TRAFFIC ASSESSMENT

NORTHWEST SUPPORT SCHOOL DEVONPORT CAMPUS, 3 TO 9 MERSEY MAIN ROAD, SPREYTON

Hubble Traffic

March 2026

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1. Introduction

Cumulus Studios on behalf of the Department of Education and Young People (DECYP) engaged Hubble Traffic Pty Ltd to provide traffic engineering services during the design phases, and prepare a Traffic Impact Assessment for construction of the new Northwest Support School, at 3 to 9 Mersey Main Road, Spreyton.

The traffic assessment considers the suitability of the surrounding road network, the likely traffic generation and distribution associated with school operations, the adequacy of the parking supply, and the potential impacts on surrounding land uses.

This report has been prepared to satisfy the requirements of Austroads, Guide to Traffic Management Part 12: Traffic Impacts of Developments, 2019, and referred to the following information and resources:

- Tasmanian Planning Scheme (Devonport City Council)
- Australian Standards AS2890 parts 1
- Austroads series of Traffic Management and Road Design
  - Part 4: Intersection and crossings, General
  - Part 4a: Unsignalised and Signalised Intersections
  - Part 12: Traffic Impacts of Development
- Department of State Growth crash database
- LIST – Land Information System Tasmania

2. Project site

The site at 3 to 9 Mersey Main Road is presently used as a regional netball facility, which will be relocated to the new Devonport Sports Precinct, making the land available for use by the Department for Education, Children and Young People (client).

Although the site has frontage to Mersey Main Road, all vehicular access is taken from Bay Drive, a local access road running behind the site and connecting Mersey Main Road to the south with Devonport Road to the north.

The existing netball facility operates with a two-way accessway to Bay Drive and is supported by two substantial sealed parking areas situated on adjoining local government land. The client is expected to purchase these two parking areas to accommodate staff parking. These spaces will continue to serve surrounding recreational uses when not required by the school, and this arrangement provides convenient and proximate parking without the need for additional on-site parking construction.

Immediately north of the site is the Spreyton Primary School, which operates with vehicular access to both Mersey Main Road and Bay Drive, resulting in school-related traffic being already established within the immediate road environment. The broader locality is urbanised and contains a mix of residential, recreational and light-industrial land uses, all of which are supported by the surrounding road network. Both Mersey Main Road and Devonport Road function as collector roads and provide suitable access to the various land uses in the area, including the proposed development. This established network already accommodates a blend of local, school-related and general urban traffic, and is well placed to support the anticipated activity associated with the new use.

Diagram 2.0 – Site location

3. Development proposal

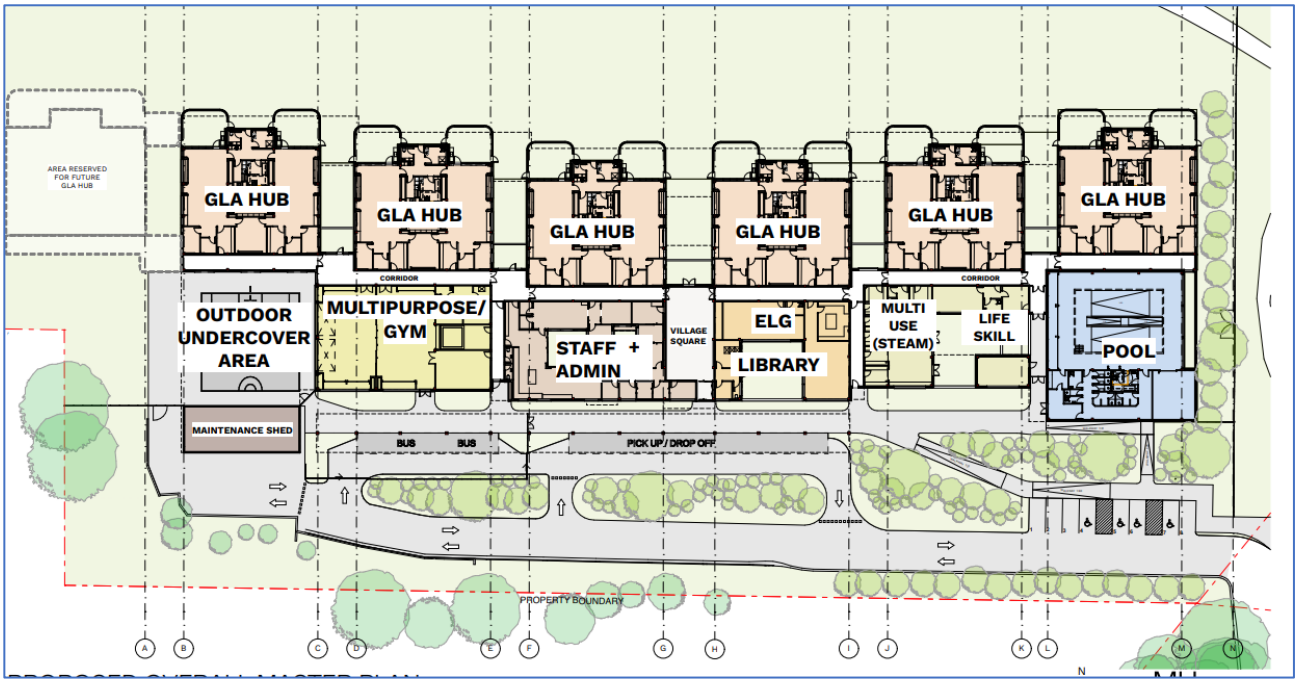
A purpose-built support school is proposed, comprising 12 general learning classrooms, a range of specialised student and staff facilities, a hydrotherapy pool, on-site car parking and outdoor recreation areas.

The school will accommodate students with a range of physical and intellectual challenges and therefore requires a high level of care throughout the day, including during arrival and departure. Students will travel in private vehicles or mini-coaster buses, with some using wheelchairs, and the facility will incorporate designated bus and private-vehicle pick-up and drop-off zones located directly outside the main building entrance to provide safe and proximate access.

The internal driveway serving these areas will provide separated vehicular movements, enabling the bus zone to operate within a contained compound while allowing the private-vehicle zone to function independently. In addition to these zones, eight on-site ninety-degree parking spaces, including four accessible spaces with appropriate shared zones, will be available for parent drop-off, with graded accessible pathways linking these spaces to the main entrance.

Due to site constraints and the need to maximise outdoor recreation areas for students, staff parking will be accommodated within the two existing sealed parking areas, which are located immediately adjacent to the site and will continue to support surrounding recreational uses outside of school hours.

Diagram 3.0A – General layout of the school



The client has advised that the proposed support school will accommodate 84 students and require a substantial staffing cohort, with 87 staff when fully occupied. This includes teaching staff, carers, specialist support personnel, administrative staff and facility attendants. This staffing profile reflects the high level of care and individualised support required for students and provides an essential input for forecasting trip generation, as staff movements occur outside the concentrated student arrival and departure windows and therefore shape the overall daily traffic pattern.

4. Surrounding road network

The development site has frontage to both Mersey Main Road and Bay Drive, with vehicular access restricted to Bay Drive. Bay Drive sits lower in the road hierarchy, and directing property access to the lower-order road reflects accepted traffic-engineering practice. This approach maximises safety by reducing turning movements on Mersey Main Road and helps maintain traffic efficiency on the higher-order route, while still providing convenient access to the site.

Within the surrounding road network, Mersey Main Road forms part of the State Road network under the management of State Growth and operates as an urban arterial road. Devonport Road functions as a collector road, while Bay Drive operates as a local access road connecting Mersey Main Road and Devonport Road, with both of these roads managed by Council. This hierarchy reflects a clear gradation of road function, with Mersey Main Road accommodating higher-order through-traffic and Bay Drive serving local property access, including the proposed development.

4.1 Mersey Main Road

Mersey Main Road operates as an urban arterial route carrying approximately 15,000 vehicles per day, comprising a mix of commuter, freight and school-related traffic, and is subject to a 60 km/h speed limit. The route runs in a south–north orientation, providing a key connection between Latrobe and Devonport. In the vicinity of the development site, the road is constructed to an urban standard, with a sealed carriageway, concrete kerb and channel, formal footpaths provided along both sides of the road, and street lighting.

The delineation is provided with marked centreline, with marked right turn lanes provided along its route at significant junctions, including Devonport Road, Spreyton Primary School access, Bay Road and Kelcy Tier Road.

Photograph 4.1 – Mersey Main Road north of Bay Road

4.2 Devonport Road

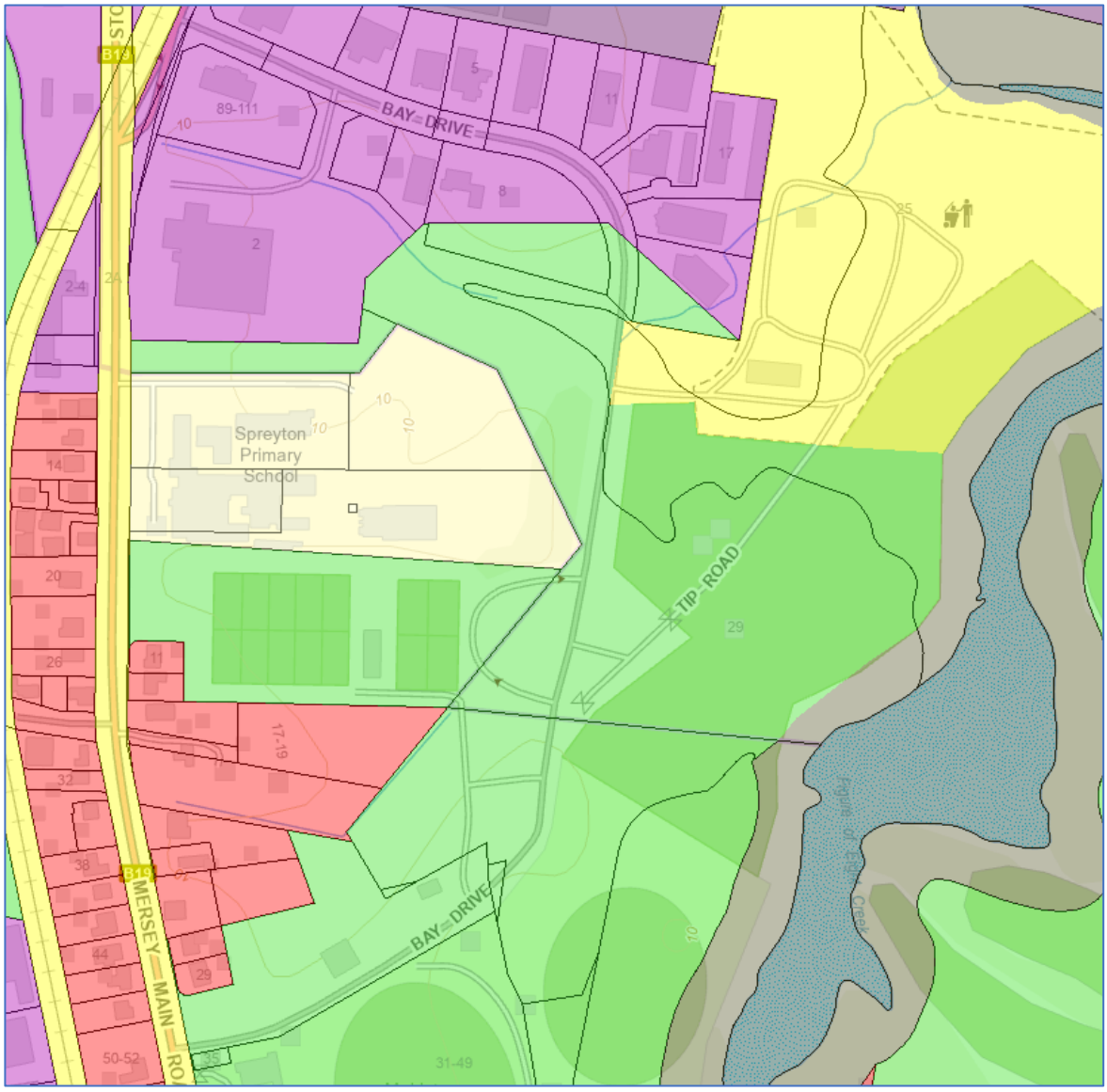
Devonport Road functions as a collector road, providing an alternative connection to the arterial road network by linking Mersey Main Road with Formby Road, which in turn connects to the Bass Highway. The route carries lower traffic volumes than Mersey Main Road and serves a mix of local and through movements. At its Mersey Main Road end, Devonport Road is constructed to an urban standard, with a sealed carriageway and associated kerb and footpath infrastructure consistent with its role in the network.

Photograph 4.2 – Devonport Road near Bay Road junction

4.3 Bay Drive

Bay Drive operates as a local access road extending between Mersey Main Road and Devonport Road for approximately one kilometre. The route provides access to a range of surrounding land uses, including recreational facilities, the rear of Spreyton Primary School, the Council waste transfer station, and light-industrial activities at the northern end, with these different land zoning illustrate in the diagram below extracted from the planning scheme.

Diagram 4.3 – Land zoning under the planning scheme



At both the Mersey Main Road and Devonport Road ends, Bay Drive is constructed to an urban standard with a sealed carriageway and concrete kerb and channel, while the central section transitions to a rural standard with gravel shoulders. The carriageway width varies from approximately 6.5 metres at the southern end to around 10.3 metres through the northern section. This configuration supports efficient traffic flow, with on-street parking along the southern section reducing the carriageway to a single traffic lane in a manner consistent with the road's local-access function. In the northern section, the wider carriageway adjacent to light-industrial uses allows

parking on both sides while maintaining two-way vehicle movements, with most heavy vehicles expected to utilise the Devonport Road junction due to its proximity and lower traffic volumes, which provide safer and more convenient access.

Rear access to Spreyton Primary School is provided by a one-way loop road, with marked parking spaces located along the outside of the curved loop and a concrete footpath linking directly to the school buildings. Access to the Council waste transfer station is located approximately 130 metres north of the school's loop-road access.

No posted speed limit signage was observed; therefore, the default urban limit applies. However, the surrounding built form does not consistently reflect an urban environment. A revised speed-limit treatment is recommended, particularly adjacent to the recreational land, the primary school and access to the new support school.

Photograph 4.3 – Bay Drive standard at the southern end

4.4 Mersey Main Road and Bay Drive junction

Bay Drive intersects Mersey Main Road at ninety degrees, forming a standard T-junction controlled by a Give Way sign and holding line that reinforce traffic priority on Mersey Main Road. The junction is located on flat terrain, where the Mersey Main Road alignment is straight, and with no physical obstructions on the corner. This geometry provides unrestricted sight distance, complying with the Safe Intersection Sight Distance requirements for a 60 km/h speed environment under Austroads guidance in both directions.

A 55-metre marked right-turn lane operates on Mersey Main Road to accommodate vehicles turning right into Bay Drive, allowing these movements to be sheltered from through traffic and supporting safe and efficient operation of the junction.

Photograph 4.4A – Available sight distance to the left (exceeds 120 metres)

Photograph 4.4B – Available sight distance to the right (exceeds 120 metres)

4.5 Devonport Road and Bay Road junction

Bay Drive intersects Devonport Road at ninety degrees, forming a standard T-junction controlled by a Give Way sign and holding line that reinforce traffic priority on Devonport Road. The junction is located on a straight section of Devonport Road, providing unrestricted sight distance for approaching drivers. With the Devonport Road–Mersey Main Road junction located approximately 85 metres south of Bay Drive, vehicles approaching from the left naturally reduce speed as they negotiate that upstream junction.

As a result, the available 85 metres of sight distance to the left is appropriate and supports safe operation. To the right, the available sight distance exceeds 120 metres, also supporting safe and efficient operation of the junction. Overall, the available sight distances are suitable for the prevailing operating speeds on Devonport Road and meet the requirements for safe intersection performance.

Photograph 4.5A – Available sight distance to the left (85 metres)

Photograph 4.5B – Available sight distance to the right (exceeds 120 metres)

4.6 Accessway to the network courts

The current netball courts are connected to Bay Drive by a sealed accessway, with concrete kerbing along the western side and an edge-of-seal treatment on the opposite side. The carriageway averages approximately 6 metres in width, which is sufficient to accommodate two-way vehicle movements. A site inspection identified that large trees along the western side generate debris on the pavement and that there are minor imperfections in the sealed surface; both matters can be addressed through routine maintenance. The accessway follows a relatively straight alignment and is situated on flat terrain, as illustrated in the photograph below.

Photograph 4.6A – Accessway leading to development site

The accessway intersects Bay Drive at an acute angle, adjacent to a sealed property driveway on the western side. These two accesses share a large, undifferentiated sealed area where the two driveways converge. This layout lacks clear delineation between the different vehicle paths and can lead to uncertainty in driver positioning. Minor traffic-management measures can provide effective separation between the two accesses, including the installation of a small traffic island to guide vehicles exiting the accessway into a more favourable alignment. This treatment would improve the intersecting angle, reduce the likelihood of corner-cutting for right-turning vehicles, and create a clearer and safer arrangement for all movements.

Photograph 4.6B – Accessway intersecting Bay Road including property driveway

4.7 Sight distance at the Bay Drive and accessway

With the existing accessway considered suitable to serve the new support school, it is important that drivers leaving the site have adequate sight distance when turning onto Bay Drive. In the absence of posted speed-limit signs, the default urban speed limit of 50 km/h applies by regulation, although this speed appears high for a corridor characterised by recreational uses and school-related activity along the southern section of Bay Drive.

A site inspection identified that sight distance to the right is restricted to around 55 metres by a large tree (shown in the photograph below), with vegetation management of this tree increasing the available sight distance to approximately 90 metres. In the opposite direction, an available sight distance of around 75 metres can be achieved when parked vehicles within the adjacent parking area create a temporary obstruction. Without these vehicles, sight distance increases to approximately 90 metres.

Photograph 4.7A – Available sight distance to the right (55 metres)

Photograph 4.7B – Available sight distance to the left (90 metres with no parked vehicles)

The optimum sight-distance parameter for a public-road access is Safe Intersection Sight Distance (SISD), which for a 50 km/h speed environment is 90 metres, reducing to 67 metres where a 40 km/h speed limit applies, based on the Austroads Guide to Road Design. For accesses that do not form part of the public-road network, lower sight-distance parameters may be applied. Australian Standard AS 2890.1:2004 specifies a desirable sight distance of 69 metres for a 50 km/h environment, reducing to 55 metres for 40 km/h.

In this situation, extensive trimming or removal of the tree restricting sight distance to the right is considered necessary to achieve the desirable or SISD values.

While the management of speed limits is a matter for the road authority, this assessment considers there is sufficient justification for the speed limit along Bay Drive between Mersey Main Road and the waste-transfer-station access to be reduced to 40 km/h. A lower speed environment in this southern section would improve safety outcomes for pedestrians, recreational users and school-related activity, while still maintaining an appropriate level of traffic efficiency. North of this point, a 50 km/h speed limit could be retained to reflect the light-industrial land uses and the different operating environment.

4.8 Existing sealed parking areas

Along the site accessway there are two sealed parking areas located on either side, each with vehicular access to the accessway, while the eastern parking area also having a direct access point to Bay Drive. Both parking areas are relatively level and sealed, with parking spaces delineated by faded line-marking and supported by lighting infrastructure. A site inspection confirmed that the eastern parking area functions as minor overflow parking for Spreyton Primary School during parent drop-off and pick-up periods, reflecting its convenient proximity and existing access arrangement.

Although not observed during the recent site inspection, these parking areas would be available to support parking for nearby recreational land uses due to their convenient proximity and established access arrangement.

Photograph 4.8A – Layout of the eastern parking area

Photograph 4.8B – Layout of the western parking area

4.9 Summary of surrounding infrastructure

The surrounding road network, existing accessway to the site and adjoining parking areas are suitable to support the proposed change of use to a purpose-built support school.

Mersey Main Road, Devonport Road and Bay Drive operate within a clear and functional hierarchy that safely accommodates traffic associated with the development, supported by appropriate traffic-control junction treatments. Bay Drive provides a suitable access route, and applying a 40 km/h speed limit along the southern section would better reflect the recreational and school-related activity in this area. A 40 km/h speed limit along the accessway would also be appropriate, reflecting its local-access function and the need for a consistently low-speed environment between Bay Drive and the school entrance.

The site accessway offers a suitable two-way access point, with vegetation treatment required to achieve desirable sight-distance parameters. The two sealed parking areas adjoining the driveway already support school-related and recreational activity and provide convenient, proximate parking capacity for parent and staff needs. Collectively, these elements demonstrate that the existing transport infrastructure can safely and efficiently accommodate the proposed support school without the need for major upgrades.

5. Current traffic activity

To understand existing traffic activity on the surrounding road network and to quantify the likely impacts of the proposed change of use, manual traffic surveys were undertaken at the two Bay Drive junctions with Mersey Main Road and Devonport Road, as well as at the primary school's rear access onto Bay Drive. These surveys were completed on a typical weekday during periods that coincide with commuter movements and school-parent activity, as these times normally represent the highest traffic demand on the network and therefore provide a reliable basis for assessing existing conditions and forecasting development-related impacts.

5.1 Mersey Main Road and Bay Drive junction

In the morning peak hour (8–9 am), the survey recorded 729 northbound and 562 southbound vehicles on Mersey Main Road, giving a two-way flow of 1,293 vehicles, indicating a steady and consistent traffic pattern. During the same period, 83 vehicles entered Bay Drive, with 61% turning left in, while only 23 vehicles exited, and 91% of these turned left out, reflecting the dominant movement patterns at this junction.

In the afternoon peak, which coincides with school-related activity, the two-way flow on Mersey Main Road increased slightly to 1,459 vehicles, with a marginally higher southbound flow. Bay Drive generated 87 entering vehicles, with 58% turning left in, and 66 exiting vehicles, of which 90% turned left out. These results show that Bay Drive accommodates modest traffic volumes with a strong left-turn bias, and that Mersey Main Road carries consistent peak-period flows typical of an arterial route.

Diagram 5.1A – Turning flows at Mersey Main Road and Bay Drive (morning peak hour)

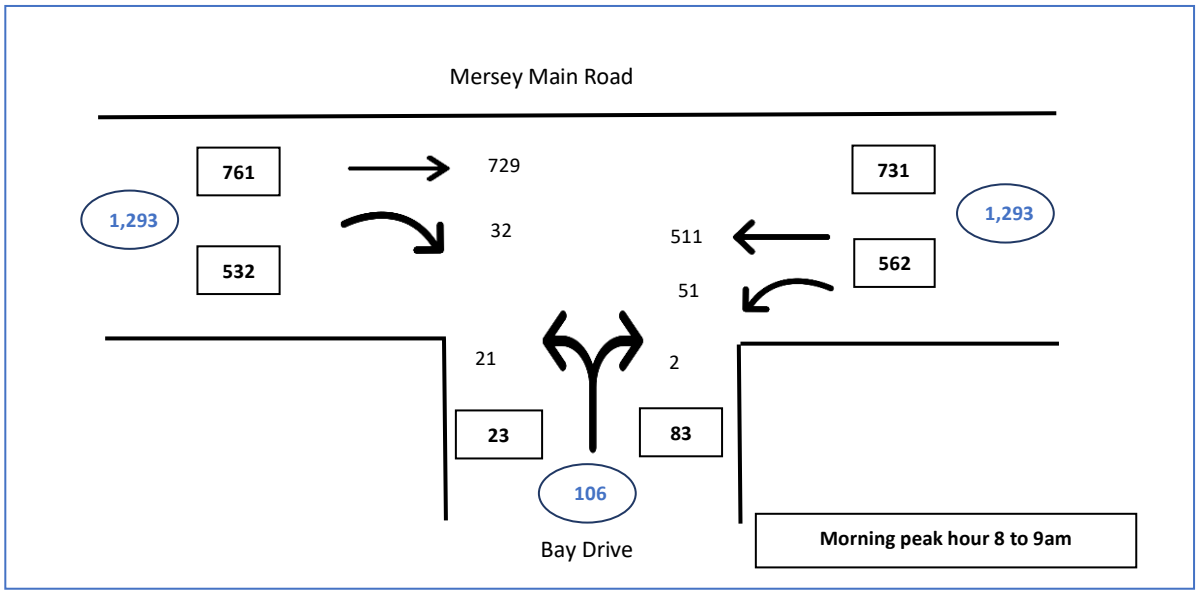
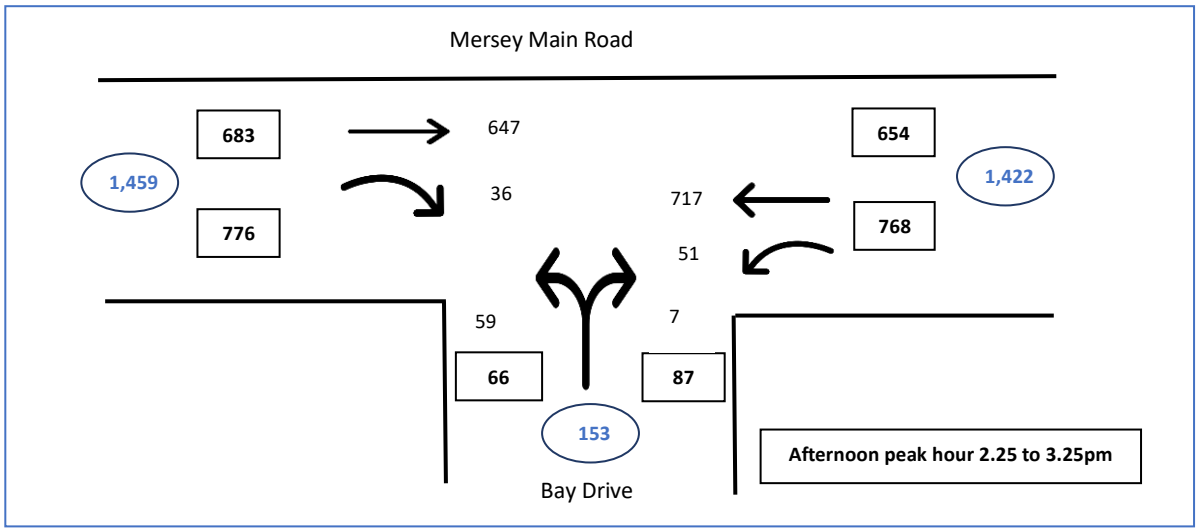


Diagram 5.1B – Turning flows at Mersey Main Road and Bay Drive (afternoon peak hour)



5.2 Devonport Road and Bay Drive junction

Similar traffic surveys were undertaken at the Devonport Road–Bay Drive junction, which confirmed that the two-way flow along Devonport Road is significantly lower than on Mersey Main Road. Bay Drive generated comparable turning movements to those observed at the Mersey Main Road junction. The survey results also demonstrate that local drivers are aware of the difficulty associated with turning right out of Bay Drive onto Mersey Main Road, with most choosing to undertake this movement via Devonport Road junction instead.

Diagram 5.2A – Morning peak hour flows

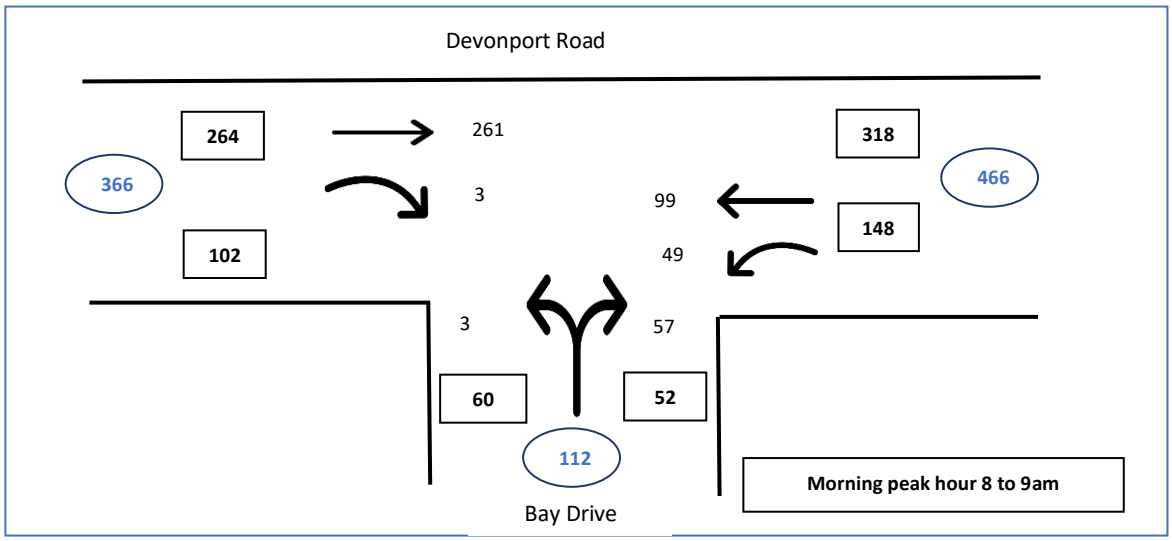
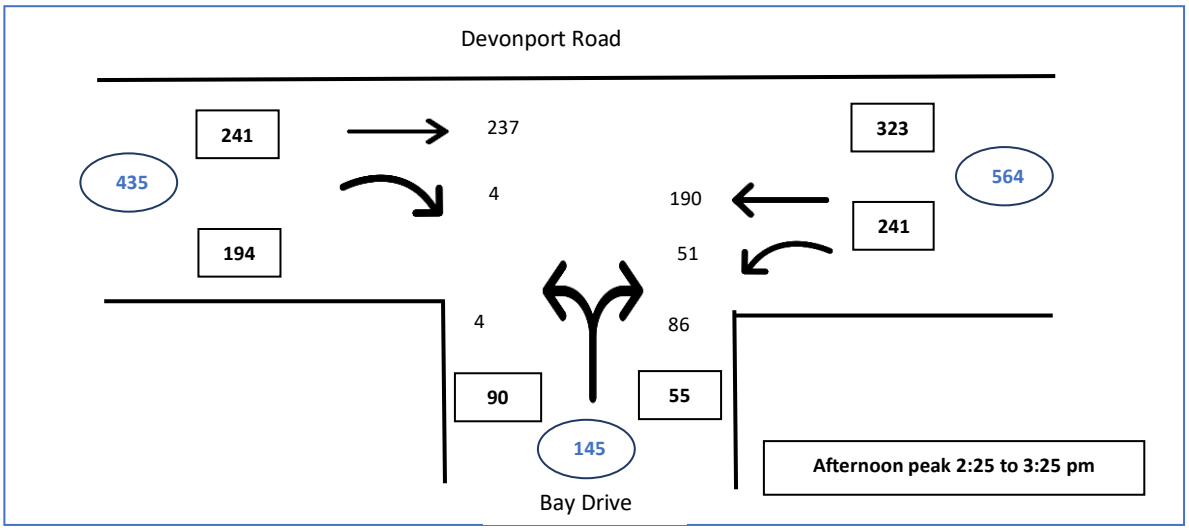


Diagram 5.2B – Afternoon peak hour flows



5.3 Bay Drive at primary school rear access

The primary school generated a short traffic peak in the morning and afternoon periods, as parent drop-off and picked-up students use the designated loop access, the 24 marked parking spaces and the eastern car park area. In both morning and afternoon periods the school generated some 45 to 55 vehicle movements, with the morning peak occurring between 8:10 and 8:40am, while the afternoon peak occurred between 2:45 to 3pm. Minor overflow parking of less than 15 vehicles was observed within the eastern parking area.

5.4 Reported crashes

State Growth maintains a database of reported crashes. A review of this database found no crashes recorded on Bay Drive or at either of its junctions over the past five completed years. This indicates that motorists are not experiencing difficulty negotiating the surrounding road network, and that the existing intersection arrangements are operating safely.

5.5 Summary of traffic activity

The surrounding roads carry traffic volumes that are consistent with their intended function, with Mersey Main Road accommodating substantially higher flows than Devonport Road, and Bay Drive operating as a lightly trafficked local-access route.

The traffic pattern shows that Mersey Main Road experiences steady, continuous flow during peak periods, and this consistency influences driver behaviour at the Bay Drive junctions. Local users appear well aware of the difficulty of turning right out onto Mersey Main Road during peak times, and observations indicate that many instead use Devonport Road to complete this movement more safely and conveniently.

Bay Drive itself carries low volumes, with the primary school generating short, intense peaks during morning drop-off and afternoon pick-up, but these peaks are brief and contained. The waste-transfer station contributes a low but constant level of traffic throughout the day, which does not materially affect network performance.

Overall, the observed traffic activity reflects a network operating within expected parameters, with movement patterns that align with the road hierarchy and surrounding land uses.

6. Trip generation

6.1 Existing site trips

The netball courts have the potential to be a significant trip generator during weekday evenings and weekends. With 14 courts in operation and an assumed 10 participants per court, activity can reach an 85th-percentile demand of around 119 participants. Using a typical vehicle occupancy of 1.8 persons per vehicle, this equates to approximately 60–70 vehicles arriving for a session. As each vehicle generates both an arrival and departure, the total traffic generation is in the order of 140 vehicle trips over a typical 90-minute period.

This reflects concentrated but short-duration traffic peaks associated with organised sporting use, occurring at times when background traffic on the surrounding road network is lower and capacity is readily available. Importantly, the ability of the accessway and Bay Drive to accommodate these higher-intensity recreational peaks demonstrates that the existing access arrangement is more than adequate to support the proposed change of use to a support school, where traffic activity will be lower, more predictable.

6.2 Trips generated by Southern Support School

Manual traffic surveys were undertaken at a comparable support school in Howrah (Southern Support School) to understand the likely trip-generation characteristics of the proposed development, noting that this school provides the same high level of care, operates with a similar number of students, and exhibits comparable travel patterns.

Trips are generated from three primary sources: staff and carers, who generally arrive outside the main student arrival and departure periods; students travelling by private vehicle; and students transported by buses. The survey was conducted on Tuesday 3 March 2026, commencing at 7:30 am, at which time ten staff vehicles were already parked on site, attributed to the 7:15–7:30 am period. Most remaining staff and carers arrived before 8:30 am.

The peak student drop-off period occurred between 8:45 and 9:15 am, involving six buses and 40 private vehicles. Over the two-hour survey period, the school generated 158 two-way vehicle trips, comprising 114 arrivals and 44 departures. The peak 15-minute period (8:30–8:45 am) generated 44 two-way trips, while the peak hour generated 113 two-way trips, with 81 entering and 32 leaving. These results provide a robust and directly comparable basis for estimating trip generation for the proposed support school.

The afternoon survey showed similar traffic patterns, student collection occurred within a short, concentrated window between 2:30 and 3:00 pm. Most collection vehicles, including the six buses, arrived prior to 2:30 pm and had departed by 3:00 pm, after which staff and carer vehicles began to leave the site. Within the peak 15-minute period a total of 34 vehicle movements were recorded, and the peak hour generated 100 two-way vehicle movements.

The traffic pattern observed across the morning and afternoon surveys shows a consistent profile, with student drop-off and collection occurring within a short, intense 30-minute window, while staff and carer movements occur outside these peak periods.

The survey showed that most staff travelled by private vehicle as the driver, with very few vehicles carrying more than one person and only a small number of staff using alternative transport modes. On this basis it is reasonable to assume that around 90% of staff generate a private-vehicle trip.

The surveys confirmed that buses transported approximately 40% of students, with the remainder arriving by private vehicle. This modal split, combined with the short, intense nature of student peaks and the dispersed timing of staff movements, provides a reliable foundation for forecasting trip generation for the new support school. The two tables below illustrate the results of the manual surveys.

Table 6.2A – Manual survey for morning peak period

Time	Staff/carers	Parents and buses dropping off students		Total two-way trips
	In only	In	Out	
7:15 to 7:30am	10	0	0	10
7:30 – 7:45am	4	0	0	4
7:45 – 8:00am	8	1	1	10
8:00 – 8:15am	20	3	2	25
8:15 - 8:30am	11	7	2	20
8:30 – 8:45am	11	14	19	44
8:45 – 9:00am	4	11	9	24
9:00 – 9:15am	0	10	11	21
Total	**68**	**46**	**44**	**158**

Table 6.2B – Manual survey for afternoon period

Time	Vehicles leaving		Vehicles arriving		Total two-way trips
	Left out	Right out	Right in	Left In	
2:15 – 2:30pm	0	0	13	17	30
2:30 – 2:45pm	13	11	5	5	34
2:45 – 3:00pm	13	6	2	1	19
3:00 – 3:15pm	12	4	1	0	17
3:15 – 3:30pm	6	1	0	0	7
Total	44	22	21	23	110
Total	**66**		**44**		

6.3 Trips generated by the new support school

For the purpose of forecasting trip generation for the new support school, the observed characteristics from the Southern Support School provide a reliable and directly transferable basis. With the proposed school accommodating 84 students, and assuming 40% travel by bus and 60% by private vehicle, it is reasonable to expect around six buses and approximately 51 private-vehicle arrivals during the morning and afternoon peaks.

When both arrivals and departures are considered, this equates to 112 two-way student-related trips in each peak period. The staffing profile, comprising 87 staff, has the potential to generate around 77 private vehicles, based on the observed assumption that approximately 90% of staff travel by private vehicle. This results in 77 staff-related trips in the morning and 77 in the afternoon.

Based on the observed arrival and departure times from the Southern Support School, the forecast indicates that between 7:00 and 8:00 am the proposed development may generate 26 trips, while the 8:00–9:00 am period has the potential to generate 139 two-way trips, comprising 96 arrivals and 43 departures, as illustrated in the table below.

Table 6.3A – Forecast of trips arriving and leaving the proposed development for the morning period

Time	Southern Support School trip data		New Devonport support school			
			Staff (77 trips)	Students trips (112 trips)		Total two-way trips
	Staff	Students		Arriving	Leaving	
7:00 – 7:30am	14%	0%	11	0	0	11
7:30 – 8:00am	17%	2%	13	1	1	15
8:00 – 8:30am	47%	16%	36	9	9	54
8:00 – 9:00am	22%	60%	17	34	34	85
After 9am	0%	22%	0	12	12	24
Total	**100%**	**100%**	**77**	**56**	**56**	**189**

In the afternoon, the observed collection window for students occurred within a short and intense 30-minute period, with the majority of collection vehicles, including the six buses arriving before 2:30 pm and departing by 3:00 pm. Staff movements then followed, with most staff leaving after the student collection period had concluded.

For traffic-analysis purposes, the peak hour is taken as the period between 2:15 pm and 3:15 pm, during which the proposed development is forecast to generate 139 two-way trips, comprising 56 arrivals and 83 departures, as illustrated in the table below.

Table 6.3B – Forecast of trips arriving and leaving the proposed development for the afternoon

Time	Southern Support School trip data		New Devonport support school			
			Staff (77 trips)	Students trips (112 trips)		Total two-way trips
	Staff	Students		Arriving	Leaving	
Prior to 2:30pm	0%	65%	0	36	0	36
2:30 to 3:00pm	0%	30%	0	17	45	62
3:00 to 3:30pm	35%	5%	27	3	11	41
After 3:30pm	65%	0%	50	0	0	50
Total	**100%**	**100%**	**77**	**56**	**56**	**189**

6.4 Trip distribution to the surrounding road network

With similar operating hours to the Southern Support School, it is reasonable to assume that the new support school will exhibit the same traffic-generation profile and timing. These forecast trips have been overlaid on the observed traffic activity on Bay Drive to understand how vehicles are likely to arrive and depart the site using the two junctions.

In the morning period, the current distribution pattern indicates that, aside from vehicles turning right into Bay Drive from Devonport Road, the remaining three movements are broadly balanced across both junctions. Vehicles exiting Bay Drive towards Mersey Main Road predominantly undertake a left turn, reflecting the higher traffic volumes and the difficulty of completing a right-turn movement at this location, with right-turn departures instead occurring mainly at the Devonport Road junction where gaps in traffic are more readily available.

A similar pattern is expected in the afternoon period, with student-related traffic dispersing across both junctions and right-turn movements continuing to favour the Devonport Road option. This distribution aligns with existing driver behaviour.

The table below illustrates the predicted traffic pattern, based on the proposed development generating 139 two-way trips in the morning peak hour (96 arriving and 43 departing between 8:00 and 9:00 am), and an additional 139 two-way trips in the afternoon peak hour (56 arriving and 83 leaving between 2:15 and 3:15 pm).

Table 6.4 – Predicted trip distribution across the surrounding road network

Peak period	Criteria	Vehicles arriving Bay Drive				Vehicles leaving Bay Drive			
		Mersey Main Road		Devonport Road		Mersey Main Road		Devonport Road	
	Movement	Left In	Right In	Left In	Right In	Left Out	Right Out	Left out	Right Out
Current AM flows	Volume	51	32	49	3	21	2	3	57
	Percent	38%	24%	36%	2%	26%	2%	4%	70%
Predicted trips for AM Period		**36**	**23**	**35**	**2**	**11**	**1**	**2**	**30**
Current PM flows	Volume	51	36	51	4	59	7	4	86
	Percent	36%	25%	36%	3%	38%	5%	3%	55%
Predicted trips for PM period		**20**	**14**	**20**	**2**	**31**	**4**	**3**	**45**

7. Assessment of additional trips on the surrounding road network

The simplest and most robust method to quantify and evaluate the impact of additional development generated trips on the surrounding road network is to use SIDRA INTERSECTION modelling. SIDRA applies established traffic-flow theory, including traffic-flow density and gap-acceptance behaviour, to assess how intersections operate under different traffic conditions. The software calculates key performance measures such as degree of saturation (DoS), average delay for each turning movement, and queue length, which together determine the Level of Service (LOS) for each approach and for the intersection as a whole.

These metrics provides understanding how the forecast school-related traffic will interact with existing flows on Bay Drive, Mersey Main Road and Devonport Road, and whether any operational constraints are likely to arise.

Austroads identifies six Levels of Service (LOS) for junctions and roundabouts, with LOS A representing the highest operating standard and LOS F indicating that a movement or junction is oversaturated. In major urban areas, it is common for key arterial roads to operate at LOS D during peak periods, reflecting the short, intense nature of commuter peaks. Upgrading infrastructure solely to eliminate these brief periods of congestion is generally considered uneconomic.

Diagram 7.0 – Austroads Guide for level of service at junctions, intersections, and roundabouts

Level of Service	Average delay per vehicle (secs/vehicle)	Traffic Signals and Roundabouts	Give Way and Stop controls
A	<10	Good operation	Good operation
B	10 to <20	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	20 to <35	Satisfactory	Satisfactory, but crash study required
D	35 to <50	Operating near capacity, acceptable for State Roads	Near capacity and crash study required
E	50 to <70	At capacity for signals, will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control modes
F	>70	Saturated flows – at signals, consider additional lanes	

Traffic models were developed in SIDRA using the captured peak-hour traffic flows to represent existing operating conditions, quantify the change in performance associated with the additional development-generated trips, and assess the impact of incremental traffic growth on the major road network over the next 10 years. For the future-year scenarios, an annual growth rate of 1% has been applied to Mersey Main Road and 2% to Devonport Road, reflecting observed traffic trends, the expected pattern of regional development, and the greater capacity of Devonport Road to accommodate higher traffic volumes.

The modelling confirms that current traffic flow along Mersey Main Road is consistent throughout the peak periods, which limits the availability of gaps for turning vehicles. As a result, vehicles turning right out of Bay Drive experience the longest delays. Given these limited gaps, and the lower traffic volumes on Devonport Road, local drivers typically use the Devonport Road junction when turning right, and the modelling supports this as the more efficient option. Although the development increases traffic demand at this junction, the overall level of performance remains within manageable and acceptable limits.

Even with future increases in traffic flow along Mersey Main Road, the junction is predicted to continue operating within acceptable performance thresholds under Austroads guidance. The increased flow further reduces the availability of gaps for right-turning vehicles, which results in a lower LOS for this movement; however, the overall junction performance remains within the range typically accepted for major urban roads during peak periods.

The predicted queue length for vehicles turning right into Bay Drive is expected to increase from 0.9 metres to 1.7 metres, which remains less than a single vehicle. This confirms that the existing length of the marked right-turn lane is more than sufficient to accommodate demand without queues extending into the through-traffic lane.

Table 7.0A – Summary of modelling outcome for junction of Mersey Main Road and Bay Drive

Peak period	Scenario	Total vehicles	DOS	Movement	Average delay	LOS	Max queue
Morning peak hour	Current	1,346	0.374	Right Out	20.5 secs	C	0.7m
				Left Out	7.5 secs	A	0.7m
				Right In	7.7 secs	A	0.9m
	With development operating	1,417	0.374	Right Out	21.8 secs	C	1.2m
				Left Out	7.5 secs	A	1.2m
				Right In	8 secs	A	1.6m
	Traffic growth on Mersey Main Road (1% for 10 YRS)	1,546	0.413	Right Out	27 secs	D	1.3m
				Left Out	7.8 secs	A	1.3m
				Right In	8.4 secs	A	1.7m
Afternoon peak hour	Current	1,517	0.395	Right Out	25.5 Secs	D	2.8m
				Left Out	9.1 secs	A	2.8m
				Right In	9.3 secs	A	1.3m
	With development operating	1,586	0.406	Right Out	27.2 secs	D	4.5m
				Left Out	9.4 secs	A	4.5m
				Right In	9.6 secs	A	1.9m
	Traffic growth on Mersey Main Road (1% for 10 YRS)	1,729	0.444	Right Out	35.2secs	E	5.5m
				Left Out	10.3 secs	B	5.5m
				Right In	10.5m	B	2.1m

With substantially lower traffic flows along Devonport Road, the modelling indicates that motorists are likely to experience a high level of traffic performance (LOS A) for all movements. This level of performance is not expected to reduce once the development is operating, and is predicted to remain unchanged even with an assumed 2% annual traffic growth over the next 10 years. The junction has considerable spare capacity and can readily accommodate additional traffic demand, including any redistribution that may occur as Mersey Main Road becomes busier.

Table 7.0B - Summary of modelling outcome for junction of Devonport Road and Bay Drive

Peak period	Scenario	Total vehicles	DOS	Movement	Average delay	LOS	Max queue
Morning peak hour	Current	504	0.144	Right Out	7.2 secs	A	1.5m
				Left Out	5.9 secs	A	1.5m
				Right In	5.6 secs	A	0.2m
	With development operating	566	0.146	Right Out	7.2 secs	A	2.3m
				Left Out	5.9 secs	A	2.3m
				Right In	5.7 secs	A	0.3m
	Traffic growth on Mersey Main Road (2% for 10 YRS)	636	0.168	Right Out	7.6 secs	A	2.4m
				Left Out	6.0 secs	A	2.4m
				Right In	6.1 secs	A	0.4m
Afternoon peak hour	Current	610	0.144	Right Out	7.5 secs	A	2.3m
				Left Out	6.2 secs	A	2.3m
				Right In	6.5 secs	A	0.3m
	With development operating	680	0.165	Right Out	7.6 secs	A	3.6m
				Left Out	6.3 secs	A	3.6m
				Right In	6.7 secs	A	0.5m
	Traffic growth on Mersey Main Road (2% for 10 YRS)	776	0.183	Right Out	7.6 secs	A	3.6m
				Left Out	6.3 secs	A	3.6 m
				Right In	6.9 secs	A	0.5m

Overall, the traffic analysis demonstrates that the surrounding road network has sufficient capacity to absorb the predicted increase in traffic generated by the proposed support school. The modelling indicates that current motorists are unlikely to experience any material change in operating conditions, and that the network retains ample spare capacity to accommodate further development in the area. This conclusion remains robust even if the new school generates a higher number of trips than forecast in this assessment, or if future expansion results in additional traffic demand.

Site observations undertaken during the manual surveys found that the Adult Crossing Guard operating at the part-time children's crossing outside the primary school's main access on Mersey Main Road contributed to short-duration congestion on the arterial road, as traffic flow was periodically interrupted to allow students to cross safely. These interruptions resulted in minor queuing extending back beyond the Bay Drive junction during the morning period. This queuing, in turn, improved opportunities for right-turning vehicles from Bay Drive, as motorists within the queue created suitable gaps in the traffic stream. While this effect cannot be modelled, it indicates that the predicted delay for vehicles turning right out of Bay Drive is likely to be lower in practice, than the modelling results.

7.1 Initial consultation with State Growth

Given the development will intensify traffic movements at the Mersey Main Road and Bay Drive junction, initial consultation was undertaken with State Growth to outline the proposal and identify any potential constraints. State Growth acknowledged that Mersey Main Road functions as an important urban arterial and that traffic flow can be restricted during peak commuter periods; however, they agreed that the additional traffic generated by the development is expected to have only a minor impact and would be acceptable within the state road network perspective.

State Growth also advised that traffic signals are proposed for the nearby Kelcy Tier Road junction (located south) to assist in managing future traffic demands. These signals have the potential to create gaps in the downstream traffic flow, which may in turn assist vehicles turning at the Bay Drive junction.

Overall, State Growth raised no concerns with the development, noting that the existing right-turn lane provides sufficient storage for the increased demand and that the traffic analysis confirms the junction will continue to operate within Austroads guidelines. Both requirements will be satisfied.

8. Assess arrangement

The current site operates with an accessway to Bay Drive, and site inspection confirmed that the standard of this access is more than suitable for the proposed development. The sealed accessway width exceeds 5.5 metres, the alignment is generally straight on flat terrain, and the adjoining land on both sides provides unrestricted sight lines.

The inspection identified minor pavement imperfections that may allow surface water to pool, and noted that trees along the western side have the potential to deposit debris onto the surface. Both matters can be readily addressed through routine pavement maintenance.

Photograph 8.0A – Water pooling and leaf debris

Photograph 8.0B – Water pooling at the Bay Drive access (eastern side)

8.1 Access into the development site

The current site access will be used, upgraded to accommodate two-way traffic flow, while providing barrier kerbing to the adjacent pathway, to maintain safety by provide separation between pedestrians and vehicular movements.

Photograph 8.1 – Existing site access

8.2 Driveway access to Bay Drive

The accessway intersects Bay Drive at an acceptable angle of more than 70 degrees, and the existing concrete crossover is sufficient to accommodate two-way traffic flow. Immediately west of this crossover is a separate residential access, and the two driveways currently share a continuous sealed surface, which has the potential to create confusion or conflict between users. This can be addressed by installing a raised traffic island to separate the two access points and clearly formalise the entry to the development site. In addition, due to the access geometry, it is desirable to install a median island within the driveway to separate opposing traffic movements and prevent corner-cutting by vehicles entering or exiting the site.

Photograph 8.2 – Access crossovers to Bay Drive

9. Parking requirements

Under Table 6.2 of the Planning Scheme, the proposed support school falls within the Educational and Occasional Care use class, which applies to land used for educational or short-term care purposes. Typical examples include childcare centres, kindergartens, primary schools, and secondary or tertiary education facilities.

The planning scheme table C2.1 specifies that uses within the Educational and Occasional Care class must provide one on-site parking space per employee, plus one space per six tertiary-education students. As the proposed support school will not accommodate tertiary students, the requirement applies solely to staff numbers. The client has advised that, due to the high level of care required, the school will operate with a maximum of 87 staff, resulting in a requirement for 87 on-site parking spaces to comply with the acceptable solution.

The proposal cannot satisfy Acceptable Solution A1 of Clause C2.5.1 because the required staff parking spaces cannot be provided within the development site. Staff parking will instead be accommodated within two existing sealed parking areas immediately adjoining the site, which are to be purchased by the client. As these areas fall outside the site boundary, the proposal must be assessed under Performance Criteria P1. The assessment demonstrates that the reasonable needs of the use will be met without adverse impact on surrounding land uses.

The size and functional needs of the site limit the ability to provide this volume of on-site parking, particularly as the design must accommodate specialised facilities and outdoor spaces for students. Importantly, the site is already supported by two significant sealed parking areas in close proximity, which can be used by the school, and shared with other users outside of school hours. This enables the development to be appropriately designed to maximise student-focused facilities while relying on established off-street parking areas that already support school-related and recreational activity. The proximity, capacity and existing utilisation patterns of these parking areas demonstrate that they can safely and efficiently accommodate staff demand without generating reliance on on-street parking or creating conflict with surrounding land uses.

The layout will incorporate two designated internal drop-off and pick-up zones adjacent to the main building entrance, and eight on-site parking spaces, including four accessible spaces, for parent use. Staff vehicles will be required to utilise the two existing sealed parking areas accessed from the shared accessway. Consequently, the development must be assessed against the Performance Criteria, with the following justification demonstrating that adequate parking is available to meet the needs of the use while minimising impacts on surrounding land users. The two existing sealed parking areas provide substantial capacity, accommodating approximately 130 vehicles in total, with around 90 spaces in the eastern area and 40 spaces in the western area.

- Spreyton Primary School provides 24 marked spaces within its internal loop road for parent pick-up and drop-off. Recent site inspections confirm that overflow parking from the primary school into the eastern parking area is minimal, typically less than 15 vehicles. Both the primary school and the proposed support school operate only on school days between 8:00 am and 4:00 pm, enabling the parking areas to be shared efficiently and used by the surrounding recreational users outside of these hours.
- Mersey Main Road is serviced by frequent public bus routes, providing a viable alternative transport mode for staff and reducing reliance on private vehicles.

- The site is located within an established urban environment, immediately adjacent to residential areas and supported by a mature footpath network. This enables staff to walk or cycle to the site where practical.
- The site is relatively small for a school and is strategically located adjacent to Spreyton Primary School, enabling operational interaction between the two schools and supporting shared use of surrounding infrastructure.
- While on-street parking is available along Mersey Main Road, the extensive off-street supply within the two existing parking areas is more than adequate to meet staff demand, ensuring that on-street parking will not be required.
- Based on observed travel behaviour at the Southern Support School, approximately 90 percent of staff generate a parking demand, with the remaining 10 percent using alternative travel modes. Applying this ratio to the proposed support school indicates a likely demand for around 78 parking spaces, which is well within the capacity of the existing off-street parking areas and is unlikely to impact current users. There will be sufficient parking to support both schools, noting that the two parking areas are spatially separated and capable of operating independently.

The client will reline mark the existing off-site parking areas to re-formalise the parking spaces, and provide minor repairs to the surface as required.

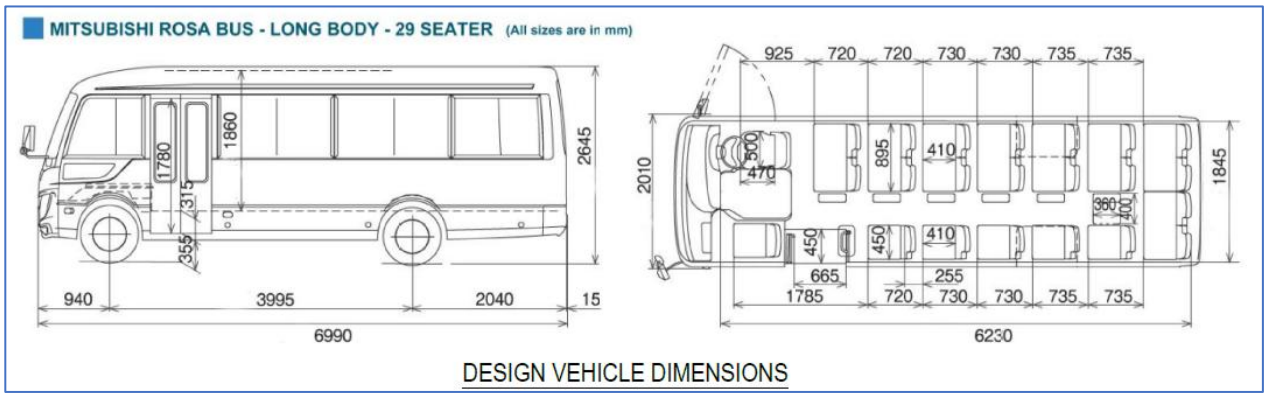
Diagram 9.0 – Location of existing supply of off-street parking

10. Internal layout and traffic infrastructure within the site

10.1 Design vehicles

The client has advised that vehicles used to transport the students will be mini coaster buses, with 29 seat capacity, operating with two axles, slightly less than 7 metres in length, 1.85 metres wide and 2.65 metres high, as illustrated in the diagram below.

Diagram 10.1 – Dimensions of design mini-coaster bus



10.2 Drop-off and pick-up zones

The facility will provide two separate drop-off and pick-up zones adjacent to the building entrances, the first zone designated for the designed mini-coaster buses located within a secured compound, with the second zone physically separate for private vehicles. The arrangement will allow private vehicles to enter their designated zone without passing the mini buses. All vehicles leaving these two zones will share an exit carriageway operating with a one-way traffic flow.

The length of the kerb within the bus zone will have sufficient length to accommodate three of the mini-coaster buses, while the private vehicle zone will have ability to accommodate five vehicles at the same time.

10.3 Internal driveway

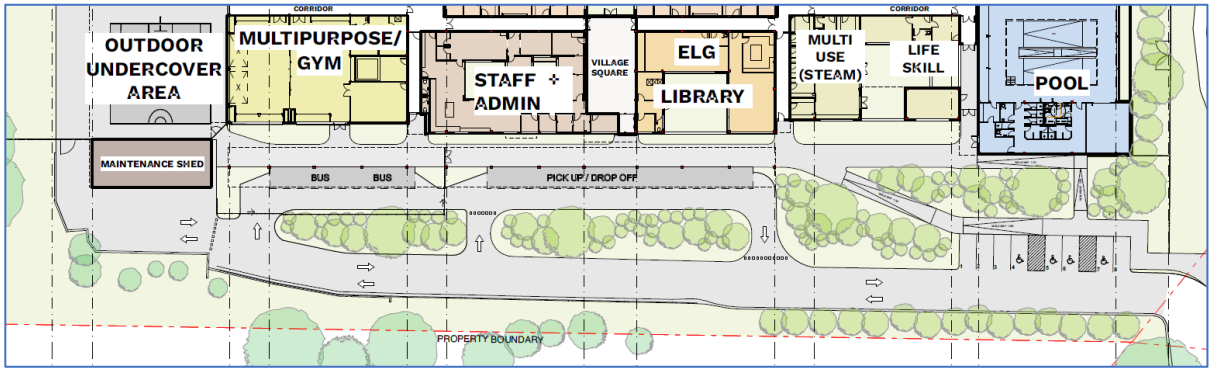
The development will upgrade the existing internal driveway along the southern boundary to accommodate two-way traffic movements to the two drop-off and pick-up zones, access to the eight on-site parking spaces, and access to the small maintenance area situated at the end of the driveway.

The layout has been designed to support safe and efficient two-way traffic flow, with all vehicles entering and exiting the site in a forward-driving direction, based on the swept path of the design mini-coaster buses. The width of this driveway will exceed 6 metres, complying with the planning scheme table C2.2 to accommodate two-way traffic flow.

The upgraded driveway will be constructed in asphalt and supported with kerbing that incorporates appropriate stormwater drainage elements. The kerb profile and carriageway crossfall will direct surface water to stormwater collection points connected to an approved stormwater drainage system.

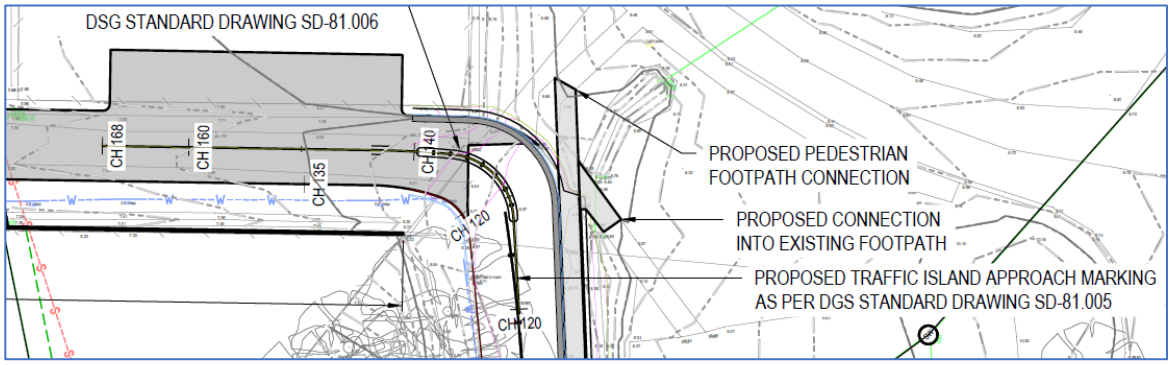
With the site being relatively flat, the internal driveway grades are expected to be minimal, enabling compliance with the grade requirements of Australian Standard AS 2890.1:2004. The layout incorporates internal junctions, with the two drop-off and pick-up zones separated from the main internal driveway by a wide landscaped median. Landscaping within the median will be managed to maintain appropriate sight distance so that drivers have adequate visibility when manoeuvring, supporting safe and efficient internal traffic operation. A 10 km/h shared-zone speed limit will be applied within the internal driveway to moderate vehicle speeds and reinforce the low-speed environment.

Diagram 10.3A – Internal driveway layout



To separate opposing vehicle movements at the tight ninety-degree curve where the driveway meets the accessway, a safety-bar island will be installed to guide drivers and reduce the likelihood of corner-cutting.

Diagram 10.3B - Safety Bar Island



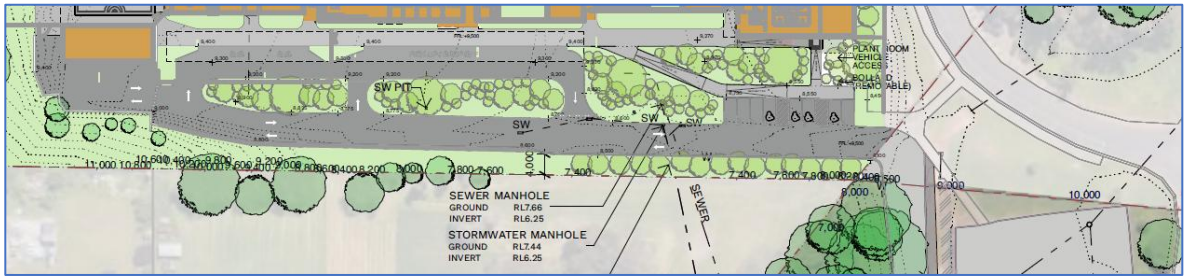
10.4 On-site parking spaces

Eight on-site parking spaces will be provided, operating as ninety-degree spaces accessed directly from the internal driveway. These spaces are expected to be used primarily by parents and will be designed in accordance with the dimensions specified in Planning Scheme Table C2.2, with each space measuring 2.6 metres in width, 5.4 metres in length, and supported by a minimum manoeuvring area of 6.4 metres. Adequate sight lines will be available between the parking spaces and approaching vehicles, minimising the potential for conflict. Posted 10 km/h shared speed limit will further moderate vehicle speeds and assist with maintaining safe and efficient operation of these parking spaces. These parking spaces will be constructed with a sealed asphalt surface, have grades of less than 5 percent, be free of any overhead structures, and will be delineated with line markings and supported with wheel stops.

10.5 Internal pedestrian access

The site will include a series of designated pedestrian pathways connecting the main entrance to the eight on-site parking spaces, and to the site boundary. All new internal and external pathways will be a minimum of 2 metres in width and constructed with concrete. Given the flat terrain, the pathways will achieve compliant grades suitable for accessible users, including persons using wheelchairs.

Diagram 10.5 – Internal pathways

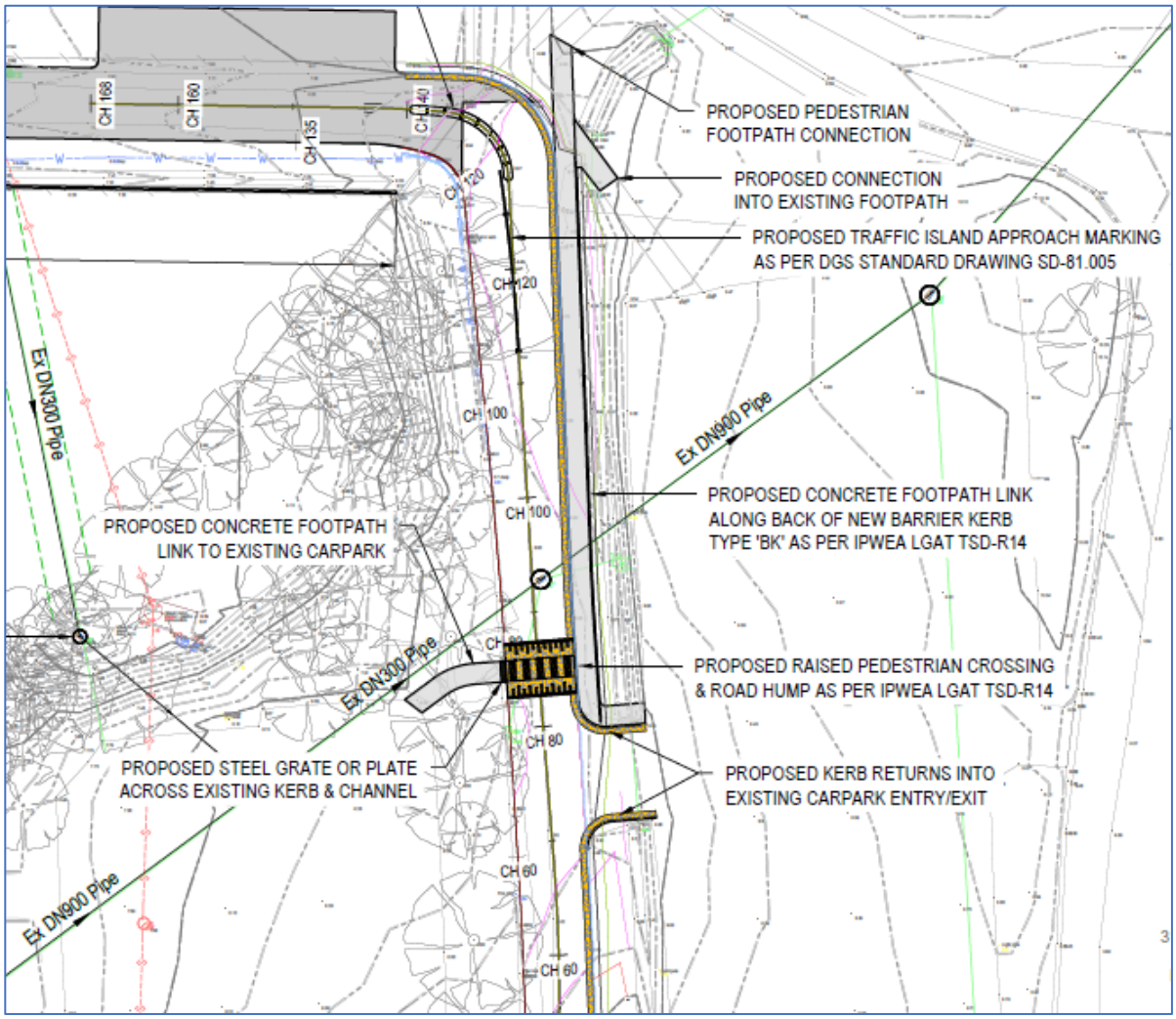


10.6 Wombat crossing and external pathway

To connect the school pathways with the two parking areas, a new concrete pathway will be constructed along the eastern side of the accessway and separated from the carriageway by a concrete barrier kerb. This pathway will also link to the western parking area via a Wombat Crossing, which is a marked pedestrian crossing installed on a raised road hump. This device provides pedestrian priority and is supported by appropriate regulatory signage. A Wombat Crossing is well suited to a lightly trafficked accessway where low vehicle speeds are desirable and where the accessway does not function as a through-route, ensuring safe and convenient pedestrian movement between the school and adjoining parking areas.

Provision of a 40 km/h speed limit along the accessway would be suitable to reflect its local-access function and the need for a low-speed environment supporting safe movements between Bay Drive and the school entrance.

Diagram 10.6 – Wombat crossing across the accessway



10.7 Deliveries

Although regular deliveries are not anticipated, there is sufficient sealed pavement adjacent to the maintenance shed at the end of the internal driveway to accommodate small delivery vehicles. These vehicles will be able to enter the site, turn around within the available hardstand area, and depart in a forward-driving direction, ensuring safe and efficient servicing operations.

10.8 Emergency service vehicles

The internal layout and driveway configuration will allow emergency service vehicles to access the building directly, with sufficient pavement width and turning areas to enable safe approach and forward-facing departure.

10.9 Height clearance

The two drop-off and pick-up zones will be protected from adverse weather conditions with overhead cover structures, and the clearance height of these overhead structures will exceed 3.5 metres.

10.10 Manoeuvring of vehicles

Online Autoturn Swept Path software has been used to verify the layout has sufficient pavement to accommodate the swept path of vehicles entering, circulating and leaving, and is available in appendix A.

11. Planning scheme

11.1 C2.0 Parking and Sustainable Transport code

C2.5.1 Car parking numbers

Table C2.1 specifies that uses within the Educational and Occasional Care class must provide one on-site parking space per employee, plus one space per six tertiary-education students. As the proposed support school will not accommodate tertiary students, the requirement applies solely to staff numbers. The client has advised that, due to the high level of care required, the school will operate with a maximum of 87 staff, resulting in a requirement for 87 on-site parking spaces to comply with the acceptable solution.

The site is located immediately adjacent to the Spreyton Primary School, where co-location of similar land uses is a desirable planning outcome that enables shared use of resources and infrastructure. Given the limited land available, it is not practical to provide both the specialised facilities and outdoor spaces required for students and the full volume of on-site parking envisaged by the acceptable solution. Importantly, there is already a sufficient supply of off-street parking located outside the site that is available during school hours for staff use. After school hours, this same parking supply can be shared by nearby recreational land uses, demonstrating an efficient and established pattern of complementary demand.

This shared-parking arrangement represents an effective method of maximising existing infrastructure and supports the sustainable development of the precinct.

The development will provide dedicated on-site drop-off and pick-up zones, together with eight parking spaces within the site, which is expected to accommodate the reasonable demand associated with students arriving and leaving the school. Staff parking will be met by the available supply within the two established off-street parking areas adjoining the site. As the development cannot practically provide the 87 spaces within the development site required under the acceptable solution, it must be assessed against the performance criteria. The following information demonstrates that staff parking can be accommodated within the existing parking supply without adversely affecting surrounding land uses.

Performance criteria	**Assessment**
The number of on-site car parking spaces for uses, excluding dwellings, must meet the reasonable needs of the use, having regards to:	
a) Availability of off-street public car parking spaces within reasonable walking distance of the site;	Immediately east of the development site are two existing sealed parking areas that can easily accommodate approximately 130 vehicles in total. The client plans to purchase these two areas to accommodate staff parking during school hours.
b) The ability of multiple users to share spaces because of: (i) variation in car parking demand over time; or (ii) efficiencies gained by consolidation of car parking spaces.	The off-street parking areas previously supported the former netball centre, which is now being relocated to a new sports precinct and will no longer generate demand for these spaces. The Spreyton Primary School has its own separated parking areas, including a rear access area containing approximately 24 marked spaces. A recent inspection during school drop-off and pick-up periods identified only a modest overflow demand of fewer than 15 vehicles within the eastern parking area. Other

	than the primary school, surrounding land uses are predominantly recreational, with parking demand occurring outside school hours. This complementary pattern of use enables the off-street parking areas to be effectively shared, ensuring adequate capacity is available to accommodate staff associated with the proposed support school without displacing existing users.
c) the availability and frequency of public transport within reasonable walking distance of the site;	Mersey Main Road is serviced by frequent public bus routes, providing a viable alternative transport mode for staff and reducing reliance on private vehicles.
d) The availability and frequency of other transport alternatives;	The site is located within an established urban environment, immediately adjacent to residential areas and supported by a mature footpath network. This enables staff to walk or cycle to the site where practical.
e) Any site constrains such as building, slope, drainage, vegetation and landscaping;	Although all existing built infrastructure will be removed, the site area is relatively small, and the priority is to provide safe and accessible areas for students to be dropped off and picked up as close as practical to the main entrance. The available land must also accommodate the specialised facilities required for the support school, including suitable outdoor spaces for students. These functional requirements limit the capacity to provide additional on-site parking without compromising student safety or the quality of the learning environment.
f) The availability, accessible and safety of on-street parking, having regards to the nature of the roads, traffic management, and other uses in the vicinity;	While on-street parking is available along Mersey Main Road, the extensive off-street supply within the two existing parking areas is more than adequate to meet staff demand, ensuring that on-street parking will not be required.
g) The effect on streetscape; and	The two established off-street parking areas are existing, well-integrated into the surrounding landscape, and will not result in any additional visual or amenity impacts.
h) Any assessment by a suitability qualified person of the actual car parking demand determined having regard to the scale and nature of the use and development.	Based on observed travel behaviour at the Southern Support School, approximately 90 percent of staff generate a parking demand, with the remaining 10 percent using alternative travel modes. Applying this ratio to the proposed support school indicates a likely demand for around 78 parking spaces, which is well within the capacity of the existing off-street parking areas and is unlikely to impact current users. There will be sufficient parking to support both schools, noting that the two parking areas are spatially separated and capable of operating independently.

C2.5.2 Bicycle parking numbers

Table C2.1 of the Planning Scheme specifies that uses within the Educational and Occasional Care class must provide one bicycle parking space for every five employees and tertiary-education students. As the proposed development will operate with 87 staff and will not accommodate tertiary students, the requirement applies solely to staff numbers. On this basis, the development will provide 17 bicycle parking spaces within the site to comply with the acceptable solution.

C2.5.3 Motorcycle parking numbers

Table C2.4 of the Planning Scheme requires dedicated motorcycle parking, with no spaces required for the first 20 car parking spaces, and one motorcycle space required for every additional 20 spaces thereafter. As the development is required to provide 87 car parking spaces, this generates a requirement for four dedicated motorcycle parking spaces. Four dedicated motorcycles parking spaces will be developed within the western parking area, with the number of spaces complying with the acceptable solution.

C2.5.4 Loading bays

Although the development incorporates modular buildings, the combined floor area exceeds 1 000 m² within a single occupancy and therefore triggers the requirement for a dedicated loading bay under Table C2.5.

However, the educational use will not generate outbound freight, and inbound deliveries will be low in volume and limited to Single Rigid Vehicles (SRV). While no formal loading bay is proposed, the hardstand area adjacent to the maintenance shed at the end of the internal driveway provides a suitable location for SRVs to enter, turn around and depart in a forward direction. In addition, the student drop-off and pick-up zone can safely accommodate SRV movements when required and will function effectively as an informal loading area for the minor servicing needs of the facility.

Accessible parking spaces

According to National Building Code, this type of building would be classified as 9b Building, and require one accessible parking space per 100 carparking spaces. The development will provide four accessible parking spaces, with shared zones complying with the acceptable planning solution A1.2 under clause C2.6.2.

C2.6 Development Standards for Building and Works

C2.6.1 Construction of parking areas;	The internal driveway, and eight parking spaces will be constructed with hard surface, either asphalt or concrete, including appropriate camber to direct surface water to an approved stormwater system, complying with acceptable solution A1.
C2.6.2 Design and layout of parking areas;	All vehicles will be able to enter, circulate and leave the site in a forward driving direction, with adequate carriageway width being included. The eight parking spaces will be designed to comply with the dimensions in table C2.3, with sufficient manoeuvring area.

	Vertical height of the canopy of the two drop-off and pick-up areas will be compliant, at least 3.5 metre high suitable for Single Rigid Vehicles. The parking spaces and collection areas will have minimal vertical grade less than 5 %, and delineated with line markings, and supported with wheel stops where necessary. Overall, the internal layout will comply with the acceptable solution A1(a) and A1.2, as suitable number of accessible spaces will be included.
C2.6.3 Number of accesses for vehicles;	The development will use the current vehicular access, and comply with the acceptable solution A1, by not including any new access.
C2.6.4 Lighting of parking areas within the General Business Zone and Central business Zone;	The internal parking and collection areas within the site will be fitted with appropriate lighting to meet the standard, for an educational facility.
C2.6.5 Pedestrian access;	Appropriate internal and external pedestrian pathways will be provided, connecting the on-site parking spaces, drop-off and pick-up areas with the main building entrances. These pathways will also link directly to the established off-street parking areas adjoining the site. This network of paths will facilitate safe, direct and convenient pedestrian movement throughout the site and to surrounding parking areas, satisfying the requirements of the Acceptable Solution A1.
C2.6.6 Loading bays;	Although a formal loading bay will not be provided, there are suitable locations within the site where infrequent deliveries can occur safely and efficiently, meeting the intent of the planning scheme for service vehicle access.
C2.6.7 Bicycle parking and storage facilities within the General Business Zone and Central Business Zone.	Not applicable,
C2.6.8 Siting of parking and turning area	Not applicable for site within recreational zoned land.

11.2 C3.0 Road and Railway Assets Code

The site previously operated as a netball centre with 14 courts. When in use, the facility had the potential to generate a moderate level of traffic, with up to 140 vehicle trips over a typical 90-minute period. Although this activity generally occurred during weekday evenings and weekends, outside the normal commuter peak periods, it demonstrates that the surrounding road network and the site access from Bay Drive are capable of accommodating short-duration traffic peaks associated with organised sporting use.

Based on observed traffic data from a comparable support school, this assessment identifies that approximately 90% of staff are expected to arrive and depart by private vehicle, with these movements occurring outside the concentrated student transport periods. Peak student transport activity is expected between 8:30–9:00 am and 2:30–3:00 pm on school days. Approximately 40% of students are anticipated to travel by mini-buses, with the remaining 60% arriving by private vehicle. In total, the proposed school has the potential to generate around 189 vehicle trips during both the morning and afternoon peak periods.

As the site already operates with established vehicular access to the public road network, the development can be assessed under Acceptable Solution A1.4. However, because the increase in traffic generation exceeds 20% or 40 vehicle movements per day, the proposal must be considered against the Performance Criteria P1.

Performance criteria	**Assessment**
Vehicular traffic to and from the site must minimise any adverse effects on the safety of a junction, vehicle crossing or level crossing or safety or efficiency of the road or rail network, having regard to:	
a) Any increase in the traffic caused by the use;	The new support school is predicted to generate 189 vehicular trips during both the morning and afternoon periods on school days, with 139 of these movements expected to occur within the peak hour. Although the previous land use generated a similar number of trips, those movements occurred outside the normal commuter peak periods, when background traffic volumes were lower.
b) The nature of the traffic generated by the use;	The development is expected to generate light vehicle movements under 5.5 metres in length, and 7 metre long mini-coaster buses. These vehicles offer good manoeuvrability and are compatible with the surrounding road network.
c) The nature of the road;	Site access will continue to be provided via the existing accessway connecting to Bay Drive. This access is of a suitable standard to accommodate two-way traffic safely and efficiently, with a sealed surface, kerbing along one side and an established drainage system. Minor surface repairs will be undertaken as part of the development. Bay Drive is a local-access loop road operating between Mersey Main Road and Devonport Road, with adequate width to support two-way vehicle movements and an appropriate standard to accommodate the proposed change of use. Within the surrounding road network, Mersey Main Road functions as an urban arterial road and Devonport Road as a collector road, both constructed to a standard capable of absorbing the additional traffic movements generated by the development.
d) The speed limit and traffic flow of the road;	The surrounding local streets operate under the default urban speed limit of 50 km/h. While this assessment identifies that the land uses along the southern portion of Bay Drive may benefit from a lower speed

	environment. Mersey Main Road carries consistent traffic flows compatible with its arterial road function, while Devonport Road experiences lower traffic volumes, providing regular gaps that assist vehicles turning right from Bay Drive. Detailed traffic modelling of the two Bay Drive junctions confirms that the additional traffic generated by the development can be absorbed without materially affecting operational efficiency, with the analysis also accounting for future traffic growth. The modelling demonstrates that there is sufficient capacity within the surrounding network, both at junctions and along road links to accommodate the forecast increase in vehicle movements without significant deterioration in performance. Motorists are unlikely to perceive any change, with the network expected to continue operating at appropriate level of performance, even with incremental traffic growth.
e) Any alternative access to a road;	The development will use the current vehicular access driveway, which is considered appropriate.
f) The need for the use;	The development will deliver significant community benefits to the local and surrounding areas by improving the facilities for students requiring high level of support.
g) Any traffic impact assessment; and	An independent traffic assessment found no reason for this development not to proceed.
h) Any written advice received from the rail or road authority.	Not aware of any.

12. Conclusion

The proposed Northwest Support School can be safely and efficiently accommodated within the existing transport network and supporting infrastructure. The surrounding road hierarchy, comprising Mersey Main Road, Devonport Road and Bay Drive operate in a manner consistent with its intended function, with traffic volumes, observed behaviour and crash history all indicating a network performing well within capacity. The existing access arrangement via Bay Drive is appropriate for the development, with the sealed accessway providing suitable two-way operation and only minor vegetation trimming required to achieve desirable sight-distance parameters.

The former netball centre generated short-duration traffic peaks of up to 140 vehicle trips over a 90-minute period, demonstrating that the access and surrounding network have historically accommodated higher-intensity recreational activity without operational issues. Forecast traffic associated with the support school derived from detailed surveys at a comparable facility shows that staff movements occur outside the concentrated student arrival and departure windows, and that student transport activity is confined to short, predictable periods. The combined morning and afternoon peaks are well within the capacity of the surrounding network.

Traffic modelling of the Bay Drive junctions confirms that the additional vehicle movements generated by the development can be absorbed without material impact on efficiency or safety. The network is expected to continue operating at Level of Service A, even when allowing for a conservative annual traffic-growth rate over the next decade.

Parking demand will be met through a combination of on-site accessible spaces, dedicated drop-off and pick-up zones, and the two established sealed parking areas adjoining the site. These areas previously supported the netball facility and currently accommodate school-related and recreational activity, providing ample capacity for staff and parent parking without adverse impacts on surrounding land uses.

Bicycle and motorcycle parking requirements will be incorporated within the design.

Servicing needs for the school are low, with infrequent deliveries limited to Single Rigid Vehicles. Although a formal loading bay is not proposed, suitable hardstand areas within the site can safely accommodate these vehicles.

Overall, the assessment confirms that the proposed development can be supported by the existing transport infrastructure without the need for major upgrades. The surrounding road network, access arrangements, parking supply, and servicing provisions are all appropriate for the scale and nature of the support school, and the development is not expected to generate any unacceptable impacts on traffic efficiency, road safety, or surrounding land uses.

The proposal can be supported from a traffic engineering perspective.

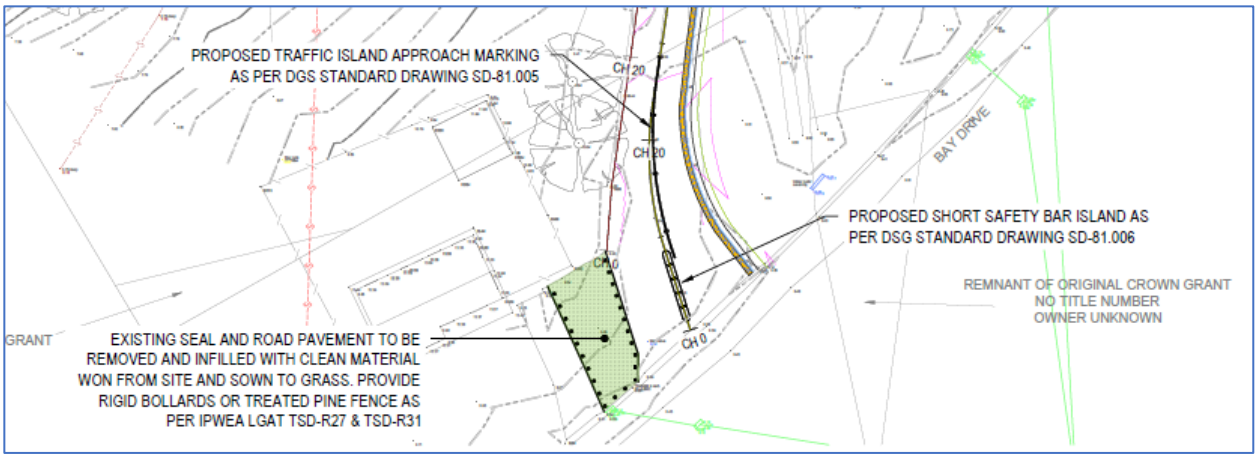
13. Minor infrastructure improvements

This traffic assessment has identified several minor network improvements that should be undertaken, with the table below outlines these recommended measures and the party responsible for implementing each.

Table 13.0 – Identified network improvements

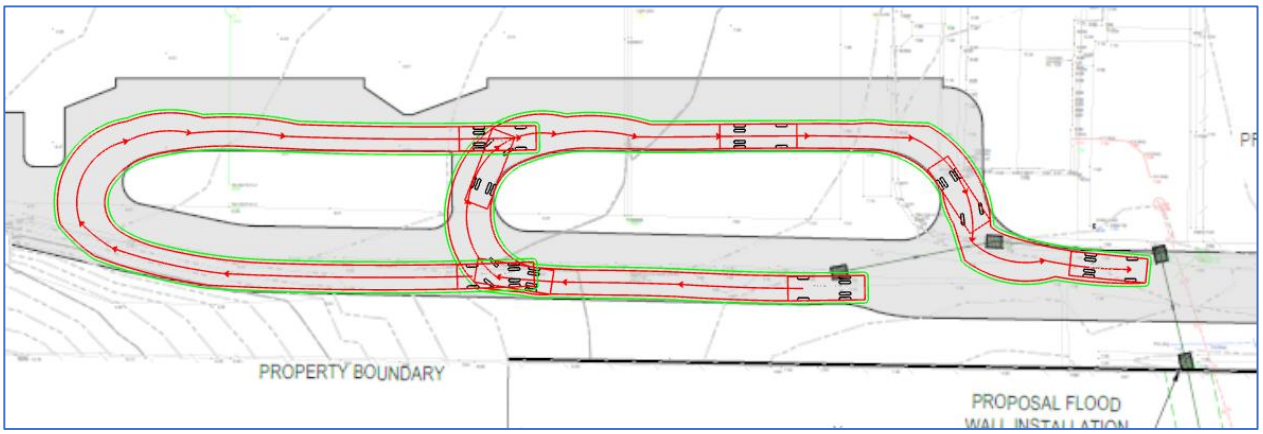
Item	Issue and mitigation	Responsibility
Speed limit on Bay Drive pass the development site access	Based on surrounding land-use, posted 40 km/h speed limit operating on Bay Drive from Mersey Main Road and access to the waste transfer access	Road authority
Speed limit of the accessway	Reinforcing the need for a low operating speed along the accessway between Bay Drive and the school entrance, a 40 km/h speed environment is recommended to support safe vehicle movements and improve safety for pedestrians accessing the site.	Road authority
Minor seal improvements to accessway	Adjust pavement levels at low points along the accessway to improve surface-water flow and reduce pooling.	Developer
Separation between access and existing pathway	Install suitable physical separation (e.g., bollards) between the accessway and the existing external pathway due to the high frequency and size of vehicles accessing the site.	Developer
Sight distance improvements	Based on the posted speed limit on Bay Drive, undertake tree trimming or removal to ensure adequate Safe Intersection Sight Distance (SISD) for drivers exiting the accessway.	Developer
Separation of accessway and private driveway	Provide traffic management measures to clearly separate the accessway from the adjacent private driveway, with consideration of a median island to realign existing vehicle movements.	Developer
Established parking areas	Seal minor pavement defects and remark parking spaces to comply with AS 2890.1:2004.	Developer
Wombat crossing	Installation of a Wombat Crossing across the accessway will provide a safe and convenient pedestrian connection, between the school and adjoining facilities.	Developer
External pedestrian pathways	To connect the school with the two established car parking areas that the client is purchasing, concrete footpath will be constructed along the eastern side of the accessway, with the pathway separated from the carriageway with barrier kerb.	Developer

Diagram 13.0 – Proposed upgrade of accessway junction with Bay Drive



14. Appendix A – Swept path

Swept path of 7 metre long bus entering, circulating and leaving the bus zone area



Swept path of SRV revering into the maintenance area

Swept path of MRV entering the bus zone area as an occasional vehicle

15. Appendix B – Manual traffic surveys

Junction of Mersey Main Road and Bay Drive – Morning peak hour

	Mersey Main Road				Bay Drive	
Time	**Right In**	**Left In**	**Northbound**	**Southbound**	**Left out**	**Right Out**
8:00 to 8:15am	10	12	185	115	6	0
8:15 to 8:30am	16	25	205	121	9	1
8:30 to 8:45am	2	6	177	145	4	0
8:45 to 9:00am	4	8	162	130	2	1
Total	32	51	729	511	21	2

Junction of Mersey Main Road and Bay Drive – Afternoon peak hour

	Mersey Main Road				Bay Drive	
Time	**Right In**	**Left In**	**Northbound**	**Southbound**	**Left out**	**Right Out**
2.25 to 2.40pm	16	13	180	139	9	3
2.40 to 2.55pm	12	19	158	170	29	3
2.55 to 3.10pm	6	14	163	211	13	0
3.10 to 3.25pm	2	5	146	197	8	1
Total	36	51	647	717	59	7

Junction of Devonport Road and Bay Drive – Morning peak hour

	Devonport Road				Bay Drive	
Time	**Right In**	**Left In**	**Northbound**	**Southbound**	**Left out**	**Right Out**
8:00 to 8:15am	0	8	64	19	0	11
8:15 to 8:30am	1	15	63	32	2	20
8:30 to 8:45am	2	12	72	26	0	18
8:45 to 9:00am	0	14	62	22	1	8
Total	3	49	261	99	3	57

Junction of Devonport Road and Bay Drive – Afternoon peak hour

	Devonport Road				Bay Drive	
Time	**Right In**	**Left In**	**Northbound**	**Southbound**	**Left out**	**Right Out**
2.25 to 2:40pm	0	14	57	33	0	18
2:40 to 2:55pm	2	20	52	49	1	40
2:55 to 3:10pm	1	11	70	52	2	18
3:10 to 3:25pm	1	6	58	56	1	10
	4	51	237	190	4	86