Appendix E. Traffic Impact Assessment

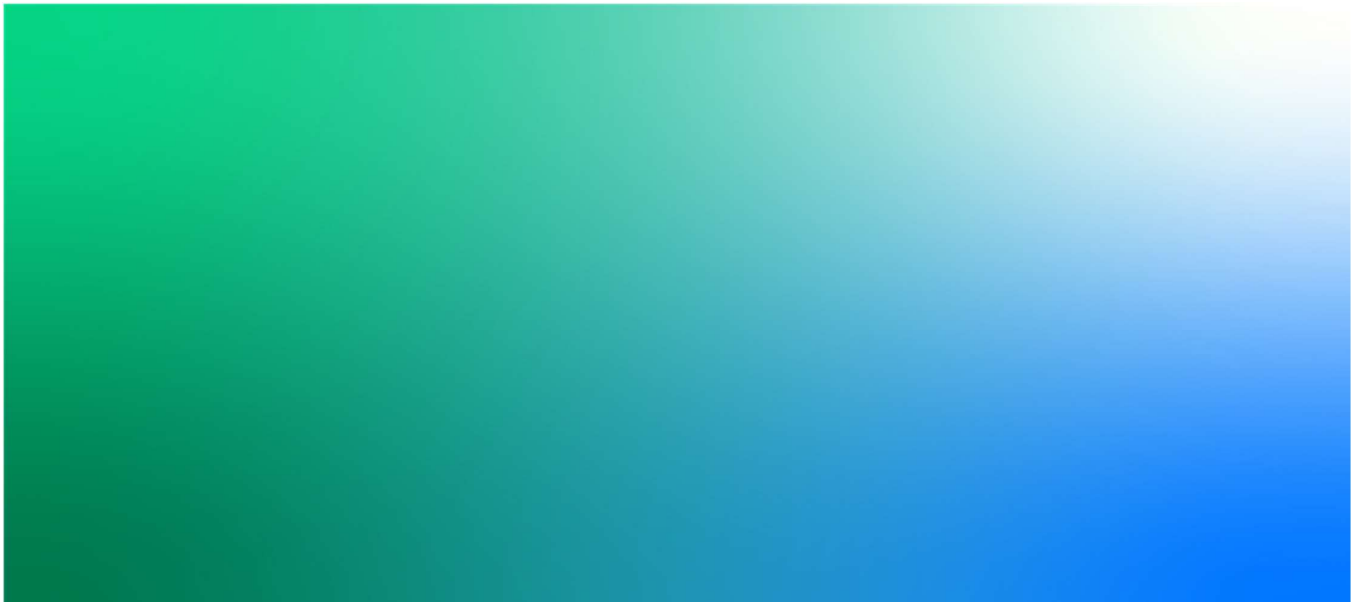
Prospect Hill Energy from Waste Plant

Traffic Impact Assessment

2 | 1

22 October 2020

Prospect Hill International



Prospect Hill Energy from Waste Plant

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Document history and status

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B	12/06/2020	Revisions from internal review	JP	TY	MD	
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1	22/10/2020	Issued to client	JP	TY	KM	

Contents

Disclaimer

The sole purpose of this report is to present a traffic impact assessment prepared by Jacobs Group (Australia) Pty Ltd (Jacobs) for Prospect Hill International Pty Ltd (Prospect Hill) to support the development of an Energy-from-Waste (EfW) plant at 164-200 McManus Road, Lara, Victoria. This report was produced in accordance with and is limited to the scope of services set out in the agreement between Jacobs and Prospect Hill. The scope of services, as described in this report, was developed with Prospect Hill.

In preparing this report, Jacobs has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by Prospect Hill and from other sources. Except as otherwise stated in the report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete, then it is possible that our observations and conclusions as expressed in this report may change.

Jacobs has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law. Opinions and judgements expressed in the report are based on Jacobs' understanding and interpretation of current regulatory standards and should not be construed as legal opinions.

Executive Summary

Prospect Hill International Pty Ltd proposes to construct and operate an Energy from Waste (EfW) Plant at its Prospect Hill site, between the small townships of Lara and Corio, north of Geelong. It is proposed the Plant will use modern, moving-grate, boiler technology to recover energy by combusting approximately 400,000 tonnes per annum (tpa) of 80% Municipal Solid Waste (MSW) and 20% MSW-like Commercial and Industrial (C&I) waste. The Plant is expected to provide electricity at a maximum rate of approximately 36 MegaWatt electrical (MW_e).

The Project has two aims: (1) to provide a facility for the improved treatment of MSW and C&I waste compared to landfilling; and (2) to generate electricity for export to the electricity network. The treatment of waste in the Plant will be by combustion using proven and reliable engineering technology and emissions controls, as demonstrated by many similar EfW facilities around the world.

The site for the Project is located at 164-200 McManus Road, Lara, which is located within the City of Greater Geelong Local Government Area. The site is located approximately 65km south west from Melbourne's CBD, 29km from Werribee City Centre and 14km from Geelong City Centre. A Traffic Impact Assessment (TIA) for the Project has assessed the existing traffic conditions of the roads that will be used for construction and operation of the EfW plant and assessed the potential impacts caused by the EfW Project development on these roads.

This TIA details the current traffic conditions and the expected EfW development traffic generation and distribution during the peak construction phase and the operational phase of the proposed project.

Of particular interest is the road network from the Princes Freeway to/from the proposed EfW plant on McManus Road. The road network routes through industrial zoned land (IN2Z) so it is possible to assess the plant without going on roads in residential areas.

The TIA assessed the potential midblock impacts on traffic operational performance for the project. The findings indicate that the potential impacts of the proposed project in terms of traffic volumes is minimal and that the project will not lead to significant impacts on the road network.

1. Introduction

1.1 Overview

Prospect Hill International Pty Ltd (Prospect Hill) is planning to develop an energy from waste (EfW) plant at 164-200 McManus Road, Lara (Lots D and 3 PS710783E) which is located within the Greater Geelong Local Government Area. The site is approximately 16 hectares and located approximately 65km south west from Melbourne's CBD, 29km from Werribee City Centre and 14km from Geelong City Centre. Figure 1-1 shows the location of the proposed EfW plant. It is within an Industrial 2 Zone under the Greater Geelong Planning Scheme and is accessible with excellent heavy vehicle transport links.

1.2 Purpose of this report

This document provides a traffic impact assessment for the proposed Prospect Hill EfW plant in Lara, Victoria. The traffic assessment has focussed on the development of the EfW facility, including the traffic impacts during its construction and operation phases. This document includes assessment of the:

- Operational capacity of transport routes to and from the EfW site
- Estimated construction and operation traffic being generated by the EfW development
- Midblock performance of the existing road network with the estimated traffic demands
- Relevant recommendations and mitigation measures (if any), as well as next steps

1.3 Key issues outlined

The key traffic impacts from the proposed project arise from the additional number of heavy vehicles that will be accessing the EfW site from the public road network during the construction and operation stages of the development.

The assessment investigated the safety and capacity of existing roads to carry a number of heavy vehicles delivering equipment, materials and components during the construction phase, and waste during the operational phase to the site.

The assessment details the current traffic conditions and the expected traffic generation and distribution during the peak construction phase and the operational phase of the EfW development.

1.4 Report structure

The report is structured as follows:

- **Section 2: Existing transport environment** - Provides a high-level overview of the existing traffic conditions
- **Section 3: Proposed development** – Provides details such as the proposed site layout and indicative project timeframes
- **Section 4: Traffic impact assessment** – Summarises the estimated vehicle trips to and from the site generated by the construction and operational phases of the proposed development on the surrounding road network and potential midblock impacts.
- **Section 5: Summary** – Highlights the main findings from the traffic assessment

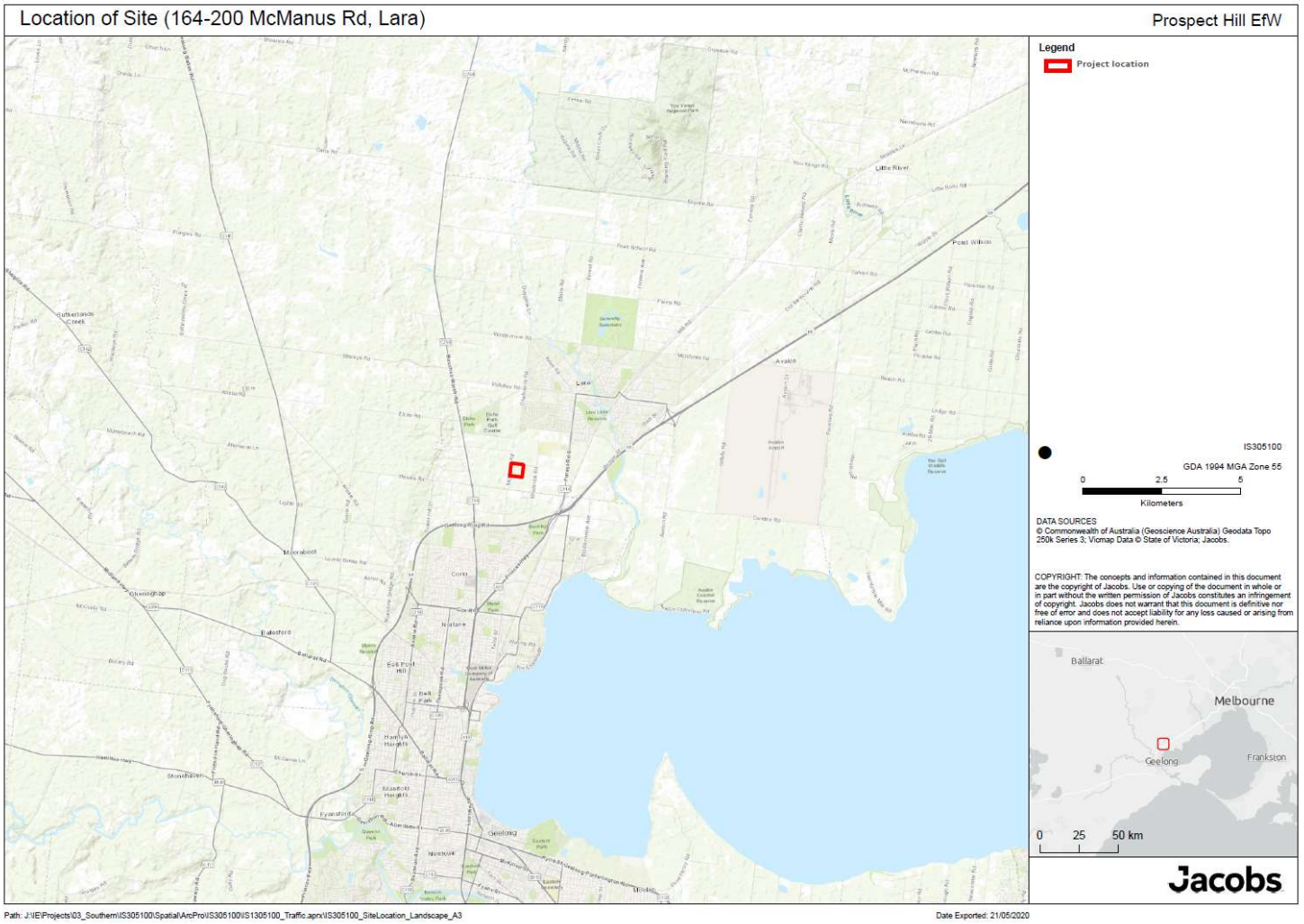


Figure 1-1: Location of the proposed development

2. Existing transport environment

This section of the report documents the existing conditions of the transport network within proximity to the proposed development, based on a site visit undertaken in February 2020.

2.1 Existing road network

Princes Freeway is a major east-west oriented highway linking Melbourne to the west and Geelong. Princes Freeway is a dual carriageway, with three general traffic lanes (ranging between 3.0 and 3.5m) in each direction, and no access from adjoining property or cross roads over its entire length. A speed limit ranging 80 to 100km/h applies. Figure 2-1 shows the current road condition of the Princes Freeway.

Figure 2-1: Princes Freeway east of Forest Road looking south-westbound (Source: Google Street View, 2020)

Geelong Ring Road is a 23-kilometre freeway bypass around Geelong, extending along the northern and western non-urban edge of Geelong, from the Princes Freeway to the Surf Coast Highway. Interchanges near the site are located at Bacchus Marsh Road, Anakie Road, Midland Highway, and Princes Highway providing direct access to arterial roads within the Geelong region, Melbourne, destinations in the western district, and along the south-west coast of Victoria. The freeway with two traffic lanes (ranging between 3.0 and 3.5m) in each direction has a speed limit ranging 80 to 100km/h. Figure 2-2 shows the current road condition of Geelong Ring Road.

Figure 2-2: View of Geelong Ring Road

Bacchus Marsh Road is a primary state arterial road. The road is relatively straight and flat, and it runs in a north-south orientation through Lara and connects Bacchus Marsh and Geelong. The road is undivided and consists of one traffic lane in each direction with sealed shoulders. Traffic lane widths are approximately 3.5m. The posted speed limit on Bacchus Marsh Road is 90km/h. Figure 2-3 shows the current road condition of Bacchus Marsh Road.

Figure 2-3: Bacchus Marsh Road north of Heales Road intersection looking southbound (Source: Google Street View, 2020)

Midland Highway is an east-west oriented arterial road that connects Geelong in the south, through Ballarat onto Daylesford. The road is undivided and consists of one traffic lane in each direction with sealed shoulders. Traffic lane widths are approximately 3.5m as shown in Figure 2-4. A speed limit up to 100km/h applies.

Figure 2-4: View of Midland Highway (Source: Google Street View, 2020)

Ballan Road is a north-south oriented arterial road providing connection between Ballan, Geelong and Greater Melbourne through Geelong Ring Road. The undivided road consists of one lane of traffic in each direction as shown in Figure 2-5**Error! Reference source not found.**. Speed limit up to 100km/h applies.

Figure 2-5: View of Ballan Road (Source: Google Street View, 2020)

Forest Road is an arterial road that runs north-south from the Princes Freeway to Lara town centre. It is an undivided road accommodating a single 3.2m lane of traffic in each direction as shown in Figure 2-6. A speed limit of 70km/h applies.

Figure 2-6: View of Forest Road (Source: Google Street View, 2020)

Heales Road is a local east-west road providing access to the site from Forest Road and Bacchus Marsh Road. Heales Road consists of one lane of traffic in each direction on an undivided carriageway. Traffic lane widths are

approximately 3.1m. A speed limit of 80km/h applies. Figure 2-7 shows the current road condition of Heales Road.

Figure 2-7: Heales Road looking at the intersection with Broderick Road

Broderick Road is a local north-south road connecting to Production Way. Broderick Road connects to the Princes Freeway at the Geelong City Centre exit. The undivided road has one lane of traffic in each direction. Figure 2-8 shows current conditions of Broderick Road. A speed limit of 60km/h applies.

Figure 2-8: Broderick Road south of Production Way intersection looking northbound (Source: Google Street View, 2020)

Production Way is a local east-west road that intersects with Broderick Road. It is partially constructed and ends halfway between McManus Road and Broderick Road. The road is located adjacent to the EfW site. The undivided road includes one lane for non-turning traffic in each direction and one additional full-length eastbound lane for right turning traffic only. Figure 2-9 shows current road conditions of Production Way.

Figure 2-9: Views of Production Way

The following intersections form the road network of interest:

- **Princes Freeway Geelong City Centre exit ramp / Broderick Road:** this signalised four-legged intersection is located 2.5km south of the site. The intersection has short dedicated turn lanes on all approaches
- **Geelong Ring Road Bacchus Marsh exit ramp / Bacchus Marsh Road:** The signalised freeway diamond interchange is located 2.5km south-west of the site
- **Midland Highway Melbourne exit / Geelong Ring Road:** the signalised freeway diamond interchange is located 8.5km south-west of the site
- **Midland Highway / Ballan Road:** the priority-controlled T-intersection is located 8.8km south-west of the site. Midland Highway has a short-dedicated turn lane into Ballan Road in each direction of travel

The following intersections, not connected to major freeway links, also form the road network of interest.

- **Forest Road / Heales Road**: the priority-controlled T-intersection is located 1.6km south-east of the site. The intersection has single arrival and departure lanes on all approaches
- **Bacchus Marsh Road / Heales Road**: the four-legged roundabout is located 1.7km south-west of the site. The roundabout has a single circulating lane and single arrival and departure lanes on all approaches
- **Heales Road / Broderick Road**: the priority-controlled four-legged intersection is located 900m south-east of the site. The intersection has single arrival and departure lanes on all approaches
- **Broderick Road / Production Way**: The three-legged intersection is located 400m east of the site. The intersection includes Broderick Road which becomes a dirt road north of Production Way and is the only approach required to stop/give way to traffic from the other two approaches

2.2 Current approved heavy vehicles routes within proximity to the site

Data provided by the Department of Transport (DoT) shows that all roads to be used in the vicinity of the site (from Princes Freeway and Geelong Ring Road) are already classified to accommodate heavy vehicles. This includes:

- Production Way
- Heales Road
- Broderick Road
- Bacchus March Road

The largest type of vehicle assumed to access the site during construction and operation phases (see Section 4) are 26m B-doubles. Figure 2-10 shows the approved B-double vehicle road network (VicRoads gazetted) for the site.

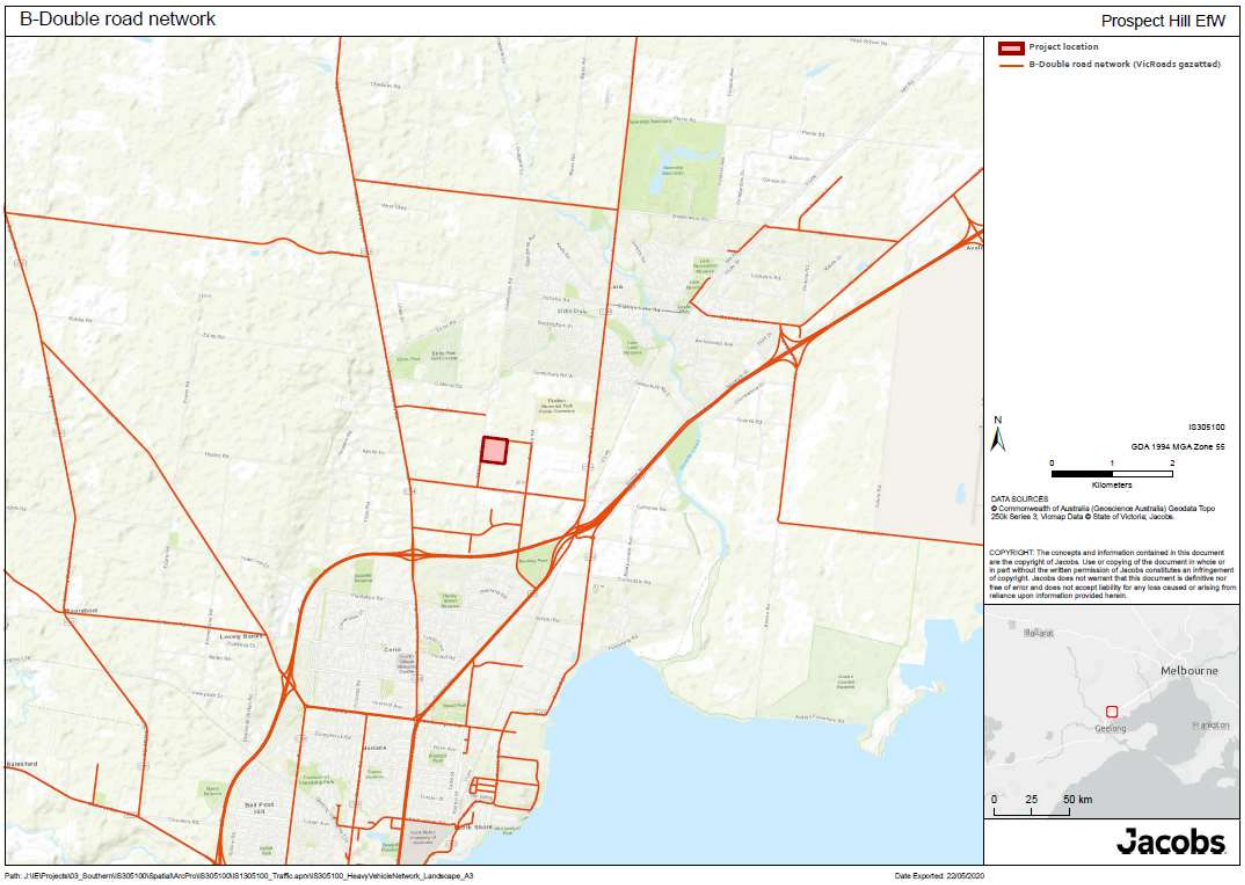


Figure 2-10: B-Double road network (Source: DoT, 2020)

2.3 Existing traffic data

The most recent annual average daily traffic (AADT) counts and daily traffic counts provided by DoT and the City of Greater Geelong respectively for key road sections are as follows:

- Traffic Volumes for Freeways and Arterial Roads, VicRoads Open Data, updated in 2019-2020. *Source: VicRoads, website link: https://vicroadsopendata-vicroadsmaps.opendata.arcgis.com/*
  - Where no peak hour volume data is available, Jacobs assumed that the peak hour volume is equal to 10% of the AADT or daily traffic volume
- Due to no recent traffic surveys being undertaken, Jacobs assumed that Broderick Road and Production Way existing traffic volumes are equal to the McManus Road traffic volume assumptions provided by the City of Greater Geelong on May 13th, 2020 via email

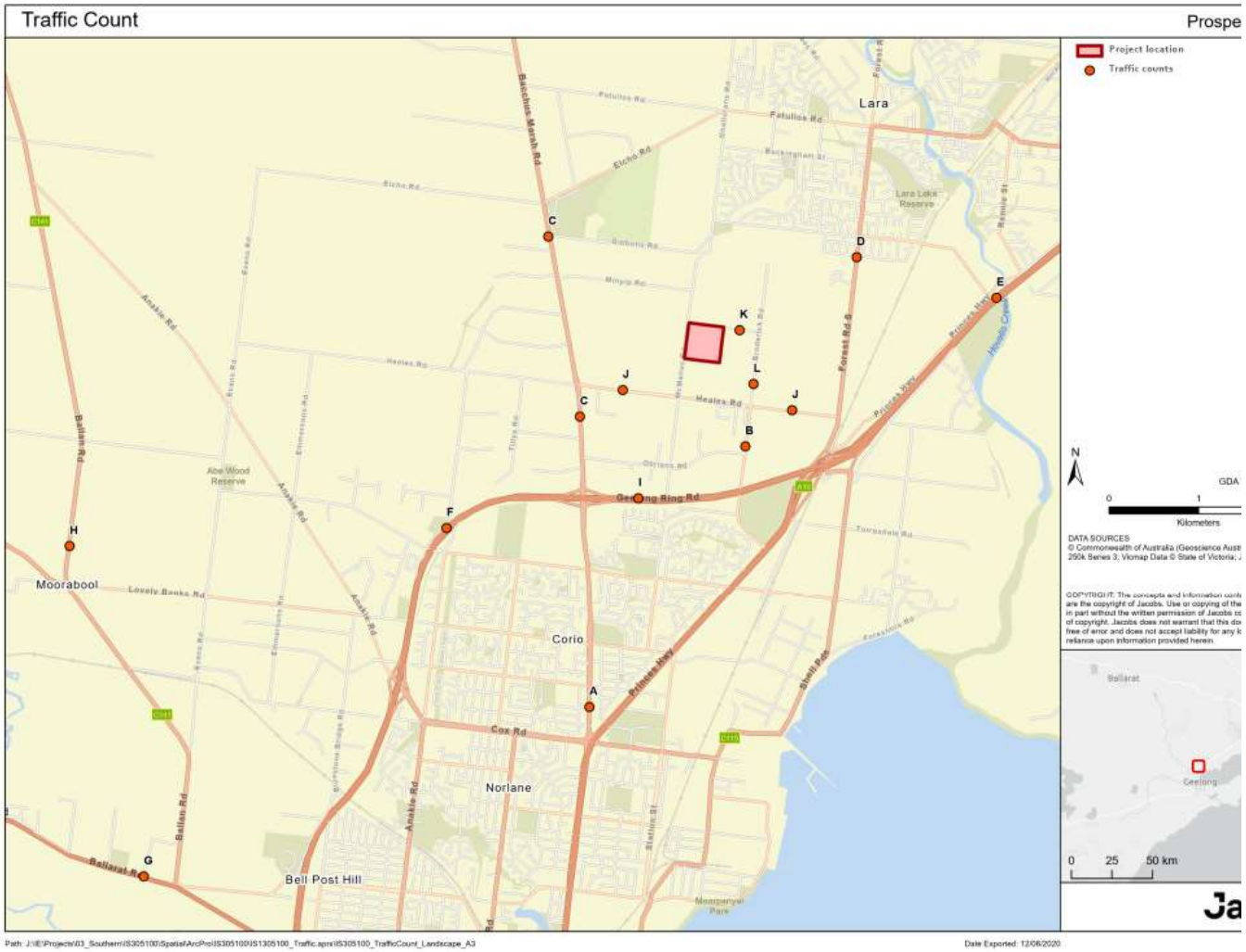


Figure 2-11 shows the location of the midblock traffic counts along the road network of interest described in Section 2.1 to inform this traffic impact assessment.

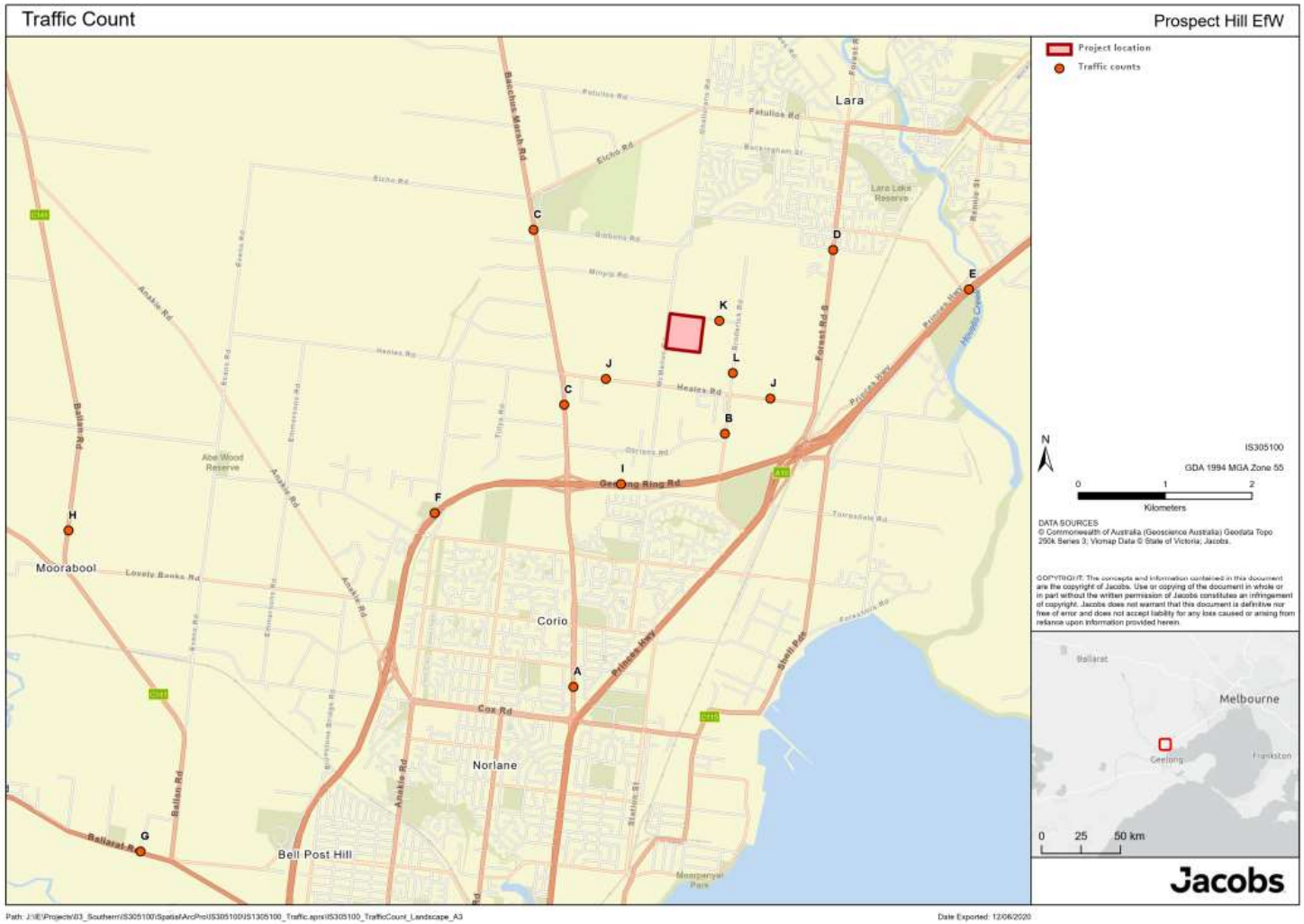


Figure 2-11: Existing traffic count data locations along the road network of interest

2.4 Midblock traffic performance criteria

The performance measure for road links between intersections is Level of Service (LoS), as defined in the AUSTROADS *Guide to Traffic Management: Traffic Studies and Analysis (Part 3)*. LoS is defined as a quantitative measure for ranking operating conditions, based on factors such as speed, travel time, freedom to manoeuvre, interruptions, comfort and convenience.

There are six levels of service, from A to F, with LoS A representing the best operating condition and LoS F the worst. A LoS of A implies that vehicles travelling along a particular road section are experiencing free flow conditions. LoS E representing a midblock section or intersection at capacity. LoS F describes a breakdown in vehicle flow.

In regional areas, LoS C can be considered a minimum desirable standard; a deterioration of the LoS under this level would imply that remedial measures to maintain the existing LoS would be sought.

The volume to capacity ratio (v/c) for the peak direction traffic volumes was calculated by dividing the total observed or modelled vehicles per lane per hour, by an assumed vehicle capacity per lane per hour (veh/ln/hr) (based on lane type) (AUSTROADS, 2013).

For this traffic impact assessment, Jacobs have adopted the following vehicle capacities:

- Local undivided rural road: 900 veh/ln/hr
- Rural major and/or arterial road: 1,200 veh/ln/hr
- Two-lane two-way highway: 1,700 veh/ln/hr
- Multi-lane highways: 2,200 veh/ln/hr

Table 2-1 summarises the LoS criteria for midblock sections in relation to the v/c ratio value.

Table 2-1: LoS criteria for midblock sections (Source: Highway Capacity Manual[1], 2010)

LoS	v/c ratio	General description
A	Less than or equal to 0.60	Free flow
B	>0.60 – 0.70	Stable flow
C	>0.70 – 0.80	Stable flow (acceptable/satisfactory performance)
D	>0.80 – 0.90	Approaching unstable flow (tolerable)
E	>0.90 – 1.00	Unstable flow (intolerable)
F	>1.00	Forced flow (congested)

2.5 Existing (2020) midblock traffic volumes and performance

Table 2-2 shows the current midblock traffic volumes (base case dataset) and traffic performance at key roads within proximity to the proposed development. Overall, from a midblock traffic perspective, all key road sections are currently performing satisfactory during the peak hour period (noting that these peak hour volumes represent an average AM peak period) with all roads experiencing a LoS of A.

[1] The AUSTROADS guidelines refer to the 2010 Highway Capacity Manual

Table 2-2: Existing midblock traffic performance across the study area road network

Road	Traffic Count ID	Direction	AADT (vehicles)	Annual growth rate	No. of Lanes	Peak hour volume (vehicles)	Year of Count	Assumed capacity (pc/ln/h)	Assumed capacity	v/c ratio	LoS
Bacchus Marsh Road between Purnell Road & Cox Road	A	Southbound	8,600	0%*	2	860	2020	1,200	2,400	0.36	A
	A	Northbound	8,600	0%*	2	860	2020	1,200	2,400	0.36	A
Broderick Road between Heales Road & Princes Freeway west	B	Southbound	2,500	2.50%	1	250	2020	900	900	0.28	A
	B	Northbound	2,500	2.50%	1	250	2020	900	900	0.28	A
Bacchus Marsh Road between Ballan Road & Geelong Ring road	C	Northbound	6,400	1.50%	1	640	2020	1,700	1,700	0.38	A
	C	Southbound	6,300	1.40%	1	630	2020	1,700	1,700	0.37	A
Forest Road between Heales Road & Patullos Road	D	Southbound	6,100	2.30%	1	610	2020	1,200	1,200	0.51	A
	D	Northbound	5,800	2.10%	1	580	2020	1,200	1,200	0.48	A
Princes Freeway between Avalon Road & Princes Highway	E	North-eastbound	37,000	3.20%	3	3,700	2020	2,200	6,600	0.56	A
	E	South-westbound	36,000	3.00%	3	3,600	2020	2,200	6,600	0.55	A
Geelong Ring Road between Anakie Road & Bacchus Marsh Road	F	North-eastbound	23,000	2.10%	2	2,300	2020	2,200	4,400	0.52	A
	F	South-westbound	24,000	2.30%	2	2,400	2020	2,200	4,400	0.55	A
Midland Highway between	G	Eastbound	6,000	4.50%	1	600	2020	1,700	1,700	0.35	A

Road	Traffic Count ID	Direction	AADT (vehicles)	Annual growth rate	No. of Lanes	Peak hour volume (vehicles)	Year of Count	Assumed capacity (pc/ln/h)	Assumed capacity	v/c ratio	LoS
Fyansford-Gheringhap Road & Ballan Road	G	Westbound	5,800	4.40%	1	580	2020	1,700	1,700	0.34	A
Ballan Road between Anakie Road & Purnell Road	H	Northbound	612	1.50%	1	61	2020	1,700	1,700	0.04	A
	H	Southbound	700	1.50%	1	70	2020	1,700	1,700	0.04	A
Geelong Ring Road between Princes Freeway & Bacchus Marsh Road	I	North-eastbound	20,000	5.70%	2	2000	2020	2,200	4,400	0.45	A
	I	South-westbound	20,000	5.60%	2	2000	2020	2,200	4,400	0.45	A
Heales Road	J	Eastbound	2,500	2.50%	1	250	2020	900	900	0.28	A
	J	Westbound	2,500	2.50%	1	250	2020	900	900	0.28	A
Production Way	K	Eastbound	1,000	10.00%	1	100	2020	900	900	0.11	A
	K	Westbound	1,000	10.00%	1	100	2020	900	900	0.11	A
Broderick Road between Heales Road & Production Way	L	Northbound	1,000	10.00%	1	100	2020	900	900	0.11	A
	L	Southbound	1,000	10.00%	1	100	2020	900	900	0.11	A

*Where DoT have provided a negative annual growth rate for a particular road, Jacobs have assumed an annual growth rate of 0% as a conservative measure when undertaking this traffic impact assessment.

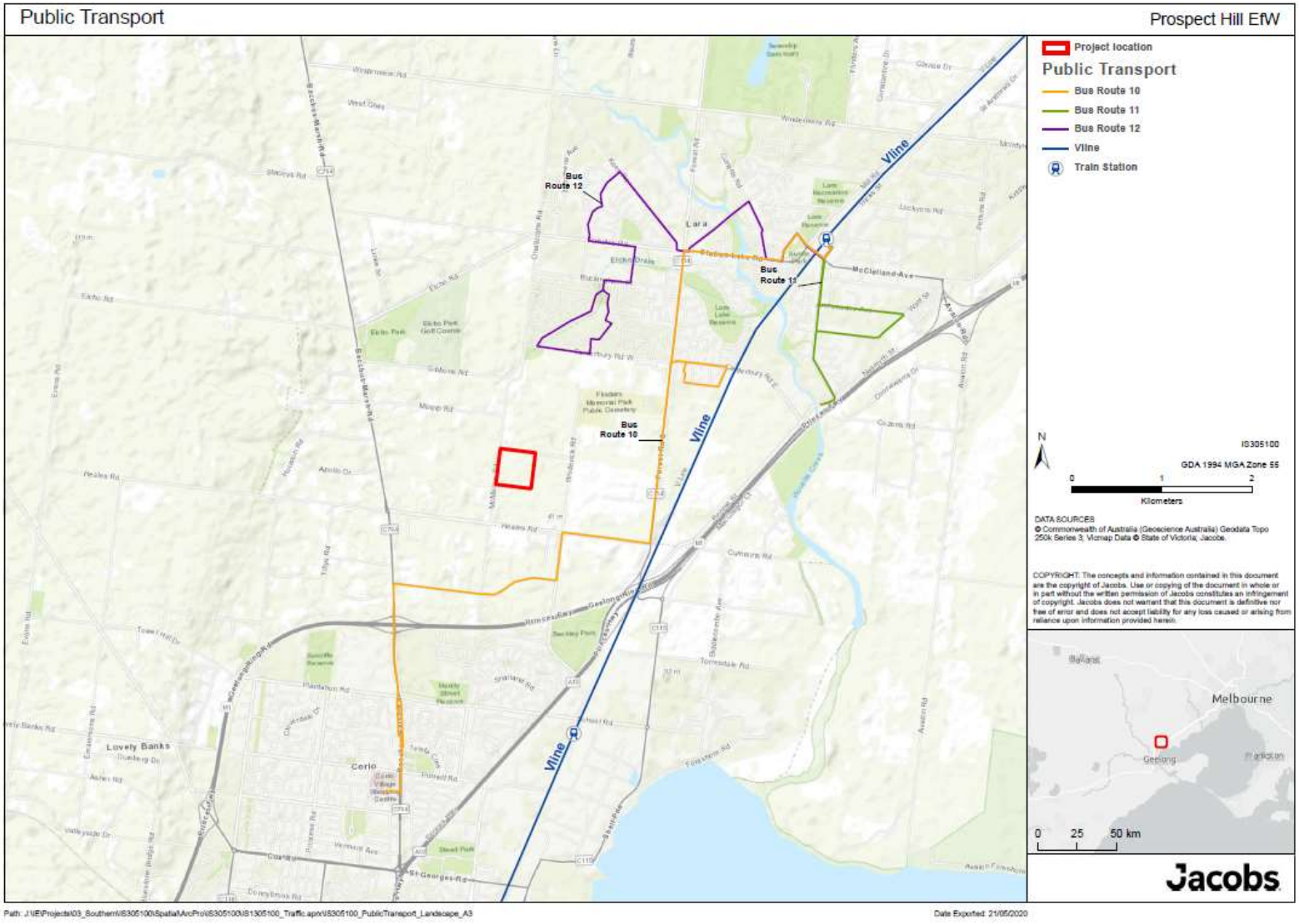
2.6 Existing public transport services

Lara is serviced by V/Line train services between Geelong and Melbourne. Travel times between Lara and Geelong (Railway Terrace) generally vary between 13-18 minutes, whilst travel times between Lara and Melbourne (Southern Cross Station) generally vary between 50-56 minutes. The commuter carpark located at the railway station provides approximately 352 commuter parking spaces. The railway station is located approximately 4km east of the site.

Three bus routes operate in Lara. The route that comes closest to the site is bus route 10 (Lara Station - Lara South - Corio Shopping Centre) operating along Heales Road and with a bus stop at Broderick Road / Heales Road intersection, which is located approximately 850m south of the site. The service operates 7 days a week, generally at 60-minute intervals, with the first service operating at 8:01AM and the last one at 7:19PM during the weekdays and between 9:00AM and 5:00PM on weekends. Figure 2-12 shows the current public transport network in the site catchment area.

2.7 Existing school bus routes

There are two school bus routes operating in the vicinity of the site connecting students between Lara and Geelong. The school bus routes are operated by CDC Victoria and travel on Forest Road and Bacchus Marsh Road. Figure 2-13 shows the school bus routes in the site catchment area.


Public Transport
Prospect Hill EfW
Project location
Public Transport
Bus Route 10
Bus Route 11
Bus Route 12
Vline
Train Station
Bus Route 12
Bus Route 11
Bus Route 10
Vline
Lara
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Corio
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GDA 1994 MGA Zone 55
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Kilometers
DATA SOURCES
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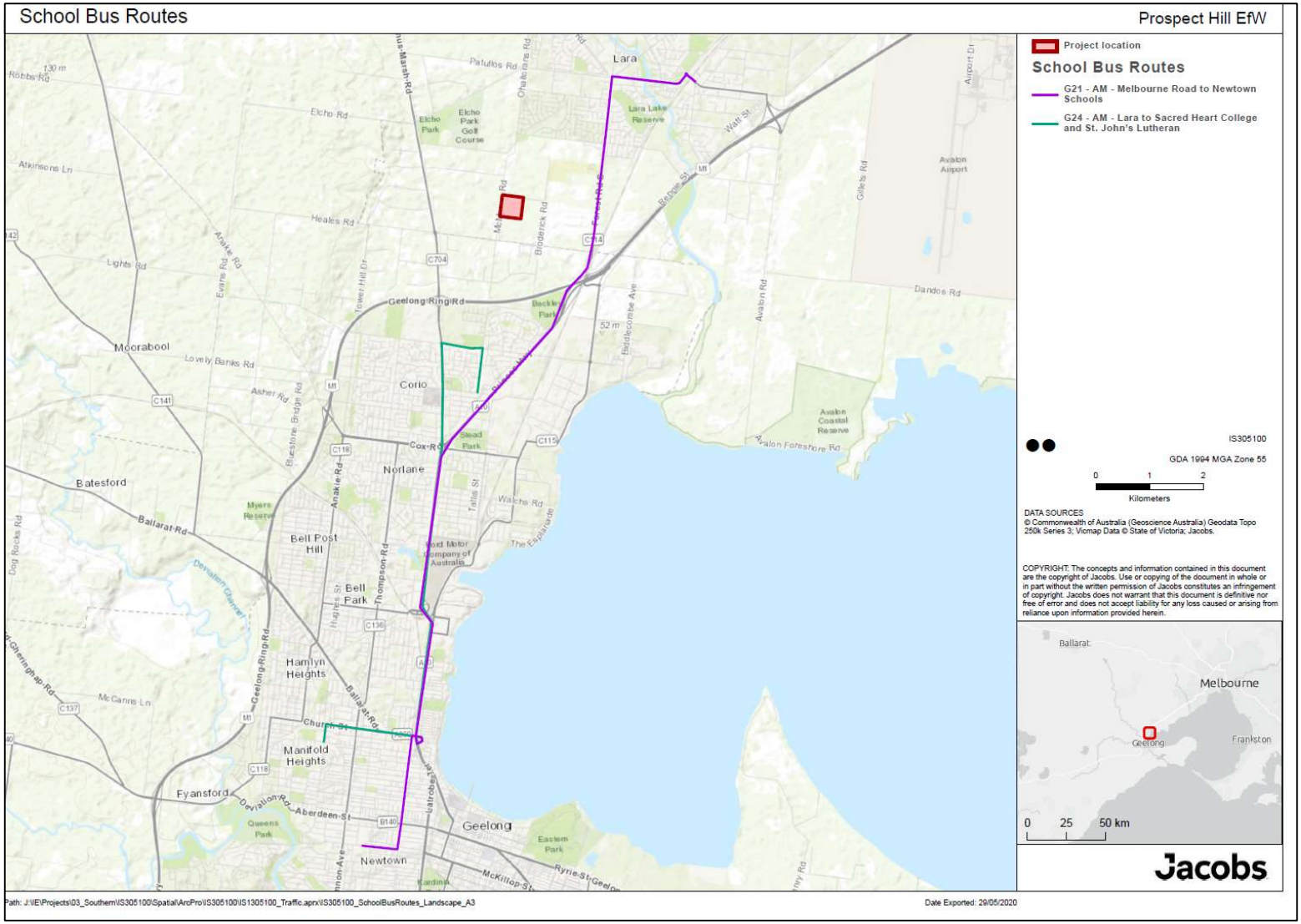
School Bus Routes
Prospect Hill EfW
Project location
School Bus Routes
G21 - AM - Melbourne Road to Newtown Schools
G24 - AM - Lara to Sacred Heart College and St. John's Lutheran
IS305100
GDA 1994 MGA Zone 55
0 1 2
Kilometers
DATA SOURCES
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Manifold Heights
Fyansford
Geelong
Newtown
Avalon Airport
Geelong Ring Rd
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3. The proposed development

The Prospect Hill EfW plant covers a size of approximately 395m x 400m. Existing land use within the boundaries of the proposed development site comprises manufacturing and storage facilities. Figure 3-1 shows the latest proposed site layout.

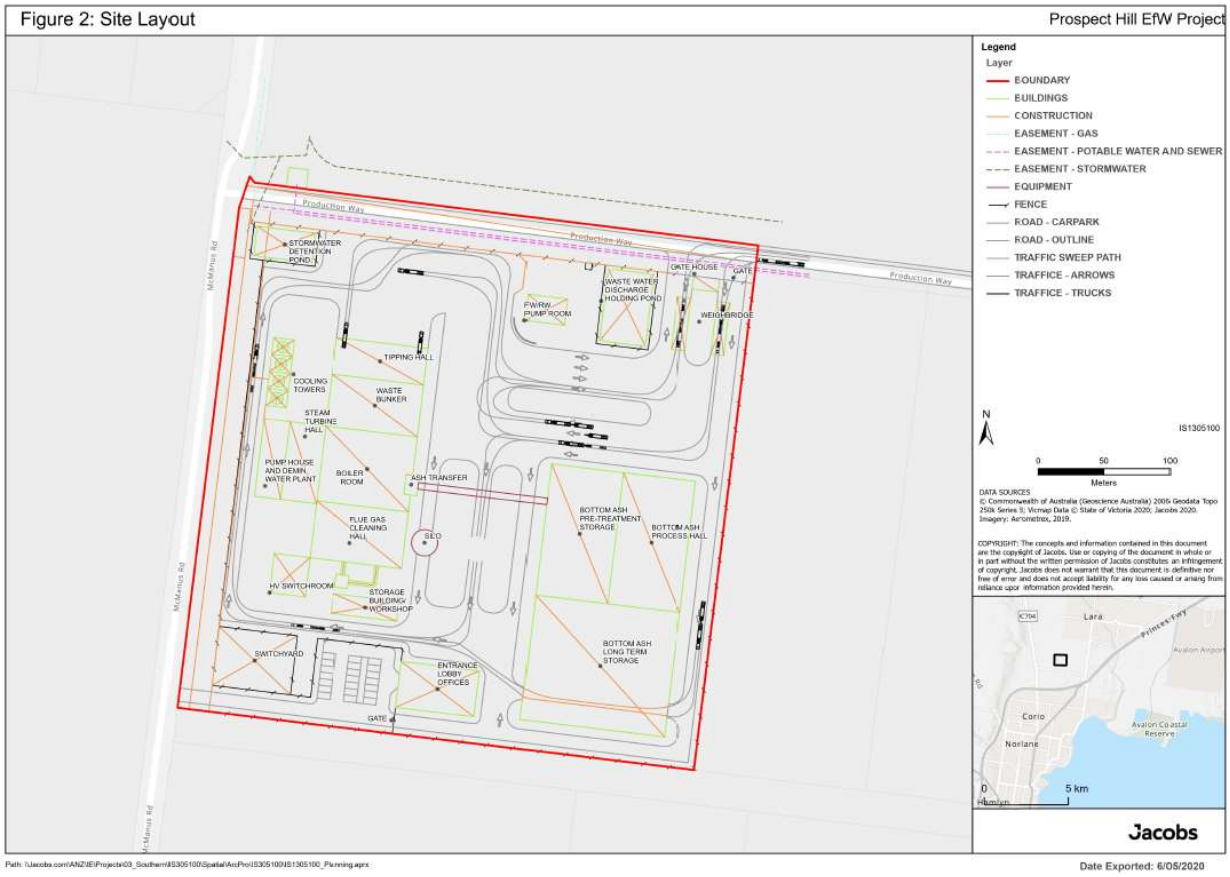


Figure 3-1: Proposed site layout

The EfW plant will generate vehicular traffic during the construction and operational phases of the project. Prospect Hill International has conducted an estimate of vehicle traffic for the construction and operational phases of the project. This is based on the construction materials and workforce required for the construction phase as well as the requisite waste feedstock and ancillary consumables being delivered to the plant during the operational phase.

For the construction phase, there will be a variety of vehicles accessing the site, including cars and utility vehicles for workers, tray-trucks, semi-trailer trucks, B-double trucks. For the operational phase, the vehicles accessing the site will comprise of trucks delivering waste (including Refuse Collection Vehicles, B-double trucks), private vehicles for staff and visitors and occasional chemical delivery trucks.

3.1 Construction phase

Construction of the Prospect Hill EfW plant is expected to:

- Commence in 2023
- Take approximately 36 months in total

- Peak construction is expected to occur in months 15-22 (i.e. in the year 2024)

The main components of construction traffic generation are the delivery of construction materials, equipment, plant components, as well as construction workforce travelling to and from the site (see Figure 3-2 for an indicative construction phase histogram).

Construction phase traffic generation assumptions include:

- The construction phase is expected to have a direct employment of 300-400 full-time staff. Jacobs has used 400 staff to reflect a worst-case scenario
  - Only 20% of the total workforce is required during the first and last month of construction
  - A vehicle occupancy rate of 1 person per vehicle has been assumed
  - Staff are expected to commute daily to/from the site during typical AM/PM peak hour periods
- Peak construction is expected to occur between months 15 to 22 (i.e. in the year 2024). During peak construction:
  - 400 one-way daily light vehicle trips carrying construction staff to/from site are estimated. Assuming that all staff travel during the peak hour period(s), a maximum of 400 one-way light vehicle peak hour trips are assumed
  - 300 one-way daily heavy vehicle trips carrying construction materials and/or equipment to/from the site are estimated. Out of the total 300 daily heavy vehicle trips, 10 of these trips are over-dimensioned (OD) trailer[2]/overmass/oversized vehicle trips

Refer to Section 4 for more details on the construction phase and for the purposes of traffic generation estimation.

Figure 3-2: Indicative construction phase histogram – one-way daily vehicle trips

[2] OD vehicles fall under Class 3 of heavy vehicles, under the National Heavy Vehicle Regulator's (NHVR) Restricted Access Vehicle (RAV) category, of which covers vehicles operating under a notice or permit and vehicles operating under higher mass limits (HML) that can normally only access certain parts of the public road network. Class 3 of heavy vehicles with their loads combined generally do not comply with prescribed dimensions or mass requirements. OD vehicles required to transport the EfW plant components listed will need to obtain permits through NHVR to travel on the designed site routes using the public road network.

3.2 Operation phase

Once constructed, the Prospect Hill EfW plant is expected to operate for 25 years as per its design life (equivalent to 200,000 hours), commencing operation in 2026. However, EfW plants can extend beyond their initial design life, subject to available waste volumes and the regulatory environment. Decommissioning will not be included in this assessment but will be undertaken in accordance with the relevant legislation/regulations at that time.

Based on the latest site plans which have allowed for two 200,000 tonnes per annum (tpa) lines, it is estimated that around 400,000 tpa waste will be converted to energy each year.

The site will have office facilities, 80 carpark spaces, warehouse and maintenance facilities and a guard house (manned entrance to site).

The plant will operate 24 hours a day, 52 weeks a year.

The operation phase is expected to have direct employment of 50-60 full-time staff throughout the entire 25-year period. Staff work in 12-hour shifts to cover the 24-hour operation of the plant. The day shift is staffed by 30-40 people. The night shift is staffed by less. Jacobs has used 40 staff to reflect a worst-case scenario. Other assumptions used to inform the assessment include:

- A vehicle occupancy rate of 1 person per vehicle
- Staff are expected to commute daily to/from the site during typical AM/PM peak hour periods
- Deliveries will occur:
  - Monday – Friday: 7:00am – 7.00pm
  - Saturday: 7:00am- 1:00pm
- Waste delivery trips by vehicle type:
  - 200,000 tpa (i.e. 50% of all waste) is delivered by 26m B-double bulk haul vehicles
  - 100,000 tpa (i.e. 25% of all waste) is delivered by 19m semi-trailer bulk haul vehicles
  - 100,000 tpa (i.e. 25% of all waste) is delivered by collection compactors (Refuse Collection Vehicles or RCVs)
  - It is assumed that waste deliveries will be spread *evenly* across the entire working day (i.e. 12 hours on weekdays and 6 hours on Saturday)
- Consumables and chemical related trips:
  - Around 450-500 vehicles per year are assumed to deliver consumables and chemicals from Melbourne based suppliers such as Orica or Ixom Chemicals in western Melbourne suburbs such as Deer Park or Laverton North, or around 9-10 per week
- Ash and scrap metal removal related trips:
  - A total of around 3,000 – 3,100 truck trips per year will be required to remove ash and scrap metal from site, or nearly 60 per week

Refer to Section 4 for more details on the operation phase and for the purposes of traffic generation estimation.

4. Traffic impact assessment

This section of the report summarises the estimated traffic to be generated during both construction and operation phases of the project and the potential midblock traffic impacts across the road network of interest.

It is important to note that:

- Prior to undertaking this traffic impact assessment, the key transport assumptions were determined for traffic generation and estimation purposes. These key transport assumptions are provided in the sub-sections below including assumptions relating to:
  - Timeframe
  - Required quantities of staff/materials
  - Required delivery vehicle types as well as their assumed occupancy and carrying capacity
  - The likely origins and proportion of trips carrying staff/materials
- For this assessment, Jacobs has only assessed the AM peak period. Only the AM peak was assessed due to the AM and PM peak period having the same peak hour volume (i.e. equivalent to 10% of the AADT or daily traffic volume) prior to adding traffic generated by the EfW development. With the exception of staff and trips travelling in the opposite direction in the PM peak, the PM traffic impact(s) will therefore be largely similar to the AM peak

4.1 Estimated project traffic generation

4.1.1 Construction phase (2023-2026)

The main components of construction traffic generation are the delivery of construction materials, equipment, plant components, as well as construction workforce travelling to and from the site.

Construction phase traffic generation assumptions include:

- The construction phase is expected to have a direct employment of 300-400 full-time staff. Jacobs has used 400 staff to reflect a worst-case scenario
  - Only 20% of the total workforce is required during the first and last month of construction
  - A vehicle occupancy rate of 1 person per vehicle has been assumed
  - Staff are expected to commute daily to/from the site during typical AM/PM peak hour periods. A temporary staff carpark adjacent to the site will be provided
- Peak construction is expected to occur between months 15 to 22 (i.e. in the year 2024). During peak construction:
  - 400 one-way daily light vehicle trips carrying construction staff to/from site are estimated. Assuming that all staff travel during the peak hour period(s), a maximum of 400 one-way light vehicle peak hour trips are assumed
  - 300 one-way daily heavy vehicle trips carrying construction materials and/or equipment to/from the site are estimated. Out of the total 300 daily heavy vehicle trips, 10 of these trips are over-dimensioned (OD) trailer[3]/overmass/oversized vehicle trips

[3] OD vehicles fall under Class 3 of heavy vehicles, under the National Heavy Vehicle Regulator's (NHVR) Restricted Access Vehicle (RAV) category, of which covers vehicles operating under a notice or permit and vehicles operating under higher mass limits (HML) that can normally only access certain parts of the public road network. Class 3 of heavy vehicles with their loads combined generally do not comply

- It is assumed that all OD trailer/overmass/oversized vehicle trips will travel outside typical peak hour period(s)
- It is assumed that 30% of the daily estimated heavy vehicle construction traffic (i.e. 90 heavy vehicles) travel during the peak hour period(s)
- It is assumed that all heavy vehicles entering the site during the peak hour period(s) also exit the site in the same peak hour period(s)

- Some public/private road upgrades (e.g. Production Way) have been assumed to occur during the construction phase – trips relating to these upgrades are included in the 300 one-way daily heavy vehicle trips assumed for the peak construction phase of this project

Error! Reference source not found. summarises the predicted maximum daily and AM peak hour traffic volumes travelling to/from the site during the identified peak construction period.

Table 4-1: Estimation of traffic volumes generated during peak construction (2024)

Estimated traffic generated by the project during peak construction	
Staff trips	400 light vehicles travelling to the site during the AM peak hour period, 800 two-way vehicle trips daily
Construction materials and/or equipment deliveries	90 heavy vehicles (180 two-way trips) travelling to/from the site during the AM peak period (30% of daily traffic volumes). 300 heavy vehicles (600 two-way trips) accessing the site daily
Total number of vehicles	**580 two-way vehicle trips during the AM peak hour and 1,400 two-way vehicles trips daily**

4.1.2 Operation phase (from 2026)

High-level operation phase traffic generation assumptions include:

- The operation phase is expected to have direct employment of 50-60 full-time staff throughout the entire 25-year period. Staff work in 12-hour shifts to cover the 24-hour operation of the plant. The day shift is staffed by 30-40 people. The night shift is staffed by less. Jacobs has used 40 staff to reflect a worst-case scenario.
  - A vehicle occupancy rate of 1 person per vehicle has been assumed
  - Staff are expected to commute daily to/from the site during typical AM/PM peak hour periods. On-site parking (80 spaces) is provided
- The plant will operate 24 hours a day, 52 weeks a year. Deliveries will occur:
  - Monday – Friday: 7:00am – 7.00pm
  - Saturday: 7:00am- 1:00pm
- **Waste delivery trips by vehicle type:**
  - 200,000 tpa (i.e. 50% of all waste) is delivered by 26m B-double bulk haul vehicles, with an assumed average carrying capacity of 39 tonnes (t)

with prescribed dimensions or mass requirements. OD vehicles required to transport the EfW plant components listed will need to obtain permits through NHVR to travel on the designed site routes using the public road network.

- 100,000 tpa (i.e. 25% of all waste) is delivered by 19m semi-trailer bulk haul vehicles, with an assumed average carrying capacity of 25t
- 100,000 tpa (i.e. 25% of all waste) is delivered by collection compactors (Refuse Collection Vehicles or RCVs), with an assumed average carrying capacity of 10t
- B-doubles and semi-trailer vehicles are assumed to deliver waste from waste transfer facilities with bulk transfer vehicle loading capacity e.g. metropolitan Melbourne and Geelong
- Collection compactors or RCVs, particularly from nearer locations which do not generate sufficient waste volumes for larger vehicles and locations which do not have waste transfer facilities capable of loading larger bulk transfer vehicles or containers, e.g. Melton
- It is assumed that waste deliveries will be spread *evenly* across the entire working day (i.e. 12 hours on weekdays and 6 hours on Saturday)

- **Consumables and chemical related trips**
  - Around 450-500 vehicles per year are assumed to deliver consumables and chemicals from Melbourne based suppliers such as Orica or Ixom Chemicals in western Melbourne suburbs such as Deer Park or Laverton North, or around 9-10 per week. The main deliveries expected are:
    - 5,000 tpa bulk lime will be delivered in pneumatic discharge tankers with average carrying capacity of 20t – 250 deliveries per annum, around five per week
    - 200 tpa Powdered Activated Carbon will be delivered by semitrailer or heavy rigid trucks. This represents three to four pallets (if the product is bagged) or a similar number of pallecons[4] (if the product is in bulk) – one delivery per week
    - 800 t Urea/Ammonia aqueous solution will be delivered per annum in multi-purpose semitrailer bulk liquid chemical tankers. The carrying capacity of such vehicles depends on design and specific gravity of the solution to be carried. It is likely that suitable vehicles would be able to carry in the range 15-20t, and possibly up to 25t if the product has high specific gravity. Around 45-50 deliveries per annum would be required, or one per week
    - Various water treatment aqueous solution chemicals such as caustic soda, ammonia, sulphuric acid would be required. 180 tpa in total is estimated, delivered in 1,000t IBCs, smaller containers and smaller rigid bulk tankers. Jacobs estimates two deliveries per week or around 100 per year.
- **Ash and scrap metal removal related trips**
  - A total of around 3,000 – 3,100 truck trips per year will be required to remove ash and scrap metal from site, or nearly 60 per week. These comprise:
    - An estimated 54,000 tpa bottom ash will be removed from the site in top load B-double or semitrailer tippers. These vehicles would be suitable for backloading waste to the site. B-double trucks will carry an average of 37t and semitrailers 24t. An overall average of 30t per vehicle, requiring 1,800 vehicle trips per annum, or around 35 per week. Initially, this will need to be taken to a general purpose landfill, probably in western Melbourne or nearby. Selection of location could be linked to waste sourcing, as these vehicles can backload waste to the plant. It is expected that a market will develop for this material within a few years, for use as road base or an ingredient for masonry type building materials
    - The plant will produce around 20,000 tpa 'flyash' (or Air Pollution Control residues (APCr), which will need to be taken to the Suez prescribed waste landfill in Dandenong South (currently the only such landfill in Victoria). This will be most easily moved in semitrailer pneumatic discharge bulk tankers with average capacity around 22t. This will require 909 trips per year, or 18 per week

[4] Pallet footprint sized intermediate bulk container with capacity around 1 t / 1 m^3

- It is expected around 3% of inwards waste will be scrap metal able to be recovered for recycling, or approximately 12,000 tpa. This will be transported in B-double trucks with demountable scrap metal bins or highsided tipper trailers with average capacity around 35t. This will require around 350 trips per year, or seven per week

Error! Reference source not found. summarises the predicted maximum daily and AM peak hour traffic volumes travelling to/from the site during the first year of operation.

Table 4-2: Estimation of traffic volumes generated during the operation phase (from 2026)

Estimated traffic generated by the project during its first year of operation	
Staff trips	40 light vehicles travelling to the site during the AM peak period, 80 two-way vehicle trips daily
Operation phase deliveries	8 heavy vehicles (16 two-way trips) travelling to/from the site during the AM peak period. 85 heavy vehicles* (170 two-way trips) accessing the site daily * Waste delivery trips: 70 Consumables and chemical related trips: 3 Ash and scrap metal removal related trips: 12
Total number of vehicles	**56 two-way vehicle trips during the AM peak hour and 250 two-way vehicles trips daily**

4.2 Key transport routes to/from the site

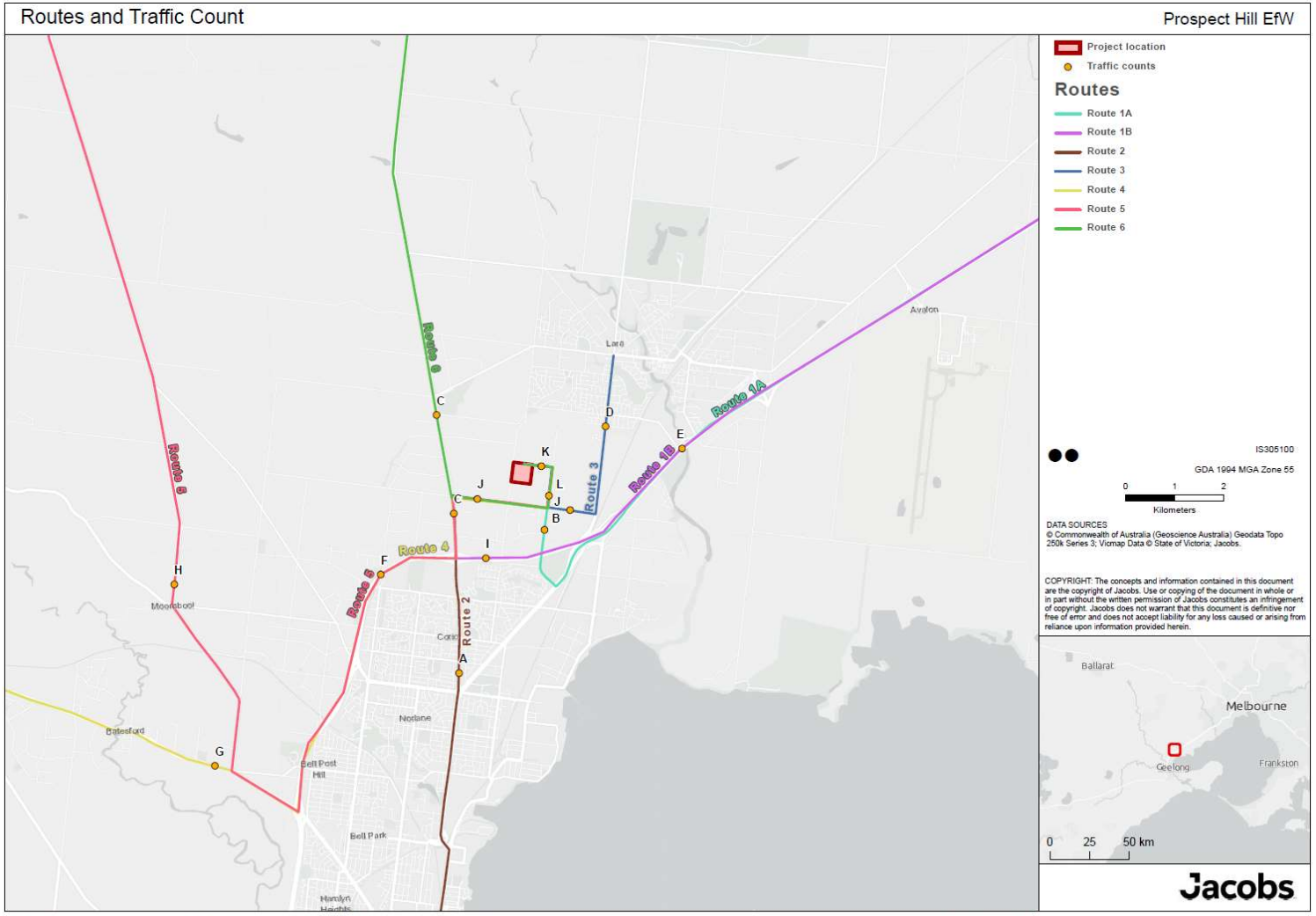
Prior to undertaking this traffic impact assessment, Jacobs undertook an assessment of potential access routes to the plant from the Princes Hwy and Geelong Ring Road from both Melbourne and the south-west. It was concluded that the preferred routes to access the site is:

- Turning right into Heales Road at roundabout if travelling to the site via Bacchus Marsh Road
- Broderick Road
- Left into Production Way from Broderick Road

Based on this route accessibility assessment, the following key transport routes *to* the site shown in Figure 4-1 have been identified:

- **Route 1A: Metropolitan Melbourne via Geelong City Centre exit**
  - Westbound on the Princes Freeway, exit the Princes Freeway via the Geelong City Centre exit
  - Right into Broderick Road
  - Left into Production Way
- **Route 1B: Metropolitan Melbourne via Geelong Ring Road**
  - Westbound on the Princes Freeway (becomes Geelong Ring Road)
  - Continuing westbound along Geelong Ring Road, exit Geelong Right Road via the Bacchus Marsh exit
  - Right onto Bacchus Marsh Road
  - Right into Heales Road
  - Left into Broderick Road
  - Left into Production Way

- **Route 2: Wider Geelong/Surf Coast**
  - Northbound on the Princes Highway/La Trobe Terrace (becomes Bacchus Marsh Road)
  - Continuing northbound along Bacchus Marsh Road
  - Right into Heales Road
  - Left into Broderick Road
  - Left into Production Way
- **Route 3: Lara**
  - Southbound on Forest Road
  - Right into Heales Road
  - Right into Broderick Road
  - Left into Production Way
- **Route 4: Ballarat**
  - Eastbound along Midland Highway, exit Midland Highway via the Melbourne exit, left onto Geelong Ring Road
  - North/eastbound along Geelong Ring Road, exit Geelong Right Road via the Bacchus Marsh exit
  - Left onto Bacchus Marsh Road
  - Right into Heales Road
  - Left into Broderick Road
  - Left into Production Way
- **Route 5: Ballan**
  - Southbound along Ballan Road
  - Right onto Midland Highway, exit Midland Highway via the Melbourne exit, left onto Geelong Ring Road
  - North/eastbound along Geelong Ring Road, exit Geelong Right Road via the Bacchus Marsh exit
  - Left onto Bacchus Marsh Road
  - Right into Heales Road
  - Left into Broderick Road
  - Left into Production Way
- **Route 6: Bacchus Marsh/Melton**
  - Southbound along Bacchus Marsh Road
  - Left into Heales Road
  - Left into Broderick Road
  - Left into Production Way


Routes and Traffic Count
Prospect Hill EfW
Project location
Traffic counts
Routes
Route 1A
Route 1B
Route 2
Route 3
Route 4
Route 5
Route 6
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4.3 Assumed traffic distribution across key transport routes

4.3.1 Construction phase

In terms of construction traffic distribution, the following assumptions have been adopted:

- **Staff:** It is assumed that:
  - 50% of staff are based in/towards the direction of wider Geelong/Surf Coast and will use route 2 to access the site
  - 20% of staff are based locally in Lara and will use route 3 to access the site
  - 10% of staff are based in/towards the direction of Ballarat and will use route 4 to access the site
  - 10% of staff are based in/towards the direction of Ballan and will use route 5 to access the site
  - 10% of staff are based in/towards the direction of Bacchus Marsh/Melton and will use route 6 to access the site
- **Construction materials and/or equipment deliveries:** It is assumed that:
  - 50% of heavy vehicle trips originate from the direction of wider Geelong/Surf Coast and will use route 2 to access the site
  - 10% of heavy vehicle trips originate from the direction of metropolitan Melbourne and will use route 1A to access the site
  - 10% of heavy vehicle trips originate from the direction of metropolitan Melbourne and will use route 1B to access the site
  - 10% of heavy vehicle trips originate from the direction of Ballarat and will use route 4 to access the site
  - 10% of heavy vehicle trips originate from the direction of Ballan and will use route 5 to access the site
  - 10% of heavy vehicle trips originate from the direction of Bacchus Marsh/Melton and will use route 6 to access the site

4.3.2 Operation phase

In terms of operation traffic distribution, the following assumptions, which are generally reflective of a conservative or 'worst-case scenario' have been adopted:

- **Staff:** It is assumed that:
  - 50% of staff are based in/towards the direction of wider Geelong/Surf Coast and will use route 2 to access the site
  - 20% of staff are based locally in Lara and will use route 3 to access the site
  - 10% of staff are based in/towards the direction of Ballarat and will use route 4 to access the site
  - 10% of staff are based in/towards the direction of Ballan and will use route 5 to access the site
  - 10% of staff are based in/towards the direction of Bacchus Marsh/Melton and will use route 6 to access the site
- **Waste deliveries by vehicle type:** It is assumed that:

  B-double or semi-trailer bulk haul vehicles (75% of all annual waste deliveries):
  - 25% are delivered from metropolitan Melbourne and will use route 1A to access the site

- 25% are delivered from metropolitan Melbourne and will use route 1B to access the site
- 50% are delivered from Geelong Coast and will use route 2 to access the site

Collection compactors (25% of all annual waste deliveries):

- 25% are delivered from the Ballarat direction and will use route 4 to access the site
- 25% are delivered from the Ballan direction and will use route 5 to access the site
- 25% are delivered from the Bacchus Marsh/Melton direction and will use route 6 to access the site
- 25% are delivered from the wider Geelong/Surf Coast direction and will use route 2 to access the site

- **Consumables and chemical related trips:** It is assumed that:
  - 75% are from Melbourne and will use route 1B to access the site
  - 25% are from Geelong / Surf Coast and will use route 2 to access the site
- **Ash and scrap metal removal related trips:** It is assumed that:
  - Bottom Ash
    - Initially will go to a general landfill nearby or in Western Melbourne. Selection of landfill could be linked to inwards waste locations, as bottom ash trucks can backload waste.
    - Later may go to a nearby quarry products company as a road base ingredient.
  - Flyash
    - 100% to Suez Taylors Rd prescribed waste landfill, Dandenong South.
  - *Therefore*, 100% of these trips are from Melbourne and will use route 1B to access the site

4.4 Future midblock traffic volumes and performance

4.4.1 Peak construction (2024)

Table 4-3 shows the future traffic volumes (scaled up using the annual growth factors outlined in the existing base case dataset) with added construction traffic and the overall midblock traffic performance at key roads within proximity to the proposed development.

Overall, from a midblock traffic perspective, all key road sections are currently performing satisfactory during the peak hour period (noting that these peak hour volumes represent an average of the AM peak period) with all roads generally expected to experience a satisfactory a LoS A to C.

Figure 4-2 shows traffic volumes along the study area road network during peak construction.

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Table 4-3: Future midblock traffic performance – peak construction (2024) across the study area road network

Road	Traffic Count ID	Route Number	Direction	2024 AADT (vehicles)	2024 Peak Volume	Construction Daily Traffic Staff	Construction Daily Traffic Heavy Vehicles	2024 ADDT during construction	Construction Peak Hour Staff	Construction Peak Hour Heavy Vehicles	2024 peak Hour during construction	v/c ratio	LoS
Bacchus Marsh Road between Purnell Road & Cox Road	A	2	Southbound	8,600	860	200	150	8,950		45	905	0.38	A
	A	2	Northbound	8,600	860	200	150	8,950	200	45	1,105	0.46	A
Broderick Road between Heales Road & Princes Freeway west	B	1a	Southbound	2,760	276		30	2,790		9	285	0.32	A
	B	1a	Northbound	2,760	276		30	2,790		9	285	0.32	A
Bacchus Marsh Road between Ballan Road & Geelong Ring Road	C	1b, 2,6	Northbound	6,793	679	240	210	7,243	200	63	942	0.55	A
	C	1b, 2,6	Southbound	6,660	666	240	210	7,110	40	63	769	0.45	A
Forest Road between Heales Road & Patullos Road	D	3	Southbound	6,681	668	80		6,761	80		748	0.62	B
	D	3	Northbound	6,303	630	80		6,383			630	0.53	A
Princes Freeway between Avalon Road & Princes Highway	E	1a,1b	North-eastbound	41,968	4197		60	42,028		18	4,215	0.64	B
	E	1a,1b	South-westbound	40,518	4052		60	40,578		18	4,070	0.62	B
Geelong Ring Road between Anakie Road & Bacchus Marsh Road	F	4,5	North-eastbound	24,994	2499	80	60	25,134	80	18	2,597	0.59	A
	F	4,5	South-westbound	26,285	2629	80	60	26,425		18	2,647	0.60	B
Midland Highway between Fyansford-Gheringhap Road & Ballan Road	G	4	Eastbound	7155	716	40	30	7,225	40	9	765	0.45	A
	G	4	Westbound	6,890	689	40	30	6,960		9	698	0.41	A
Ballan Road between Anakie Road & Purnell Road	H	5	Northbound	650	65	40	30	720		9	74	0.04	A
	H	5	Southbound	743	74	40	30	813	40	9	123	0.07	A
Geelong Ring Road between Princes	I	1b	North-eastbound	24,965	2497		30	24,995		9	2,506	0.57	A

Road	Traffic Count ID	Route Number	Direction	2024 AADT (vehicles)	2024 Peak Volume	Construction Daily Traffic Staff	Construction Daily Traffic Heavy Vehicles	2024 ADDT during construction	Construction Peak Hour Staff	Construction Peak Hour Heavy Vehicles	2024 peak Hour during construction	v/c ratio	LoS
Freeway & Bacchus Marsh Road	I	1b	South-westbound	24,871	2487		30	24,901		9	2,496	0.57	A
Heales Road	J	All, except 1A	Eastbound	2,760	276	400	270	3,430	320	81	677	0.75	C
	J	All, except 1A	Westbound	2,760	276	400	270	3,430	80	81	437	0.49	A
Production Way	K	All	Eastbound	1,464	146	400	300	2,164		90	236	0.26	A
	K	All	Westbound	1,464	146	400	300	2,164	400	90	636	0.71	C
Broderick Road between Heales Road & Production Way	L	All	Northbound	1,464	146	400	300	2,164	400	90	636	0.71	C
	L	All	Southbound	1,464	146	400	300	2,164		90	236	0.26	A

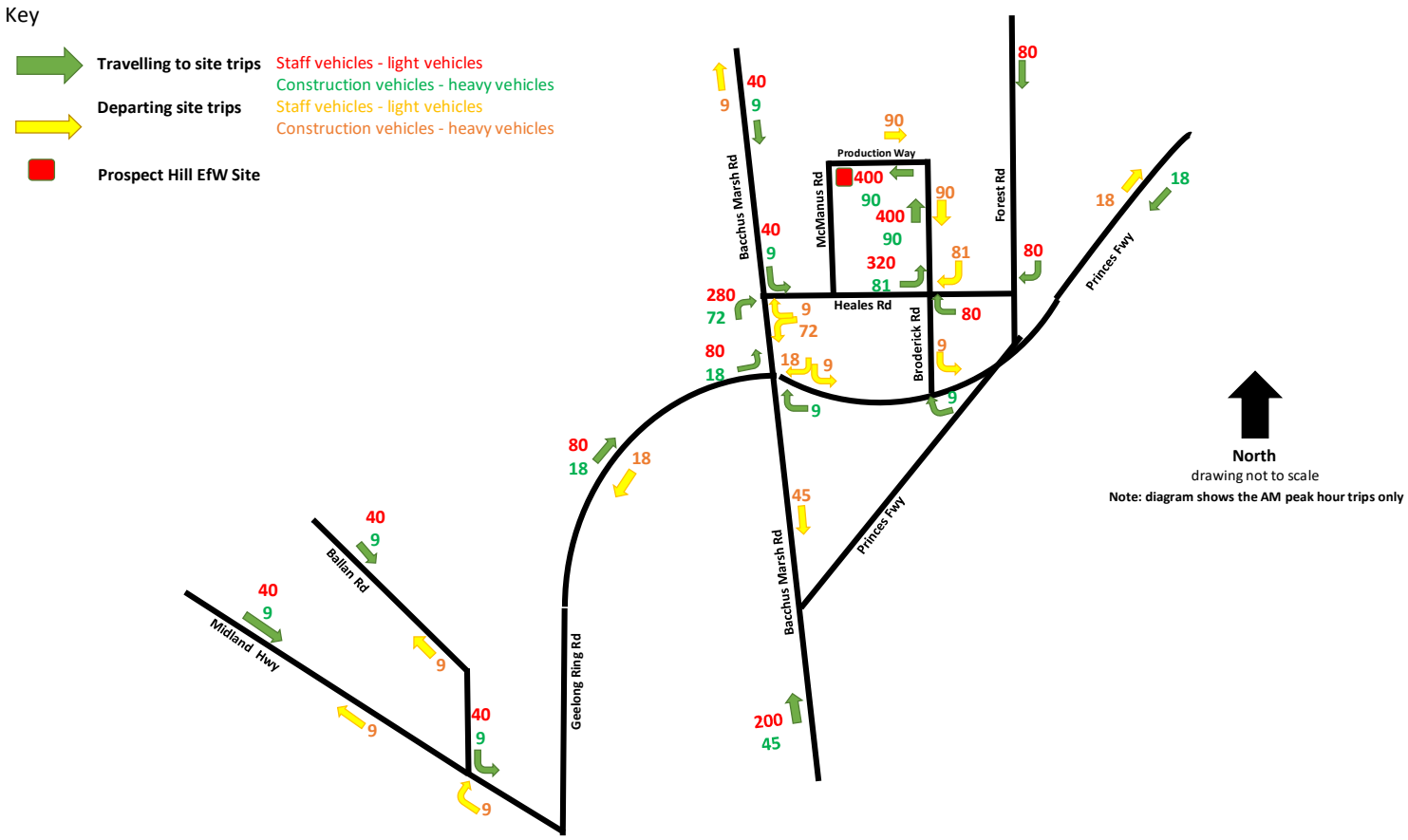

Figure 4-2: Assumed traffic distribution (AM peak) along the study area road network during peak construction (2024)

4.4.2 First year of operation (2026)

Table 4-4 and Figure 4-3 show the future traffic volumes (scaled up using the annual growth factors outlined in the existing base case dataset) with added operation traffic and the overall midblock traffic performance at key roads within proximity to the proposed development.

Overall, from a midblock traffic perspective, all key road sections are currently performing satisfactory during the peak hour period (noting that these peak hour volumes represent an average of the AM peak period) with all roads generally expected to experience a satisfactory a LoS A to B.

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Table 4-4: Future midblock traffic performance – first year of operation (2026) across the study area road network

Road	Traffic Count ID	Route Number	Direction	2026 AADT	2026 Peak Hour Volume	Operation Daily Traffic - Staff	Operation Daily Traffic - Waste B-doubles and semitrailers	Operation Daily Traffic - Waste Collection Compactors	Operation Daily Traffic Consumables and chemicals	Operation Daily Traffic - Ash and scrap metal removal	2026 Daily Traffic during operation	Operation Peak Hour Traffic - Staff	Operation Peak Hour Traffic - Waste B-doubles and semitrailer	Operation Peak Hour Traffic - Waste Collection Compactors	Operation Peak Hour Traffic - Consumables and chemicals	Operation Peak Hour Traffic - Ash and scrap metal removal	2026 Peak Hour Traffic during operation	v/c ratio	LOS
Bacchus Marsh Road between Purnell Road & Cox Road	A	2	Southbound	8,600	860	20	16	10	1		9,507		1	1			862	0.36	A
	A	2	Northbound	8,600	860	20	16	10	1		9,507	20	1	1			882	0.37	A
Broderick Road between Heales Road & Princes Freeway west	B	1a	Southbound	2,899	290		8				3,197		1				291	0.32	A
	B	1a	Northbound	2,899	290		8				3,197		1				291	0.32	A
Bacchus Marsh Road between Ballan Road & Geelong Ring Road	C	1b, 2,6	Northbound	6,998	700	24	24	19	3	12	7,780	20	2	2		1	725	0.43	A
	C	1b, 2,6	Southbound	6,848	685	24	24	19	3	12	7,615	4	2	2		1	694	0.41	A
Forest Road between Heales Road & Patullos Road	D	3	Southbound	6,992	699	8					7,699	8					707	0.59	A
	D	3	Northbound	6,570	657	8					7,235						657	0.55	A
Princes Freeway between Avalon Road & Princes Highway	E	1a,1b	North-eastbound	44,697	4,470		16		2	12	49,197		2			1	4,473	0.68	B
	E	1a,1b	South-westbound	42,986	4,299		16		2	12	47,315		2			1	4,302	0.65	B
Geelong Ring Road between Anakie Road & Bacchus Marsh Road	F	4,5	North-eastbound	26,054	2,605	8		19			28,686	8		2			2,615	0.59	A
	F	4,5	South-westbound	27,508	2751	8		19			30,286			2			2,753	0.63	B
Midland Highway between Fyansford-Gheringhap Road & Ballan Road	G	4	Eastbound	7,814	781	4		10			8,609	4		1			786	0.46	A
	G	4	Westbound	7510	751	4		10			8,275			1			752	0.44	A
Ballan Road between Anakie Road & Purnell Road	H	5	Northbound	669	67	4		9			749			1			68	0.04	A
	H	5	Southbound	765	77	4		9			855	4		1			82	0.05	A
Geelong Ring Road between Princes Freeway & Bacchus Marsh Road	I	1b	North-eastbound	27,892	2789		8		2	12	30,703		1			1	2,791	0.63	B
	I	1b	South-westbound	27,734	2773		8		2	12	30,529		1			1	2,775	0.63	B
Heales Road	J	All, except 1A	Eastbound	2,899	290	40	24	38	3	12	3,306	32	2	4		1	329	0.37	A

Road	Traffic Count ID	Route Number	Direction	2026 AADT	2026 Peak Hour Volume	Operation Daily Traffic - Staff	Operation Daily Traffic - Waste B-doubles and semitrailers	Operation Daily Traffic - Waste Collection Compactors	Operation Daily Traffic Consumables and chemicals	Operation Daily Traffic - Ash and scrap metal removal	2026 Daily Traffic during operation	Operation Peak Hour Traffic - Staff	Operation Peak Hour Traffic - Waste B-doubles and semitrailer	Operation Peak Hour Traffic - Waste Collection Compactors	Operation Peak Hour Traffic - Consumables and chemicals	Operation Peak Hour Traffic - Ash and scrap metal removal	2026 Peak Hour Traffic during operation	v/c ratio	LOS
	J	All, except 1A	Westbound	2,899	290	40	24	38	3	12	3,306	8	2	4		1	305	0.34	A
Production Way	K	All	Eastbound	1,772	177	40	32	38	3	12	2,074		3	4		1	185	0.21	A
	K	All	Westbound	1,772	177	40	32	38	3	12	2,074	40	3	4		1	225	0.25	A
Broderick Road between Heales Road & Production Way	L	All	Northbound	1,772	177	40	32	38	3	12	2,074	40	3	4		1	225	0.25	A
	L	All	Southbound	1,772	177	40	32	38	3	12	2,074		3	4		1	185	0.21	A

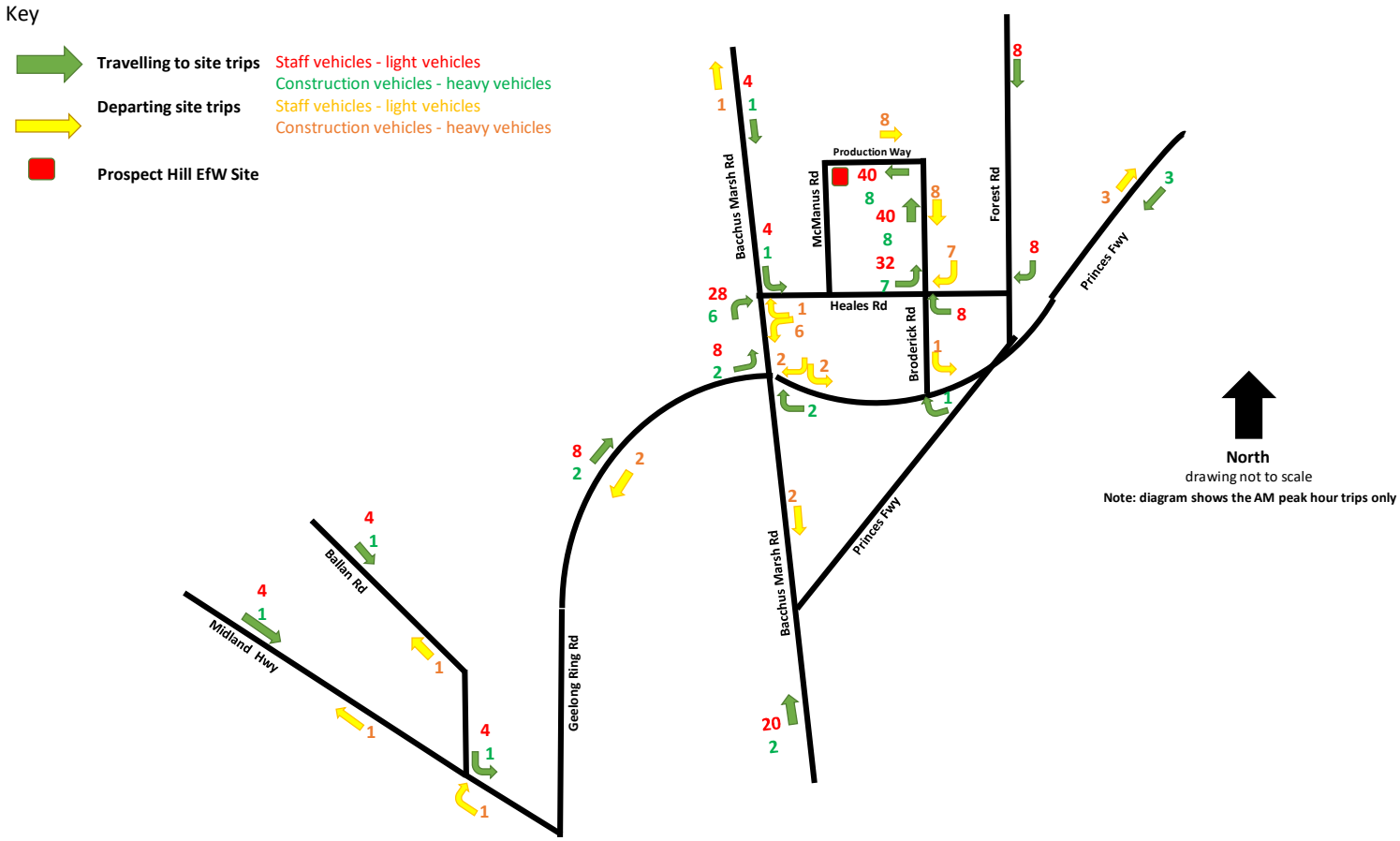

Figure 4-3: Assumed traffic distribution (AM peak) along the study area road network during operation (2026)

5. Summary

Prospect Hill International Pty Ltd is proposing to develop an energy from waste (EfW) facility in Lara, between Melbourne and Geelong. The proposed new facility will be located on McManus Road and by primarily accessed via Production Way during construction and operation phases of the project.

This assessment is based on consideration of the use of roads during the construction and operation stages. Both State and Council managed roads will be used to carry the construction and operation traffic.

Construction and operation traffic will either enter the site catchment via the following routes:

- Route 1A Metropolitan Melbourne via Princes Hwy Geelong City Centre exit
- Route 1B: Metropolitan Melbourne via Princes Hwy Geelong Ring Road
- Route 2: Wider Geelong via Princes Highway/La Trobe Terrace
- Route 3 Lara via Forest Road
- Route 4: Ballarat via Midland Highway
- Route 5: Ballan via Geelong Ballan Road
- Route 6: Bacchus Marsh/Melton via Bacchus Marsh Road

Based on the construction traffic assumptions outlined for this project, it is estimated that 580 two-way vehicle trips during the AM peak hour and 1,400 two-way vehicles trips daily are expected during the peak construction period (2024).

Based on the operation traffic assumptions outlined for this project, it is estimated that 56 two-way vehicle trips during the AM peak hour and 250 two-way vehicles trips daily are expected during the first year of operation (2026).

The midblock performance along all key access road routes under the current year (2020) is LoS A. The predicted maximum daily and peak hour midblock traffic volumes and expected performance during the identified peak construction period (2024) and first year of operation (2026) period are expected to have a LoS ranging from A to C. Therefore, the existing road network has sufficient capacity to accommodate the estimated traffic demand for the peak construction phase (2024) and the operation phase (2026), noting that no intersection performance was assessed at this stage of the project.

With the midblock LoS expected to remain at an acceptable level in the future, it is expected that the potential impact to local public transport services in the site catchment area will be negligible during the construction and operation phases of the project.

This report prepared by Jacobs is a traffic impact assessment. The following next steps will need to be considered when undertaking the next stages of this project regarding planning approvals:

- Conduct desktop assessments and a site inspection to confirm the OD routes from the Port of Geelong to the site which comply with horizontal, vertical and bridge clearance requirements
- Preparation of a traffic management plan(s) in consultation with the relevant road management authorities to minimise disruption to traffic during construction
    - Traffic Management Plans (TMPs) identify, assess and appropriately eliminate, reduce or mitigate road safety hazards and are to be reviewed by VicRoads and Councils prior to implementation. TMPs are to comply with standard VicRoads practices, the Traffic Management Code of Practice and the *Road Management Act 2004*. Example measures include: speed reduction where appropriate, worksite safety barriers, advance warning signage, hazard visibility, etc.
    - The TMP document should also aim to cover measures relating to mitigation of potential environmental and social impacts of the project during development (particularly during construction).

Example mitigation measures include: construction traffic scheduling - developed by an appointed contractor (which aims to avoid disrupting regular traffic activity), long-term management of public transport and school bus services traversing the site or along nominated routes to site, approach to intersection upgrades - in a manner which best minimises treat to native roadside vegetation.

- Prior to construction engage potentially affected stakeholders and advise them of the planned construction activities and progress against the schedule