Precinct Structure Plan - Transport Assessment

Lincoln Heath South

CG140760

Prepared for
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Cardno
Shaping the Future

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1 Background

1.1 Preamble

The Lincoln Heath South Precinct Structure Plan (PSP) area is bound by the Lincoln Heath Estate to the north, Alamanda Point Cook estate to the west, Point Cook Road to the east and the future Point Cook South PSP to the south, and covers an area of approximately 43ha.

The PSP has been prepared by the Metropolitan Planning Authority (MPA) in consultation with Wyndham City Council, VicRoads and other key stakeholders.

1.2 Purpose of this Report

1.2.1 Overview

Cardno was engaged to undertake traffic modelling for the PSP and translate the outputs into road cross sections and concept intersection designs for input to the PSP process.

1.2.2 Interim verses Ultimate Assessments

Both interim and ultimate case assessments are presented within this report. The interim assessment represents a +5 year (2019) scenario and assumes full build out of the PSP area. The ultimate 2046 assessment represents a further full build out of the wider growth area.

The interim assessment is used to inform the infrastructure contributions for the PSP area, and represents the infrastructure required to support full build out of the PSP area. The ultimate assessment findings are used to ensure appropriate land-take provisions are included in the Development Contributions Plan (DCP) for future transport network upgrades.

1.3 Referenced Documents

In preparing this report, reference has been made to a number of background documents including:

> The Wyndham Planning Scheme

> Review of 2013 Traffic Volumes in Wyndham (Dec 2013);

> AECOM 'East Werribee – Traffic Modelling and SIDRA Analysis' (March 2013);

> Lincoln Heath South Traffic Engineering Assessment (prepared by Cardno - Aug 2012);

> Saltwater Promenade Traffic Engineering Assessment (prepared by GTA Consultants - Sep 2008);

> Lincoln Heath Structure Plan (prepared by the MPA, dated April 2015);

> Victorian Integrated Transport Model (VITM) output plots prepared by AECOM for the Western Growth Corridor on behalf of the MPA; and

> Other documents as nominated.

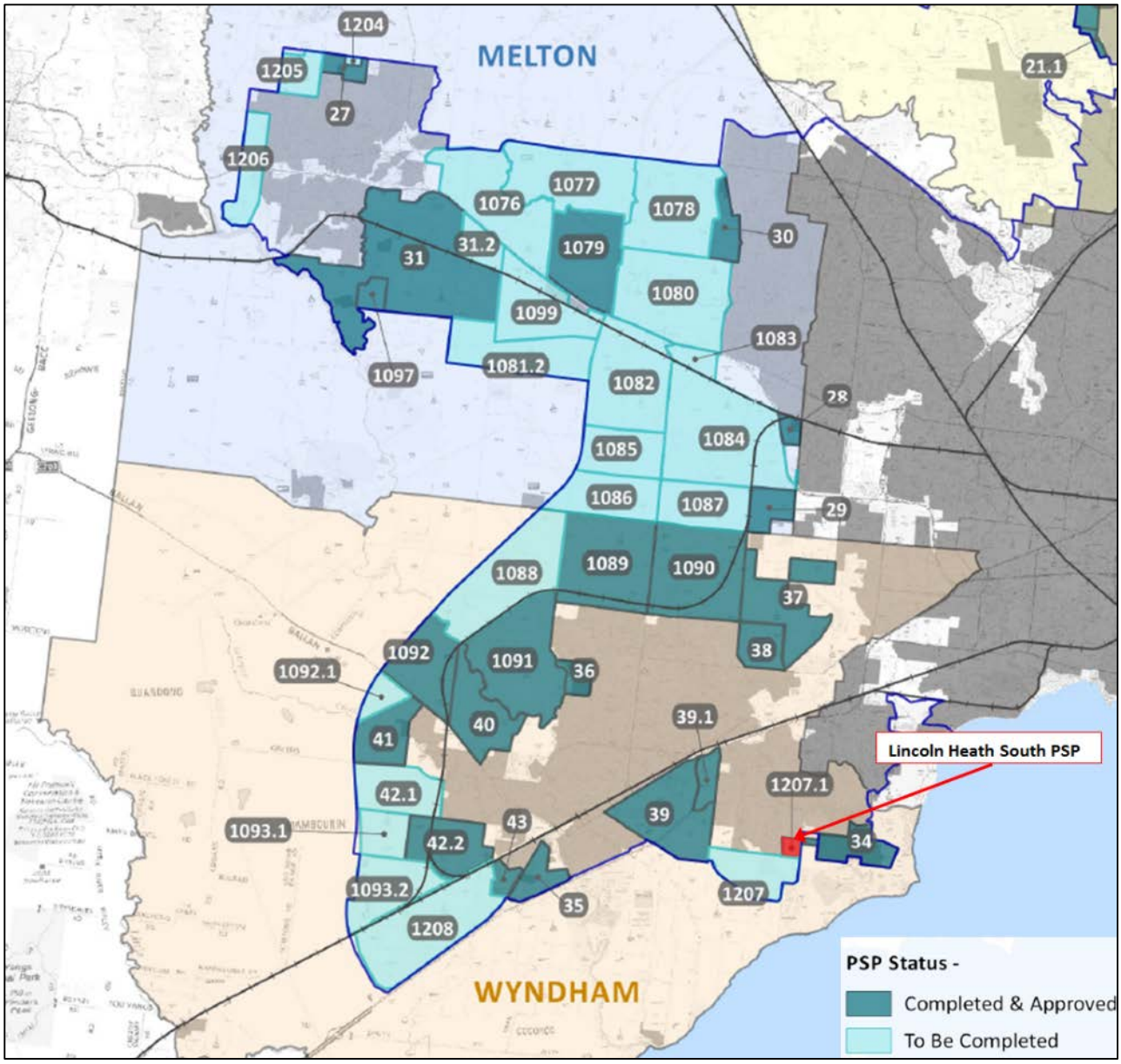
1.4 Consultation

This report has been prepared in consultation with the MPA, Council and VicRoads, and incorporates the outcomes of various meetings with major stakeholders.

1.5 The Western Growth Corridor

The location of the Lincoln Heath South Precinct (PSP1207.1) in relation to the wider Western Growth Corridor is shown in Figure 1-1.

Figure 1-1 Western Growth Corridor and the Lincoln Heath South

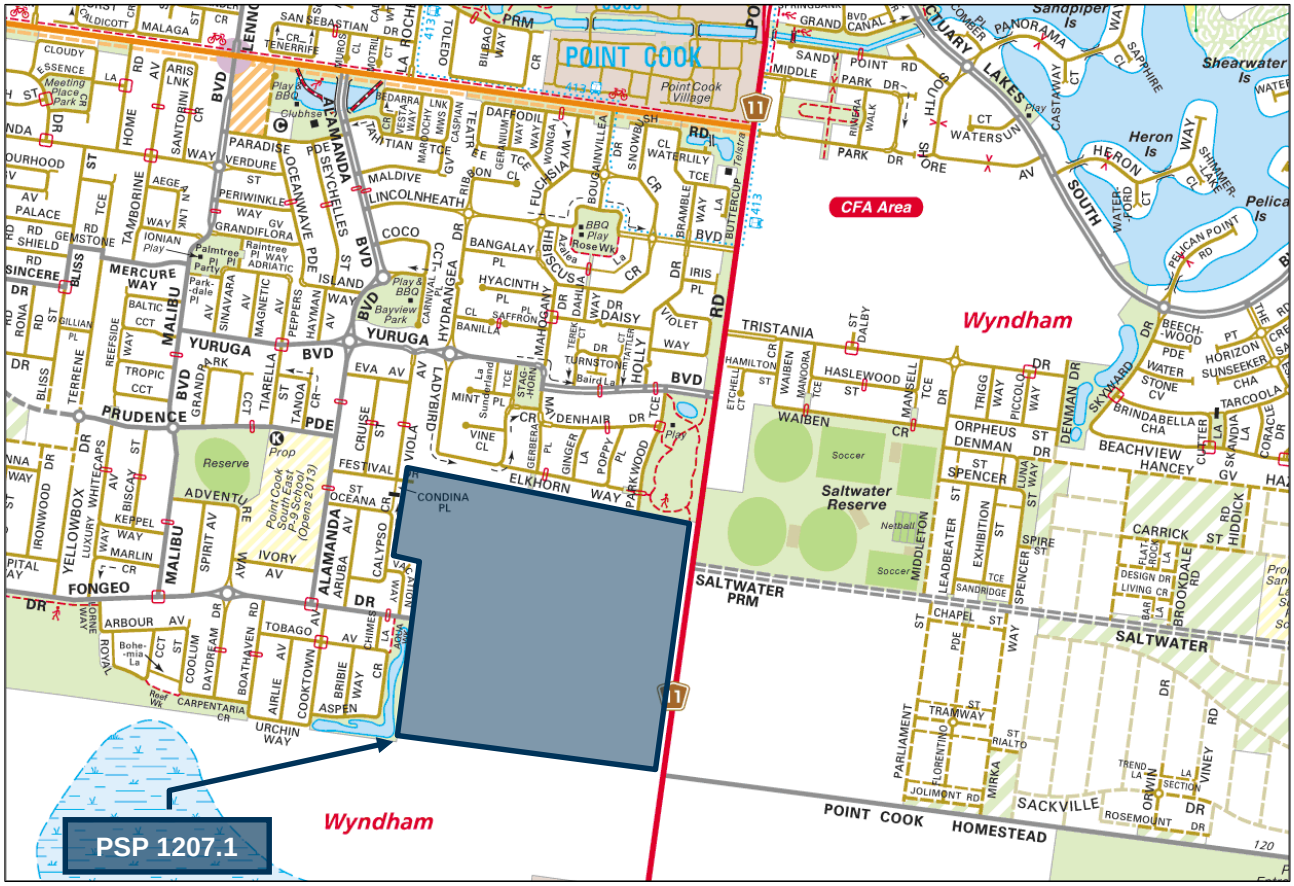


2 Study Area

2.1 Location and Land Use

The Lincoln Heath South PSP area consists primarily of rural land. The location of the PSP area and its connections with the surrounding road network are shown in Figure 2-1.

Figure 2-1 PSP Site Location



The PSP area is located on the western side of Point Cook Road approximately 950 metres south of the intersection with Sneydes Road. The site is approximately rectangular in shape with an area of 43.3 hectares and a frontage of approximately 640 metres to Point Cook Road.

Land to the north of the site is a residential estate known as the Lincoln Heath Estate. Land to the west of the site has also been developed for residential purposes and is known as the Alamanda Estate. To the east of the site, development is currently underway within the Saltwater Coast residential estate. Land use to the south of the site is generally rural in nature with the exception of the Point Cook Coastal Park and RAAF Williams Point Cook Base.

The existing land uses within the study area and surrounds are summarised as follows and shown are shown graphically in Figure 2-2.

Figure 2-2 Surrounding Land Uses

As outlined in Figure 2-2, the surrounding land uses include:

> ***Educational Uses*** – There are existing schools located to the west of the site within the Alamanda Estate (Point Cook South and Point Cook South East P-9 Schools), the Sanctuary Lakes South P-9 School is proposed to the east within Saltwater Coast Estate, and several other primary and secondary schools are currently located to the north of the Precinct.

> ***Commercial and Retail Uses*** – There are a number of existing and proposed commercial and retail areas surrounding the PSP area. Furthermore, the key Sanctuary Lakes Shopping Centre and the Point Cook Town Centre are situated to the north of the PSP area on Point Cook Road and Dunnings Road respectively.

> ***Recreation Facilities*** – There are a number of small reserves positioned throughout the wider Point Cook area. The newly constructed Saltwater Reserve directly to the east of the Precinct is the closest recreational facility in the area, with the Sanctuary Lakes Golf Club further north of the site.

2.2 Future Development in the Vicinity of the PSP Area

Review of aerial photography (as shown in Figure 2-2) for the Point Cook area indicates that the majority of developable land, that is, land within general residential zones (GRZ1), has been fully built out, with the exception of the Saltwater Coast and Lincoln Heath South estates.

Vacant land to the south of Point Cook Homestead Road is currently zoned Farming (FZ), Public Conservation and Resource (PCRZ), Public Park and Recreation (PPRZ) Zones or is Commonwealth Land (CA). No development is therefore anticipated for this area within the foreseeable future (the next five year).

However, as shown in Figure 1-1, the Point Cook South Precinct (PSP 1207), is earmarked for development in the future and will connect into the Lincoln Heath South Precinct and to Point Cook Road. PSP 1207 is ultimately estimated to accommodate an upper limit of some 3,500 dwellings.

Development within the Saltwater Coast Estate is currently well underway, with approximately 835 residential dwellings constructed as of June 2014[1]. Once completed, the Saltwater Coast Estate is expected to comprise of 2,960 dwellings. Over the last 3 years, the rate of construction within Saltwater Coast Estate equates to approximately 180 dwellings per year[2].

1 As estimated from aerial photography.

2 Based on a review of historic aerial photography for the area.

3 PSP Overview

3.1 Future Urban Structure and Land Uses

The proposed land uses and road network of the PSP are shown in Figure 3-1 below.

Figure 3-1 Future Urban Structure

As shown in Figure 3-1, the PSP includes a mix of low and medium density residential sites amongst local parks and conservational areas. The proposed extension of Fongeo Drive will form an east-west connector street link through the precinct from which the local street network will be formed. A north-south connector street is also proposed within the PSP area to connect to the future Point Cook South PSP area. The proposed connector street system will be designed to accommodate future bus routes to service the wider area as it develops.

Transport modelling for the PSP area (as outlined in subsequent sections of this report) is reliant on land use inputs estimated for the precinct. To this end, it is anticipated that the PSP area will cater for an upper limit of some 580 dwellings.

4 Existing and Future Arterial Road Network

4.1 Overview

The PSP area is bordered by Point Cook Road to the east, providing a connection to the arterial road network north of the site, with several connections to the Princes Freeway. The existing and anticipated future characteristics of the key roads in the area are discussed below.

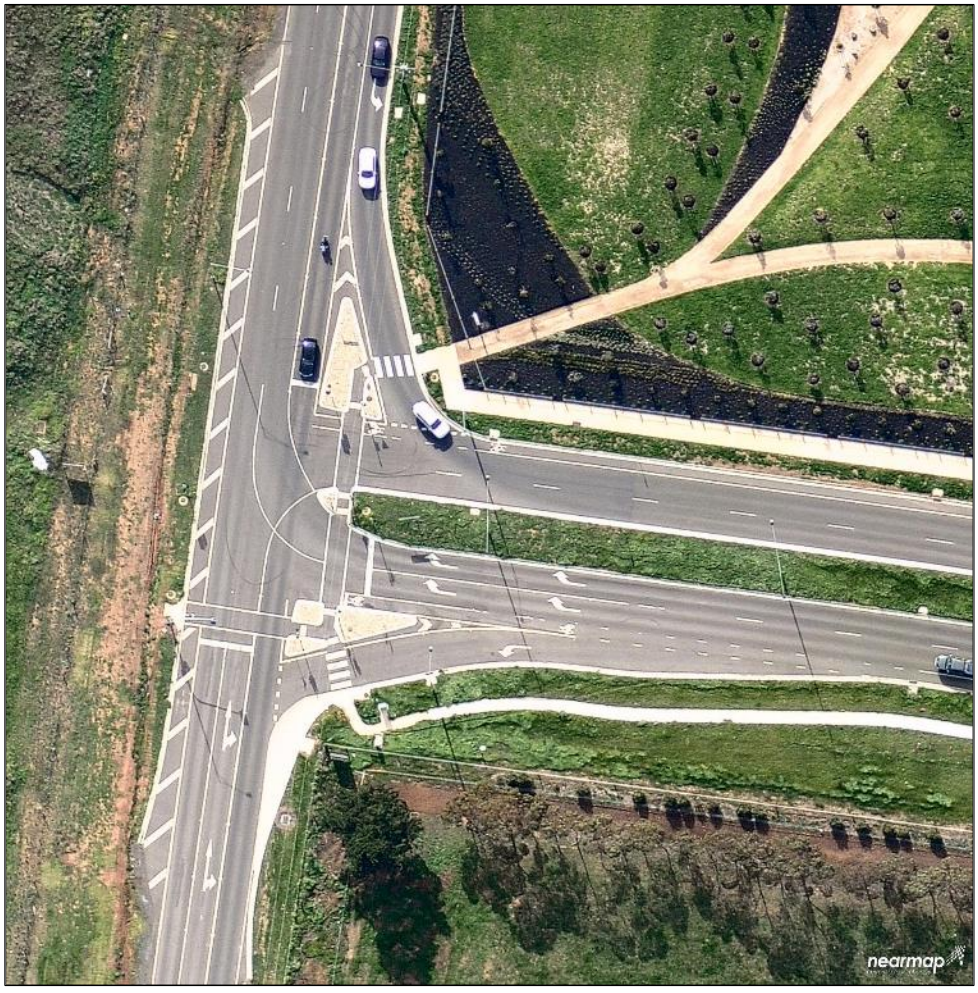
4.2 Existing Road Network

Point Cook Road is a declared arterial road that runs south from Railway Avenue in Laverton to the RAAF Williams Point Cook Base in the south and provides the principal access to the Point Cook region from Princes Freeway. South of Jamieson Way, Point Cook Road currently provides a single carriageway with one lane in each direction, locally widened at its intersection with Saltwater Promenade. Auxiliary lanes are generally provided for right turns into intersecting streets. A speed limit of 80 km/h applies on Point Cook Road.

Saltwater Promenade is a newly constructed connector street extending east from Point Cook Road, providing access to the Saltwater Coast Estate and operating with a dual carriageway with two trafficable lanes in each direction, plus bicycle lanes and shared paths within its road reserve. Auxiliary lanes are provided for turning manoeuvres from Saltwater Promenade which operates with a posted speed limit of 60 km/h.

The signalised intersection of Point Cook Road and Saltwater Promenade is shown in its existing configuration in Figure 4-1.

Figure 4-1 Existing Point Cook Road and Saltwater Promenade Intersection Layout



Fongeo Drive/Featherbrook Drive is a currently a local road that extends from the western boundary of the Lincoln Heath South PSP area to Hacketts Road in the west. In the vicinity of the site, Fongeo Drive has a has a single two-way sealed carriageway with footpath provisions on both sides of the carriageway.

Point Cook Homestead Road is a local street generally aligned east to west from the Point Cook Coastal Park and Port Phillip to Point Cook Road. In the vicinity, Point Cook Homestead Road has a single two-way sealed carriageway with concrete edge strips but no kerbs.

Sneydes Road is currently classified as a Major Local Road, which runs in an east-west direction connecting Point Cook Road in the east to Princes Highway in the west. Grade separation is provided over Princes Freeway. Sneydes Road comprises a dual carriageway with two trafficable lanes in each direction, plus bicycle lanes and a shared path within its road reserve. Sneydes Road narrows to one lane in each direction at its intersection with Point Cook Road.

Boardwalk Boulevard is the southern extension of Forsyth Road and a full diamond interchange is provided between Princes Freeway and Forsyth Road. It now extends southwards from Princes Freeway to and beyond Sneydes Road.

Palmers Road is a declared road generally aligned in a north-south direction from the Princes Freeway to Dunnings Road. Princes Freeway access ramps oriented to and from the east are also now available.

4.3 Existing Traffic Volumes

In order to understand the existing traffic patterns in the vicinity of the PSP area, traffic surveys were undertaken by Trans Traffic Surveys on behalf of Cardno at the following intersections:

> Point Cook Road and Saltwater Promenade;

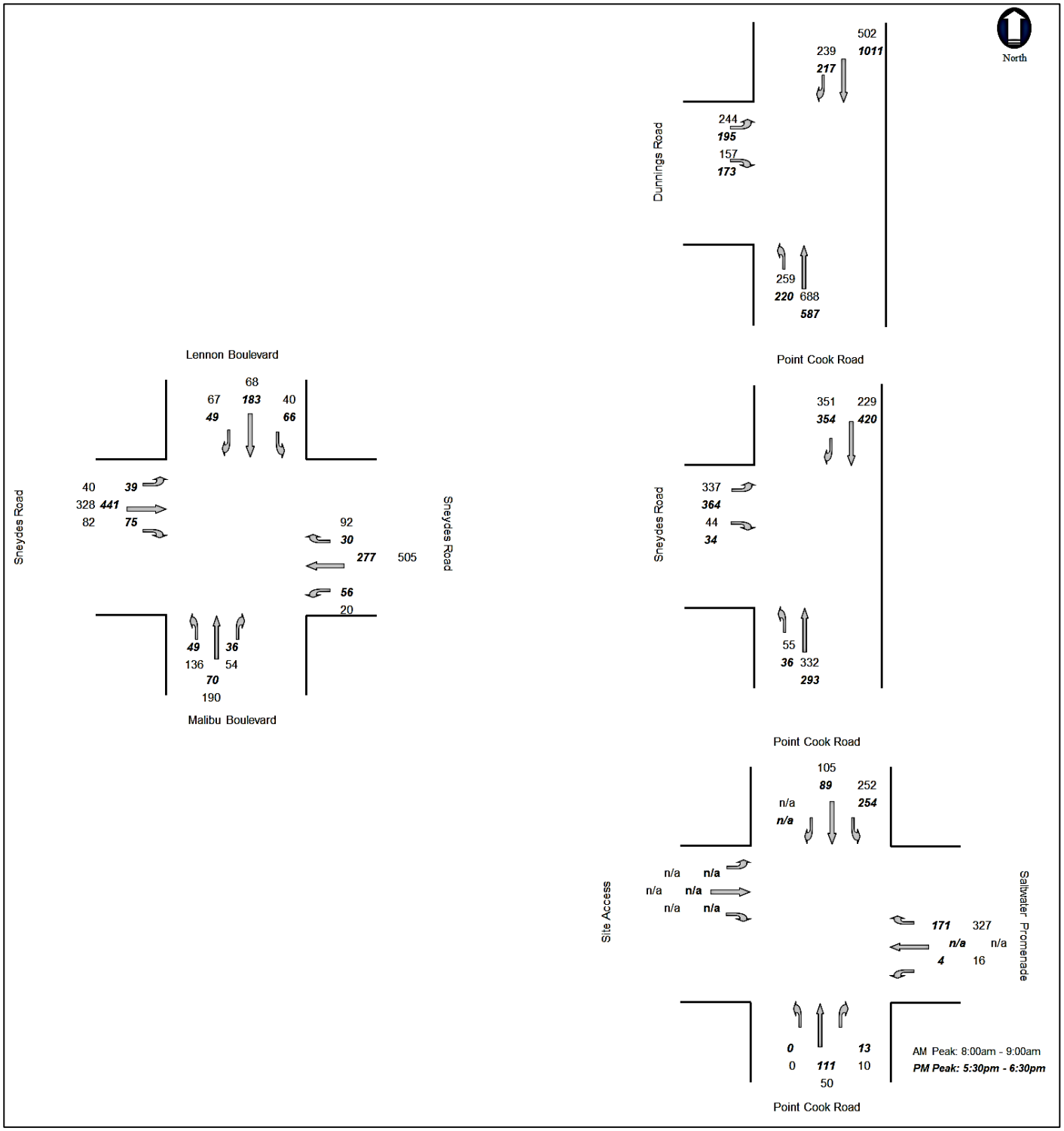
> Point Cook Road and Sneydes Road;

> Lennon Boulevard, Sneydes Road and Malibu Boulevard; and

> Dunnings Road and Point Cook Road.

The surveys were undertaken on Thursday 18th September 2014; between 7:30am and 9:30am, and between 4:30pm and 6:30pm. The peak hour results of the surveys are shown in Figure 4-2.

Figure 4-2 Existing Peak Hour Traffic Volumes (September 2014)



4.4 Future Road Network Upgrades

4.4.1 Local Road Network

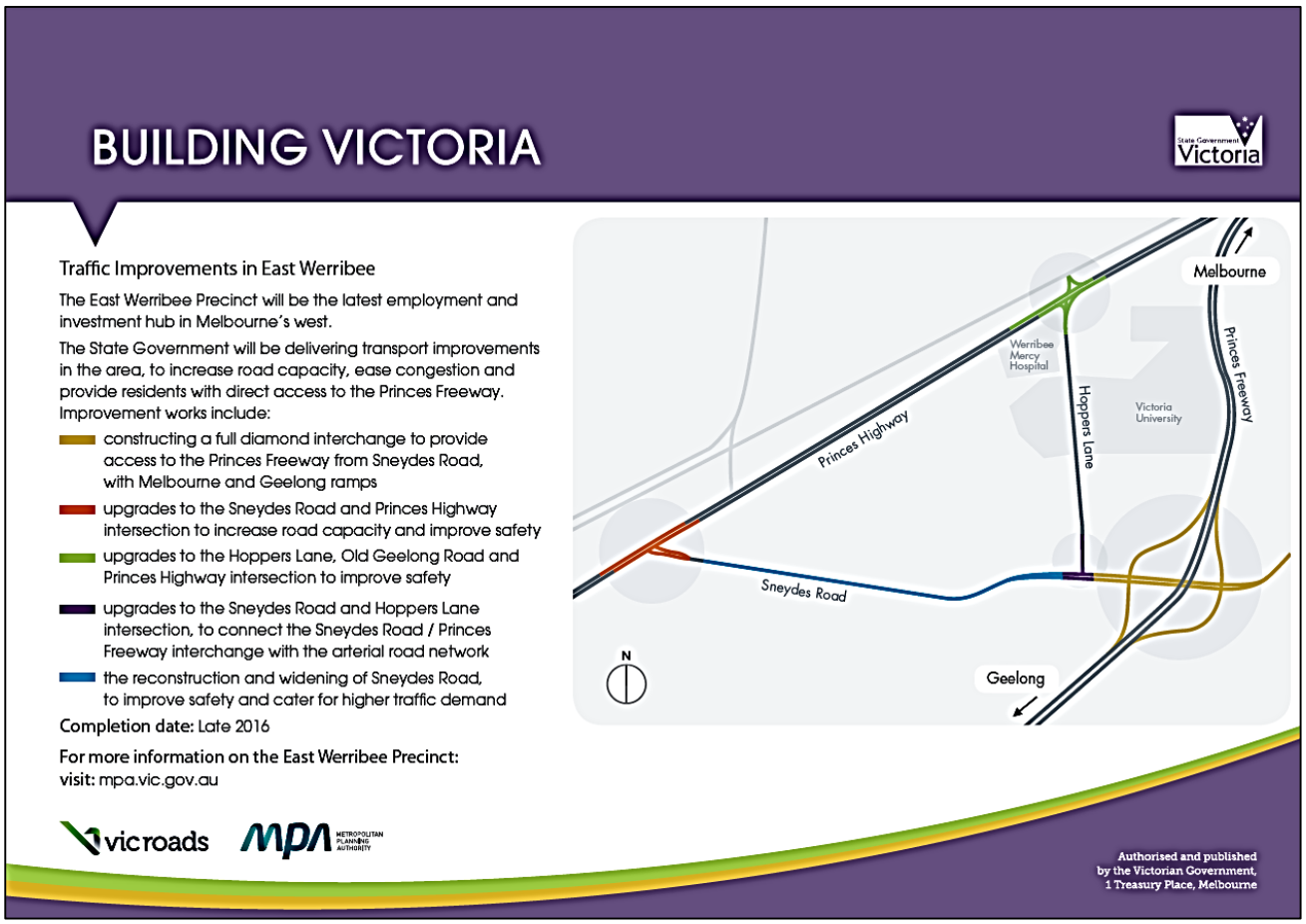
As part of the Lincoln Heath South development, it is proposed to provide a connector street link, by extending Fongeo Drive through the Estate to connect with Point Cook Road, forming a fourth (western) leg to the signalised intersection of Point Cook Road and Saltwater Promenade. The extended Fongeo Drive will link the existing road in the Alamanda Estate directly to Point Cook Road, and will be delivered in full as part of the earliest stages of development.

4.4.2 Wider Arterial Road Network

4.4.2.1 East Werribee Transport Improvement Project

VicRoads is delivering a series of arterial road network improvements in the area as part of the East Werribee Transport Improvement project, the completion date for the project is expected to be late 2016. The works included in the project are outlined in Figure 4-3.

Figure 4-3 East Werribee Transport Improvement Project



A brief summary of the works included in the East Werribee Transport Improvement project is provided as follows:

Sneydes Road and Princes Freeway Interchange: Construction of the Sneydes Road and Princes Freeway interchange began in late 2014. The interchange is a full diamond interchange that will provide access to and from the Princes Freeway to and from Sneydes Road. The new interchange will improve accessibility towards both Geelong and Melbourne.

Sneydes Road and Princes Highway Intersection Upgrade: The current Princes Highway intersection with Sneydes Road will be upgraded to a signalised intersection to increase capacity, improve safety and enhance connectivity to and from the new Sneydes Road and Princes Freeway interchange. The upgrades at the intersection are currently underway.

Princes Highway, Hoppers Lane and Old Geelong Road Intersection Upgrade: The current intersection of Princes Highway, Old Geelong Rd and Hoppers Lane will also be upgraded to increase capacity, improve safety and enhance connectivity between the new Sneydes Road and Princes Freeway interchange and the Werribee activity area.

Sneydes Road and Hoppers Lane Intersection Upgrade: The Sneydes Road and Hoppers Lane intersection upgrade works involve realigning and signalising the current intersection to increase capacity, improve safety and enhance connectivity to the new Sneydes Road and Princes Freeway interchange.

Sneydes Road Widening: Sneydes Road will be reconstructed and widened to improve safety and cater to higher traffic demands between Princess Highway and the new Sneydes Road and Princes Freeway interchange.

4.4.2.2 Palmers Road and Dunnings Road Upgrades

The 2015-2016 State Government budget includes funding ($3.75 million) for the widening of Palmers Road northbound between Dunnings Road and Skeleton Creek. The widening will provide a new bus and multi-occupant vehicle lane along with the provision of indented bus stops. The traffic signals at the Palmer Road and Dunnings Road intersection will also be adjusted to facilitate more efficient bus movements. Council has also put $3 million towards the project and construction due to start in mid-2016.

4.4.2.3 Point Cook Logical Inclusions Area

The Point Cook Logical Inclusions Area is located to the south of the existing Point Cook residential area and to the north of Aviation Road; and includes the Point Cook South PSP (PSP 1701) area which abuts the Lincoln Heath South PSP area to the south.

The development to the south of the Lincoln Heath PSP area within the Point Cook Logical Inclusions Area will likely generate the need for new road connections, potentially including additional east-west connections between Point Cook Road and Hacketts Road and upgrades to Aviation Road.

4.5 Sustainable Transport Improvements

In additional to the future road-based network improvements, sustainable transport network improvements are also envisaged to allow for a greater mix of transport mode accessibility.

The opening of Williams Landing Station unlocked the potential for future bus routes and services between Point Cook and the Station to be provided, therefore reducing reliance on travel to the Station by private vehicle.

Two bus routes currently provide services to the Williams Landing Station in close proximity to the Lincoln Heath South PSP area. Route 494 provides a service from the corner of Fonego Drive and Alamana Boulevard (approximately 250m from the PSP boundary), and Route 497 directly abuts the precinct along Point Cook Road. Both services run at a 20min frequency during peak times.

It is further highlighted that the connector streets within the Lincoln Heath PSP area will be “bus capable” and therefore allowing for any potential expansion of bus services and routes in the area.

5 Development Generated Traffic Volumes

5.1 Anticipated Traffic Generation for the Lincoln Heath South and Saltwater Coast Estates

The geographic location of Point Cook, essentially bordered by the Princes Freeway, Werribee River, Skeleton Waterholes Creek and Port Phillip Bay, implies that traffic within the Precinct is predominantly locally generated. Point Cook is not impacted by through traffic from surrounding suburbs.

With due consideration to the extent of development completed within the Point Cook area and the limited ability to develop remaining vacant land (south of Point Cook Homestead Road), growth in traffic volumes is expected to be limited to that generated by the development of the Lincoln Heath South and Saltwater Coast Estates.

A review of the turning movement volumes recorded at the intersection of Point Cook Road and Saltwater Promenade indicates that for the 835 existing dwellings within Saltwater Coast Estate, the Estate is generating approximately 0.7 external vehicle movements per dwelling in the peak hours. This matches case study data held by Cardno for other residential subdivisions in comparable locations.

Accordingly, this rate has been applied to the anticipated increase in dwelling numbers within the Saltwater Coast and Lincoln Heath South Estates over the next five years by which it is assumed that Lincoln Heath South will be fully built out. Over this period it is assumed that the Saltwater Coast Estate will continue its current construction rate of 180 additional dwellings per year. In total this equates to an additional 1,480 dwellings over both Estates, which are anticipated to generate an additional 1,036 vehicle movements per hour during peak periods.

It is generally accepted that for residential developments approximately 80% of trips are outbound and 20% inbound in the AM peak. Conversely in the PM peak 60% are inbound and 40% are outbound. These distribution patterns have been adopted for the purposes of this analysis.

It is noted that the existing survey data for the Point Cook Road/Saltwater Promenade intersection indicates a traffic distribution split of 56% outbound and 44% inbound in the AM peak, and 60% inbound and 40% outbound in the PM peak; the anomaly in the AM peak hour distribution is attributed to the high number of construction vehicle movements entering the site during the morning peak.

Table 5-1 provides a summary of the projected traffic generation in each peak hour.

Table 5-1: Development Traffic Generation

Peak Hour	Lincoln Heath Estate Trips		Saltwater Coast Estate Trips		Total Trips
	Inbound	Outbound	Inbound	Outbound	
AM Peak	82	324	504	126	1,036
PM Peak	244	162	378	252	1,036

5.2 Distribution of Additional Traffic

The Victorian Integrated Survey of Travel and Activity (VISTA) is a survey of personal travel by residents of Melbourne, Geelong and the regional centres of Ballarat, Bendigo, Shepparton and Latrobe, undertaken by the former Department of Transport.

To assist in the distribution analysis of residential traffic, VISTA survey results were sourced for the Outer Metropolitan areas, to determine the distribution of vehicle trips by trip purpose. The results of the VISTA survey are shown in Table 5-2.

Table 5-2: VISTA Trip Purpose Distribution – Outer Metropolitan Areas

Trip Purpose	AM Peak	PM Peak	Daily
Shopping	6%	18%	20%
Education	28%	11%	9%
Work	52%	45%	40%
Recreation	2%	5%	6%
Other	12%	21%	25%
Total	**100%**	**100%**	**100%**

In consideration of the above distribution matrix, together with the existing road network, the location of the Werribee Township, local shopping precincts (i.e. Point Cook Town Centre & Sanctuary Lakes), schools (local primary & secondary schools) and the Princes Freeway, Table 5-3 outlines the distributions adopted for the traffic generated by the Lincoln Heath South and Saltwater Coast Estates in the interim assessment year:

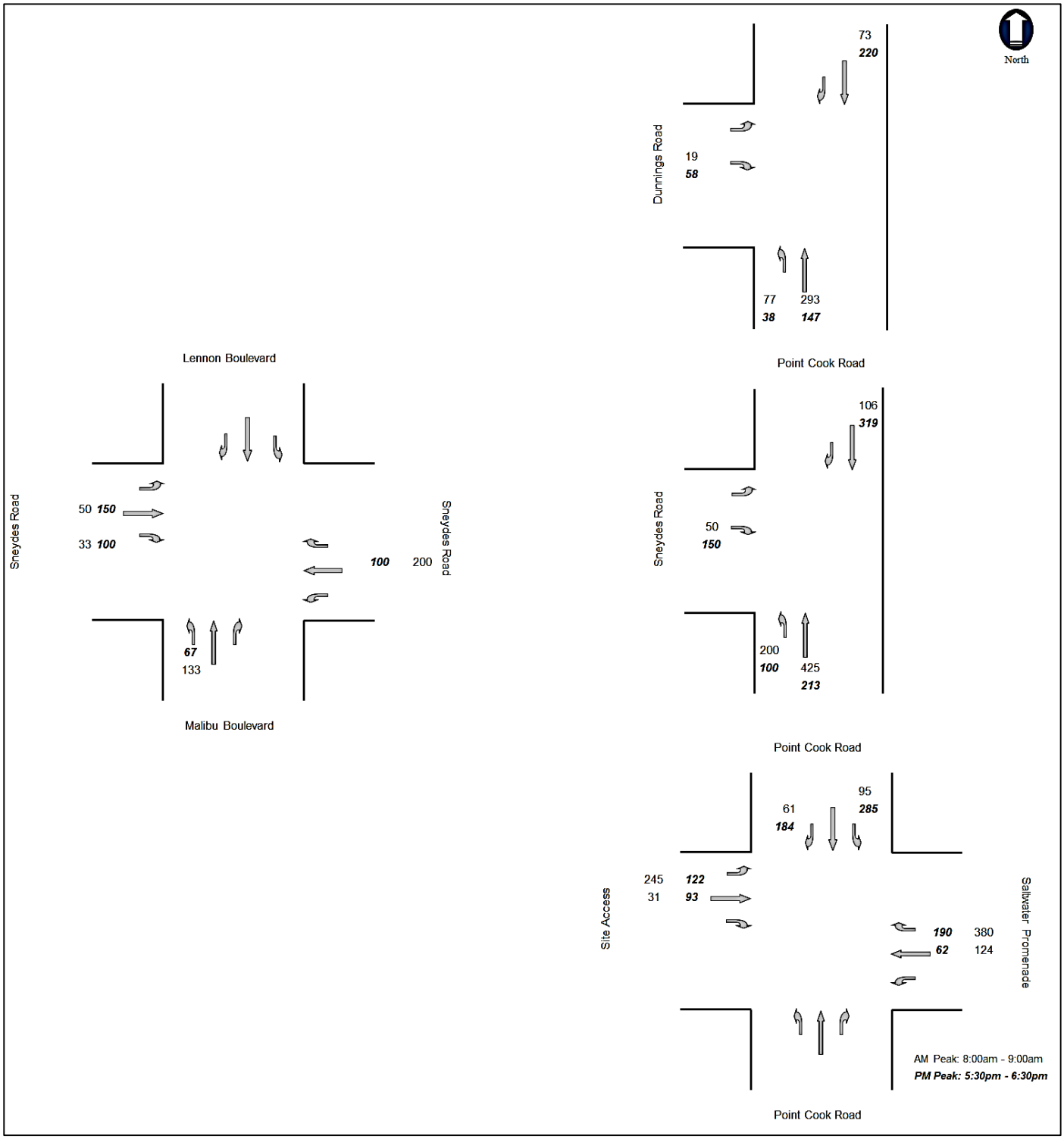
Table 5-3 AM and PM Peak Hour Distributions

Distribution Route	Trip Purpose				
	Shopping	Education	Work	Recreation	Other
North and West via Local Road connections	2%	30%	0%	0%	0%
Northwest to Point Cook Town Centre via Point Cook Road/Dunnings Road	13%	20%	5%	15%	0%
North via Point Cook Road to Sanctuary Lakes Town Centre facilities	40%	5%	5%	10%	0%
North via Point Cook Rd and through the Dunnings Road intersection	5%	5%	50%	25%	60%
North and West via Point Cook Road and Sneydes Road	35%	30%	20%	40%	20%
North and West via Malibu Boulevard and Sneydes Road	5%	10%	20%	10%	20%

A further breakdown of the trips generated by the two Estates, based on the above distributions, is provided in Appendix A.

The resulting traffic generated by the Lincoln Heath South and Saltwater Coast Estates is shown Figure 5-1.

Figure 5-1 Trips Generated by the Lincoln Heath South and Saltwater Promenade Estates



6 Interim Intersection Operation Assessment

6.1 Overview

As outlined in Section 1.2, both interim and ultimate case intersection assessments are presented within this report. The interim assessment represents a +5 year (2019) scenario and assumes full build out of the PSP area; whilst the ultimate 2046 assessment represents a full build out of the wider growth area.

The interim assessment is used to inform the DCP for the PSP area, and assess the infrastructure required to support full build out of the PSP area.

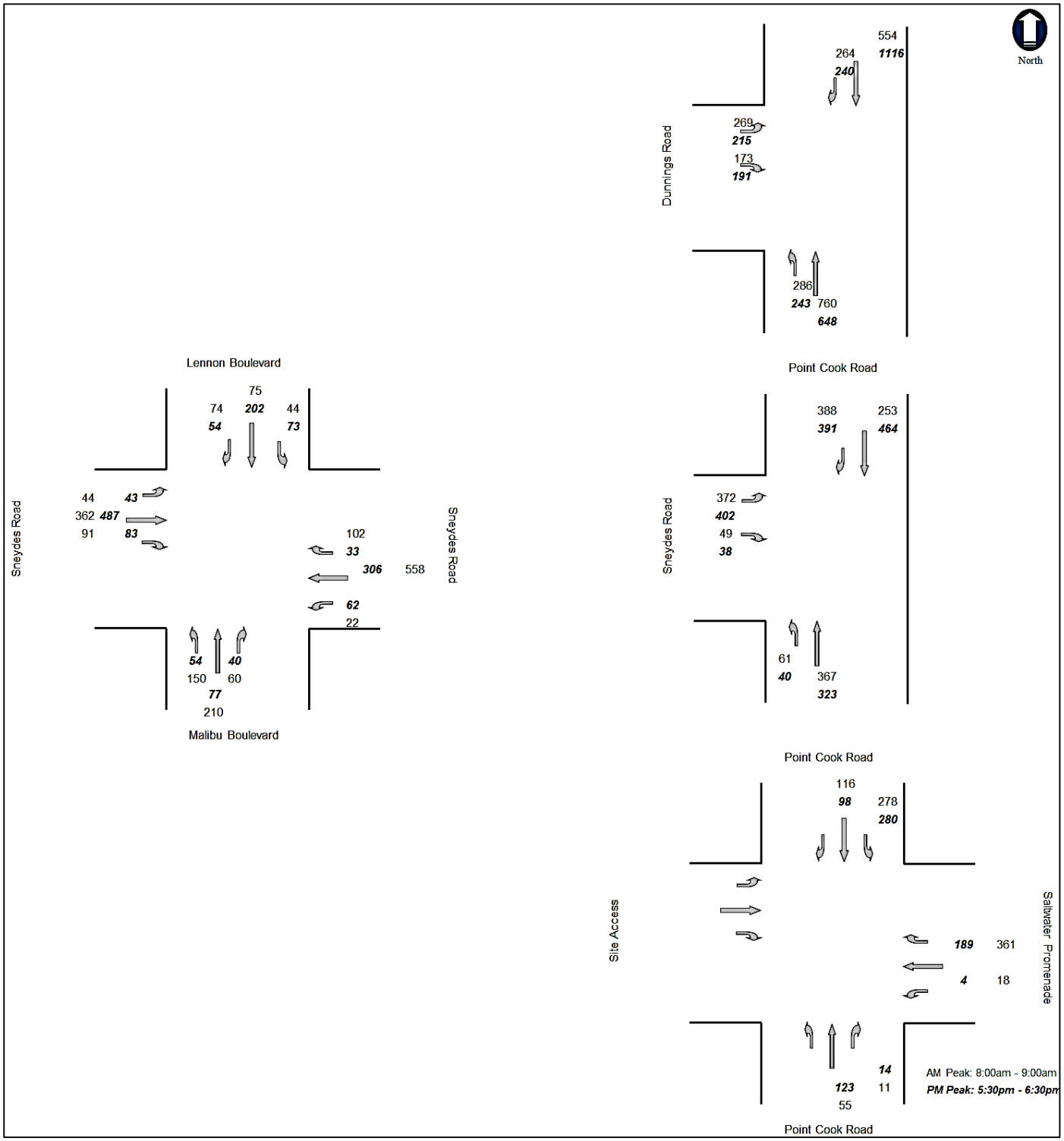
6.2 2019 Background Traffic Volume Growth

With due consideration to the extent of development completed within the Point Cook area and the limited ability to develop remaining vacant land (south of Point Cook Homestead Road), growth in traffic volumes is expected to be limited to that generated by the development of the Lincoln Heath South and Saltwater Coast Estates.

Nonetheless, for the purpose of assessing the impact of full build out of the Lincoln Heath South PSP area, an additional growth rate of 2% per annum has been applied to the existing traffic volumes over the next five years to account for any other background traffic volume growth in the area.

The resultant 2019 background traffic volumes are shown in Figure 6-1.

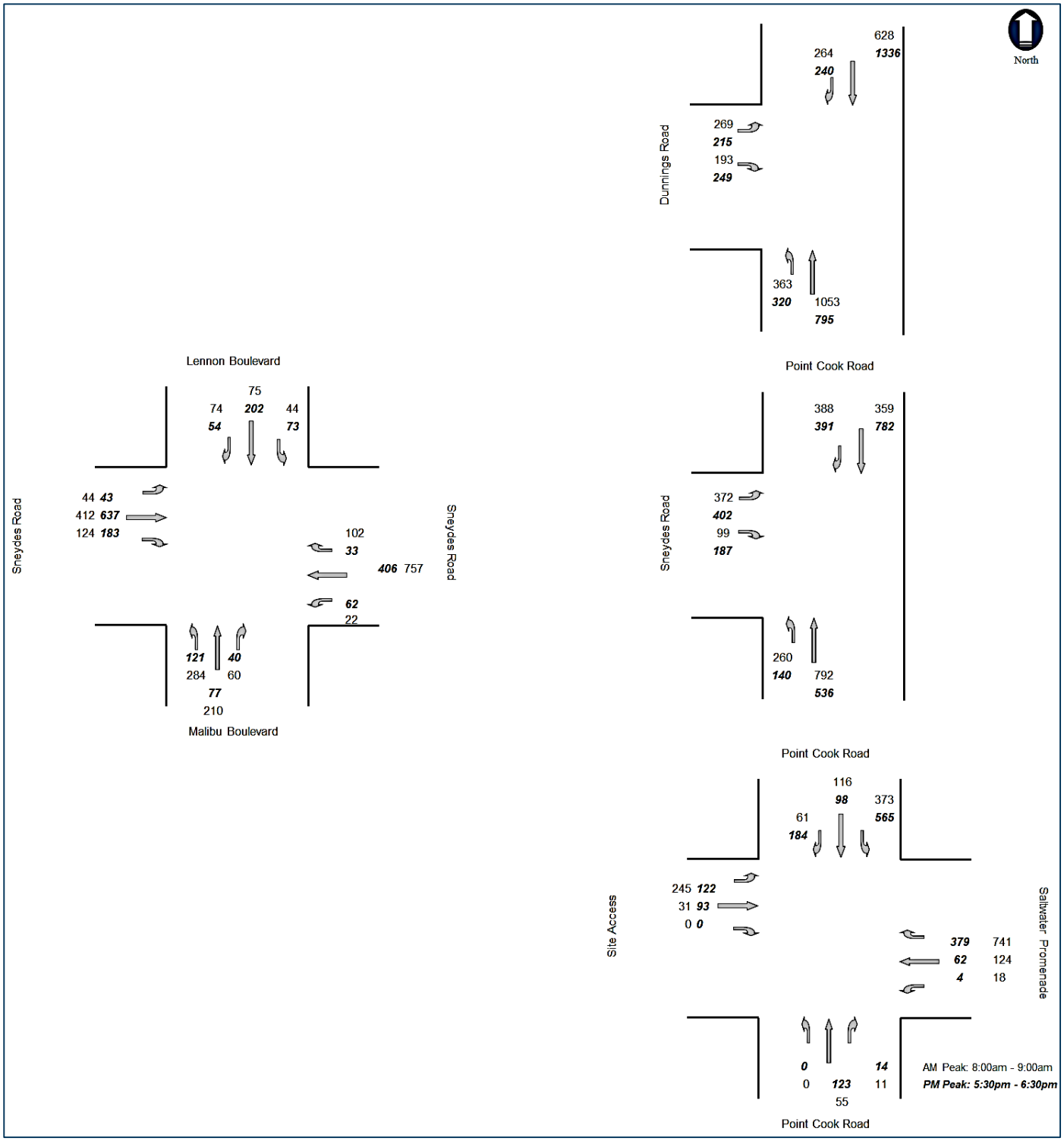
Figure 6-1 2019 Background Traffic Volumes



6.3 Anticipated Post-Development 2019 Traffic Volumes

Based on the anticipated 2019 background traffic volumes and the expected traffic generation resulting from the full development of the Lincoln Heath South PSP area and the continued growth of the Saltwater Coast Estate, the anticipated post-development traffic volumes are shown in Figure 6-2.

Figure 6-2 2019 Post-Development Traffic Volumes



6.4 Anticipated 2024 Post-Development Traffic Volumes

Generally a ten-year development horizon is adopted for interim assessments to ensure full development of the PSP area is captured. In the case of the Lincoln Heath South PSP, full development is expected to occur with a five-period therefore the interim assessment year of 2019 has been adopted to assess the infrastructure contribution requirements for PSP preparation purposes.

Notwithstanding, a +10-year (2024) interim scenario has also been assessed to test the robustness of the infrastructure contribution requirements. The resulting 2024 background traffic volumes are shown in Figure 6-3, whilst the traffic generated by the Lincoln Heath South and Saltwater Coast Estates is shown in Figure

6-4. The resultant traffic volumes used for the +10-year intersection assessments are then shown in Figure 6-5.

Figure 6-3 2024 Background Traffic Volumes

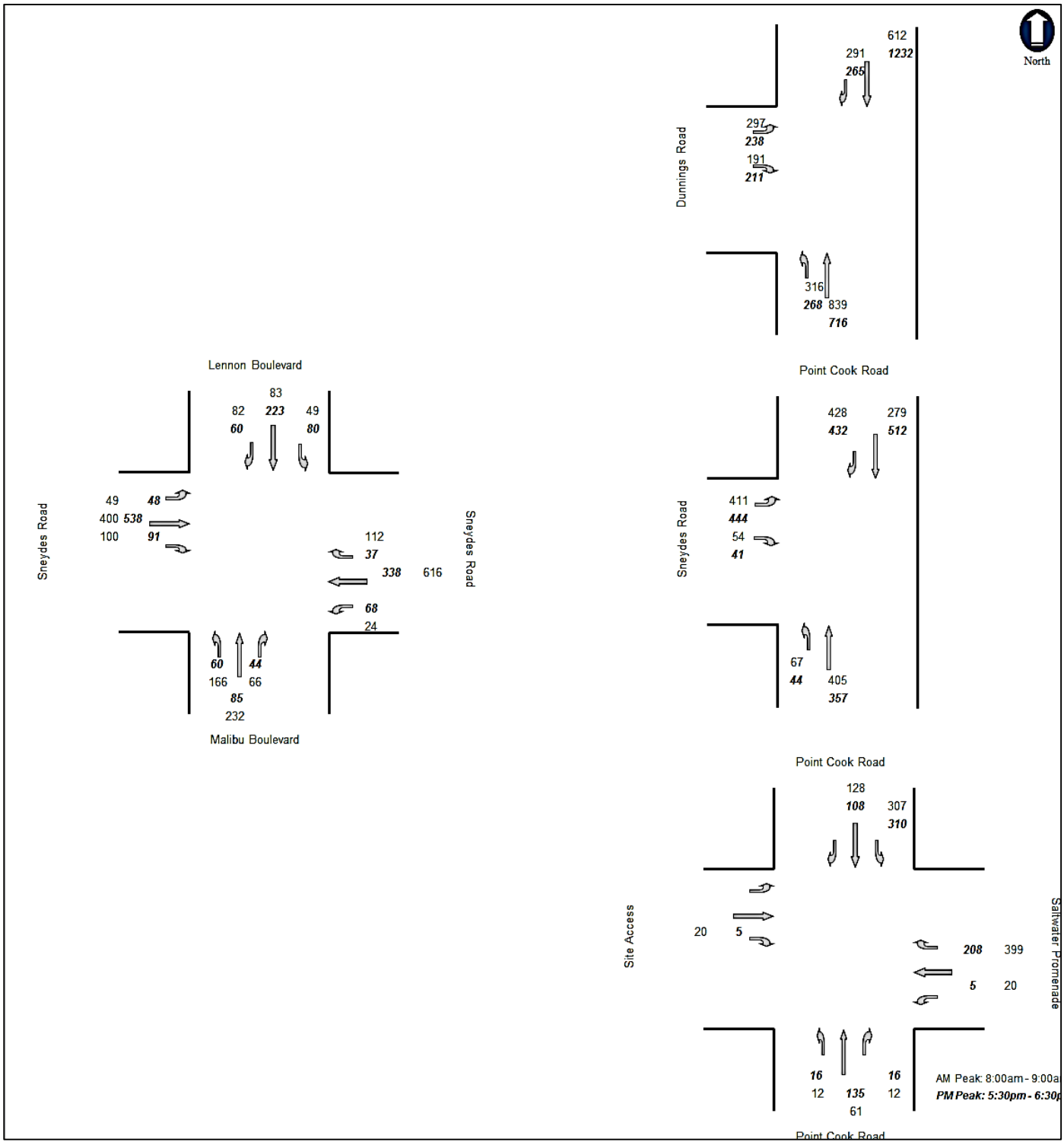


Figure 6-4 Trips Generated by the Lincoln Heath South and Saltwater Promenade Estates (2024)

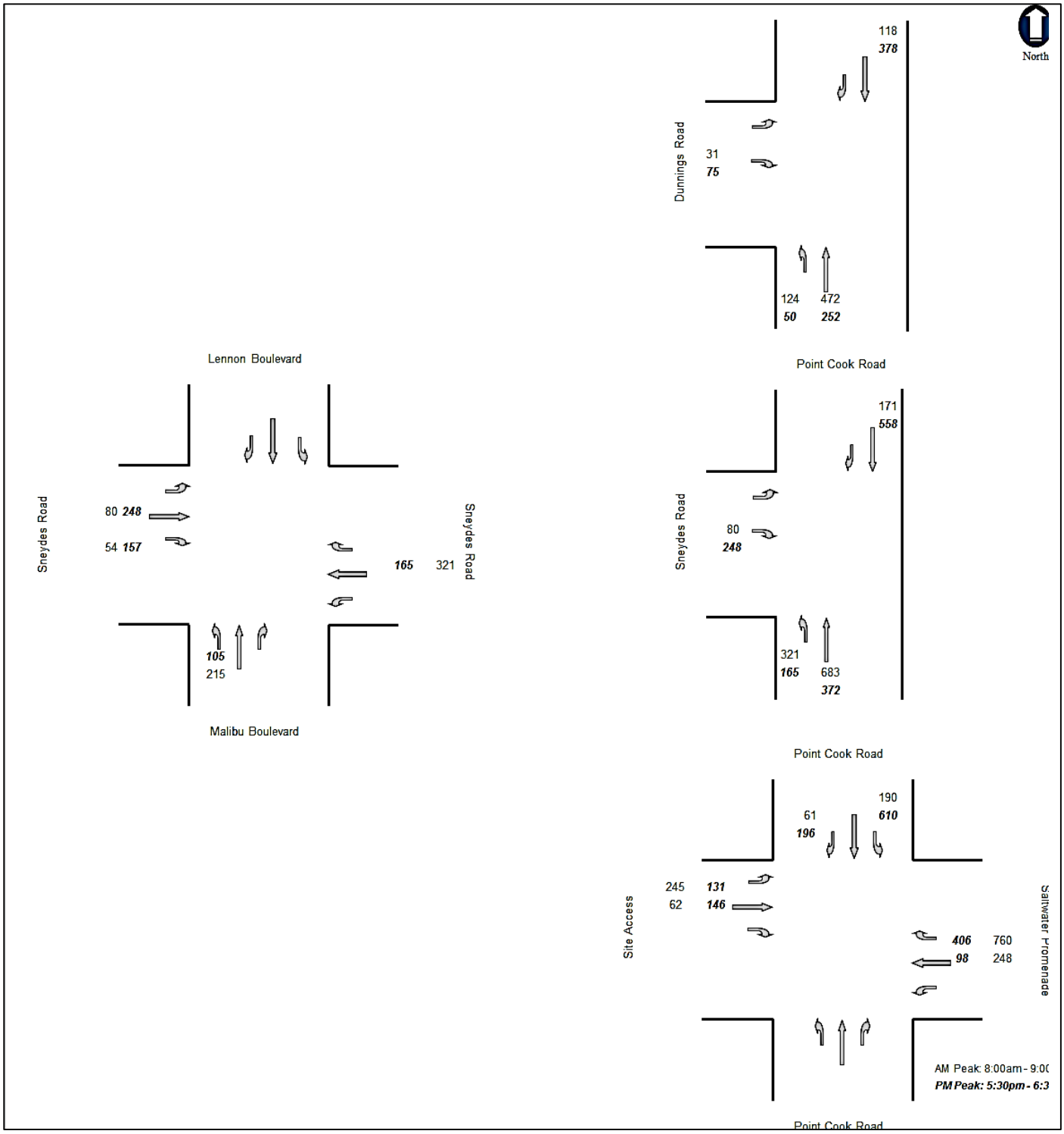
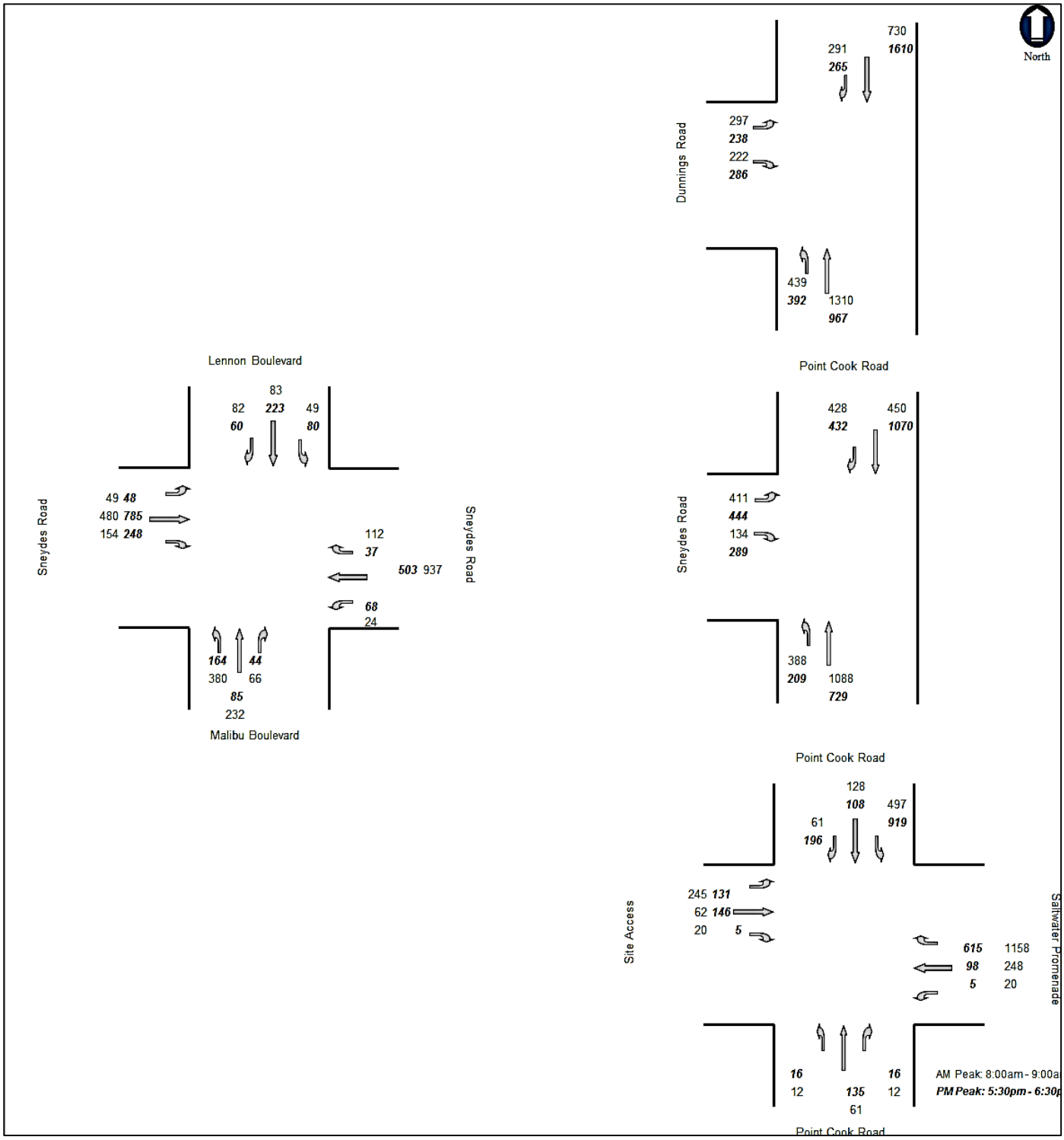


Figure 6-5 Assessed 2024 Traffic Volumes



6.5 Intersection Operation

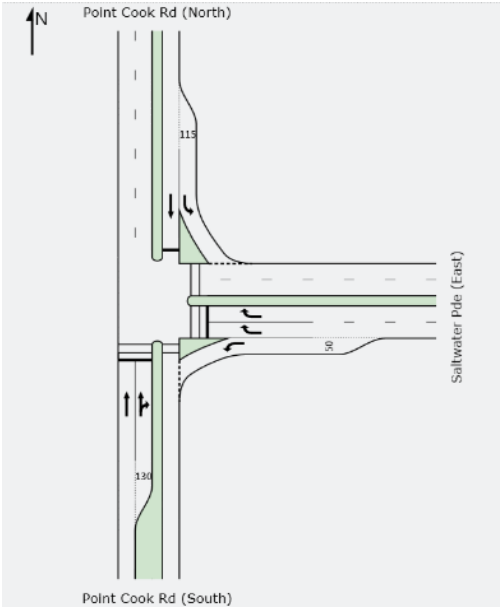
6.5.1 Assessed Intersection Layouts

To determine the current and future operating conditions of the four intersections under review, SIDRA Intersection analysis has been undertaken. The proposed geometry and signal phasing of the Point Cook Road, Saltwater Promenade and Fongeo Drive intersection has been based on the expected peak hour traffic volumes, whilst existing geometries have been retained at the Dunnings Road/Point Cook Road and Sneydes Road/Lennon Boulevard/Malibu Boulevard intersections.

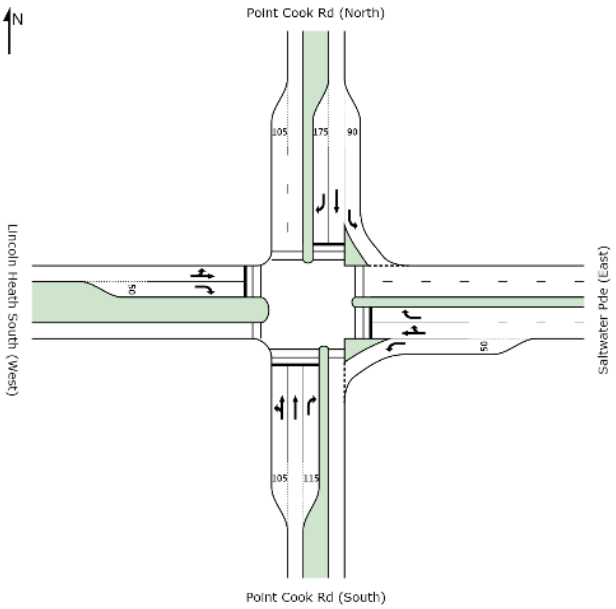
In the case of the Point Cook Road/Sneydes Road intersection the SIDRA modelling indicated that the intersection required additional capacity and signalisation to cater for the assessed interim traffic volumes.

The modelled intersection layouts are summarised in Figure 6-6 to Figure 6-8

Figure 6-6 Modelled Layouts for the Point Cook Road and Saltwater Promenade Intersection

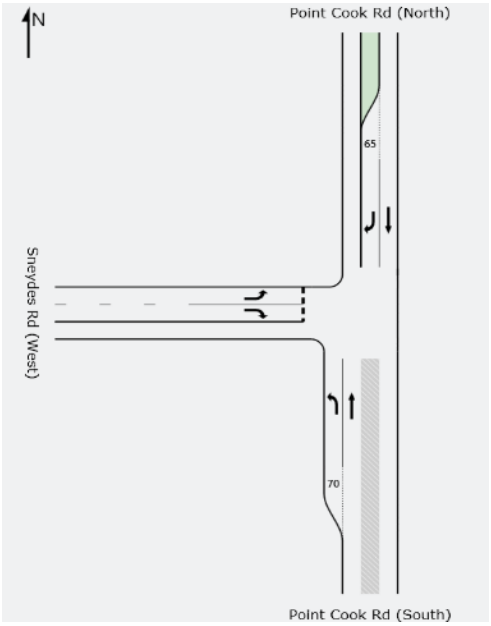


Existing

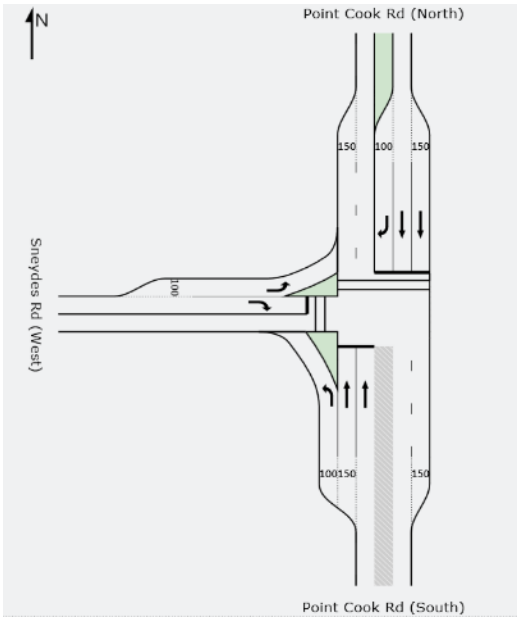


Interim

Figure 6-7 Modelled Layouts for the Point Cook Road and Sneydes Road Intersection

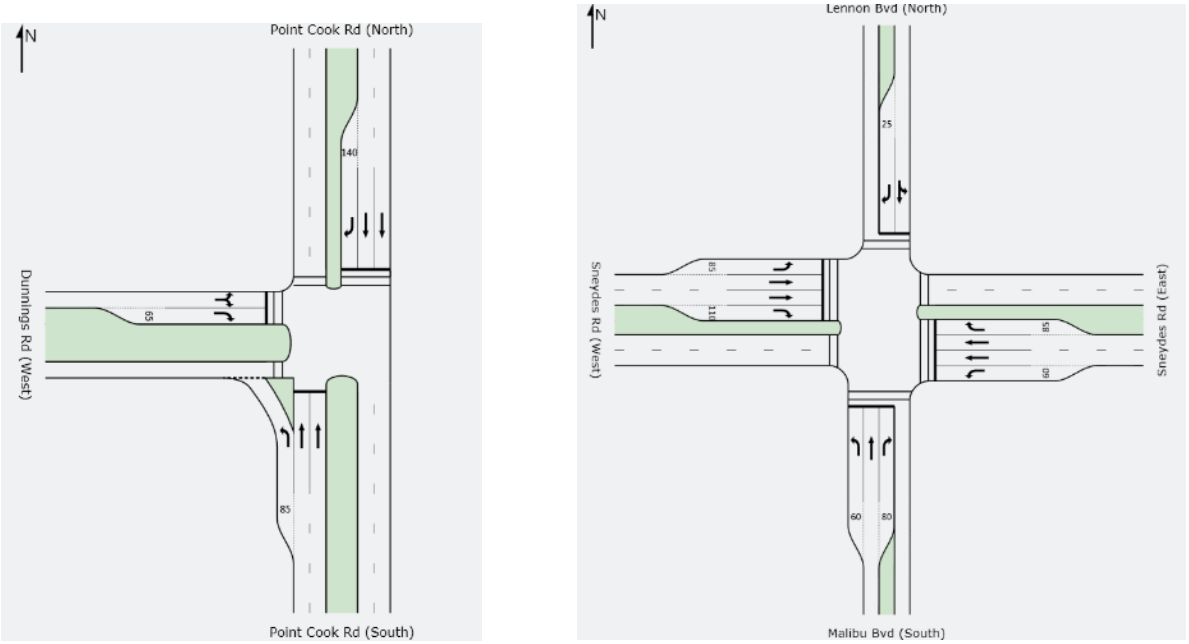


Existing



Interim

Figure 6-8 Modelled Layouts for the Point Cook Road, Dunnings Road and Lennon Boulevard, Sneydes Road and Malibu Boulevard Intersections (existing and interim)



6.6 Intersection Modelling Results

The full results of the SIDRA Intersection analysis are included in Appendix B, and Table 6-1 provides a summary of the results.

Table 6-1 Interim Scenario SIDRA Outputs

Intersection		AM Peak			PM Peak		
		Degree of Saturation	95th %ile Queue (m)	Avg Delay (sec)	Degree of Saturation	95th %ile Queue (m)	Avg Delay (sec)
Point Cook Rd / Saltwater Pde	2014	0.18	28	17	0.18	29	20
	2019	0.64	171	34	0.51	95	35
	2024	0.93	431	41	0.85	174	36
Point Cook Rd / Sneydes Rd	2014	0.41	17	7	0.42	18	6
	2019	0.80	176	30	0.74	124	25
	2024	0.95	329	36	0.87	185	31
Point Cook Rd / Dunnings Rd	2014	0.55	60	16	0.48	65	14
	2019	0.59	159	23	0.54	149	22
	2024	0.70	208	24	0.64	193	23
Sneydes Rd / Lennon Bvd	2014	0.57	63	29	0.48	56	28
	2019	0.76	151	43	0.57	112	41
	2024	0.96	253	54	0.67	142	41

A review of Table 6-1 indicates that the degree of saturation (DOS) at each intersection will increase between 2014 and 2019 and again by 2024, however all intersections will still operate with an acceptable DOS in both the AM and PM peak hours. Some queuing is expected, however, a review of the associated average delay times indicates that the queues clear regularly and do not result in intersection operation failure.

The SIDRA modelling assessment indicated that the Sneydes Road/Point Cook Road intersection would require signalisation to cater for the assessed interim traffic volumes, furthermore the modelling indicates that additional capacity, in the form of an additional short though traffic lane, was needed to cater for the assessed traffic volumes.

The proposed intersection geometry of Point Cook Road, Saltwater Promenade and Fongeo Drive with a new fourth (western) leg to the Lincoln Heath South Estate is expected to operate well under the 5 year interim development scenario conditions, and will have spare capacity for future growth.

6.6.1 Nexus for Signalising the Point Cook Road/Sneydes Road Intersection

The interim assessment SIDRA modelling indicated that the Point Cook Road/Sneydes Road intersection required additional capacity and signalisation to cater for the assessed interim traffic volumes. As part of this assessment, the interim volumes were tested using the existing unsignalised layout of the Point Cook Road/Sneydes Road intersection. The movement summary outputs for this modelling are included in Appendix B.

The results of the SIDRA modelling indicate that the failure of the unsignalised layout of the intersection results from the large volume of right turning traffic from the Sneydes Road approach during both the peak periods.

The make-up of this right turn movement is summarised in Table 6-2.

Table 6-2 Make-up of right turn movements from Sneydes Road at the Point Cook Road/Sneydes Road intersection

	2019 AM Peak Hour		2019 PM Peak Hour	
Trip Source	Total Trips	% Trips	Total Trips	% Trips
Lincoln Heath South Estate	20	20%	59	31%
Saltwater Boulevard Estate	30	30%	91	48%
Background Traffic Growth	49	50%	38	21%
Total	**99 vehicles**	**100%**	**188 vehicles**	**100%**

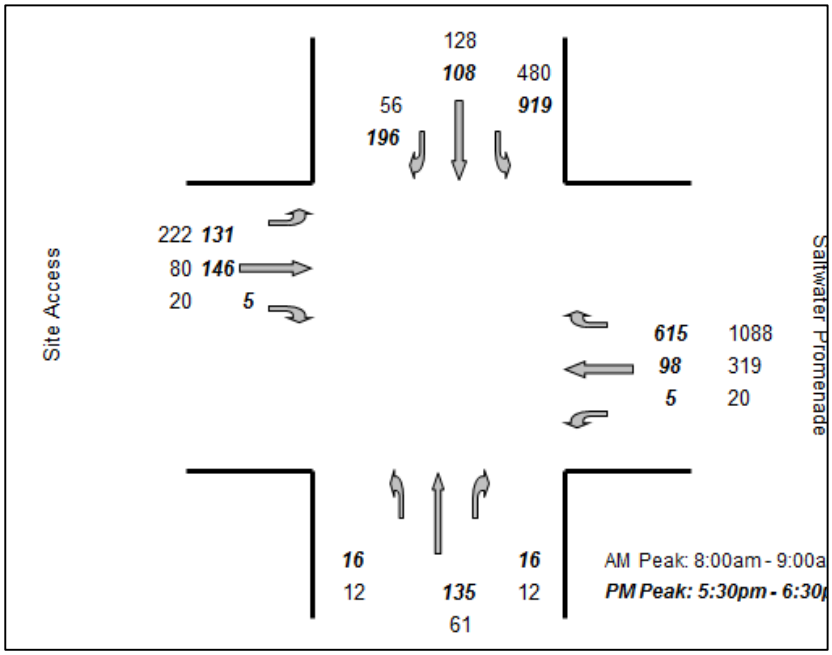
As outlined in Table 6-2, the proportion of right turning vehicles generated by the Lincoln Heath South Estate is 20% and 31% in the AM and PM peak hours respectively. It therefore follows that the need to signalise the intersection is only partially attributed to the development of the Lincoln Heath South PSP area.

6.7 Sensitivity Test 1: School Traffic Test

Prior to the construction of the Sanctuary Lakes South P-9 school (within the Saltwater Coast Estate), it is expected that the majority of school generated traffic from the Saltwater Coast Estate, in the form of pick-up/drop-off trips, will be and from the existing Point Cook South P-9 school within the Alamanda Estate. This will likely result in additional traffic movements between the Saltwater Coast and Alamanda estates, via the Point Cook Road and Saltwater Promenade intersection and along Fongeo Drive.

A sensitivity analysis has thus been carried out for the Point Cook Road and Saltwater Promenade intersection for the (10 year interim scenario), to model the effect of this additional traffic during the critical AM peak hour during which the school peak coincides with the commuter peak. The resultant volumes used in the analysis are shown in Figure 6-9.

Figure 6-9 Assessed Interim Traffic Volumes (Sensitivity Test 1)



The full results of the SIDRA Intersection analysis are included in Appendix B, and Table 6-3 provides a summary of the results.

Table 6-3 Sensitivity Test 1: SIDRA Intersection Analysis Summary

Approach		AM Peak		
		Degree of Saturation	95th %ile Queue (m)	Avg Delay (sec)
Point Cook Rd North	Left	0.37	15	8
	Thru	0.44	50	51
	Right	0.41	23	68
Fongeo Drive West	Left	0.84	134	65
	Thru	0.84	143	57
	Right	0.10	7	56
Point Cook Rd South	Left	0.12	10	59
	Thru	0.19	17	52
	Right	0.13	5	70
Saltwater Promenade East	Left	0.02	1	9
	Thru	0.56	155	22
	Right	0.93	428	45

A review of Table 6-3 indicates that the DOS for each approach does not increase as a result of the additional through movements between Saltwater Promenade and Fongeo Drive. All movements will still operate with an acceptable DOS.

6.8 Sensitivity Test 2: Development of the Point Cook South PSP Area

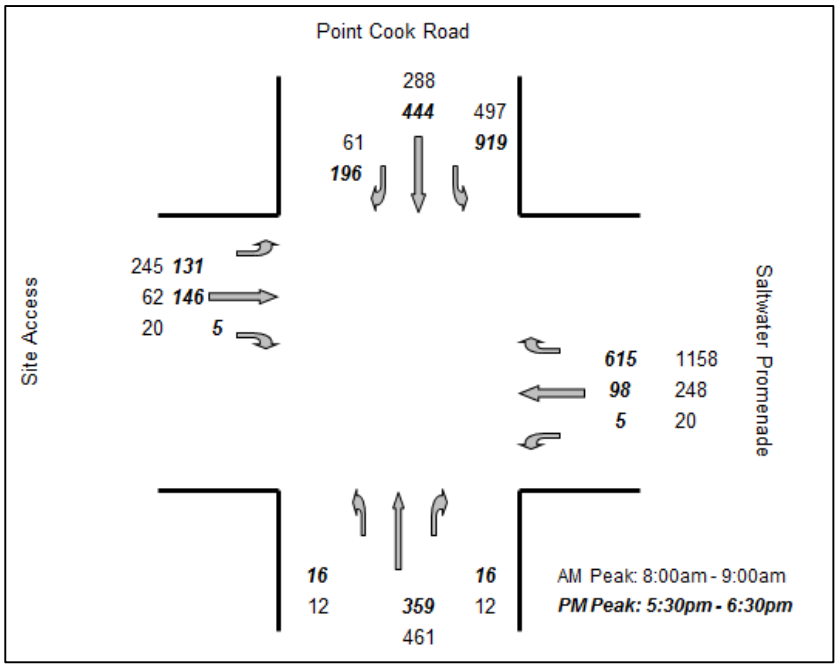
A sensitivity analysis has been carried out for the Point Cook Road and Saltwater Promenade intersection for (10 year interim scenario) to test the impact of additional traffic generated by the Point Cook South PSP area to the south of the subject site.

The Point Cook South Precinct is not expected to be fully built out within the next 10 years, rather the purpose of this analysis is to estimate the amount of additional traffic that the intersection of Point Cook

Road/Saltwater Promenade/Fongeo Drive could cater for prior to the full duplication of the Point Cook Road being required.

The sensitivity testing found that the intersection could operate with traffic generated by up to 800 additional dwellings within Point Cook South, which would result in an additional 560 through movements at the intersection of Point Cook Road/Saltwater Promenade/ Fongeo Drive during the peak hours. The resultant volumes used in the analysis are shown in Figure 6-10.

Figure 6-10 Assessed Interim Traffic Volumes (Sensitivity Test 2)



The full results of the SIDRA Intersection analysis are included in Appendix B, and Table 6-4 provides a summary of the results.

Table 6-4 Sensitivity Test 2: SIDRA Intersection Analysis Summary

Approach		AM Peak			PM Peak		
		Degree of Saturation	95th %ile Queue (m)	Avg Delay (sec)	Degree of Saturation	95th %ile Queue (m)	Avg Delay (sec)
Point Cook Rd North	Left	0.38	15	8	0.85	119	14
	Thru	0.90	139	67	0.75	168	41
	Right	0.67	27	74	0.64	78	60
Fongeo Drive West	Left	0.78	127	60	0.80	119	64
	Thru	0.78	127	51	0.80	119	56
	Right	0.10	7	56	0.02	2	51
Point Cook Rd South	Left	0.56	70	59	0.38	52	54
	Thru	0.92	148	64	0.63	91	48
	Right	0.13	5	70	0.18	7	71
Saltwater Promenade East	Left	0.03	2	10	0.01	1	10
	Thru	0.58	159	24	0.47	92	36
	Right	0.96	500	65	0.78	175	49

A review of Table 6-4 indicates that the intersection is expected to operate close to capacity, with notable queuing on the Saltwater Coast Promenade approach during the AM peak hour. Any additional traffic would be expected to result in the failure of the intersection operation.

The proposed upgrade of Point Cook Road, to include two through lanes in each direction would be required prior to further development in the area (over and above an additional 800 dwellings within the Point Cook South PSP).

6.9 Summary of Findings

Based on the outcomes of the interim scenario intersection modelling, the full development of the Lincoln Heath South PSP area will not result in any upgrades being required at the Lennon Boulevard/Sneydes Road/ Malibu Boulevard or Dunnings Road/Point Cook Road intersection.

Furthermore whilst Point Cook Road/Sneydes Road intersection will require additional capacity and signalisation to cater for the assessed interim traffic volumes, the results of the SIDRA modelling indicate that the failure of the unsignalised layout of the intersection results from the large volume of right turning traffic from the Sneydes Road approach during both the peak periods. The proportion of right turning vehicles generated by the Lincoln Heath South Estate is 20% and 31% in the AM and PM peak hours respectively. It therefore follows that the need to signalise the intersection is only partially attributed to the development of the Lincoln Heath South PSP area.

With regard to the Point Cook Road/ Saltwater Promenade/ Fongeo Drive intersection, the proposed extension of Fongeo Drive to the intersection is expected to satisfactorily cater for the site generated traffic. A concept deign for the upgrade of this intersection is included in Appendix C.

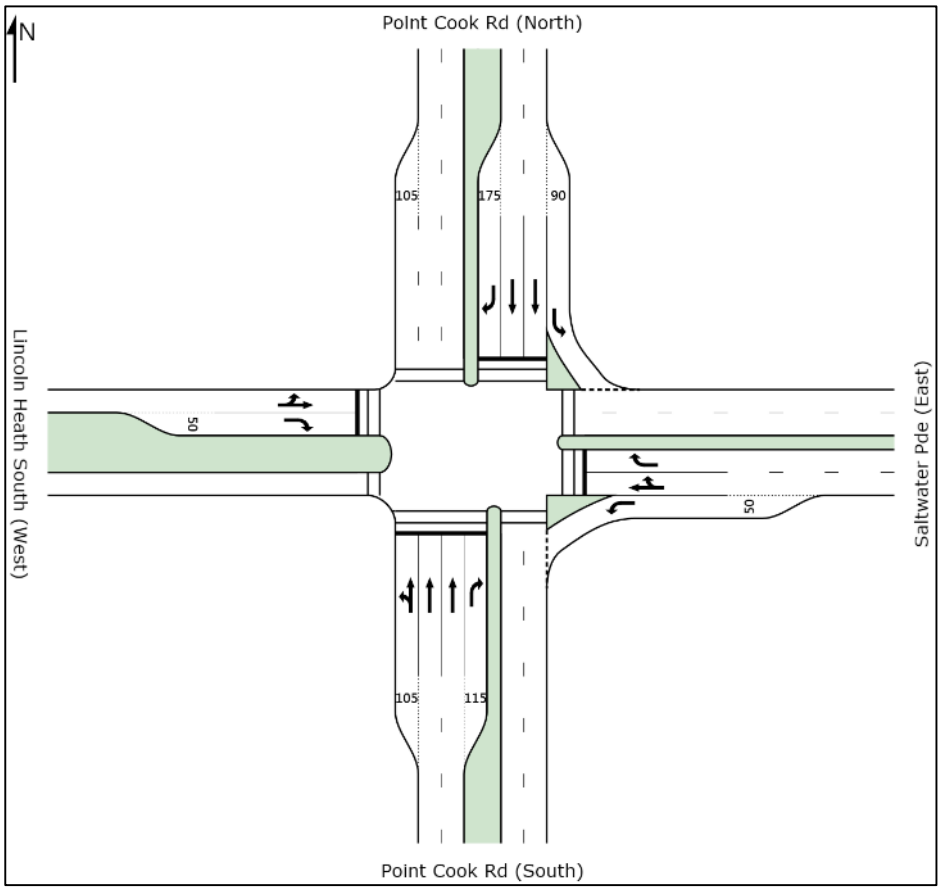
7 Ultimate Intersection Operation Assessment

7.1 Overview

As outlined in Section 1.2, both interim case and ultimate case assessments are presented within this report. The ultimate assessment findings are used to ensure appropriate land-take provisions are included in the DCP for future transport network upgrades.

As discussed in Section 4.4, Point Cook Road will ultimately be upgraded to include two through lanes in each direction. By the year 2046, the layout of the Point Cook Road/Saltwater Promenade/Fongeo Drive intersection is expected to be as shown in Figure 7-1.

Figure 7-1 Ultimate (2046) – Point Cook Road/Saltwater Promenade/Fongeo Drive Intersection Layout

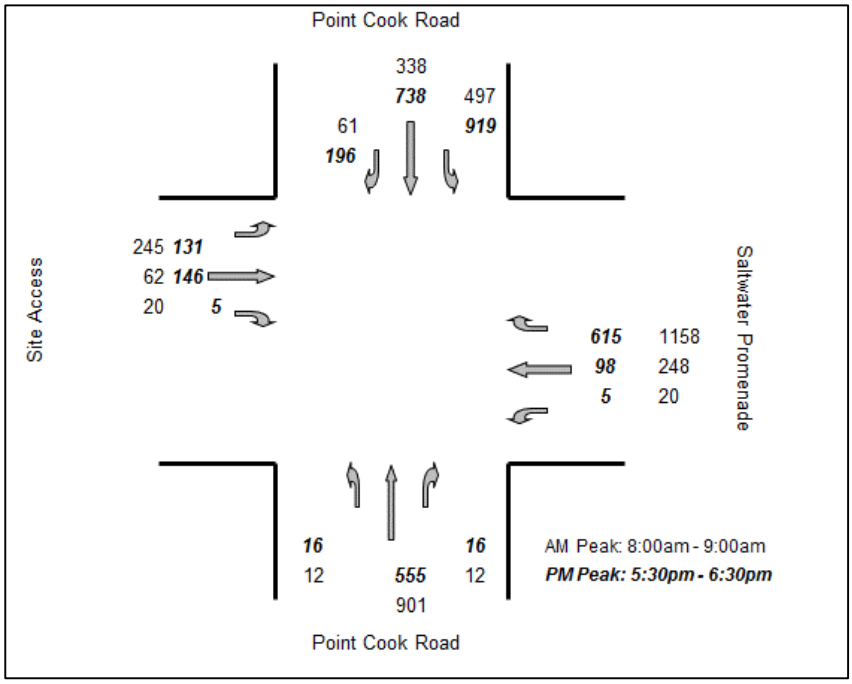


A review of the Victorian Integrated Transport Model (VITM) outputs for the Western Growth Corridor and the East Werribee Employment Precinct (prepared by AECOM) indicates that Point Cook Road, south of Sneydes Road is expected to carry a two-way daily traffic volume of approximately 23,000 vehicles in the year 2046. This modelling accounts for expected development within the Point Cook South Precinct and full development of Lincoln Heath South and Saltwater Coast estates.

Assuming the AM and PM peak hours account for 10% of these daily traffic volumes, the two-way peak hour volumes are expected to be in the order of 2,300 vehicles. The ultimate distribution of traffic at the intersection of Point Cook Road/Saltwater Promenade has been derived assuming full development of the Point Cook South Precinct and using the abovementioned VITM data.

The resultant ultimate volumes anticipated at the subject intersection are shown in Figure 7-2.

Figure 7-2 Assessed Ultimate Traffic Volumes (2046)



The full results of the SIDRA Intersection analysis are included in Appendix D and Table 7-1 provides a summary of the results.

Table 7-1 Ultimate Scenario SIDRA Outputs

Approach		AM Peak			PM Peak		
		Degree of Saturation	95th %ile Queue (m)	Avg Delay (sec)	Degree of Saturation	95th %ile Queue (m)	Avg Delay (sec)
Point Cook Rd North	Left	0.38	15	8	0.85	126	14
	Thru	0.44	62	46	0.54	122	33
	Right	0.67	27	74	0.54	74	55
Fongeo Drive West	Left	0.65	115	51	0.77	116	61
	Thru	0.65	115	43	0.77	116	53
	Right	0.09	7	51	0.02	2	50
Point Cook Rd South	Left	0.55	81	55	0.33	47	51
	Thru	0.91	173	63	0.55	82	46
	Right	0.13	5	70	0.18	7	71
Saltwater Promenade East	Left	0.03	1	9	0.01	1	9
	Thru	0.91	336	51	0.77	146	48
	Right	0.91	336	59	0.77	146	56

A review of Table 7-1 indicates that the proposed intersection is expected to operate with an acceptable DOS in both the AM and PM peak hours. Some queuing is expected, however, a review of the associated average delay times indicates that the queues clear regularly and do not result in intersection operation failure.

The SIDRA modelling assessment indicates that no additional upgrade works, such as slip lanes or additional turn lanes, will be required for the intersection to operate satisfactorily into the future, other than the planned duplication of Point Cook Road.

8 Road Network Assessment

8.1 Internal Road Network Operation

The road hierarchy for the site, shown previously in Figure 3-1, outlines the connector street and Key Local Access Street connections within the PSP area. The primary purpose of connector streets is to connect neighbourhoods and to link local streets to the arterial road network, in this regard the proposed connector street network appropriately integrates the site to surrounding land parcels and the wider arterial road network.

The remainder of the streets within the PSP area are expected to carry less than 2,000vpd and function as Access Street (Level 1) in accordance with the Growth Area Authority's (GAA) PSP Note *Our Roads: Connection People* and provide local residential access.

8.2 Proposed Road Cross Sections

The proposed cross sections for streets within the PSP area are shown in Figure 8-1 to Figure 8-3.

Figure 8-1 connector street Cross Section with off-road cycle path

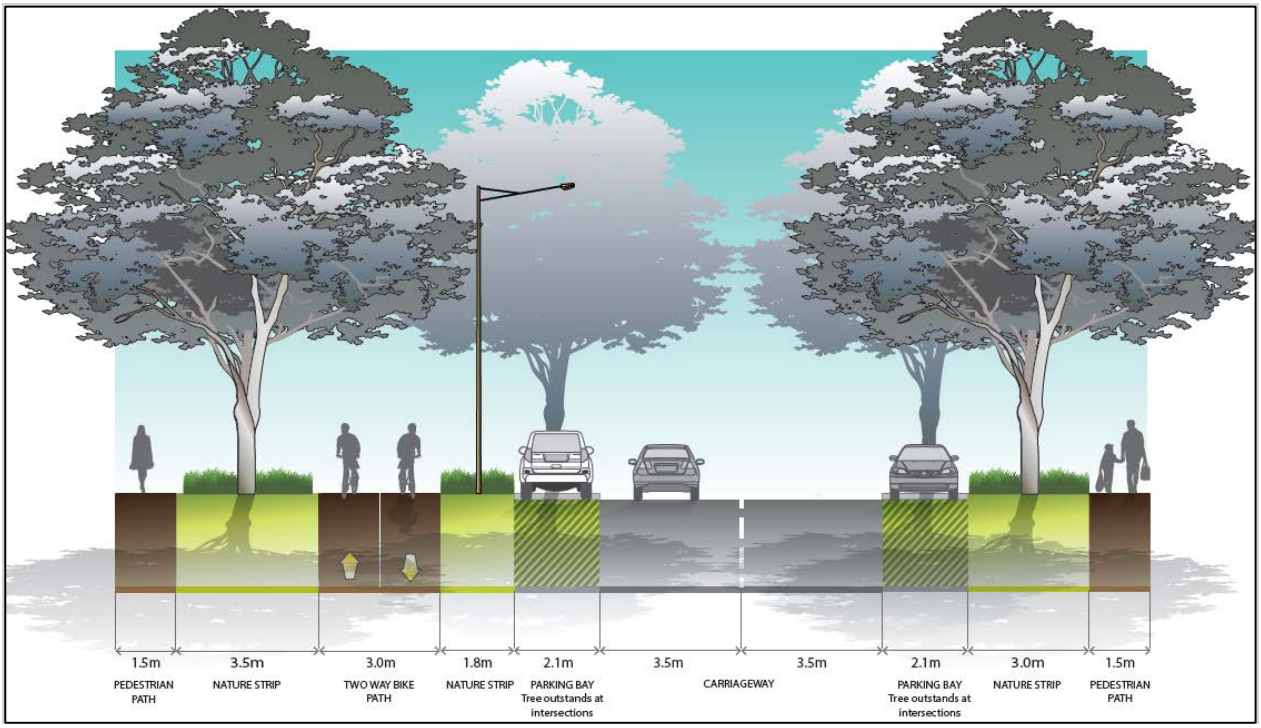


Figure 8-2 Boulevard connector street Cross Section

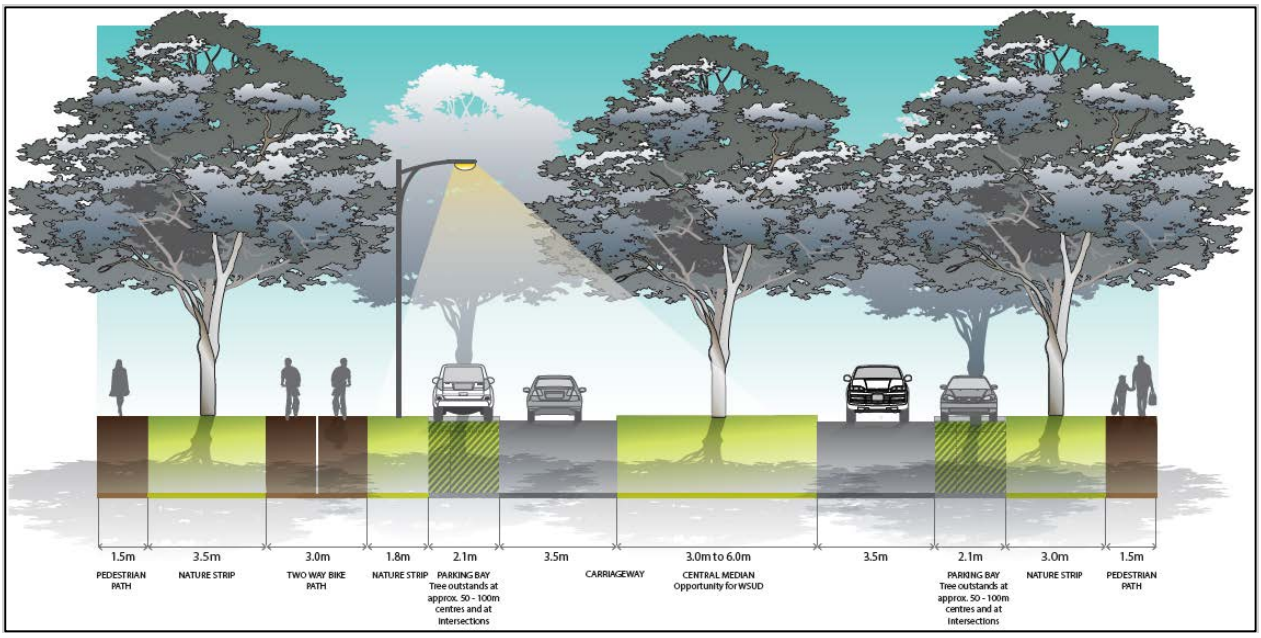
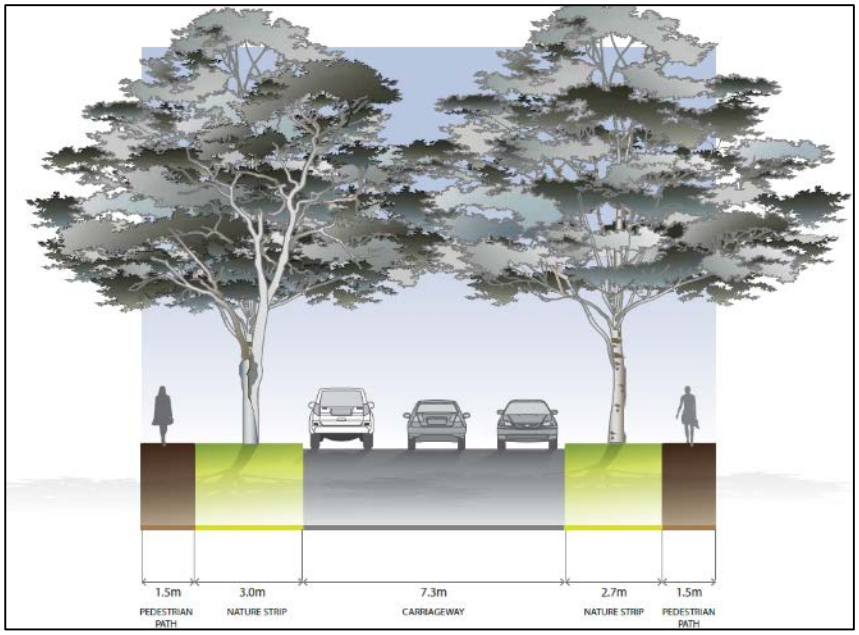


Figure 8-3 Standard Access Street Level 1 Cross Section



The need for any additional internal traffic management and calming measures will be determined in consultation with City of Wyndham and other relevant authorities, including Public Transport Victoria (PTV), during the detailed design of the staged subdivision of the site when the details of future bus routes and location of bus stops through the site are more likely to be known.

9 Conclusions

Based on the analysis outlined in this report, it is expected that the signalised intersection formed by Point Cook Road, Saltwater Promenade and Fongeo Drive will adequately cater for the full development of the Lincoln Heath South Estate and continued development of the Saltwater Promenade Estate under the interim development scenario conditions.

Furthermore, the Point Cook Road/Sneydes Road intersection will require additional capacity and signalisation to cater for the assessed interim traffic volumes. However the need to upgrade the intersection can only be partially attributed to the development of the Lincoln Heath South PSP area. Background traffic growth and the development of the Saltwater Coast Estate also contribute to the need for the intersection to be signalised. Given the declared arterial status of Point Cook Road, the upgrade and signalisation of this intersection will be a matter for the coordinating road authority to consider.

No changes are expected to be required at the Lennon Boulevard/Sneydes Road/Malibu Boulevard or Dunnings Road/Point Cook Road intersections as a result of the full development of the Lincoln Heath South Estate under the interim development scenario conditions.

A sensitivity analysis of the Point Cook Road/Saltwater Promenade/Fongeo Drive intersection indicates that the proposed interim intersection layout is capable of supporting a portion (approximately 50%) of traffic generated by the proposed Point Cook South Precinct (PSP 1207), prior to the duplication of Point Cook Road being required.

Under ultimate development scenario conditions, the proposed intersection layout of Point Cook Road/Saltwater Promenade/Fongeo Drive, including the planned upgrade to Point Cook Road, is expected to satisfactorily cater for the expected traffic volumes.

APPENDIX A

DEVELOPMENT TRAFFIC GENERATION

AM Peak Hour Analysis

Lincoln Heath South Estate

Yield	580 lots
Generation Rate	0.7 trips/hh
% in trips	20%
% out trips	80%
Total Trips	406
Trips In	81
Trips Out	325

Trip Purpose	VISTA Distributions	Distributions						Inbound Trips							Outbound Trips						
		north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road	Total Trips	north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road	Total Trips	north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road
Shopping	6%	2%	13%	40%	5%	35%	5%	5	0	1	2	0	2	0	19	0	3	8	1	7	1
Education	28%	30%	20%	5%	5%	30%	10%	23	7	5	1	1	7	2	91	27	18	5	5	27	9
Work	52%	0%	5%	5%	50%	20%	20%	42	0	2	2	21	8	8	169	0	8	8	84	34	34
Recreation	2%	0%	15%	10%	25%	40%	10%	2	0	0	0	0	1	0	6	0	1	1	2	3	1
Other	12%	0%	0%	0%	60%	20%	20%	10	0	0	0	6	2	2	39	0	0	0	23	8	8
Total Trips								*81*	*7*	*8*	*5*	*29*	*20*	*13*	*325*	*28*	*30*	*21*	*115*	*78*	*52*

Saltwater Coast Estate

Yield	900 lots
Generation Rate	0.7 trips/hh
% in trips	20%
% out trips	80%
Total Trips	630
Trips In	126
Trips Out	504

Trip Purpose	VISTA Distributions	Distributions						Inbound Trips							Outbound Trips						
		north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road	Total Trips	north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road	Total Trips	north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road
Shopping	6%	2%	13%	40%	5%	35%	5%	8	0	1	3	0	3	0	30	1	4	12	2	11	2
Education	28%	30%	20%	5%	5%	30%	10%	35	11	7	2	2	11	4	141	42	28	7	7	42	14
Work	52%	0%	5%	5%	50%	20%	20%	66	0	3	3	33	13	13	262	0	13	13	131	52	52
Recreation	2%	0%	15%	10%	25%	40%	10%	3	0	0	0	1	1	0	10	0	2	1	3	4	1
Other	12%	0%	0%	0%	60%	20%	20%	15	0	0	0	9	3	3	60	0	0	0	36	12	12
Total Trips								*126*	*11*	*12*	*8*	*45*	*30*	*20*	*504*	*43*	*47*	*33*	*178*	*121*	*81*

PM Peak Hour Analysis

Lincoln Heath South Estate

Yield	580 lots
Generation Rate	0.7 trips/hh
% in trips	60%
% out trips	40%
Total Trips	406
Trips In	244
Trips Out	162

Trip Purpose	VISTA Distributions	Distributions						Inbound Trips							Outbound Trips						
		north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road	Total Trips	north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road	Total Trips	north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road
Shopping	6%	2%	13%	40%	5%	35%	5%	15	0	2	6	1	5	1	10	0	1	4	0	3	0
Education	28%	30%	20%	5%	5%	30%	10%	68	20	14	3	3	20	7	45	14	9	2	2	14	5
Work	52%	0%	5%	5%	50%	20%	20%	127	0	6	6	63	25	25	84	0	4	4	42	17	17
Recreation	2%	0%	15%	10%	25%	40%	10%	5	0	1	0	1	2	0	3	0	0	0	1	1	0
Other	12%	0%	0%	0%	60%	20%	20%	29	0	0	0	18	6	6	19	0	0	0	12	4	4
Total Trips								*244*	*21*	*23*	*16*	*86*	*59*	*39*	*162*	*14*	*15*	*11*	*57*	*39*	*26*

Saltwater Coast Estate

Yield	900 lots
Generation Rate	0.7 trips/hh
% in trips	60%
% out trips	40%
Total Trips	630
Trips In	378
Trips Out	252

Trip Purpose	VISTA Distributions	Distributions						Inbound Trips							Outbound Trips						
		north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road	Total Trips	north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road	Total Trips	north and west via Local Road Connections	north to Point Cook Town Centre via Point Cook Rood/Dunnings Road	north via Point Cook Road to Sanctuary Lakes Facilities	north via Point Cook Rd and thru Dunnings Rd intersection	north and west via Point Cook Road and Sneydes Road	north and west via Malibu Bvd and Sneydes Road
Shopping	6%	2%	13%	40%	5%	35%	5%	23	0	3	9	1	8	1	15	0	2	6	1	5	1
Education	28%	30%	20%	5%	5%	30%	10%	106	32	21	5	5	32	11	71	21	14	4	4	21	7
Work	52%	0%	5%	5%	50%	20%	20%	197	0	10	10	98	39	39	131	0	7	7	66	26	26
Recreation	2%	0%	15%	10%	25%	40%	10%	8	0	1	1	2	3	1	5	0	1	1	1	2	1
Other	12%	0%	0%	0%	60%	20%	20%	45	0	0	0	27	9	9	30	0	0	0	18	6	6
Total Trips								*378*	*32*	*35*	*25*	*134*	*91*	*61*	*252*	*21*	*23*	*17*	*89*	*61*	*41*


LEGEND
Saltwater Coast
Lincoln Heath South
Key Intersections
Local Schools
Shopping Centres
Princes Fwy
Point Cook Rd
N
Dunnings Rd
Sneydes Rd
Saltwater Pde
nearmap

APPENDIX B

INTERIM INTERSECTION MODELLING

Point Cook Road / Saltwater Promenade

MOVEMENT SUMMARY

Site: PCSPam Interim 2019

Point Cook Rd / Saltwater Promenade AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	61	2.0	0.267	60.7	LOS A	3.3	23.6	0.94	0.76	22.5
2	T	55	2.0	0.229	52.0	LOS A	3.0	21.1	0.94	0.71	23.8
3	R	11	2.0	0.120	70.1	LOS A	0.7	4.6	0.98	0.68	20.5
Approach		127	2.0	0.267	57.7	LOS A	3.3	23.6	0.95	0.73	22.8
East: Saltwater Pde (East)											
4	L	18	2.0	0.022	8.7	LOS A	0.1	0.9	0.17	0.62	48.5
5	T	124	2.0	0.389	22.8	LOS A	12.7	90.1	0.70	0.61	34.4
6	R	741	2.0	0.643	34.5	LOS B	24.1	171.8	0.80	0.85	31.0
Approach		883	2.0	0.643	32.3	LOS B	24.1	171.8	0.78	0.81	31.7
North: Point Cook Rd (North)											
7	L	373	2.0	0.279	7.8	LOS A	1.4	10.2	0.07	0.62	49.4
8	T	116	2.0	0.402	50.6	LOS A	6.3	44.6	0.95	0.76	24.2
9	R	61	2.0	0.444	68.3	LOS A	3.6	25.6	1.00	0.76	20.9
Approach		550	2.0	0.444	23.6	LOS A	6.3	44.6	0.36	0.66	36.1
West: Lincoln Heath South (West)											
10	L	245	2.0	0.542	47.6	LOS A	13.7	97.8	0.90	0.84	26.1
11	T	31	2.0	0.542	39.3	LOS A	13.7	97.8	0.90	0.77	26.5
12	R	49	2.0	0.243	56.7	LOS A	2.5	18.1	0.91	0.74	23.5
Approach		325	2.0	0.542	48.2	LOS A	13.7	97.8	0.90	0.82	25.7
All Vehicles		1885	2.0	0.643	34.2	LOS B	24.1	171.8	0.69	0.76	30.8

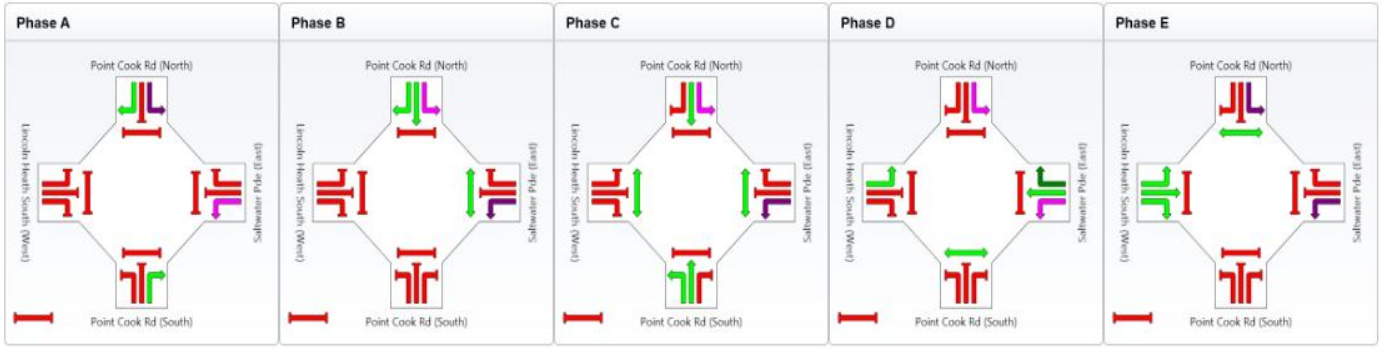
PHASING SUMMARY

Point Cook Rd / Saltwater Promenade AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Leading Right Turn
Input Sequence: A, B, C, D, E
Output Sequence: A, B, C, D, E

Phase Timing Results

Phase	A	B	C	D	E
Green Time (sec)	6	3	15	60	18
Yellow Time (sec)	0	0	4	4	4
All-Red Time (sec)	0	0	2	2	2
Phase Time (sec)	6	3	21	66	24
Phase Split	5 %	3 %	18 %	55 %	20 %



MOVEMENT SUMMARY

Site: PCSPpm Interim 2019

Point Cook Rd / Saltwater Promenade PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	40	2.0	0.242	57.5	LOS A	3.5	25.1	0.92	0.77	23.6
2	T	123	2.0	0.398	52.5	LOS A	5.3	37.8	0.95	0.75	23.5
3	R	14	2.0	0.054	56.4	LOS A	0.7	5.1	0.89	0.70	23.6
Approach		177	2.0	0.398	53.9	LOS A	5.3	37.8	0.94	0.75	23.5
East: Saltwater Pde (East)											
4	L	4	2.0	0.004	7.9	LOS A	0.0	0.1	0.10	0.61	49.2
5	T	62	2.0	0.301	34.7	LOS A	7.6	53.8	0.81	0.67	28.7
6	R	379	2.0	0.497	44.5	LOS A	13.2	93.6	0.86	0.82	27.2
Approach		445	2.0	0.497	42.8	LOS A	13.2	93.6	0.85	0.80	27.5
North: Point Cook Rd (North)											
7	L	565	2.0	0.479	8.4	LOS A	4.5	31.8	0.15	0.65	48.9
8	T	98	2.0	0.278	45.8	LOS A	5.0	35.5	0.90	0.71	25.6
9	R	184	2.0	0.502	54.7	LOS A	9.7	69.1	0.94	0.81	24.0
Approach		847	2.0	0.502	22.8	LOS A	9.7	69.1	0.41	0.69	36.8
West: Lincoln Heath South (West)											
10	L	122	2.0	0.511	52.5	LOS A	11.1	79.2	0.93	0.83	25.0
11	T	93	2.0	0.511	44.2	LOS A	11.1	79.2	0.93	0.77	25.3
12	R	38	2.0	0.171	47.6	LOS A	1.8	12.5	0.82	0.73	26.0
Approach		253	2.0	0.511	48.7	LOS A	11.1	79.2	0.91	0.79	25.3
All Vehicles		1722	2.0	0.511	35.0	LOS A	13.2	93.6	0.65	0.74	30.4

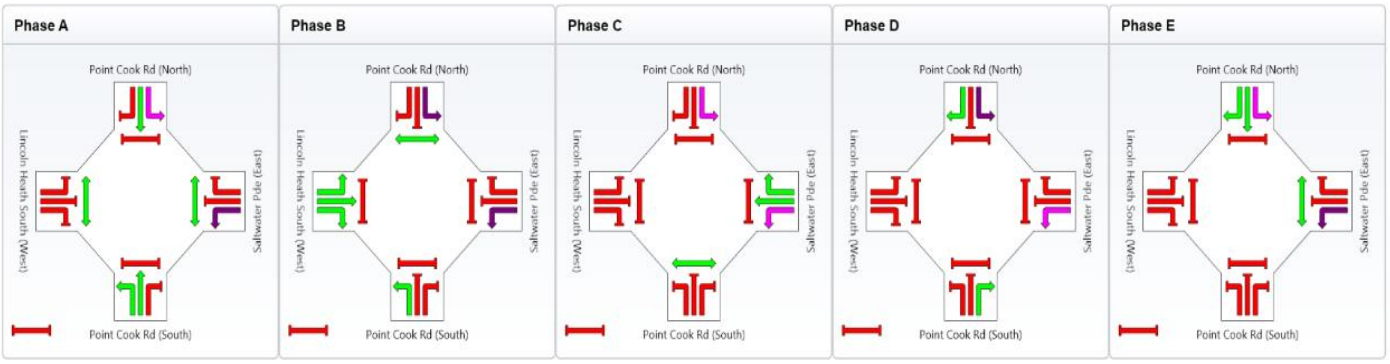
PHASING SUMMARY

Point Cook Rd / Saltwater Promenade PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Split Phasing 13.11.12
Input Sequence: A, B, C, D, E
Output Sequence: A, B, C, D, E

Phase Timing Results

Phase	A	B	C	D	E
Green Time (sec)	15	27	36	17	7
Yellow Time (sec)	4	4	4	0	0
All-Red Time (sec)	2	2	2	0	0
Phase Time (sec)	21	33	42	17	7
Phase Split	18 %	28 %	35 %	14 %	6 %



Point Cook Road / Sneydes Road

MOVEMENT SUMMARY

Site: PCSRam Interim 2019

Point Cook Rd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	260	2.0	0.278	15.0	LOS B	4.1	29.3	0.34	0.95	43.5
2	T	792	2.0	0.785	42.3	LOS D	24.7	175.5	0.96	0.85	26.6
Approach		1052	2.0	0.785	35.5	LOS D	24.7	175.5	0.80	0.88	29.5
North: Point Cook Rd (North)											
8	T	359	2.0	0.158	4.7	LOS A	3.8	26.8	0.31	0.26	51.8
9	R	388	2.0	0.803	43.1	LOS D	19.0	135.1	0.82	0.87	27.5
Approach		747	2.0	0.803	24.6	LOS C	19.0	135.1	0.57	0.58	35.5
West: Sneydes Rd (West)											
10	L	372	2.0	0.439	18.0	LOS B	8.1	58.0	0.44	0.95	41.3
12	R	99	2.0	0.341	57.5	LOS E	5.3	37.4	0.93	0.78	23.2
Approach		471	2.0	0.439	26.3	LOS C	8.1	58.0	0.54	0.91	35.6
All Vehicles		2270	2.0	0.803	30.0	LOS C	24.7	175.5	0.67	0.79	32.4

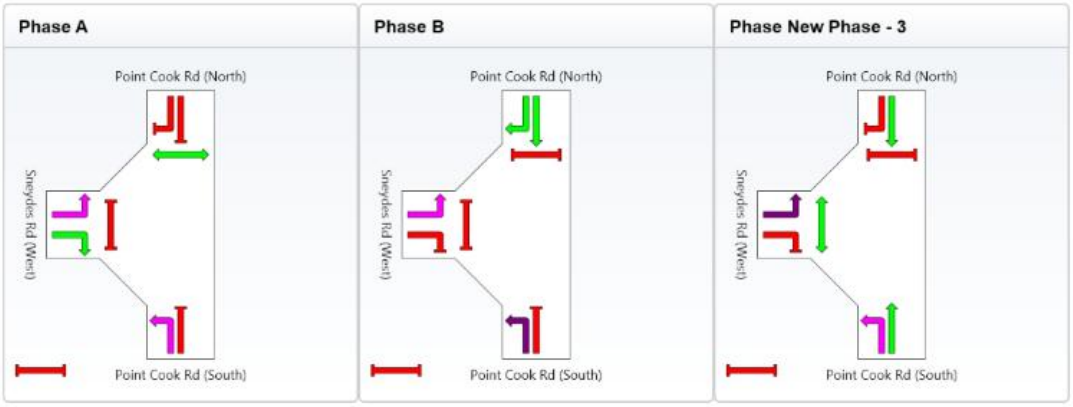
PHASING SUMMARY

Point Cook Rd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: A, B, New Phase - 3
Output Sequence: A, B, New Phase - 3

Phase Timing Results

Phase	A	B	New Phase - 3
Green Time (sec)	19	48	35
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	25	54	41
Phase Split	21 %	45 %	34 %



MOVEMENT SUMMARY

Site: PCSRpm Interim 2019

Point Cook Rd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	140	2.0	0.174	14.0	LOS B	1.8	12.8	0.29	0.95	44.2
2	T	536	2.0	0.715	47.0	LOS D	16.6	118.0	0.97	0.83	25.1
Approach		676	2.0	0.715	40.2	LOS D	16.6	118.0	0.83	0.85	27.6
North: Point Cook Rd (North)											
8	T	782	2.0	0.345	5.4	LOS A	9.8	69.5	0.36	0.32	50.7
9	R	391	2.0	0.732	31.5	LOS C	15.4	109.8	0.72	0.82	32.2
Approach		1173	2.0	0.732	14.1	LOS B	15.4	109.8	0.48	0.48	42.6
West: Sneydes Rd (West)											
10	L	402	2.0	0.413	14.8	LOS B	6.5	46.6	0.34	0.95	43.7
12	R	187	2.0	0.645	60.6	LOS E	10.5	75.1	0.99	0.82	22.5
Approach		589	2.0	0.645	29.3	LOS C	10.5	75.1	0.55	0.91	33.7
All Vehicles		2438	2.0	0.732	25.0	LOS C	16.6	118.0	0.59	0.69	35.1

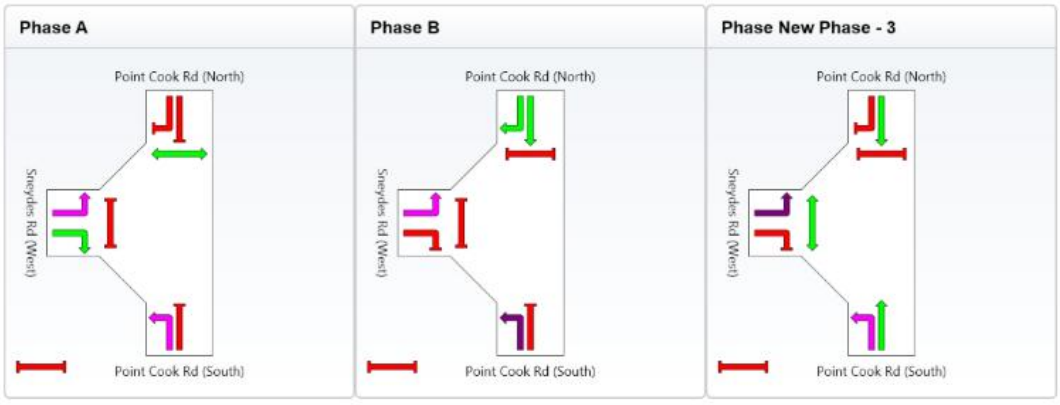
PHASING SUMMARY

Point Cook Rd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: A, B, New Phase - 3
Output Sequence: A, B, New Phase - 3

Phase Timing Results

Phase	A	B	New Phase - 3
Green Time (sec)	19	57	26
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	25	63	32
Phase Split	21 %	53 %	27 %



Point Cook Road / Dunnings Road

MOVEMENT SUMMARY

Site: PCDRam Interim 2019

Point Cook Rd / Dunnings Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	363	2.0	0.344	8.9	LOS A	2.9	21.0	0.23	0.66	48.3
2	T	1053	2.0	0.586	25.0	LOS C	22.4	159.3	0.79	0.70	34.0
Approach		1416	2.0	0.586	20.9	LOS C	22.4	159.3	0.65	0.69	36.8
North: Point Cook Rd (North)											
8	T	628	2.0	0.242	8.0	LOS A	7.0	49.6	0.42	0.36	47.6
9	R	264	2.0	0.584	23.8	LOS C	7.4	52.4	0.88	0.83	36.4
Approach		892	2.0	0.584	12.6	LOS B	7.4	52.4	0.55	0.50	43.6
West: Dunnings Rd (West)											
10	L	269	2.0	0.579	48.8	LOS D	14.8	105.3	0.92	0.84	25.6
12	R	193	2.0	0.579	45.7	LOS D	14.8	105.3	0.85	0.79	26.7
Approach		462	2.0	0.579	47.5	LOS D	14.8	105.3	0.89	0.82	26.1
All Vehicles		2770	2.0	0.586	22.7	LOS C	22.4	159.3	0.66	0.65	36.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model used.

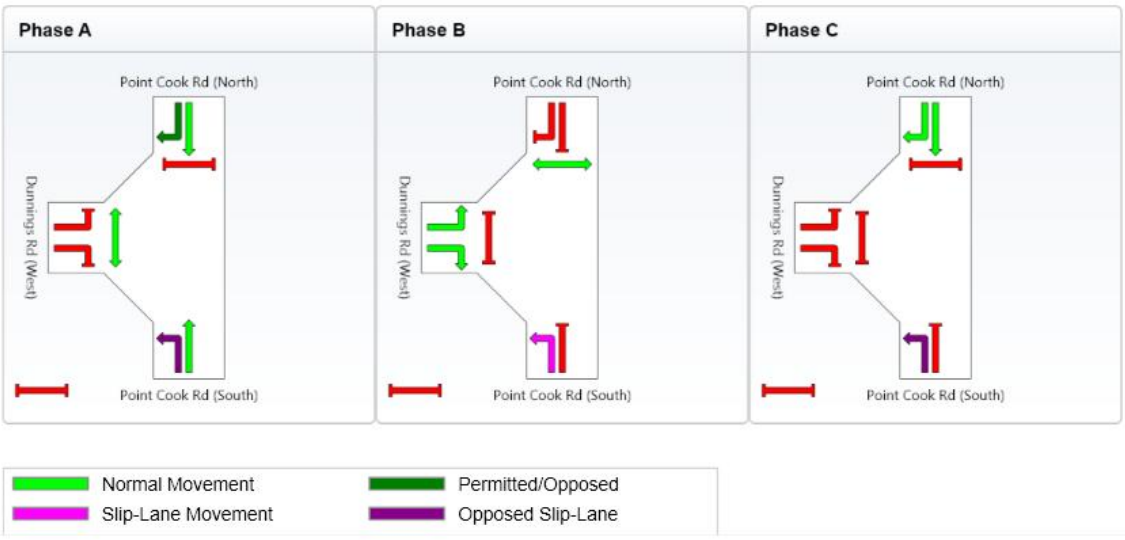
PHASING SUMMARY

Point Cook Rd / Dunnings Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: 30.09.14
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Green Time (sec)	56	33	19
Yellow Time (sec)	0	4	4
All-Red Time (sec)	0	2	2
Phase Time (sec)	56	39	25
Phase Split	47 %	33 %	21 %



MOVEMENT SUMMARY

Site: PCDRpm Interim 2019

Point Cook Rd / Dunnings Rd PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	320	2.0	0.292	8.8	LOS A	2.5	17.8	0.21	0.66	48.4
2	T	795	2.0	0.527	29.9	LOS C	17.7	126.1	0.82	0.72	31.6
Approach		1115	2.0	0.527	23.8	LOS C	17.7	126.1	0.65	0.70	35.1
North: Point Cook Rd (North)											
8	T	1336	2.0	0.541	12.5	LOS B	21.1	149.9	0.59	0.54	42.8
9	R	240	2.0	0.434	21.9	LOS C	5.9	41.9	0.75	0.80	37.4
Approach		1576	2.0	0.541	13.9	LOS B	21.1	149.9	0.62	0.58	41.9
West: Dunnings Rd (West)											
10	L	215	2.0	0.532	45.2	LOS D	14.6	103.7	0.88	0.83	26.7
12	R	249	2.0	0.532	43.1	LOS D	14.6	103.7	0.83	0.80	27.4
Approach		464	2.0	0.532	44.1	LOS D	14.6	103.7	0.85	0.82	27.1
All Vehicles		3155	2.0	0.541	21.9	LOS C	21.1	149.9	0.66	0.66	36.5

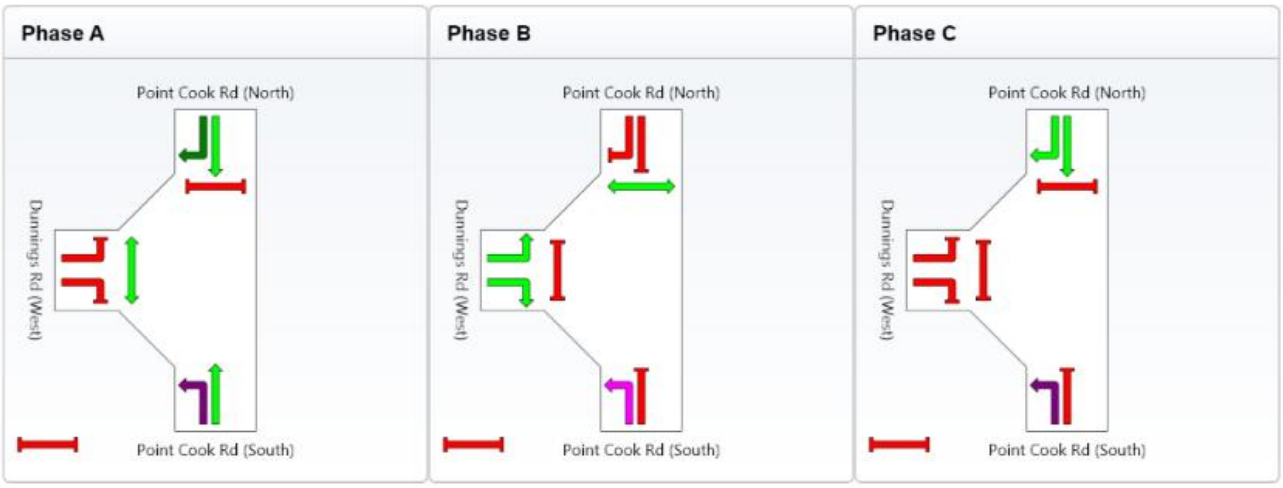
PHASING SUMMARY

Point Cook Rd / Dunnings Rd PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: 30.09.14
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Green Time (sec)	47	37	24
Yellow Time (sec)	0	4	4
All-Red Time (sec)	0	2	2
Phase Time (sec)	47	43	30
Phase Split	39 %	36 %	25 %



Lennon Boulevard / Sneydes Road

MOVEMENT SUMMARY

Site: LESNam Interim 2019

Lennon Bvd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Malibu Blvd (South)											
1	L	284	2.0	0.751	33.9	LOS C	10.8	77.0	0.71	0.83	31.0
2	T	210	2.0	0.397	38.1	LOS D	10.0	71.2	0.86	0.72	28.2
3	R	60	2.0	0.124	32.2	LOS C	2.2	15.7	0.73	0.73	31.9
Approach		554	2.0	0.751	35.3	LOS D	10.8	77.0	0.77	0.78	30.0
East: Sneydes Rd (East)											
4	L	22	2.0	0.067	31.3	LOS C	0.8	5.4	0.63	0.70	32.3
5	T	757	2.0	0.761	46.1	LOS D	21.1	150.6	0.99	0.89	25.4
6	R	102	2.0	0.318	55.4	LOS E	5.3	37.7	0.92	0.78	23.8
Approach		881	2.0	0.761	46.8	LOS D	21.1	150.6	0.97	0.87	25.3
North: Lennon Bvd (North)											
7	L	44	2.0	0.222	42.8	LOS D	5.3	37.4	0.80	0.82	28.3
8	T	75	2.0	0.222	34.5	LOS C	5.3	37.4	0.80	0.65	29.1
9	R	74	2.0	0.757	69.4	LOS E	4.5	31.8	0.99	0.87	20.7
Approach		193	2.0	0.757	49.7	LOS D	5.3	37.4	0.87	0.77	25.0
West: Sneydes Rd (West)											
10	L	44	2.0	0.102	31.6	LOS C	1.6	11.1	0.64	0.73	32.1
11	T	412	2.0	0.414	39.9	LOS D	10.0	71.5	0.88	0.73	27.5
12	R	124	2.0	0.387	55.9	LOS E	6.5	46.5	0.93	0.79	23.7
Approach		580	2.0	0.414	42.7	LOS D	10.0	71.5	0.87	0.74	26.9
All Vehicles		2208	2.0	0.761	43.1	LOS D	21.1	150.6	0.88	0.80	26.7

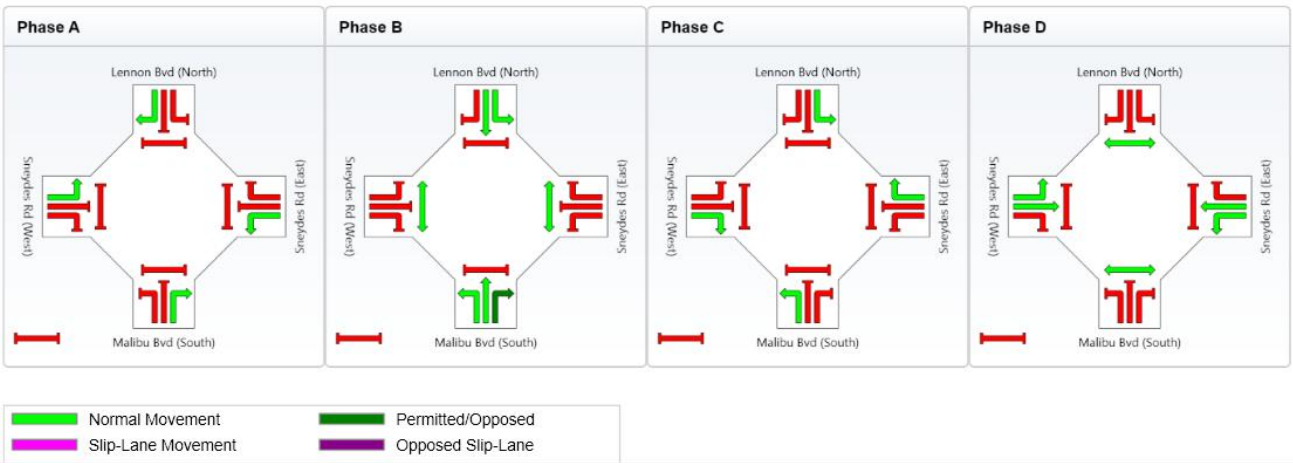
PHASING SUMMARY

Lennon Bvd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Leading Right Turn
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	11	33	21	31
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	17	39	27	37
Phase Split	14 %	33 %	23 %	31 %



MOVEMENT SUMMARY

Site: LESNpm Interim 2019

Lennon Bvd / Sneydes Rd PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Malibu Bvd (South)											
1	L	121	2.0	0.327	26.4	LOS C	3.8	27.4	0.58	0.75	34.8
2	T	77	2.0	0.160	37.7	LOS D	3.5	25.0	0.82	0.64	28.4
3	R	40	2.0	0.291	67.1	LOS E	2.3	16.5	0.98	0.74	21.2
Approach		238	2.0	0.327	36.9	LOS D	3.8	27.4	0.73	0.71	29.4
East: Sneydes Rd (East)											
4	L	62	2.0	0.185	30.6	LOS C	2.2	15.3	0.63	0.73	32.6
5	T	406	2.0	0.362	36.1	LOS D	9.4	66.9	0.84	0.70	28.9
6	R	33	2.0	0.098	52.2	LOS D	1.6	11.5	0.86	0.73	24.7
Approach		501	2.0	0.362	36.5	LOS D	9.4	66.9	0.82	0.71	29.0
North: Lennon Bvd (North)											
7	L	73	2.0	0.566	50.1	LOS D	14.1	100.1	0.92	0.85	26.1
8	T	202	2.0	0.566	41.8	LOS D	14.1	100.1	0.92	0.78	26.4
9	R	54	2.0	0.566	68.1	LOS E	3.2	22.7	0.99	0.76	21.0
Approach		329	2.0	0.566	48.0	LOS D	14.1	100.1	0.93	0.80	25.3
West: Sneydes Rd (West)											
10	L	43	2.0	0.097	30.3	LOS C	1.5	10.5	0.62	0.72	32.7
11	T	637	2.0	0.567	38.9	LOS D	15.8	112.8	0.90	0.77	27.8
12	R	183	2.0	0.545	56.7	LOS E	9.9	70.4	0.96	0.82	23.5
Approach		863	2.0	0.567	42.2	LOS D	15.8	112.8	0.90	0.78	27.0
All Vehicles		1931	2.0	0.567	41.1	LOS D	15.8	112.8	0.86	0.76	27.4

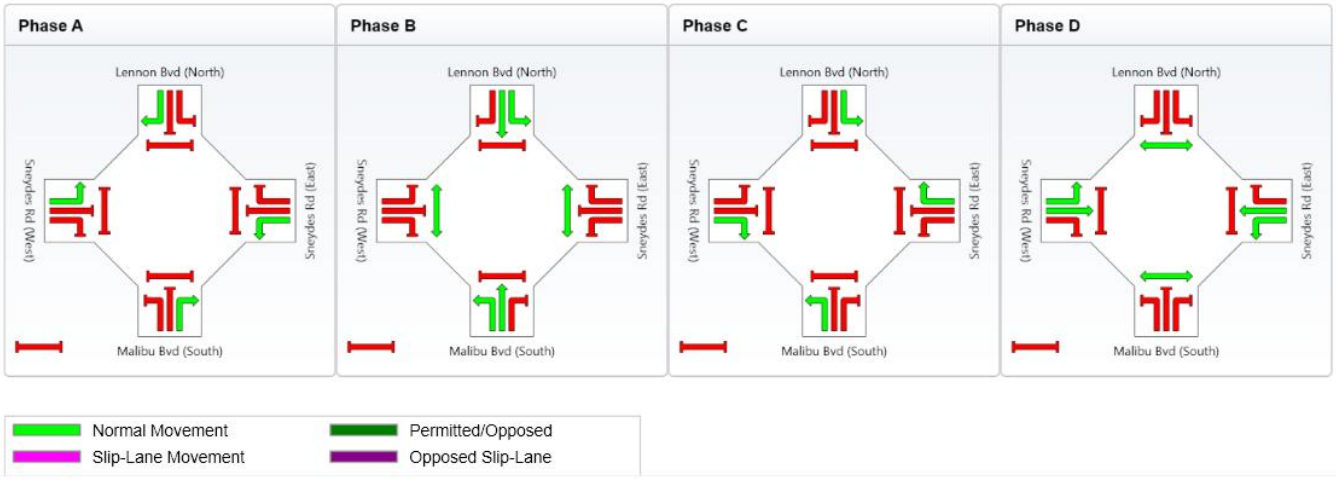
PHASING SUMMARY

Lennon Bvd / Sneydes Rd PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Leading Right Turn
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	9	30	22	35
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	15	36	28	41
Phase Split	13 %	30 %	23 %	34 %



2019 SIDRA modelling outputs for the Point Cook Road/Sneydes Road Intersection (unsignalised) – AM Peak Hour

MOVEMENT SUMMARY

Site: PCSRam Existing - Interim test

Point Cook Rd / Sneydes Rd AM Peak
Existing Volumes (2014)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	260	2.0	0.142	8.3	LOS A	0.0	0.0	0.00	0.67	49.0
2	T	792	2.0	0.411	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		1052	2.0	0.411	2.0	NA	0.0	0.0	0.00	0.16	56.8
North: Point Cook Rd (North)											
8	T	359	2.0	0.186	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R	388	2.0	0.948	57.0	LOS F	15.2	108.5	0.98	2.19	23.3
Approach		747	2.0	0.948	29.6	NA	15.2	108.5	0.51	1.14	33.1
West: Sneydes Rd (West)											
10	L	372	2.0	0.993	84.4	LOS F	22.6	160.6	1.00	2.72	18.0
12	R	99	2.0	1.650	1277.4	LOS F	53.8	382.9	1.00	3.89	1.7
Approach		471	2.0	1.650	335.2	LOS F	53.8	382.9	1.00	2.96	5.9
All Vehicles		2270	2.0	1.650	80.2	NA	53.8	382.9	0.37	1.07	18.7

2019 SIDRA modelling outputs for the Point Cook Road/Sneydes Road Intersection (unsignalised) – PM Peak Hour

MOVEMENT SUMMARY

Site: PCSRpm Existing - Interim test

Point Cook Rd / Sneydes Rd PM Peak
Existing Volumes (2014)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	140	2.0	0.076	8.3	LOS A	0.0	0.0	0.00	0.67	49.0
2	T	536	2.0	0.278	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		676	2.0	0.278	1.7	NA	0.0	0.0	0.00	0.14	57.3
North: Point Cook Rd (North)											
8	T	782	2.0	0.406	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R	391	2.0	0.562	15.6	LOS C	3.9	27.8	0.71	1.07	41.9
Approach		1173	2.0	0.562	5.2	NA	3.9	27.8	0.24	0.36	52.5
West: Sneydes Rd (West)											
10	L	402	2.0	0.673	18.0	LOS C	5.3	37.9	0.76	1.16	40.1
12	R	187	2.0	3.117	3892.8	LOS F	166.7	1186.7	1.00	5.98	0.6
Approach		589	2.0	3.117	1248.2	LOS F	166.7	1186.7	0.83	2.69	1.7
All Vehicles		2438	2.0	3.117	304.5	NA	166.7	1186.7	0.32	0.86	6.4

Point Cook Road / Saltwater Promenade

MOVEMENT SUMMARY

Site: PCSPam Interim 2024

Point Cook Rd / Saltwater Promenade AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	10	2.0	0.112	59.2	LOS A	1.4	10.0	0.92	0.74	23.4
2	T	61	2.0	0.185	51.4	LOS A	2.4	16.9	0.93	0.69	23.9
3	R	12	2.0	0.131	70.2	LOS A	0.7	5.1	0.98	0.68	20.5
Approach		83	2.0	0.185	55.1	LOS A	2.4	16.9	0.94	0.69	23.2
East: Saltwater Pde (East)											
4	L	20	2.0	0.023	8.5	LOS A	0.1	0.9	0.17	0.62	48.7
5	T	124	2.0	0.407	23.0	LOS A	13.3	94.9	0.71	0.62	34.2
6	R	779	2.0	0.672	34.9	LOS B	25.7	182.8	0.81	0.85	30.8
Approach		923	2.0	0.672	32.7	LOS B	25.7	182.8	0.79	0.81	31.5
North: Point Cook Rd (North)											
7	L	402	2.0	0.301	7.8	LOS A	1.6	11.2	0.07	0.62	49.4
8	T	128	2.0	0.443	51.0	LOS A	7.0	49.6	0.96	0.77	24.0
9	R	61	2.0	0.444	68.3	LOS A	3.6	25.6	1.00	0.76	20.9
Approach		591	2.0	0.444	23.4	LOS A	7.0	49.6	0.36	0.67	36.2
West: Lincoln Heath South (West)											
10	L	245	2.0	0.542	47.6	LOS A	13.7	97.8	0.90	0.84	26.1
11	T	31	2.0	0.542	39.3	LOS A	13.7	97.8	0.90	0.77	26.5
12	R	10	2.0	0.049	55.1	LOS A	0.5	3.6	0.88	0.68	23.9
Approach		286	2.0	0.542	47.0	LOS A	13.7	97.8	0.90	0.82	26.0
All Vehicles		1883	2.0	0.672	32.9	LOS B	25.7	182.8	0.68	0.76	31.3

MOVEMENT SUMMARY

Site: PCSPpm Interim 2024

Point Cook Rd / Saltwater Promenade PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	10	2.0	0.226	59.3	LOS A	3.0	21.1	0.93	0.78	23.6
2	T	135	2.0	0.372	52.5	LOS A	4.9	35.2	0.95	0.74	23.6
3	R	16	2.0	0.058	55.4	LOS A	0.8	5.8	0.89	0.70	23.8
Approach		161	2.0	0.372	53.2	LOS A	4.9	35.2	0.94	0.74	23.6
East: Saltwater Pde (East)											
4	L	5	2.0	0.005	7.9	LOS A	0.0	0.1	0.10	0.61	49.2
5	T	62	2.0	0.314	34.8	LOS A	7.9	56.3	0.82	0.68	28.6
6	R	398	2.0	0.518	44.8	LOS A	13.8	98.5	0.86	0.82	27.1
Approach		465	2.0	0.518	43.0	LOS A	13.8	98.5	0.85	0.80	27.4
North: Point Cook Rd (North)											
7	L	595	2.0	0.505	8.5	LOS A	4.8	34.5	0.15	0.65	48.9
8	T	108	2.0	0.321	47.1	LOS A	5.6	39.8	0.92	0.73	25.2
9	R	184	2.0	0.502	54.7	LOS A	9.7	69.1	0.94	0.81	24.0
Approach		887	2.0	0.505	22.8	LOS A	9.7	69.1	0.41	0.69	36.8
West: Lincoln Heath South (West)											
10	L	122	2.0	0.511	52.5	LOS A	11.1	79.2	0.93	0.83	25.0
11	T	93	2.0	0.511	44.2	LOS A	11.1	79.2	0.93	0.77	25.3
12	R	38	2.0	0.171	47.6	LOS A	1.8	12.5	0.82	0.73	26.0
Approach		253	2.0	0.511	48.7	LOS A	11.1	79.2	0.91	0.79	25.3
All Vehicles		1766	2.0	0.518	34.6	LOS A	13.8	98.5	0.65	0.74	30.5

PHASING SUMMARY

Site: PCSPam Interim 2024

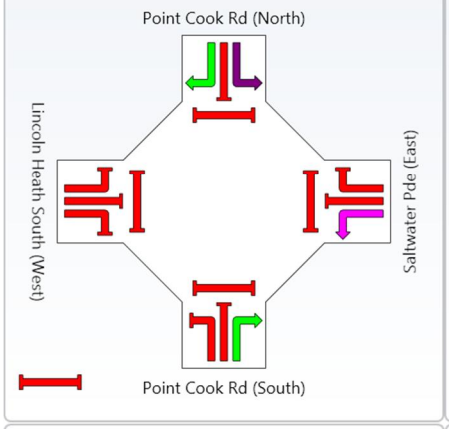
Point Cook Rd / Saltwater Promenade AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Leading Right Turn
Input Sequence: A, B, C, D, E
Output Sequence: A, B, C, D, E

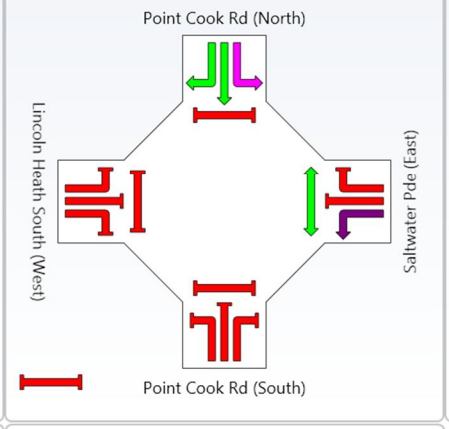
Phase Timing Results

Phase	A	B	C	D	E
Green Time (sec)	6	3	15	60	18
Yellow Time (sec)	0	0	4	4	4
All-Red Time (sec)	0	0	2	2	2
Phase Time (sec)	6	3	21	66	24
Phase Split	5 %	3 %	18 %	55 %	20 %

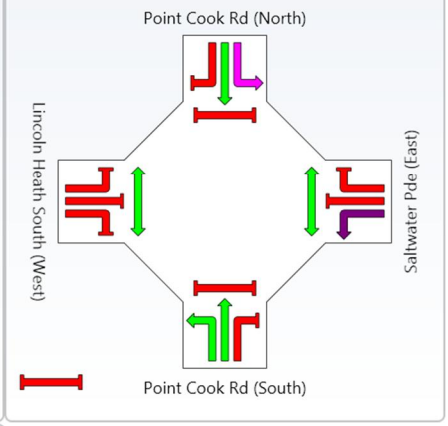
Phase A



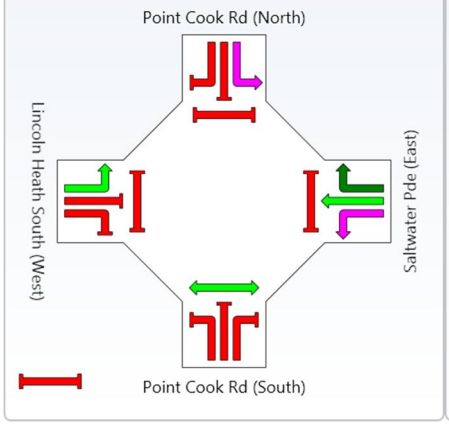
Phase B



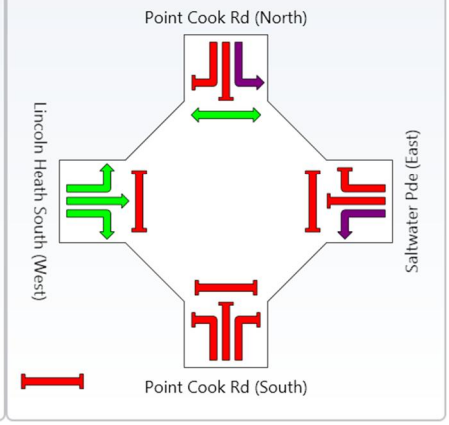
Phase C



Phase D



Phase E



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
			Phase Transition Applied

PHASING SUMMARY

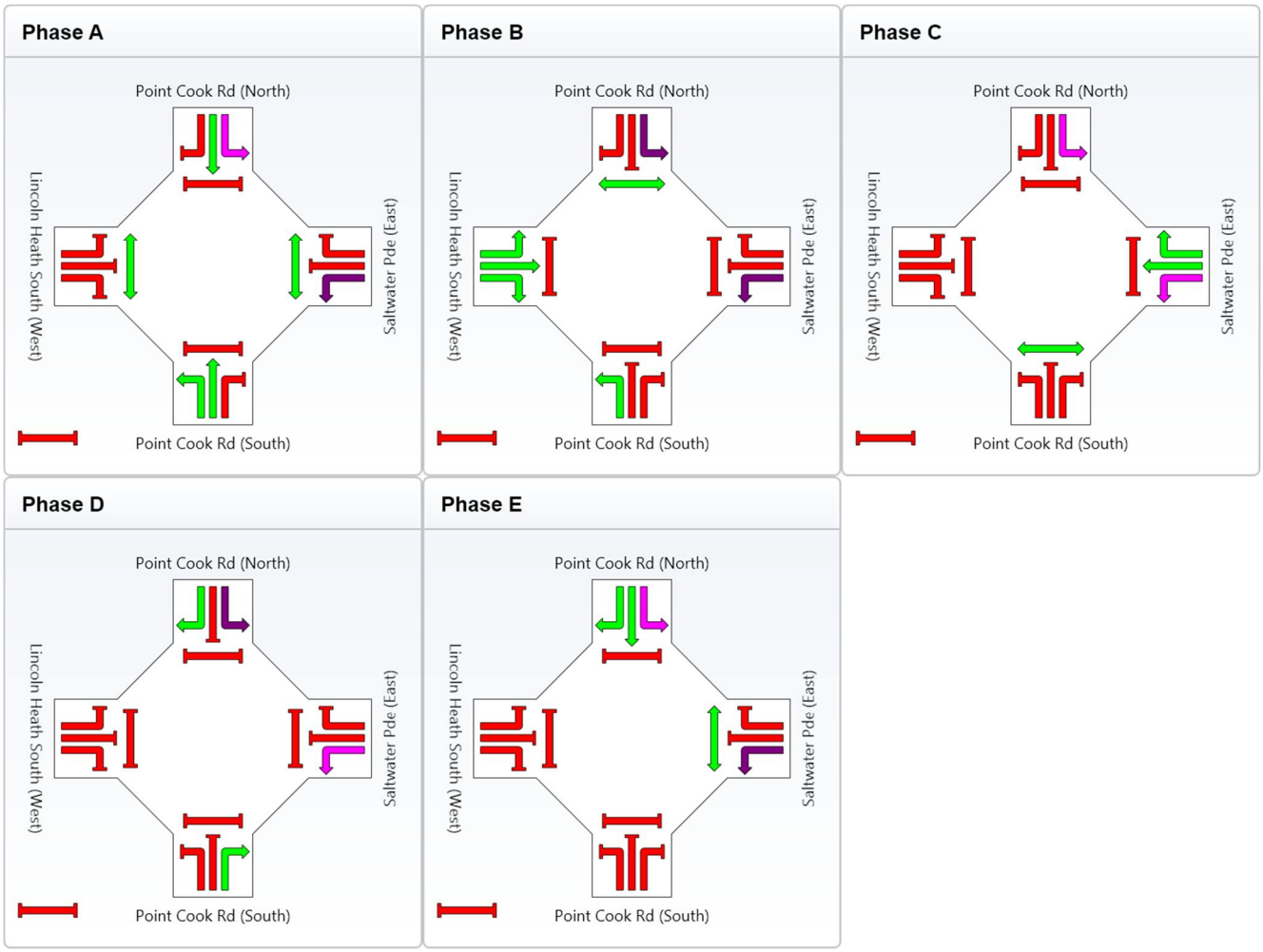
Site: PCSPpm Interim 2024

Point Cook Rd / Saltwater Promenade PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Split Phasing 13.11.12
Input Sequence: A, B, C, D, E
Output Sequence: A, B, C, D, E

Phase Timing Results

Phase	A	B	C	D	E
Green Time (sec)	15	27	36	18	6
Yellow Time (sec)	4	4	4	0	0
All-Red Time (sec)	2	2	2	0	0
Phase Time (sec)	21	33	42	18	6
Phase Split	18 %	28 %	35 %	15 %	5 %



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
			Phase Transition Applied

Point Cook Road / Sneydes Road

MOVEMENT SUMMARY

Site: PCSRam Interim 2024

Point Cook Rd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	267	2.0	0.296	15.6	LOS B	4.6	33.1	0.37	0.95	43.0
2	T	830	2.0	0.873	48.8	LOS D	29.2	207.9	0.98	0.93	24.6
Approach		1097	2.0	0.873	40.7	LOS D	29.2	207.9	0.83	0.93	27.5
North: Point Cook Rd (North)											
8	T	385	2.0	0.170	4.7	LOS A	4.1	29.0	0.31	0.26	51.8
9	R	428	2.0	0.867	49.4	LOS D	22.9	163.2	0.83	0.91	25.4
Approach		813	2.0	0.867	28.2	LOS C	22.9	163.2	0.58	0.60	33.5
West: Sneydes Rd (West)											
10	L	411	2.0	0.498	19.2	LOS B	8.7	62.0	0.45	0.98	40.4
12	R	104	2.0	0.359	57.6	LOS E	5.5	39.4	0.94	0.78	23.2
Approach		515	2.0	0.498	27.0	LOS C	8.7	62.0	0.55	0.94	35.2
All Vehicles		2425	2.0	0.873	33.6	LOS C	29.2	207.9	0.69	0.82	30.8

MOVEMENT SUMMARY

Site: PCSRpm Interim 2024

Point Cook Rd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	144	2.0	0.182	14.6	LOS B	2.0	14.5	0.31	0.95	43.8
2	T	570	2.0	0.791	50.0	LOS D	18.7	133.1	0.99	0.87	24.3
Approach		714	2.0	0.791	42.9	LOS D	18.7	133.1	0.85	0.89	26.7
North: Point Cook Rd (North)											
8	T	831	2.0	0.366	5.5	LOS A	10.6	75.5	0.36	0.32	50.6
9	R	432	2.0	0.799	36.3	LOS D	18.8	134.1	0.74	0.85	30.0
Approach		1263	2.0	0.799	16.0	LOS B	18.8	134.1	0.49	0.50	41.0
West: Sneydes Rd (West)											
10	L	444	2.0	0.468	15.5	LOS B	7.4	52.9	0.36	0.96	43.1
12	R	191	2.0	0.659	60.9	LOS E	10.8	77.1	0.99	0.83	22.4
Approach		635	2.0	0.659	29.1	LOS C	10.8	77.1	0.55	0.92	33.8
All Vehicles		2612	2.0	0.799	26.6	LOS C	18.8	134.1	0.60	0.71	34.2

PHASING SUMMARY

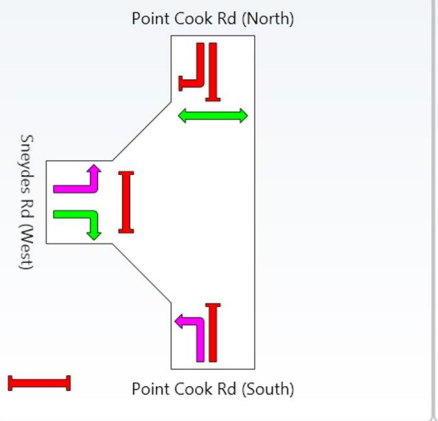
Point Cook Rd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: A, B, New Phase - 3
Output Sequence: A, B, New Phase - 3

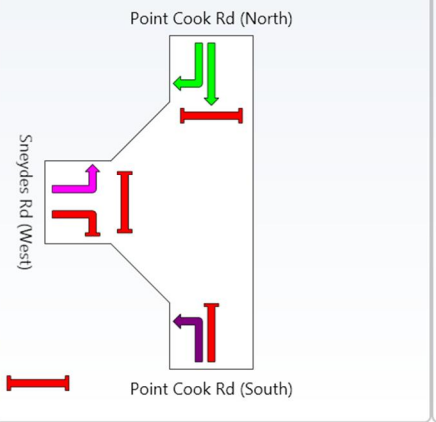
Phase Timing Results

Phase	A	B	New Phase - 3
Green Time (sec)	19	50	33
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	25	56	39
Phase Split	21 %	47 %	33 %

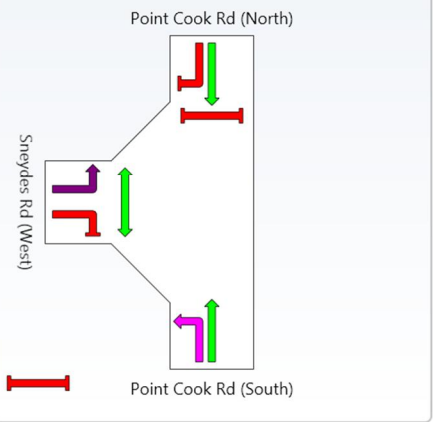
Phase A



Phase B



Phase New Phase - 3



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
			Phase Transition Applied

Project: N:\WINDOWS\2014\CG140760\SIDRA\LHS PSP - v4 - 10 year interim.sip
8000955, CARDNO, ENTERPRISE

PHASING SUMMARY

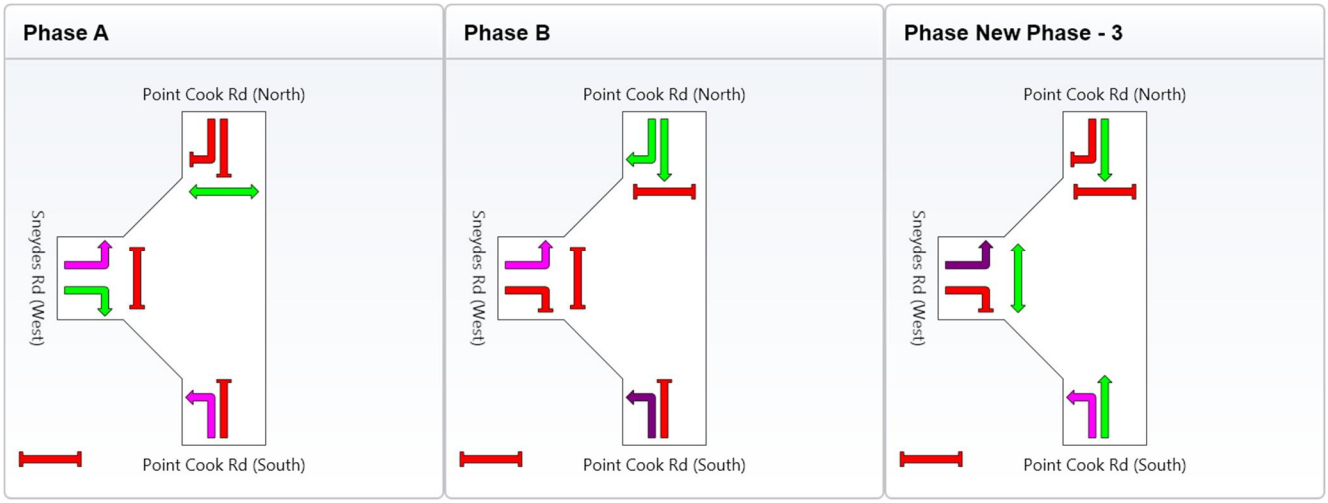
Site: PCSRpm Interim 2024

Point Cook Rd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Opposed Turns
Input Sequence: A, B, New Phase - 3
Output Sequence: A, B, New Phase - 3

Phase Timing Results

Phase	A	B	New Phase - 3
Green Time (sec)	19	58	25
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	25	64	31
Phase Split	21 %	53 %	26 %



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
			Phase Transition Applied

Project: N:\WINDOWS\2014\CG140760\SIDRA\LHS PSP - v4 - 10 year interim.sip
8000955, CARDNO, ENTERPRISE

Point Cook Road / Dunnings Road

MOVEMENT SUMMARY

Site: PCDRam Interim 2024

Point Cook Rd / Dunnings Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	393	2.0	0.399	9.6	LOS A	3.8	27.2	0.29	0.68	47.7
2	T	1132	2.0	0.653	27.4	LOS C	25.6	182.0	0.84	0.75	32.7
Approach		1525	2.0	0.653	22.8	LOS C	25.6	182.0	0.70	0.73	35.6
North: Point Cook Rd (North)											
8	T	685	2.0	0.264	8.1	LOS A	7.7	55.1	0.42	0.37	47.5
9	R	291	2.0	0.639	28.4	LOS C	9.3	66.3	0.95	0.87	33.8
Approach		976	2.0	0.639	14.2	LOS B	9.3	66.3	0.58	0.52	42.3
West: Dunnings Rd (West)											
10	L	297	2.0	0.637	49.6	LOS D	16.6	118.1	0.94	0.85	25.4
12	R	211	2.0	0.637	46.2	LOS D	16.6	118.1	0.86	0.80	26.5
Approach		508	2.0	0.637	48.2	LOS D	16.6	118.1	0.91	0.83	25.8
All Vehicles		3009	2.0	0.653	24.3	LOS C	25.6	182.0	0.70	0.68	35.2

MOVEMENT SUMMARY

Site: PCDRpm Interim 2024

Point Cook Rd / Dunnings Rd PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	345	2.0	0.324	9.0	LOS A	3.0	21.3	0.24	0.67	48.2
2	T	862	2.0	0.584	31.4	LOS C	19.9	141.9	0.85	0.75	30.8
Approach		1207	2.0	0.584	25.0	LOS C	19.9	141.9	0.68	0.72	34.4
North: Point Cook Rd (North)											
8	T	1452	2.0	0.588	13.1	LOS B	24.0	170.9	0.62	0.57	42.3
9	R	265	2.0	0.488	23.4	LOS C	6.6	47.0	0.81	0.82	36.5
Approach		1717	2.0	0.588	14.7	LOS B	24.0	170.9	0.65	0.61	41.2
West: Dunnings Rd (West)											
10	L	238	2.0	0.582	46.0	LOS D	16.2	115.5	0.90	0.84	26.5
12	R	269	2.0	0.582	43.6	LOS D	16.2	115.5	0.84	0.81	27.3
Approach		507	2.0	0.582	44.7	LOS D	16.2	115.5	0.87	0.82	26.9
All Vehicles		3431	2.0	0.588	22.7	LOS C	24.0	170.9	0.69	0.68	35.9

PHASING SUMMARY

Site: PCDRam Interim 2024

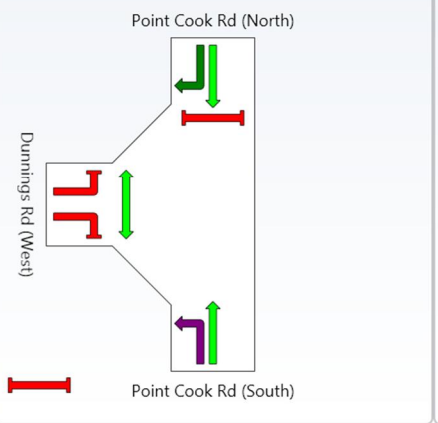
Point Cook Rd / Dunnings Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: 30.09.14
Input Sequence: A, B, C
Output Sequence: A, B, C

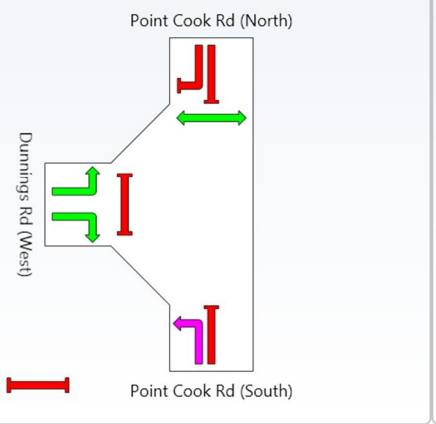
Phase Timing Results

Phase	A	B	C
Green Time (sec)	54	33	21
Yellow Time (sec)	0	4	4
All-Red Time (sec)	0	2	2
Phase Time (sec)	54	39	27
Phase Split	45 %	33 %	23 %

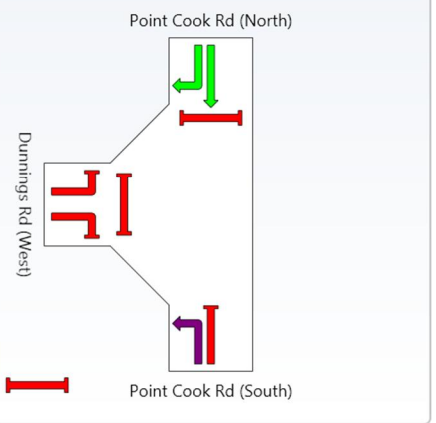
Phase A



Phase B



Phase C



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
			Phase Transition Applied

Project: N:\WINDOWS\2014\CG140760\SIDRA\LHS PSP - v4 - 10 year interim.sip
8000955, CARDNO, ENTERPRISE

PHASING SUMMARY

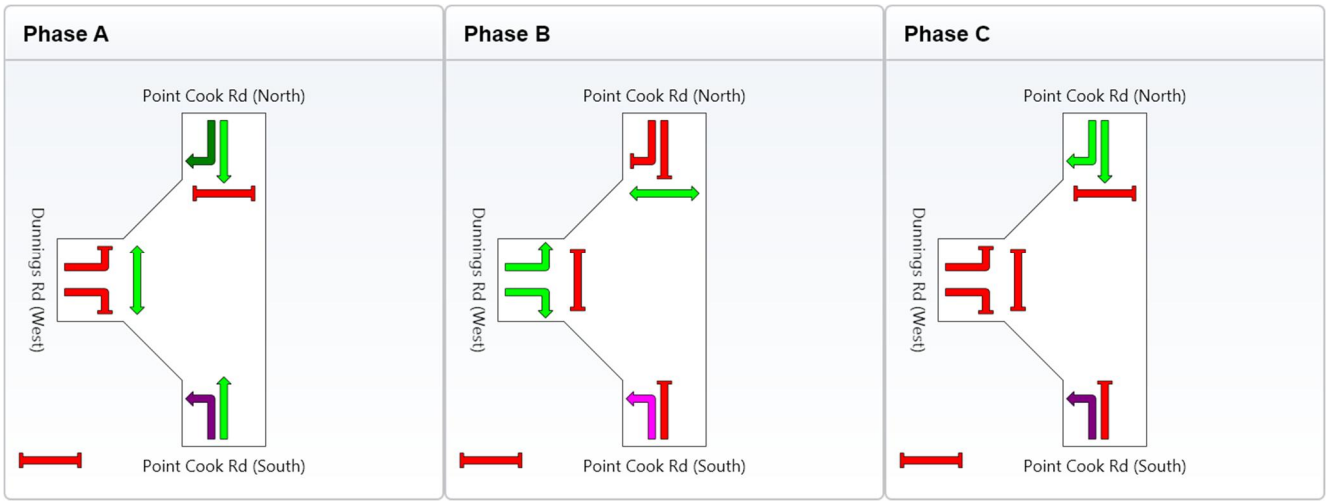
Site: PCDRpm Interim 2024

Point Cook Rd / Dunnings Rd PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: 30.09.14
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Green Time (sec)	46	37	25
Yellow Time (sec)	0	4	4
All-Red Time (sec)	0	2	2
Phase Time (sec)	46	43	31
Phase Split	38 %	36 %	26 %



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
			Phase Transition Applied

Project: N:\WINDOWS\2014\CG140760\SIDRA\LHS PSP - v4 - 10 year interim.sip
8000955, CARDNO, ENTERPRISE

Lennon Boulevard / Sneydes Road

MOVEMENT SUMMARY

Site: LESNam Interim 2024

Lennon Bvd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Malibu Blvd (South)											
1	L	299	2.0	0.812	43.1	LOS D	13.3	94.3	0.78	0.88	27.4
2	T	232	2.0	0.452	39.6	LOS D	11.3	80.8	0.88	0.74	27.6
3	R	66	2.0	0.134	31.5	LOS C	2.4	16.9	0.73	0.73	32.2
Approach		597	2.0	0.812	40.4	LOS D	13.3	94.3	0.82	0.81	28.0
East: Sneydes Rd (East)											
4	L	24	2.0	0.071	30.0	LOS C	0.8	5.8	0.62	0.70	32.9
5	T	815	2.0	0.819	49.9	LOS D	24.1	171.8	1.00	0.95	24.3
6	R	112	2.0	0.367	56.7	LOS E	5.9	42.2	0.93	0.79	23.4
Approach		951	2.0	0.819	50.2	LOS D	24.1	171.8	0.98	0.93	24.4
North: Lennon Bvd (North)											
7	L	49	2.0	0.253	43.9	LOS D	6.0	42.4	0.81	0.83	27.9
8	T	83	2.0	0.253	35.6	LOS D	6.0	42.4	0.81	0.66	28.6
9	R	82	2.0	0.818	70.8	LOS E	5.0	35.8	0.98	0.92	20.4
Approach		214	2.0	0.818	51.0	LOS D	6.0	42.4	0.88	0.80	24.7
West: Sneydes Rd (West)											
10	L	49	2.0	0.111	30.4	LOS C	1.7	12.0	0.63	0.73	32.7
11	T	450	2.0	0.452	40.3	LOS D	11.1	79.0	0.89	0.75	27.3
12	R	133	2.0	0.436	57.3	LOS E	7.1	50.8	0.95	0.80	23.3
Approach		632	2.0	0.452	43.1	LOS D	11.1	79.0	0.88	0.75	26.7
All Vehicles		2394	2.0	0.819	46.0	LOS D	24.1	171.8	0.90	0.84	25.8

MOVEMENT SUMMARY

Site: LESNpm Interim 2024

Lennon Bvd / Sneydes Rd PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Malibu Blvd (South)											
1	L	126	2.0	0.345	27.0	LOS C	4.1	29.1	0.60	0.75	34.4
2	T	85	2.0	0.177	37.9	LOS D	3.9	27.7	0.82	0.65	28.3
3	R	44	2.0	0.288	65.9	LOS E	2.5	18.0	0.98	0.74	21.4
Approach		255	2.0	0.345	37.4	LOS D	4.1	29.1	0.74	0.71	29.2
East: Sneydes Rd (East)											
4	L	68	2.0	0.201	30.0	LOS C	2.3	16.6	0.63	0.74	32.9
5	T	438	2.0	0.390	36.5	LOS D	10.2	72.8	0.85	0.71	28.8
6	R	37	2.0	0.115	53.3	LOS D	1.8	13.1	0.88	0.74	24.4
Approach		543	2.0	0.390	36.8	LOS D	10.2	72.8	0.82	0.71	28.9
North: Lennon Bvd (North)											
7	L	80	2.0	0.624	50.9	LOS D	15.8	112.4	0.94	0.86	25.9
8	T	223	2.0	0.624	42.6	LOS D	15.8	112.4	0.94	0.80	26.1
9	R	60	2.0	0.621	67.4	LOS E	3.5	25.1	0.99	0.79	21.1
Approach		363	2.0	0.624	48.5	LOS D	15.8	112.4	0.95	0.81	25.1
West: Sneydes Rd (West)											
10	L	48	2.0	0.107	29.7	LOS C	1.6	11.6	0.62	0.73	33.0
11	T	687	2.0	0.612	39.5	LOS D	17.4	123.6	0.92	0.79	27.6
12	R	192	2.0	0.599	58.1	LOS E	10.6	75.2	0.97	0.82	23.1
Approach		927	2.0	0.612	42.8	LOS D	17.4	123.6	0.92	0.79	26.7
All Vehicles		2088	2.0	0.624	41.6	LOS D	17.4	123.6	0.88	0.77	27.2

PHASING SUMMARY

Site: LESNam Interim 2024

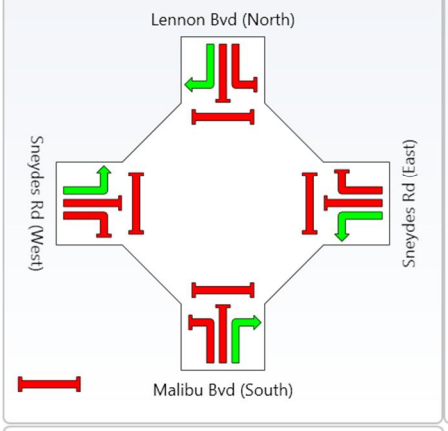
Lennon Bvd / Sneydes Rd AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Leading Right Turn
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

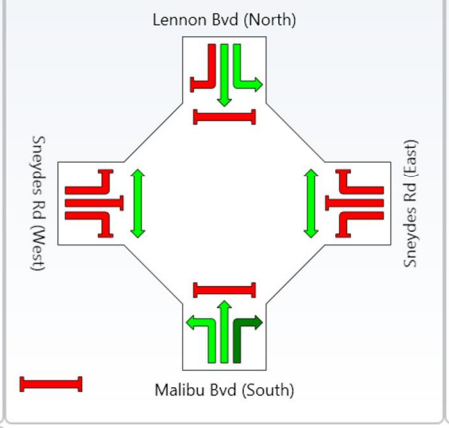
Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	13	32	20	31
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	19	38	26	37
Phase Split	16 %	32 %	22 %	31 %

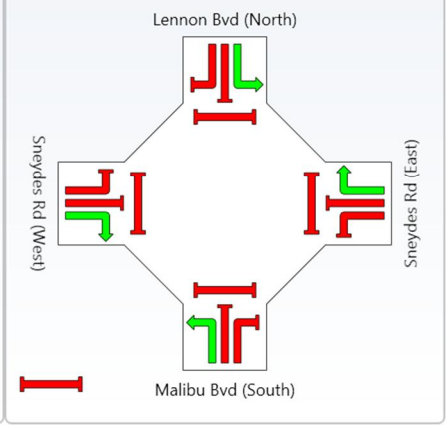
Phase A



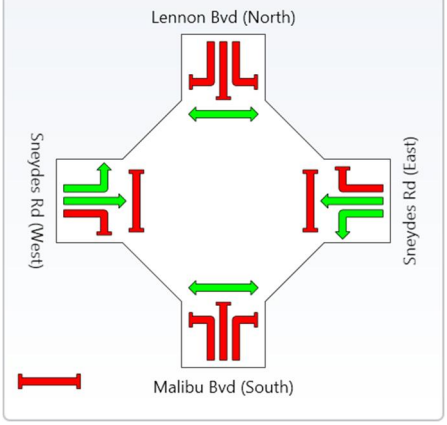
Phase B



Phase C



Phase D



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
			Phase Transition Applied

PHASING SUMMARY

Site: LESNpm Interim 2024

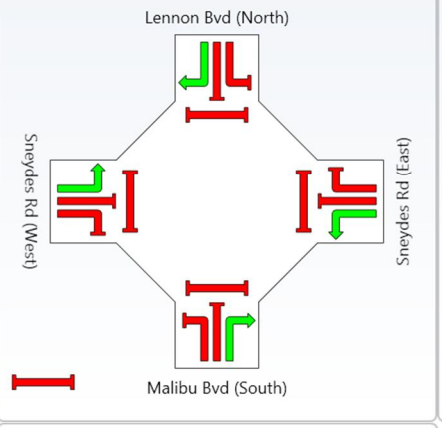
Lennon Bvd / Sneydes Rd PM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Leading Right Turn
Input Sequence: A, B, C, D
Output Sequence: A, B, C, D

Phase Timing Results

Phase	A	B	C	D
Green Time (sec)	10	30	21	35
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	16	36	27	41
Phase Split	13 %	30 %	23 %	34 %

Phase A



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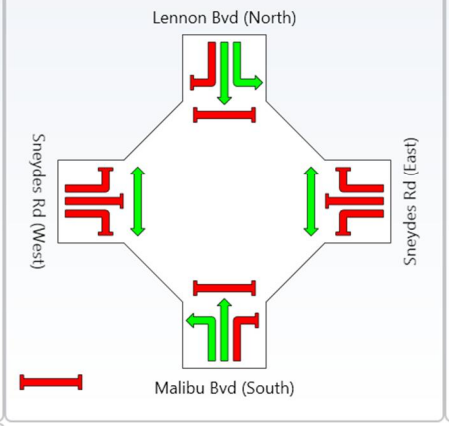
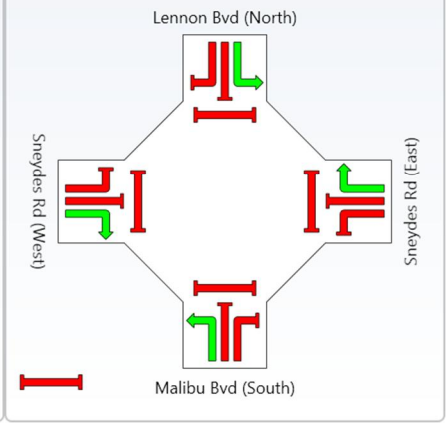
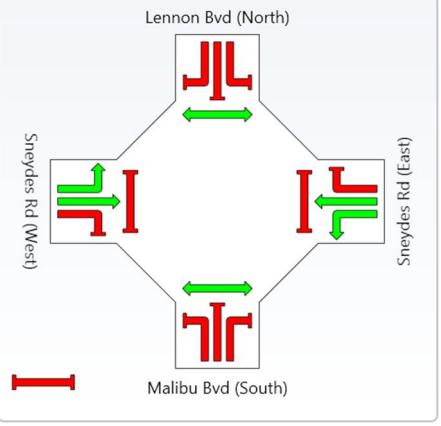


Phase C



Phase D



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
		●	Phase Transition Applied

Sensitivity Test 1

MOVEMENT SUMMARY

Site: PCSPam Interim 2024 - school test

Point Cook Rd / Saltwater Promenade AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	10	2.0	0.112	59.2	LOS A	1.4	10.0	0.92	0.74	23.4
2	T	61	2.0	0.185	51.4	LOS A	2.4	16.9	0.93	0.69	23.9
3	R	12	2.0	0.131	70.2	LOS A	0.7	5.1	0.98	0.68	20.5
Approach		83	2.0	0.185	55.1	LOS A	2.4	16.9	0.94	0.69	23.2
East: Saltwater Pde (East)											
4	L	20	2.0	0.023	8.5	LOS A	0.1	0.9	0.17	0.62	48.7
5	T	224	2.0	0.478	27.2	LOS A	16.2	115.7	0.78	0.68	32.2
6	R	779	2.0	0.789	40.2	LOS C	31.8	226.7	0.90	0.88	28.7
Approach		1023	2.0	0.789	36.7	LOS C	31.8	226.7	0.86	0.83	29.7
North: Point Cook Rd (North)											
7	L	402	2.0	0.351	8.1	LOS A	2.4	17.3	0.11	0.63	49.2
8	T	128	2.0	0.443	51.0	LOS A	7.0	49.6	0.96	0.77	24.0
9	R	61	2.0	0.444	68.3	LOS A	3.6	25.6	1.00	0.76	20.9
Approach		591	2.0	0.444	23.6	LOS A	7.0	49.6	0.38	0.67	36.1
West: Lincoln Heath South (West)											
10	L	245	2.0	0.766	54.1	LOS C	21.1	150.1	0.98	0.89	24.5
11	T	131	2.0	0.766	45.9	LOS C	21.1	150.1	0.98	0.88	24.6
12	R	10	2.0	0.044	45.8	LOS A	0.4	3.2	0.80	0.68	26.6
Approach		386	2.0	0.766	51.1	LOS C	21.1	150.1	0.98	0.88	24.6
All Vehicles		2083	2.0	0.789	36.4	LOS C	31.8	226.7	0.75	0.79	29.7

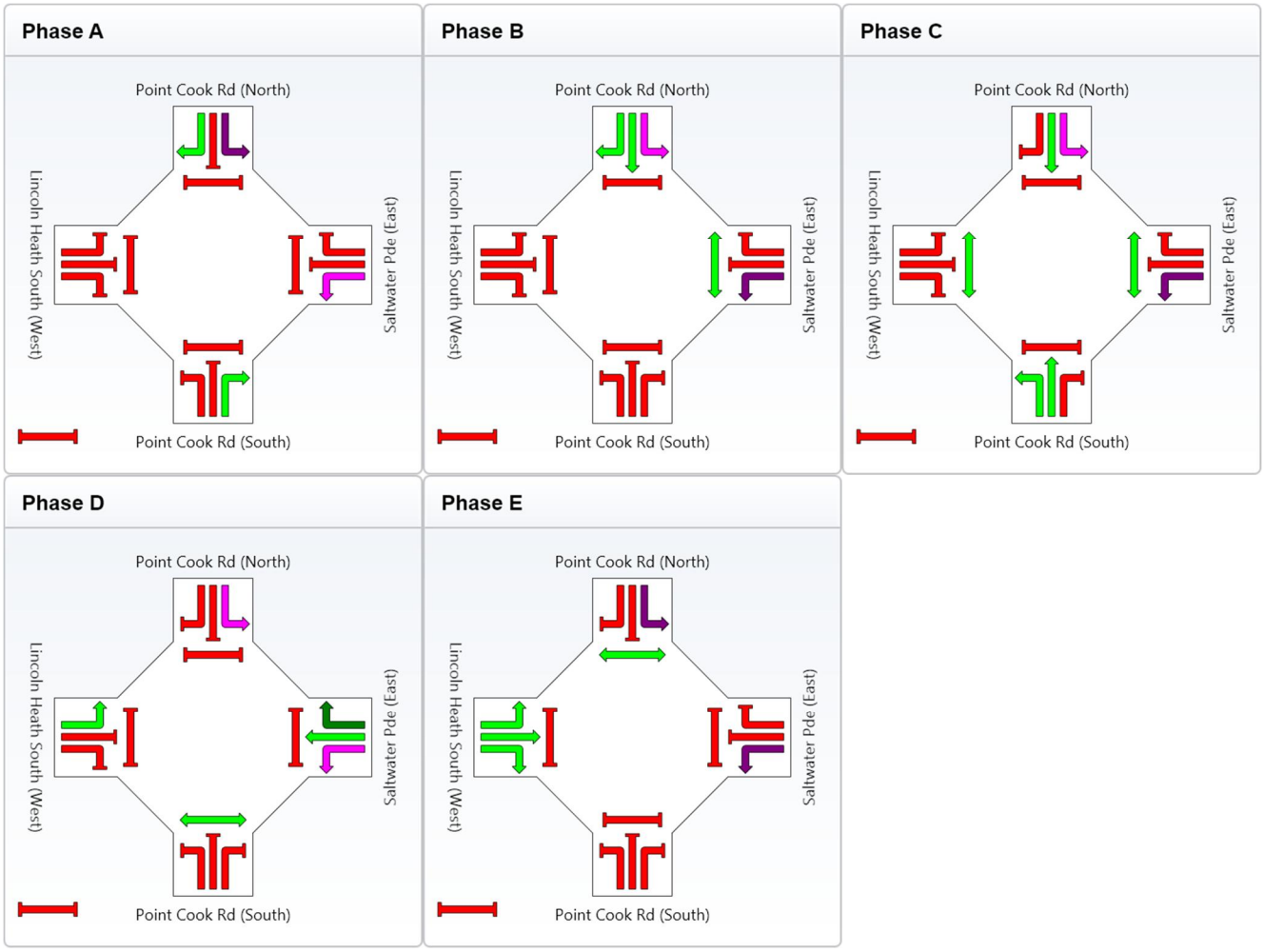
PHASING SUMMARY

Point Cook Rd / Saltwater Promenade AM Peak
Interim Operating Volumes (2019)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Leading Right Turn
Input Sequence: A, B, C, D, E
Output Sequence: A, B, C, D, E

Phase Timing Results

Phase	A	B	C	D	E
Green Time (sec)	6	3	15	50	28
Yellow Time (sec)	0	0	4	4	4
All-Red Time (sec)	0	0	2	2	2
Phase Time (sec)	6	3	21	56	34
Phase Split	5 %	3 %	18 %	47 %	28 %



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
			Phase Transition Applied

Sensitivity Test 2

MOVEMENT SUMMARY

Site: PCSPam Interim 2024

Point Cook Rd / Saltwater Promenade AM Peak
Interim Operating Volumes (2024)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	12	2.0	0.116	59.2	LOS A	1.4	10.2	0.92	0.74	23.3
2	T	61	2.0	0.190	51.5	LOS A	2.5	17.4	0.93	0.69	23.8
3	R	12	2.0	0.131	70.2	LOS A	0.7	5.1	0.98	0.68	20.5
Approach		85	2.0	0.190	55.2	LOS A	2.5	17.4	0.94	0.70	23.2
East: Saltwater Pde (East)											
4	L	20	2.0	0.024	8.7	LOS A	0.1	1.0	0.18	0.62	48.5
5	T	248	2.0	0.562	22.2	LOS A	21.6	153.8	0.75	0.67	34.7
6	R	1158	2.0	0.928	51.4	LOS D	60.6	431.5	0.94	0.98	25.0
Approach		1426	2.0	0.928	45.7	LOS D	60.6	431.5	0.89	0.92	26.5
North: Point Cook Rd (North)											
7	L	497	2.0	0.376	7.9	LOS A	2.1	15.2	0.08	0.62	49.4
8	T	128	2.0	0.443	51.0	LOS A	7.0	49.6	0.96	0.77	24.0
9	R	61	2.0	0.444	68.3	LOS A	3.6	25.6	1.00	0.76	20.9
Approach		686	2.0	0.444	21.3	LOS A	7.0	49.6	0.32	0.66	37.5
West: Lincoln Heath South (West)											
10	L	245	2.0	0.776	59.3	LOS C	17.9	127.4	1.00	0.90	23.0
11	T	62	2.0	0.776	51.0	LOS C	17.9	127.4	1.00	0.90	23.1
12	R	20	2.0	0.098	55.6	LOS A	1.0	7.2	0.89	0.71	23.8
Approach		327	2.0	0.776	57.5	LOS C	17.9	127.4	0.99	0.88	23.0
All Vehicles		2524	2.0	0.928	40.9	LOS D	60.6	431.5	0.75	0.84	28.1

MOVEMENT SUMMARY

Site: PCSPpm Interim 2024

Point Cook Rd / Saltwater Promenade PM Peak
Interim Operating Volumes (2024)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	16	2.0	0.234	59.3	LOS A	3.1	22.1	0.93	0.77	23.5
2	T	135	2.0	0.386	52.6	LOS A	5.1	36.5	0.95	0.74	23.5
3	R	16	2.0	0.175	70.5	LOS A	1.0	6.8	0.99	0.69	20.4
Approach		167	2.0	0.386	55.0	LOS A	5.1	36.5	0.95	0.74	23.2
East: Saltwater Pde (East)											
4	L	5	2.0	0.004	7.9	LOS A	0.0	0.1	0.09	0.61	49.3
5	T	98	2.0	0.473	36.1	LOS A	12.9	91.7	0.86	0.73	28.0
6	R	615	2.0	0.782	49.1	LOS C	24.5	174.3	0.94	0.88	25.7
Approach		718	2.0	0.782	47.0	LOS C	24.5	174.3	0.93	0.86	26.1
North: Point Cook Rd (North)											
7	L	919	2.0	0.846	13.5	LOS C	16.7	119.2	0.35	0.73	44.0
8	T	108	2.0	0.182	32.5	LOS A	4.6	32.7	0.77	0.62	30.5
9	R	196	2.0	0.459	51.0	LOS A	9.9	70.7	0.91	0.81	25.0
Approach		1223	2.0	0.846	21.2	LOS C	16.7	119.2	0.47	0.73	38.0
West: Lincoln Heath South (West)											
10	L	131	2.0	0.804	63.8	LOS C	16.7	119.3	1.00	0.93	22.2
11	T	146	2.0	0.804	55.6	LOS C	16.7	119.3	1.00	0.93	22.3
12	R	5	2.0	0.023	50.9	LOS A	0.2	1.7	0.84	0.66	25.0
Approach		282	2.0	0.804	59.3	LOS C	16.7	119.3	1.00	0.93	22.3
All Vehicles		2390	2.0	0.846	35.8	LOS C	24.5	174.3	0.70	0.79	30.1

PHASING SUMMARY

Site: PCSPam Interim 2024

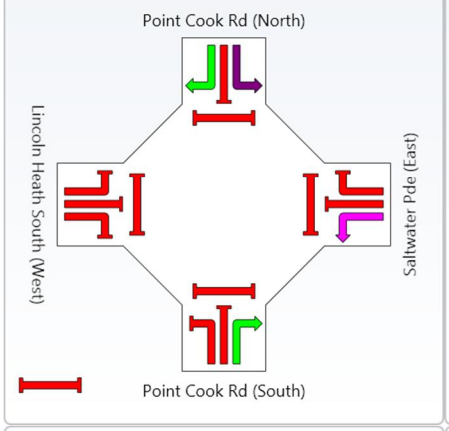
Point Cook Rd / Saltwater Promenade AM Peak
Interim Operating Volumes (2024)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Leading Right Turn
Input Sequence: A, B, C, D, E
Output Sequence: A, B, C, D, E

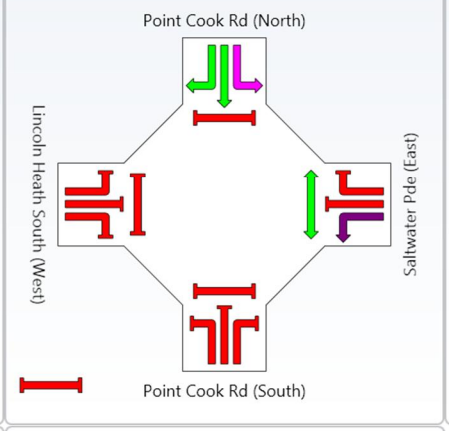
Phase Timing Results

Phase	A	B	C	D	E
Green Time (sec)	6	3	15	60	18
Yellow Time (sec)	0	0	4	4	4
All-Red Time (sec)	0	0	2	2	2
Phase Time (sec)	6	3	21	66	24
Phase Split	5 %	3 %	18 %	55 %	20 %

Phase A



Phase B



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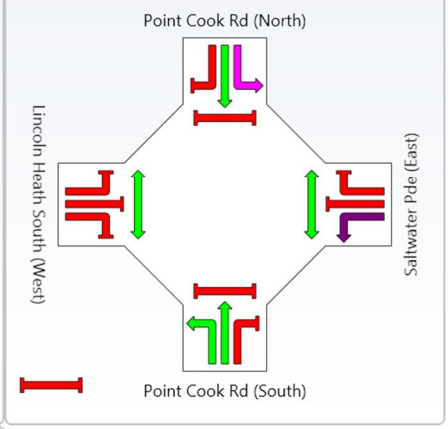
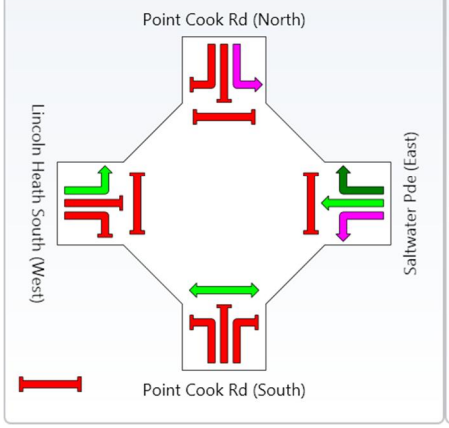
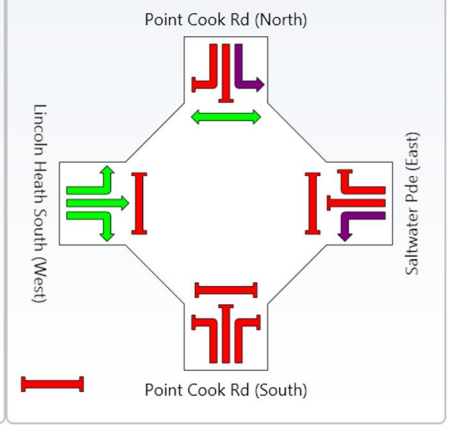


Phase D



Phase E



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
		●	Phase Transition Applied

PHASING SUMMARY

Site: PCSPpm Interim 2024

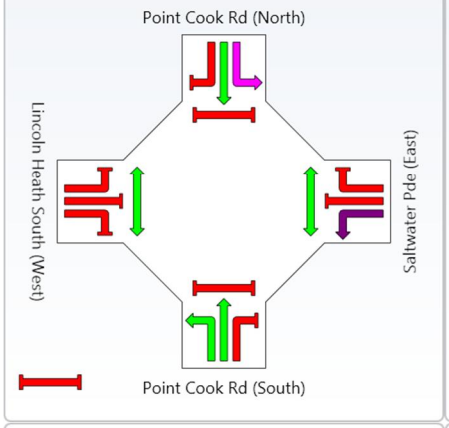
Point Cook Rd / Saltwater Promenade PM Peak
Interim Operating Volumes (2024)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Split Phasing 13.11.12
Input Sequence: A, B, C, D, E
Output Sequence: A, B, C, D, E

Phase Timing Results

Phase	A	B	C	D	E
Green Time (sec)	15	22	37	6	22
Yellow Time (sec)	4	4	4	0	0
All-Red Time (sec)	2	2	2	0	0
Phase Time (sec)	21	28	43	6	22
Phase Split	18 %	23 %	36 %	5 %	18 %

Phase A



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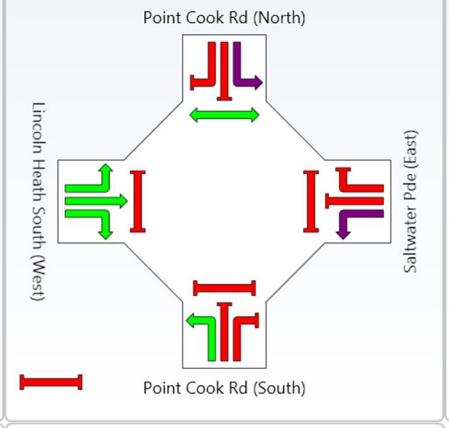
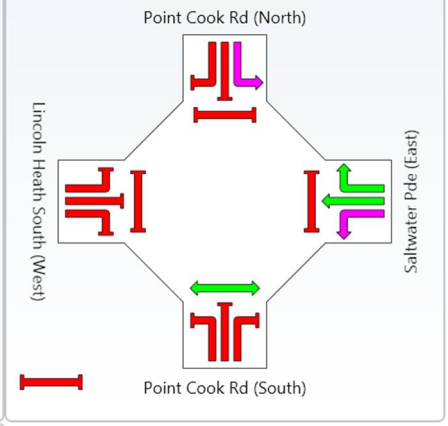


Phase C



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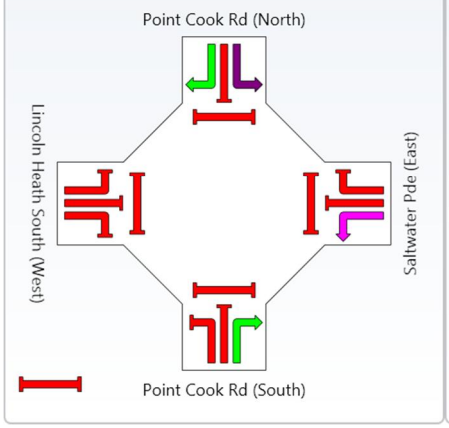
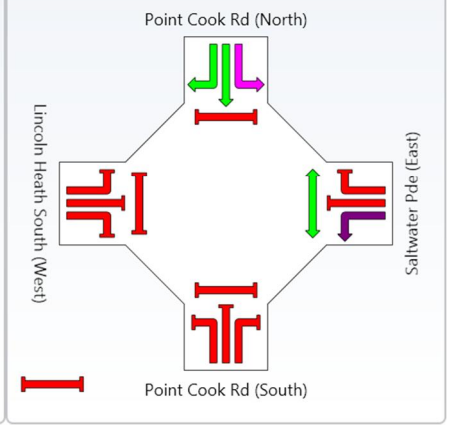


Phase E

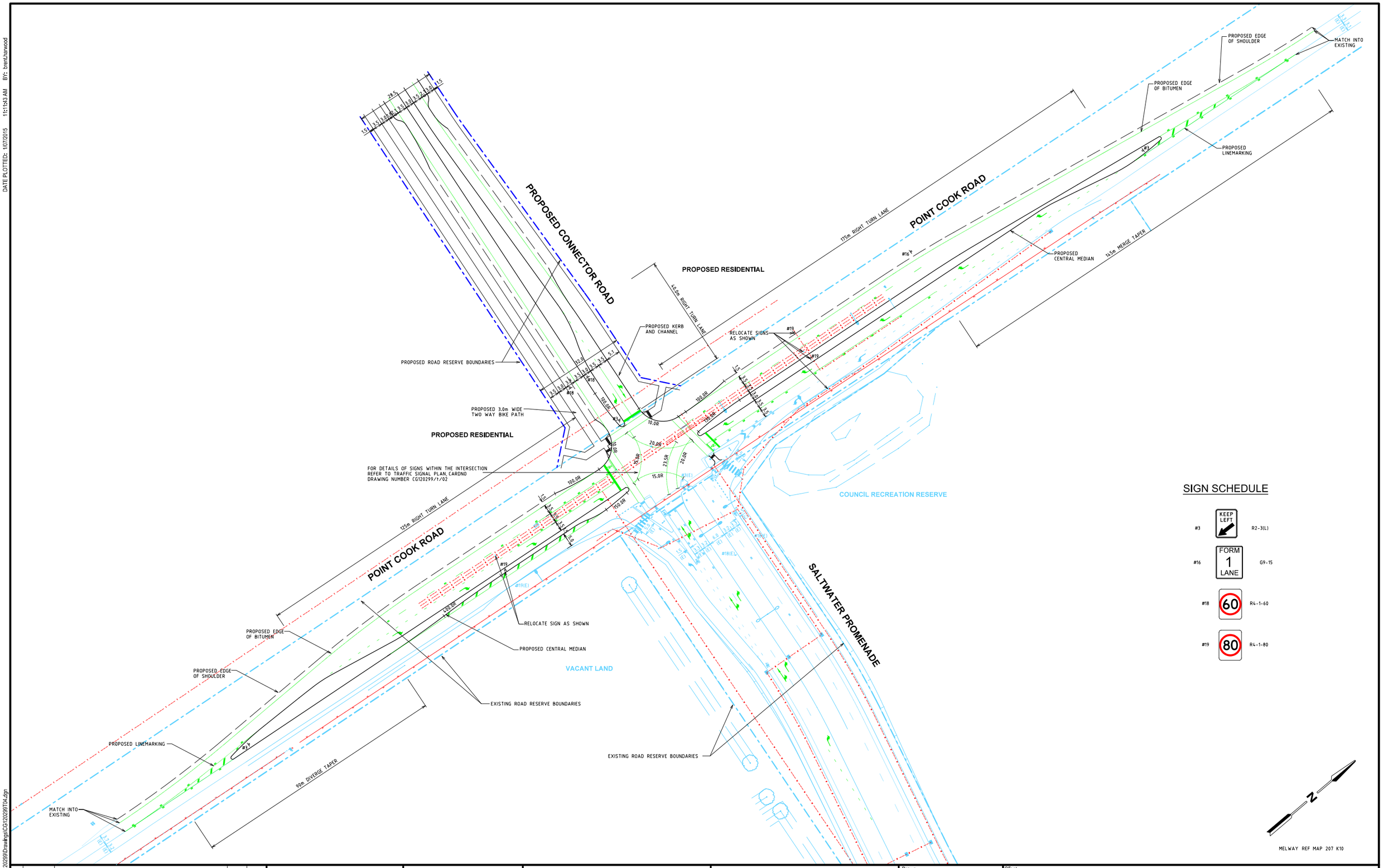


	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
		●	Phase Transition Applied

APPENDIX C

INTERIM INTERSECTION CONCEPT DESIGN

DATE PLOTTED: 11/07/2015 11:11:43 AM BY: brentlanwood



SIGN SCHEDULE

#3	KEEP LEFT	R2-3(L)
#16	FORM 1 LANE	G9-15
#18	60	R4-1-60
#19	80	R4-1-80

MELWAY REF MAP 207 K10

CAD FILE: O:\DRAT\RAFF\2012\CG120299\Drawings\CG120299T04.dgn

Rev	Date	Description	Drawn	Appr.
P1	30.10.14	ISSUED FOR INFORMATION	BVH	MR

0 6 12 24
1:1200 @ A3

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

1. BASE INFORMATION SUPPLIED BY BPD, REF No. M110736-BPD-BASE.DWG
2. ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O.
3. DECLARED ROAD - POINT COOK ROAD(SPEED ZONE 80KM/H)
   LOCAL ROAD - SALTWATER PROMENADE(SPEED ZONE 60KM/H)
   LOCAL ROAD - PROPOSED CONNECTOR ROAD(SPEED ZONE 60KM/H)
4. INSTALL ALL SIGNS IN ACCORDANCE WITH VICROADS TEM VOLUME 2 AND REMOVE ALL REDUNDANT SIGNS.
5. LINE MARK IN ACCORDANCE WITH VICROADS TEM VOLUME 2 AND REMOVE ALL REDUNDANT LINEMARKING.
6. SKID RESISTANCE POLICY TO BE APPLIED DURING DETAILED CIVIL DESIGN STAGE

Cardno
Shaping the Future
ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

Drawn	BVH
Designed	BVH
Checked	MR
Authorised	CB

Client: AUSTRALAND HOLDINGS LTD

Project: LINCOLN HEATH SOUTH
POINT COOK ROAD, POINT COOK
WYNDHAM CITY COUNCIL

Title: FUNCTIONAL LAYOUT PLAN
PROPOSED CONNECTOR ROAD

Status: **PRELIMINARY**
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Date	Scale	Size
30.10.14	1:600	A1

Project Number	Sheet Number	Revision
CG120299	T 04	P1

PRELIMINARY ESTIMATE OF DEVELOPMENT COSTS
SUMMARY SHEET
CG120299
Lincoln Heath South - Intersection Estimate
31 October 2014
Version 1

ITEM	DESCRIPTION	Proposed Connector Road	Total Precinct
	DRAWING SHEET REFERENCE	T04-P1	Developer Cost
A	Project and Program Management (%)	$ 36,654	
B	Design and Investigation (%)	$ 84,304	
C	Construction including Final Design	$ 685,123	
	TOTAL A - C	$ 806,081	$ 806,081
D	CONTINGENCY		
	Contingency (15% of C)	$ 102,768	$ 102,768
E	PROJECT BUDGET		
	Total Estimate	$ 908,849	$ 908,849

Notes:

- Due to flat topography of the area, no major cut/fill works have been included for road

Services

1 Service relocation / alterations have not been allowed for in the estimate
2 No allowance for water, gas, telstra, sewer

Preliminaries

3 Based on nominal rates

Subsoil Drain

4 Assume same as kerb and channel

Side Entry Pits

5 Based on 50 m intervals

Tactile Pavers

6 Assume hazard TGSI's (no directional)

Signing

7 Nominal rate

Pavement

8 Assume deep lift asphalt pavement

AUTHOR: Harrendran Mohan
Date: 31/10/2014

REVIEWER: Rob Henry
Date: 31/10/2014

PRELIMINARY ESTIMATE OF DEVELOPMENT COSTS **31 October 2014**
CG120299 **Version 1**
Lincoln Heath South - Intersection Estimate **PM %:** 10.70%
Intersection Ref: **Proposed Connector Road**
Sheet Ref: **T04-P1**

ITEM	DESCRIPTION	QUANTITY	UNIT	RATE	AMOUNT	SUBTOTAL
A	**Project and Program Management (%)**					**$ 36,654**
	Project Management		3.00%	3.21%	$ 21,992	
	Project scoping, planning, scheduling, monitoring, reporting and commissioning					
	Management of preconstruction activities, development of tender documents and management of contracts					
	Managing external interfaces, including community liaison, environmental issues, traffic issues etc					
	Records management					
	Program Administration		2.00%	2.14%	$ 14,662	
B	**Design and Investigation (%)**					**$ 84,304**
	Traffic Investigations		1.00%	1.07%	$ 7,331	
	Cadastral and Engineering Survey		1.25%	1.34%	$ 9,164	
	Geotechnical investigations Pavement Investigations and Design		1.25%	1.34%	$ 9,164	
	Environmental Investigations			0.00%	$ -	
	Landscape Design			0.00%	$ -	
	Preliminary and Final Design		4.50%	4.82%	$ 32,989	
	Construction Management		3.50%	3.75%	$ 25,658	
C	**Construction**				$ 685,123	**$ 685,123**
1						$ 105,000
1.1	Site establishment	1	Item	$ 8,000	$ 8,000	
1.2	Site management & supervision including QA	10	wks	$ 2,500	$ 25,000	
1.3	Provision for traffic	10	wks	$ 7,200	$ 72,000	
2	**DEMOLITION**					$ 26,500
2.2	Kerb and channel	1	item	$ 5,000	$ 5,000	
2.3	Existing fence	1	item	$ 500	$ 500	
2.3	Existing signals removal	1	item	$ 20,000	$ 20,000	
2.3	Existing linemarking	1	item	$ 1,000	$ 1,000	
3	**EARTHWORKS**					$ 36,744
3.1	Stripping topsoil (100mm)	1,749	m²	$ 6	$ 10,491	
3.2	Excavation and removal	729	m³	$ 30	$ 21,878	
3.4	Soft spot rectification	292	m³	$ 15	$ 4,376	
4	**PAVEMENT**					$ 220,418
4.1	Deep lift asphalt 195 mm	1,135	m²	$ 105	$ 119,175	
4.2	Subbase course - 250 mm 3% CTCR	1,459	m²	$ 55	$ 80,218	
4.3	Shoulder 1m wide - full depth pavement	145	m	$ 145	$ 21,025	
5	**DRAINAGE**					$ 81,600
5.1	Subsoil drains 100mm dia - screenings	280	Lm	$ 30	$ 8,400	
5.2	Subsoil drains 100mm dia - no fines conc	160	Lm	$ 45	$ 7,200	
5.3	375 RCP (class 2)	300	Lm	$ 170	$ 51,000	
5.4	Side entry pits	6	No	$ 2,500	$ 15,000	
6	**CONCRETE WORKS**					$ 49,325
6.1	Kerb &channel	280	Lm	$ 50	$ 14,000	
6.2	Shared Paths (3.0m wide,125 mm, residential, as per MPA)	120	Lm	$ 130	$ 15,600	
6.3	Footpaths (1.5m wide,125 mm, residential, as per MPA)	225	Lm	$ 65	$ 14,625	
6.4	Laybacks and tactile pavers	3	No	$ 850	$ 2,550	
6.5	10m concrete maintenance area end of all islands	30	m²	$ 85	$ 2,550	
7	**TRAFFIC SIGNAL WORKS**					$ 85,000
7.1	General items	1	Item	$ 10,000	$ 10,000	
7.2	Conduits	1	Item	$ 7,000	$ 7,000	
7.3	Pedestals	1	Item	$ 25,000	$ 25,000	
7.4	Lanterns	1	Item	$ 8,000	$ 8,000	
7.5	Controller upgrade	1	Item	$ 15,000	$ 15,000	
7.6	Detectors	1	Item	$ 3,000	$ 3,000	
7.7	Cabling & connections	1	Item	$ 15,000	$ 15,000	
7.8	Clean-up	1	Item	$ 2,000	$ 2,000	
8	**SIGNAL MAINTENANCE (10 YEARS) by Road**	1	item	$ -	$ -	$ -
9	**POWER & LIGHTING**					$ 55,000
9.1	Light pole (1-way) and luminous lights	-	No	$ 8,000	$ -	
9.2	Light pole (2-way) and luminous lights	3	No	$ 9,000	$ 27,000	
9.3	JUP lighting single	2	No	$ 4,000	$ 8,000	
9.4	JUP lighting dual	-	No	$ 5,000	$ -	
9.5	Cabling, conduits and pits	1	Item	$ 15,000	$ 15,000	
9.6	Electrical connection	1	Item	$ 5,000	$ 5,000	
10	**LANDSCAPING WORKS**					$ 3,536
10.1	Topsoiling seeding	416	m²	$ 8.50	$ 3,536	
11	**SIGNING**	1	item	$ 2,000	$ 2,000	$ 2,000
12	**LINEMARKING (Thermoplastic)**	1	item	$ 20,000	$ 20,000	$ 20,000
13	**SERVICE RELOCATION**					$ -
13.1	(Water, gas, telstra) No allowance		item			
13.2	(Overhead electrical) No allowance		item			
14	**MISCELLANEOUS**					$ -
15	**PROVISIONAL SUM - DAYWORK**		item		$ -	$ -
	TOTAL A - C				$ 806,081	**$ 806,081**
D	**Contingency**					
	Contingency (15% of C)				15%	$ 102,768.38
E	**PROJECT BUDGET**					
	Total Estimate					$ 908,849

Notes:

- Due to flat topography of the area, no major cut/fill works have been included for road

Services

1 Service relocation / alterations have not been allowed for in the estimate
2 No allowance for water, gas, telstra, sewer

Preliminaries

3 Based on nominal rates

Subsoil Drain

4 Assume same as kerb and channel

Side Entry Pits

5 Based on 50 m intervals

Tactile Pavers

6 Assume hazard TGSI's (no directional)

Signing

7 Nominal rate

Pavement

8 Assume deep lift asphalt pavement

AUTHOR: Harrendran Mohan
Date: 31/10/2014

REVIEWER: Rob Henry
Date: 31/10/2014

APPENDIX D

ULTIMATE INTERSECTION MODELLING

Point Cook Road / Saltwater Promenade

MOVEMENT SUMMARY

Site: PCSPam Ultimate 2046

Point Cook Rd / Saltwater Promenade AM Peak
Ultimate Operating Volumes (2046)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	12	2.0	0.553	55.3	LOS A	11.3	80.5	0.95	0.84	24.8
2	T	901	2.0	0.910	62.6	LOS D	24.3	172.9	0.99	1.03	21.3
3	R	12	2.0	0.131	70.1	LOS A	0.7	5.1	0.98	0.68	20.6
Approach		925	2.0	0.910	62.6	LOS D	24.3	172.9	0.99	1.03	21.3
East: Saltwater Pde (East)											
4	L	20	2.0	0.026	8.9	LOS A	0.2	1.1	0.19	0.63	48.3
5	T	248	2.0	0.908	50.9	LOS D	47.2	335.8	1.00	1.02	23.4
6	R	1158	2.0	0.908	58.9	LOS D	47.2	335.8	1.00	1.01	23.1
Approach		1426	2.0	0.908	56.8	LOS D	47.2	335.8	0.99	1.01	23.3
North: Point Cook Rd (North)											
7	L	497	2.0	0.381	7.9	LOS A	2.1	15.2	0.08	0.62	49.4
8	T	338	2.0	0.439	45.8	LOS A	8.8	62.4	0.93	0.76	25.5
9	R	61	2.0	0.666	74.0	LOS B	3.8	27.3	1.00	0.80	19.8
Approach		896	2.0	0.666	26.7	LOS B	8.8	62.4	0.46	0.69	34.0
West: Lincoln Heath South (West)											
10	L	245	2.0	0.649	51.3	LOS B	16.1	114.9	0.95	0.85	25.1
11	T	62	2.0	0.649	43.0	LOS B	16.1	114.9	0.95	0.81	25.3
12	R	20	2.0	0.093	50.6	LOS A	1.0	6.8	0.85	0.70	25.2
Approach		327	2.0	0.649	49.6	LOS B	16.1	114.9	0.94	0.83	25.1
All Vehicles		3574	2.0	0.910	50.1	LOS D	47.2	335.8	0.85	0.92	24.9

MOVEMENT SUMMARY

Site: PCSPpm Ultimate 2046

Point Cook Rd / Saltwater Promenade PM Peak
Ultimate Operating Volumes (2046)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Point Cook Rd (South)											
1	L	16	2.0	0.331	51.2	LOS A	6.6	47.2	0.89	0.83	25.9
2	T	555	2.0	0.546	45.5	LOS A	11.6	82.4	0.93	0.77	25.6
3	R	16	2.0	0.175	70.4	LOS A	1.0	6.8	0.99	0.69	20.5
Approach		587	2.0	0.546	46.3	LOS A	11.6	82.4	0.93	0.77	25.4
East: Saltwater Pde (East)											
4	L	5	2.0	0.008	9.2	LOS A	0.0	0.3	0.21	0.62	48.0
5	T	98	2.0	0.774	47.8	LOS C	20.5	145.6	0.99	0.89	24.1
6	R	615	2.0	0.774	55.7	LOS C	20.5	145.6	0.99	0.89	23.9
Approach		718	2.0	0.774	54.3	LOS C	20.5	145.6	0.99	0.89	24.0
North: Point Cook Rd (North)											
7	L	919	2.0	0.851	14.4	LOS C	17.6	125.5	0.35	0.73	43.2
8	T	738	2.0	0.535	32.7	LOS A	17.1	121.5	0.85	0.74	30.3
9	R	196	2.0	0.535	55.0	LOS A	10.4	74.2	0.95	0.82	24.0
Approach		1853	2.0	0.851	26.0	LOS C	17.6	125.5	0.61	0.74	34.5
West: Lincoln Heath South (West)											
10	L	131	2.0	0.769	61.1	LOS C	16.2	115.6	1.00	0.90	22.9
11	T	146	2.0	0.769	52.9	LOS C	16.2	115.6	1.00	0.90	23.0
12	R	5	2.0	0.023	49.8	LOS A	0.2	1.7	0.83	0.65	25.4
Approach		282	2.0	0.769	56.7	LOS C	16.2	115.6	1.00	0.90	23.0
All Vehicles		3440	2.0	0.851	37.9	LOS C	20.5	145.6	0.78	0.79	28.9

PHASING SUMMARY

Site: PCSPam Ultimate 2046

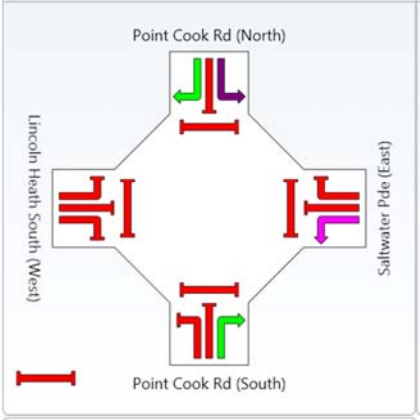
Point Cook Rd / Saltwater Promenade AM Peak
Ultimate Operating Volumes (2046)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Leading Right Turn (phase reduction applied)
Input Sequence: A, B, C, D, E
Output Sequence: A, C, D, E

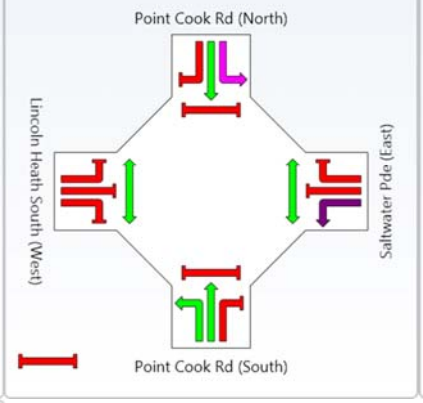
Phase Timing Results

Phase	A	C	D	E
Green Time (sec)	6	24	49	23
Yellow Time (sec)	0	4	4	4
All-Red Time (sec)	0	2	2	2
Phase Time (sec)	6	30	55	29
Phase Split	5 %	25 %	46 %	24 %

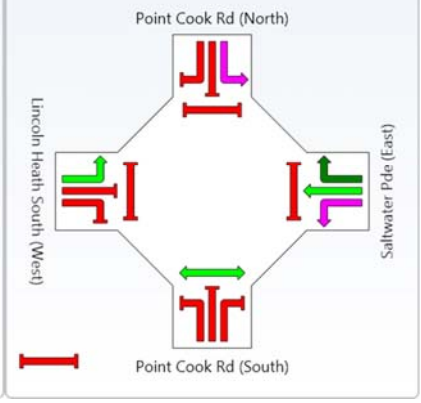
Phase A



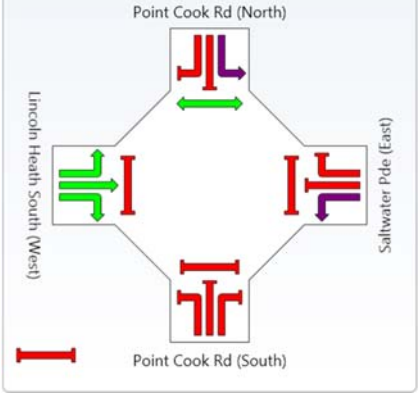
Phase C



Phase D



Phase E



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
		●	Phase Transition Applied

Project: N:\WINDOWS\2014\CG140760\SIDRA\LHS PSP - v5 - 10 year interim and sensitivty analysis.sip
8000955, CARDNO, ENTERPRISE

PHASING SUMMARY

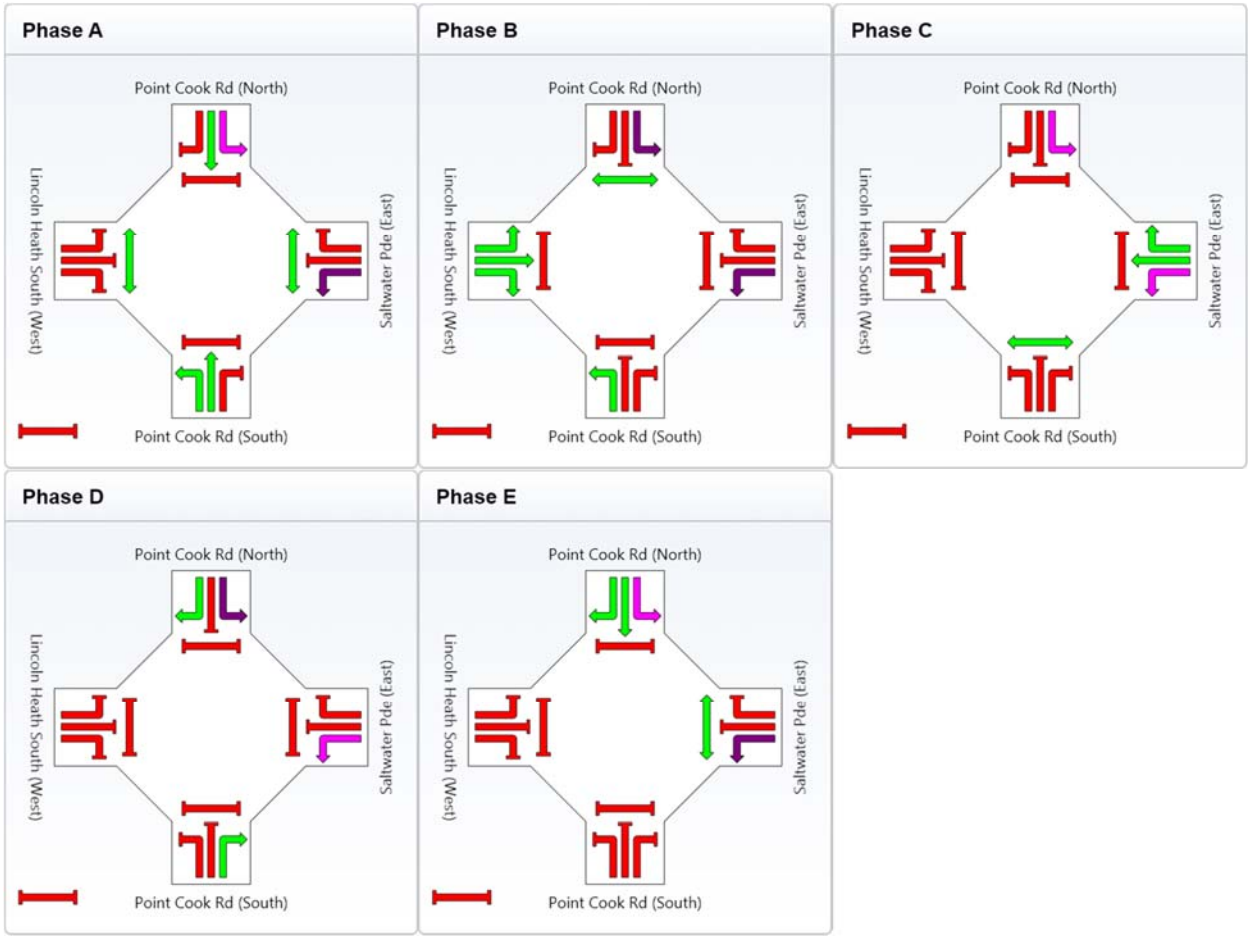
Site: PCSPpm Ultimate 2046

Point Cook Rd / Saltwater Promenade PM Peak
Ultimate Operating Volumes (2046)
Signals - Fixed Time Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Split Phasing 13.11.12
Input Sequence: A, B, C, D, E
Output Sequence: A, B, C, D, E

Phase Timing Results

Phase	A	B	C	D	E
Green Time (sec)	25	23	30	6	18
Yellow Time (sec)	4	4	4	0	0
All-Red Time (sec)	2	2	2	0	0
Phase Time (sec)	31	29	36	6	18
Phase Split	26 %	24 %	30 %	5 %	15 %



	Normal Movement		Permitted/Opposed
	Slip-Lane Movement		Opposed Slip-Lane
	Stopped Movement		Continuous Movement
	Turn On Red		Undetected Movement
			Phase Transition Applied