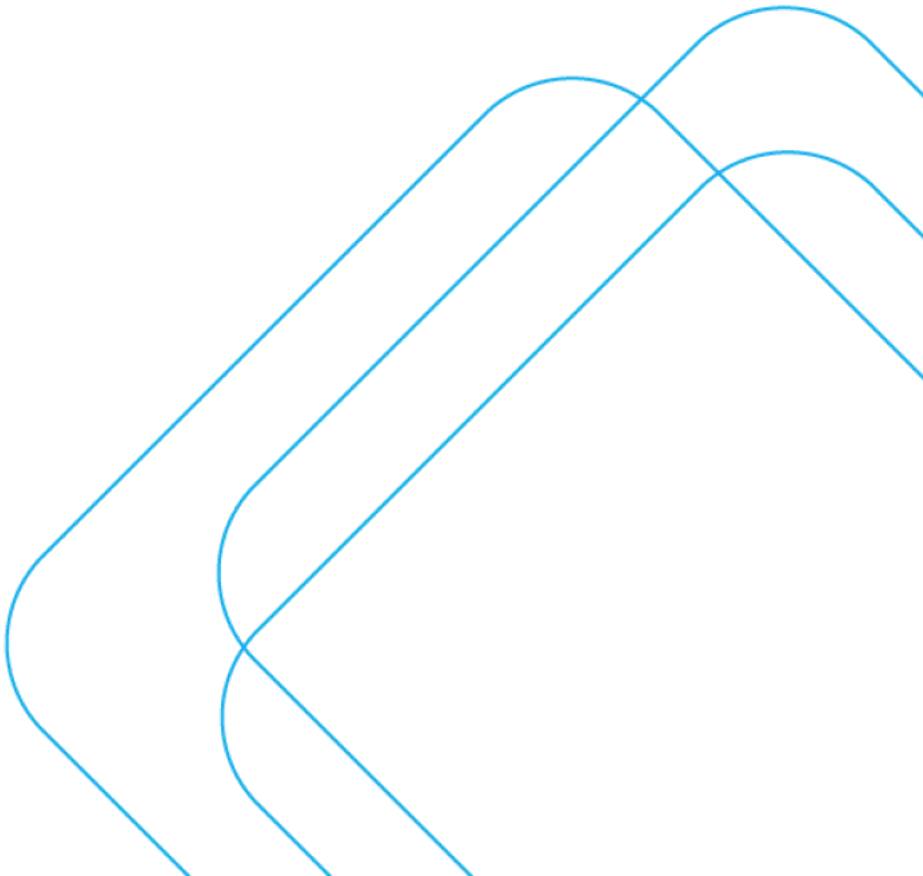
SCT Consulting

ROSEHILL RECYCLED WATER SCHEME EXTENSION

Traffic and transport impact assessment

18 MAY 2026

SCT Consulting acknowledges
the traditional owners of the lands
on which we work.
We pay our respects to Elders
past, present and emerging.



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Executive Summary

Introduction

The coNEXA group owns and operates the Rosehill Recycled Water Scheme (also referred to within the group as the AquaNet Recycled Water Scheme), comprising a recycled water plant at Fairfield (owned by AquaNet Sydney Pty Ltd) and a recycled water reticulation network (owned by Rosehill Network Pty Ltd).

coNEXA SYD Pty Ltd (coNEXA), in partnership with NEXTDC Ltd (NEXTDC), an established national developer and operator of data centres, are developing an extension to the scheme to provide recycled water supply to cater for the demand of NEXTDC's planned 'Western Sydney S4 facility' at Horsley Park.

The key infrastructure components of the project include:

– An 800 millimetre (mm) diameter high-density polyethylene (HDPE) pipeline to transfer treated effluent from the Fairfield recycled water plant from the existing VISY Pty Ltd connection at 2 Herbert Place, Smithfield to a proposed booster pump station at 46 Victoria Street, Smithfield.

– An 800 mm HDPE pipeline to transfer treated effluent from the pump station to a proposed reservoir at 156-166 Walworth Road, Horsley Park.

– Dual HDPE pipelines (one 560 mm and one 800 mm diameter) supplying water from the reservoir to the NEXTDC facility via gravity.

This Traffic and Transport Impact Assessment (TTIA) has been prepared to assess potential traffic and transport impacts associated with the construction and operation of the project.

The assessment deals primarily with the construction stage of the project, as this is when project traffic generation would be the greatest. Once operational, traffic would be limited to a few staff and maintenance vehicles per day, which would have a negligible impact on the surrounding transport network.

Project construction

The project has four main construction stages:

– **Preconstruction:** This stage involves the completion of relevant plans, notifying relevant authorities and public, establishing environmental controls, site establishment, relocating any affected services and clearing footprint area and topsoil.

– **Pipeline installation:** The pipeline will be installed using a combination of open trenching techniques and trenchless methodologies. There are two sections of pipeline to be installed, comprising a pumping main spanning between Smithfield and Horsley Park and a gravity main spanning between Horsley Park and the NEXTDC S4 facility.

– **Reservoir establishment:** Construction of tanks and associated infrastructure, involving mobilisation, demolition of existing buildings and structures, earthworks, pipework connections, building and structures, in addition to demobilisation and restoration of the construction area.

– **Pump station establishment:** This involves the construction of the recirculation pump station and the development of a booster pump station.

The length of the trenches will generally be sized so that excavation, pipe installation and backfilling can occur within a single working day. This method will continue as the work progresses along the alignment.

Traffic generation

It is estimated that there would be a maximum of 20 light vehicle movements per day (10 arrivals and 10 departures) and 60 heavy vehicle movements per day (30 arrivals and 30 departures) during project construction.

Light vehicles, associated with workforce travel, would generally arrive in the morning (AM) peak and depart in the afternoon (PM) peak, while heavy vehicle traffic would be related to deliveries of construction materials and waste and would generally occur outside AM and PM peak hours. Therefore, four to six light vehicle movements would be expected in the AM and PM peak hours, while heavy vehicles would generate up to six truck movements in the AM and PM peak hours during the peak construction phase.

Traffic and transport impact assessment

Traffic impacts

Traffic generated during the construction phase is expected to be small with four to six light vehicle movements and up to six heavy vehicle movements (incoming and outgoing combined) in the peak hours during the peak construction phase. Most heavy vehicle movements are also expected to occur outside of the network peak periods, reducing the impact of the project.

The forecast traffic generated during the peak construction stage is expected to have a minimal impact on the surrounding road network, as it is within the daily variation of traffic volumes on the road network and therefore, the road network is expected to continue to operate similarly to how it currently does. Trenchless construction is also proposed at key road crossings, such as the Cumberland Highway, the M7 Motorway, and Wallgrove Road, to minimise disruptions to traffic operations.

Open trenching and pipe installations may result in closures of travel lanes of some roads. Traffic controls would be implemented to allow for the open trenching and excavation to be undertaken and the impact to traffic to be managed. The impacts on traffic operations are anticipated to be low, with trenches generally sized so that excavation, pipe installation and backfilling can all occur within a single working day, and so the impact on traffic at a particular location would be limited in duration.

Walking and cycling impacts

It is expected that there would be minor impacts on people who walk and cycle as construction traffic is expected to be low compared to the existing traffic on the surrounding road network. The impact would also be limited, considering the pipeline construction areas are sized so that all works within a given section can be completed within a day before progression to the next section, and temporary, alternative paths for people walking or cycling would be provided.

Public transport impacts

Construction traffic is expected to be low compared to the existing traffic in the surrounding road network and so it is expected that there would be minimal impacts on public transport travel. Existing bus stops on the proposed pipeline route may be affected by travel lane and footpath closures. Alternative bus stop locations would need to be identified and provided prior to the commencement of the relevant construction works. Trenchless construction is also proposed when crossing the Liverpool-Parramatta Transitway to minimise disruptions to transitway operations. The Victoria Street section of the transitway on the proposed pipeline route (between Canley Vale Road and Elizabeth Street), also has high-frequency bus services during the peak periods, and so measures to minimise impacts on this section of Victoria Street should be included in a construction traffic management plan (CTMP).

Parking and property access impacts

Parking demands for construction workers, delivery trucks, and other project vehicles are expected to be accommodated within the designated ancillary compounds, resulting in minimal impacts on public or private parking facilities. While some on-street parking may still be required on roads adjacent to the pipeline, unrestricted parking is generally available along the roads the pipeline is planned to be constructed on, and staff will travel together from the compounds to the work sites, reducing pressure on on-street parking. Impacts on parking and property access are also expected to be limited, considering the pipeline construction areas are sized so that all works within a given section can be completed within a day before progression along to the next section.

Mitigation measures

Prior to the commencement of construction of the project, a CTMP would be prepared by the contractor(s) in consultation with the relevant road authority (i.e. local council and/or Transport for NSW), which would seek to minimise any delays, disruptions, and safety risks.

Local residents and workers should be informed before commencing any road closure works, and adequate advisory and warning road signs should be provided to inform road users of changed traffic conditions.

1.0 Introduction

1.1 Project background

The coNEXA group owns and operates the Rosehill Recycled Water Scheme (also referred to within the group as the AquaNet Recycled Water Scheme), comprising a recycled water plant at Fairfield (owned by AquaNet Sydney Pty Ltd) and a recycled water reticulation network (owned by Rosehill Network Pty Ltd).

The scheme was initially approved as a major project (MP07_0121) under the now-repealed Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act)

The scheme receives treated effluent from Sydney Water and includes a recycled water treatment plant and an extensive pipeline network, producing high-quality non-potable water suitable for industrial use, supplying the Smithfield, Rosehill and Camellia precincts of Western Sydney.

NEXTDC Ltd (NEXTDC) is an established national developer and operator of data centres and is currently developing a network of facilities to achieve more than 3 gigawatts of data storage capacity. As part of its strategy, NEXTDC are currently seeking State significant development (SSD) consent to construct and operate the 'Western Sydney S4 facility' at Horsley Park, which will be capable of delivering up to 300 megawatts of data storage capacity.

coNEXA SYD Pty Ltd (coNEXA), in partnership with NEXTDC, are developing an extension to the scheme to provide recycled water supply to cater for the demand of NEXTDC's facility (the 'project').

coNEXA has identified the opportunity to extend the scheme to supply the NEXTDC S4 data centre with 16.6 megalitres per day of recycled water. Technical assessments have confirmed the viability of this supply, which will be engineered to meet the data centre sector's stringent reliability requirements, targeting 99.999% supply resilience compared to the 98% standard for traditional potable water systems. The network will incorporate redundancy and adaptive capacity to ensure continuity in the face of climate variability, peak demand, and emergency conditions.

The existing scheme terminates at VISY Recycling (VISY) at 2 Herbert Street, Smithfield. A concept design alignment has been developed for the proposal, extending the network from the existing termination at Smithfield to the NEXTDC S4 facility in Horsley Park and includes:

– An 800 millimetre (mm) diameter high-density polyethylene (HDPE) pipeline to transfer treated effluent from the Fairfield recycled water plant from the existing VISY Pty Ltd connection at 2 Herbert Place, Smithfield to a proposed booster pump station at 46 Victoria Street, Smithfield.

– An 800 mm HDPE pipeline to transfer treated effluent from the pump station to a proposed reservoir at 156-166 Walworth Road, Horsley Park.

– Dual HDPE pipelines (one 560 mm and one 800 mm diameter) supplying water from the reservoir to the NEXTDC facility via gravity.

1.2 Site context

The pipeline runs about 15.7 kilometres (km) from the current connection point at VISY at 2 Herbert Place, Smithfield (Lot 2 DP 849480), heading westward to the NEXTDC S4 facility, located at 16 Johnston Crescent, Horsley Park (Lot 305 DP 1275011).

The pipeline begins in the Cumberland local government area (LGA) and then crosses into the Fairfield LGA after passing beneath Prospect Creek. The pipeline route spans across key roads, such as Victoria Street, Burley Street and Walworth Road, which also provide access to the infrastructure components proposed as part of the project.

The proposed pipeline route is shown in **Figure 1-1** and **Figure 1-2**. It runs between Smithfield and Horsley Park, through areas of residential, commercial and industrial land uses.

Figure 1-1 Section 1 and 2 of the pipeline route

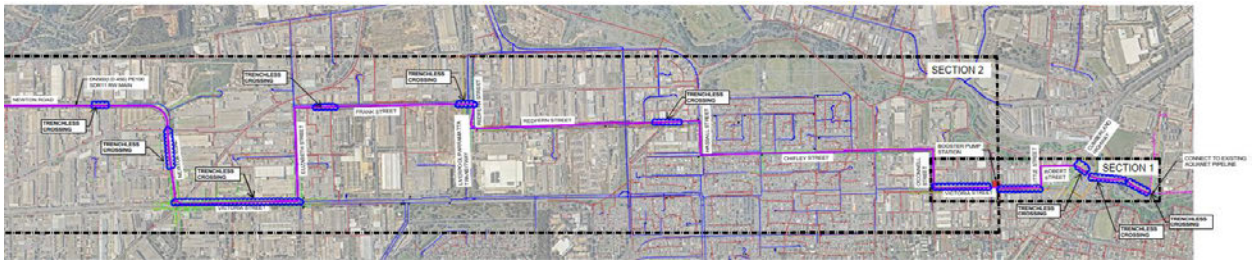
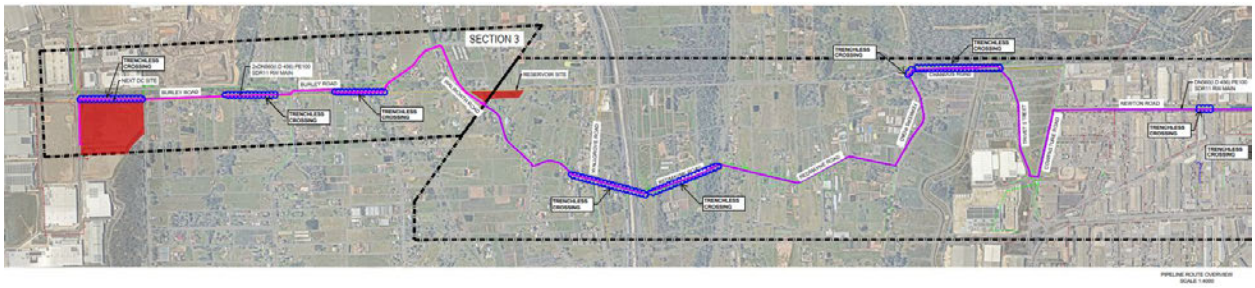


Figure 1-2 Section 3 of the pipeline route



Source: WSce, 2026

1.3 Purpose of this report

This Traffic and Transport Impact Assessment (TTIA) has been prepared to support the review of environmental factors (REF) for the project. It aims to establish an understanding of the current traffic and transport conditions of the areas surrounding the project and to assess potential traffic and transport impacts associated with the construction and operation of the project.

1.4 Assessment methodology and guidelines

The assessment includes an assessment of the project impacts on the following traffic and transport aspects:

– Operation of public transport services

– Walking and cycling networks

– Road network performance

The assessment deals primarily with the construction stage of the project, as this would be when project traffic generation is the greatest. Once operational, there would be some operational and maintenance traffic generated, but this would be much less than during the construction stage.

1.5 Report structure

The remaining sections of this report have been structured into the following sections:

– **Section 2** outlines the project, project staging, and access routes relevant to the project

– **Section 3** describes the existing transport conditions for all modes of transport

– **Section 4** forecasts the likely trip generation, access routes, and parking demand due to the project

– **Section 5** describes the likely traffic and transport impacts due to the project

– **Section 6** presents mitigation measures, including any road and intersection treatments associated with the project

– **Section 7** summarises the assessment and presents conclusions.

2.0 Project description

2.1 Overview

The project consists of three main elements:

1. **Pipe installation:**
   a. Section 1: Pumping main – The treated effluent from the Fairfield recycled water treatment plant will be transferred via an 800 mm diameter HDPE pipeline from the existing connection at 2 Herbert Place, Smithfield, to the proposed booster station at 46 Victoria Street, Smithfield and onwards to the storage reservoirs. This section of the pipeline will be about 12.85 km long.
   b. Section 2: Gravity main – From the reservoir storage, the pipeline will consist of dual HDPE gravity mains (one 560 mm and one 800 mm diameter) totalling 2.85 km. The dual configuration provides system redundancy and reliability of supply to the NEXTDC facility. The alignment follows Walworth Road and Burley Road, running parallel to the Ausgrid easement to mitigate conflict with the future Southern Link Road corridor.
2. **Reservoir establishment:** Reservoirs are required at the pipeline's highest point to reduce the likelihood of negative pressures in the pipeline and to simplify the system's operation. The reservoir site will be located at 156-166 Walworth Road, Horsley Park. The site has been strategically selected to enable a gravity-fed recycled water supply to the NEXTDC facility.
3. **Pump installation:**
   a. Booster pump station: A critical infrastructure element to transfer recycled water from the existing Rosehill Recycled Water Scheme at Smithfield to the proposed reservoir at Horsley Park. The selected site for the pump station is at 46 Victoria Street, Smithfield and is to be located within the existing industrial warehouse building.
   b. Sampling pump station: A dedicated sampling pump station will be installed adjacent to the reservoirs to ensure that water quality within the storage is consistently maintained. The sampling system will incorporate inline monitoring equipment for free chlorine and pH. These instruments will enable real-time measurement of key water-quality parameters and automated adjustment of chemical dosing.

The construction of the project consists of the following stages:

– **Preconstruction:** This stage involves completion of relevant plans, notifying relevant authorities and public, establishing environmental controls, site establishment, relocating any affected services and clearing footprint area and topsoil.
– **Pipeline installation:** The pipeline will be installed using a combination of open trenching techniques and trenchless methodologies.
– **Reservoir establishment:** Construction of tanks and associated infrastructure, involving mobilisation, demolition of existing buildings and structures, earthworks, and pipework connections, in addition to demobilisation and restoration of the construction area.
– **Sampling pump station establishment:** This involves the construction of the sampling pump station and the development of a booster pump station.

For the purpose of this assessment, the pipeline route has been split up into three sections as follows:

a. Section 1: VISY Pty Ltd connection point to O'Connell Street
b. Section 2: O'Connell Street to the reservoir site
c. Section 3: Reservoir site to the NEXTDC S4 facility

An illustration of the project layout and the above mentioned sections are shown in **Figure 2-1**, **Figure 2-2** and **Figure 2-3** .

Figure 2-1 Proposed project layout – Section 1

Figure 2-2 Proposed project layout – Section 2

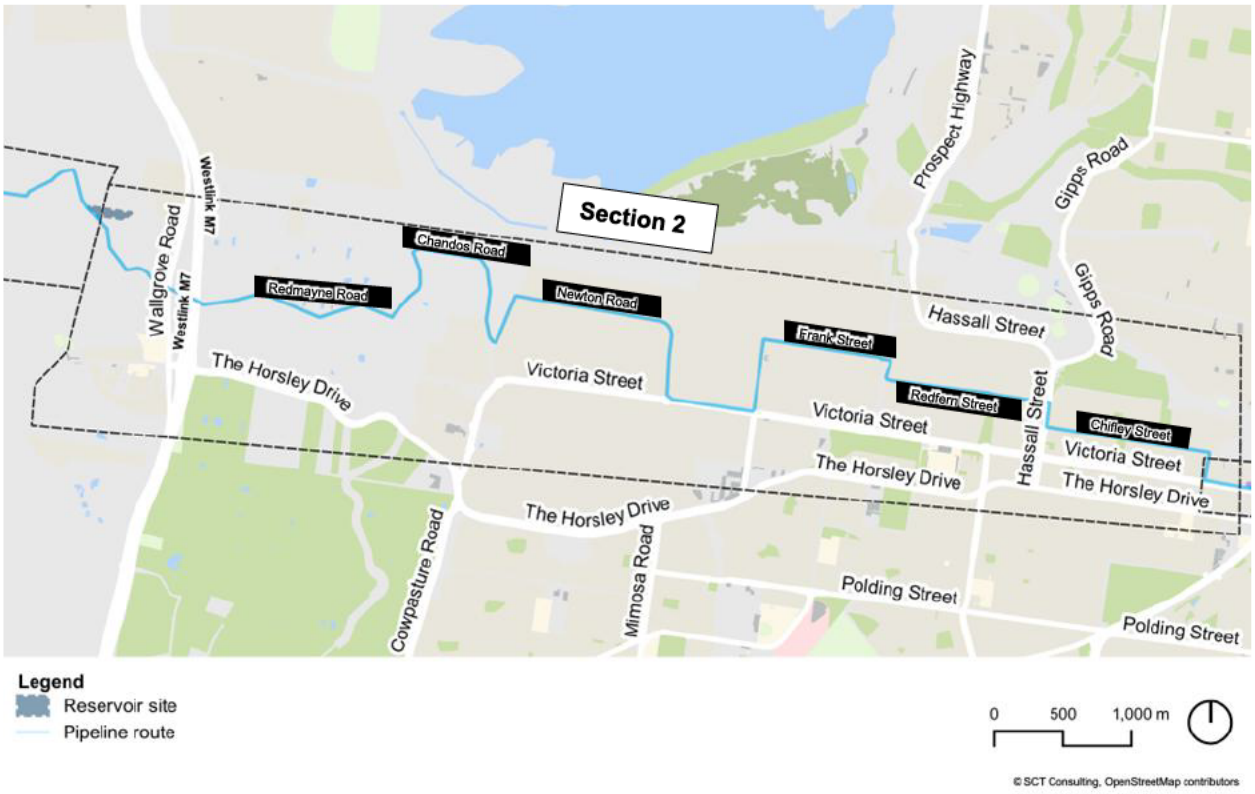
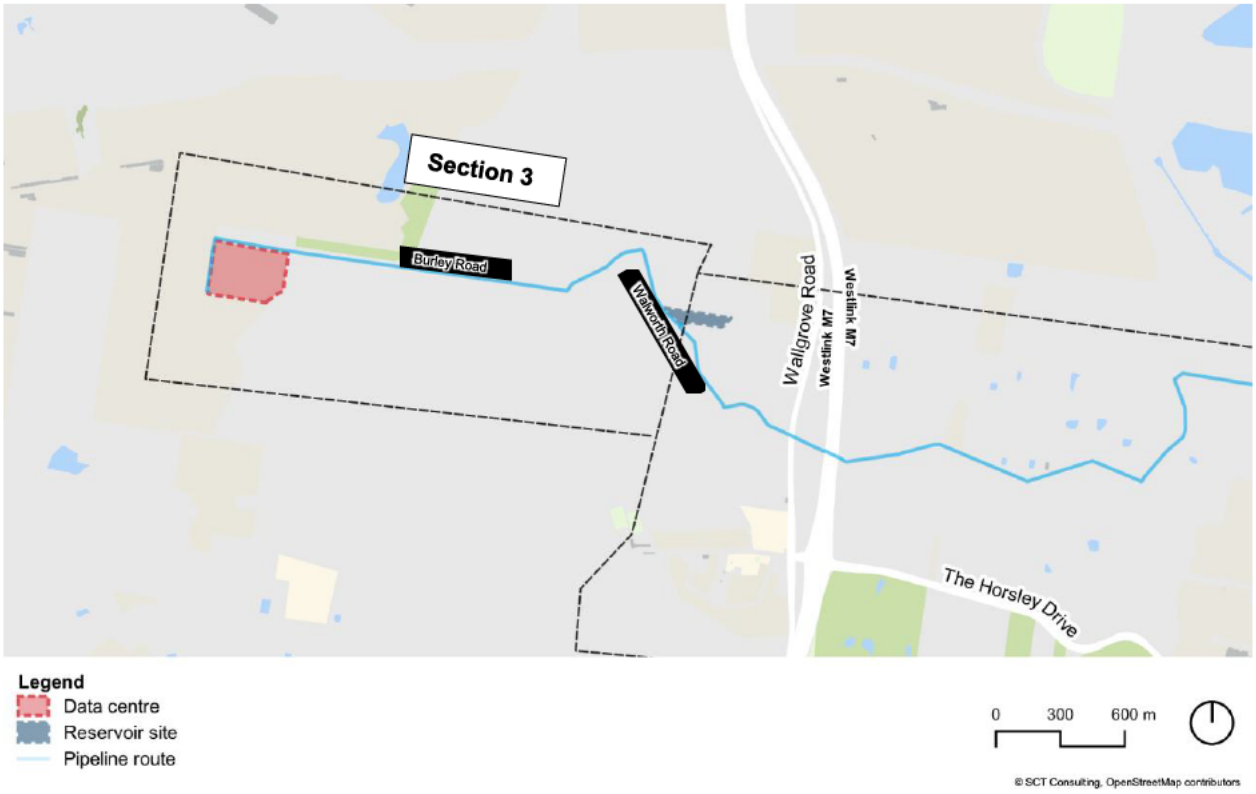


Figure 2-3 Proposed project layout – Section 3



2.2 Pipeline installation

The pipeline will be installed using a combination of open trenching excavation and trenchless methodologies (horizontal directional drilling (HDD) and/or micro-tunnelling).

2.2.1 Open excavation trenching

Trenches for the pipeline's installation will typically be between 1 and 3 metres (m) deep. Depending on ground conditions and construction techniques, trenches will typically be between 1.5 m and 6 m wide.

The width of the construction corridor disturbed by open trenching will vary depending on the ground conditions and the depth of excavation required, but it will generally be up to 20 m wide. Construction activities associated with trenching typically include:

– Preparing the site, clearing the surfaces where necessary.

– Excavating trenches and managing spoil/topsoil.

– Installing the pipeline.

– Backfilling the trench.

– Constructing maintenance and ventilation shafts.

– Constructing the air release valve and pump scour pits.

– Restoring areas disturbed by the construction.

The length of trenches will generally be sized so that excavation, pipe installation and backfilling can occur within a single working day. This method will continue as the work progresses along the alignment.

2.2.2 Trenchless excavation

The pipeline incorporates extensive trenchless construction to minimise environmental impacts and disruptions to critical infrastructure. Key trenchless crossings include Prospect Creek, Reedy Creek, Eastern Creek, Upper Canal, stormwater drainage channels, the Liverpool-Parramatta Transitway, the Cumberland Highway, the M7 Motorway, Wallgrove Road and the Jemena high-pressure gas transmission pipelines at Eastern Creek.

Boring techniques that may be used, include HDD and micro-tunnelling.

HDD will generally involve the following activities:

– Establishing the drill launch site, drill reception site and pipe laydown area. These areas will contain the drilling rig and associated equipment, vehicles, site sheds and materials storage. Each area will be about 20 m long by 20 m wide. The drill reception site will also require an area the length of the drill run to string the pipe before it is installed.

– Installing measures to manage drilling fluids and cuttings

– Drilling a hole from the drill launch site and inserting a steel casing pipe.

– Containing drill cuttings and recycling at the drill launch site.

– Restoring affected areas, including backfilling the bore shafts and entry/exit pits.

Micro-tunnelling uses a remotely controlled micro-tunnel boring machine (MTBM) to excavate a tunnel from a launch shaft to a reception shaft. As the MTBM excavates the tunnel, reinforced concrete pipes are installed behind the MTBM in a process called jacking. Micro-tunnelling generally involves the following activities:

– Establishing launch and reception shafts, each about 20 m long by 15 m wide.

– Installing a jacking frame, launch headwall and retrieval headwall (if required).

– Installing the MTBM in the launch pit. The MTBM is then remotely controlled by hydraulics, using a laser guidance system from the launch pit to the rear of the cutting head.

– Slurry or cuttings are usually removed via vacuum extraction or a recirculating slurry disposal system.

Intermediate pits may also be required for longer tunnelling lengths.

2.3 Reservoir establishment

Construction of the tanks and associated infrastructure will include the following general scope of work:

- Mobilisation.
- Demolition of existing buildings and structures.
- Earthworks: Clear topsoil for later reuse, complete specified excavator earthworks (cut/fill, platform, drainage and containment bund), and compact and grade soils to required geotechnical standards.
- Pipework connections: Excavate trenches to connect pipelines to the reservoir tanks and install and test the required pipework and valves.
- Building and structures:
  - Screw piling or bored piers for structural support and install concrete tank slabs, access ways and infrastructure.
  - Construct the first ring panel for the tank, lifting the tank using jacks to build the next ring. Following completion of the final ring lower the tank onto the base ring.
  - Install safety and platform ladders and equip the tanks with mechanical, electrical and control equipment, including pumps and chemical dosing systems and install tank roof.
  - Following final inspection and testing, commission the tank for filling.
- Demobilisation:
  - Reuse spoil for fill and re-contouring of the land surrounding the reservoirs where appropriate.
  - Restore the construction area and demobilise the work site, including removal of waste, security fencing and environmental controls.

2.4 Pump station establishment

As part of the project, two pump stations will be constructed, including a recirculation pump station and a booster pump station.

The construction of recirculation pump station will involve:

- Excavations and concrete work for the wet wells and maintenance/access chambers.
- Constructing the pump station building (where required).
- Installing the pumps and equipment.
- Installing connecting inflow/outflow pipelines and covers and access hatches on the wet well and chambers.
- Fitting out electrical and mechanical components.
- Restoring the site.

The development of the booster pump station will also involve:

- Surveying and assessing the existing building structure, fabric and site utilities.
- Utility upgrades (i.e. electrical incomer).
- Demolition and excavation for incoming and supply pipework.
- Installing pipes, backfilling and restoration.
- Installation of bunding and drainage.
- Constructing plinths and install mechanical equipment, including pumps, valves, flowmeter, etc.
- Installing of electrical infrastructure, instrumentation and control equipment.
- Testing and commissioning.
- Demobilisation.

3.0 Existing conditions

3.1 Surrounding road network

The key roads that may be used to access section one of the pipeline route during both construction and operation phases include:

– **Victoria Street**, a State road spanning between Smithfield Road to the east and Cowpasture Road to the west. It is a two-way, four lane road with an approximately 19.5 m wide carriageway and a sign posted speed limit of 60 kilometres per hour (km/h). The road provides an east-west connection through Wetherill Park and Smithfield.

– **Chifley Street**, a local road providing access to both the industrial and residential areas of Smithfield. The street has an approximately 10 m wide carriageway, with one travel lane in each direction. It has a 50 km/h speed limit with on-street parking generally available on both sides of the road.

– **Smithfield Road / Warren Road**, a major north-south road and part of the Cumberland Highway in the vicinity of the project. The road has an approximate 26 m wide carriageway separated by a median, with three through lanes in each direction. It has a speed limit of 70 km/h and provides access to the pipeline route and the broader road network.

The road network around section 1 of the project area is shown in **Figure 3-1**.

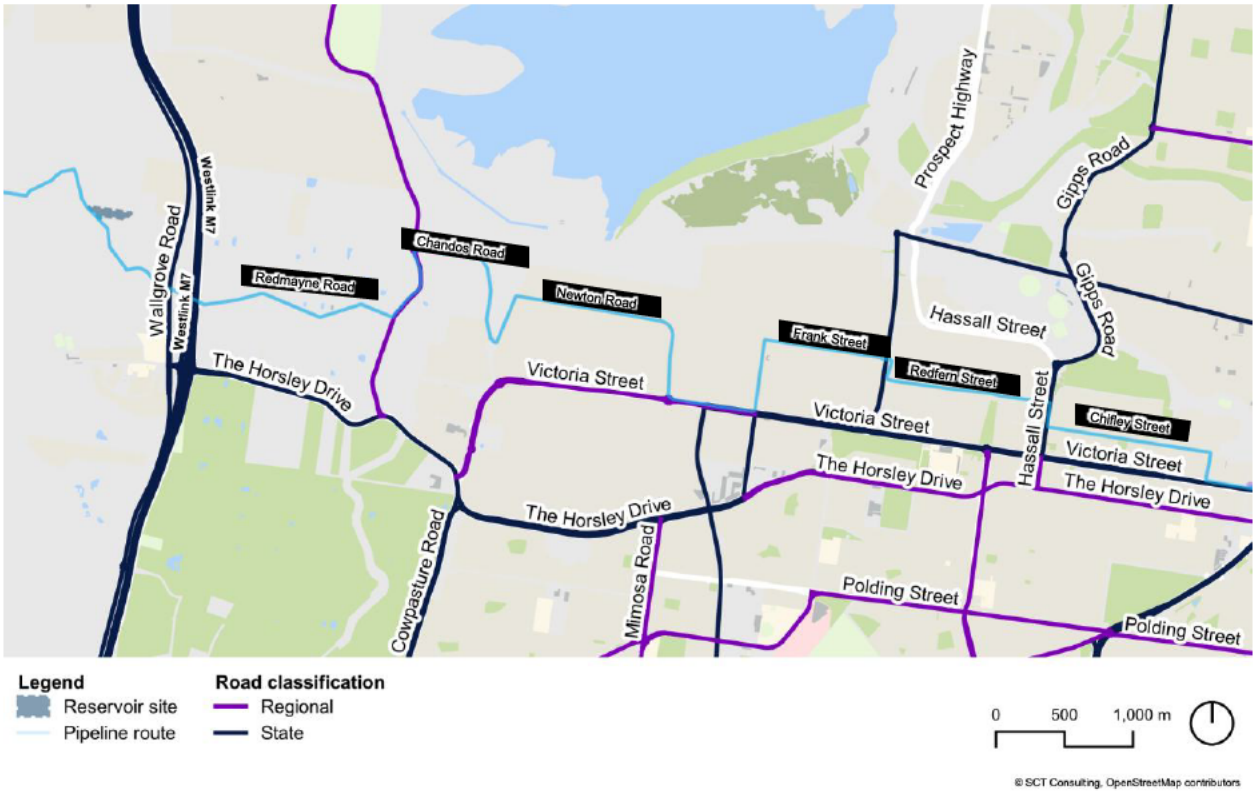
Figure 3-1 Road network around section 1 of the pipeline route

The key roads that may be used to access section two of the pipeline route during both construction and operation phases include:

- **Redfern Street**, a local road that spans between Hassall Street to the east and Liverpool-Parramatta Transitway to the west within the Wetherill Park industrial precinct. The road has an approximately 12.5 m wide carriageway with one travel lane in each direction and on-street parking available on the road shoulders.
- **Newton Road**, a local road running in an east-west direction between Victoria Street and Cowpasture Road within Wetherill Park. The road has an approximately 12.5 m wide carriageway with one travel lane in each direction and on-street parking available on the road shoulders.
- **Redmayne Road**, a local road spanning between Ferrers Road to the east and Walworth Road to the west in Horsley Park. The road has an approximately 9 m wide carriageway with limited on-street parking opportunities due to the narrow carriageway width.

The road network around section 2 of the project area is shown in **Figure 3-2.**

Figure 3-2 Road network around section 2 of the pipeline route



The key roads that may be used to access section three of the pipeline route during both construction and operation phases include:

- **Walworth Road**, a local road that provides access to the reservoir site. The road runs in a north-south direction between The Horsley Drive and Burley Road. It has a narrow 6 m wide carriageway, with one lane of traffic in each direction. The road has an assumed speed limit of 50km/h and has centreline markings separating the two lanes.
- **Burley Road**, a local road that runs in an east-west direction between Johnston Crescent to the west and terminates near Wallgrove Road to the east. The narrow 7 m wide carriageway has one traffic lane in each direction and centreline markings. The road has a sign posted speed limit of 60 km/h and provides access to numerous residential properties and the NEXTDC S4 data centre.

The road network around section 3 of the project area is shown in **Figure 3-3**.

Figure 3-3 Road network around section 3 of the pipeline route

3.2 Crash data

Road crash data from 2020 to 2024 was sourced from the Transport Open Data Hub to analyse the occurrences and nature of road crashes around the project area. The locations of the crashes are depicted in **Figure 3-4**, **Figure 3-5** and **Figure 3-6** with a summary of severities provided in **Table 3-1**.

Over five years, a total of 64 crashes were recorded along the pipeline route. The data indicates that 14 moderate and serious crashes have occurred, followed by 13 minor crashes and 23 crashes with no casualties. There were no fatalities recorded along the pipeline route.

The most crashes (16) occurred on Victoria Street, with the most common accident on this road being cross traffic accidents (six crashes). The high number of cross-traffic collisions suggests that drivers may be misjudging gaps at intersections on this road, likely due to the heavy traffic volumes that make safe gap selection more difficult.

For all other roads, the road user movements (RUM) leading to the crashes varied. The most common were cross traffic accidents and rear end (RUM 10 & 30: nine instances) followed by head on crashes (RUM 20: five instances) and ran off road on bend crashes (RUM 87: five instances). Overall, crashes on the remaining roads are relatively few and widely dispersed, suggesting no clear hotspot or major safety concern across the network.

Table 3-1 Crash statistics (2020-2024)

Road	Non-casualty (towaway)	Minor/Other Injury	Moderate Injury	Serious Injury	Total
Wallgrove Road	2	2	1	0	**5**
Victoria Street	5	4	4	3	**16**
Elizabeth Street	0	1	2	0	**3**
Redfern Place	1	0	0	2	**3**
Ferrers Road	1	1	0	3	**5**
Burley Road	0	0	1	0	**1**
Newton Place	3	1	1	3	**8**
Chandos Street	2	0	1	0	**3**
Hassall Street	3	1	3	1	**8**
Redmayne Road	2	0	0	1	**3**
Frank Street	1	0	0	0	**1**
Chifley Street	1	0	1	1	**3**
The Horsley Street	1	0	0	0	**1**
Cowpasture Road	1	2	0	0	**3**
Bushells Road	0	1	0	0	**1**
Total	**23**	**13**	**14**	**14**	**64**

Figure 3-4 Map of crashes on section 1 of the pipeline route

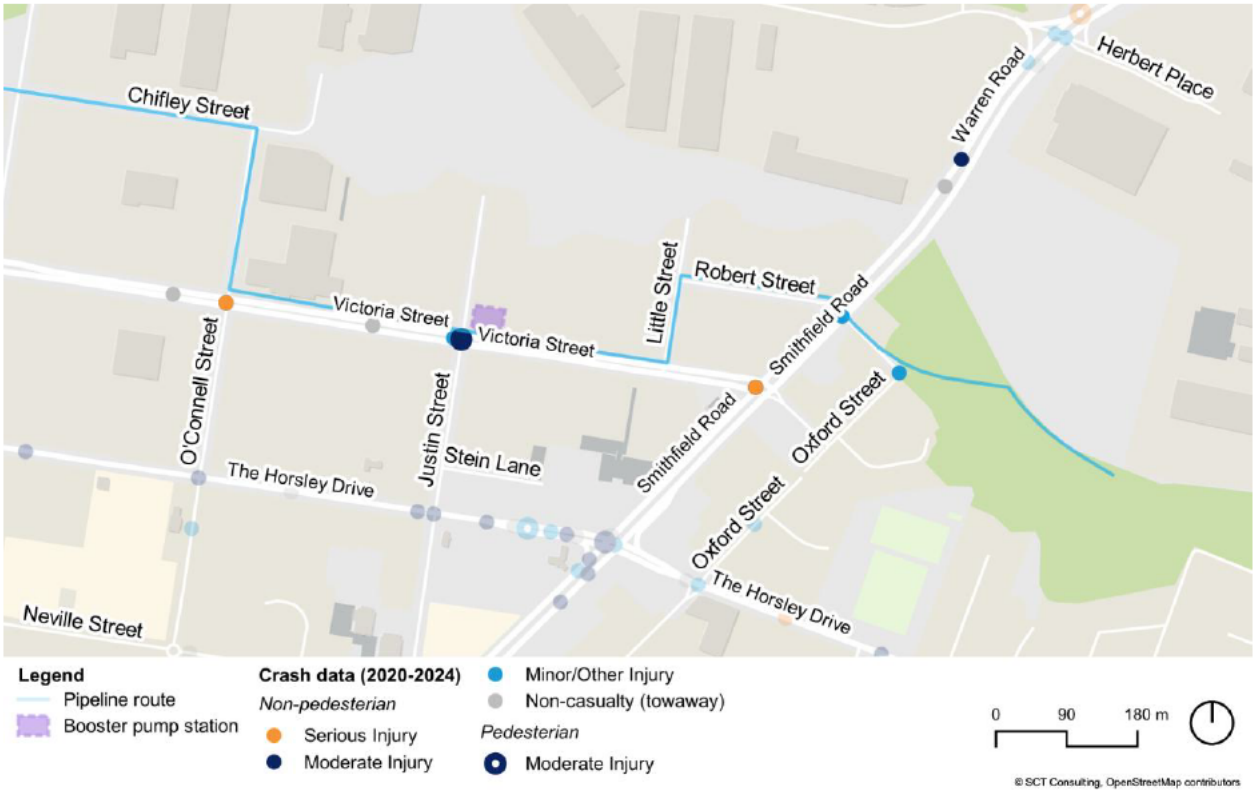


Figure 3-5 Map of crashes on section 2 of the pipeline route

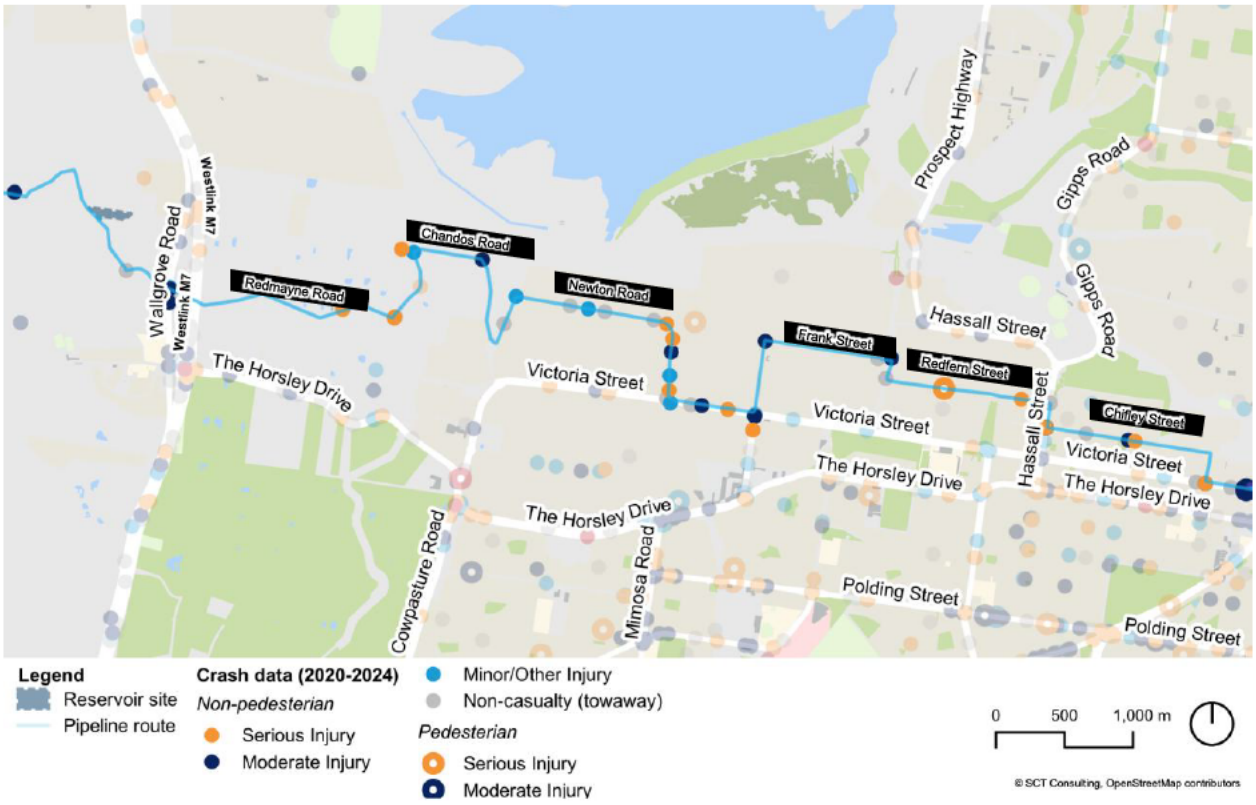
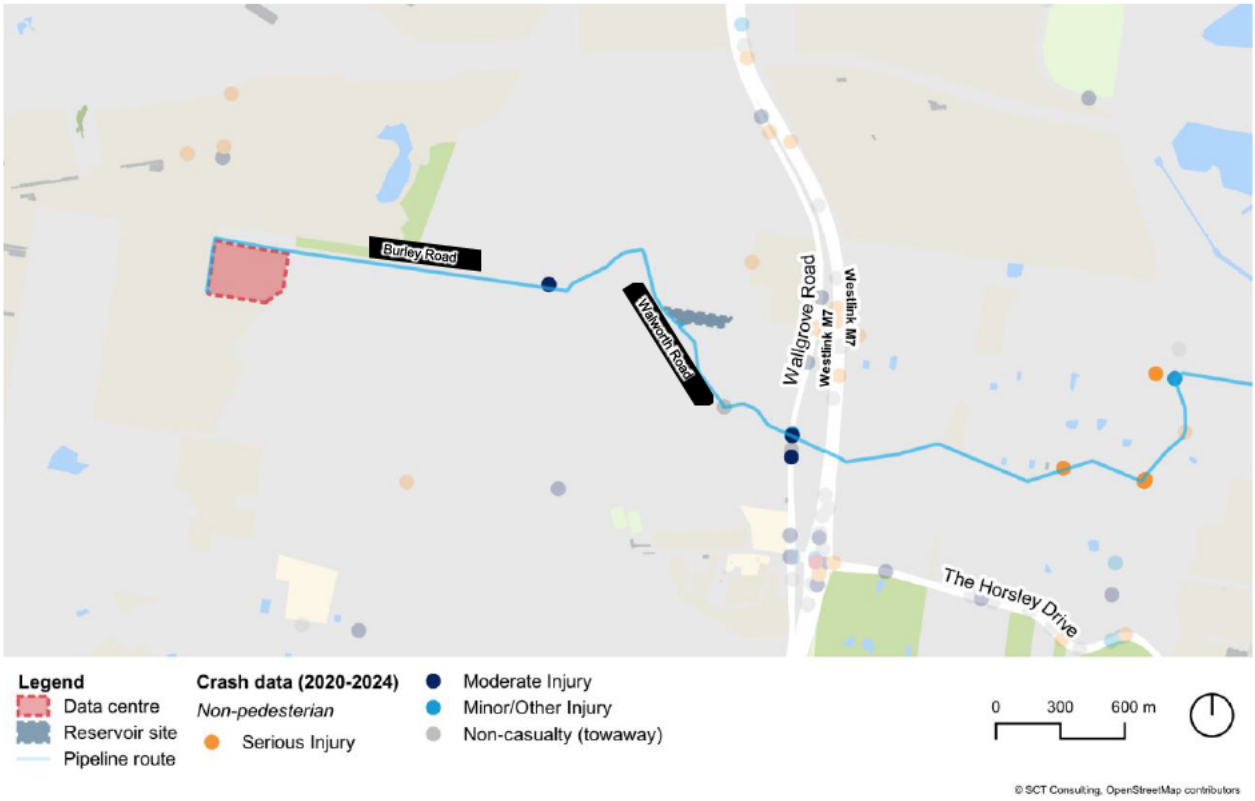


Figure 3-6 Map of crashes on section 3 of the pipeline route



3.3 Parking

Construction worker parking will be limited to the identified ancillary compounds, at the reservoir and pump station construction sites and within the project area where equipment or vehicles are required adjacent to the pipeline worksites. Where private vehicles for construction personnel are used, parking may also be required on some of the roads adjacent to the pipeline. Unrestricted parking is generally available along the roads on which the pipeline is planned to be constructed.

3.4 Walking and cycling

Most of the areas surrounding the project area and construction sites have footpaths available, particularly Victoria Street and The Horsley Drive. Footpaths are limited towards the western side of the pipeline route particularly along Chandos Road, Redmayne Road, Walworth Road and Burley Road.

Cycle path and bicycle facilities around the area are limited with no cycleways along the proposed pipeline route with most cycling occurring along the general road shoulders.

The active transport network is shown in **Figure 3-7**, **Figure 3-8** and **Figure 3-9**.

Figure 3-7 Active transport network on section 1 pipeline route

Figure 3-8 Active transport network on section 2 of pipeline route

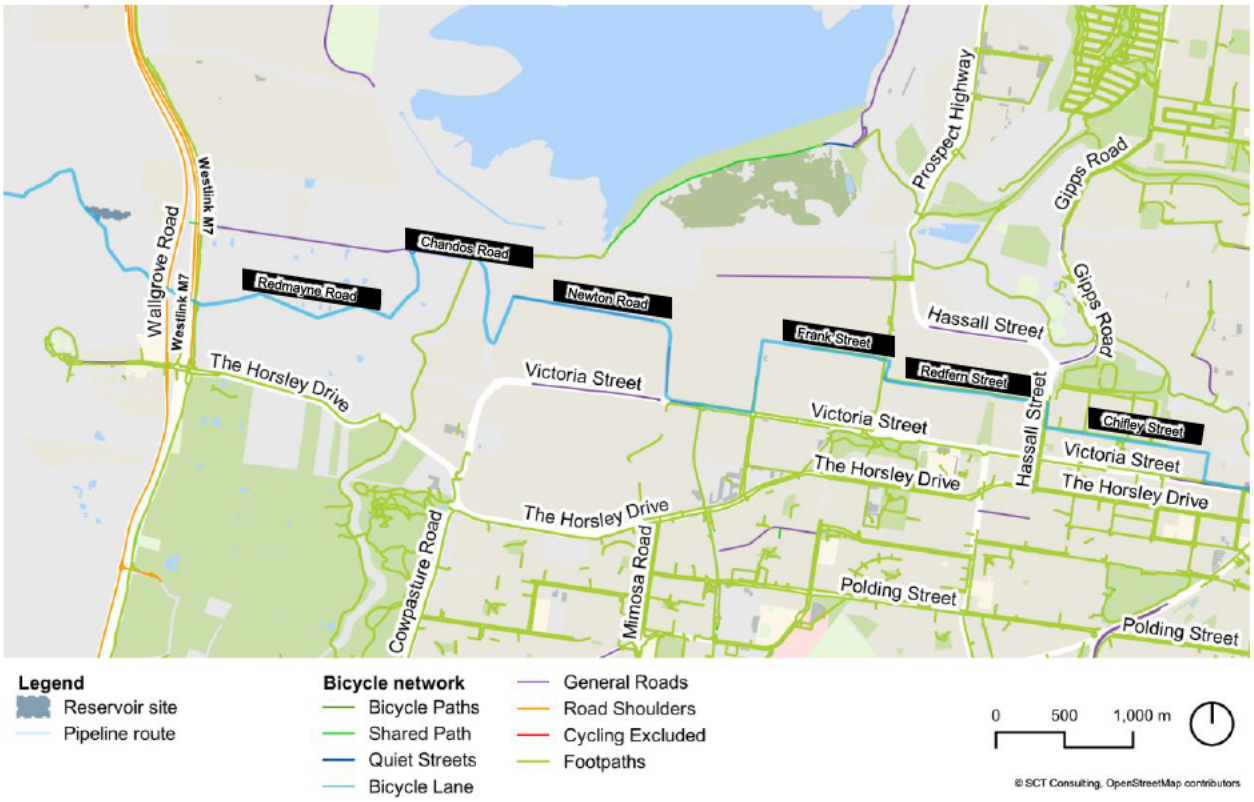
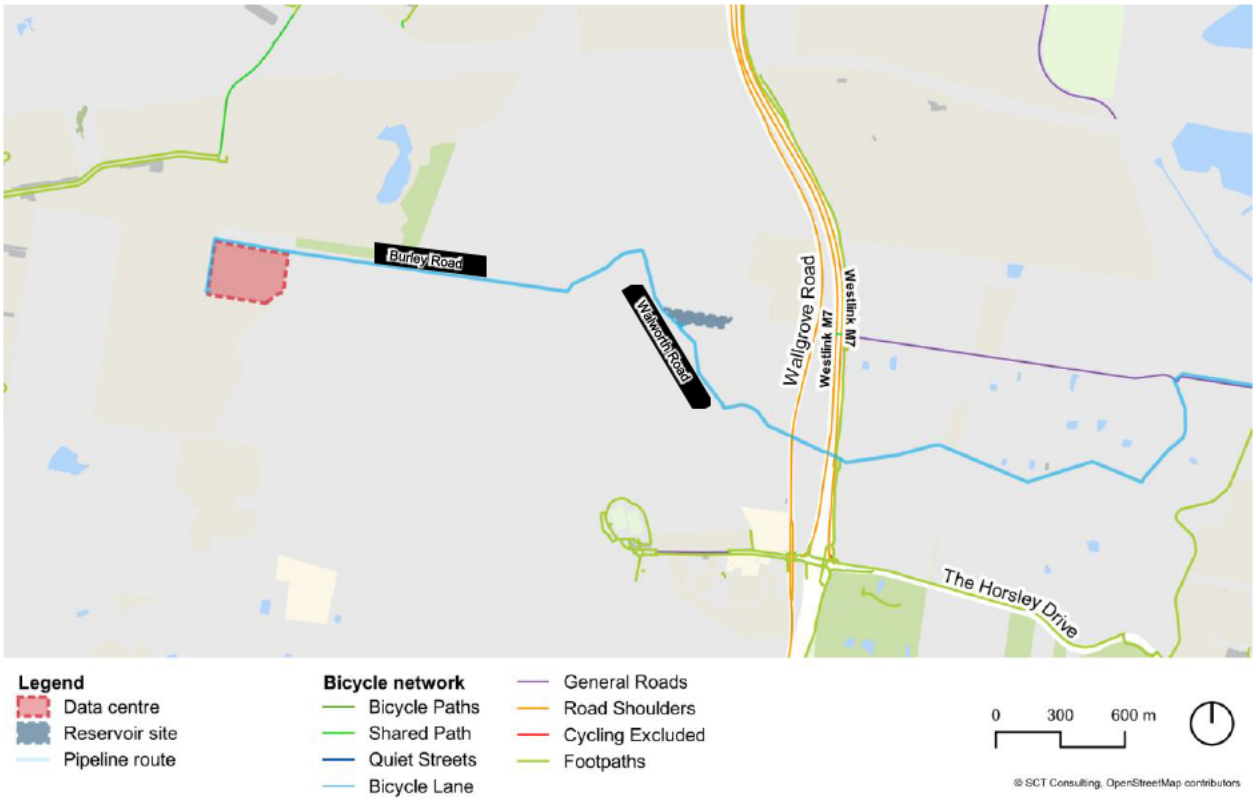


Figure 3-9 Active transport network on section 3 of pipeline route



3.5 Public transport

Several bus stops are on the pipeline route, as seen in **Figure 3-10**, **Figure 3-11** and **Figure 3-12**. The services that operate on the pipeline route are also summarised in **Table 3-2**. The pipeline route mostly spans along local services averaging 1-2 bus trips within the peak hour except for the Victoria Street section of the Liverpool-Parramatta Transitway on the pipeline route (between Canley Vale Road and Elizabeth Street). The bus stops on this section of Victoria Street are serviced by several routes including the T80, 800 and 812 routes with buses arriving every 5 to 15 minutes during the peak service periods.

Table 3-2 Bus services along the pipeline route

Routes	Service name	Frequency during peak hours on weekdays	
		8.00-9.00am	5.00-6.00pm
9049	Wetherill Park to Horsley Park Public School	1 trip	-
T80	Parramatta to Liverpool via T-way	6 trips	16 trips
835	Prairiewood to WSU Penrith	2 trips	1 trip
9071	Cabramatta to Marion Public School via St Johns Park	1 trip	-
814	Fairfield to Smithfield and Wetherill Park Industrial Area (Loop Service)	2 trips	2 trips
800	Fairfield to Blacktown via Pemulwuy	4 trips	5 trips
9051	Smithfield to Smithfield West Public School	1 trip	-
812	Fairfield to Blacktown via Prospect Hwy	1 trip	2 trips
	Total	**18 trips**	**26 trips**

Figure 3-10 Map of public transport available on pipeline route section 1

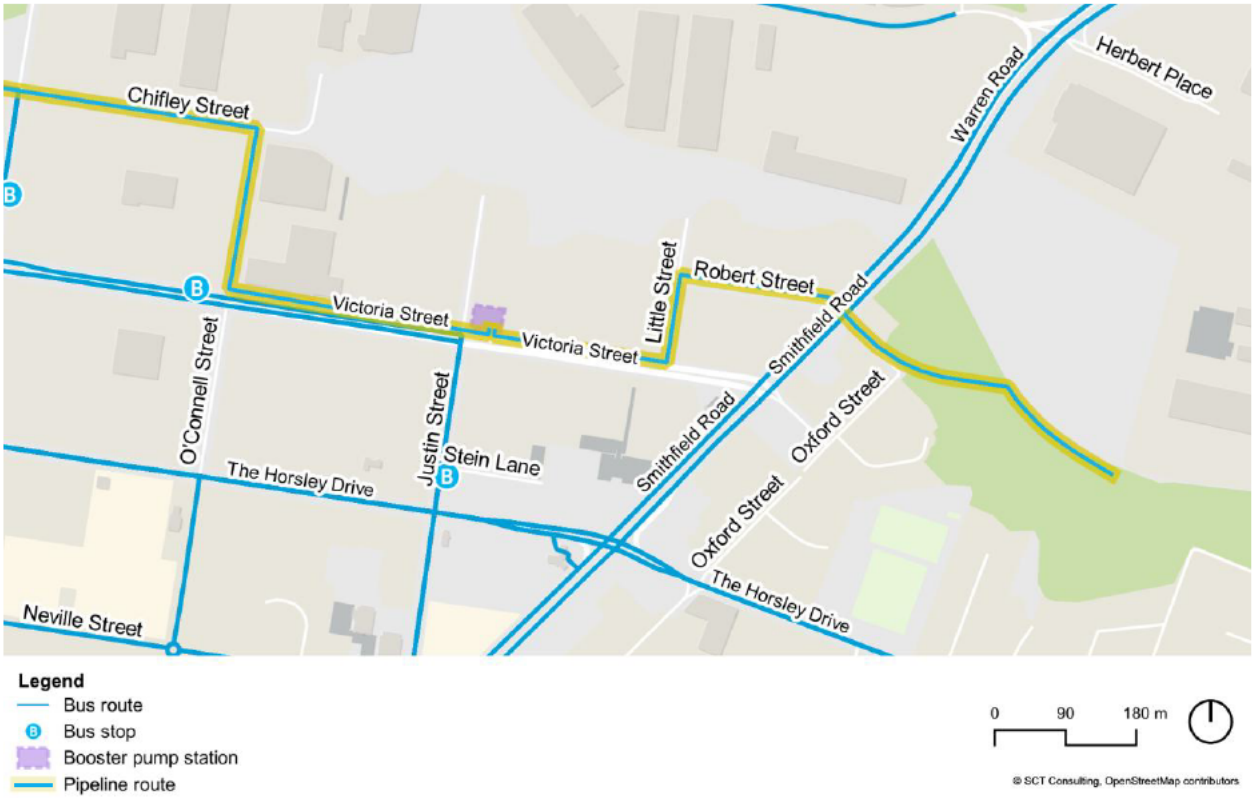


Figure 3-11 Map of public transport available on pipeline route section 2

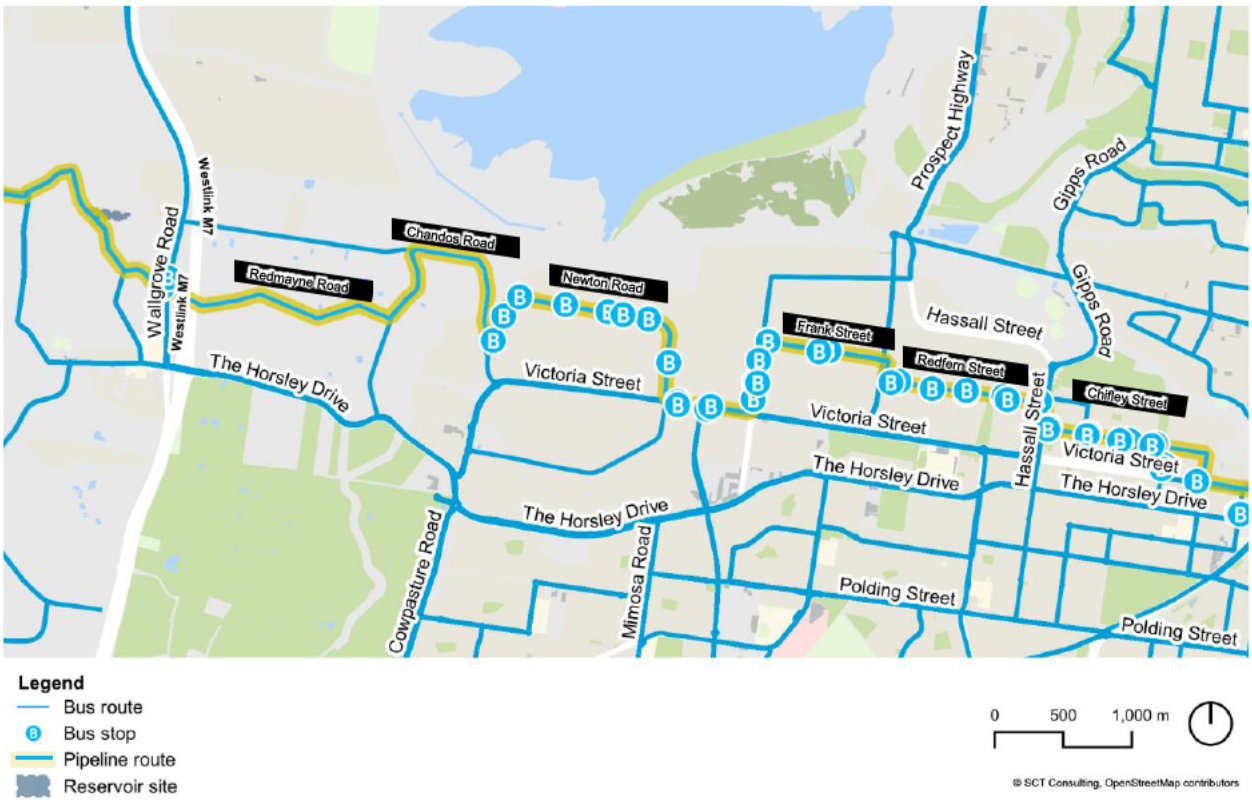


Figure 3-12 Map of public transport available on pipeline route section 3

4.0 Construction traffic

4.1 Traffic generation

Throughout the delivery and operational life cycle of the project, it is expected that the construction stage would have the highest traffic and transport impacts on the surrounding road network.

During construction, it is estimated that there would be up to 60 heavy vehicle movements per day (30 arrivals and 30 departures), associated with spoil removal, material delivery, pipe transport, trenchless support activities and waste transport. There will also be up to 20 light vehicle movements per day (10 arrivals and 10 departures) associated with workforce travel.

4.2 Parking demand

Based on the estimated traffic generation discussed above, it is expected that all cars and trucks associated with the construction works will be parked within the temporary construction compounds, laydown areas or pipeline work sites.

4.3 Access routes

Traffic patterns will shift depending on the specific section of the pipeline route and the project activities underway. It is expected that vehicles working on sections 1 and 2 of the pipeline route will likely approach the site from Smithfield Road while those working on section 3 of the pipeline route would approach the site from Wallgrove Road.

The access routes are shown in **Figure 4-1**.

Figure 4-1 Site access routes

5.0 Traffic and transport impact assessment

5.1 Traffic impacts

Traffic generated by the project during the construction phase is expected to be small, with a maximum of four to six light vehicle movements and up to six truck movements (incoming and outgoing combined) in the morning (AM) and afternoon (PM) peak hours during the peak construction phase. Most truck movements are also expected to occur outside of the network peak periods, making the impact of the construction works minimal.

Recent publicly available TfNSW traffic volume data on key roads near the site that would be used to access the pipeline route, such as Cambridge Street that leads into Smithfield Road / Warren Road, indicates the road carries about 41,000 two-way daily vehicle movements (combined in both directions). In comparison, the project is expected to generate around 80 two-way daily vehicle movements (40 arrivals and 40 departures) during peak construction periods, representing an increase of about 0.2 per cent of the total daily traffic on this road. Within the context of the broader road network, this additional volume is minimal and falls well within normal daily variations. On this basis, the project is not expected to have any major impacts on the wider road network with the network expected to operate as it currently does.

Trenchless construction is also proposed at key road crossings, such as the Cumberland Highway, the M7 Motorway, and Wallgrove Road, to minimise disruptions to traffic operations.

Once operational, traffic would be limited to a few staff and maintenance vehicles per day, which would have a minimal impact on the surrounding road network.

5.2 Impacts of lane closures

During construction, open trenching and pipeline installations will result in closure of travel lanes and/or footpaths on some roads in the project area. Traffic controls will be implemented to allow for the open trenching and excavation to be undertaken and the impact to vehicles and pedestrians to be managed.

Depending on ground conditions and construction techniques, trenches will typically be 1.5 m to 6 m wide and between 1 m and 3 m in depth. The trenches will be generally sized so that excavation, pipe installation and backfilling can all occur within a single working day. This method will be used as the work progresses along the alignment and so the impact on traffic would be limited in duration.

A construction traffic management plan (CTMP) will identify any potential risks associated with closures of travel lanes and/or footpaths and provide detailed temporary traffic management plans to ensure safety, pedestrian comfort and efficient movements of traffic.

5.3 Walking and cycling impacts

It is expected that there would be minor impacts on the people who walk and cycle in the area as construction traffic is expected to be low compared to the existing traffic in the surrounding road network. Any impacts will likely be related to the temporary closure of walking and cycling paths during trenching or other construction activity, which would need to be managed by qualified traffic controllers and temporarily replaced by alternative paths provided by the contractors.

The impact would be limited considering the pipeline construction areas are sized so that all works within a given section can be completed within a day before progression along to the next section.

5.4 Public transport impacts

There are several bus stops on the pipeline route that may be temporarily impacted by the construction of the pipeline. In situations where the construction area falls within the vicinity of a bus stop, alternative bus stop locations would be provided. However, the impact would be generally limited considering the construction areas are sized so that all works within a given section can be completed within a day before progression along to the next section.

The CTMP will need to consider the existing bus stops on the proposed pipeline route that may be affected by travel lane and footpath closures. Alternative bus stop locations would need to be identified and provided prior to the commencement of the relevant construction works.

In particular, disruption should be minimised along the Liverpool–Parramatta Transitway, as it carries high-frequency bus services. While trenchless excavation is planned for the crossing of the transitway at Frank Street, and so impacts on transitway operations are expected to be minimal, the Victoria Street section of the transitway on the proposed pipeline route (between Canley Vale Road and Elizabeth Street), also has high-frequency bus services during the peak periods, and so measures to minimise impacts on this section of Victoria Street should be included in the CTMP.

5.5 Parking and property access impacts

Throughout the construction phase, there will be temporary construction compounds and laydown areas at key locations within the project area. These facilities will provide areas for car parking and storage of plant, equipment, and construction materials.

Parking demands for construction workers, delivery trucks, and other project vehicles are expected to be accommodated within the designated compounds, resulting in minimal impacts on public or private parking facilities. While some on-street parking may still be required on roads adjacent to the pipeline, unrestricted parking is generally available along the roads the pipeline is planned to be constructed on, and staff will travel together from the compounds to the work sites, further reducing any pressure on on-street parking.

Any impacts on property access will relate to the temporary lane closures during trenching, which would need to be managed by qualified traffic controllers with advance warning given. The impact would be limited, considering the pipeline construction areas are sized so that all works within a given section can be completed within a day before progression along to the next section.

6.0 Mitigation measures

Table 6-1 provides an overview of proposed measures that should be implemented by the contractor(s) to manage and/or mitigate potential traffic and transport impacts associated with the project.

Table 6-1 Overview of potential project impacts and mitigation measures

Impact	Mitigation measures
Overall	– Prepare and implement a Construction Traffic Management Plan (CTMP) in consultation with the relevant road authority (i.e. Councils and Transport for New South Wales (TfNSW)), which would seek to minimise any delays, disruptions, and safety risks. The CTMP will be prepared in accordance with the *Traffic Control at Work Sites Manual* (TfNSW, 2022). It would include the following details: • Confirmation of haulage routes • Measures to maintain access to local roads and properties • Site specific traffic control measures (including signage) to manage and regulate traffic movement • Measures to maintain pedestrian and cyclist access / routes • Requirements and methods to consult and inform the local community of impacts on the local road network • Access to construction sites, compounds and laydown areas, including entry and exit locations and measures to prevent construction vehicles queuing on public roads • A response plan for any construction traffic incident • Consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic • Monitoring, review and amendment mechanisms.
Travel lane closures	– Inform local residents and workers before commencing any road closure works – Provide adequate advisory and warning road signs to inform road users of changed traffic conditions – Plan for travel lane closure works outside peak hours, if possible – Deploy qualified traffic controllers to manage traffic flows – Provide alternative travel path options for both vehicles and pedestrians and stage construction works such that loss of travel paths and detours are minimised – In consultation with TfNSW, Councils and private transport operators, provide alternative locations for relocated bus stops, and plan travel lane closures to minimise impact on bus operations.
Parking demands of workers and construction vehicles	– Confirm the number of required parking spaces, provide adequate parking spaces within the compounds / sites, and implement a plan to ensure that there is no excessive parking required on public roads. – Encourage carpooling among workers.

7.0 Conclusion

This report has been prepared to assess the traffic and transport impacts of the proposed extension of the existing Rosehill Recycled Water Scheme to supply the NEXTDC S4 data centre. The assessment deals primarily with the construction stage of the project, as this is when project traffic generation would be the greatest. Once operational, traffic would be limited to a few staff and maintenance vehicles per day, which would have a negligible impact on the surrounding transport network.

The assessment has found the following:

- Construction would occur in four main construction stages: preconstruction, pipeline installation, reservoir establishment and pump establishment. During the peak construction stage, up to six truck movements and four to six car movements per hour are forecast to be generated.
- The forecast traffic generated during the peak construction stage is expected to have a minimal impact on the surrounding road network. The traffic generated is within the daily variation of traffic volumes on the road network and therefore, the road network is expected to continue to operate similarly to how it currently does. Trenchless construction is also proposed at key road crossings, such as the Cumberland Highway, the M7 Motorway, and Wallgrove Road, to minimise disruptions to traffic operations.
- Open trenching and pipe installations may result in closures of travel lanes and/or footpaths of some roads. Traffic controls would be implemented to allow for the open trenching and excavation to be undertaken and the impact to vehicles and pedestrians to be managed. The impacts on traffic operations are anticipated to be low, with trenches generally sized so that excavation, pipe installation and backfilling can all occur within a single working day, and so the impact on traffic at a particular location would be limited in duration.
- It is expected that there would be minor impacts on people who walk and cycle as construction traffic is expected to be low compared to the existing traffic on the surrounding road network. The impact would also be limited considering the pipeline construction areas are sized so that all works within a given section can be completed within a day before progression along to the next section, and temporary, alternative paths for people walking or cycling would be provided.
- Construction traffic is expected to be low compared to the existing traffic in the surrounding road network and so it is expected that there would be minimal impacts on public transport travel. Existing bus stops on the proposed pipeline route may be affected by travel lane and footpath closures. Alternative bus stop locations would need to be identified and provided prior to the commencement of the relevant construction works. Trenchless construction is also proposed when crossing the Liverpool-Parramatta Transitway to minimise disruptions to transitway operations.
- Impacts on parking and property access are also expected to be limited, considering the pipeline construction areas are sized so that all works within a given section can be completed within a day before progression along to the next section.
- Prior to the commencement of construction of the project, a CTMP would be prepared by the contractor(s) in consultation with Councils and TfNSW, which would seek to minimise any delays, disruptions, and safety risks.
- Local residents and workers should be informed before commencing any road closure works, and adequate advisory and warning road signs would be provided to inform road users of changed traffic conditions.

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