

24 February 2022

P1327 PPS Bayside Gardens Empire Bay Nov2021

Progressive Property Solutions  
PO Box 8161  
Tumbi Umbi NSW 2261**Attn: Paul Bowditch**

Dear Paul,

**Traffic Impact Statement for the proposed extension to Bayside Gardens caravan park, 7 Pomona Road, Empire Bay**

Further to your recent correspondence we have now reviewed the documentation provided for the proposed extension of the Bayside Gardens Lifestyle Village at Empire Bay, NSW and provide the following traffic impact assessment to statement. This assessment has been prepared in accordance with the Austroads Guidelines and Section 2.3 of the RTA Guide to Traffic Generating Developments, which provides the structure for the reporting of the key issues to be addressed when determining the impacts of traffic associated with a development.

Bayside Gardens Lifestyle Village is located at Empire Bay, adjacent to the intersection of Empire Bay Drive and Wards Hill Road as shown in Figure 1. Access to the site is currently provided to both Wards Hill Road and Pomona Road.

Item	Comment
2.1.1 Site Location and Access	The proposed development is located off Wards Hill Road and Pomona Road with access to both of these roads. It currently has approval for 68 long term sites.
2.2.1 Road Hierarchy	<p>The main road through the locality is <b>Empire Bay Drive</b>, which runs along the northern side of the subject site. It connects a number of the local suburbs through to Ettalong Beach and Woy Woy to the west and north through to Erina and beyond. It generally provides a single lane of travel in each direction in the locality of the subject site with additional lanes at key locations to maintain capacity. It operates under the posted speed limit of 60 km/h in the vicinity of the site and connects with the local roads via a limited number of simple at-grade intersections. There are no footpaths along the road in the location of the site with a sealed shoulder provided to allow for cyclist movements.</p> <p>Empire Bay Drive connects with <b>Wards Hill Road</b> via a give way controlled intersection, with Empire Bay Drive being the priority road. There is a left turn deceleration lane into Wards Hill Road and a sheltered right turn lane on Empire Bay Drive. It provides a single lane of travel in both directions and no</p>

Item	Comment
	<p>shoulder for the majority of its length and provides access to a number of small local residential suburbs to the south and west of the locality.</p> <p>To the rear of the site, access is provided onto <b>Pomona Road</b>, a local street providing access to a limited number of rural residential dwelling with no through traffic movements. Pomona Road provides an overall width in the order of 6.5 metres.</p>
2.2.2 Roadworks	No road works are occurring within the general locality of the subject site.
2.2.3 Traffic Management Works	None noted.
2.2.4 Pedestrian and Cycling Facilities	No pedestrian or cyclist facilities provided. Cyclists are able to use the road as required and there is generally very limited demand for pedestrian movements in this location due to the lack of local shops, schools etc.
2.2.5 Public Transport	There are bus stops on Empire Bay Drive near the site serviced by Busways and bus stops on Wards Hill Road. These stops are serviced by routes 64 and 59 respectively, which provide a limited service but connect with trains at Woy Woy and the numerous local suburbs as well as the major centres such as Woy Woy.
2.3 Traffic Flows	
2.3.1 Daily Traffic Flows	<p>Daily traffic flows in the vicinity of the site are reasonably high along Empire Bay Drive, as it forms the major road route connecting a number of suburbs with Woy Woy to the west and Erina and beyond to the north.</p> <p>Daily traffic flows along Wards Hill Road are much lower, reflective of its lower standing in the road hierarchy.</p>
2.3.2 Daily Traffic Flow Distribution	The daily and peak hour traffic flows along Empire Bay Drive are reasonably evenly distributed, reflective of the relative attractions of the local centres to the east and west of the site.
2.3.3 Vehicle Speeds	No speed surveys were completed as part of the study work. However, it is considered that the majority of drivers observe the posted speed limit, especially within the built-up areas. Traffic along Empire Bay Drive would appear to travel above the posted speed limit of 60 km/h, reflective of the road character and the lack of direct access along the majority of its length.
2.3.4 Existing Site Flows	<p>The site currently operates as a caravan park, with 68 long term sites. All of the sites were occupied at the time when the traffic surveys were undertaken.</p> <p>A traffic survey was completed on Friday 12<sup>th</sup> November 2021 during a typical morning and afternoon.</p> <p>The surveys indicated that some 20 vehicles per hour entered and exited the existing caravan park site. The daily flows could be in the order of 3 trips per site per day giving 204 trips per day.</p>
2.3.5 Heavy Vehicle Flows	There are limited heavy vehicle movements in the locality, as it does not provide a convenient through route for regional truck movements. A number of trucks were observed during the survey period, associated with local deliveries.
2.3.6 Current Road Network Operation	<p>The road network in the vicinity of the subject site currently operates reasonably well with limited delays and congestion.</p> <p>On a couple of occasions, a queue developed on Wards Hill Road, due to delays for vehicles turning right out of this road onto Empire Bay Drive. However, these queues disappear quickly and for the majority of the surveys</p>

Item	Comment																			
	<p>in the peak periods there were limited delays and congestion at this intersection.</p> <p>Adjacent to the site access off Wards Hill Road is the Playhouse Pre-school providing a long day care facility (7.00 AM to 6.00 PM). This day care centre has extensive off street parking allowing for all children to be dropped off and picked up within the site with no vehicles having to park on the external road. During the morning peak period, the traffic movements were relatively well spread-out, with vehicles arriving every 4-5 minutes or so and then exiting a few minutes later. These vehicles were able to enter and exit the site with no delays in a safe and efficient manner.</p> <p>The traffic flows associated with the day care centre were typical of a long day care centre, which has more of a spread of traffic movements rather than distinct peaks at the start and finish of the day. The rates from the RMS Guide to Traffic Generating Developments are provided below:</p> <p style="text-align: center;"><b>Table 3.6 Traffic generation rates</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Centre Type</th> <th colspan="3">Peak Vehicle Trips / Child</th> </tr> <tr> <th>7.00-9.00am</th> <th>2.30-4.00pm</th> <th>4.00-6.00pm</th> </tr> </thead> <tbody> <tr> <td>Pre-school</td> <td>1.4</td> <td>0.8</td> <td>-</td> </tr> <tr> <td>Long-day care</td> <td>0.8</td> <td>0.3</td> <td>0.7</td> </tr> <tr> <td>Before/after care</td> <td>0.5</td> <td>0.2</td> <td>0.7</td> </tr> </tbody> </table> <p>The rates above reflect the spread of traffic over a longer period for long day care centres compared with a non-long day care pre-school facility. The traffic movements associated with the Playhouse Pre-school were not impacted upon by the traffic movements in and out of the existing caravan park and vice versa.</p>	Centre Type	Peak Vehicle Trips / Child			7.00-9.00am	2.30-4.00pm	4.00-6.00pm	Pre-school	1.4	0.8	-	Long-day care	0.8	0.3	0.7	Before/after care	0.5	0.2	0.7
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2.4 Traffic Safety and Accident History	<p>The local road network in the general vicinity of the subject site is well laid out and caters safely for the overall traffic flows in the general vicinity of the subject site.</p> <p>A review of the accident data provided by TfNSW for the intersection of Empire Bay Drive and Wards Hill Road during the five years to 2021 indicates that there was a total of 3 accidents in the vicinity of this intersection during this period. One accident occurred at the intersection with a vehicle running off the road. The other two accidents occurred downstream of the intersection. The accidents show one serious injury and one moderate injury.</p> <p>Both TfNSW and Council monitor accident rates on the road network and will look to upgrade any section of the road which is identified a safety concern. Currently there are no plans to upgrade this section of the road network.</p> <p>Overall, it is considered that road safety in the locality of the subject site is good and the limited number of heavy vehicles in the locality do not create any significant safety concern.</p>																			
2.5 Parking Supply and Demand																				
2.5.1 On-street Parking Provision	<p>No designated parking areas within the general locality of the site with parking demands catered for within the individual lots.</p> <p>Parking is permitted along the local streets as required.</p>																			

Item	Comment
	There are 7 spaces currently provided to the front of the site which cater for the visitor parking demands associated with the site.
<i>2.5.3 Parking Demand and Utilisation</i>	There has been no demand for parking noted within the vicinity of the site.
<i>2.5.4 Set down or pick up areas</i>	There are no designated set down areas in the immediate locality of the subject site.
2.6 Public Transport	
<i>2.6.1 Rail Station Locations</i>	The nearest railway station is located at Woy Woy, approximately 8 kms north-west of the subject site.
<i>2.6.2 Bus Stops and Associated Facilities</i>	Bus stops are provided to both sides of Empire Bay Drive and Wards Hill Road within walking distance of the site.
<i>2.6.3 Pedestrians</i>	There are no pedestrian footpaths within the vicinity reflecting the limited demand and lack of local facilities.
2.7 Other Proposed Developments	No other significant developments noted in the immediate locality of the subject site.
<i>3.1 The Development</i>	<p>The proposal allows for the redevelopment of the site to provide for up to 125 long term sites with each containing an on-site parking space.</p> <p>The proposal also provides for changes to the internal layout of the caravan park including the construction of new internal roads to service the long-term sites. The existing vehicular access off Pomona Road will be realigned to allow for access for service / maintenance and emergency vehicles only.</p> <p>A concept plan for the development is provided within Attachment A.</p>
<i>3.1.2 Access and Circulation Requirements</i>	<p>Access and circulation is per the Local Government (Manufactured Homes Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005.</p> <p>The design guidelines published by NSW Fire Brigades (Guidelines for Emergency Vehicle Access Policy No 4) requires the minimum road width to be 4.0 metres for general appliances and 6 metres minimum for aerial appliances.</p>
3.2 Access	<p>Access will be provided via the existing access off Wards Hill Road with access from Pomona Road provided for service / maintenance and emergency vehicles only. Signage will be provided to advise residents of the access controls with a barrier to be provided at the emergency / service vehicle access to discourage its use by residents. The operation of this barrier shall be managed on site to ensure that access is available for service and emergency vehicles.</p> <p>The existing access points are driveway types allowing for all entry and exit movements.</p> <p>The upgraded access on Pomona Road will allow for the swept path movements associated with emergency vehicles. The existing access point on Wards Hill Road provides a minimum width of 5.0 metres which exceeds the general requirements for emergency vehicle access when required.</p>

Item	Comment
3.2.1 Driveway Location	There is no change to the existing access off Wards Hill Road with the existing access of Pomona Road to be relocated allowing for service / emergency access only.
3.2.2 Sight Distances	<p>The driveway fronting onto Wards Hill Road is located at the end of a short section of road that only provides access to the subject site and the adjacent childcare centre as well as several residential dwellings. Drivers entering and exiting the site have a clear line of site and as the access is located at the end of the dead-end road there is no requirement to give way to vehicles. The driveway is at 90 degrees to the road and effectively ensures vehicle speeds are very low.</p> <p>For the access on Pomona Road, the sight distance requirements is 83 metres. The sight distance has been measured on site and exceeds this value in both directions.</p>
3.2.3 Service Vehicle Access	<p>The site will require limited servicing and the service vehicles will be typically small vans e.g. Toyota HiAce which require similar road design to a large car. There are no changes proposed to the existing waste arrangements for the site which involves a park owner collecting the individual bins and emptying into a bulk waste bin for collection.</p> <p>Service vehicles will access the site via Pomona Road and can enter and exit the site in a forward direction.</p>
3.2.4 Queuing at entrance to site	<p>No vehicle queues expected at site entry / exit point due to the low overall flows from the site as well as on the adjacent road network.</p> <p>For vehicles exiting via the entry off Wards Hill Road, some delays can occur due to the delays and queues at the intersection of Wards Hill Road and Empire Bay Drive. However, these do not impact upon the traffic movements on Wards Hill Road and generally these delays are low with the queue contained within the access road to the site.</p>
3.2.5 Comparison with existing site access	No significant change to the existing vehicle access to site.
3.2.6 Access to Public Transport	Access is available to the bus stops on both side of Empire Bay Drive and Wards Hill Road in the general locality of the subject site. There is a raised central median on Empire Bay Drive to assist pedestrians crossing the road in this location.
3.3 Circulation	
3.3.1 Pattern of circulation	All vehicles can enter and exit the site in a forward direction and circulate around the site as required.
3.3.2 Road width	<p>The internal driveways on the northern portion of the site will remain as per the existing site with no proposed changes.</p> <p>The new internal roads will be designed and constructed to permit two-way traffic movements in accordance with the requirement as specified by Local Government (Manufactured Homes Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005.</p> <p>The design of the roads will allow for the movement of emergency vehicles including firefighting equipment. The proposed roads will be designed and constructed to comply with the NSW Fire Brigades (Guidelines for Emergency Vehicle Access Policy No 4) requirements.</p>
3.3.3 Internal Bus Movements	No internal bus movement will be required for this development.

Item	Comment
3.3.4 Service Area Layout	No specific service area layout required.
3.4 Parking	
3.4.1 Proposed Supply	<p>A single parking space will be provided within each site</p> <p>In addition to the existing 7 visitor parking spaces at the front of the site, an additional 6 visitor parking spaces are proposed providing a total of 13 visitor parking spaces available within the site.</p>
3.4.2 Authority Parking	<p>Under the Local Government (Manufactured Homes Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005, parking for a caravan park is to be provided at the following rates:</p> <ul style="list-style-type: none"> <li>• 1 space per dwelling; plus</li> <li>• 1 visitor parking space for each 10 long term sites</li> </ul> <p>For the proposed 125 long stay sites this gives a requirement for 13 visitor parking spaces, of which at least one space is to be designed to cater for people with a disability.</p>
3.4.3 Parking Layout	<p>Parking bays on the individual dwelling lots shall be at least 5.4m long by 2.5m wide, consistent with the Local Government (Manufactured Homes Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005 and AS2890.1:2004. These dimensions shall also apply to angle parking for visitors.</p> <p>One of the visitor parking bays will be designated as an accessible space to be designed in accordance with AS2890.6:2009.</p>
3.4.4 Parking Demand	Normal parking demands can be accommodated within the site with individual parking available for each of the proposed long term sites in accordance with the regulations. The demands for visitor parking (13 spaces) can be accommodated within the provision of visitor parking on site adjacent to the site entry point.
3.4.5 Service Vehicle Parking	Service vehicles can be accommodated within the site as currently operating.
3.4.6 Pedestrian and Bicycle Facilities	Pedestrian access is available within the site consistent with the nature of the site and the existing facilities. No specific facilities required to accommodate cyclists.
4.1 Traffic Generation	<p>The RMS Guide to Traffic Generating Developments does not provide trip rates for long term sites such as there. However, assuming a rate similar to medium density dwellings provides a rate of 0.4-5 trips per unit in the peak periods. This could give in the order of 50-62 trips in the peak periods.</p> <p>This provides a robust assessment of the potential traffic demands associated with the project.</p>
4.1.3 Daily and Seasonal Factors	Limited seasonal and daily factors expected being long term sites.
4.1.4 Pedestrian Movements	There are low pedestrian movements expected from the redevelopment of the site, reflective of the current observations on site.
4.2 Traffic Distribution and Assignments	The majority of the traffic associated with the development would have an origin / destination to the north of the site, with access via Empire Bay Drive. Traffic movements on site would indicate some 80% of traffic uses Empire Bay Drive and 20% has an origin / destination south of the site towards Hardys Bay etc.
4.2.1 Origin / destinations assignment	The following origin / destination assignment has been assumed for this project:

Item	Comment
	<ul style="list-style-type: none"> <li>• 30% has an origin / destination towards Kincumber via Empire Bay Drive</li> <li>• 50% has an origin / destination towards Woy Woy</li> <li>• 20% has an origin / destination towards Hardys Bay</li> </ul>
4.3 Impact on Road Safety	<p>It is considered that the proposed development will have a low overall impact upon the road network in the general vicinity of the subject site. The roads in the general vicinity of the subject site are well laid out and the key intersection of Empire Bay Drive and Wards Hill Road offers a safe layout. This intersection provides a sheltered right turn lane for vehicles turning right into Wards Hill Road. The sight distances available at this intersection exceed 160 metres in both directions, well in excess of the requirement of 105 metres for the posted speed limit of 60 km/h.</p> <p>The site access on Wards Hill Road is located within the dead end of the service road that then connects with Wards Hill Road. This access operates in a safe manner, with good visibility for drivers entering and exiting the site. There is 25 metres separation between the exit to the site and the entry / exit point to the adjacent childcare centre, allowing drivers associated with both of these facilities to observe the alternate access point. The traffic speeds on this section of the road are very low (less than 40 km/h) due to the lack of through traffic movements on this section of the road and the short distance between the dead end and the connection with Wards Hill Road.</p> <p>The access on Pomona Road is located on a straight section of road allowing for good visibility in both directions for drivers entering and exiting the site. The sight distances available exceed 150 metres in both directions and ensures all vehicles can enter and exit safely at this location. It is noted that the plans for the development allow for emergency and service vehicle access only via this driveway, and on road safety grounds (and capacity), there is no restriction required for this access point.</p> <p>There has been a single accident at the intersection of Wards Hill Road and Empire Bay Drive and there are no plans to upgrade or improve the layout of this intersection. Given the low number of traffic movements associated with the proposed redevelopment of the site it is considered that there will be a minimal impact upon the safe operation of this intersection.</p>
4.4 Impact of Generated Traffic	
4.4.1 Impact on Daily Traffic Flows	<p>It is considered that the volume of additional traffic generated by the provision of up to 125 long term sites will be relatively low. Whilst there are no daily trips rates for caravan parks specified within the RTA Guide, it is considered that the daily traffic demands could be similar to that for holiday accommodation, i.e. 3 trips per dwelling. For the current site, with 68 sites the daily flows would be in the order of 204 vehicles per day.</p> <p>With the provision of 125 long term sites, using the medium density rate of 4-5 per dwelling, this would give 500-625 trips per day, an increase of 300-400 per day over the existing situation.</p> <p>With 50% of these having an origin / destination towards Woy Woy this would increase the daily traffic flows along Empire Bay Drive west of the site by upto 200 per day. This will have an acceptable impact upon the overall operation of this road.</p>

Item	Comment
4.4.2 <i>Peak Hour Impacts on Intersections</i>	<p>The key intersection in the immediate vicinity of the subject site is Empire Bay Drive and Wards Hill Road. Observations on site during a typical morning and afternoon peak showed that the intersection currently operates well, with some delays created when there are 2-3 vehicles in a line wishing to turn right out of the side road. On a couple of occasions, the queue extended back some 12-13 vehicles, but once the right turning vehicles had cleared the intersection, these queues disappear quickly. For the majority of the peak hour, the intersection operates well.</p> <p>The proposed development of 125 long term sites could generate some 42 additional traffic movements during the peak hours. Based on the current observed splits, this would generate 19 vehicles turning right out of Wards Hill Road and 21 turning left. Spread-out over an hour this would have a negligible impact upon the overall operation of this intersection.</p> <p>During the afternoon peak period, the majority of the traffic movements at this intersection are left turns and right turns into Wards Hill Road off Empire Bay Drive and the additional traffic movements associated with the development will have a negligible impact upon these movements.</p> <p>Outside of the peak hours the intersection operates well with minimal delays and congestion.</p>
4.4.3 <i>Impact of Construction Traffic</i>	<p>All construction work will be contained within the site so minimal impact upon external road network. There will be the requirement for construction machinery to access the site and traffic associated with workers. The construction works will require minimal on-site construction work with the new dwellings being pre-fabricated and allows the construction work to be completed over a short time frame.</p> <p>Parking for the construction staff can be accommodated on site as required.</p>
4.4.4 <i>Other Developments</i>	<p>There are no significant traffic generating developments within the immediate vicinity of the site.</p>
4.5 <i>Public Transport</i>	
4.5.1 <i>Options for improving services</i>	<p>No requirements to improve services.</p>
4.5.2 <i>Pedestrian Access to Bus Stops</i>	<p>Existing access offers an acceptable option for pedestrian access to the existing bus stops.</p>
4.6 <i>Recommended Works</i>	
4.6.1 <i>Improvements to Access and Circulation</i>	<p>The site access offers a safe and appropriate access point. No upgrades are required to cater for the additional demands.</p>
4.6.2 <i>Improvements to External Road Network</i>	<p>None required as the future traffic flows associated with the development will be low. Background traffic flows on the local roads are reasonably low. The major impact could occur during the morning peak period, but the additional traffic movements associated with the proposed development are low and hence will have a minimal impact upon the operation of the key intersection of Wards Hill Road and Empire Bay Drive.</p>
4.6.3 <i>Improvements to Pedestrian Facilities</i>	<p>No upgrades required.</p>
4.6.4 <i>Effect of Recommended Works on Adjacent Developments</i>	<p>No impact as no external works recommended.</p>



Item	Comment
4.6.5 Effect of Recommended Works on Public Transport Services	Nil
4.6.6 Provision of LATM Measures	None required
4.6.7 Funding	No external road upgrades required.

**Site Photos**



Photo 1 – View to left for drivers exiting Wards Hill Road into Empire Bay Drive



Photo 2 – View to right for drivers exiting Wards Hill Road into Empire Bay Drive

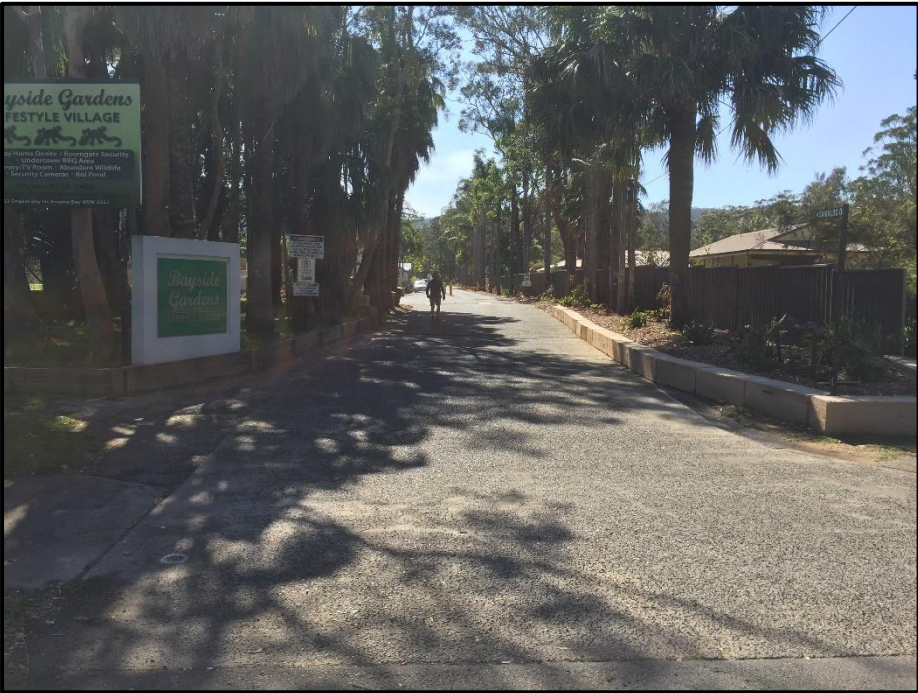


Photo 3 – Existing access into the subject site off Wards Hill Road access road



Photo 4 – View along Pomona Road showing typical cross section. Site access is to right hand side of the photo.

**Conclusion**

From the site work completed and the review of the project, it is considered that the proposed redevelopment of the existing Bayside Gardens Lifestyle Village to provide for up to 125 long term sites will have a minimal impact upon the overall road network within the general vicinity of the site.

The site access can operate in a safe manner and allows for vehicles to enter and exit the site in a safe manner, consistent with the existing operation of the site. The proposed access for emergency and service / maintenance vehicles off Pomona Road is suitable to cater for these vehicle movements including fire appliances, based on the specifications outlined in NSW Fire Brigades (Guidelines for Emergency Vehicle Access Policy No 4).

The internal site layout will be designed and constructed in accordance with the Local Government (Manufactured Homes Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005 and AS2890.1:2004.

It is concluded that the development should be approved on traffic and access grounds.



Sean Morgan

**Director**

Attachment A: Site Plan

