

28 May 2025

231605

Colliers  
Level 30, Grosvenor Place 225 George Street  
Sydney NSW 2000

Attention: Joshua De Angelis

**Melrose Park High School (P5-2025-40)**

**37 Hope Street, Melrose Park**

**Traffic Response to Submissions**

---

Dear Joshua,

TTW has provided Traffic Engineering services for the proposed Melrose Park High School. The project was lodged in January 2025 for Review of Environmental Factors (REF), P5-2025-40, and placed on public exhibition, which ended on 10 April 2025. During the exhibition period, a variety of submissions were lodged by government agencies.

In light of these submissions, we have prepared a set of responses providing further information to clarify the queries and address any comments and concerns raised by the Department of Education (DoE), City of Parramatta Council (CoP), City of Ryde (CoR), and Transport for NSW (TfNSW). A full schedule of responses addressing each traffic-related comment received in the REF submissions is attached in **Appendix A**.

This response should be read in conjunction with the traffic-related documents prepared by TTW and lodged as part of the REF, including:

- **Transport and Accessibility Impact Assessment** (Rev 1, 28 January 2025)
- **Preliminary Construction Traffic Management Plan** (Rev 2, 29 January 2025)
- **Preliminary School Transport Plan** (Rev 1, 22 January 2025)

Should you require anything further, please contact the undersigned.

Yours faithfully,  
**TTW (NSW) PTY LTD**

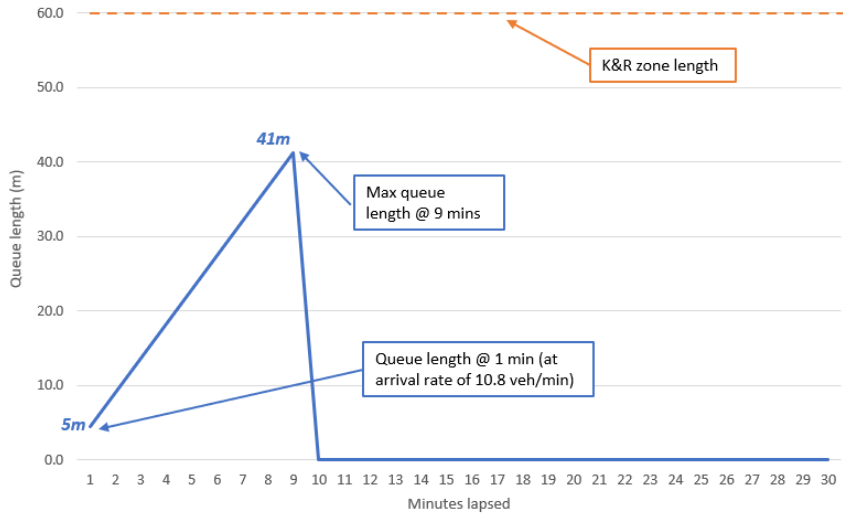
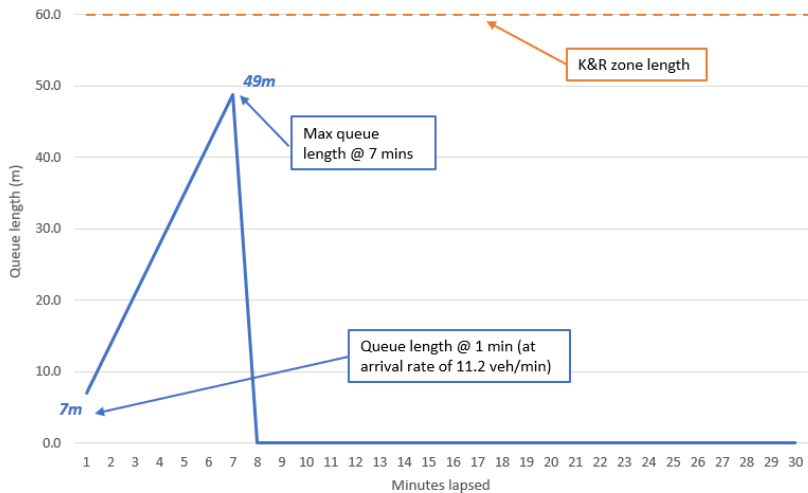


**Michael Babbage**  
**Associate (Traffic)**

## Appendix A - Response Schedule

### NSW Department of Education

No	DoE Comments	Response																																			
<b>Traffic</b>																																					
1	<p><u>Section 9: Kiss and Ride</u></p> <p>Section 9.3 – Provide further details regarding how kiss and ride pickups would be managed during the afternoon peak. Table 28 states there will be 21 kiss and ride bays available, however, there will be demand for 156 vehicles during this time. If all kiss and ride bays are occupied (21 bays) there are potentially up to 135 vehicles that will need to wait on surrounding streets until a bay becomes available. How will this demand be managed? Consideration should be given to stagger finish times between different year groups or provide further detail on how the kiss and ride bays will be managed after</p> <p>Section 9.2 – A queuing analysis has been undertaken although there is no mention of potential queue lengths at either of the kiss and ride locations. What are the potential queues and what impacts will these queues have on surrounding roads and intersections?</p>	<p>A further detailed queueing analysis has been further assessed to determine the queue length and how it impacts the surrounding of area. The value listed may vary in operation, based on the actual turnover time of individual vehicles, and the initiatives in the operational School Transport Plan will be implemented to ensure reasonable operation of the kiss &amp; drop facilities.</p> <p>The following key assumptions (all as documented in the original TIA) were adopted in a base analysis, with additional scenarios discussed in the report.</p> <ul style="list-style-type: none"> <li>Each kiss &amp; drop bay has a turnover rate of 60 seconds per vehicle</li> <li>Each kiss and ride would be 6m in length</li> <li>100% of kiss &amp; drop would occur over a peak period of 9 minutes in AM and 7 minutes in PM, as mentioned in the report.</li> <li>Assumed occupancy of 1.6 students per vehicle</li> </ul> <p><b>Table 1: Queueing Analysis</b></p> <table> <tr> <th rowspan="2">Parameter</th><th colspan="2">TTW Assessment</th></tr> <tr> <th>AM</th><th>PM</th></tr> <tr> <td>Forecast student demand</td><td colspan="2">1,000 students</td></tr> <tr> <td>Portion travelling by car</td><td>31%</td><td>25%</td></tr> <tr> <td>Portion travelling within peak</td><td colspan="2">100%</td></tr> <tr> <td>Number of kiss and ride zone</td><td colspan="2">2</td></tr> <tr> <td>Turnover time</td><td colspan="2">1 min</td></tr> <tr> <td>Vehicles at each kiss &amp; drop zone</td><td colspan="2">10 bays</td></tr> <tr> <td>Peak duration</td><td colspan="2">1.6 students per car</td></tr> <tr> <td>Peak duration</td><td>9 minutes</td><td>7 minutes</td></tr> <tr> <td>Peak vehicle arrival rate</td><td>10.8 vehicles per minute</td><td>11.2 vehicles per minute</td></tr> <tr> <td><b>Max Queue per zone (in metres)</b></td><td><b>41 metres</b></td><td><b>49 metres</b></td></tr> </table>	Parameter	TTW Assessment		AM	PM	Forecast student demand	1,000 students		Portion travelling by car	31%	25%	Portion travelling within peak	100%		Number of kiss and ride zone	2		Turnover time	1 min		Vehicles at each kiss & drop zone	10 bays		Peak duration	1.6 students per car		Peak duration	9 minutes	7 minutes	Peak vehicle arrival rate	10.8 vehicles per minute	11.2 vehicles per minute	<b>Max Queue per zone (in metres)</b>	<b>41 metres</b>	<b>49 metres</b>
Parameter	TTW Assessment																																				
	AM	PM																																			
Forecast student demand	1,000 students																																				
Portion travelling by car	31%	25%																																			
Portion travelling within peak	100%																																				
Number of kiss and ride zone	2																																				
Turnover time	1 min																																				
Vehicles at each kiss & drop zone	10 bays																																				
Peak duration	1.6 students per car																																				
Peak duration	9 minutes	7 minutes																																			
Peak vehicle arrival rate	10.8 vehicles per minute	11.2 vehicles per minute																																			
<b>Max Queue per zone (in metres)</b>	<b>41 metres</b>	<b>49 metres</b>																																			

No	DoE Comments	Response
		 <p><b>Figure 1: AM Queueing Analysis</b></p>  <p><b>Figure 2: PM Queueing Analysis</b></p>

No	DoE Comments	Response
		<p>Based on the table and the graphs, it is shown that the maximum queue that may result is a 49 metres queue. As mentioned in the TIA, the project proposed a 60m K&amp;D zone on Wharf Road and a combination of 68m K&amp;D zones along NSR-4. The queue length, as demonstrated in the table, can therefore be accommodated fully within each kiss and ride zone. There may be some minor exceptions due to short and rapid fluctuations. However, generally, this analysis shows that the available kiss &amp; drop capacity is suitable.</p> <p>It should be noted that the kiss &amp; drop operation may be different in the day-to-day operation. TTW has conducted a sensitivity analysis to understand the potential combinations of mode split for travel by car. Details to the sensitivity analysis is detailed further in Table 5 and Items 1 &amp; 2 in the City of Parramatta Council comments.</p> <p>To address any traffic impacts due to the K&amp;D, management such as reminders to parents and students to consider spreading travel demands, consideration of staggering of bell times, encouragement of carpooling to increase vehicle occupancy, reminders to not wait unnecessarily and to increase turnover time, consideration of drop-off and pick-up in side streets or other locations (where safe and legal) etc, will be applied to ensure little to no impact in the local traffic.</p>
2	<p><u>Section 11.1 Traffic Generation (Proposed MPHS)</u></p> <p>Section 11.1.1 Table 33 Vehicle volumes have been overstated by counting student vehicle trips as arrivals and departures when in fact students who arrive in the morning will not depart in the morning. Therefore, there should be 358 student vehicle trips per hour during the morning and afternoon peaks. There will be 428 vehicle trips (students and staff) based on the above, not 448 vehicle trips as stated.</p>	<p>TTW acknowledge the suggested vehicle number. The student vehicle trips should be 358 vehicle trips (189 in, 169 out) and 358 vehicle trips in the afternoon (169 in, 189 out). With the inclusion of staff trips, the morning trips will be 428 trips (259 in, 169 out) and 428 trips in the afternoon (169 in, 259 out). Since the number of vehicle trips in the report is more conservative, no change will be needed.</p>
3	<p><u>Section 11.2 Traffic Distribution</u></p> <p>Section 11.2.1 – The student location analysis suggests most students will arrive from north and west of the site based on the student catchment forecast catchment analysis in Figure 31. This would mean that most pick-ups would be inclined to occur within the NSR-4 K&amp;R zone unless an operational management plan is enacted to ensure pick-ups are more evenly spread across the two zones. There is no mention of how the 45%/55% split was arrived at.</p>	<p>The student trip distribution has been assessed from the forecast catchment analysis and the shortest path for students who are living outside of a 1.2 km walking catchment to the school. The forecast catchment analysis can be referred to in Section 4.2 of the TAIA, and the shortest path analysis to/from the school is shown in the figure below.</p>

No	DoE Comments	Response
		<div data-bbox="1200 240 1917 954"> </div> <p data-bbox="1070 970 2051 997"><b>Figure 3: Travel Pathway for Students Living Outside 1200 Metres Walking Catchment</b></p> <p data-bbox="954 1027 2163 1273">By looking at the shortest path that students can take to/from the school. It is expected that the students from the west will be likely to take Hope Street to travel to the school. Whereas, students from the north can either take the Wharf Road or another local street, which will eventually go through Hope Street. We assume that all of the kiss and drop activity is conducted in the formal K&amp;D zones (although in practice it is likely that some activity will take place in other locations). Students who will take the Wharf Road will drop on NSR-4, and students who take the Hope Street will take Wharf Road. However, this assessment assumes that students within the walking catchment (1200m) will not travel by car to school. For a more conservative assessment, TTW have adjusted the assumption and included a small percentage of students who travel by car from the southeast of the school. As a result, the split is summarised in the trip distribution part of the TIA and shown below.</p> <p data-bbox="954 1305 2163 1439">It should be noted that Melrose Park is a new precinct and the number of students is based on the forecast assessment, hence, the vehicle distribution may be different on a day-to-day basis. Following the approval and prior to occupation, a detailed School Transport Plan will be prepared, which will address management of the operation of the kiss and drop, such as recommending parents to drop students earlier or pick up students later in the day to minimise any congestion.</p>

No	DoE Comments	Response
4	<p>Section 11.2.3 – It is not clear how staff trips were assigned. Journey to Work Data is typically used based on the SA2 area to estimate staff trip distributions. This section states that staff trip generation will have no impact on the overall results, yet staff trips account for approximately 15% of all vehicle trips in the morning and afternoon peaks. Whilst it is true staff trips account for significantly less trips than students, they still account for 70 vehicle trips which will have some impact on intersection performance.</p>	<p>Journey To Work data is able to provide us with the percentage of staff who are coming to the school, but it does not provide us a clear suggestion on the path of travel that the staff will take to the specific place. As mentioned in Section 11.2.3, there is no accurate way to forecast the staff trip distribution and given the scale of staff traffic generation to this site, estimated distributions are considered an appropriate level of accuracy. Based on our observation, Victoria Road is the main road that vehicles use to travel to Melrose Park. Based on this, we have made a rough assumption of 90% of staff travelling from Victoria Road and 10% are coming internally from the Melrose Park area.</p>
5	<p><u>Section 11.3 Traffic Generation (Melrose Park North Precinct)</u></p> <p>Section 11.3.1 – Clarify why the afternoon school peak was not assessed . This section of the report states it is considered acceptable not to assess the school afternoon peak given the background traffic during this peak is anticipated to be lower than the afternoon commuter peak, however traffic impacts during the afternoon school pick up peak were not assessed at all, notwithstanding any perceived differences in background traffic volumes between commuter and non-commuter peaks. Generally, traffic impacts during afternoon school peaks are considerable given the associated localised impacts these peaks have on nearby roads and intersections and these impacts should be assessed.</p> <ul style="list-style-type: none"> <li>During the school afternoon peak it is assumed that all students will generally depart the school simultaneously (unless finish times are staggered?) as opposed to the morning peak, however there is no mention of any plan to stagger school finish times between different year groups.</li> <li>Traffic impacts during the afternoon school peak are to be assessed.</li> </ul>	<p>As mentioned in the TIA report, the school afternoon peak period is considered acceptable not to be modelled, given the background traffic during the school afternoon peak is anticipated to be lower than the afternoon commuter peak period. However, it is acknowledged that the school will experience a peak period during the afternoon following the school bell. Currently, the analysis considers 156 vehicles in the PM, spread across K&amp;R zones with a capacity for 21 vehicles. Assuming a 1-minute turnover, all vehicles could be processed within 7.4 minutes. A more conservative reduced turnover of 2 minutes per bay would process all vehicles within 15 minutes. Both processing times are considered fairly reasonable compared to a whole hour of peak traffic activity following the school bell. It is noted that in previous TTW analysis of comparable high school sites, only 82% of students were leaving with 15 mins of the bell time; the remainder were leaving within 15-45 mins of the bell time (i.e. assuming that 100% of departures are seeking to leave immediately at the bell time is already conservative).</p> <p>As per the queuing analysis (including sensitivity checks, detailed in Table 5 and Item 1 &amp; 2 of CoP Comments) it is expected that the K&amp;R queues will be reasonably contained within the formal K&amp;R zones (some minor exceptions could occur due to short and rapid fluctuations in demand, but generally the capacity is suitable) and therefore the risk of queues exceeding the site and blocking traffic and creating flow-on traffic impacts is considered low. In addition, the fact that background / non-school traffic volumes will be lower during this period reduces the intensity of any cumulative traffic congestion</p> <p>It should be noted that the potential for traffic impacts is not zero, and should be monitored once the school is operational, particularly as the school enrolment grows in its opening years. If required, mitigation measures to address traffic impacts could include reminders to parents and students to consider spreading travel demands, consideration of staggering of bell times, encouragement of carpooling to increase vehicle occupancy, reminders to not wait unnecessarily and to increase turnover time, consideration of drop-off and pick-up in side streets or other locations (where safe and legal) etc. An updated list of measures will be captured in the School Transport Plan to be detailed prior to occupation</p>



No	DoE Comments	Response																								
6	<p><u>Section 11.5 Cumulative Impacts</u></p> <p>Section 11.5 Cumulative Impacts – Traffic impacts are potentially magnified by Melrose Park primary school on the southern side of Hope Street which is currently operational and is to be upgraded to accommodate an additional 200 students (above the 800 existing students) for a total of 1000 students. This will have a compounding effect on the operation of surrounding streets and intersections during the critical school afternoon peak which was not assessed.</p>	<p>The MPPS project currently remains in the early stages of assessment. Detailed assessment of cumulative impacts and mitigation measures will need to be detailed in that project's application once finalised. However, based on our current understanding of that project's anticipated scope, we provide the following commentary regarding cumulative impacts.</p> <p>MPPS currently operates with approximately 185 students and 22 staff. We understand that the proposed upgrades would seek to increase capacity to 720 students and 50 staff. Traffic modelling has been undertaken as part of the traffic assessment on the MPPS project. Modelling was undertaken for a higher capacity scenario of 982 students, which is more conservative than the anticipated 720 students.</p> <p>The future travel mode of MPPS students and staff has been derived based on an analysis of the proposed catchment area and assessment of the existing travel modes. It is expected that 50% of students and 87% of staff will travel by car. The additional trip generation (relative to existing conditions) is summarised in Table 2. More detailed information would be provided in the MPPS application once the project scope is confirmed and finalised.</p> <p><b>Table 2: Additional Vehicle Trip Generation from MPPS Project</b></p> <table><tr><th rowspan="2">Vehicle Trip</th><th colspan="2">AM Peak</th><th colspan="2">PM Peak</th></tr><tr><th>In</th><th>Out</th><th>In</th><th>Out</th></tr><tr><td>MPPS Additional Vehicle Volume</td><td>268</td><td>232</td><td>232</td><td>268</td></tr><tr><td>New Preschool Vehicle Volume</td><td>46</td><td>42</td><td>24</td><td>29</td></tr><tr><td><b>Total Additional Vehicle Volume</b></td><td><b>314</b></td><td><b>274</b></td><td><b>256</b></td><td><b>297</b></td></tr></table> <p>To understand the cumulative traffic impacts, traffic modelling has been assessed as part of the MPPS analysis (to be finalised for that project's application) for the intersection of Wharf Road and Hope Street. Modelling assumes that the existing physical layout is retained, with the addition of the proposed pedestrian crossings. Works related to Parramatta Light Rail are not expected to result in any physical changes to this intersection.</p> <p>In relation to the operation of surrounding streets and intersections (beyond the Wharf Road and Hope Street intersection), the full internal street network has not been modelled for this assessment. In addition to the lack of details currently available (for elements such as signal phasing or detailed geometric layout etc.), traffic related to the schools (both MPHS and MPPS) will be more spread out further from the school, and therefore result in lesser impact. For this reason, only the Wharf Road and Hope Street intersection has been considered as the primary focus of the modelling, expected to be the intersection most impacted by the proposed schools.</p>	Vehicle Trip	AM Peak		PM Peak		In	Out	In	Out	MPPS Additional Vehicle Volume	268	232	232	268	New Preschool Vehicle Volume	46	42	24	29	<b>Total Additional Vehicle Volume</b>	<b>314</b>	<b>274</b>	<b>256</b>	<b>297</b>
Vehicle Trip	AM Peak			PM Peak																						
	In	Out	In	Out																						
MPPS Additional Vehicle Volume	268	232	232	268																						
New Preschool Vehicle Volume	46	42	24	29																						
<b>Total Additional Vehicle Volume</b>	<b>314</b>	<b>274</b>	<b>256</b>	<b>297</b>																						

No	DoE Comments	Response
		<p>Multiple scenarios have been assessed to understand the impact of each proposed school on the operation of the identified intersection. A description of each modelling scenario is provided below:</p> <ul style="list-style-type: none"> <li>• <b>Baseline Scenario</b></li> <li>• <b>Baseline + MPPS traffic</b></li> <li>• <b>Baseline + MPPS traffic + additional MPHS pedestrians</b></li> </ul> <p><u><b>Baseline Scenario</b></u> Future baseline traffic of the Melrose Park Precinct. The baseline vehicle volume has been retrieved from the approved Melrose Park Internal Street Network report (Pentelic Advisory, 2022). The baseline scenario volumes are forecast for 2036 but have been adopted in all following scenarios for a conservative approach. It is noteworthy to mention the Melrose Park Precinct traffic volumes already capture the following forecast volumes:</p> <ul style="list-style-type: none"> <li>• <b>Parramatta Light Rail Stage 2</b> – Therefore the traffic volumes do not need to be modified to account for PLR Stage 2 in future scenarios.</li> <li>• <b>An 800 student school located on MPHS site</b> – Therefore to avoid double counting of additional traffic associated with the proposed MPHS (this proposal), a comparison between the volumes associated with an 800 student school, already captured in the baseline scenario and the proposed MPHS traffic volumes was completed.</li> </ul> <p><u><i>Comparison Between Melrose Park Precinct School Traffic Volumes &amp; MPHS Proposed Traffic Volumes</i></u></p> <p>A traffic volume comparison was completed within Section 11.3.1 of the TAIA (Rev 1, 28 January 2025) the analysis concluded that as an absolute worst-case scenario (i.e. by applying the baseline target car travel mode splits to the maximum student and staff numbers). The proposed MPHS project would generate the following traffic volumes when compared to the school traffic volumes already captured in the Melrose Park Precinct TMAP.</p> <ul style="list-style-type: none"> <li>• <b>AM peak period</b>                      <b>+31 vehicles</b></li> <li>• <b>PM peak period</b>                      <b>- 22 vehicles</b></li> </ul> <p>Given the minor difference in MPHS traffic when compared to the Melrose park precinct school traffic volumes, it was considered appropriate not to provide a “<b>Baseline + MPHS Traffic</b>” scenario for the following reasons:</p> <ul style="list-style-type: none"> <li>• The AM peak period results in an increase of +31 vehicles when compared to the traffic volumes associated with the Melrose Park Precinct school traffic volumes. Whilst this is an increase in traffic generation it is noted the increase would have no material impact on the surrounding road network given all intersections modelled operate at a satisfactory level with spare capacity. Furthermore, computer modelling techniques available to analyse intersection performances are not sensitive to such small changes in traffic volumes and hence, such an assessment is not considered to be required. The traffic impacts of the proposed development are therefore considered acceptable.</li> <li>• The PM peak period results in a reduction of -22 vehicles when compared to the traffic volumes associated with the Melrose Park Precinct school traffic volumes. If a reduction in traffic was modelled this would improve the modelling results. Therefore, it was considered a more conservative assessment to leave as is.</li> </ul>



No	DoE Comments	Response
		<p>In summary, based on the traffic modelling completed as part of the TMAP and the detailed Melrose Park North Internal Street Network, Traffic report which generally capture the proposed traffic associated with MPHS, it is concluded that the traffic generation of MPHS would be accommodated within the local road network and captured in the baseline scenario. Therefore, a scenario “<b>Baseline + MPHS Traffic</b>” is not required.</p> <p><b><u>Baseline + MPPS traffic</u></b>                      The 2036 baseline traffic plus the proposed development volumes from MPPS (at the modelled higher capacity scenario of 982 students, noting that this is higher than the actual expected REF proposal of 720 students).</p> <p><b><u>Baseline + MPPS traffic + additional MPHS pedestrians</u></b>                      This scenario considers no additional vehicle volumes but includes additional pedestrian volumes associated with MPHS.</p> <p>As detailed above and in the MPHS TAIA report, the MPHS vehicle movements are included in the baseline scenario. The vehicle movements generated by the MPPS proposal of approximately 300 vehicles in each direction are substantially higher than MPHS. Hence, no additional MPHS traffic volumes have been added to the modelling.</p> <p>For pedestrian movements to/from the high school, the MPHS TAIA outlines the pedestrian volumes at the crossings and has been included in the modelling. The pedestrian movements are as follows:</p> <ul style="list-style-type: none"> <li>• North leg crossing: 72 pedestrians</li> <li>• Mid-block crossing: 44 pedestrians (SIDRA default of 55 used to be conservative)</li> </ul> <p>For pedestrian movements to/from the primary school, catchment analysis indicates that pedestrian movements are expected to occur further west, with lower usage for the proposed crossings at Wharf Road &amp; Hope Street. Since the pedestrian volumes listed above are already slightly conservative, it is considered that the MPPS pedestrian volumes are adequately accounted for.</p> <p>The traffic modelling results for all scenarios are summarised in Table 3 and Table 4.</p>

No	DoE Comments	Response																																																																																																																													
		<p>Table 3: Intersection Modelling for Wharf Road / Hope Street – AM Peak</p> <table><tr><th rowspan="2">Scenario</th><th colspan="6">AM Peak</th></tr><tr><th>DoS</th><th>Avg delay (s)</th><th>LoS</th><th>95% queue (m)</th><th>Avg delay +/- (s)</th><th>95% queue +/- (m)</th></tr><tr><td colspan="7">North Leg (Wharf Road)</td></tr><tr><td>2036 Baseline</td><td>0.124</td><td>5.4</td><td>A</td><td>4.0</td><td>-</td><td>-</td></tr><tr><td>2036 Baseline + MPPS</td><td>0.167</td><td>6.4</td><td>A</td><td>6.2</td><td>+1.0</td><td>+2.2</td></tr><tr><td>2036 Baseline + MPPS + MPHS peds.</td><td>0.236</td><td>7.2</td><td>A</td><td>8.7</td><td>+1.8</td><td>+4.7</td></tr><tr><td colspan="7">West Leg (Hope Street)</td></tr><tr><td>2036 Baseline</td><td>0.363</td><td>11.2</td><td>A</td><td>12.2</td><td>-</td><td>-</td></tr><tr><td>2036 Baseline + MPPS</td><td>0.455</td><td>14.8</td><td>B</td><td>16.0</td><td>+3.6</td><td>+3.8</td></tr><tr><td>2036 Baseline + MPPS + MPHS peds.</td><td>0.455</td><td>14.8</td><td>B</td><td>16.0</td><td>+3.6</td><td>+3.8</td></tr><tr><td colspan="7">South Leg (Wharf Road)</td></tr><tr><td>2036 Baseline</td><td>0.217</td><td>5.1</td><td>A</td><td>7.9</td><td>-</td><td>-</td></tr><tr><td>2036 Baseline + MPPS</td><td>0.327</td><td>5.2</td><td>A</td><td>11.4</td><td>+0.1</td><td>+3.5</td></tr><tr><td>2036 Baseline + MPPS + MPHS peds.</td><td>0.411</td><td>5.3</td><td>A</td><td>21.4</td><td>+0.2</td><td>+13.5</td></tr><tr><td colspan="7">East Leg (Lancaster Avenue)</td></tr><tr><td>2036 Baseline</td><td>0.274</td><td>10.9</td><td>A</td><td>7.8</td><td>-</td><td>-</td></tr><tr><td>2036 Baseline + MPPS</td><td>0.342</td><td>12.5</td><td>A</td><td>10.3</td><td>+1.6</td><td>+2.5</td></tr><tr><td>2036 Baseline + MPPS + MPHS peds.</td><td>0.362</td><td>14.0</td><td>A</td><td>11.0</td><td>+3.1</td><td>+3.2</td></tr></table>	Scenario	AM Peak						DoS	Avg delay (s)	LoS	95% queue (m)	Avg delay +/- (s)	95% queue +/- (m)	North Leg (Wharf Road)							2036 Baseline	0.124	5.4	A	4.0	-	-	2036 Baseline + MPPS	0.167	6.4	A	6.2	+1.0	+2.2	2036 Baseline + MPPS + MPHS peds.	0.236	7.2	A	8.7	+1.8	+4.7	West Leg (Hope Street)							2036 Baseline	0.363	11.2	A	12.2	-	-	2036 Baseline + MPPS	0.455	14.8	B	16.0	+3.6	+3.8	2036 Baseline + MPPS + MPHS peds.	0.455	14.8	B	16.0	+3.6	+3.8	South Leg (Wharf Road)							2036 Baseline	0.217	5.1	A	7.9	-	-	2036 Baseline + MPPS	0.327	5.2	A	11.4	+0.1	+3.5	2036 Baseline + MPPS + MPHS peds.	0.411	5.3	A	21.4	+0.2	+13.5	East Leg (Lancaster Avenue)							2036 Baseline	0.274	10.9	A	7.8	-	-	2036 Baseline + MPPS	0.342	12.5	A	10.3	+1.6	+2.5	2036 Baseline + MPPS + MPHS peds.	0.362	14.0	A	11.0	+3.1	+3.2
		Scenario		AM Peak																																																																																																																											
			DoS	Avg delay (s)	LoS	95% queue (m)	Avg delay +/- (s)	95% queue +/- (m)																																																																																																																							
		North Leg (Wharf Road)																																																																																																																													
		2036 Baseline	0.124	5.4	A	4.0	-	-																																																																																																																							
		2036 Baseline + MPPS	0.167	6.4	A	6.2	+1.0	+2.2																																																																																																																							
		2036 Baseline + MPPS + MPHS peds.	0.236	7.2	A	8.7	+1.8	+4.7																																																																																																																							
		West Leg (Hope Street)																																																																																																																													
		2036 Baseline	0.363	11.2	A	12.2	-	-																																																																																																																							
		2036 Baseline + MPPS	0.455	14.8	B	16.0	+3.6	+3.8																																																																																																																							
		2036 Baseline + MPPS + MPHS peds.	0.455	14.8	B	16.0	+3.6	+3.8																																																																																																																							
		South Leg (Wharf Road)																																																																																																																													
		2036 Baseline	0.217	5.1	A	7.9	-	-																																																																																																																							
		2036 Baseline + MPPS	0.327	5.2	A	11.4	+0.1	+3.5																																																																																																																							
		2036 Baseline + MPPS + MPHS peds.	0.411	5.3	A	21.4	+0.2	+13.5																																																																																																																							
		East Leg (Lancaster Avenue)																																																																																																																													
		2036 Baseline	0.274	10.9	A	7.8	-	-																																																																																																																							
		2036 Baseline + MPPS	0.342	12.5	A	10.3	+1.6	+2.5																																																																																																																							
		2036 Baseline + MPPS + MPHS peds.	0.362	14.0	A	11.0	+3.1	+3.2																																																																																																																							

No	DoE Comments	Response																																																																																																																													
		<p>Table 4: Intersection Modelling for Wharf Road / Hope Street – PM Peak</p> <table><tr><th rowspan="2">Scenario</th><th colspan="6">PM Peak</th></tr><tr><th>DoS</th><th>Avg delay (s)</th><th>LoS</th><th>95% queue (m)</th><th>Avg delay +/- (s)</th><th>95% queue +/- (m)</th></tr><tr><td colspan="7">North Leg (Wharf Road)</td></tr><tr><td>2036 Baseline</td><td>0.195</td><td>5.0</td><td>A</td><td>7.5</td><td>-</td><td>-</td></tr><tr><td>2036 Baseline + MPPS</td><td>0.234</td><td>6.0</td><td>A</td><td>9.3</td><td>+1.0</td><td>+1.8</td></tr><tr><td>2036 Baseline + MPPS + MPHS peds.</td><td>0.309</td><td>6.7</td><td>A</td><td>12.1</td><td>+1.7</td><td>+4.6</td></tr><tr><td colspan="7">West Leg (Hope Street)</td></tr><tr><td>2036 Baseline</td><td>0.347</td><td>14.6</td><td>B</td><td>11.7</td><td>-</td><td>-</td></tr><tr><td>2036 Baseline + MPPS</td><td>0.414</td><td>18.1</td><td>B</td><td>14.7</td><td>+3.5</td><td>+3.0</td></tr><tr><td>2036 Baseline + MPPS + MPHS peds.</td><td>0.415</td><td>18.0</td><td>B</td><td>14.2</td><td>+3.4</td><td>+2.5</td></tr><tr><td colspan="7">South Leg (Wharf Road)</td></tr><tr><td>2036 Baseline</td><td>0.077</td><td>5.1</td><td>A</td><td>1.9</td><td>-</td><td>-</td></tr><tr><td>2036 Baseline + MPPS</td><td>0.193</td><td>5.2</td><td>A</td><td>3.2</td><td>+0.1</td><td>+1.3</td></tr><tr><td>2036 Baseline + MPPS + MPHS peds.</td><td>0.229</td><td>5.2</td><td>A</td><td>8.6</td><td>+0.1</td><td>+6.7</td></tr><tr><td colspan="7">East Leg (Lancaster Avenue)</td></tr><tr><td>2036 Baseline</td><td>0.662</td><td>13.7</td><td>A</td><td>41.3</td><td>-</td><td>-</td></tr><tr><td>2036 Baseline + MPPS</td><td>0.857</td><td>21.2</td><td>B</td><td>73.1</td><td>+7.5</td><td>+31.8</td></tr><tr><td>2036 Baseline + MPPS + MPHS peds.</td><td>0.871</td><td>23.7</td><td>B</td><td>77.3</td><td>+10.0</td><td>+36.0</td></tr></table>	Scenario	PM Peak						DoS	Avg delay (s)	LoS	95% queue (m)	Avg delay +/- (s)	95% queue +/- (m)	North Leg (Wharf Road)							2036 Baseline	0.195	5.0	A	7.5	-	-	2036 Baseline + MPPS	0.234	6.0	A	9.3	+1.0	+1.8	2036 Baseline + MPPS + MPHS peds.	0.309	6.7	A	12.1	+1.7	+4.6	West Leg (Hope Street)							2036 Baseline	0.347	14.6	B	11.7	-	-	2036 Baseline + MPPS	0.414	18.1	B	14.7	+3.5	+3.0	2036 Baseline + MPPS + MPHS peds.	0.415	18.0	B	14.2	+3.4	+2.5	South Leg (Wharf Road)							2036 Baseline	0.077	5.1	A	1.9	-	-	2036 Baseline + MPPS	0.193	5.2	A	3.2	+0.1	+1.3	2036 Baseline + MPPS + MPHS peds.	0.229	5.2	A	8.6	+0.1	+6.7	East Leg (Lancaster Avenue)							2036 Baseline	0.662	13.7	A	41.3	-	-	2036 Baseline + MPPS	0.857	21.2	B	73.1	+7.5	+31.8	2036 Baseline + MPPS + MPHS peds.	0.871	23.7	B	77.3	+10.0	+36.0
		Scenario		PM Peak																																																																																																																											
			DoS	Avg delay (s)	LoS	95% queue (m)	Avg delay +/- (s)	95% queue +/- (m)																																																																																																																							
		North Leg (Wharf Road)																																																																																																																													
		2036 Baseline	0.195	5.0	A	7.5	-	-																																																																																																																							
		2036 Baseline + MPPS	0.234	6.0	A	9.3	+1.0	+1.8																																																																																																																							
		2036 Baseline + MPPS + MPHS peds.	0.309	6.7	A	12.1	+1.7	+4.6																																																																																																																							
		West Leg (Hope Street)																																																																																																																													
		2036 Baseline	0.347	14.6	B	11.7	-	-																																																																																																																							
		2036 Baseline + MPPS	0.414	18.1	B	14.7	+3.5	+3.0																																																																																																																							
		2036 Baseline + MPPS + MPHS peds.	0.415	18.0	B	14.2	+3.4	+2.5																																																																																																																							
		South Leg (Wharf Road)																																																																																																																													
		2036 Baseline	0.077	5.1	A	1.9	-	-																																																																																																																							
		2036 Baseline + MPPS	0.193	5.2	A	3.2	+0.1	+1.3																																																																																																																							
		2036 Baseline + MPPS + MPHS peds.	0.229	5.2	A	8.6	+0.1	+6.7																																																																																																																							
		East Leg (Lancaster Avenue)																																																																																																																													
		2036 Baseline	0.662	13.7	A	41.3	-	-																																																																																																																							
		2036 Baseline + MPPS	0.857	21.2	B	73.1	+7.5	+31.8																																																																																																																							
		2036 Baseline + MPPS + MPHS peds.	0.871	23.7	B	77.3	+10.0	+36.0																																																																																																																							

No	DoE Comments	Response
		<p>The key findings and outcomes of the traffic modelling include:</p> <ul style="list-style-type: none"> <li>• The traffic modelling shows that the intersection operates satisfactorily in both AM and PM peak periods with LoS B for all scenarios for all legs, for both the baseline and development scenarios.</li> <li>• In the AM peak, the maximum delay is 14.8 seconds at the western leg (Hope Street) of the intersection. By comparing it to the baseline, the additional MPHS and MPPS traffic will result in an increased delay of 3.6 seconds. Given the good level of service and degree of saturation (DoS), this increase associated with the cumulative developments (noting that MPHS vehicular traffic is largely accounted for within the baseline model) is considered to be negligible and acceptable.</li> <li>• The maximum increase in queue length in the AM peak will be experienced in the southern leg (Wharf Road) with a 21.4m queue length. By comparing it to the baseline (including MPHS), the increased traffic from the cumulative developments (MPPS vehicles + MPHS pedestrians) will result in an additional 13.5m queue length, up from the 7.9m queue in the baseline condition. For comparison, the distance to the existing pedestrian zebra crossing outside MPPS is approximately 94m. The increase in queue length, which remains at LoS A with minimal delays and good DoS, is considered acceptable.</li> <li>• In the PM peak, the worst delay is experienced by the eastern leg (Lancaster Avenue) with an average delay of 23.7s in the with-development scenario. Under baseline conditions, this leg already experiences an average delay of 13.7 seconds, representing an increase of approximately 10 seconds. Lancaster Road has substantial spare capacity along its length, and a queue length of 78m would only extend approximately to the bend in the road, with negligible impact to surrounding properties and zero impact to any nearby intersections. Given the good level of service which remains at LoS B, and the good LoS and DoS on all other legs of the intersection, this increase is considered acceptable.</li> <li>• It is also noted that movements in/out of Lancaster Avenue have been identified for review by City of Ryde Council (see other comments in this response letter). Changes to the road configuration by Council, if implemented, are likely to have more significant impacts to the operation or may make delay irrelevant if the movements are removed entirely.</li> </ul> <p>We note that the baseline results presented in the modelling scenarios differ from the modelling results in the Internal Street Network report, despite adopting the same traffic volumes. Reasons for this could include the modelling of a single site vs modelling of a complete road network, and different assumptions for modelling parameters such as gap acceptance or peak flow factor. For the scope and scale of modelling being assessed by this project, we consider the key outputs to be the relative change in performance, which is shown to be minimal and acceptable as outlined above. Applying similar levels of relative change to the worse-performing baseline conditions outlined in the TAIA would still result in acceptable traffic conditions, indicating that the difference in baseline assumptions for this assessment is not a critical difference.</p> <p>The Internal Street Network report, as referenced in the TAIA, indicated a worst-case scenario of LoS C in the evening peak (and LoS B in the morning peak). Even if the relative change under the cumulative impact conditions were to reduce this to LoS D, this is still considered tolerable, particularly for an environment around two schools which can be expected to be busy for short periods during morning and afternoon bell times. Drivers will experience some delays, which is the nature of these high-intensity environments. Given the provision of good pedestrian crossing facilities, the delays are not considered to result in any safety impacts for pedestrians and other road users.</p>

No	DoE Comments	Response
		As mentioned before, it should be noted that the current information and analysis regarding the MPPS project are preliminary. Further assessment of the traffic modelling for the cumulative impacts between MPPS and MPHS will be detailed and included as part of the MPPS project.
<b>Carparking</b>		
7	Carparking for the proposed Melrose Park High School is to be provided at the nearby Public School. The proponent had previously advised that this carparking would be provided as exempt development. However, it is understood that it is now proposed to provide the carparking under a REF for upgrading of the PS. If this is the case a mitigation measure will be required to ensure the carparking is approved on the Melrose Park Public School site prior to the High School REF being approved.	The total provision of 44 parking spaces (across the high school and primary school sites) for the high school will be provided prior to occupation. Construction staging of the car park itself and the relevant planning pathways will be determined separately.
<b>Cumulative Impact Assessment</b>		
8	The proposed new Melrose Park High School will rely on carparking to be provided on the nearby Melrose Park Public School. The REFs for both the new High School and the Public School Upgrade need to provide a thorough cumulative impact assessment of matters relating (but not limited) to traffic, access, carparking, noise and construction impacts.	<p>The MPPS project currently remains in the early stages of assessment. Detailed assessment of cumulative impacts and mitigation measures will need to be detailed in that project's application once finalised.</p> <p>In relation to car parking, prior to commencement of Stage 2 operations of the MPHS project, a total of 39 staff car spaces shall be provided in MPPS, to mitigate the impacts of MPHS. Other details of the MPPS proposal will be finalised and part of that project's scope and application.</p> <p>In relation to traffic and vehicle movements, refer item 6 above. The cumulative impacts of both MPPS and MPHS are shown to be minimal and acceptable.</p> <p>Cumulative impacts during construction will be further detailed in the relevant CTMPs (for both projects) once a contractor is engaged, to ensure the safety of students and staff and the surrounding community.</p>

**City of Parramatta Council**

No	CoP Comments	Response																																																																	
1	It is noted that Parramatta Council has provided comments in relation to the mode of travel to the school. They note that at least in the initial phases of the school and prior to significant residential development in Melrose Park, it should be expected that the majority of students will be arriving by car as this will be the most convenient form of transport. As such, measures will need to be taken to ensure the roads surrounding the school can cater for high traffic volumes.	<p>The baseline scenario provides a reference point for developing the travel mode splits for the new MPHS based on comparable sites. However, in light of Council's comments, TTW has conducted a sensitivity test to test alternative mode split scenarios.</p> <p>This sensitivity check reviews potential combinations of mode split for travel by car, vehicle occupancy (i.e. carpooling), the duration across which the activity is spread, the average turnover time for each vehicle, and the number of 'active bays' in each kiss &amp; ride zone (i.e. the number of vehicles actively loading/unloading students, rather than simply queuing). Based on the number of vehicles arriving per minute and being able to be processed per minute, a maximum queue length (when all demand is reached) can be calculated.</p>																																																																	
2	<p><b>School Traffic Surveys:</b> Council notes that the Transport Impact Assessment (TIA) claims that the following travel patterns are to be expected in the baseline case:</p> <ul style="list-style-type: none"><li>- 21% Active Transport</li><li>- 50% Public Transport including 9% by train</li><li>- 29% by car (driver or passenger)</li></ul> <p>These are based on averages from schools based in similar locations and catchment sizes. However, these figures do not take into account site specific conditions.</p> <p>The Baseline Mode Share presented in the TIA is unlikely to be achievable. It is anticipated that there will be high vehicle usage given that majority of students will be living outside of the 800m walking radius (89%), and that there is limited public transport access to the school from large parts of the catchment area. Furthermore, a good proportion of students will be living north of Victoria Road which has limited crossing locations.</p> <p>Accordingly, at least in the initial phases of the school and prior to significant residential development in Melrose Park, it should be expected that the majority of students will be arriving by car as this will be the most convenient form of transport. As such, measures will need to be taken to ensure the roads surrounding the school can cater for high traffic volumes.</p>	<p><b>Table 5: Sensitivity Analysis</b></p> <table><tr><th rowspan="2">Parameter</th><th colspan="2">Original REF Assessment</th><th rowspan="2">Combination 1</th><th rowspan="2">Combination 2</th><th rowspan="2">Combination 3</th><th rowspan="2">Combination 4</th></tr><tr><th>AM</th><th>PM</th></tr><tr><td>Car mode split</td><td>31%</td><td>25%</td><td>45%</td><td>30%</td><td>40%</td><td>40%</td></tr><tr><td>Peak duration</td><td>9 min</td><td>7 min</td><td>20 mins</td><td>20 mins</td><td>20 mins</td><td>20 mins</td></tr><tr><td>Portion travelling within peak</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr><tr><td>Activity at the main K&amp;D</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr><tr><td>Turnover time</td><td>1 min</td><td>1 min</td><td>1 min</td><td>2 min</td><td>1 min</td><td>1 min</td></tr><tr><td>Number of 'active bays' per zone</td><td>10 bays</td><td>10 bays</td><td>8 bays</td><td>8 bays</td><td>6 bays</td><td>8 bays</td></tr><tr><td>Vehicle Occupancy</td><td>1.6 students per car</td><td>1.6 students per car</td><td>1.3 students per car</td><td>1.6 students per car</td><td>1.5 students per car</td><td>1.2 students per car</td></tr><tr><td><b>Max Queue per zone (in metres)</b></td><td><b>41 metres</b></td><td><b>49 metres</b></td><td><b>79 metres</b></td><td><b>83 metres</b></td><td><b>80 metres</b></td><td><b>40 metres</b></td></tr></table> <p>It is acknowledged that the assumptions and values used in this analysis may vary in operation and from day to day. The table presents several combinations for the operation of the kiss and ride zones, using 60m long zones on Wharf Road as an example. Each combination demonstrates that the queue lengths on the order of 40 - 85m per zone might</p>	Parameter	Original REF Assessment		Combination 1	Combination 2	Combination 3	Combination 4	AM	PM	Car mode split	31%	25%	45%	30%	40%	40%	Peak duration	9 min	7 min	20 mins	20 mins	20 mins	20 mins	Portion travelling within peak	100%	100%	100%	100%	100%	100%	Activity at the main K&D	100%	100%	100%	100%	100%	100%	Turnover time	1 min	1 min	1 min	2 min	1 min	1 min	Number of 'active bays' per zone	10 bays	10 bays	8 bays	8 bays	6 bays	8 bays	Vehicle Occupancy	1.6 students per car	1.6 students per car	1.3 students per car	1.6 students per car	1.5 students per car	1.2 students per car	<b>Max Queue per zone (in metres)</b>	<b>41 metres</b>	<b>49 metres</b>	<b>79 metres</b>	<b>83 metres</b>	<b>80 metres</b>	<b>40 metres</b>
Parameter	Original REF Assessment			Combination 1	Combination 2					Combination 3	Combination 4																																																								
	AM	PM																																																																	
Car mode split	31%	25%	45%	30%	40%	40%																																																													
Peak duration	9 min	7 min	20 mins	20 mins	20 mins	20 mins																																																													
Portion travelling within peak	100%	100%	100%	100%	100%	100%																																																													
Activity at the main K&D	100%	100%	100%	100%	100%	100%																																																													
Turnover time	1 min	1 min	1 min	2 min	1 min	1 min																																																													
Number of 'active bays' per zone	10 bays	10 bays	8 bays	8 bays	6 bays	8 bays																																																													
Vehicle Occupancy	1.6 students per car	1.6 students per car	1.3 students per car	1.6 students per car	1.5 students per car	1.2 students per car																																																													
<b>Max Queue per zone (in metres)</b>	<b>41 metres</b>	<b>49 metres</b>	<b>79 metres</b>	<b>83 metres</b>	<b>80 metres</b>	<b>40 metres</b>																																																													



No	CoP Comments	Response
		<p>occur under various circumstances for this conservative scenario. For example, a queue of 85m would result in an overflow of 25m (about 5 vehicles) onto Hope Street.</p> <p>However, these estimated queues of 5 vehicles would not significantly impact the local network beyond the school frontage and would only occur for a short period of time (say, 5 minutes). Some minor exceptions could occur due to short and rapid fluctuations in demand, but generally the capacity is suitable.</p> <p>To ensure that the school has access to bus services and the mode share targets can be achieved when the school reaches full capacity, consultation will continue with the bus transport team to seek additional buses before the school opens and further services as the school grows. Further details to the traffic management and the proposed plan on improving the travel mode will be included as part of the detailed STP.</p>
3	<p>In relation to proposed parking changes in Wharf Rd Parramatta Council notes that the applicant is proposing to consolidate the two existing bus stops in Hope Street between Waratah Street and Wharf Road. Furthermore, a new 'Kiss and Ride' facility is proposed in Wharf Road north of Hope Street. In addition to this, the applicant is proposing a loading zone in Hope Street which is in addition to on-site loading via NSR-4 suitable for a vehicle up to the size of a 10.8m waste vehicle. Council states that the TIA does not provide justification for why the additional on-street loading zone is required but does note that the development will result in minimal service vehicle demand. On this basis, it may be that the school can rely solely on the off-street loading facility. Parramatta Council notes that if at a later date additional loading areas are required, the school can make a separate request to Council for an on-street facility.</p>	<p>The on-street secondary loading zone on Hope Street is proposed in order to provide better proximity to wood and metal workshops within the site, reduce the amount of materials being moved through some sections of the school, and provide greater redundancy for deliveries of any kind. For these reasons, the project team will continue discussions with Council post-approval to gain endorsement of this facility through Local Traffic Committee. However, if for any reason this is not ultimately accepted by Council, the school would be able to operate adequately with the on-site loading zone.</p>

No	CoP Comments	Response
4	<p><b>Roundabout and Pedestrian Crossing:</b> With regards to the roundabout at the intersection of Wharf Road and Hope Street, Council has previously indicated a need for this facility primarily as there will be queued traffic in Wharf Road due to the proposed pedestrian traffic, meaning that vehicles turning right from Hope Street will have an obstructed view of vehicles travelling south in Wharf Road. In response, the TIA notes the following:</p> <ul style="list-style-type: none"> <li>- There will be queued traffic across the intersection regardless of the roundabout.</li> <li>- The modelling undertaken shows that the intersection will perform at a LoS B in the AM peak and C in the PM peak. With regards to the first point, it should be noted that a roundabout will mean that southbound vehicles are required to give way to vehicles already on the roundabout that are turning right. This change of priority will result in much safer movement of traffic.</li> </ul> <p>With regards to modelling, Council has previously raised with the proponent that the base case for the TMAP and the Melrose Park DAs, significantly underestimates the existing traffic flows in Hope Street. In addition to this, the SIDRA Modelling being relied upon within the TIA has two southbound lanes in Wharf Road. In accordance with the Australian Standards, a pedestrian crossing cannot have two travel lanes in the same direction as vehicles in the adjacent lanes obstruct the line of sight of motorists approaching a crossing. Accordingly, the actual configuration of Wharf Road will mean that right turning traffic will delay the straight through movement which can have significant impacts on the modelling results. As such, this modelling should not be relied upon.</p> <p>It should be noted that Council staff have previously provided Traffic Counts to TTW that are more up to date and could have been used. Accordingly, it is still Council's opinion that the following should be done to undertake more accurate modelling:</p> <ol style="list-style-type: none"> <li>1. Use up to date traffic counts to determine the base case.</li> </ol>	<p>The following reasons for the pedestrian crossing are acknowledged and agreed that it will help students and cyclists travelling to the school. However, it should be noted that the existing pedestrian refuge crossing will remain and still provide a link between MPHS and MPPS.</p> <p>The reason that the raised crossing is installed in adjacent to NSR-4 is due to the following reasons:</p> <ol style="list-style-type: none"> <li>1. If the pedestrian is installed closer to Wharf Road, it will slow down the vehicles entering Hope Street and may cause a delay in the traffic.</li> <li>2. The proposed crossing will not only benefit MPHS and MPPS student movements (which could be applicable anywhere along Hope Street) but will also benefit MPHS staff movements to and from the car park on the MPHS site. Even though it is not aligned with the MPPS main entry, it provides a more direct route to the west of that site where the staff car park is located. The management of the crossing is important to ensure the safety of the pedestrians, which will be further detailed in the detailed STP.</li> </ol> <p>In regard to the modelling and the roundabout, from reviewing TMAP and the Melrose Park DAs, TTW considers that the TMAP and the Melrose Park DAs have provided a good justification, which can be referenced as a reliable source as the base number for MPHS. Both the TMAP and the Melrose Park DAs are approved documents relevant to the development of the precinct and therefore should be reasonable and acceptable to use as a reliable source for the Melrose Park HS traffic assessment (or indeed any other development application). By doing an updated traffic count, it does not provide a reliable reflection to the future traffic since the precinct is currently under construction which results in a low number of commuter vehicles and the vehicle number would be skewed with vehicle numbers for construction vehicles and worker vehicles.</p> <p>TTW agrees that a pedestrian crossing cannot be installed across two lanes of traffic. TTW has conducted traffic modelling with only one travel lane on the northern and southern leg of the intersection. It should be noted that most of the MPHS vehicle movements have been included in the baseline traffic, and only pedestrian movements are included in the modelling. This modelling shows that the single travel lane setup is adequate, even with consideration of different baseline conditions as discussed in Item 6 of the DoE comments, and therefore the pedestrian crossing configuration would be compliant and adequate.</p> <p>Additionally, the assessment from the Melrose Park DAs has shown that the intersection on Hope Street / Wharf Road intersection will operate at a LOS B in the AM peak period and LOS C in the PM peak period, which is considered satisfactory and have the capacity to accommodate additional traffic (that is, even a worsening of conditions would be acceptable since the modelled conditions are quite good). As mentioned before, TTW have conducted a sensitivity assessment, which results in a queue length of 40 to 80 metres or roughly 7 to 14 vehicles. Again, this queue will be managed in roughly 5 to 10 minutes and this is with a conservative consideration to the assessment (relating to the assumed times that students will seek to depart the site, and at the school's full capacity). Based on this, it is viewed</p>

No	CoP Comments	Response
	<p>2. Use the TMAP and Melrose Park Town Centre modelling to determine the additional traffic those developments will bring.</p> <p>3. Use the TTW assessment to determine additional traffic generated by both the High School and the primary school upgrade.</p> <p>4. The SIDRA model should be calibrated to take into account the short peak duration of the schools (ideally 15min).</p> <p>Given the above, it is considered essential that a roundabout be constructed at this intersection for the safe and efficient movement of traffic.</p> <p>With regards to the proposed pedestrian crossing in Hope Street just east of NSR-4, the TIA notes that this location will provide better access to bus services in Hope Street and also for staff to access the car park in the public school. While these points are acknowledged, it is considered that it may be better to have this crossing closer to Wharf Road instead for the following reasons:</p> <ul style="list-style-type: none"> <li>- A crossing at Wharf Road will connect with a future shared path.</li> <li>- It is along a desire line for the primary school and will better link the two schools.</li> <li>- It will align better with the entrances along Wharf Road.</li> <li>- There is an existing crossing in Hope Street near Waratah Street that would provide similar benefit to that proposed near NSR-4 given that Waratah Street is the next north south connection from the school.</li> </ul>	<p>that it is not necessary for the existing give way arrangement at Hope Street/ Wharf Road to be upgraded as a roundabout. Management measures for pedestrians and vehicles will be included in the detailed STP prior to the occupation of the school.</p> <p>Additionally, CoP and CoR have different suggestions to the intersection design for the Hope Street/Wharf Road intersection. It is recommended that CoP and CoR develop a consolidated and agreed intersection design to ensure that the intersection can benefit all parties in the future and provide safety to the school, the pedestrians nearby, and the road users.</p>
5	<p><b>Staff Parking:</b> The proposal uses space within the Melrose Park public school to provide the majority of the staff car park for the high school, noting that there is limited space on the high school site. In total, 29 spaces are proposed for 52 staff at stage 1 and 44 spaces for 79 staff for stage 2. While this rate falls short of the baseline mode share, it is acknowledged that through the future growth in the precinct, the mode share is likely to shift away from private vehicle usage for staff. Furthermore, consideration is given to the maximum only rates that is generally applicable to the Melrose Park growth precinct. On this basis, the proposed parking provision is considered acceptable.</p>	<p>Noted.</p>

No	CoP Comments	Response
6	<p>1. Detailed engineering design plans for the following traffic facilities are to be submitted to Council's Traffic and Transport Manager for consideration by the Parramatta Traffic Committee and approval by Council:</p> <ul style="list-style-type: none"> <li>o A new combined raised pedestrian and cyclist crossing in Hope Street west of Wharf Road.</li> <li>o A new raised pedestrian crossing in Wharf Road.</li> <li>o Footpath widening in Wharf Road.</li> <li>o A new roundabout at the intersection of Hope Street and Wharf Road.</li> </ul> <p>The construction of the approved treatment is to be carried out by the applicant and all costs associated with the supply and construction of the traffic facility and appropriate signage are to be paid for by the applicant at no cost to Council.</p> <p>It is the applicant's responsibility to assess and upgrade the existing street lighting to ensure it complies with the relevant Australian Standards for the proposed traffic facility. Should the lighting need to be upgraded, the applicant must liaise with the relevant utility authority directly and arrange for the works to take place at no cost to Council.</p> <p>Reason: To ensure maintenance of traffic flow and safety on the surrounding road network.</p>	<p>Detailed of the proposed public domain upgrades design (as per the proposed scope of works in this REF) will be sent to CoP for approval.</p>
7	<p><b><u>Construction Traffic Management Plan</u></b></p> <p>It is noted that a preliminary CTMP has been provided and a detailed one will be provided post-approval. For the detailed CTMP, the following will need to be given importance:</p> <ul style="list-style-type: none"> <li>- The site is located next to a low-density residential area where residents have raised concerns regarding the impact of construction worker parking. Accordingly, there must be sufficient provision for parking on-site for workers, or, negotiations should be had with Sekisui whether parking can be provided on their site.</li> <li>- The truck site access points should preferably be in locations where there is less pedestrian activity. In this case, it is assumed that the northern parts of the site will be better for access compared to Hope Street. As part of the detailed review, Council will need to consider the volume of child pedestrians on the footpath and measures to restrict construction vehicle movements during certain times may be required to avoid conflict (20min before the school start time and 20min after school finish time or</li> </ul>	<p>It may not be possible to accommodate all workers on-site, and it is expected that there will be some usage of on-street parking, which will need to be managed. Safe movements of children (and all pedestrians) will be taken into consideration when in discussion with the contractor.</p> <p>As mentioned before, no contractor has been appointed at this stage. The site access, construction pathway and management of construction worker parking will be addressed further with the contractor and will be included within the detailed CTMP.</p>

No	CoP Comments	Response
	similar).	
8	Council also recommends a number of mitigation measures to be included in the REF relating to traffic and construction management.	

**City of Ryde Council**

No	CoR Comments	Response
1	<p><b>Additional raised pedestrian crossing and median island:</b></p> <p>In addition to the proposed provision of raised pedestrian crossing on Wharf Road, it is recommended that the provision of a raised pedestrian crossing on Lancaster Avenue and a median island be also incorporated to the construction of the Melrose Park High School and be delivered as part of the REF (refer to the map below). The abovementioned additional treatments not only improve active transport safety and connectivity within the area, but also provides less expensive treatment at the intersection of Wharf Road/Hope Street/Lancaster Avenue compared to the proposed traffic signals based on the approved Melrose Park TMAP.</p>	<p>Based on the walking catchment analysis, there will be minimal pedestrian activity crossing on Lancaster Avenue, and thus, the provision of a raised crossing on Lancaster Avenue does not provide benefits to the pedestrian path. Movements to/from the southeast would be expected to use the existing crossing outside the primary school and the new crossing (or existing refuge) on Hope Street. Additionally, the proposed works include a raised crossing on the northern leg of Hope Street/ Wharf Road/ Lancaster Avenue intersection as an alternative route for pedestrians who are walking to the southeast part of the catchment.</p> <p>In regard to the median island, this would have a major impact on traffic turning right from Wharf Road to Hope Street to go to MPHS and traffic turning right from Hope Street to Wharf Road to go to MPPS. This is considered impractical for both school sites and for the broader precinct and is not supported. The proposed design by CoR is different to the proposed design by CoP. It is recommended that both CoR and CoP to discuss internally on the direction of the intersection design. SINSW can be included as part of the discussion to resolve the design.</p>
2	<p><b>Construction Vehicle Access:</b></p> <p>Regarding the construction of the proposed High School, all construction vehicles are to use Victoria Road and Hughes Avenue for accessing the construction site via Hope Street. The use of Wharf Road as construction vehicle route for accessing the construction site is not supported. In addition, all construction workers are to park their vehicles on site and the use of on-street parking for construction workers are restricted</p>	<p>It is difficult to assess the detailed construction methodology since there is no contractor has been appointed at this stage of the project. Once a contractor has been appointed, construction vehicle routes will be included within the detailed CTMP. The detailed CTMP will put a priority on reducing impacts on local streets and safety to nearby pedestrians and cyclists.</p>
3	<p>Ryde Council also requires that any detailed design plans for civil works affecting City of Ryde land should be submitted to Council for review and approval. This will enable Council to endorse the plans and establish any necessary requirements or conditions under the relevant Road Acts</p>	<p>Detailed design of the civil works will be provided to CoR where applicable for review and approval.</p>



**Transport for New South Wales**

No	TfNSW Comments	Response
1	Modifications to bus stops or zones will need to be undertaken to the satisfaction of TfNSW under the Transport Administration Act 1998. The Applicant is required to consult with TfNSW at the post-consent stage.	Discussion in regards to consolidation of bus stops will be discussed with TfNSW in the post-consent stage.
2	It is noted that the school can generate approximately 400 daily trips, which is a significant traffic generation within close proximity of the Parramatta Light Rail Stage 2. Satisfactory traffic management is required to prevent vehicles queuing back on Waratah Road, potentially impacting the safety and operation of the Parramatta Light Rail Stage 2.	<p>As mentioned previously, TTW have conducted a queueing analysis of the kiss and ride zone. Based on the assessment, it is expected that during the peak period, the kiss and drop will result in 40 - 50 metres of queue for each zone. The kiss and ride activity within NSR-4 would be accommodated internally within the formally marked zone. Similarly, queues at Wharf Road would be contained within the relevant zone, would not extend onto Hope Street and also not spill to the Waratah Street light rail facilities.</p> <p>In addition, TTW have conducted a sensitivity test (shown in Table 5) with other possibilities on car usage, turnover time, etc. This results in a 40 - 80 metres queue, which would result in only minor queues (around 20m) on Wharf Road in the worst case with negligible impact to Hope Street and remaining substantially clear of Waratah Street. However, it should be noted that this is a conservative assessment and the school will going to improve the students' travel mode by providing additional bus services and promoting active travel to reduce car usage. Based on this analysis and the future, it is viewed that the queue of the proposed MPHS will have little to no impact on the safety and operation of PLR 2.</p>
3	Prior to the commencement of any operation, a School Transport Plan (STP), must be submitted to the consent authority for approval. The plan must be prepared by a suitably qualified transport/traffic professional in consultation with Council and TfNSW	Following the approval, a detailed STP will be prepared prior to the occupation of MPHS.
4	<p>School zones must be installed along all roads with a direct access point (either pedestrian or vehicular) from the school. The school zone is likely to include part of the Parramatta Light Rail Stage 2 (PLR 2) route, which will require early notification to the PLR project team.</p> <p>The Developer must obtain written authorisation from TfNSW to install the School Zone signs and associated pavement markings and/or remove/relocate any existing Speed Limit signs at a minimum of six months prior to opening.</p> <p>40km/hr School Zones are to be installed on North South Road 4 and Hope Street in accordance with the following conditions.</p> <p>Council should ensure that any parking, drop-off / pick-up zones and bus zones incorporated are in accordance with TfNSW standards.</p> <p>To obtain authorisation, the Developer must submit the following for review and approval by TfNSW:</p> <ul style="list-style-type: none"> <li>a) A copy of Conditions of Consent</li> <li>b) The proposed school commencement/opening date</li> <li>c) Two (2) sets of detailed design plans showing the</li> </ul>	School Zone will be further detailed after the provision of the condition of consent or may be documented by TfNSW (as per discussions with TfNSW on previous projects).

No	TfNSW Comments	Response
	<p>following:</p> <ul style="list-style-type: none"> <li>I. School property boundaries</li> <li>II. All adjacent road carriageways to the school property</li> <li>III. All proposed school access points to the public road network and any conditions imposed/proposed on their use</li> <li>IV. All existing and proposed pedestrian crossing facilities on the adjacent road network (including School Zone signs and pavement markings).</li> <li>V. All existing and proposed street furniture and street trees.</li> </ul> <p>School Zone signs and pavement marking patches must be installed in accordance with TfNSW approval/authorisation, guidelines and specifications.</p> <p>All School Zone signs and pavement markings must be installed prior to student occupation of the site.</p> <p>The Developer must maintain records of all dates in relation to installing, altering, removing traffic control devices related to speed.</p> <p>Following installation of all School Zone signs and pavement markings the Developer must arrange an inspection with TfNSW for formal handover of the assets to TfNSW. The installation date information must also be provided to TfNSW at the same time. Note: Until the assets are formally handed-over and accepted by TfNSW, TfNSW takes no responsibility for the School Zones/assets.</p>	
5	<p>The construction of the PLR 2 Main Works will likely occur post-occupation of the school. The Applicant should consider traffic management arrangements for school travel movements during construction activities, noting the disruption is likely to be significant and pedestrian and traffic impact to the PLR 2 contractor should be minimal.</p> <p>If the construction of Stage 1 or Stage 2 of the school will be concurrent to the construction of the PLR2 Main Works, the Applicant will be required to prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) in consultation with TfNSW. Prior to the issue of any construction certificate or any preparatory, demolition or excavation works, whichever is the earlier, the Applicant shall prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) in consultation with TfNSW. The</p>	<p>All items listed will be addressed within the detailed CPTMP.</p>

No	TfNSW Comments	Response
	<p>CPTMP needs to specify matters including, but not limited to, the following:</p> <ul style="list-style-type: none"> <li>• A description of the development.</li> <li>• Location of any proposed work zone(s).</li> <li>• Details of any alteration/s to the traffic arrangements on the surrounding road network, including any lane closures.</li> <li>• Details of crane arrangements including location of any crane(s) and crane movement plan.</li> <li>• Haulage routes.</li> <li>• Proposed construction hours.</li> <li>• Predicted number of construction vehicle movements, detail of vehicle types and demonstrate that proposed construction vehicle movements can work within the context of road changes in the surrounding area, noting that construction vehicle movements are to be minimised during peak periods.</li> <li>• Construction vehicle access arrangements.</li> <li>• Construction program and construction methodology, including any construction staging.</li> <li>• A detailed plan of any proposed hoarding and/or scaffolding.</li> <li>• Measures to avoid construction worker vehicle movements within the precinct.</li> <li>• Consultation strategy for liaison with surrounding stakeholders, including other developments under construction.</li> </ul> <p>Identify any potential impacts to general traffic, cyclists, pedestrians, and bus services within the vicinity of the site from construction vehicles during the construction of the proposed works. Proposed mitigation measures should be clearly identified and included in the CPTMP; and</p> <ul style="list-style-type: none"> <li>• Identify the cumulative construction activities of the development and other projects within or around the development site. Proposed measures to minimise the cumulative impacts on the surrounding road network should be clearly identified and included in the CPTMP.</li> </ul> <p>Submit a copy of the final plan to TfNSW for endorsement via <a href="mailto:development.ctmp.cjp@transport.nsw.gov.au">development.ctmp.cjp@transport.nsw.gov.au</a>.</p>	

No	TfNSW Comments	Response
6	The Applicant will be required to liaise with PLR Stage 2 during its detailed design stage to make any required amendments to public domain works or traffic management arrangements for post-construction PLR 2. The Applicant is required to provide update of construction schedule to the PLR 2 Project Team for factor into project considerations.	Liaison will continue with PLR 2 where required during the detailed design.