek; and
- C15: Lansdowne east of Henry Lawson Drive – NGRS connection location.

**Table 7: Indicative activities required at each site compound**

| | Segment 1 | | | | | | Segment 2 | | Segment 3 | Segment 4 | | Segment 5 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Activity** | **C1** | **C2** | **C3** | **C4** | **C5** | **C6** | **C7** | **C8** | **C9** | **C10** | **C11** | **C12** | **C13** | **C14** | **C15** |
| Earthworks | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ |
| Site office | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | |
| Worker parking | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Spoil storage | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Drilling | ✓ | ✓ | | ✓ | | | ✓ | | ✓ | | | | ✓ | ✓ | ✓ |
| Equipment storage | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Materials laydown | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Pipe welding | ✓ | ✓ | | ✓ | | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ |

It should be noted that the SSCTMP for site compound C8 will need to consider the full extent of Clifton Avenue as part of its scope. Clifton Avenue is the public road likely to experience the largest impact in the construction phase. All planned construction activities in this area will also need to consider the construction of the M12 that plans to access a number of site compounds via Clifton Avenue.

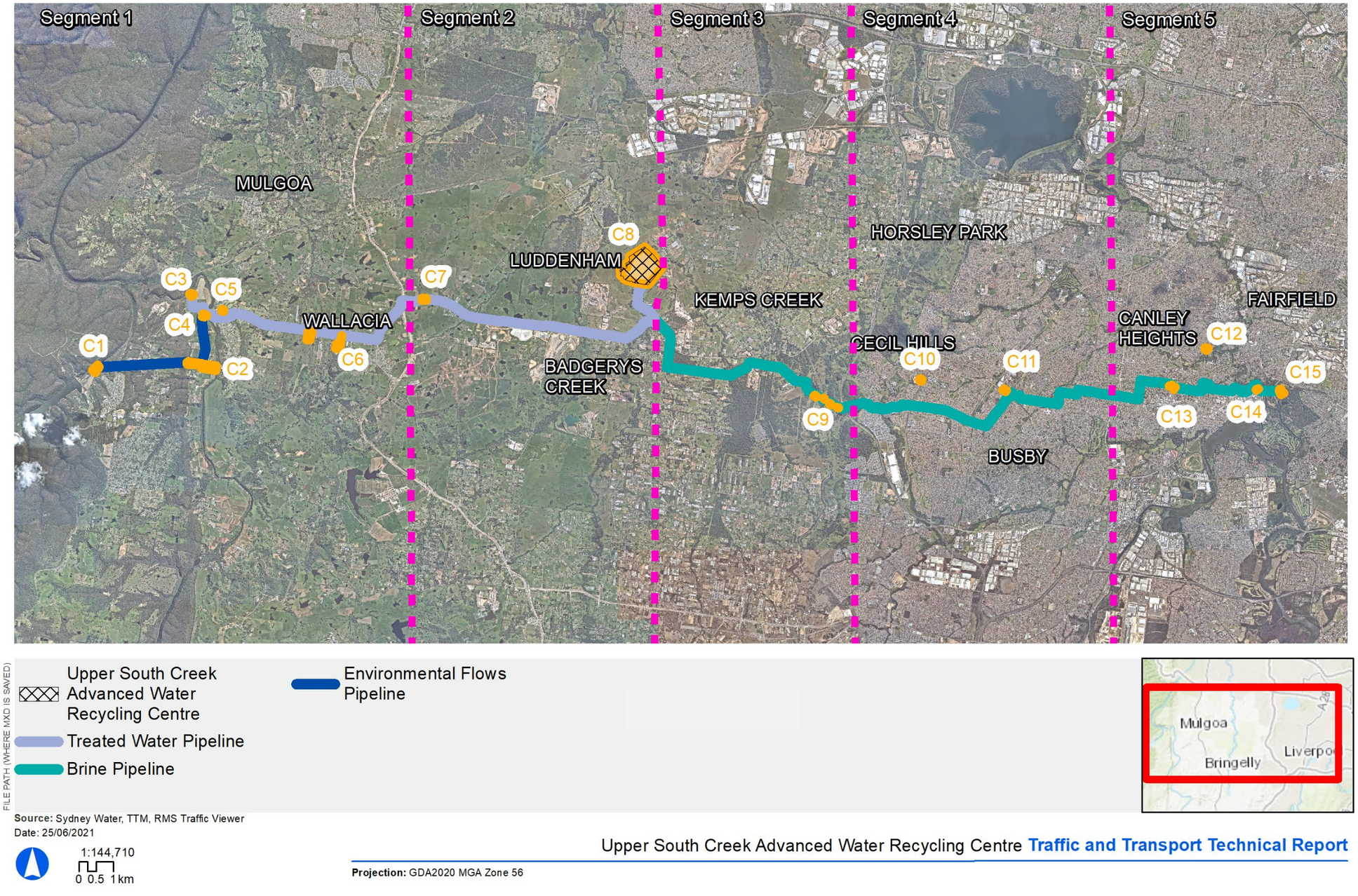



**Figure 2: Site compounds and segments**

## 3.3 Construction programme

Refer to Section 4.1.3 of the project's traffic and transport report for further details regarding the construction phasing and programme.

## 3.4 Hours of operation

Key construction activities for all site compounds and work sites will be scheduled within standard work hours, Monday to Friday 7 am – 6 pm. However, certain compounds may require works to be undertaken outside of the standard work hours. Table 8 provides a summary of the site compounds where out of hours operations are proposed.

**Table 8: Works outside standard hours of operation**

| Site compound hours of operation | |
|---|---|
| **Site compound** | **Hours of operation** |
| C1 | 24-hour operation |
| C2 | 24-hour operation for 3 months due to HDD |
| C6 | Possible night-time works – dependent ROL |
| C7 | Possible night-time works – dependent on ROL |
| C8 | Possible night-time works related to extended concrete pours |
| C10 | Possible night-time works – dependent on ROL |
| C11 | Possible night-time works – dependent on ROL |
| C12 | Possible night-time works – dependent on ROL |
| C14 | Possible night-time works – dependent on ROL |
| C15 | Possible night-time works – dependent on ROL |

# 4 Construction traffic

This section summarises the type and volumes of expected construction traffic and identifies potential impacts presented in the project's traffic and transport report.

## 4.1 Construction vehicle types

A range of construction vehicle types are expected to be used throughout the construction phase. The vehicles to be used by the construction contractor(s) are not limited to those listed in this section and SSCTMPs will be required to provide greater detail on the types of vehicles to be used at each compound and works area. The list of vehicles expected to be used by the construction contractor(s) are as follows:

- light vehicles;
- truck and dog;
- concrete trucks;
- dump trucks;
- cranes;
- excavators;
- bulldozers;
- loaders (backhoe / front end);
- grader; and
- other plant machinery.

## 4.2 Construction traffic volumes

Refer to Section 4.1.4 of the project's traffic and transport report for further details regarding projected construction traffic volumes. It should be noted that these volumes are based on peak construction activity for each compound occurring simultaneously. In practice, the construction programs for all compounds will vary and therefore the actual traffic is likely to be less than that presented.

## 4.3 Network impacts

The construction impact assessment outlined links that may be impacted by construction traffic to access the various compounds (refer to Section 4.1.6 of the project's traffic and transport report). The links which were identified are summarised in Table 9.

Despite the uplift in construction traffic, all links in Column 1 will operate within their estimated capacity. All links in Column 2 were also overcapacity in the traffic baseline (refer to Section 2.4.6 of the project's traffic and transport report) indicating construction traffic volumes relating to the project are not the sole cause of these issues.

Wherever possible construction traffic management measures should be implemented by the construction contractor(s) to reduce construction traffic on these links at peak times.

### Table 9: Links impacted by construction traffic at peak times

| Links impacted by construction traffic at peak times | |
|---|---|
| Links with greater than 5% increase in traffic compared to the baseline traffic | Links where traffic exceeds the assumed capacity (900 pcu/hour per lane)* |
| • Bareena Street;<br>• Bartley Street;<br>• Beckenham Street;<br>• Bromley Street;<br>• Chancery Street;<br>• Clifton Avenue;<br>• Curtin Street;<br>• Dale Street;<br>• East Parade;<br>• Edensor Road;<br>• Elizabeth Drive (between The Northern Road and Clifton Avenue);<br>• Fairview Road;<br>• Farnsworth Avenue;<br>• Feodore Drive;<br>• Fourth Street;<br>• Frederick Road;<br>• Gladstone Street;<br>• Gordon Street;<br>• Greendale Road;<br>• Hebblewhite Place;<br>• John Street;<br>• Kensington Close;<br>• Knight Street;<br>• Lansdowne Road;<br>• Meadows Road;<br>• Monash Place;<br>• Montgomery Road;<br>• Mulgoa Road;<br>• North Street;<br>• Park Road (between Mulgoa Road and The Northern Road);<br>• Stirling Street;<br>• The Northern Road (between Elizabeth Drive and Park Road);<br>• Tillett Street;<br>• Vine Street;<br>• Weir Road; | • Cowpasture Road;<br>• Elizabeth Drive (between The Northern Road and M7 Motorway); and<br>• Hume Highway (between Lansdowne Road and Derribong Street). |

| Links impacted by construction traffic at peak times | |
|---|---|
| Links with greater than 5% increase in traffic compared to the baseline traffic | Links where traffic exceeds the assumed capacity (900 pcu/hour per lane)* |
| • Western Road (between Elizabeth Drive and Cross Street);<br>• Wilga Street; and<br>• Willowbank Crescent. | |

*This metric was extracted from the Austroads Guide to Traffic Management Part 3 (2013).

# 5 Construction Traffic Management Measures

Aligning with the principles presented in Section 2.2 this section outlines construction management measures that can be implemented across various aspects of the project.

## 5.1 Haulage routes

The proposed haulage routes during construction will be guided by the functional hierarchy provided by TfNSW and are outlined below in order of high to low priority roads:

- primary arterial roads;
- sub-arterial roads;
- collector roads; and
- local roads.

Access routes to and from the sites will primarily use arterial roads which are more suited to accommodate construction traffic. The use of local roads is to be avoided, however, if required, justification will need to be provided and documented in the SSCTMP. Relevant government bodies which include Council and TfNSW will be consulted during the development of the haulage routes for different work site, with the proposed routes documented in the respective SSCTMP.

To guide the appointed construction contractor(s), Figure 3 indicates appropriate haulage routes which consist of arterial roads and the Safety, Productivity and Environment Construction Transport Scheme (SPECTS) network in the vicinity of the study area. SPECTS is a voluntary scheme which provides improved road access for heavy vehicles which meet a specified level of environmental, safety and compliance. These requirements include:

- performance Based Standards (PBS) approved;
- fitted with at least a Euro 5 engine;
- fitted with a range of safety features;
- fitted with satellite tracking; and
- mass assurance systems to ensure the vehicle is travelling at the correct weight.

The construction contractor(s) will be responsible for providing the finalised haulage routes during construction as part of the SSCTMPs using the Framework CTMP as guidance.

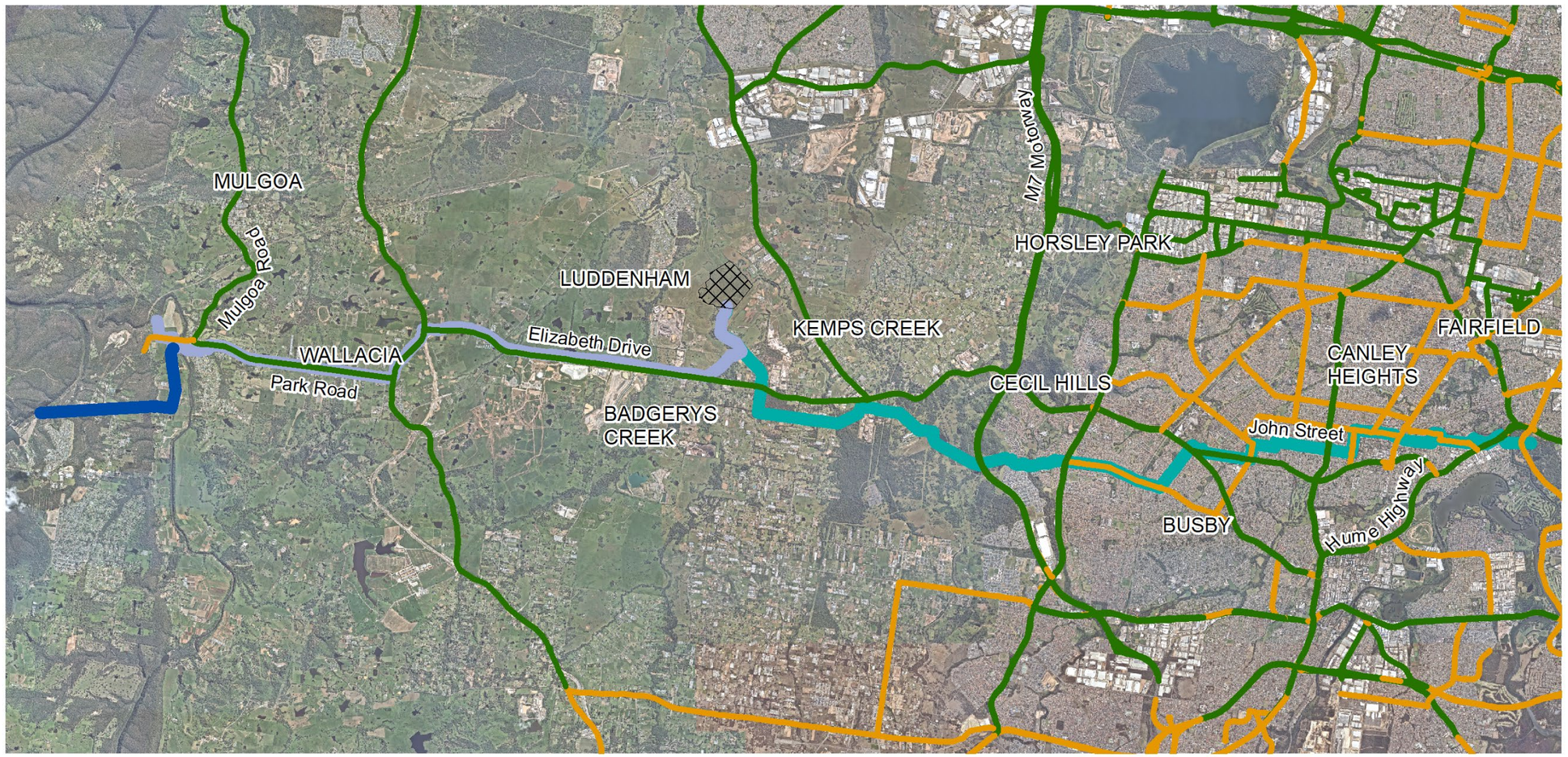



**Figure 3: Potential haulage routes**

## 5.2 Management of heavy vehicle movements and vehicle marshalling

SSCTMPs will be required to demonstrate how heavy vehicles movements will be managed to and from work sites to minimise potential queuing onto the public network and impacts to existing user groups. Management of heavy vehicles will need to address requirements from relevant stakeholders and may include:

- the use of marshalling areas for vehicles waiting to access the site;
- entry and exit points;
- turning restrictions for large vehicles;
- stop lights;
- designated unloading or pickup locations; and
- any other mechanisms which allow for the safe and efficient movement of heavy vehicles.

All vehicles are to enter and exit the work sites in a forward direction to allow for clear sightlines. If this is not permissible, then appropriate traffic controls are to be provided as per Section 7.3 of the Guide to Traffic Control at Work Sites Manual (RMS).

Truck marshalling areas may be required during peak construction periods in order to manage construction vehicles and minimise congestion on the road network. These areas will need to be outlined in the SSCTMPs, accompanied by strategies to manage the traffic accessing these sites.

## 5.3 Work zones

Existing kerbside space adjacent to work sites may be temporarily required during construction due to potential constraints on parking or unloading / pick up locations along the project corridor. The construction contractor(s) will be required to apply for works zones from the relevant authority, with Council having jurisdiction over local and regional roads and TfNSW for State roads. In order to minimise impacts to the road network, the use of works zones are to be kept to a minimum and not impact existing public transport locations where possible. In the case a public transport operator is impacted, an alternative stop location must be agreed with the operator and TfNSW. The locations of all works zones are to be documented in the SSCTMPs.

## 5.4 Worker access and parking

The provision of parking will vary between work sites as it will be driven by the activities occurring within each site. Site compounds which serve as a site office will have provisions for light vehicle parking. For site compounds which are expected to generate heavy vehicle movements, a designated area for unloading and pickup will be available within each work site. In the case that a site does not permit parking due to its constrained nature, the construction contractor(s) may apply for a works zone to use existing kerbside space, however, this is to be kept to a minimum with workers encouraged to use public transport to access work sites where possible. The use of public transport will particularly be encouraged in Segments 4 and 5 services are frequent and have a broad coverage.

For Segments 1 to 3, public transport services are more sporadic and therefore most workers will access compounds and work areas using private vehicles. In all cases workers will be encouraged to carpool to minimise the parking requirements within sites.

A shuttle bus service could be explored by the construction contractor(s) for workers at the AWRC site and C8. Leppington Station is the nearest railway station to this location. This measure should be investigated by the construction contractor(s) at the tendering stage to reduce construction worker related traffic at peak times.

## 5.5 Driver training

All drivers operating heavy vehicles will need to be inducted prior to accessing any work sites to ensure they are aware of all the traffic management strategies and controls. This may include haulage routes, entry and exit points, turning restrictions, unloading / pick up locations and any other onsite heavy vehicle requirements.

The construction contractor(s) is to ensure that drivers are informed of any changes which may impact their route or access to a work site.

## 5.6 Traffic controls

The construction contractor(s) is responsible for developing the SSCTMPs which will detail traffic management measures to minimise potential construction impacts and the proposed implementation process. This may include stop lights, traffic controllers, spotters, signposting and other requirements specified by relevant authorities.

### 5.6.1 Policy and responsibilities

Traffic controls are important to safely manage traffic, as it provides clear direction for road users, minimises potential conflicts and allows for another degree of separation between vehicles, workers and vulnerable road users. Traffic controls at work sites are to comply with the latest edition of the Traffic Control at Work Sites Manual (RMS) and the Australian Standard AS 1742.3 Manual of uniform traffic control devices –Traffic control for works on roads.

The construction contractor(s) is to ensure mechanisms are in place across the work sites for safe and efficient operation through the form of TCPs. It is the responsibility of all workers engaged on the project to uphold these directives and ensure safety is always at the forefront when undertaking any works.

TCPs are to be prepared by a suitably qualified person who holds a current RMS certificate – Prepare Work Zone Traffic Management Plan.

In the case that temporary speed limits are required, the construction contractor(s) will be required to submit an application for approval. This application will need to be submitted with sufficient time for processing and authorisation prior to implementation.

### 5.6.2 Traffic control techniques

There are a range of traffic control mechanisms which can be employed at the work sites. In developing the appropriate controls, consideration must be given to the user hierarchy (Section 2.3) and safety of personnel working near or on roads. The Traffic Control at Work Sites Manual (RMS) provides a comprehensive list of traffic control devices which can be used to guide this process.

For long-term works where traffic management devices are required beyond one shift, regular inspections are to be carried out by the construction contractor(s). This is to ensure that the controls in place continue to provide safe traffic management. All controls are to comply with the current RMS guidelines.

### 5.6.3 Plant and equipment

Any plant proposed near traffic or pedestrians and cyclists is to be separated using physical protection, with warning signs provided for public safety.

### 5.6.4 Inspections of roadwork traffic management schemes

For long-term works, traffic management road inspections are required to be carried out regularly to ensure the safe movement of traffic and the protection of other users. The requirement to undertake inspections of traffic control measures is outlined in Section 6.1 of the Traffic Control at Work Sites Manual (RMS) and Appendix A of Australian Standard AS 1742.3 – Manual of uniform traffic control devices – Traffic control for works on roads.

There are three main types of inspections to be carried out:

- pre-start and pre-close-down inspections of short-term traffic control;
- weekly inspections of long-term traffic control; and
- night inspections of long-term traffic control.

Appendix E of the Traffic Control at Work Sites Manual provides inspection checklists and forms that can be used for all inspections, whether short term, long term or night. The responsibility and frequency of the inspections required is provided in Section 6.1 of the Traffic Control at Work Sites Manual (RMS).

### 5.6.5 Traffic controllers and temporary traffic signals

The use of traffic controllers and / or temporary traffic signals to control traffic at worksites is to be in accordance with the Traffic Control at Work Sites Manual (RMS).

Variable message signs (VMS) will be used to inform drivers, where necessary, to avoid particular roads or areas where activities associated with the project would cause disruption. Where these are used, it is to be in accordance with documented Austroads Guidelines, RMS supplements, procedures, guidance and approval of the road authority.

The placement of temporary VMS must consider pedestrian safety and disabled access needs when placed on footpaths. A ROL may be required when a portable VMS is proposed in a parking or loading bay. VMS placement should conform to Austroads Guidelines, RMS supplementary material and approval processes of the road authority.

## 5.7 Management of work sites

### 5.7.1 Work site boundaries

Details of the proposed erection and maintenance of hoardings, scaffolds and associated structures will be documented in the SSCTMPs. Where reasonable and feasible, all work site boundaries will be clearly defined with the use of hoardings. The SSCTMPs will identify the boundaries, detail accesses and road controls. Activities within the work site are excluded from the SSCTMPs, except in relation to ensuring the movement of construction traffic in and out of the worksite is physically possible and can be conducted in a safe manner. Work sites include any gantries (eg Type B hoardings) and SSCTMPs will consider the impacts of these on roads and footpaths.

### 5.7.2 Site security and access

The issues to be considered in determining the location of site accesses are:

- safety of travelling public;
- safety of construction workers and equipment;
- efficient and safe entry and exit to the site including turning paths, consistent with the requirements of relevant Australian Standards, Austroads or RMS guidelines;
- impact on local communities in terms of safety, noise and road damage; and
- site security.

The work sites will have appropriate arrangements to discourage entry without approval and minimise vandalism. All access points to work sites will have lockable gates.

### 5.7.3 Pedestrian security / safety / lighting

The consideration of safety and security issues for pedestrians will be considered at all work sites where footpaths exist adjacent to the site. Any footpath or cycle routes which will be impacted by construction works require a condition assessment to ensure that they remain suitable for use. This would include an assessment of the paving and lighting of the footpath / cycle route to maintain a safe and suitable passage.

Any hoardings or other structures on the site boundaries will have lighting in accordance with current standards, particularly where existing street lighting is removed or obscured because of the site works. In locations where this occurs, supplementary lighting is to be provided to meet the current standards.

### 5.7.4 Management of risk to vulnerable road users

The construction contractor(s) is to adopt applicable vulnerable road user safety measures to minimise the road safety risks to pedestrians, cyclists and motorcyclists on route to, and near, construction sites. Such measures include, but are not limited to:

- the deployment of speed awareness signs in conjunction with VMS;
- heavy vehicles equipped with safety technology and equipment to improve vehicle safety, visibility and the detection of vulnerable road users. SPECTS provides further information on appropriate safety devices;
- provision of driver training, instruction and information regarding haulage routes, potential changes, common road users and hazards / risks along the routes; and
- mandatory completion of heavy vehicle driver introduction training.

Where work sites have an impact on footpaths, consideration must be given to the requirements of all pedestrians and especially where there is the potential for vulnerable road users, such as school children, elderly people and mobility impaired users. This is to include condition surveys of affected footpaths to ensure that they are suitable and appropriate for use.

Disability Discrimination Act requirements will be adopted with kerb ramps or other measures provided at road crossings. Footpath widths are required to provide for two-way pedestrian traffic allowing for prams or strollers and wheelchairs to pass each other without requiring temporary widening from their existing width prior to construction commencement. Narrowing of the footpath width, if required, is to be approved by the relevant authorities.

Where high numbers of vulnerable road users are using a footpath, special provision and design consideration may be required to mitigate any impacts.

## 5.8 Site specific project traffic management considerations

Table 10 provides an initial summary of potential construction traffic issues at each proposed compound. During preparation of the SSCTMPs, the construction contractor(s) is to undertake further work to identify all construction traffic related issues relating to each compound. This will aid the construction contractor(s) in developing appropriate mitigation measures to address the impacts on the surrounding transport network. Note that if the number and / or locations of compounds change in the future a similar exercise will need to be undertaken for the revised compounds.

**Table 10: Site-specific Issues**

| Site-specific Issues | |
|---|---|
| **Worksite** | **Issue** |
| C1 | • Conflicts with operational vehicles accessing the Warragamba Dam via Core Park Road; and<br>• Constraints on two-way operation of heavy vehicles on Core Park Road due to the existing carriageway width. |
| C2 | • Proximity to existing access roads may reduce access options to the site;<br>• Construction movements and the extent of the compound may impact access to agricultural land; and<br>• Disruption to residential properties in the vicinity. |
| C3 | • Construction movements and the extent of the compound may impact access to agricultural land. |
| C4 | • Proximity to existing accesses such as Alwyn Avenue; and<br>• Disruption to residential properties on Shelly Road. |
| C5 | • Construction movements may impact adjacent businesses such as: Wallacia Country Club, TAB, Wallacia Takeaway, Admire Beaute and Wallacia Christian Church;<br>• Proximity to existing access roads may reduce access options to the site; and<br>• Access may need to be shared with other surrounding uses. |
| C6 | • Proximity to existing access roads may reduce access options to the site; and<br>• Construction movements and the extent of the compound may impact access to agricultural land. |
| C7 | • Cumulative traffic volumes on Elizabeth Drive could delay construction vehicle movements; and<br>• Any access point onto Elizabeth Drive may need to be left / left out due to through traffic volumes. |

| Site-specific Issues | |
|---|---|
| **Worksite** | **Issue** |
| C8 | • Construction vehicle may experience delays when exiting onto Elizabeth Drive from Clifton Avenue at peak times;<br>• Cumulative traffic volumes on Elizabeth Drive could delay construction vehicle movements; and<br>• Disruption to agricultural uses and residential properties along Clifton Avenue. |
| C9 | • Cumulative traffic volumes on Elizabeth Drive could delay construction vehicle movements; and<br>• Limited access through the parklands may restrict vehicles types that can access this compound. |
| C10 | • Cumulative traffic volumes on Elizabeth Drive could delay construction vehicle movements;<br>• Any access point onto Elizabeth Drive may need to be left / left out due to through traffic volumes;<br>• Disruption to residential properties adjacent to Cowpasture Road and Elizabeth Drive; and<br>• Footpaths adjacent to the site would need to be managed appropriately. |
| C11 | • Cumulative traffic volumes on Elizabeth Drive could delay construction vehicle movements;<br>• Construction movements may impact adjacent businesses such as Unique Liquor Pty and Liquor Stax Bonnyrigg.<br>• Any access point onto Elizabeth Drive may need to be left / left out due to through traffic volumes;<br>• Disruption to residential properties adjacent to Elizabeth Drive and Bonnyrigg Avenue; and<br>• Footpaths adjacent to the site would need to be managed appropriately. |
| C12 | • Disruption to residential properties on East Parade and other local roads; and<br>• Footpaths adjacent to the site would need to be managed appropriately. |
| C13 | • Construction movements may impact adjacent businesses such as PCYC Fairfield Cabramatta;<br>• Access road into the site may impact existing on-street parking;<br>• Construction movements and the extent of the compound may impact access to Cabravale Memorial Park;<br>• Proximity to existing accesses such as Park Road and McBurney Road;<br>• Footpaths adjacent to the site would need to be managed appropriately. |
| C14 | • Disruption to businesses and residential properties on Knight Street; and<br>• Footpaths adjacent to the site would need to be managed appropriately. |
| C15 | • Any access point onto Elizabeth Drive will need to be left / left out; and<br>• Access may need to be shared with other surrounding uses. |

# 6 Consultation and approvals

This section identifies the key stakeholders in construction and addresses the relevant communication protocols the construction contractor(s) will be required to adhere to when implementing construction traffic management measures, including any relevant approvals processes.

## 6.1 Stakeholders

As part of the SSCTMP, affected stakeholders will need to be identified at an early stage and consulted throughout the construction process. The key stakeholders for each segment are outlined in Table 11 below.

**Table 11: Key stakeholders**

| Pipeline segment | Transport for NSW | Wollondilly Shire Council | Penrith City Council | Liverpool City Council | Fairfield City Council | Canterbury-Bankstown Council |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

In addition to the agencies stated above sensitive receivers such as adjacent landowners, businesses and nearby local communities have been identified as part of the EIS process. Many of these will need to be considered when developing SSCTMPs and construction traffic management measures.

With regards to the jurisdiction of impacts on regional and local roads Figure 4 has been developed to broadly indicate the extent of the transport network covered by each local council. In addition to this Transport for NSW have jurisdiction over all State roads and will need to be consulted on all transport issues.

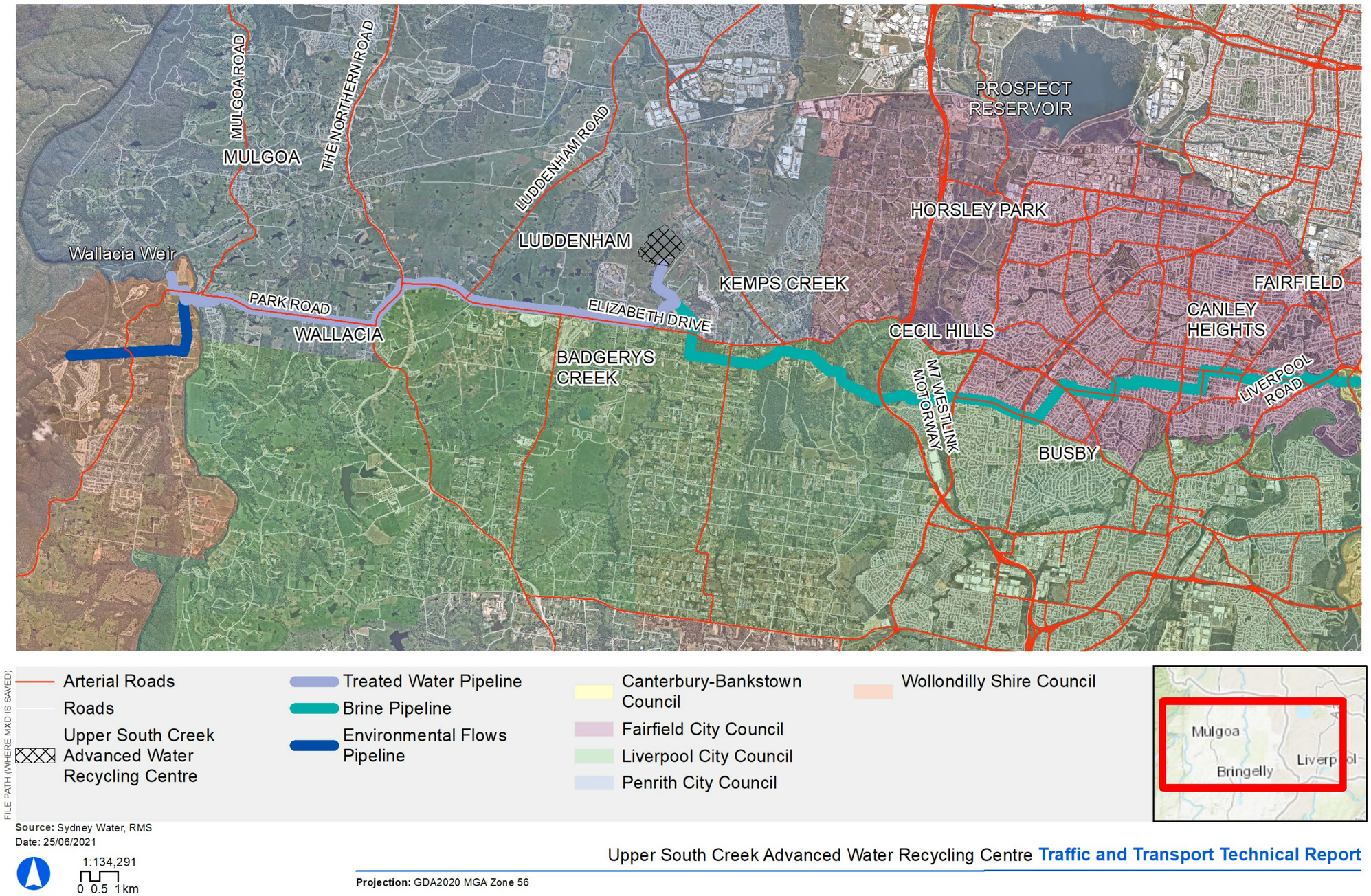



**Figure 4: Relevant road authorities**

## 6.2 Communication

Communication with stakeholders and authorities throughout the construction phase is key in ensuring they are informed and do not experience unexpected disruption. The different communication techniques to be used in the construction phase will be dictated by Sydney Water's Community Engagement Plan.

## 6.3 Approvals

All construction traffic management documents developed as part of the construction phase will be required to obtain the appropriate approvals. Table 12 outlines the varying submission requirements and potential stakeholders relevant to different documentation. Prior to construction, each document will be approved by the relevant approving authority.

**Table 12: Approvals process**

| Approvals process | | |
|---|---|---|
| **Documentation** | **Submission requirements** | **Key Stakeholders** |
| Framework Construction Traffic Management Plan (Framework CTMP) | This document is to be submitted with the EIS submission for approval. | • Sydney Water<br>• Local Councils<br>• TfNSW<br>• Western Sydney Planning Partnership |
| Site specific Construction Traffic Management Plan (SSCTMP) | This document is to include TCPs, VMPs, PeMPs and PaMPs. | • Sydney Water<br>• Local Council<br>• TfNSW<br>• Western Sydney Planning Partnership; |
| Traffic Control Plan (TCP) | This document is to accompany the SSCTMP submission.<br>The plan is to comply with the following standards and guidelines:<br>• Australian Standard AS1742.3 – Manual of uniform traffic control devices;<br>• Roads and Maritime Services NSW (RMS) – Traffic Control at Worksites Manual;<br>• Relevant Austroads Guides; and<br>• RMS Supplements to Austroads and Australian Standards. | • Local Councils<br>• TfNSW<br>• Western Sydney Planning Partnership |
| Vehicle Movement Plans (VMP) | This document is to accompany the SSCTMP submission.<br>The plan is to comply with the following standards and guidelines:<br>Roads and Maritime Services NSW (RMS) – Traffic Control at Work Sites Manual. | • Local Councils<br>• TfNSW<br>• Western Sydney Planning Partnership<br>• Local residents and businesses. |

| Approvals process | | |
|---|---|---|
| **Documentation** | **Submission requirements** | **Key Stakeholders** |
| Pedestrian Movement Plan (PeMP) | This document is to accompany the SSCTMP submission.<br>The plan is to comply with the following standards and guidelines:<br>Roads and Maritime Services NSW (RMS) – Traffic Control at Work Sites Manual. | • Local Councils<br>• TfNSW<br>• Western Sydney Planning Partnership;<br>• Local residents and businesses. |
| Parking Management Plan (PaMP) | This document is to accompany the SSCTMP submission. | • Local Councils<br>• TfNSW<br>• Western Sydney Planning Partnership;<br>• Local residents and businesses. |
| ROL | Construction contractor(s)must allow a minimum of 10 working days to process the application upon receipt of the application.<br>The application must be submitted with a TCP and a Speed Zone Authorisation form. | • Local Councils<br>• TfNSW<br>• Local residents and businesses. |
| Traffic Signal Adjustments | Submission of traffic signal design plans prior to commencing work.<br>Designs will be required to be carried out by an RMS accredited signal designer and comply with the RMS Traffic Signal Design Manual (RTA/Pub 08.092)<br>The construction contractor(s) will need to account for potentially long approval times and any additional time required to modify electronic hardware, and any physical changes onsite. | • Local Councils |
| Over-size or Over-mass Vehicle Access Permits | Online application via the National Heavy Vehicle Regulator (NHVR) portal 28 days prior to operation of the vehicle.<br>The construction contractor(s) should also check that the vehicle complies with the schedules and conditions in the relevant gazette notice available on the NHVR website. | • Local Councils<br>• Local residents and businesses. |
| Public Transport Adjustments | Consultation with TfNSW and relevant Local Councils. | • Public transport operators<br>• TfNSW<br>• Local Councils |

| Approvals process | | |
|---|---|---|
| **Documentation** | **Submission requirements** | **Key Stakeholders** |
| Impacted Local Roads | Dilapidation surveys to undertaken of local and Regional roads, used by construction heavy vehicles.<br>A report is to be submitted within 3 weeks of completing the surveys and no later than 1 month before the use of local roads by heavy vehicles. | • Local residents and businesses. |

### 6.3.1 Council traffic committees

Each council is delegated authority by TfNSW on certain aspects for the control of traffic on regional and local roads, including regulatory signposting. The delegation requires council to seek the advice of the NSW Police and TfNSW prior to exercising these delegated functions. This is usually done through the establishment and consultation with the Local Traffic Committee.

Councils can sub-delegate the approval of certain traffic control measures, such as works zones, to an appropriate staff member. These further delegations are determined by each individual council. The construction contractor(s) will need to consult with local councils on the extent of the delegations.

Where possible, the construction contractor(s) should endeavour to secure all necessary council approvals under delegation to avoid the need for approvals to be secured through the Local Traffic Committee and council meetings.

The Local Traffic Committee is a technical committee that considers matters related to prescribed traffic control devices and traffic control facilities for which the council has delegated authority. These committees are made up of four voting members:

- one representative of council (may be a councillor or council officer);
- one representative of the NSW Police;
- one representative of TfNSW; and
- the local state Member of Parliament or their nominee.

Matters that may need to be considered by the Local Traffic Committee include:

- establishment of a kerbside work zone on a local or Regional road;
- CTMPs;
- changes to parking restrictions;
- changes to regulatory signage; and
- road closures.

Meetings of the Local Traffic Committee can be conducted as face to face meetings on a monthly basis, as electronic meetings or a combination of both formats.