Attachment K

Transport Impact Assessment

Melbourne Jet Pipeline Project

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Melbourne Airport Jet Pipeline Project

Transport Impact Assessment

Viva Energy Australia

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1 Introduction

1.1 Background

Viva Energy Australia (Viva Energy) is proposing to construct and operate a new jet fuel pipeline to support the growing fuel needs at Melbourne Airport.

As Australia's second largest airport, annual passenger numbers for Melbourne Airport are expected to almost double by 2042 – increasing from 37 million to more than 76 million per year[1]. In line with this projected increase in passenger numbers, the requirement for jet fuel is expected to increase significantly and is expected to exceed the capacity of the existing fuel supply infrastructure. Notwithstanding future growth, jet fuel supplied via the existing pipeline system is already being supplemented by trucking operations from Geelong and Melbourne's inner-city suburbs.

The development of the new pipeline would provide faster replenishment of fuel stocks, provide an alternative to current and escalating dangerous goods vehicle movements and provide a more robust fuel supply chain.

Aurecon has been engaged to prepare the pipeline licence application for the project (on behalf of Viva Energy) which includes the high-level assessment of transport impacts at this early stage of design.

1.2 Purpose

This Transport Impact Assessment (TIA) supports the pipeline licence application and includes preliminary assessment of the anticipated traffic and transport risks associated with the proposed pipeline including consideration of the following:

- Existing conditions of the subject site and transport network (desktop review).
- Traffic movement estimates and their distribution, primarily associated with construction of the proposed pipeline.
- Preliminary review of the construction delivery route of pipeline between Port of Melbourne and the site (over size over mass (OSOM) route), the pipeline stockpile and the access points, the horizontal directional drilling (HDD) sites.
- Potential road and lane closures during construction.
- Potential temporary relocation of shared user paths (SUPs) and closures impacting users during construction.
- Preliminary access points considerations and next steps.
- High level recommendations to mitigate impacts to the transport network.

While preparing this assessment, a desktop review of the subject site and its environs has been completed, pipeline alignment plans were reviewed (*Viva Energy MJP Pipeline Piping Alignment Plans 17/03/2023*), and all relevant traffic data was collected and analysed.

Relevant standards and guidelines relied upon are noted and referenced as necessary throughout this report.

1.3 Limitations

This assessment is preliminary and high-level as the information available is limited at this stage. Publicly available data and best available information form the basis of this assessment. For this assessment, the best available data sources have been obtained via request for information (RFI) and consultation with the design team. Assessment information may change, and construction work and methodologies may differ throughout the Project.

[1] Melbourne Airport Preliminary Draft Master Plan 2022

Consultation with the local Councils, Department of Transport and Planning (DTP), Melbourne Airport and other relevant stakeholders in relation to the existing conditions of the roads, potential transport impacts and mitigation required has not yet been undertaken in developing this report. No traffic counts or site visit has been undertaken for this assessment.

Further refinement of the construction and operational methodology will be confirmed following appointment of a construction contractor and, prior to construction commencing, appropriate traffic management measures will be identified as necessary and detailed in an appropriate Traffic Management Plan (TMP) to be prepared by the construction contractor to the satisfaction of responsible authorities.

2 Project overview

2.1 Project location

The Project proposes the construction and operation of a new pipeline to form a direct connection between the jet fuel storage infrastructure at Melbourne Airport and the existing Altona to Somerton pipeline that follows the southern boundary of Tullamarine (located south of the Western Ring Road (M80)).

The pipeline would commence at a section of the Altona to Somerton pipeline located south of the Western Ring Road (M80, near the Airport Drive exit) and link into the existing Melbourne Airport joint user hydrant installation (JUHI) facility (located at Marker Road, Tullamarine). Figure 1 illustrates the proposed pipeline alignment.

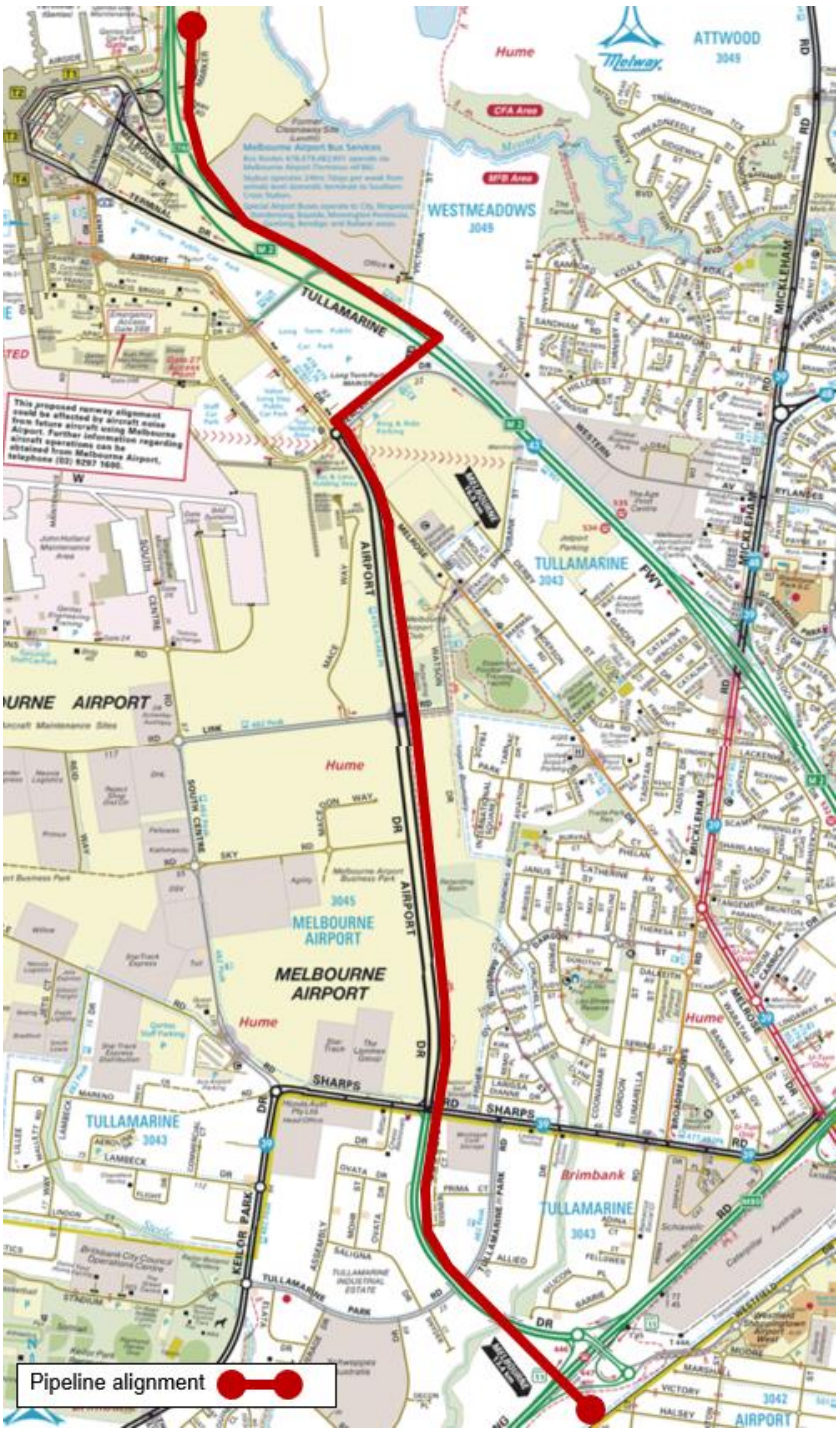

Figure 1 Proposed Melbourne Airport Jet Pipeline alignment (source: Melways Online)

2.2 Project components

The project comprises the following key components:

- A new pipeline to transport jet fuel. The pipeline will be approximately 6.7 km in length and fully buried for its entire length to a minimum depth of 1200 mm below ground level (bgl) with a 7 m to 10 metre (m) permanent final easement.
- Pig launcher and receiver sites located at each end of the pipeline. These are used to launch instruments during initial commissioning of the pipeline to clear any debris or water and during operation to record any defects in the pipe.
- An impressed current cathodic protection system (ICCP) to protect the pipe. The ICCP is a system which comprises anode beds and power supply.

- Inlet and outlet metering stations which provides flow analysis for the leak detection system.

2.2.1 Construction methodology along the alignment

This section outlines the current proposed construction methodology of the pipeline including the components, indicative construction schedule, required vehicles and site access locations.

The Project will require a 20 m wide construction corridor (Right of Way (ROW)) (where feasible), and a final easement of at least 7 m in crown land and reserve land and 10 m in private land as provided for under the *Pipelines Act 2005* (Vic.) for operation.

The alignment and construction methodologies are illustrated in Figure 2 on the following page and described below (from south to north):

- The new underground pipeline will tie into the existing Altona to Somerton pipeline. Aboveground pigging facilities shall be installed near the tie-in. From the tie-in, the pipeline will run north-west towards the Western Ring Road (M80).
- A HDD crossing is required at the Western Ring Road (M80) (HDD 1), which will continue under Steele Creek and Tullamarine Park Road (a total length of approximately 875 m). From this HDD, the pipeline alignment will continue north, first along the western boundary of a privately owned commercial property and then running in the eastern road easement of Airport Drive.
- A HDD crossing will be required along Airport Drive for the Sharps Road crossing (a length of approximately 175 m). Further along Airport Drive, another HDD section is required for a length of approximately 1900 m. This HDD section will avoid the congested services in this area and pass underneath Link Road. The pipeline will continue from the HDD exit along Airport Drive up to Mercer Drive.
- A HDD crossing will be required at Mercer Drive (a length of approximately 50 m). Following this, the alignment will continue north-east along Mercer Drive where a thrust bored crossing will be required at the southern Value Carpark entrance (a length of approximately 50m), before continuing for approximately 300 m up to the Tullamarine Freeway (M2). A HDD crossing will be required to cross the Tullamarine Freeway (M2) (a length of approximately 125 m).
- The alignment will continue north from the Tullamarine Freeway (M2) crossing along Western Avenue with a further HDD section required to avoid an area of stockpiled fill material, under Quarry Road and into the JUHI facility (a length of approximately 600 m).

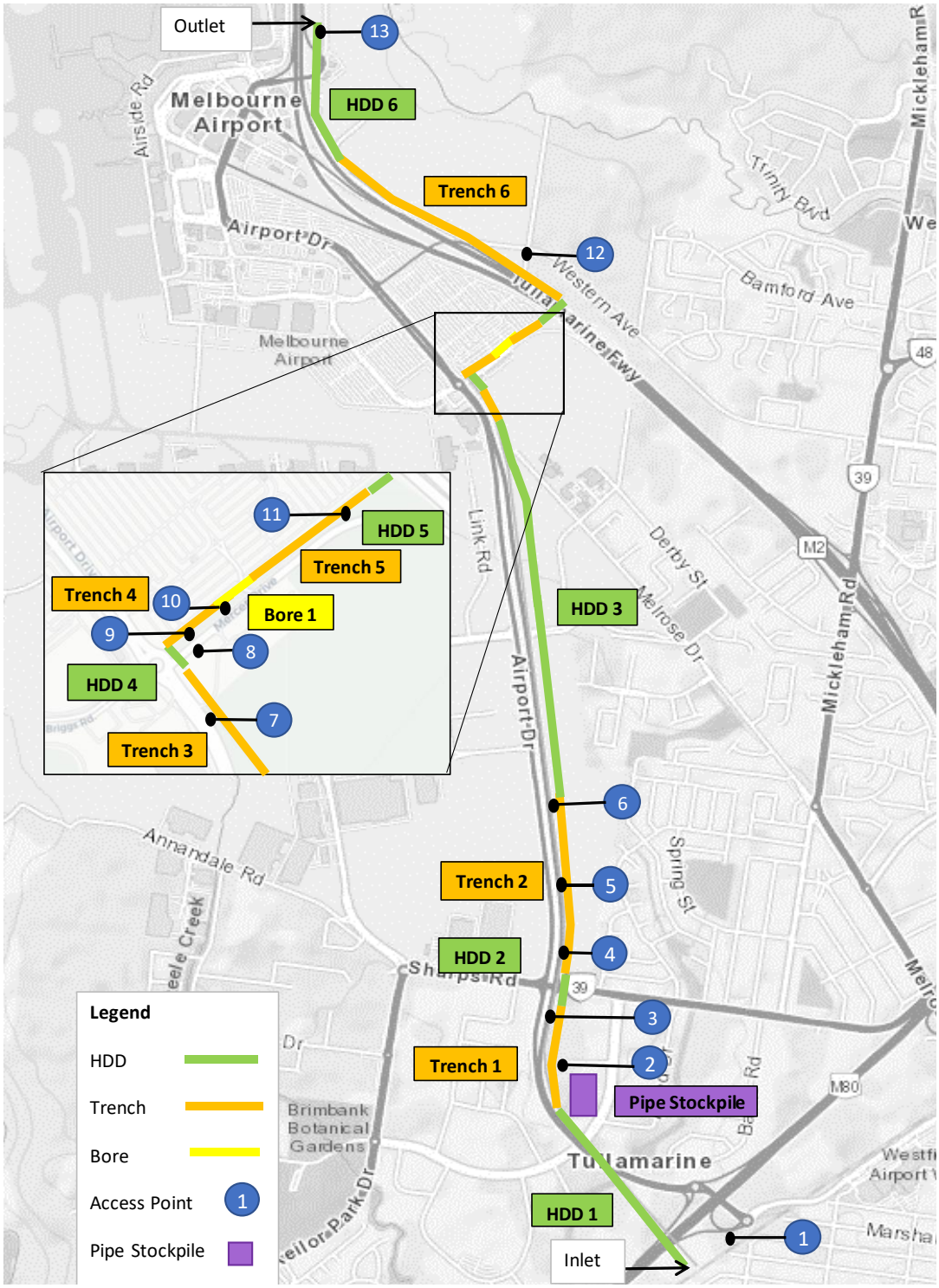

Figure 2 Locations of HDD, trenches, bores, pipe stockpile and access points (Base map source: VicMap)

2.2.2 Indicative construction activities and vehicles

Construction related vehicle movements would comprise construction workers and component and material deliveries. Workers would travel using light vehicles and it is expected that most equipment and plant deliveries would occur via vans, heavy rigid vehicles and truck and trailer combinations.

Truck and dogs would be used for spoil disposal and long semi-trailers (25 metre trailer) (Over Size Over Mass (OSOM)) will be used to deliver pipe segments between Port of Melbourne and the pipeline storage areas and move permit size skids and the HDD rig and drill rods.

Pipe delivery from the port will require 24 semi-trailers with over length permit loads to bring the pipe to the construction site. It is estimated that movements to site will be over an approximate two-week period. A crane will be required at sites to unload.

During construction some deliveries and off-site disposal of soil may be required. Two daily light rigid truck movements for deliveries have been assumed for the duration of the project. Two daily truck and dog movements for spoil disposal have been assumed during HDD, boring and trenching activities.

2.2.3 Construction schedule

Pipeline construction is proposed to commence in Q3 of 2024 and the pipeline is proposed to be operational by Q3 of 2025. This is a preliminary schedule and may change subject to Viva Energy Board approvals, land access, finalisation of design, award of Contracts and procurement timeframes and is subject to the grant of project approvals within certain timeframes.

An indicative 52-week construction schedule for the Project is summarised in Figure 3 on the following page. This schedule has been used to assess potential traffic impacts (excluding commission and demobilising activities in weeks 45-52).

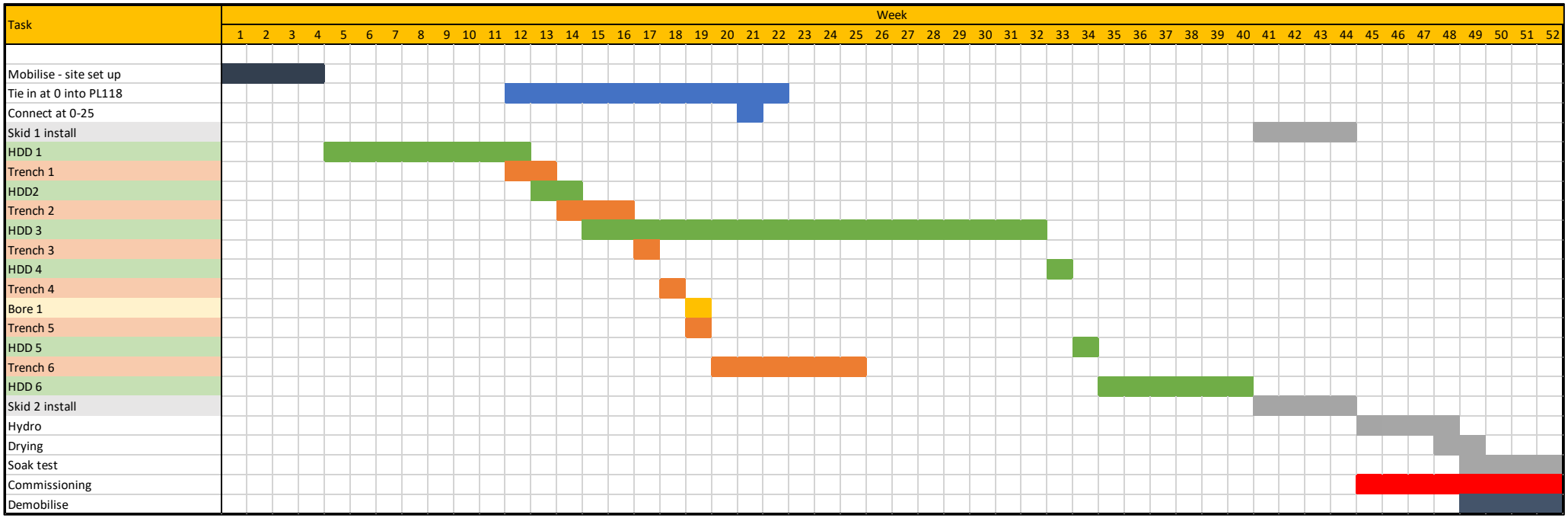

Figure 3 Preliminary construction schedule

Works are proposed to be undertaken between 7:00 am to 6:00 pm Monday to Friday and between 9:00 am and 1:00 pm on Saturdays.

Approximately 85 construction workers and onsite personnel will be required during the peak construction periods of the Project. Some of the construction activities will occur simultaneously and the number of personnel required on site will vary depending on the construction phases and activities being undertaken. The peak number has been developed considering:

- 10 people during site mobilisation and set up
- 15 people during thrust boring activities under roads
- 20 people during HDD works
- 10 people during trenching works
- 30 people for fabrication and suppliers.

2.2.4 Site access

The Project currently proposes 13 access points along the length of the proposed pipeline alignment to support construction. These are summarised in the preceding Figure 2 and detailed in Table 1 below.

Table 1 Construction site access locations

No.	Road	Work site (indicative)
1	WRR Western On-Ramp	Inlet Equipment, HDD 1
2	Prima Court	HDD 1, Pipe Storage, Trenching 1
3	Airport Drive (S Sharps Road)	Trenching 1, HDD 2
4	Airport Drive (N Sharps Road)	HDD 2, Trenching 2
5		Trenching 2
6		Trenching 2, HDD 3
7	Airport Drive (S Mercer Drv)	HDD 3, Trenching 3
8	Mercer Drive (south)	Trenching 3, HDD 4
9	Mercer Drive (north)	HDD 4, Trenching 4
10		Trenching 4, Thrust Bore 1
11		Trust Bore 1, Trenching 5, HDD 5
12	Western Avenue	HDD 5, Trench 6, HDD 6
13	Marker Road (existing access)	HDD 6, Outlet Equipment

*WB – Westbound, WRR – Western Ring Road

No preferred routes have been established for workers or heavy vehicles with the exception of the indicative haulage routes for pipeline deliveries from the Port of Melbourne. Pipeline deliveries will originate from the Port of Melbourne and travel to the pipeline storage area via the West Gate Freeway (M1) and the Western Ring Road (M80).

2.3 Operations and maintenance phase

When commissioned, the pipeline would be owned and maintained by Viva Energy. A final easement of 7 to 10 m will be required for operational and maintenance requirements of the pipeline. Following the reinstatement of land as part of the pipeline construction, the land would be generally returned to its previous use. Excavating or erecting permanent structures or buildings over the underground pipeline would be prohibited in accordance with the Pipelines Act and pursuant to easement agreements with landowners.

The Project has been designed with an operational life of 40 years. When in operation, instruments (metal loss detection tool) will be used to record any defects in the pipe (wall thickness reduction or other defects such as dents caused by third party interference). This will occur initially every 10 years and then as the pipeline ages it may be necessary to run the metal loss detection tool ever 5 years.

Transport impacts during the operations and maintenance phase of the project are expected to be minimal except for infrequent maintenance activities which while potentially significant are also expected to be minimal and manageable.

2.4 Decommissioning phase

The decommissioning phase activities will include removing all above ground non-operational equipment and rehabilitating construction areas and access tracks. Further details on the decommissioning phase activities, i.e., worker numbers and plant requirements, are unknown at this stage.

3 Existing conditions

3.1 Road network

3.1.1 Existing roads

The road network assessed includes roads directly utilised for access points to proposed pipeline work areas or as a primary access road for vehicles traveling to or from access points. State freeways (Western Ring Road M80 and Tullamarine Freeway) are excluded from assessment, with the exception of Mercer Drive which is a Tullamarine Freeway off-ramp as it will be used for direct project access. Road network characteristics are summarised in Table 2.

The road network comprises well-maintained sealed roads (with the exception of the northern end of Western Avenue) within an urban environment.

Table 2 Road network existing conditions

Road		Authority	Hierarchy	Posted speed (km/hr)	Lanes (each direction)	Carriageway width (m)	SUP/footpath	Bus Route	B-double approved	OSOM approved
Airport Dr*	Westfield Dr to Sharps Rd	DTP	Arterial	80	Two	2x 8	-	-	Y	Y
	Sharps Rd to Apac Dr	Melbourne Airport	Arterial	80	Two	2x 8	SUP east side	Y	Y	Y
Sharps Rd		DTP	Arterial	70	Two	2x 9	Y	Y	Y	Y
Tullamarine Park Rd		Brimbank	Collector	60	Two	2x 7	Y	Y	Y	Y
Mickleham Rd		DTP	Arterial	70	Four	2x 13	Y	Y	Y	Y
Western Ave		Hume	Collector (until Wright St), Local to north	50	One	11	Y	-	-	-
Westfield Drv		Brimbank	Collector	50	One	9.2	-	-	-	-
Mercer Drv (one-way)		Melbourne Airport	Collector	60	Two	8	-	Y	Y	Y
Centre Rd		Melbourne Airport	Arterial	40	Two	2x 6.7	-	Y	-	-
Marker Rd		Melbourne Airport	Local	40	One	6.8	-	-	-	-
Prima Ct		Brimbank	Local	50	One	9.4	Y	-	Y	Y

* Melbourne Airport Rail Link Project is currently aligned along the Airport Drive road alignment. The road may be altered however the extent of changes required to the carriageway and the timeframe is unknown at this stage.

3.1.2 Traffic volumes

Data has been collected from DTP open data, including SCATS[2] data to understand the existing traffic volumes for the road network. SCATS intersection data was collected for Wednesday 20th July 2022 to determine approach link volumes[1].

A comparison of the DTP open data and SCATS approach volumes were compared for Airport Drive (south Sharps Road). The DTP open data was found to be 9% higher than 2022 SCATS. As such, the SCATS link volumes have conservatively been factored by 10% up for use. The existing available traffic data is summarised in Table 3.

Table 3 Existing traffic volumes and capacity

Road		Direction	Indicative capacity - vehicles per day #	Daily AADT	Peak hour		% HV
					AM	PM	
Airport Dr	Westfield Dr to Sharps Rd	N		13,200	1,320	842	17%
		S		12,870	540	1,287	15%
		Two-way	**<40,000**	**26,070**	**1,860**	**2,129**	**-**
	Sharps Rd to Link Rd	N		7,260	726	634	10%^
		S		7,656	375	766	10%^
		Two-way	**<40,000**	**14,916**	**1,101**	**1,399**	**-**
	Link Rd to Apac Dr	N		12,496	1,033	1,250	10%^
		S		5,324	532	320	10%^
		Two-way	**<40,000**	**17,820**	**1,565**	**1,570**	**-**
Sharps Rd	East of Airport Dr	E		9,845	649	985	18%
		W		6,996	700	693	18%
		Two-way	**<40,000**	**16,841**	**1,349**	**1,678**	**-**
	West of Airport Dr	E		12,738	718	1274	10%
		W		11,979	1198	669	10%
		Two-way	**<40,000**	**24,717**	**1,916**	**1,943**	**-**
Tullamarine Park Rd*		NE		4,000	400	400	**-**
		SW		4,000	400	400	**-**
		Two-way	**6,000 – 14,000**	**8,000**	**800**	**800**	**-**
Mickleham Rd*		N		25,000	2500	2500	5%
		S		12,000	1200	1200	7%
		Two-way	**12,000 - 40,000**	**37,000**	**3,700**	**3,700**	-
Western Ave**		-	**2,000 – 3,000**	-	-	-	**-**
Westfield Dr*		NE		7,900	790	790	-
		SE		7,900	790	790	-
		Two-way	**3,000 – 7,000**	**15,800**	**1,580**	**1,580**	**-**
Mercer Dr**		-	**3,000 – 7,000**	-	-	-	**-**
Centre Rd	North of Arrivals Dr	E		6,215	125	622	10%
		W		2,970	297	279	10%
		Two-way	**<40,000**	**9,185**	**422**	**901**	-
	South of Melbourne Dr	E		5,577	169	558	10%
		W		9,570	916	957	10%
		Two-way	**<40,000**	**15,147**	**1,086**	**1,515**	-

[2] Airport Drv / Sharps Rd (ID 2649), Airport Drv / Link Rd (ID 1570), Airport Drv / Apac Drv (ID 2190), Centre Rd / Arrivals Drv (ID 4975), Centre Rd / Melbourne Drv (ID 4976).

Road	Direction	Indicative capacity - vehicles per day #	Daily AADT	Peak hour		% HV
				AM	PM	
Marker Rd**	-	**2,000 – 3,000**	-	-	-	**-**
Prima Ct**	-	**2,000 – 3,000**	-	-	-	**-**

* Source: DTP Open Data, ** No traffic volumes were publicly available, ^Airport Drive north of Sharps Road is assumed to have 10% heavy vehicles. # Vehicles per day – Indicative mid-block capacity has been sourced from the Victorian Planning Authority PSP Note *Our Roads Connecting People*, and Austroads AGTM03-20, as an approximate volume per day expected per road type (note these are amenity-based thresholds, not strictly capacity limits).
Tullamarine Park Road connector capacity has been doubled as it has two lanes in each direction.

Based on the high-level Victorian Planning Authority (VPA) indicative mid-block capacity, the majority of roads in the study area are currently operating within their capacity, with some roads significantly within capacity.

Westfield Drive however carries approximately 16,000 vehicles per day but could be classified as a connector road with an amenity-based threshold of 3,000 to 7,000 vehicles per day. Westfield Drive provides connection between the Western Ring Road, Westfield Airport West shopping centre and Melrose Drive (which has limited access to the Western Ring Road). While Westfield Drive could be classified as a collector road, it is therefore likely operating at a higher function within the road network with higher traffic volumes.

Notwithstanding, reference is made to the Austroads Guide to Traffic Management which suggests that a two-lane undivided carriageway has a mid-block capacity in the order of 18,000 to 22,500 vehicles per day. On this basis, while traffic volumes on Westfield Drive are high, it is considered to still be operating within theoretical capacity.

3.2 Public transport

Public transport networks in the area were reviewed to understand potential impacts that may arise as a result of the project. The review identified the following:

- There are no train stations or tram services operating within the study area.
- The Skybus airport shuttle operates within the study area along Tullamarine Freeway, Centre Road, Departure Drive and Arrival Drive. The Skybus is an airport transfer service from Melbourne Tullamarine Airport to Melbourne City, with departures frequenting every 15 minutes from 4:30 am until midnight. The Skybus does not utilise any of the roads in the immediate vicinity of the project (Airport Drive, Mercer Drive or Western Avenue).
- The bus network in the study area is well developed with multiple routes and services operating during weekdays and weekends. Bus services in proximity to the study area are summarised in Figure 4 and Table 4. Bus services operate on sections of Airport Drive, Sharps Road, Tullamarine Park Road and Mercer Drive.

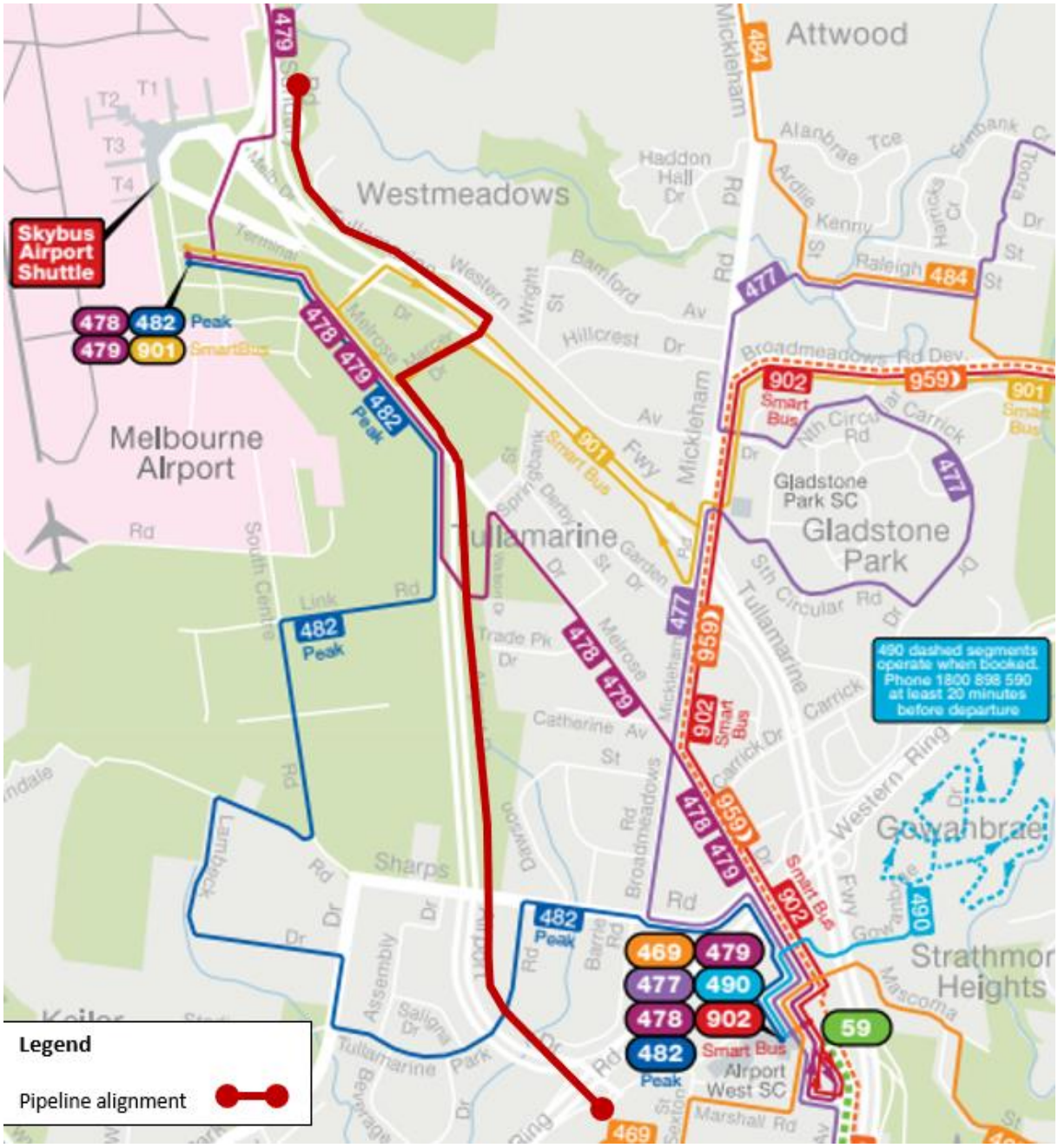

Figure 4 Bus network (source: PTV (Public Transport Victoria))

Table 4 Bus services (source: PTV)

Route no.	Route name	Operating hours	Frequency
478	Airport West SC – Melbourne Airport via Melrose Avenue	6:15 am – 7:15 pm (weekdays), 7:45 am – 6:45 pm (weekends)	Hourly (weekdays and weekends)
479	Airport West SC – Sunbury Station via Melbourne Airport	5:45 am – 6:45 pm (weekdays), 8:45 am – 3:45 pm (weekends)	Hourly (weekdays), every seven hours (weekends)
482	Airport West SC – Melbourne Airport via South Centre Road	5:35 am – 5:35 pm (weekdays)	Hourly (weekdays)
901	Frankston – Melbourne Airport (SmartBus Service)	4:47 am – 12:10 am (weekdays), 5:27 am – 12:15 am (weekends)	Every 15 minutes (weekdays), every 30 minutes (weekends)

3.3 Active transport

There are several existing cycling facilities, as well as the proposed Strategic Cycling Corridor (SCC) network in and around the study area. Existing facilities are summarised in Figure 5 and include:

- A SUP runs parallel along the southeast of the Western Ring Road, known as the Western Ring Path.
- SUP on the eastern side of Airport Drive between Sharps Road and Mercer Drive.
- Dedicated cycling lanes along the entirety of Melrose Avenue and Mickleham Road, and along the western portion of Sharps Road.
- Footpaths are present only on Tullamarine Park Road, Centre Road and Sharps Roads on either side.

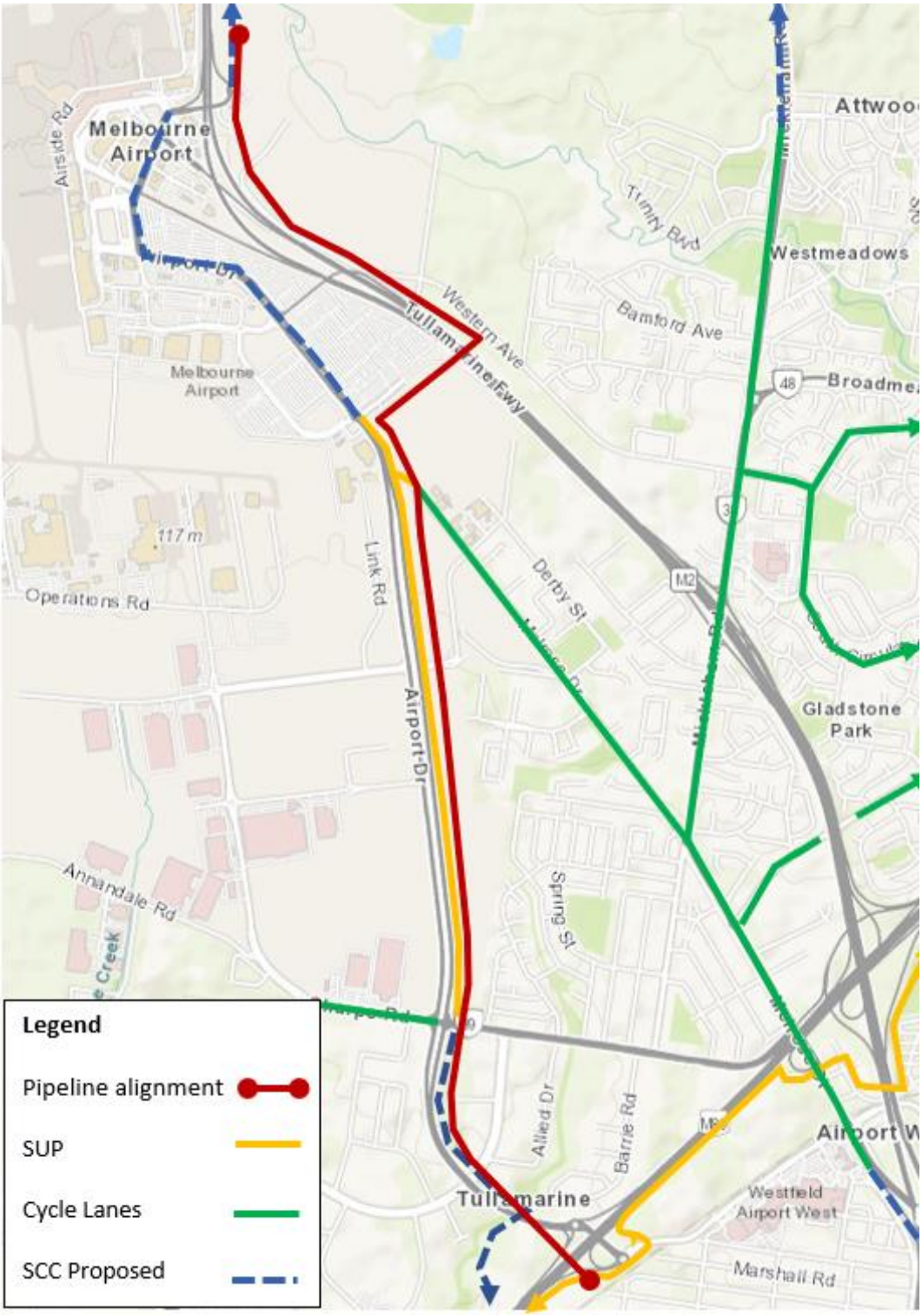

Figure 5 Bicycle network (base map source: VicMap)

3.4 Crash history

The crash history has been reviewed at a high-level in proximity to the pipeline alignment and access points for the last available five-year period from July 2015 to April 2020 using DTP CrashStats data. The crash locations in relation to the pipeline alignment, project roads and access points are shown in Figure 6. The following was found for the five-year reviewed period:

- Crashes which have occurred in close proximity to access points 1 and 4:
  - At access point 4 there was a serious injury crash with a vehicle driving left of the Airport Drive carriageway into a fixed object approximately 220 m north of Sharps Road
  - At access point 1 there was an other injury crash with a vehicle driving left of the on-ramp carriageway approximately 75 m south of the Airport Drive roundabout
- The key project roads in the five-year period have recorded the following heavy vehicle, cyclist and pedestrian crashes:
  - Three heavy vehicle crashes:
    - One on Airport Drive in proximity to Sky Road (other injury crash) due to a lane change left however resulted in no collision or object being struck.
    - One on Sharps Road / Barrie Road (serious injury crash) in which a collision with a fixed object occurred due to a right off carriageway crash.
    - One on Mickleham Road with a rear end on the northern carriageway south of western Avenue (other injury crash).
  - Four cyclist crashes (with vehicles):
    - Two on Mickleham Road, one hit by a vehicle as a left turn sideswipe (serious injury crash) and one a left off carriageway into fixed object (other injury crash).
    - Cyclist left near crash south of intersection Mickleham Road and Western Avenue (other injury crash).
    - Cyclist collision with vehicle at Sharps Road and Tullamarine Park Road (serious injury crash)
  - Six pedestrian crashes (with vehicles):
    - Three pedestrian crashes at the intersection of Terminal Drive and Centre Road (two serious and one other injury crashes).
    - One fatal pedestrian crash on Mickleham Road at the intersection of the Tullamarine Freeway eastbound on/off ramps.
    - One serious pedestrian crash at the intersection of Western Avenue and Mickleham Road
    - One serious pedestrian crash on Mickleham Road north of Gladstone Park Drive
- Black spots (three or more casualty crashes in five years) were found at several intersections as listed in Table 5. The identified black spots should be considered when developing the construction contractor's TMP, including any mitigation treatments, to ensure any relevant crash trends are considered appropriately. Any mitigation treatments would then be detailed in the construction contractor's TMP to the satisfaction of the relevant authorities.

Table 5 Intersections identified as black spots

Intersection	No. crashes	Injury type	Crash types
Sharps Rd / Airport Dr	11	5 serious, 6 other	8 right through, 1 rear end, 1 cross traffic, 1 break down
Western Ave / Mickleham Rd	10	2 serious, 8 other	3 rear end, 2 right throughs, 1 pedestrian struck (as noted above), 1 cyclist struck (as noted above), 1 cross traffic, 1 lane change right, 1 left turn sideswipe
Mickleham Rd / Gladstone Park Dr	7	2 serious, 5 other	3 rear end, 3 right through, 1 cross traffic
Mercer Dr / Airport Dr	6	4 serious, 2 other	3 cross traffic, 1 right through, 1 cross intersection, 1 out of control
Terminal Rd / Centre Rd	5	3 serious, 2 other	3 struck pedestrians (as noted in above), 1 left change right, 1 other
Link Rd / Airport Dr	4	1 serious, 3 other	3 right through, 1 cross traffic
Melbourne Dr / Centre Rd	4	1 serious, 3 other	1 right near, 1 right through, 1 rear end, 1 fell from vehicle

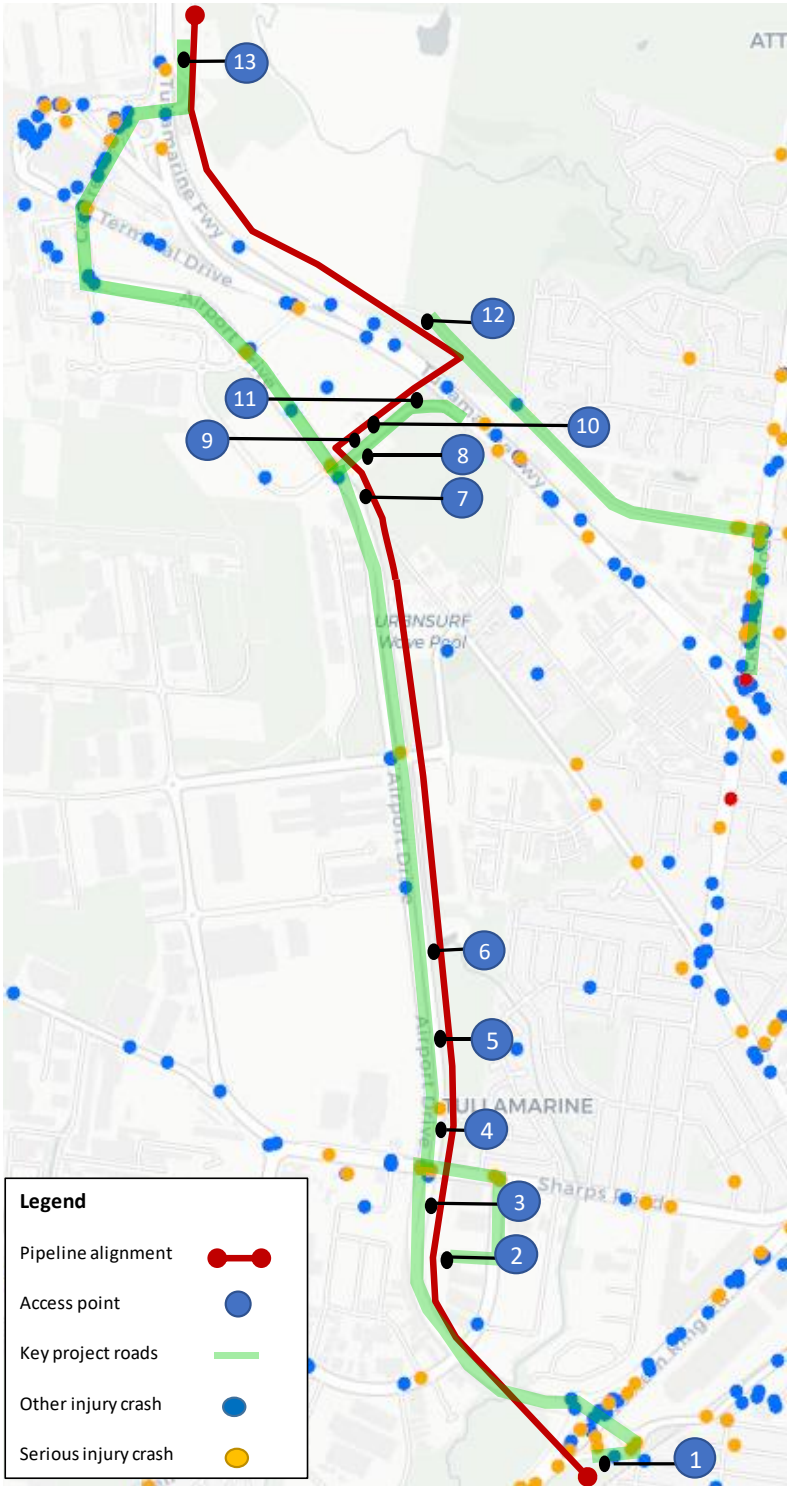

Figure 6 Five-year crash history in proximity to project (base: VicMap)

4 Construction traffic impact assessment

4.1 Traffic volumes

4.1.1 Traffic generation

Workers

The number of workers required daily per activity were applied against each activity as per the 44 week construction schedule in Section 2.2.3 (Figure 3) and is shown in Figure 7 below. The peak week of construction is expected to occur in Week 19 with 85 workers on site each day (note this includes several construction activities in a number of areas).

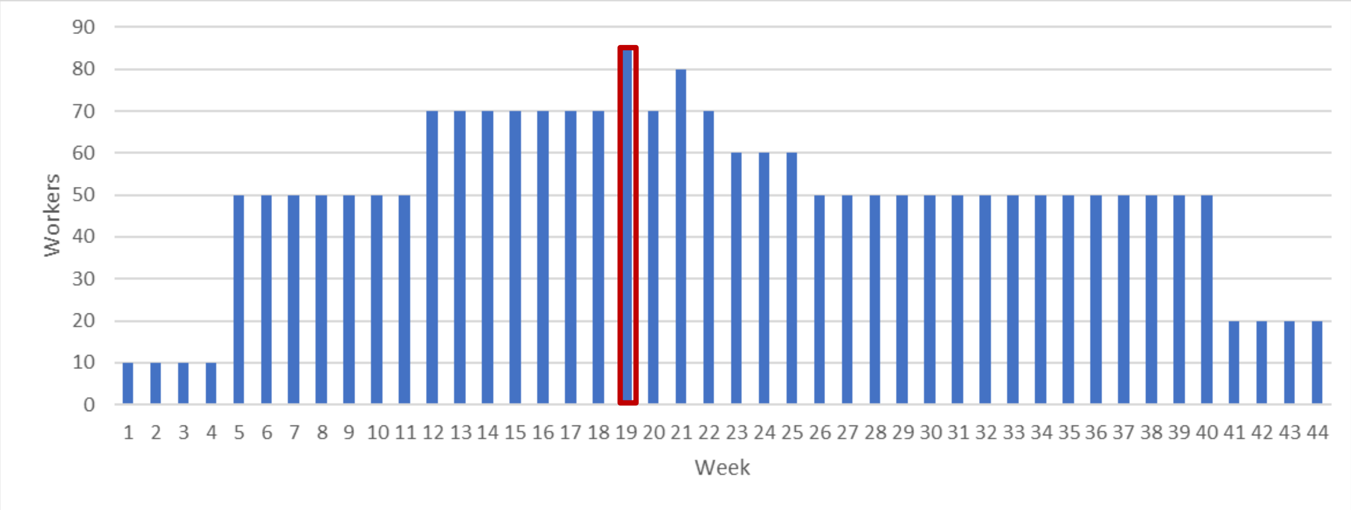

Figure 7 Peak daily number of workers expected on site per week during construction

Figure 8 has been prepared to summarise construction worker vehicle movements at each access point over the entirety of the preliminary construction schedule. It assumes that where an access point is located in proximity to multiple worksites it will be utilised for both (workers split evenly). The 30 fabricators and suppliers are split over the active access points between weeks 5-40. The busiest construction activity period (Week 19) is highlighted for reference.

Access Point	Week 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	10	10	10	10	25	25	25	25	25	25	25	30	18	16	16	16	18	16	16	18	28	18
2					25	25	25	25	25	25	25	25	13									
3												15	23	16								
4													18	19	9	9						
5														9	9	9						
6														9	19	19	18	16	16	18	18	18
7															16	16	23	16	16	18	18	18
8																	13					
9																		11				
10																		11	14			
11																			24			
12																				18	18	18
13																						
Total	10	10	10	10	50	50	50	50	50	50	50	70	70	70	70	70	70	70	85	70	80	70

Access Point	Week 23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1																			10	10	10	10
2																						
3																						
4																						
5																						
6	20	20	20	25	25	25	25	25	25	25												
7	20	20	20	25	25	25	25	25	25	25												
8											25											
9											25											
10																						
11												25										
12	20	20	20									25	25	25	25	25	25	25				
13													25	25	25	25	25	25	10	10	10	10
Total	60	60	60	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	20	20	20	20

Figure 8 Construction access point activity profile

The works expected to be undertaken during construction Week 19 are the tie in of the pipeline at the southern end, HDD 3, Thrust Bore 1 and Trench 5. The access points required for use are as shown in Table 1 in Section 2.2.4 (1, 6, 7, 10, 11).

It is acknowledged that by assessing the worst case (Week 19) this does not include all access points (2-5, 8-9, 12-13) which will by virtue of the construction program be used at different times. However, the Week 19 assessment includes the primary roads used for the project across different periods of the construction schedule (Mercer Drive and Airport Drive which are also used for traffic accessing points 3 – 5 and 8 – 9 at different times). This assessment approach is therefore considered appropriate.

The roads not expected to be used in Week 19 are Tullamarine Park Road, Prima Court, Centre Road, Marker Road, Mickleham Road and Western Avenue which are further discussed in Section 4.1.2.

To determine worst case peak hour traffic volume generation, it is assumed that workers will travel by individual light vehicles and travel to site between 6:00 am – 7:00 am and travel from site between 6:00 pm – 7:00 pm (and represent the peak AM and PM project hours for workers).

Worker traffic generation at each access point in the peak construction week is summarised in Table 6.

Table 6 Construction worker traffic generation (light vehicles) – Week 19

No.	Access Location	Workers required	AM peak	PM Peak	Daily
1	WRR Western On-Ramp	16	16	16	32
6	Airport Drive (N Sharps Road)	16	16	16	32
7	Airport Drive (S Mercer Drive)	16	16	16	32
10	Mercer Drive (north)	14	13.5	13.5	27
11	Mercer Drive (north)	24	23.5	23.5	47
Total		**86**	**85**	**85**	**170**

The peak worker traffic generation for light vehicles is up to 85 vehicles to site in the AM peak and 85 vehicles leaving site in the PM peak. This equates to a daily traffic generation of 170 light vehicle movements.

Deliveries and spoil disposal

Deliveries and spoil disposal are assumed to occur between 8:00 am – 5:00 pm (over 9 hours) which is outside of the workers peak hours. The vehicle movements are assumed to consist of:

- Two daily truck and dog combination trucks for spoil disposal per site.
- One pipeline delivery per day to the pipeline stockpiles or movement of equipment (e.g. HDD).
- Two daily light trucks for other deliveries.

It is noted that Access Point 2 (Prima Court) is assumed to have 12 pipeline deliveries a day over two days prior to Week 19.

The daily volume would be averaged over the nine-hour period however three heavy vehicle deliveries (six trips) are assumed as worst-case to occur all within a midday interpeak period. The deliveries and spoil disposal traffic generation per access point in the peak week of construction are summarised in Table 7 on the following page.

Table 7 Construction vehicles traffic generation

No.	Access Location	Heavy Vehicles	
		Midday Peak	Daily
1	WRR Western On-Ramp	6	10
6	Airport Drive (N Sharps Road)	6	10
7	Airport Drive (S Mercer Drive)	6	10
10	Mercer Drive (north)	6	10
1	WRR Western On-Ramp	6	10
Total		**30**	**50**

*WB – Westbound, WRR – Western Ring Road

The peak deliveries and spoil disposal traffic generation for heavy vehicles is 30 vehicle movements to and from site in the midday peak hour and 50 vehicle movements daily.

Total traffic generation

The total traffic generation for the peak construction day and peak hours is summarised in Table 8.

Table 8 Total traffic generation – Week 18

No.	Access Location	Peak hour trips			Daily trips	
		AM	Midday	PM		
		LV	HV	LV	LV	HV
1	WRR Western On-Ramp	16	6	16	32	10
6	Airport Drive (N Sharps Road)	16	6	16	32	10
7	Airport Drive (S Mercer Drv)	16	6	16	32	10
10	Mercer Drive (north)	14	6	14	27	10
11	Mercer Drive (north)	24	6	24	47	10
Total		**85**	**30**	**85**	**170**	**50**

*WB – Westbound, WRR – Western Ring Road

4.1.2 Traffic distribution

The assumed worker distribution (origin / destination) within the study area is summarised in Table 9. These have been broken down into east, west and south of the study area. No information is available on where workers originate and it is assumed origins from the east, south and west of the study area are equal.

Table 9 Distribution per access point – workers

No.	Access Point	Origin/ Destination	Distribution	
			To Site	From Site
1	WB WRR On Ramp	East	WWR Off Ramp, Airport Drive	WB WRR On Ramp
		South	Westfield Drive	
		West	WWR Off Ramp, Airport Drive	
6	Airport Drive (N Sharps Rd)	East	Mercer Drive, Airport Drive	Airport Drive, WWR EB On Ramp
		South		Airport Drive, Sharps Road
		West	WWR Off Ramp, Airport Drive	Airport Drive, WWR WB On Ramp
7	Airport Drive (N Link Rd)	East	Mercer Drive, Airport Drive	Airport Drive, WRR EB On Ramp
		South		Airport Drive, Sharps Road
		West		Airport Drive, WRR WB On Ramp

No.	Access Point	Origin/ Destination	Distribution	
			To Site	From Site
10	Mercer Drive	East	Mercer Drive	Airport Drive, Tullamarine Fwy On Ramp
		South		
		West		Airport Drive, WRR WB On Ramp
11	Mercer Drive	East	Mercer Drive	Airport Drive, Tullamarine Fwy On Ramp
		South		
		West		Airport Drive, WRR WB On Ramp

WB – Westbound, EB – Eastbound, WRR – Western Ring Road

For the purpose of this volume assessment heavy vehicles for deliveries and spoil disposal are assumed to originate from the west of the study area and utilise the M80 and Tullamarine Freeway as the primary roads to and from the study area. The distribution for heavy vehicles is summarised in Table 10. It is noted that the single daily movement of pipeline, or movement of equipment, may occur between access points (due to location of pipeline stockpile) or along the pipeline ROW however this is to be further considered in future stages.

Table 10 Distribution per access point – deliveries and spoil disposal

No.	Access Location	Distribution	
		To site	From site
1	WRR WB On Ramp	WRR EB Off Ramp, Airport Dr	WRR WB On Ramp
6	Airport Dr (N Sharps Rd)	WWR Off Ramp, Airport Dr*	Airport Dr, WWR WB On Ramp
7	Airport Dr (N Link Rd)	Mercer Dr, Airport Dr	
10	Mercer Drive (north)	Mercer Dr	Mercer Dr, Airport Dr, WWR WB On Ramp
11	Mercer Drive (north)	Mercer Dr	Mercer Dr, Airport Dr, WWR WB On Ramp

* Includes U-turn at intersection of Airport Drive / Link Road

The above-described traffic generation and distribution have been applied at a high-level to the project area roads (assuming the peak hours align as a conservative approach) and is summarised in Table 11 for Week 19 daily and peak hour volumes.

Table 11 Construction traffic volumes against existing

Road		Direction	Daily			Peak hour					
						AM			PM		
			Existing	Project	Increase %	Existing	Project	Increase %	Existing	Project	Increase %
Westfield Drive		NE	7,900	6	<1%	790	6	1%	790	-	-
		SE	7,900	-	-	790	-	-	790	-	-
		Total	**15,800**	**6**	**<1%**	**1,580**	**6**	**1%**	**1,580**	**-**	**-**
Airport Drive	South of Sharps Road	N	13,200	11	<1%	1,320	6	<1%	842	-	-
		S	12,870	57	<1%	540	-	-	1,287	37	3%
		Total	**26,070**	68	**<1%**	**1,860**	**6**	**<1%**	**2,129**	**37**	**2%**
	Sharps Road to Link Road	N	7,260	11	<1%	726	6	1%	634	-	-
		S	7,656	87	<2%	375	18	5%	766	49	6%
		Total	**14,916**	98	**<1%**	**1,101**	**24**	**2%**	**1,399**	**49**	**3%**
	Link Road to Apac Drive	N	12,496	26	<1%	1,033	-	-	1,250	26	2%
		S	5,324	76	<2%	532	30	5%	320	31	9%
		Total	**17,820**	102	**<1%**	**1,565**	**30**	**2%**	**1,570**	**57**	**4%**
Sharps Road (East of Airport Drive)		E	9,845	12	<1%	649	-	-	985	12	1%
		W	6,996	-	0	700	-	-	693	-	-
		Total	**16,841**	**12**	<1%	**1,349**	**-**	**-**	**1,678**	**12**	**1%**
Mercer Drive*		W		123			69			39	
		Total		**123**			**69**			**39**	

* Existing volumes are unknown

The existing volumes and project volumes have been compared and the increase in traffic by the Project during the peak hours and overall daily volumes are anticipated to be very low, with most increases less than 2-4% (or if higher, starting from a relatively low base).

Western Avenue and Marker Road do not have publicly available volumes to compare, however volumes are expected to be low (due to industrial and residential use and the road network configuration and hierarchy). The expected increase in volumes on these roads is expected to have a minimal impact to their operation or safety. Mercer Drive also does not have publicly available volumes, this road however is expected to have higher volumes due to it being an off-ramp of Tullamarine Freeway.

In regard to estimated traffic volumes on other roads during the construction period:

- Access 2 will generate volumes on Prima Court and Tullamarine Park Road during weeks 5 – 13 with an anticipated maximum daily 50 light vehicle trips (workers), 32 heavy vehicle trips (pipeline delivery and other heavy vehicle deliveries). Overall, 78 daily vehicle trips generated which is 1% of Tullamarine Park Road's daily vehicle volumes.
- Access 12 will generate volumes on Mickleham Road and Western Avenue during weeks 20 – 25 and 33 – 40 with an anticipated maximum daily 50 light vehicle trips (workers) and six heavy vehicle movements. Overall, 56 daily vehicle trips generated which is less than 1% of Mickelham Road's daily vehicle volumes.
- Access 13 will generate volumes on Centre Road and Marker Road during weeks 35 – 44 and is with an anticipated maximum daily 50 light vehicle trips (workers) and six heavy vehicle movements. Overall, 56 daily vehicle trips generated which is less than 1% of Centre Road's daily vehicle volumes.

The anticipated increase of traffic volumes, in and of themselves, on the surrounding key roads is expected to be a minimal and could not be expected to result in a significant impact on their operation or safety.

4.1.3 Mitigation measures

Traffic Management Plans (TMPs) will be developed and implemented, by the construction contractor, to communicate and manage the routes in which workers and heavy vehicles utilise during construction. This will manage the potential impacts to the traffic utilising the project roads and the residual impact is anticipated to be minimal and manageable.

4.2 Preliminary access review

Thirteen preliminary vehicle access points have been identified by the design team along the alignment and are described in Section 2.2.4. At this stage the access points are indicative and subject to change once further stakeholder engagement and design is undertaken.

The layout of the internal site working areas including internal temporary roads, turn around areas and car parking locations and quantity has not been developed at this stage.

The Project is currently seeking initial agreement with stakeholders for the locations of the proposed access points and those positioned on private land or use of other's access tracks are at potential risk of further amendments pending agreement. In addition, the access points along Airport Drive have tight spatial allowance for SUP relocation and heavy vehicle movements within the proposed work site. Further consideration in the next stage, once access locations have been confirmed, needs to be provided to the internal work area layouts and how vehicles will be required to move within the space (including swept path assessments as required).

4.2.1 Mitigation measures

The following steps are to be undertaken once the Project is further developed:

- Turning lanes warrants may be required based on *AustRoads Guide to Traffic Management Part 6 Section 3.3*. The turning lane treatments are to be reviewed once traffic volumes are further refined and if speed limits are reduced in the traffic management of the access points.

- Internal work area layout including internal access roads, turn around areas and car parking provisions for workers and heavy vehicles.
- Sight distance assessment in accordance with the *AustRoads Guide to Road Design Part 4a* is required to be met at site access points. Note that traffic management at the access points is likely to provide temporary decreased speed limits which will reduce the sight distance requirements.
- Swept path assessment for turning movements of critical design vehicles, OD and/or OSOM vehicles required during construction at:
  - Each access point once internal work site layouts are defined to ensure access points and traffic management measures are suitable. These may lead to alterations to access point locations, alterations to the SUP relocations required, internal layouts, identification of lane closures required and removal of roadside obstructions.
  - Intersections which are not heavy vehicle approved but are required to be used by heavy vehicles during construction (such as Mickleham Road and Western Avenue).
- Initial and continued engagement with stakeholders and landholders for all vehicle access points. This includes where the use of landholder access tracks/roads are proposed at:
  - Access Point 1 which proposes to utilise the MAR Transmission Tower Relocation Project temporary construction access location.
  - Access Point 2 at Prima Court which requires vehicle access through private property.
  - Access Point 12 which requires access to be on private land.

Notwithstanding the above, to manage the potential impacts of construction access points the construction contractor's TMP will include, but not be limited to, the following:

- Assessment and mitigation of risks through relevant controls, for example advanced warning signage, reduced posted speed limit and lighting of access points.
- Cumulative impacts which may arise from the Melbourne Airport Rail Link Project (and any other nearby projects at the time of construction) are to be investigated and mitigated.

Road Safety Audits at each access point are to be undertaken upon finalisation of the proposed access driveways and access tracks to ensure safe vehicle movements to the satisfaction of the responsible road management authority.

4.3 Preliminary heavy vehicle route review

At this preliminary stage it is expected that the largest heavy vehicles utilised during construction will be long semi-trailer trucks (prime mover and low loader (25 metre trailer assumed to be under 30 metres overall)) which are classified as OSOM vehicles. These are anticipated to be used for:

- Delivery of the pipe segments to the pipe stockpile via access point 2 (Prima Court). The pipe segments will travel from the Port of Melbourne to the stockpile location.
- Delivery of pipe segments from the pipe stockpile to the other access points (with the exception of access point 3 which can move the pipeline within the work area)
- Movement of permit size skids (inlet and outlet stations and associated infrastructure)
- HDD rig and drill rods (HDD entry and exit positions)

The preliminary proposed route has been identified for OSOM delivery vehicles to and from the Port of Melbourne and pipeline stockpile. This is summarised below and shown in Figure 9.

Docklands Hwy, Williamstown Rd, West Gate Fwy (M1), Western Ring Rd (M80), Airport Dr, Sharps Rd, Tullamarine Park Rd, Prima Ct

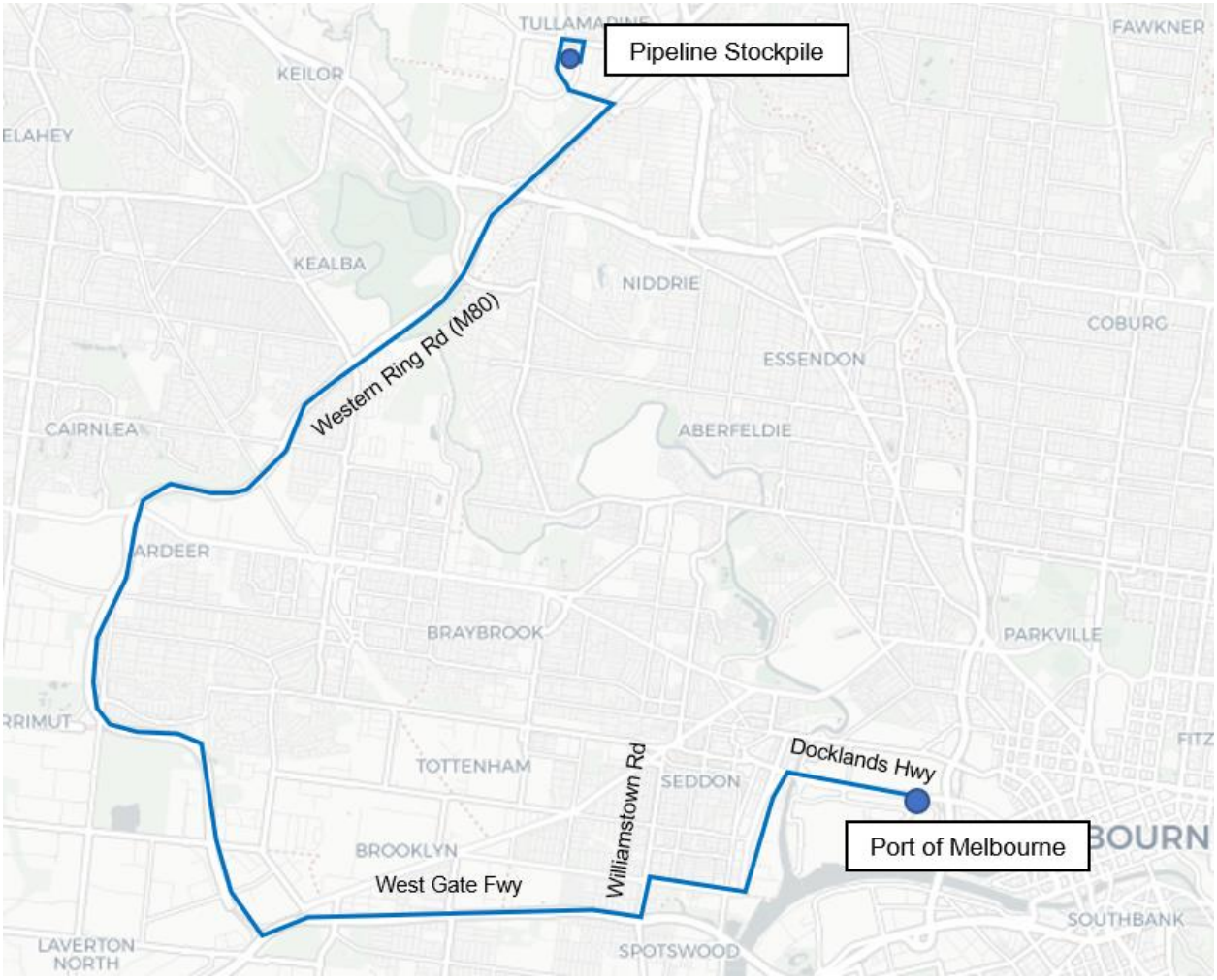

Figure 9 Preliminary OSOM pipeline delivery route (background image source: VicMap)

The existing VicRoads OSOM Class 1 approval level for roads along the above route is summarised in Table 12.

Table 12 OSOM Class 1 road approval level on proposed OSOM pipeline stockpile delivery vehicle route

Road	OSOM Class 1 approval level
Docklands Highway	Conditionally approved
Williamstown Road	Approved
West Gate Freeway (M1)	Conditionally approved
Western Ring Road (M80)	Approved
Airport Drive	Approved
Sharps Road	Approved
Tullamarine Park Road	Approved
Prima Court	Approved

It is assumed that the skid and HDD equipment will originate from the west of the study area as this is currently not known. The routes and roads which are assumed to be utilised for the other deliveries are summarised in Figure 10. It is noted that Marker Road has a road underpass at Tullamarine Freeway, the height clearance is not publicly available and will need to be considered as part of the TMP for any heavy vehicle deliveries such as OSOM vehicles.

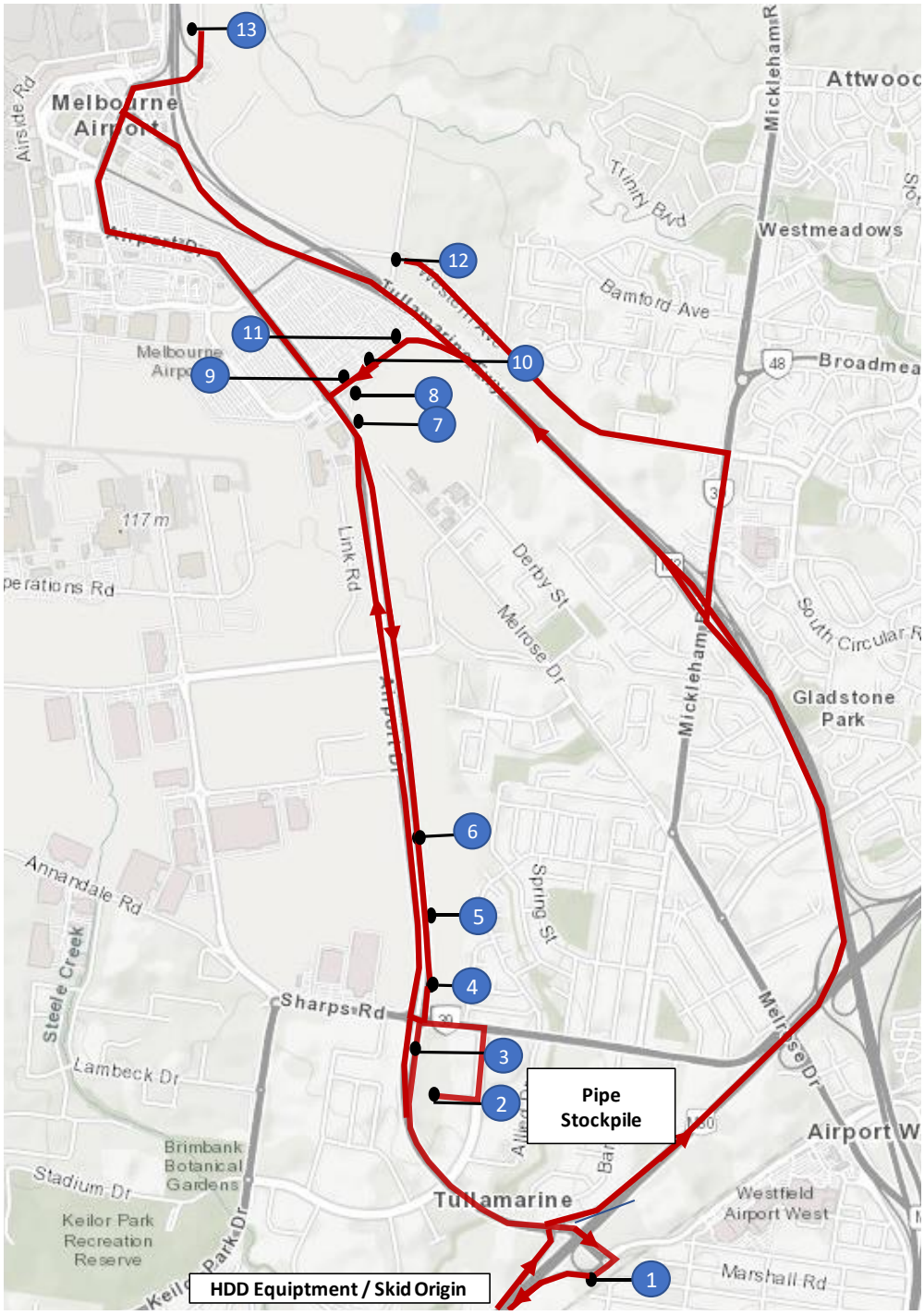

Figure 10 Other OSOM delivery routes (background image source: VicMap)

Roads used for pipeline movements, HDD equipment deliveries and skid movements as discussed above are summarised in Table 13 (not including those listed in Table 12).

Table 13 OSOM Class 1 road approval level on proposed other OSOM delivery vehicle routes

Road	OSOM Class 1 approval level
Tullamarine Freeway	Approved (northbound between M80 and Mercer Drive)
Mercer Drive	Approved
Mickelham Road	Approved
Airport Drive (north of APAC Drive)	Not Approved
Western Avenue	Not Approved
Centre Road	Not Approved
Marker Road	Not Approved

Noting specific routes will be confirmed by the construction contractor and detailed as part of an appropriate TMP to the satisfaction of the relevant authorities.

In addition to the proposed delivery routes, there may be pipe transport required to the other access points (or movement of equipment) using an OSOM vehicle during construction.

The spoil disposal which may be required at the access points will require truck and dogs.

The following study area roads are not B-Double or OSOM approved. These will require permits from the appropriate Council(s) or road managers (Melbourne Airport):

- Centre Road
- Marker Drive
- Western Avenue
- Airport Drive north of APAC Drive (B-Double approved)

4.3.1 Mitigation measures

Prior to construction commencing, a TMP will be developed by the construction contractor, with consideration of the heavy vehicles required during construction. The TMP will include, but is not limited to, the following:

- The movement of loads will need to adhere to the relevant road authority permit conditions and/or policies and guidelines to provide for safe movement and manage the impact to other road users.
- Communication and management of the routes in which heavy vehicles utilise during construction including OSOM vehicles
- A route audit for OSOM vehicles may need to be undertaken to assess the route option, safety and clearance to potential obstructions such as wires, structures, trees and any intersection modification required (noting that no detailed assessment including swept paths, clearances or road condition has been undertaken at this stage and the site access points, lane closures, layout of the internal site working areas for the Project have not been confirmed). Modifications may include but are not limited to removal / relocation of signs / roadside furniture, removal / pruning of vegetation and infill hardstands at turns.
- Specific access routes and internal circulation would be confirmed and adopted.
- Vehicles avoiding peak hour when / if required.
- Assessment of exceptional super-loads and/or Over-Dimensional (OD) vehicles (if required).
- Roads may be subject to a pre and post- construction pavement dilapidation and/or road pavement assessment. The condition of the roads may need to be maintained to the satisfaction of the relevant authority. Upon the completion of construction, the condition of the roads may also need to be returned to pre-construction condition to the satisfaction of the relevant authority.

An appropriate construction traffic management plan (TMP), prepared by the construction contractor to the satisfaction of the relevant authorities, is expected to be appropriate to manage potential impacts and the residual impact is anticipated to be minimal and manageable.

4.4 Traffic impacts during road and lane closures

At this stage lane closures required during construction are not yet confirmed and will be confirmed prior to the commencement of construction and investigated as part of the construction contractor's TMP. However initial planning indicates that Access Point 1 will require a lane closure of the short lane of the westbound Western Ring Road On-Ramp. This has been implemented during the construction period of MAR Transmission Tower Relocation Project and is expected to be manageable with a TMP for this Project.

The Project proposes to under bore all major roads along the alignment to avoid any major road closures during construction. Under the current design, one car park access road for Melbourne Airport will be required to be closed during the pipeline trenching activities with initial expectations being 1-2 days.

These are illustrated in Figure 11 below, with potential impacts to users summarised in Table 14.

Figure 11 Melbourne Airport Wait Area access road closure (base map source: VicMap)

While the current traffic volume on these access points, and their peak hours are unknown, any impacts to users will be minimised as far as practicable by expediting construction works in these areas and minimising the closure period.

Table 14 Road closure impacts

Closure	Access Road	Detour route	Travel distance (km)*	Travel time (mins)
Wait Zone Car Park Entry	Airport Drive	Secondary access to Wait Area located off Mercer Drive. Vehicles required to enter onto Tullamarine Freeway to exit on Mercer Drive off ramp.	6.4	8

* Vehicle route from point of closure to alterative access point

4.4.1 Mitigation measures

Lane and road closures will be confirmed prior to the commencement of construction and investigated as part of the construction contractor's TMP. To manage the potential impacts of road and lane closures the TMP will include the following:

- The duration of road closures will be limited and are to occur outside of the peak traffic periods of the access roads uses to decrease potential traffic impact.
- Construction methods are to be implemented to avoid or minimise the duration of road closures.
- Route diversions will be investigated, implemented, and communicated to all relevant stakeholders.

Consultation is to be undertaken with Melbourne Airport in relation to the temporary road closures required at the Wait Zone Car Park Entry off Airport Drive. Mitigation measures required are to be identified and agreed.

The residual impacts of road and lane closures at this stage are unknown as further investigation and consultation is required to determine what the traffic impacts are, and any further mitigation measures required. Notwithstanding this, subject to the appropriate TMPs to the satisfaction of relevant authorities the residual impacts are expected to be manageable.

4.5 Public transport impacts

During construction, bus routes (478, 479 and 482) operating in the vicinity of, and within the study area, may be indirectly affected along sections of Airport Drive, Sharps Road, Tullamarine Park Road and Mercer Drive due to the, albeit marginal increased traffic volumes along these roads and the potential for road and lane closures.

Relevant stakeholders will be consulted prior to the commencement of construction and mitigation measures to manage potential impacts on bus services will be included in the construction contractor's TMP.

However, there are minimal and manageable residual impacts anticipated in terms of bus operation with mitigation measures in place.

4.6 Active transport impacts

The Western Ring Path SUP and the SUP on the eastern side of Airport Drive (between Sharps Road and Mercer Drive) will be impacted during construction of the pipeline due to their proximity to the work areas and access points. The SUPs will remain open for the majority of construction but are expected to experience temporary closures and relocations at several locations during construction.

The internal work area layouts including access tracks, vehicle turn around areas and car parking have not yet been identified and these are to be defined with refinement of closures and relocations required. Staging and timing within the construction schedule are also not yet confirmed.

The SUP along the eastern side of Airport Drive will require temporary relocations at two sections along its length. The relocation timing for each section is currently unknown, however each are expected to be multi-month relocations (up to 12 months) and are dependent on the construction program. The temporary relocated SUP will retain its existing width and be sealed and appropriate clearances to containment fencing and other objects is to be achieved. Airport Drive SUP sections anticipated to require temporary relocation during construction are listed in Table 15.

The locations may change as the internal work site layout progresses and engagement with Melbourne Airport and relevant authorities is undertaken. The volumes of SUP users are currently unknown.

Table 15 Preliminary temporary Airport Drive SUP relocations during construction

No.	Starting location (approximate)*	Approximate length (m)	Reference
1	Immediately north of Sharps Rd	125	Figure 13
2	265 m south of Mercer Dr	75	Figure 14

* Taken along the length of the SUP

Construction vehicles are expected to cross sections of SUP sections during construction as outlined in Table 16 (including reference to locations in Figure 12, Figure 13). These movements will be managed by traffic management personnel and last for periods of up to 10 minutes (approximately). In addition, where the SUP is in close proximity to work areas (such as on the eastern side of Airport Drive) traffic management will be in place to ensure safe access for SUP users when heavy vehicles are manoeuvring into and out of the work area.

As with the preliminary relocated SUP sections, these locations may change as the internal work site layout progresses and engagement with Melbourne Airport, DTP and relevant authorities is undertaken.

Table 16 Preliminary vehicle SUP crossing points

SUP	Location	Type	Closures	Impact to users	Reference
Western Ring Path	Access point 1	Existing	Closure of SUP required for vehicles to cross the SUP (this arrangement has also been utilised as the MAR Transmission Tower Relocation Project temporary construction access)	Delays of up to 10 minutes when vehicles cross the SUP	Figure 12
Eastern side of Airport Drive	SUP relocation 1	Relocated	Closure of SUP when vehicles are required to cross the SUP		Figure 13
	SUP relocation 2	Relocated			Figure 14
	Access point 7	Relocated			Figure 15

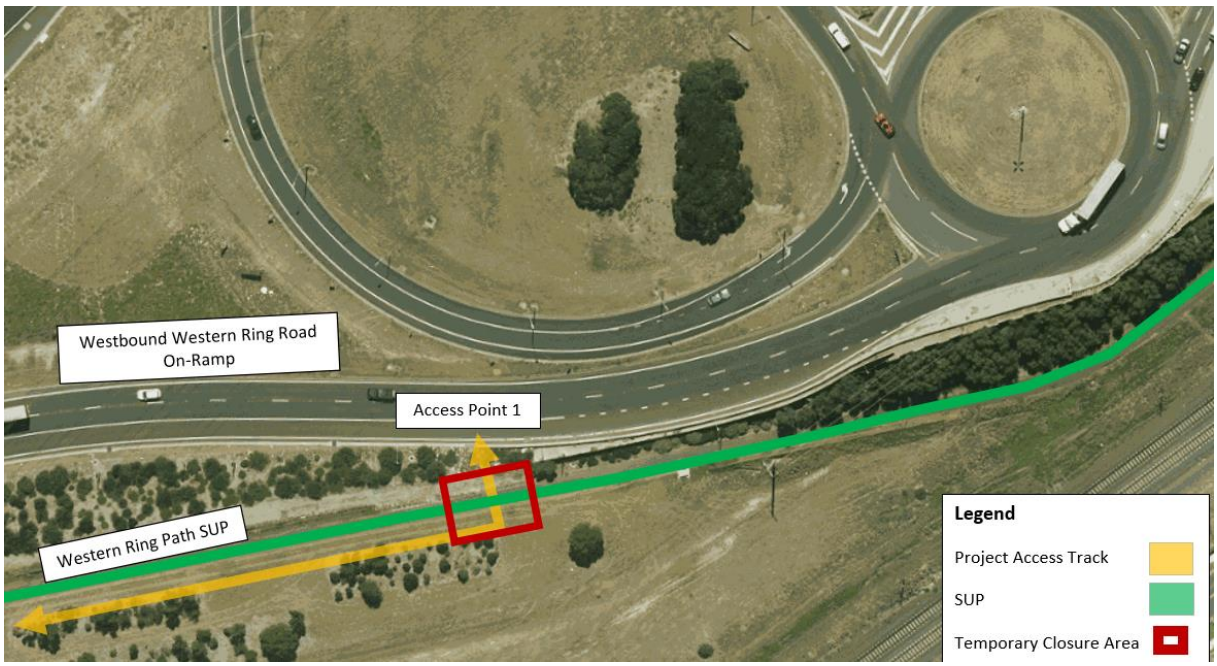

Figure 12 Western Ring Path intersection with proposed project access point 1 (base image source: VicMap)

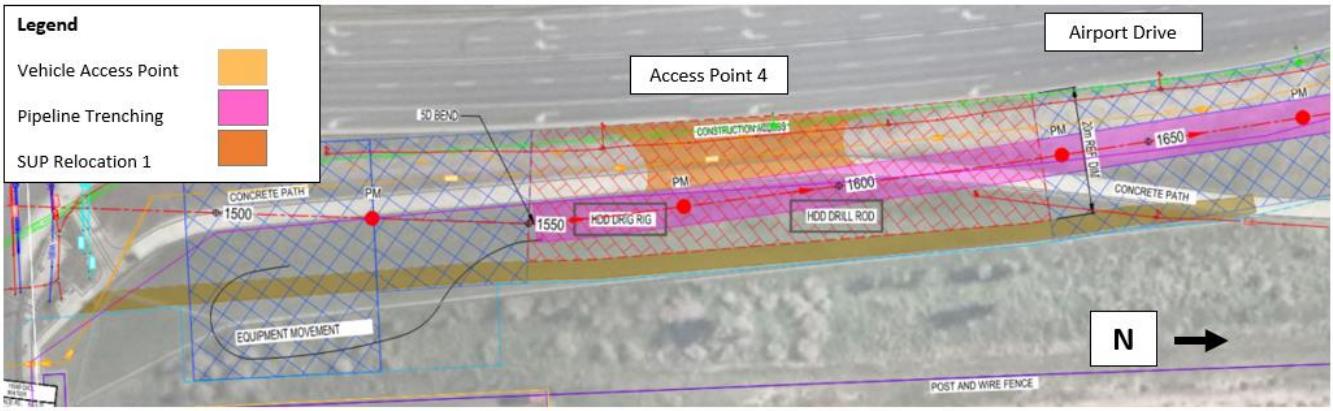

Figure 13 SUP relocation 1 with intersection of equipment movement

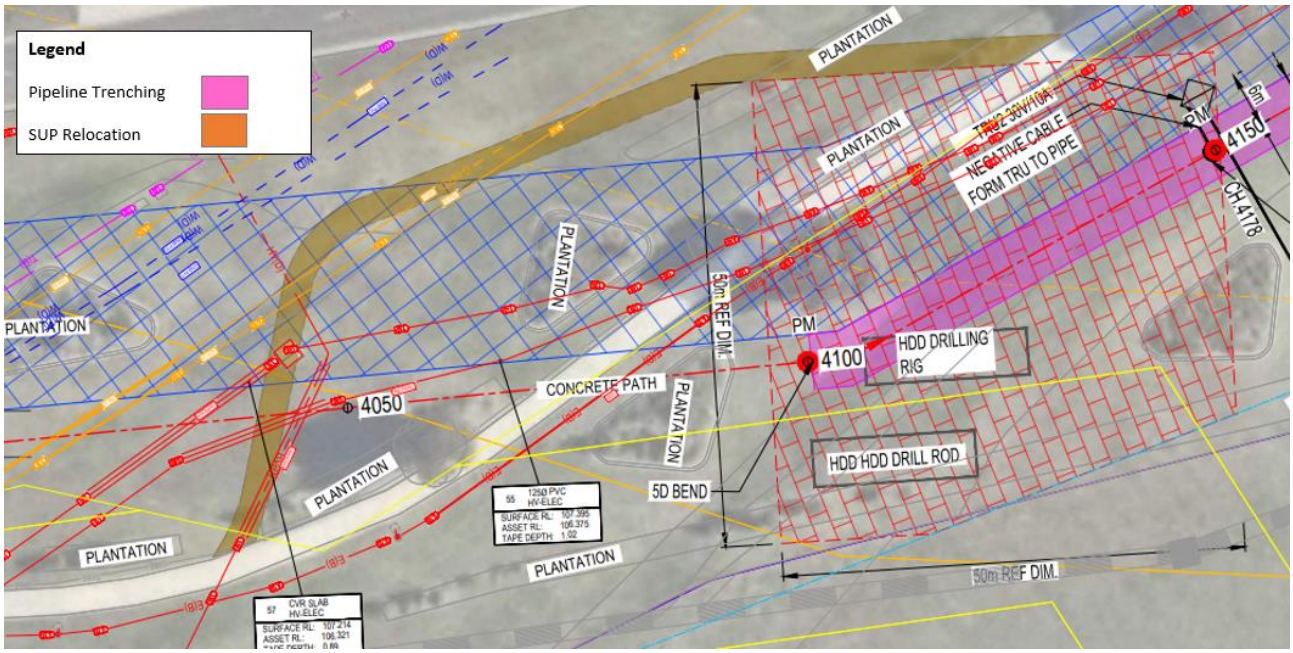

Figure 14 SUP relocation 2 and work area which will require movement of vehicles across the SUP

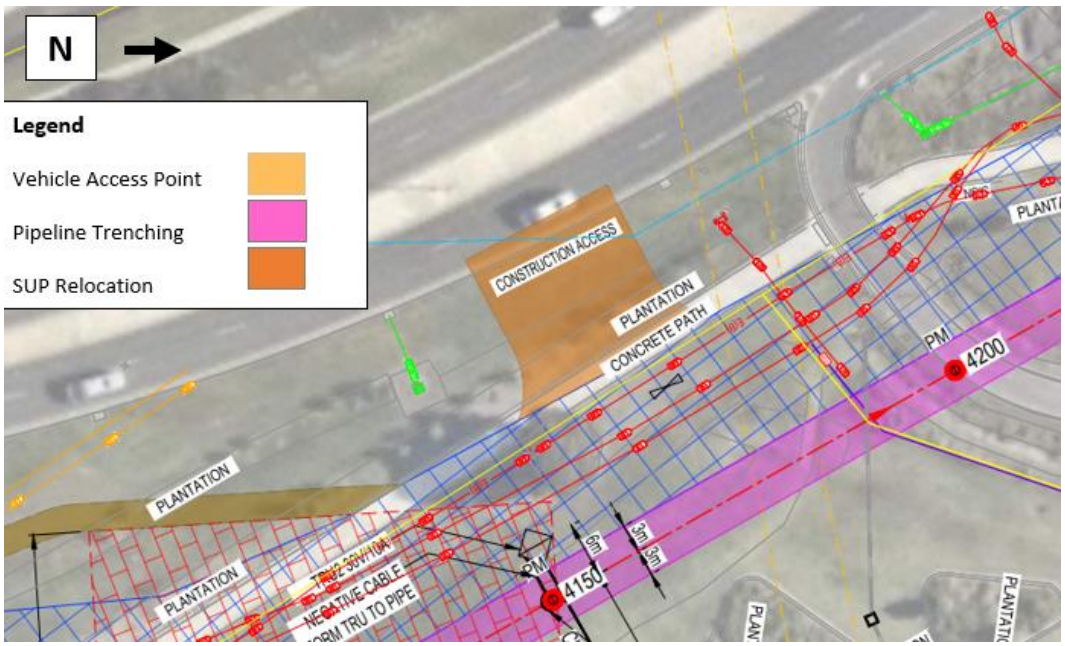

Figure 15 SUP intersection with proposed project access point 7 (base image source: VicMap)

4.6.1 Mitigation measures

SUP relocations and closures will be confirmed prior to the commencement of construction and investigated as part of the construction contractor's TMP. To manage the potential impacts of SUP relocations and closures the TMP will include, but is not limited to, the following:

- Temporary SUP relocation will be to the satisfaction of Melbourne Airport and DTP.
- SUPs will be reinstated to their previous location and conditions on conclusion of each construction stage in which a section has been temporary relocated. Reinstatement is to be to the satisfaction of Melbourne Airport and DTP.
- Traffic management personnel will manage the temporary closures of SUPs to ensure pedestrians and cyclists safely give-way to vehicles and remain separated at all times.
- Sections of the SUP may become damaged and create a safety hazard for users during the construction period. SUPs to be crossed by construction vehicles to be checked periodically for damage and repaired to ensure safety is maintained for SUP users (to the satisfaction of Melbourne Airport and DTP).

Stakeholder engagement is to occur:

- With Melbourne Airport and DTP prior to construction for parties to agree and confirm the SUP relocations, closures and the required mitigation measures.
- Over the construction period with Melbourne Airport and DTP, relevant stakeholders and the public.

The residual impacts of SUP relocations and closures at this stage is unknown as further investigation and consultation is required to determine the extents of SUP relocation, closures and management. Notwithstanding this, subject to the appropriate TMPs to the satisfaction of relevant authorities, the residual impacts are expected to be manageable.

5 Operations and maintenance impact

Minimal workers are expected on-site during the operation and maintenance phase of the pipeline and vehicle movements to include light vehicles (passenger cars), utility vans / maintenance trucks.

Transport impacts during the operations and maintenance phase of the project are expected to be minimal except for infrequent maintenance activities which, while potentially significant, are also expected to be minimal and manageable.

6 Decommissioning impact

Decommissioning activities' vehicle volumes are expected to be a lower in comparison to the construction phase. Decommissioning will require a Traffic Impact Assessment in the future to assess and mitigate impacts

7 Mitigation measures and management

The Project requires further design refinement and consultation. Any required traffic management treatments and mitigation works are to be identified and addressed by way of an approved TMP to be prepared by the construction contractor. This is the responsibility of the Proponent and would be prepared in consultation with the construction contractor and relevant stakeholders.

To manage potential impacts to the surrounding traffic network during construction, operation and decommissioning the mitigation measures detailed in Table 17 are recommended to be implemented alongside any other items identified in the construction contractor's TMP.

Table 17 Recommended mitigation measures

No.	Recommended mitigation measure	Stage
1	**Traffic Management Plans (TMPs)** TMPs will be developed and implemented by the construction contractor to the satisfaction of the relevant authorities to communicate and manage potential impacts to road users. The TMP must address all aspects of the traffic network and should include, but not be limited to, the following: ■ Communication and management of worker's routes during construction. ■ Following confirmation of construction vehicle types and, prior to construction commencing, appropriate traffic management measures must be identified for each vehicle type as necessary. This is especially the case for OD / OSOM (Over Dimension / Over Size Over Mass) vehicles. ■ Communication and management of the heavy vehicle routes during construction including OSOM vehicles ■ A route audit for OSOM vehicles may need to be undertaken to assess the route option, safety and clearance to potential obstructions such as wires, structures, trees and any intersection modification required (noting that no detailed assessment including swept paths, clearances or road condition has been undertaken at this stage). Modifications may include but are not limited to removal / relocation of signs / roadside furniture, removal / pruning of vegetation and infill hardstands at turns. ■ Specific access routes and internal circulation would be confirmed and adopted. ■ Vehicles avoiding peak hours if possible. ■ Assessment of exceptional super-loads and/or Over-Dimensional (OD) vehicles (if required). ■ Roads may be subject to a pre and post- construction pavement dilapidation and/or road pavement assessment. The condition of the roads may need to be maintained to the satisfaction of the relevant authority. Upon the completion of construction, the condition of the roads may also need to be returned to pre-construction condition to the satisfaction of the relevant authority. ■ Turning lanes warrants may be required based on *AustRoads Guide to Traffic Management Part 6 Section 3.3*. ■ Internal work area layout including internal access roads, turn around areas and car parking provisions for workers and heavy vehicles are to be further developed. ■ Sight distance assessment in accordance with the *AustRoads Guide to Road Design Part 4a* is required to be met at site access points.	Construction

No.	Recommended mitigation measure	Stage
	■ Road and lane closures are to be minimised in number and duration and are to occur outside of the peak traffic periods of the access roads. ■ Route diversions will be investigated, implemented, and communicated to all relevant stakeholders. ■ Bus operators to be consulted prior to the commencement of construction to inform routes used by the Project. ■ Temporary SUP relocation will be to the satisfaction of Melbourne Airport and DTP and will be reinstated to their previous location and conditions on conclusion of each construction stage in which a section has been temporary relocated. Reinstatement is to be to the satisfaction of Melbourne Airport and DTP. ■ Traffic management personnel will manage the temporary closures of SUPs to ensure pedestrians and cyclists safely give-way to vehicles and remain separated at all times. ■ Sections of the SUP may become damaged and create a safety hazard for users during the construction period. SUPs to be crossed by construction vehicles to be checked periodically for damage and repaired to ensure safety is maintained for SUP users (to the satisfaction of Melbourne Airport and DTP. ■ Assessment and mitigation of risks through relevant controls, for example advanced warning signage, reduced posted speed limit and lighting of access points. ■ Cumulative impacts which may arise from the Melbourne Airport Rail Link Project (or other projects) are to be investigated and mitigated. ■ Swept path assessment for turning movements of critical design vehicles, OD and/or OSOM vehicles required during construction at: – Each access point once internal work site layouts are defined to ensure access points and traffic management measures are suitable. These may lead to alterations to access point locations, alterations to the SUP relocations required, internal layouts, identification of lane closures required and removal of roadside obstructions. – Intersections on roads which are not heavy vehicle approved but are required to be used by heavy vehicles during construction (such as Mickleham Road and Western Avenue). ■ The identified black spots should be considered when developing the construction contractor's TMP, including any mitigation treatments, to ensure any relevant crash trends are considered appropriately. Any mitigation treatments would then be detailed in the construction contractor's TMP to the satisfaction of the relevant authorities.	
2	**Stakeholder consultation** Engagement with Brimbank City Council, Hume City Council, Department of Transport and Planning (DTP), Melbourne Airport and other relevant stakeholders is recommended to be undertaken to discuss the construction phase preliminary access point locations, expected impacts to the transport network and any mitigation that needs to be incorporated into the Project. The following is recommended: ■ Initial engagement with stakeholders and landholders for all vehicle access points. This includes where the use of landholder access tracks/roads are proposed at: – Access Point 1, this arrangement has also been utilised as the MAR Transmission Tower Relocation Project temporary construction access – Access Point 2 at Prima Court which requires vehicle access through private property. – Access Point 12 which requires access to be on private land. ■ Consultation with Melbourne Airport and DTP in regard to the identified required temporary relocation and closures of the SUPs.	Pre-construction, Construction, operation and decommissioning

No.	Recommended mitigation measure	Stage
	■ The temporary road closure required at the Wait Zone Car Park Entry off Airport Drive is to be discussed with Melbourne Airport. Based on engagement in the above, preliminary confirmation should be sought, and any relevant mitigation required identified. Ongoing engagement and communication over the construction period with road authorities, key stakeholders and the public is to be undertaken. This includes regular meetings with road authorities.	
3	**Road Safety Audits (RSAs)** RSAs at each access point are to be undertaken upon finalisation of the proposed access driveways and access tracks to ensure safe vehicle movements to the satisfaction of the responsible road management authority.	Pre-construction

8 Conclusion

Viva Energy is proposing to construct and operate a new jet fuel pipeline to support the growing fuel needs at Melbourne Airport.

The Project aims to:

- Help meet the increasing demand for jet fuel and support future growth at Melbourne Airport.
- Increase the supply security of jet fuel which will contribute to the Victorian state economy.
- Reduce the reliance on road transport for jet fuel supply with fewer trucks required to deliver fuel to the airport.

This report has been prepared to assess potential traffic impacts associated with the construction, operation and decommissioning of the Project noting the Project requires further design refinement and consultation.

Required traffic management treatments and mitigation works are to be identified and addressed by way of an approved TMP to be prepared by the construction contractor (to the satisfaction of relevant authorities and stakeholders). This is the responsibility of the Proponent and would be prepared in consultation with the construction contractor.

Subject to further development of the design and construction methodology, and implementation of mitigation measures identified in the construction contractor's approved TMP (to the satisfaction of the relevant authorities), the residual effects on the traffic network from the project are expected to be manageable.

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