

Traffic and Transport Assessment

Melbourne Regional Landfill –
Ravenhall

V161534T



Prepared for
Norton Rose Fulbright on behalf of
Landfill Operations Pty Ltd

14 September 2016

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1 Qualifications and Expertise

In accordance with the guide to expert evidence prepared by Planning Panels Victoria, my qualifications and expertise to undertake this work are summarised below:-

Name:

Stephen John Hunt

Address:

Cardno Victoria Pty Ltd

Level 4 - 501 Swanston Street

Melbourne Vic 3000

Professional Qualifications:

Bachelor of Engineering (Civil), 1975, Swinburne University of Technology

Graduate Diploma of Highway and Traffic Engineering, 1981, Chisholm Institute of Technology

Professional Experience:

Consultant, Cardno Victoria: 2007 - present

Director, Grogan Richards Pty Ltd: 1988 – 2006

Traffic Engineer with Cities of Doncaster and Templestowe, Caulfield and Prahran: 1975 – 1988

Areas of Expertise:

Car parking and traffic analysis.

Traffic advice and assessment of land uses and development proposals to planning authorities, government agencies, corporations and developers (including major residential, retail, commercial, industrial, institutional and mixed use projects).

Preparation and presentation of evidence before VCAT and Planning Panels.

Expertise to Prepare This Report:

My training and experience including involvement with all forms of development over many years qualifies me to comment on the traffic and car parking implications of the proposal.

Instructions which Defined the Scope of this Report:

I have been requested by Norton Rose Fulbright on behalf of Landfill Operations Pty Ltd in a letter dated 16th August 2016 to consider the traffic and transport implications of proposed extension to the operation of Melbourne Regional Landfill located at Christies Road, Ravenhall, as contemplated in Planning Permit Application PA2016/5118 and Works Approval Application No. 1002191 and to provide my expert opinion with respect to the matters raised in submissions to the applications.

Specifically I was requested to review Transport Impact Assessments prepared by GTA Consultants that accompanied the application and to consider the impact of the proposed extension to the landfill operation as it relates to:

1. The local and regional impact (if any) of trucks carrying waste to the subject site from locations in the south east of Melbourne to Ravenhall;
2. Whether the current road network will be able to cater for the additional traffic anticipated;
3. The impact (if any) on Hopkins Road;
4. Whether the traffic modelling needs to take into account the cumulative effect of the various surrounding land uses; and
5. Whether Cleanaway should be financially contributing to any proposed road upgrades of the surrounding road network.

Facts, Matters And Assumptions Relied Upon:

- > *"408-546 Hopkins Road, Truganina & 1154-1198 Christies Road Ravenhall - Transport Impact Assessment"* prepared by GTA Consultants dated 12th February 2016.
- > *"408-546 Hopkins Road, Truganina & 1154-1198 Christies Road Ravenhall - Transport Impact Assessment Addendum"* prepared by GTA Consultants dated 12th February 2016.
- > Submissions to the proposal provided by Norton Rose Fulbright.
- > Letter from GTA Consultants to Cleanaway Waste Management Ltd dated 10th May 2016 responding to the Initial Technical Review of the application undertaken by the EPA and a request for additional information including consideration of EPA Best Practice Environmental Management.
- > Details of traffic surveys undertaken in the vicinity of the site by GTA Consultants in August 2014 summarised in Transport Impact Assessment Reports.
- > Weighbridge data supplied by Cleanaway for July 2014, August 2014, March 2015 and April 2015 as supplied to GTA Consultants.
- > Traffic surveys undertaken by Traffic Focus on behalf of Cardno in August 2016.
- > Mt Atkinson and Tarneit Plains Precinct Structure Plan (as exhibited) – April 2016.
- > *"Mt Atkinson and Tarneit Plains Transport Modelling Assessment"* prepared by Jacobs on behalf of the MPA – 4 July 2016.
- > *"Palmers Road Corridor Transport Modelling Report"* prepared by Aecom on behalf of VicRoads dated 5th March 2014.

Identity of Persons Undertaking the Work:

Stephen Hunt, assisted by Benjamin Mentha of Cardno.

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance, which I regard as relevant, have to my knowledge been withheld from the Panel.



Stephen Hunt

Consultant for Cardno

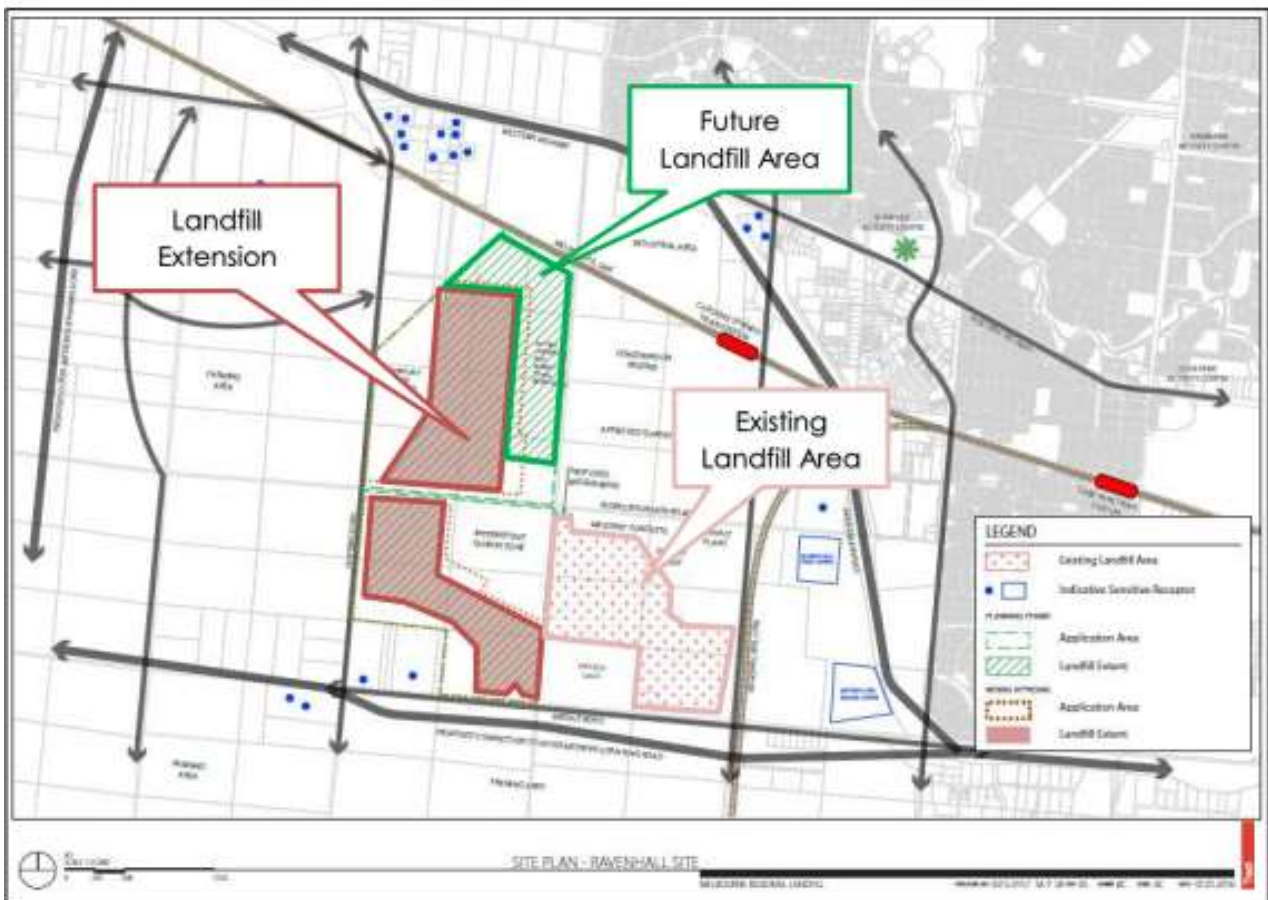
2 The Subject Proposal

2.1 Applications

On 29th February 2016, Landfill Operations Pty Ltd, (a wholly owned subsidiary of Cleanaway Waste Management Ltd) submitted a planning permit application and a separate works approval application to extend the existing operation of the Melbourne Regional Landfill site located at 408-546 Hopkins Road, Truganina and 1154-1198 Christies Road, Ravenhall.

The two applications cover different areas of the overall site as shown in Figure 2-1.

Figure 2-1 Site Context Plan and Application Areas



The works approval area (shown in red as “Landfill Extension”) includes 7 landfill cells south of Riding Boundary Road reserve and 9 landfill cells to the north, projected to provide landfilling for a 30 year period.

The planning permit application includes the works approval application areas and an additional 7 landfill cells to the north of Riding Boundary Road (shown in green as “Future Landfill Area”), with the future landfill area providing an additional 14 years of landfill operation.

The current permitted operation of the site is projected to be completed by 2025, such that the applications, which contemplate landfilling operations on the site extending for a 44 year time period beyond the current operation, are projected to extend operation to 2069.

2.2 Access

Access to the landfill site is proposed to operate from Christies Road throughout its operational life, with internal access facilitated via construction of onsite haul roads as required to each landfill cell.

It is proposed that the existing access from Christies Road, located approximately 680 metres south of the Riding Boundary Road reserve will be relocated to Riding Boundary Road, with construction of a new access and weighbridge west of Christies Road north of the existing landfill area.

Access to the site to the arterial road network will continue to be facilitated via Christies Road to and from the north.

In the future, as the regional and metropolitan arterial and freeway network is developed to accommodate projected growth in the West Growth Corridor, alternate access routes may become available.

2.3 Future Operation and Waste Volume Projections

2.3.1 Expansion of Current Operations

I am instructed that the existing landfill received a total of **780,000** tonnes of waste in 2014/15 and that it is anticipated that this will increase to a total of **812,000** tonnes per annum by 2017 as Cleanaway establish and consolidate operations on the site.

Beyond 2017, Cleanaway have projected an annual increase in the current operation and volumes processed equivalent to 1% per annum (compounded) over the projected life of the landfill until 2069.

As such, based on current operations, volumes of approximately 970,000 tonnes are projected by 2035, extending to 1,360,000 tonnes by 2069.

2.3.2 South East Melbourne Transfer Station (SEMTS)

In addition to projected ongoing operation of the existing landfill activities as described above, I am instructed that Cleanaway are proposing to develop a transfer station in Ordish Road, Dandenong commencing in 2017, to process waste currently deposited in a landfills in the south east which are approaching the end of their operational life.

It is proposed that waste will be compacted at the South East Melbourne Transfer Station (SEMTS) and transferred to Melbourne Regional Landfill (MRL) at Ravenhall.

I understand that the transfer station was originally proposed to be located in Fraser Road Clayton at an existing landfill site and based on the expected operation of the Clayton site volume estimates were provided to GTA which anticipated initial volumes of **580,000** tonnes per annum increasing to a peak of **650,000** tonnes per year by 2029, remaining at that level over the balance of the operational life of MRL

I am instructed that the Transfer Station is now proposed to be located at the Dandenong site and that volumes estimates will be no higher than projected for the Clayton site. It is however possible that transfer from the Dandenong site can be undertaken using 43 tonne A-double vehicles, rather than 37 tonne B-double vehicles assumed by GTA in assessing the Clayton site, which would result in a reduction in the number of truck trips required due to the greater capacity.

3 Existing Conditions

3.1 Location and Land Use

The subject site is located on the west side of Christies Road in Ravenhall, generally bound by the Melbourne Ballarat Rail line to the north, Hopkins Road to the west and Middle Road to the south and forms part of a larger site operated by Boral as the Deer Park Quarry which was established in 1968.

The location of the site is shown in Figure 3-1.

Figure 3-1 Site Location



Source: Melways

Cleanaway have entered into an agreement with Boral, which provides that Boral will progressively release land to Cleanaway for land filling purposes following completion of quarrying activities, filling the voids created.

Riding Boundary Road is a road reserve which runs through the land between Christies Road east and Hopkins Road, with access to the quarry operations currently taken from Christies Road via a short section of road within the reserve running west from Christies Road, and via a private road running to Hopkins Road which is closed to public access.

The north east portion of the land to the south of the rail line is within a conservation reserve, while a separate planning permit has been granted for a public waste transfer station located in the south east corner of the land which is expected to be constructed by 2017.

Caroline Springs Railway Station, including commuter parking with access from Christies Road to the north of the railway line is under construction and due to be opened early in 2017.

To the west, on the opposite side of Hopkins Road is agricultural land, which is located within the Urban Growth Zone and is expected to be developed for urban purposes in accordance with the Mt Atkinson and Tarnet Plains Precinct Structure Plan which is currently under consideration.

To the south, on the opposite side of the Middle Road reserve is agricultural land which is also located within the Urban Growth Boundary.

To the east of Christies Road is the Regional Rail Link, a new rail line running from Southern Cross Railway Station to join with the Geelong line south of Wyndham Vale. The line runs parallel to Christies Road, with the construction of the line resulting in the closure of Riding Boundary Road to the east of Christies Road.

To the east of the rail line is the Dame Phyllis Frost Women' Prison and the Melbourne Remand Centre.

3.2 Road Network

Christies Road is a local road running south from the Western Highway (Ballarat Road), forming the southern extension of Caroline Springs Boulevard.

Christies Road bridges over the Western Freeway just south of Ballarat Road, with a half diamond interchange provided allowing easterly access to and from Christies Road / Caroline Springs Boulevard.

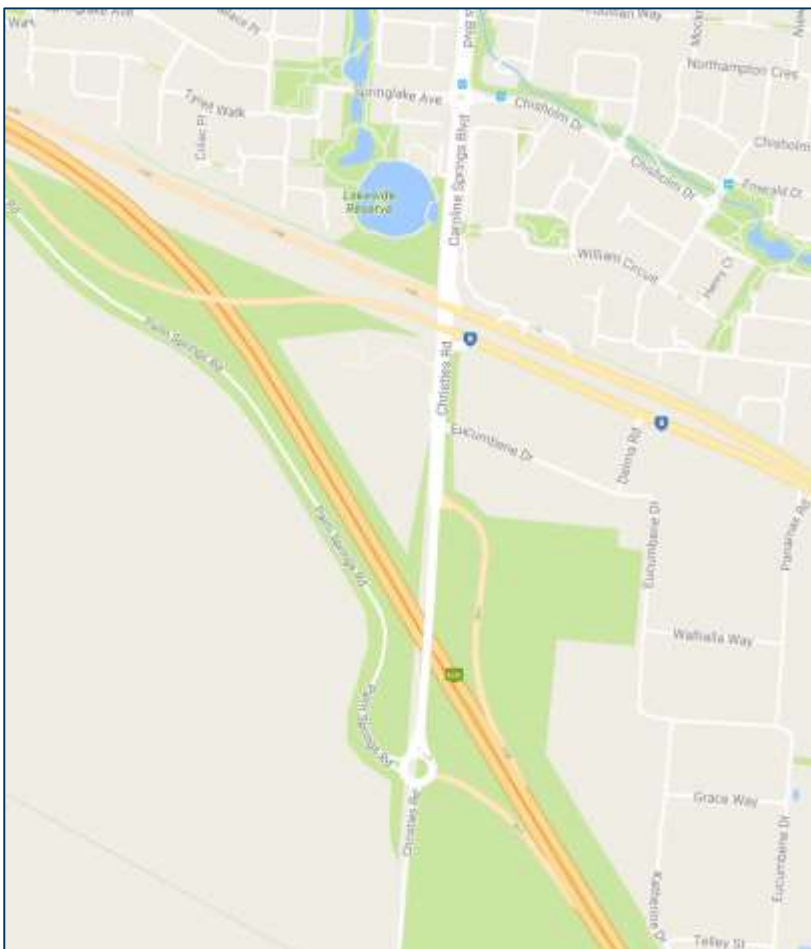
The southern interchange / off ramp is controlled by a roundabout, which also provides access to Palms Spring Road which forms the western leg.

The northern interchange / on ramp is an unsignalised T-junction, incorporating a left turn slip lane for traffic approaching from the north and a channelised right turn lane accommodating turning traffic approaching from the south.

Traffic approaching Christies Road from the west along the Western Freeway is facilitated via an off ramp to Ballarat Road east of the Hopkins Road interchange, with southbound traffic turning right into Christies Road at the Ballarat Road / Christies Road signalised intersection. Traffic departing Christies Road towards the west proceeds north to Ballarat Road, turning left onto Ballarat Road and then onto the freeway.

The configuration of the Christies Road interchange is shown in Figure 3-2.

Figure 3-2 Western Freeway / Christies Road Interchange



Between the interchange and Riding Boundary Road, Christies Road is a two lane road providing a carriageway of approximately 7.8 metres and sealed shoulders, with a 3.0 metre wide shared path on the eastern side terminating south of the bridge over the Ballarat rail line.

This section of the road was recently constructed in association with the development of the Regional Rail Link, which resulted in the closure of Riding Boundary Road east of Christies Road at the rail line and provision of alternate access to the subject land via Christies Road. A right turn lane into the Boral Quarry access via Riding Boundary Road is provided from Christies Road.

South of Riding Boundary Road, Christies Road continues south as a two lane road with gravel shoulders, before truncating at Middle Road.

Riding Boundary Road is a local road which, in the vicinity of the subject site is largely unconstructed. The road runs west from Robinsons Road and previously provided access to the Boral Quarry prior to the road being truncated at the Regional Rail Link. The road is currently constructed for approximately 500 metres west of Christies Road. The Riding Boundary Road reserve continues west to Hopkins Road but is unconstructed.

Hopkins Road is an arterial road under the control and management of VicRoads. The road runs south from the Western Freeway to Boundary Road, continuing south as Derrimut Road to Hoppers Crossing and Werribee.

Hopkins Road currently has an undivided cross-section providing for a single traffic lane in each direction with narrow sealed shoulders.

A fully directional interchange is provided at Hopkins Road and the Western Freeway, with Hopkins Road continuing north as Sinclairs Road to Neale Road.

Middle Road is a local road, which in the vicinity of the site is mostly unconstructed. The road runs west from Robinsons Road truncating at the Melbourne Remand Centre and the Regional Rail Link. West of Christies Road it is constructed for approximately 100 metres, and is also constructed east of Hopkins Road providing access to a residential property.

3.3 Traffic Volumes

3.3.1 GTA Surveys

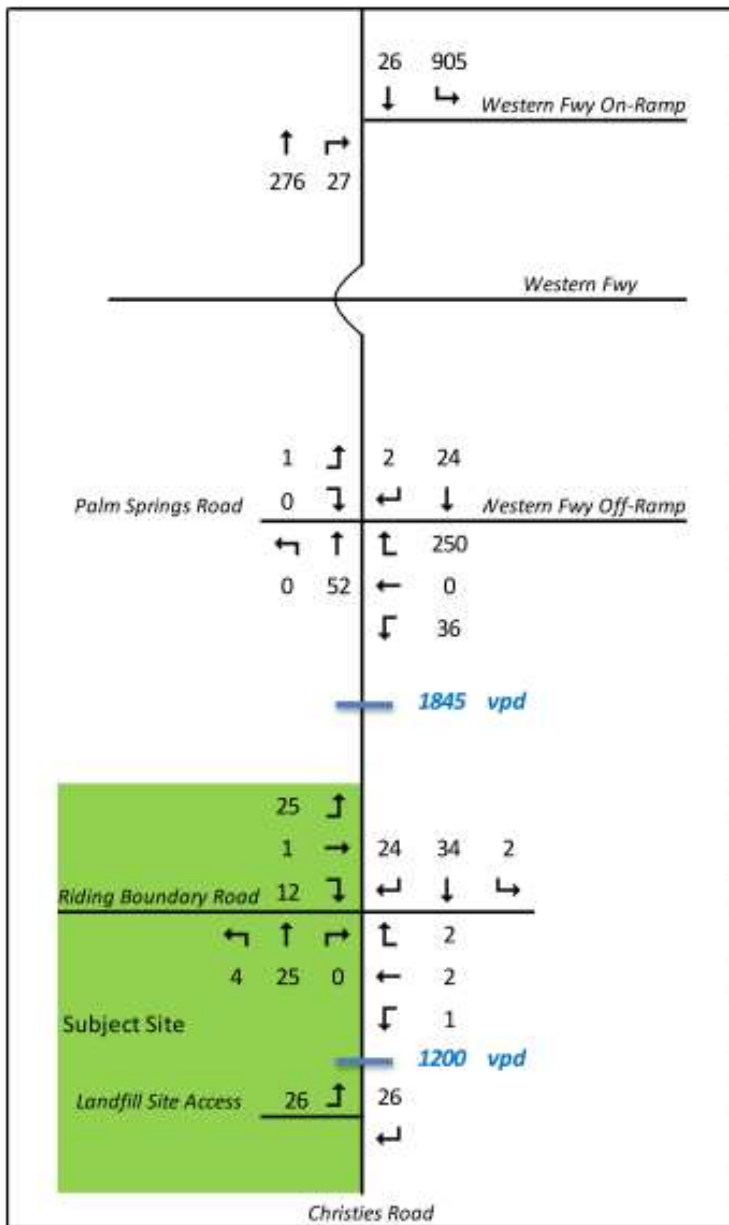
Traffic volumes data was collected by GTA Consulting in August 2014, with the results provided in the Transport Impact Assessment report submitted with the current applications dated February 2016.

GTA undertook 24 hour pneumatic tube counts at two locations on Christies Road (south of the Freeway and south of Riding Boundary Road) and morning peak hour turning movement counts at the Freeway interchanges, Riding Boundary Road and at the Landfill Entrance.

The results are shown in Figure 3-3 and summarised, in the context of the subject applications as follows:

1. Christies Road, south of the Western Freeway carried an average weekday volume of **1,845** vehicles per day, reducing to **1,200** vehicles per day south of Riding Boundary Road.
2. Due to the truncated nature of the road network, effectively all traffic recorded south of the Freeway was generated by the Boral Quarry and the Landfill sites, with traffic south of Riding Boundary Road effectively limited to Landfill traffic.
3. As such, it is estimated that, at that time, the Landfill generated an average weekday volume of **1,200** vehicles per day, with the Quarry and related activities generating approximately **650** vehicles per day to Christies Road.
4. Directional counts undertaken at the Freeway interchange during the morning peak period indicate that for south bound traffic on Christies Road, 60% of traffic turned left from the Western Freeway, with 40% approaching from the north from Ballarat Road. 50% of northbound traffic on Christies Road turned right onto the Western Freeway, with 50% continuing to Ballarat Road.

Figure 3-3 Traffic Volume Surveys – August 2014 (AM Peak Hour Volumes)



Review of the vehicle classification data collected by GTA south of Riding Boundary Road shows the following traffic components accessing the Landfill site over the surveyed weekday.

Table 3-1 Landfill Weekday Traffic Generation – August 2014 (Source GTA)

	In	Out	Total
Cars	214 vpd	211 vpd	425 vpd (35%)
Single Unit Trucks	336 vpd	316 vpd	652 vpd (54%)
Articulated Trucks	63 vpd	59 vpd	122 vpd (10%)
Total	613 vpd	586 vpd	1,199 vpd

I have reviewed the weighbridge data of August 2014 supplied by Cleanaway which show an average weekday generation of 391 trucks per day (782 movements) over the week of the survey, which is consistent with the count data recorded by GTA when 774 truck movements were recorded accessing the landfill site.

3.3.2 Cardno Surveys

In order to update the 2014 traffic volume data collected by GTA Consultants, Cardno commissioned traffic surveys of the Christies Road / Western Freeway interchanges on Monday 29th August 2016, between 6am and 5pm.

The results for the AM peak hour (7:15am-8:15am) and the period between 11am-12noon (corresponding to the time of peak activity from MRL) are shown in Figure 3-4 and Figure 3-5 below.

Figure 3-4 Existing AM Peak Hour (7:15am-8:15am) Volumes – August 2016

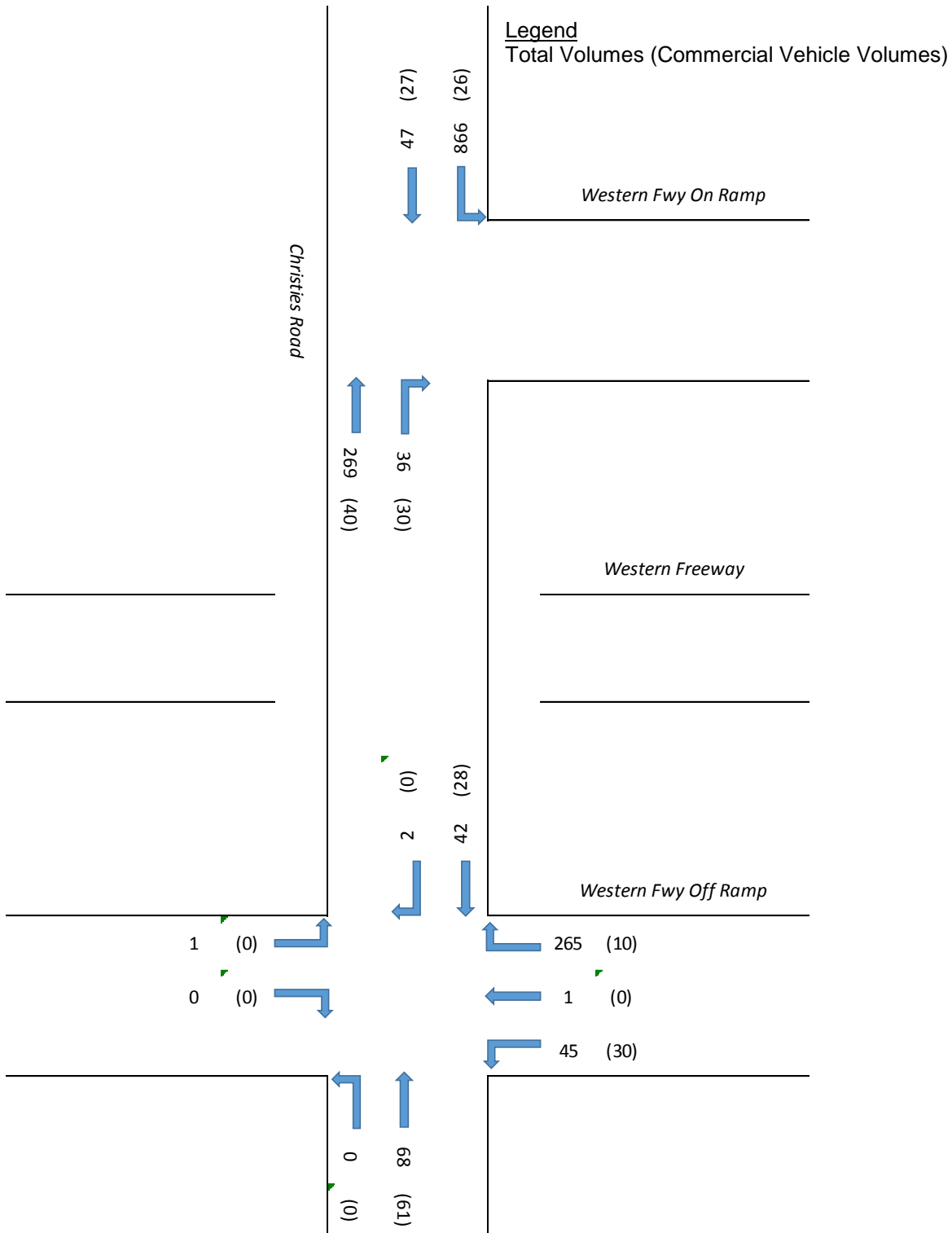


Figure 3-5 Existing Site Peak Hour (11am-12noon) Volumes – August 2016

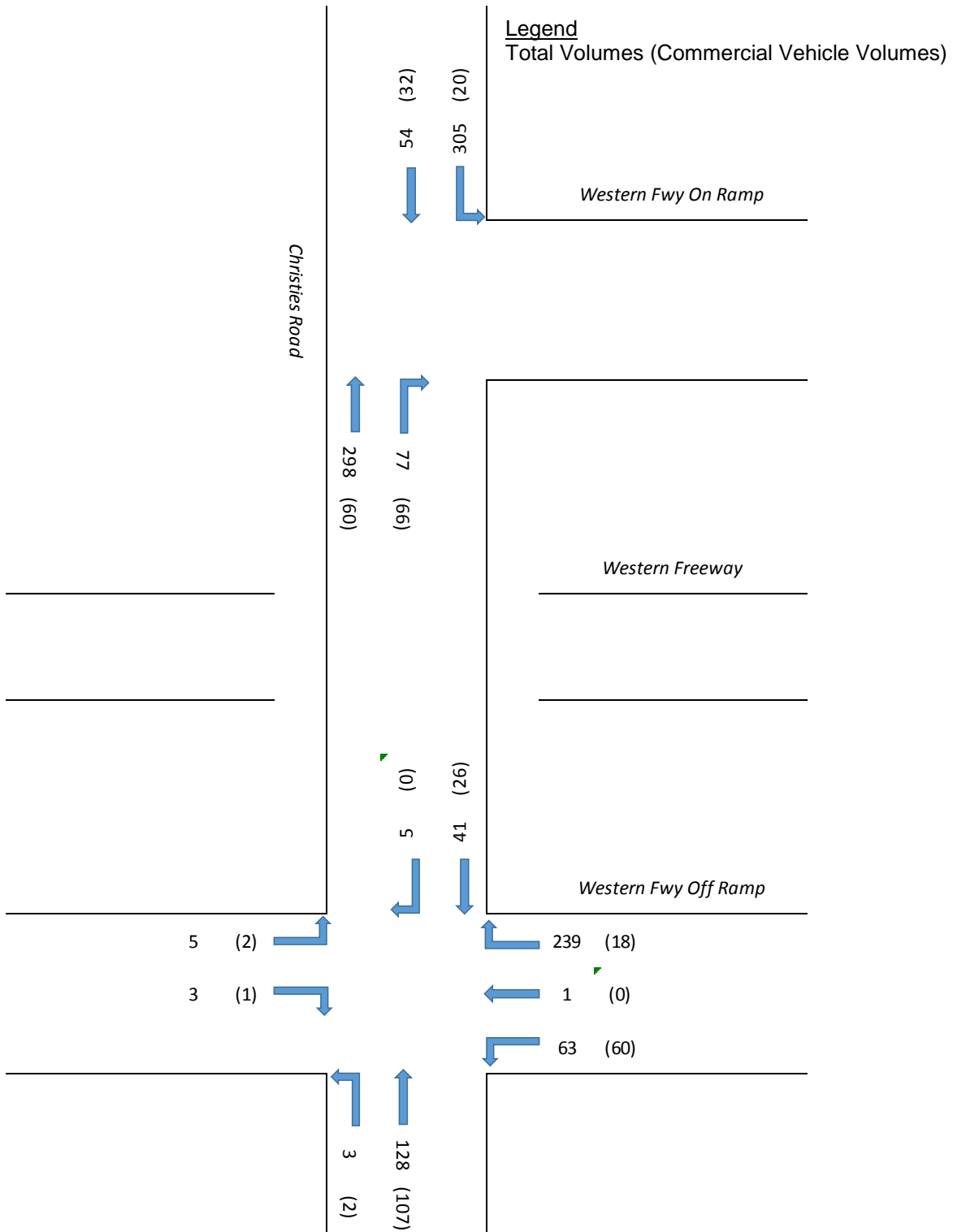
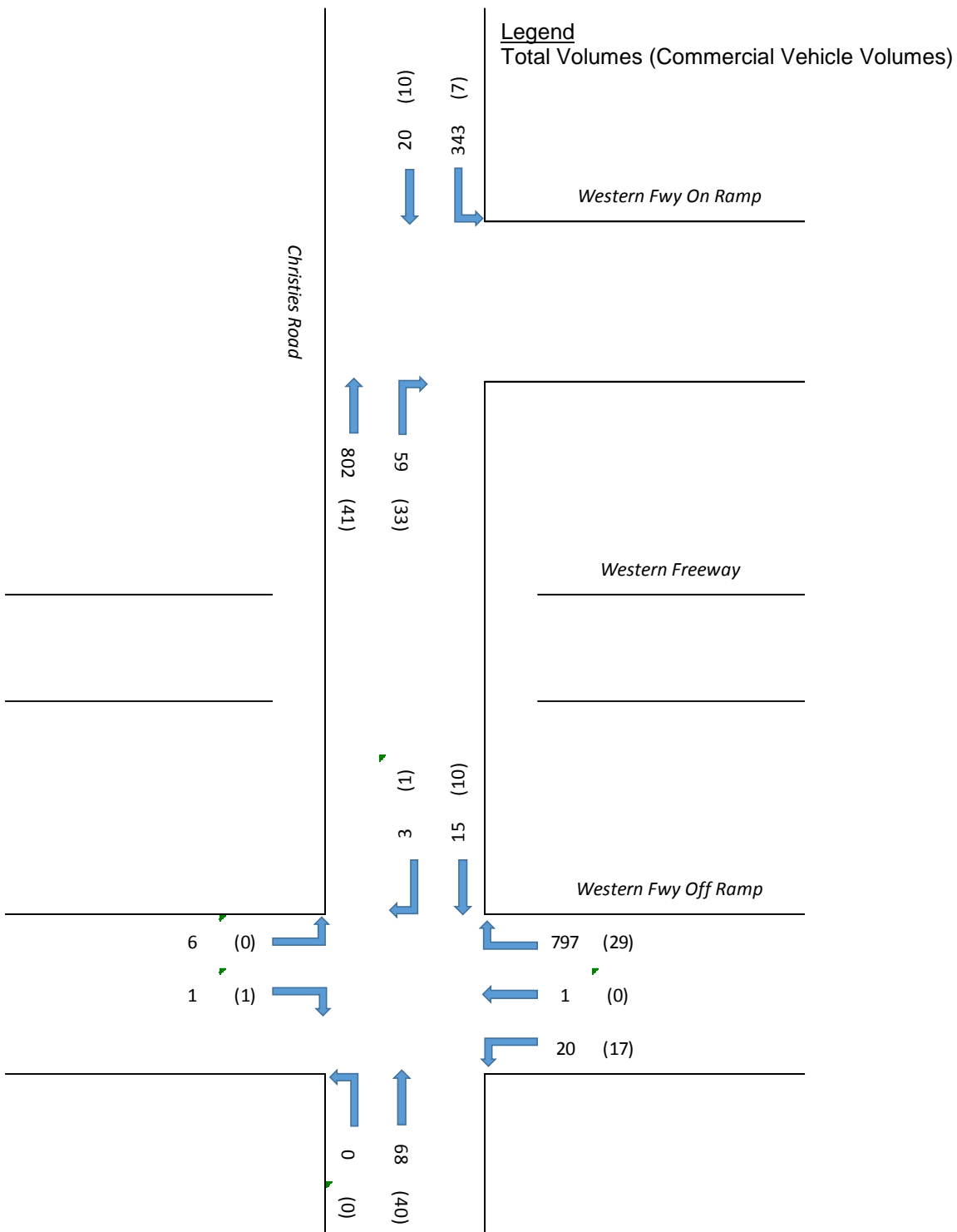


Figure 3-6 Existing PM Peak Hour (4pm-5pm) Volumes – August 2016



Comparison between the 2016 AM peak counts and the surveys undertaken by GTA in 2014 show very similar results, with marginally higher traffic movements on Christies Road south, likely to be partially related to construction activity at the Caroline Springs Station site.

Directional counts from Christies Road south at the Freeway interchange are comparable to those found from the traffic volume data collected by GTA.

It is noted that during the 11am to 12 noon period, volumes on Christies Road are approximately double the AM peak volumes, with other movements being significantly lower.

The PM peak, occurring between 4pm and 5pm shows reduced volumes on Christies Road south following prior to closure of the landfill at 5pm.

3.4 Existing Intersection Operation

The existing 2016 operation of the Christies Road / Western Freeway Off-ramp / Palm Springs Road roundabout and the Christies Road / Western Freeway On-ramp intersections have been analysed using SIDRA Intersection 7.0 using the traffic volume survey data collected by Cardno.

The key outputs of SIDRA are Degree of Saturation (DoS), Average Delay and 95th Percentile Queue. A DoS below 0.85 is considered to represent acceptable operating conditions for a roundabout intersection, while a DoS below 0.80 is considered to represent acceptable operating conditions for a sign controlled intersection.

The analysis of the existing volumes was undertaken for the morning peak hour (7:15am-8:15pm), the site peak hour (11am-12noon) and the afternoon peak hour (4:00pm-5:00pm) and are discussed below.

3.4.1 AM Peak Hour

The SIDRA results for both intersections during the morning peak hour are summarised in Table 3-2 and Table 3-3.

Table 3-2 SIDRA Analysis – Christies Road / Western Freeway Off Ramp / Palm Springs Road Roundabout (Existing AM Peak Hour Volumes)

Approach	Degree of Saturation	Average Delay (sec)	95 th %-ile Queue (m)
Christies Road (S)	0.089	4.4	5.3
Western Freeway Off Ramp (E)	0.219	8.9	9.6
Christies Road (N)	0.034	2.5	1.8
Palm Springs Road (W)	0.002	7.4	0.1

Table 3-3 SIDRA Analysis – Christies Road / Western Freeway On Ramp Intersection (Existing AM Peak Hour Volumes)

Movement	Degree of Saturation	Average Delay (sec)	95 th %-ile Queue (m)
Christies Road Left Turn to Freeway	0.501	5.7	0.0
Christies Road Right Turn to Freeway	0.032	7.1	1.9

During the AM peak hour, both intersections currently operate well within acceptable limits with minimal queues and delays. The SIDRA results indicate that the left turn movement from Christies Road into the Western Freeway On-ramp is the critical movement during the AM peak hour.

3.4.2 Site Peak Hour

The SIDRA results for both intersections during the site peak hour are summarised in Table 3-4 and Table 3-5.

Table 3-4 SIDRA Analysis – Christies Road / Western Freeway Off Ramp / Palm Springs Road Roundabout (Existing Site Peak Hour Volumes)

Approach	Degree of Saturation	Average Delay (s)	95 th %-ile Queue (m)
Christies Road (S)	0.163	4.3	10.1
Western Freeway Off Ramp (E)	0.229	8.6	11.1
Christies Road (N)	0.036	3.0	1.9
Palm Springs Road (W)	0.009	7.7	0.4

Table 3-5 SIDRA Analysis – Christies Road / Western Freeway On Ramp Intersection (Existing Site Peak Hour Volumes)

Movement	Degree of Saturation	Average Delay (s)	95 th %-ile Queue (m)
Christies Road Left Turn to Freeway	0.181	5.7	0.0
Christies Road Right Turn to Freeway	0.070	7.2	4.3

During the site peak hour (11am-12noon), both intersections currently operate well within acceptable limits with minimal queues and delays.

3.4.3 PM Peak Hour

The SIDRA results for both intersections during the afternoon peak hour are summarised in Table 3-6 and Table 3-7.

Table 3-6 SIDRA Analysis – Christies Road / Western Freeway Off Ramp / Palm Springs Road Roundabout (Existing PM Peak Hour Volumes)

Approach	Degree of Saturation	Average Delay (s)	95 th %-ile Queue (m)
Christies Road (S)	0.131	10.3	8.6
Western Freeway Off Ramp (E)	0.510	9.6	31.4
Christies Road (N)	0.013	7.5	0.6
Palm Springs Road (W)	0.011	10.3	0.5

Table 3-7 SIDRA Analysis – Christies Road / Western Freeway On Ramp Intersection (Existing PM Peak Hour Volumes)

Movement	Degree of Saturation	Average Delay (s)	95 th %-ile Queue (m)
Christies Road Left Turn to Freeway	0.208	5.6	0
Christies Road Right Turn to Freeway	0.049	6.5	3.2

During the afternoon peak hour, both intersections currently operate well within acceptable limits with minimal queues and delays. The SIDRA results indicate that the right turn movement from the Western Freeway Off-ramp onto Christies Road is the critical movement during the PM peak hour.

4 Future Transport Network

4.1 West Growth Corridor Plan

The subject site is located within the West Growth Corridor of Melbourne, with urban development expected to progress in the corridor over the next 20 – 30 years.

The West Growth Corridor Plan was adopted by the former GAA in August 2012, setting out the framework for future urban growth of the corridor.

The West Growth Corridor Plan in the vicinity of the subject site is shown in Figure 4-1.

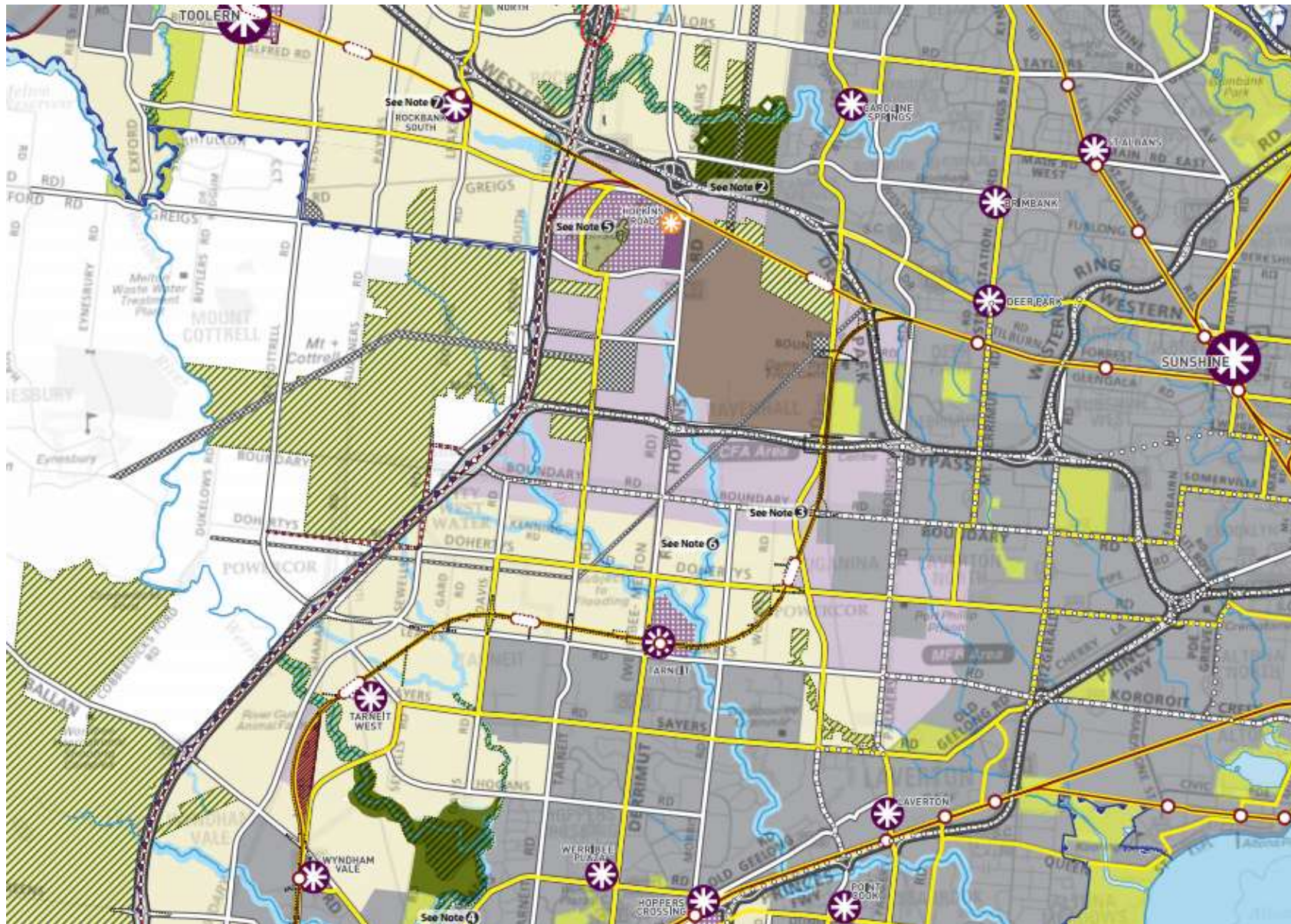
The plan contemplates provision of significant transport projects over time which will result in significant changes to the road and transport network in the immediate area.

These projects include:

1. **Regional Rail Link** (already completed) which provides alternate rail connection between Southern Cross Station and south of Werribee, freeing up capacity on the Werribee Line and providing new stations in growth areas in Tarneit and Wyndham Vale. It is noted that the project resulted in the construction of Christies Road between the subject site and the Western Freeway interchange and the closure of Riding Boundary Road and Middle Road at the rail line.
2. **Outer Metropolitan Ring Road**, a proposed transport corridor located to the west of the site providing high speed rail and road connections between transport hubs for freight and transit across the western and northern growth areas of Melbourne. The proposed freeway standard road, which is not expected to be developed for at least 20 years, will include a full diamond interchange with the Western Freeway.
3. **Christies Road** is proposed to be developed as an arterial road, ultimately connecting to Forsyth Road in the south to provide an additional north south connection between the Princes Freeway in Point Cook to Melton Highway Sydenham in the north via Caroline Springs Boulevard. The route will support other major arterial routes including Palmers Road to the east and Hopkins Road to the west.
4. **Middle Road (east west link)** is proposed to be developed as an arterial / freeway link between the OMR and the Western Freeway, acting as a principle freight link.
5. **Caroline Springs Rail Station** which is nearing completion, forms part of the proposed upgrade of the Melbourne Ballarat rail line to extend metropolitan services and will include commuter parking for approximately 350 cars and a bus interchange.

It is noted that the West Growth Corridor Plan recognises and seeks to protect a range of infrastructure facilities including quarries and landfill sites.

Figure 4-1 West Growth Corridor Plan



4.2 Mt Atkinson & Tarneit Plains Precinct Structure Plan

The Mt Atkinson and Tarneit Plains Precinct Structure Plan, which following exhibition is currently being considered by an Independent Panel, sets out the future structure of development of land to the west of the subject site to the west of Hopkins Road.

The proposed Road Network Plan as exhibited in April 2016 is shown in Figure 4-2.

Figure 4-2 Mt Atkinson and Tarneit Plains PSP – Road Network Plan



The plan is consistent with the West Corridor Plan nominating Hopkins Road as a future 6 lane arterial road supplemented by a network of 4 lane arterials including Greigs Road, Mt Atkinson Road and Riding Boundary Road (west of Hopkins Road).

Middle Road, which forms the southern boundary of the PSP area is depicted as “PAO for transport infrastructure” but is not included in the road network supporting development within the PSP.

The PSP proposes access to the area via a series of signalised intersections to Hopkins Road and Greigs Road including signals at Riding Boundary Road and Hopkins Road. A total of six signalised intersections are proposed between the Middle Road PAO and the Western Freeway interchange along Hopkins Road.

5 Traffic Increases of Proposal

5.1 Methodology

In order to assess the traffic increases related to the proposed expansion of the landfill site, and hence the overall traffic impact, I have considered the increases in activity as contemplated by the proposal, based on instructions as to:

- the expected growth in existing operations in relation to the volume of landfill to be accommodated from existing and future clients;
- the proposed operation of the SEMTS, including the volume of waste to be transferred to the site, the onsite capacity for accepting transferred materials and the capacity of transfer trucks to be utilised.
- The proposed operation of the Community Transfer Station proposed to be developed in the south east corner of the site.

I have assumed that Christies Road south of the freeway will remain isolated from the surrounding road network accommodating traffic only from landfill activity, the ongoing operation of the Boral Quarry and traffic generated to the soon to be completed Caroline Springs rail station and commuter car park.

In the first instance I have considered the initial operation of the road network by 2017, assuming increases in existing operation up to 812,000 tonnes per annum, commencement of transfers from SEMTS to MRL, and establishment of the Community Transfer Station and operation of Caroline Springs Station.

To test the future performance of the road network and site access, I have allowed for 10 years growth in activity on the subject site and in background volumes on the surrounding road network in accordance with VicRoads Traffic Impact Assessment Guidelines. Assuming that the application for the extension to the landfill commences in 2025, this corresponds to a design year of 2035.

In assessing the implications of this scenario, I have concentrated my assessment on the operation of the interchange intersections to the Western Freeway, the operation of Christies Road and a broader assessment of the implications on the metropolitan arterial network resulting from the proposed SEMTS operation.

Finally, I have considered the implications of the ongoing operation of the landfill site in association with the network improvements expected to be developed in the region, modifying access options to the site and the role and function of Christies Road and the immediate access point to the site.

5.2 Extension of Existing Landfill Activities

The existing landfill operation on the site accepts landfill from a wide range of sources, delivering to the site on a seven day a week basis between midnight and 5pm. Weighbridge data shows that volumes of waste deposited are lower on the weekend, with the average operation over the 7 day week being equivalent to 5.5 days of average weekday activity.

The site is understood to have accepted **780,000** tonnes of landfill in 2014/15 and, following consolidation of operations by Cleanaway, this is expected to increase to **812,000** tonnes per year by 2017.

After this time, progressive increases in volumes received, equivalent to 1% per annum, is expected.

Traffic surveys undertaken by GTA in August 2014 as summarised in Table 3-1, identified that the landfill, accepting 780,000 tonnes per annum at the time, generated 1200 vehicle movements on a typical weekday, 600 movements to the site and 600 away, including 215 passenger vehicles, 325 single unit trucks and 60 articulated vehicles.

The average tonnage per truck delivery in August 2014 was 7 tonnes.

In order to estimate the likely design weekday increases in truck movements corresponding to increased tonnage projections between 2014 and 2017, I have assumed the following:

- The site operates for an equivalent of **286** operating weekdays per year, having regard to lower volume of waste deposited at weekends.
- An average load of **7** tonnes per truck.

The total tonnage of 780,000 tonnes in 2014 equates to a design average rate of **390** trucks per weekday, corresponding to the volumes recorded by GTA.

For the projected 2017 landfill volumes of 812,000 tonnes, increases to **406** truck movements per day or **16** additional trucks per day could be expected.

For analysis purposes I have assumed that 415 trucks per day will be generated to the site per day, or **830** truck movements. Based on the existing distributions of trips over the day, this corresponds to 25 truck arrivals during the morning peak hour and 48 trucks per hour during the site peak between 11am and midday. During the afternoon commuter peak, landfill is not accepted at the site and hence negligible volumes of truck traffic are generated.

Assuming 1% growth in truck volumes beyond 2017, design volumes of **1,000** truck movements per day could be expected by 2035.

A summary of projected increases in truck volumes generated by the landfill in 2017 and 2035 in comparison to 2014 volumes is shown in Table 5-1.

Table 5-1 Existing Landfill Activity – Projected Truck Movement Increases

Truck Volumes	2014	2017	2035
Daily	780 movements per day	830 movements per day	1000 movements per day
AM Peak (8am -9am)	48 movements per hour	50 movements per hour	60 movements per hour
Site Peak (11am-12 noon)	94 movements per hour	96 movements per hour	115 movements per hour

In addition, increases in light vehicle traffic have been adopted, assuming increases equivalent to 2% per annum (compounded).

Table 5-2 Existing Landfill Activity – Projected Light Vehicle Movement Increases

Light Vehicle Volumes	2014	2017	2035
Daily	425 movements per day	450 movements per day	640 movements per day
AM Peak (8am -9am)	37 movements per hour	40 movements per hour	56 movements per hour
Site Peak (11am-12 noon)	43 movements per hour	46 movements per hour	64 movements per hour

5.3 SEMTS

Cleanaway are proposing to develop a transfer station in Dandenong to replace a landfill site which currently accepts waste largely generated from the south eastern areas of Melbourne.

The landfill site is expected to cease operation in 2017, with waste proposed to be compacted at the site and then transferred to MRL at Ravenhall.

A maximum of 6 trucks per hour will be able to be processed at MRL.

Based on the operation of the site as originally proposed from Clayton, an initial volume of 580,000 tonnes of waste was expected to be transferred from SEMT to MRL per annum utilising B-double articulated trucks with a carrying capacity of 37 tonnes, increasing to a maximum of 650,000 tonnes by 2029. No further increase was expected beyond 2029 to the design year of 2035.

Assuming an operation of equivalent to 286 operational weekdays per year, allowing for lower volumes on weekends, an average initial tonnage of **2028** tonnes per day could be expected in 2017, increasing to **2273** tonnes per day in 2035.

I am instructed that the Transfer Station is now expected to be located in Ordish Road Dandenong and that volumes transferred will be no higher than the volumes projected for the Clayton site. It is also possible that 43 tonne A-double vehicles could be used to transfer compacted waste from the Dandenong site.

In order to provide a conservatively high assessment of truck volumes I have assumed transfer by smaller B-double vehicles with an average load of 37 tonnes per truck. Accordingly, for the daily volumes estimated above, a weekday average of 55 trucks per day (**110** movements) in 2017 is estimated, increasing to 60 trucks per day (**120** movements) by 2035.

A summary of projected increases in truck volumes generated by the transfer from SEMTS to MRL until 2035 is provided in Table 5-3.

Table 5-3 SEMTS – Projected Truck Movement Increases (37 tonne B-double vehicles)

Truck Volumes	2014	2017	2035
Daily	-	110 movements per day	120 movements per day
AM Peak (8am -9am)	-	10 movements per hour	12 movements per hour
Site Peak (11am-12 noon)	-	12 movements per hour	12 movements per hour

5.4 Community Transfer Station

A permit has been issued for a community waste transfer station, located in the south east corner of the overall site, with access from Christies Road north of Middle Road.

The facility is expected to receive up to 20,000 tonnes per year via mostly small loads, generating up to an estimated **800** vehicle movements per day at peak activity times on a weekend.

For the purposes of this analysis, I have conservatively assumed that the site will generate volumes of this magnitude on a design weekday, including **40** movements per hour during the AM peak and **80** movements per hour during site peak design periods respectively.

A summary of projected movements generated by the Transfer Station is shown in

Table 5-4 Community Transfer Station – Projected Traffic Movements

Vehicle Volumes	2014	2017	2035
Daily	-	800 movements per day	800 movements per day
AM Peak (8am -9am)	-	40 movements per hour	40 movements per hour
Site Peak (11am-12 noon)	-	80 movements per hour	80 movements per hour

5.5 Caroline Springs Rail Station

Caroline Springs Station is expected commence operation later this year, generating additional traffic movements onto Christies Road related to commuter parking and drop off / pick up movements and operation of bus services interchanging at the Station.

A commuter car park containing approximately 350 car spaces will serve the station.

For the purposes of this analysis, I have assumed that the station will generate **1000** vehicle movements per day on a design week day, including **200** vehicles per hour in the AM peak period. Lower volumes in the order of **50** movements per hour are anticipated during the midday “site peak” period.

A summary of the projected traffic movements generated by the rail station and commuter car park is shown in Table 5-5.

Table 5-5 Caroline Springs Rail Station – Projected Traffic Movements

Vehicle Volumes	2014	2017	2035
Daily	-	1000 movements per day	1000 movements per day
AM Peak (8am -9am)	-	200 movements per hour	200 movements per hour
Site Peak (11am-12 noon)	-	50 movements per hour	50 movements per hour

5.6 Overall Future Traffic Volumes

5.6.1 Daily Volumes

Daily volume increases projected to result from changes in land use south of the Western Freeway Interchange, including the proposed increases in landfill activity are summarised in Table 5-6.

Table 5-6 Christies Road South of Western Freeway – Estimated Daily Traffic Volumes (vpd)

Component	2014		2017		2035	
	Total	CV	Total	CV	Total	CV
Existing (2014)	1850	1250	1850	1250	1850	1250
Landfill Extension	-	-	75	50	445	230
SEMTS	-	-	110	110	120	120
Community Transfer Station	-	-	800	80	800	80
Caroline Springs Rail Station	-	-	1000	100	1000	100
Total	1850 vpd	1250	3830 vpd	1590	4210 vpd	1780

5.6.2 Peak Hour Volumes

Based on the existing 2016 traffic volumes recorded by Cardno, set out in Section 3.3.2 and projected traffic volumes for the various traffic generators south of the roundabout, I have calculated the design volumes for 2017 and 2035 scenarios for both AM and site peak.

For the existing landfill component, increases in truck volumes corresponding to the expected growth between 2014 and 2017 have been added to the 2016 volumes to provide a conservative 2017 base, and then factored to 2035 adopting the projected 1% per annum growth rate.

A traffic growth factor of 2% per annum (compounded) has been applied to the existing volumes not associated with the landfill or quarry, while a growth factor of 1% per annum (compounded) has been applied to quarry related traffic.

The design volumes for the AM peak hour are set out in Figure 5-1 and Figure 5-2 for the 2017 and 2035 design years respectively.

Similarly, the design volumes for the site peak hour (11am-12noon) are set out in Figure 5-3 and Figure 5-4 for the 2017 and 2035 design years respectively.

Figure 5-1 AM Peak Hour Volumes – 2017 Design Year

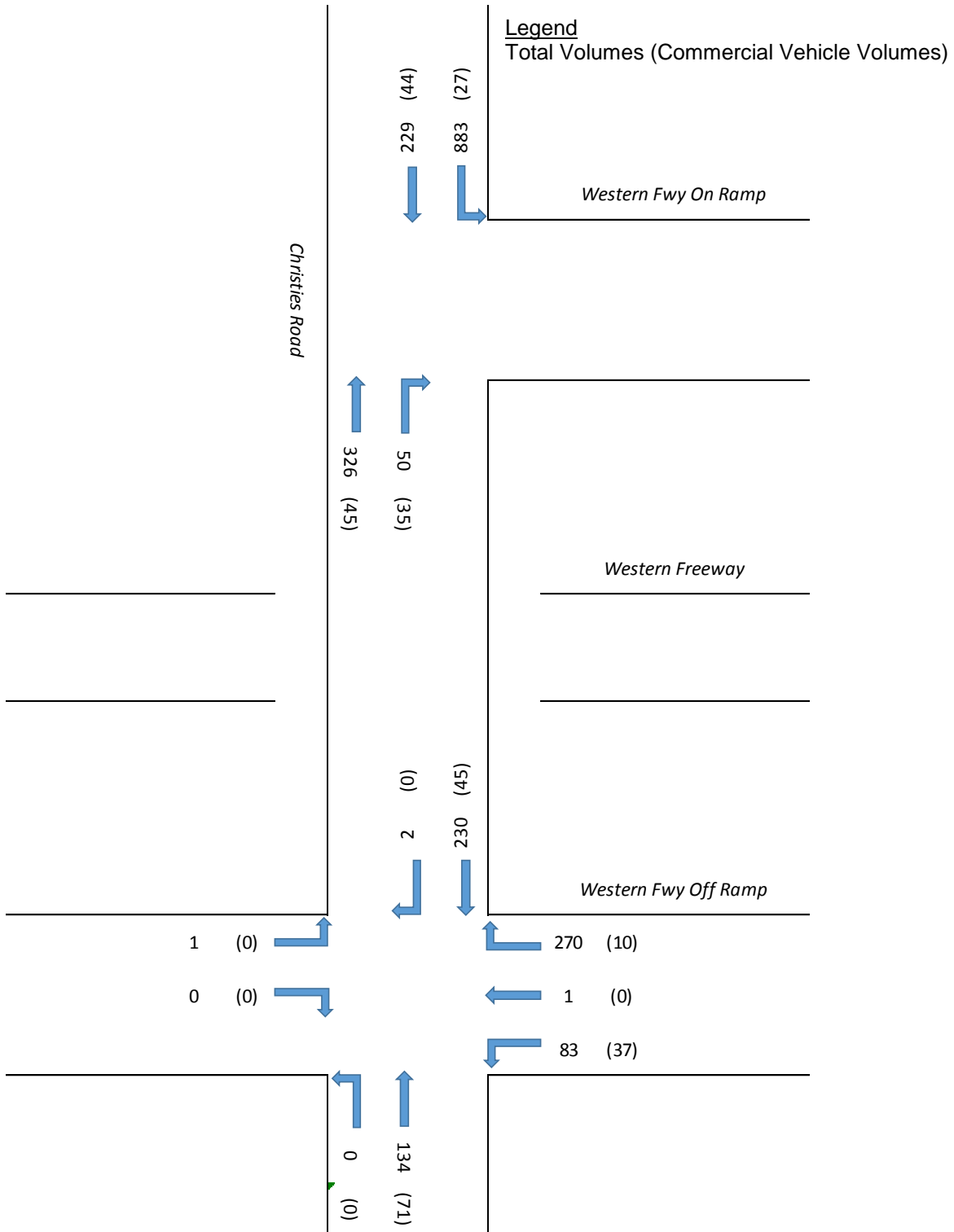


Figure 5-2 AM Peak Hour Volumes – 2035 Design Year

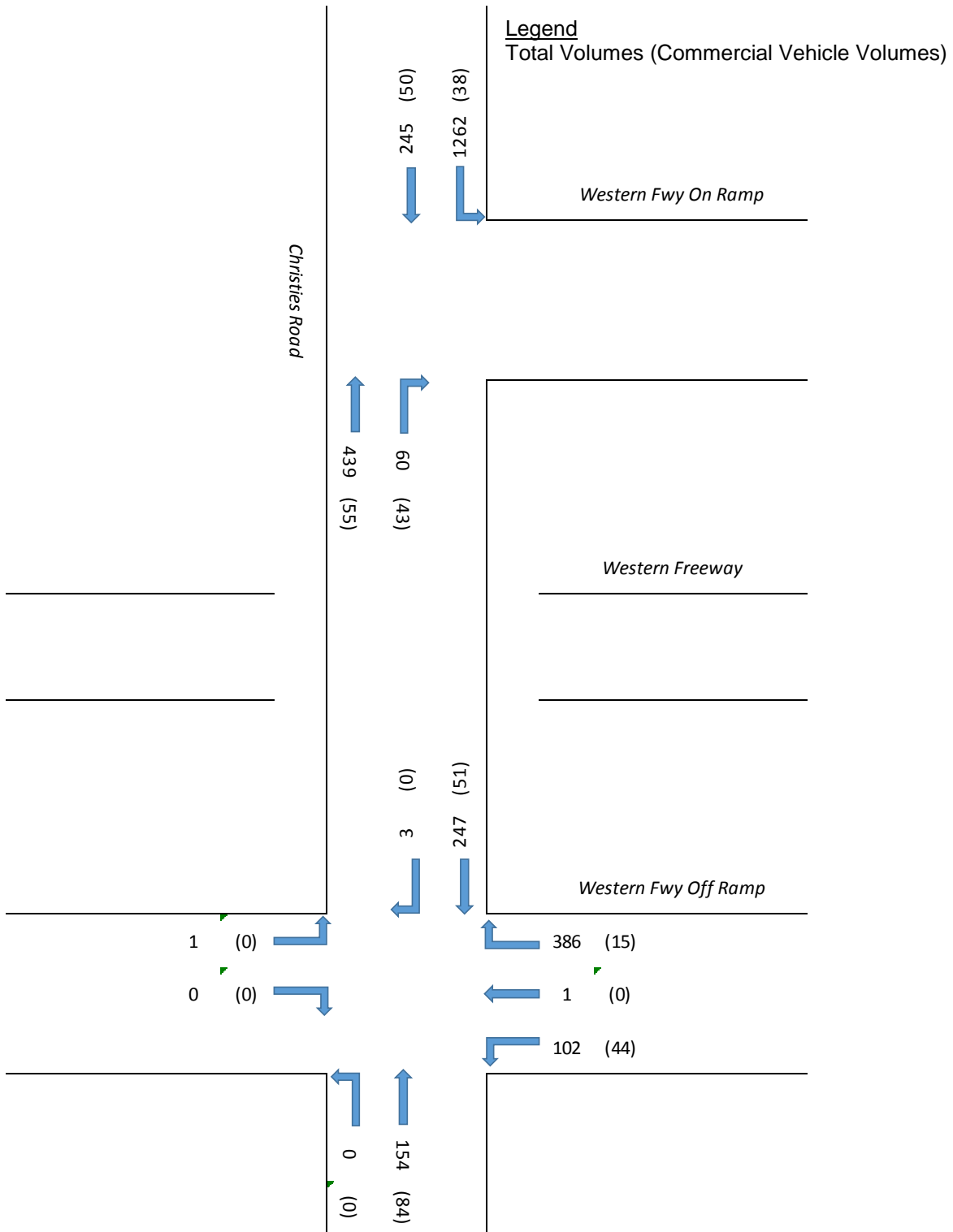


Figure 5-3 Site Peak Hour (11am-12noon) Volumes – 2017 Design Year

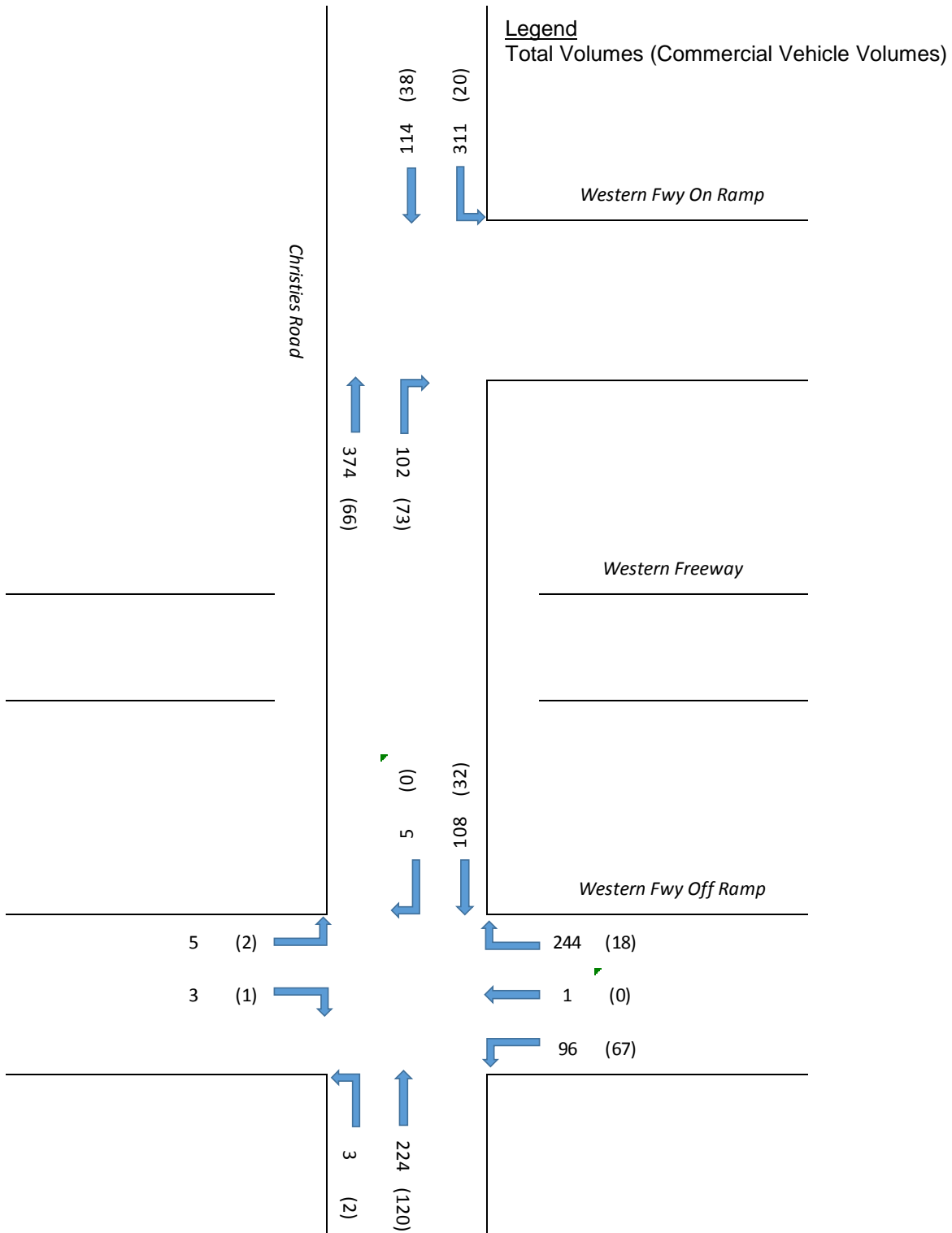
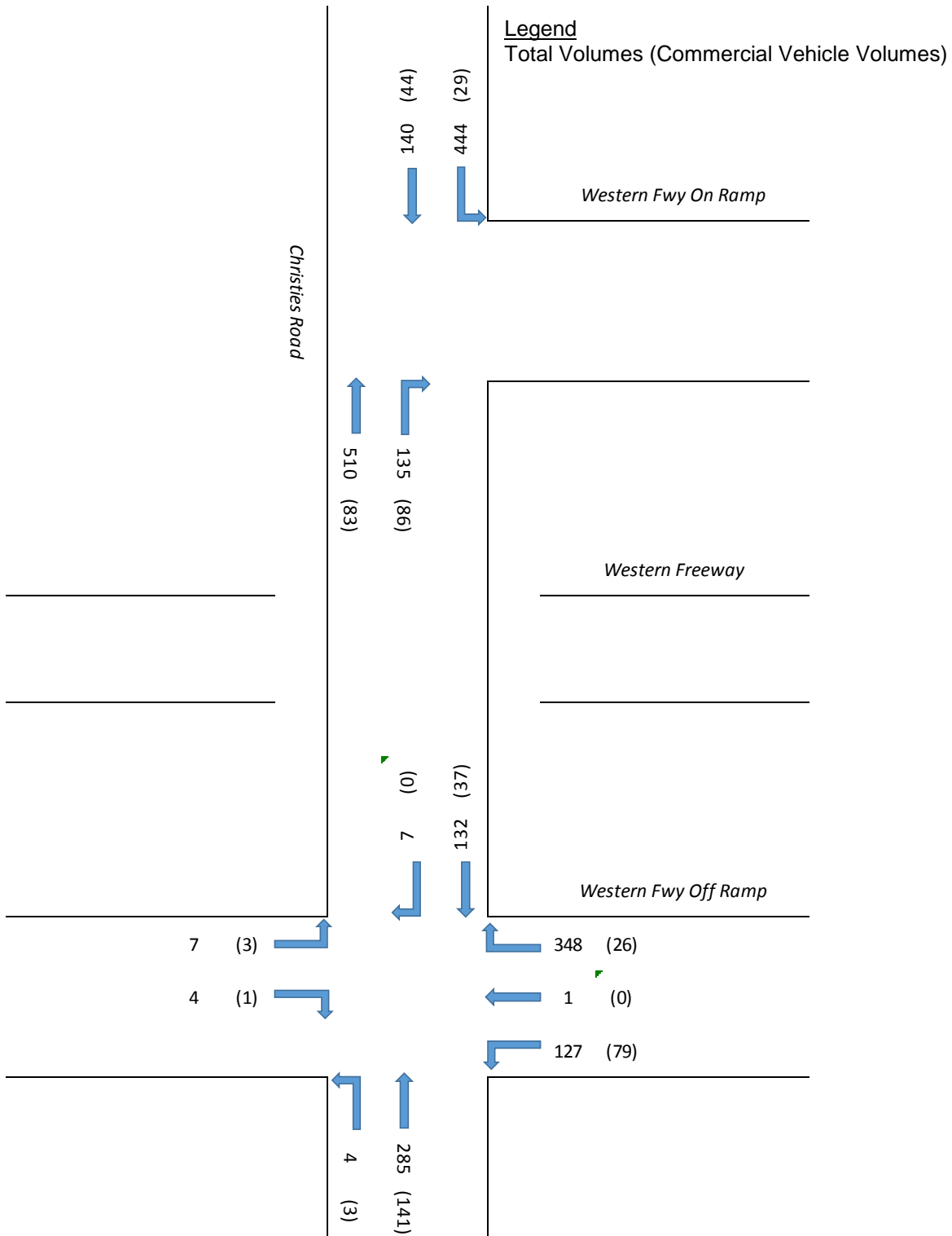


Figure 5-4 Site Peak Hour (11am-12noon) Volumes – 2035 Design Year



6 Traffic Impact of Proposed Development

6.1 Existing Road Network

In 2014, Christies Road carried an average weekday total volume of approximately **1850** vehicles per day, including 1250 truck movements associated with activity from the Boral Quarry site and the Landfill site.

By 2017, it is estimated that volumes on Christies Road will increase to approximately **3,830** vehicle movements per day, including 1600 truck and bus movements assuming:

- Increases in activity on the landfill site increasing tonnage of landfill to 830,000 tonnes per year,
- Introduction of waste transfer from SEMTS,
- Development of the community transfer station, and
- Completion of Caroline Springs Station and commuter car park

Increases beyond 2017 will be moderate, related to growth in land fill and quarry activity of 1% per annum, with overall volumes expected to reach **4210** vehicle movements per day by 2035.

Total volumes will remain comfortably within the capacity of the existing two lane road, despite the high proportion of truck traffic.

The existing configuration of Christies Road south of the freeway, effectively operating as a discontinuous access road to the landfill and quarry sites will limit external traffic growth to low levels until such time as the road is upgraded and connections provided to the south in conjunction with future arterial road proposals for the region.

It is noted that, in conjunction with the construction of Christies Road between Riding Boundary Road and the Freeway in association with the Regional Rail Link construction, channelized turn lane treatments have been constructed at the access to Caroline Springs Train Station and at the Riding Boundary Road intersection.

These treatments provide for appropriate separation of landfill traffic and traffic accessing the station and Boral Quarry (via Riding Boundary Road) and will comfortably continue to accommodate future movements well beyond the adopted design year of 2035, including turning movements into Riding Boundary Road associated with relocation of the landfill access.

6.2 Future Arterial Road

As discussed in Section 4.1, Christies Road is proposed to be ultimately developed as an arterial road, connecting to Forsyth Road in the south to provide an additional north south connection between the Princes Freeway in Point Cook to Melton Highway Sydenham in the north via Caroline Springs Boulevard. The route will support other major arterial routes including Palmers Road to the east and Hopkins Road to the west.

Transport Modelling undertaken by Aecom on behalf of Vic Roads in March 2014 in association with the Palmers Road Corridor Study, provides estimates of future 2046 daily volumes on the surrounding regional road network based on a number of construction scenarios for Palmers Road / Westwood Drive.

Assuming that Christies Road is constructed as a four lane divided arterial road between the Western Freeway and Forsyth Road, Aecom estimate that Christies Road between the Freeway and Middle Road will carry up to 16,000 vehicles per day.

Modelled daily volumes for the “base case” scenario considered, which showed the highest volumes on Christies Road south of Western Freeway are shown in Figure 6-1.

Figure 6-1 2046 Daily Two Way Volumes – Base Case Scenario

(Fig 7 Palmers Road Corridor Transport modelling Report - Aecom March 2014)



While the assumptions as to land use and traffic generation related to the subject site are not specified, it is expected that it reflects the modelling assumptions in the West Growth Corridor model, which assume ongoing quarrying on the subject site.

If however it is assumed that projected daily volumes for land uses south of the Freeway as identified in Table 5.6 are not included in the modelled volumes, an additional 4,000 vehicle movements per day would be generated to Christies Road, resulting in total volumes of approximately 20,000 vehicles per day.

Traffic volumes of this magnitude, even moderate in arterial terms and well within the capacity of a four lane divided road.

It would be expected that, in conjunction with upgrading of Christies Road by VicRoads in the future, accommodating intersection and access works, including at Riding Boundary Road to the landfill site, would be provided as part of the duplication project.

6.3 Impact on Western Freeway / Christies Road Interchange

In order to assess the impact of the proposed extension of the landfill operation on the Christies Road interchange to the Western Freeway, future design volumes for the intersections as shown in Figure 5.1 and Figure 5.2 for the 2017 design year and in Figure 5.3 and Figure 5.4 for the 2035 design year have been modelled using Sidra Intersection 7.0.

6.3.1 2017 Design Year

The results for the 2017 design year AM hour is set out below.

Table 6-1 SIDRA Analysis – Christies Road / Western Freeway Off Ramp / Palm Springs Road Roundabout (2017 AM Peak Hour Volumes)

Approach	Degree of Saturation	Average Delay (sec)	95 th %-ile Queue (m)
Christies Road (S)	0.151	3.9	8.4
Western Freeway Off Ramp (E)	0.303	9.4	14.6
Christies Road (N)	0.146	2.1	7.0
Palm Springs Road (W)	0.002	7.8	0.1

Table 6-2 SIDRA Analysis – Christies Road / Western Freeway On Ramp Intersection (2017 AM Peak Hour Volumes)

Movement	Degree of Saturation	Average Delay (sec)	95 th %-ile Queue (m)
Christies Road Left Turn to Freeway	0.511	5.7	0.0
Christies Road Right Turn to Freeway	0.053	8.1	2.8

The results indicate very minor increases to delays and queues on some approaches, due mainly to the introduction of additional traffic movements associated with the assumed commencement of operation of the Caroline Springs Rail Station and commuter carpark and commencement of operation of the Community Transfer Station.

Relatively low increases in truck volumes associated with SEMTS, equivalent to 10 movements per hour, and extension of existing landfill operations estimated to 2017 do not result in significant changes to the modelled operation of the intersections.

The analysis for the 11am to 12 noon period, corresponding to peak activity on the landfill site, is detailed in Tables 6-3 and 6-4.

Table 6-3 SIDRA Analysis – Christies Road / Western Freeway Off Ramp / Palm Springs Road Roundabout (2017 Site Peak Hour Volumes)

Approach	Degree of Saturation	Average Delay (s)	95 th %-ile Queue (m)
Christies Road (S)	0.249	4.0	14.7
Western Freeway Off Ramp (E)	0.278	8.5	14.1
Christies Road (N)	0.077	2.4	3.7
Palm Springs Road (W)	0.010	8.4	0.5

Table 6-4 SIDRA Analysis – Christies Road / Western Freeway On Ramp Intersection (2017 Site Peak Hour Volumes)

Movement	Degree of Saturation	Average Delay (s)	95 th %-ile Queue (m)
Christies Road Left Turn to Freeway	0.184	5.7	0.0
Christies Road Right Turn to Freeway	0.094	7.4	5.4

Excellent operating conditions are expected to continue at the interchange at this time, with relatively minor increases in traffic readily accommodated.

6.3.2 2035 Design Year

The results for the 2035 design year AM hour is set out below.

Table 6-5 SIDRA Analysis – Christies Road / Western Freeway Off Ramp / Palm Springs Road Roundabout (2035 AM Peak Hour Volumes)

Approach	Degree of Saturation	Average Delay (sec)	95 th %-ile Queue (m)
Christies Road (S)	0.196	4.9	11.6
Western Freeway Off Ramp (E)	0.418	9.9	22.3
Christies Road (N)	0.159	2.1	8.0
Palm Springs Road (W)	0.002	8.6	0.1

Table 6-6 SIDRA Analysis – Christies Road / Western Freeway On Ramp Intersection (2035 AM Peak Hour Volumes)

Movement	Degree of Saturation	Average Delay (sec)	95 th %-ile Queue (m)
Christies Road Left Turn to Freeway	0.731	5.7	0.0
Christies Road Right Turn to Freeway	0.066	8.3	3.5

The results show that, due predominantly to projected increases in non-landfill traffic, largely associated with overall regional traffic growth, some deterioration in intersection can be expected.

The overall operation of the interchange remains well within acceptable performance standards, without a requirement to upgrade the intersections.

It is noted that modelling has not taken specifically included potential traffic increases on the western leg of the off ramp roundabout (Palms Springs Road). In the future development can be expected to occur on industrial land to the south of the Freeway, with access accommodated via Palms Springs Road.

While the extent of development is not known at this stage, analysis shows that, in the AM peak for the 2035 design year, peak hour generation of up to 700 vehicle movements per hour from this area could be accommodated within the capacity of the existing freeway interchange roundabout being exceeded.

The results for the 2035 11am – 12noon site peak hour are shown in Tables 6-7 and 6-8.

Table 6-7 SIDRA Analysis – Christies Road / Western Freeway Off Ramp / Palm Springs Road Roundabout (2035 Site Peak Hour Volumes)

Approach	Degree of Saturation	Average Delay (s)	95 th %-ile Queue (m)
Christies Road (S)	0.344	4.9	21.6
Western Freeway Off Ramp (E)	0.389	8.9	21.8
Christies Road (N)	0.094	2.5	4.7
Palm Springs Road (W)	0.016	9.8	0.9

Table 6-8 SIDRA Analysis – Christies Road / Western Freeway On Ramp Intersection (2035 Site Peak Hour Volumes)

Movement	Degree of Saturation	Average Delay (s)	95 th %-ile Queue (m)
Christies Road Left Turn to Freeway	0.263	5.7	0.0
Christies Road Right Turn to Freeway	0.125	7.4	6.9

The SIDRA results for the site peak hour indicates that each movement at the intersections will remain comfortably within acceptable limits.

The overall results show that, allowing for projected increases in activity from the landfill site and assumed growth in background volumes on the arterial network equivalent to 2% per annum, satisfactory operating conditions will continue to occur over the projected design period.

7 Issues Raised in Submissions

7.1 Impact of SEMTS Transfers on Regional and Metropolitan Transport Network

A number of submitters to the applications have raised issue in relation to the proposal to transfer waste from the SEMTS site to Ravenhall and the impact of the additional truck movements across Melbourne on the metropolitan and regional arterial transport network.

Calculations undertaken related to the extent of truck traffic which will be generated by SEMTS are detailed in Section 5.3 which are based on the following assumptions:

- 580,000 tonnes per annum increasing to a maximum of 650,000 tonnes
- Maximum of **37** tonnes capacity trucks per hour will be utilised, equivalent to an average weekday volume of 2028 tonnes per day initially, increasing 2273 tonnes per day.

This equates to around **5 – 6** articulated trucks per hour delivering to the site, which is in line with the stated processing capacity to receive transferred waste at the subject site.

A total of **120** articulated truck movements per day will be generated when maximum capacity is reached in 2029, continuing the adopted design year of 2029.

The following is evident from the analysis:

- a) The relative increase in truck movements on the immediate road network (Christies Road) is low (around 12% initially reducing to less than 10% over time)
- b) The efficiency gained in compacting material prior to transfer by 37 tonne articulated vehicles results in the number of truck movements being relatively very low, when compared with existing average loads of 7 tonnes per truck.
- c) The absolute increase in truck volumes on Christies Road of up to 12 movements per hour and 120 trucks per day can comfortably be accommodated by the existing road infrastructure.

Truck movements generated between Dandenong and the MRL site at Ravenhall are expected to be accommodated by the existing metropolitan freeway network, via Greens Road to Eastlink and then via the Monash Freeway, Westgate Freeway, Western Ring Road and Western Freeway to Christies Road and the subject site.

In metropolitan terms, the projected increase in volumes is very low in relative and absolute terms and will be accommodated by the existing and future road infrastructure, noting the committed construction of the Western Distributor Road relieving pressure on the West Gate Bridge.

In my view, the efficiencies evident in consolidating and compacting waste prior to transfer offsets any disadvantage in transferring material to the Ravenhall Site.

7.2 Impact on Hopkins Road

Direct access to the landfill site is not proposed from Hopkins Road, with access continuing to be from Christies Road only to Riding Boundary Road.

Given the truncated nature of the existing arterial network, all traffic to the site must approach from the north, either approaching from the east via the Western Freeway or from the west and north via Ballarat Road / Caroline Springs Boulevard.

Traffic between the SEMTS and MRL will not use Hopkins Road.

Landfill traffic from the south from Wyndham / Truganina / Tarneit is likely to continue to predominantly use Hopkins Road, continuing north past the site to the Western Freeway interchange and then via Ballarat Road to Christies Road.

In the context of the arterial function of Hopkins Road, traffic increases which may be generated to Hopkins Road are low, being a proportion of the 1% overall annual increases in existing landfill activity per annum.

Any increase is consistent with the function of the road and its ultimate divided arterial road cross-section. The upgrading of Hopkins Road is the responsibility of VicRoads and it can be expected to be programmed as traffic in the corridor increases and regional traffic movements, including freight and truck movements justify the upgrade. Clearly this will be subject to funding.

The West Growth Corridor Plan proposes expansion of the arterial network in the region including a southerly extension of Christie Road to Forsyth Road and development of Middle Road as a future east west arterial, ultimately providing an additional freight link between the OMR and the Metropolitan Ring Road.

The timing of the construction of the complete Middle Road arterial / freeway link is uncertain and appears unlikely prior to the development of the OMR.

In the medium term, the construction of Middle Road between Christies Road and Hopkins Road may be considered as a local arterial, providing for alternate access to the Christies Road interchange (and the landfill site) from the south.

It is considered that this connection would not result in greater volumes of truck traffic using Hopkins Road and, in fact would reduce traffic at the northern end by providing a more direct connection to the Landfill site, reducing travel distance and time from the Wyndham growth area.

7.3 Traffic Modelling of Cumulative Development Effects

The Victorian integrated Transport Model (VITM) strategic model was developed by the former Department of Transport and refined by Aecom in 2012 for the MPA to provide the West Growth Corridor Model. This model, incorporated land use strategies contemplated in the West Growth Corridor Plan and provided estimates of 2046 traffic volumes (effectively assuming full development of the region) and informed the development of the transport network provided in the Plan.

The model was updated by Jacobs in 2014 in the Rockbank PSP Transport Study and then further updated again for Plumpton and Kororoit PSPs.

The model was also refined by Aecom in association with the Palmers Road Corridor Study undertaken for Vic Roads as discussed in Section 6.2.

Most recently, Jacobs have further refined the model for the Mt Atkinson and Tarneit Plans PSPs, covering urban development of land to the west of Hopkins Road, which is currently under consideration.

The model as developed and refined takes in to account projected overall growth in Melbourne Metropolitan area to 2046 providing estimates of travel patterns, including predicted daily volumes on the arterial network in the area serving the subject site.

The model assumes ongoing use of the quarry site but may not include consideration of the landfill use.

The model however provides a sound basis for assessing overall transport and road network retirements to meet expected travel and freight requirements and provides a reasonable basis for assessing the metropolitan effects of the landfill proposal, particularly the transfer of waste from the south east. In my view, additional modelling is unnecessary, and in the end would not meaningfully assist in assessing the subject proposal.

It is noted that, when compared with projected overall movements of the arterial network by 2046, including volumes in excess of 140,000 vehicle per day on the Western Freeway, projected truck volumes generated between SEMTS and Ravenhall of 120 truck movements per day are inconsequential.

7.4 The Need for Road Network Contributions

Based on the assessment undertaken by GTA and my review of future traffic projections and impacts, it is considered that the ongoing operation of the landfill site, including introduction of transfers from SEMTS, will not precipitate a requirement for mitigating works.

The issue of all traffic being directed to the site via Christies Road north, and the isolation of the site in transport terms from other traffic generators (other than Boral) suggests that growth on Christies Road will be readily accommodated without a requirement for road or intersection upgrade works.

8 Conclusions

Based on the proceeding analysis it is concluded as follows:

1. The proposal to extend operation of the Melbourne Regional Landfill site in Christies Road will result in a continuation of existing truck activity generated to the site from current operations, with increases beyond 2017 expected to be limited to growth in the tonnage in landfill equivalent to 1% growth per annum.
2. This will result in daily truck movements generated by the landfill increasing from 780 movements per day in 2014 to 830 movements per day in 2017 and to 1000 movements per day by 2035.
3. The proposal to transfer waste from the South East Metropolitan Transfer Station in Dandenong to the Ravenhall site will generate an estimated 110 truck movements per day when operations begin in 2017, increasing to a peak of 120 movements per day by 2029 and beyond. This is based on advice that volumes transferred from the Dandenong site will be no higher than estimates previously provided based on the operation of SEMTS from Clayton and conservatively assuming transfer by 37 tonne B-double vehicles.
4. Access to the site will continue to be provided via Christies Road from the north in the foreseeable future, utilising the existing constructed two lane road.
5. Sufficient capacity is available both within Christies Road and at the Western Freeway interchange to accommodate anticipated total traffic, including traffic attracted to Caroline Springs Railway station and commuter car park and the proposed Community Transfer Station to the south.
6. Truck movements generated between Dandenong and the MRL at Ravenhall are expected to be accommodated via Greens Road, Eastlink and then via the Monash Freeway, Westgate Freeway, Western Ring Road and Western Freeway to Christies Road and the subject site.
7. The projected increase in volumes on the freeway network is very low in relative and absolute terms in the context of overall traffic using these routes and will be accommodated by the existing and future road infrastructure, noting the committed construction of the Western Distributor Road relieving pressure on the West Gate Bridge.
8. Direct access to the landfill site is not proposed from Hopkins Road, with access continuing to be from Riding Boundary Road via Christies Road only.
9. In the context of the arterial function of Hopkins Road, traffic increases which may be generated to Hopkins Road are low, being a proportion of the 1% overall annual increases in existing landfill activity per annum.
10. Strategic transport modelling for the West Growth Area provides a sound basis for assessing overall travel and freight requirements and provides a reasonable basis for assessing the metropolitan effects of the landfill proposal, particularly the transfer of waste from the south east. In my view, additional modelling is unnecessary, and would not meaningfully assist in assessing the subject proposal.