

# **Proposed Seniors Living Residential Development**

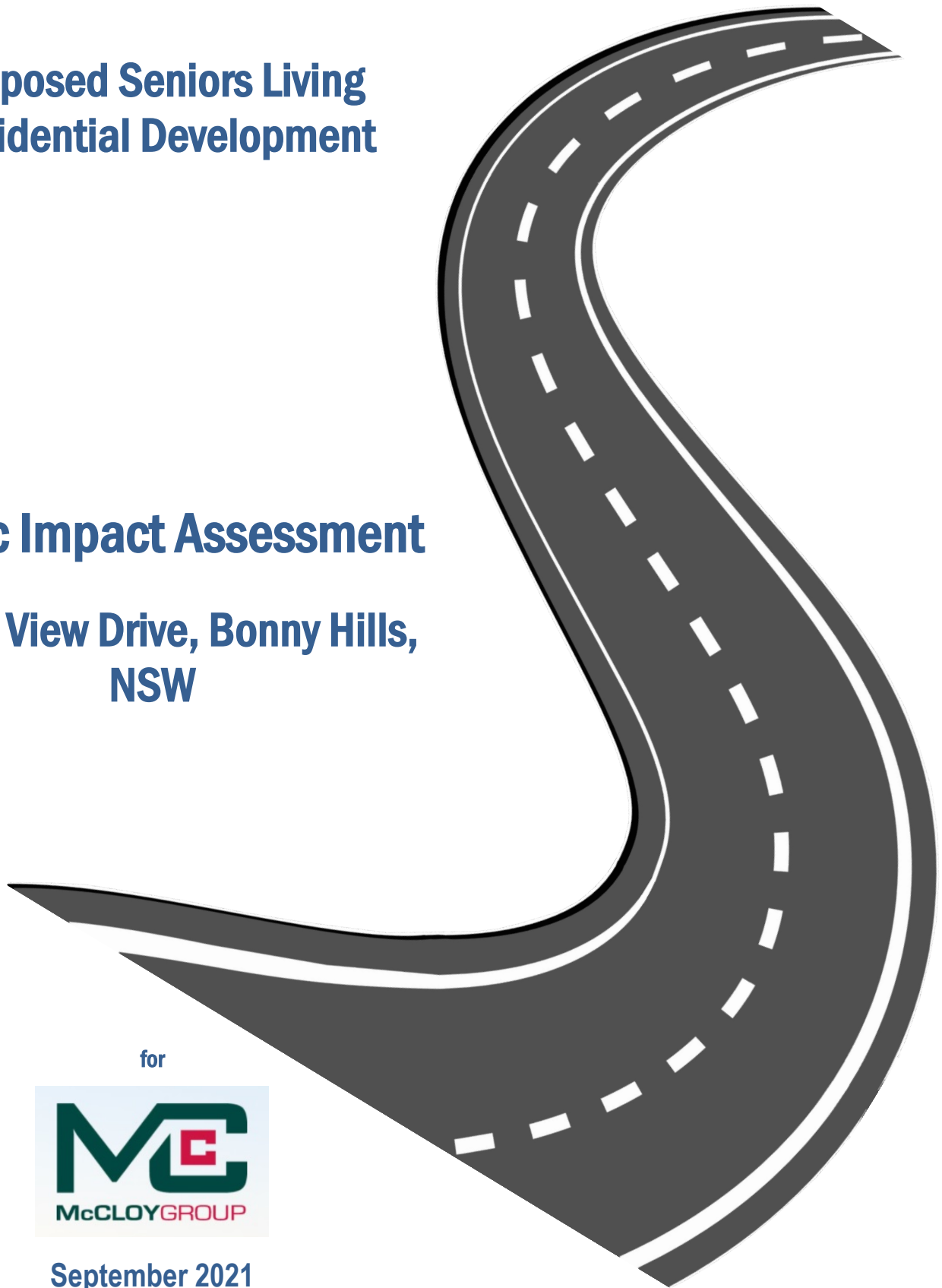
## **Traffic Impact Assessment**

**Bonny View Drive, Bonny Hills,  
NSW**







for



**September 2021**



## Traffic Impact Assessment Details

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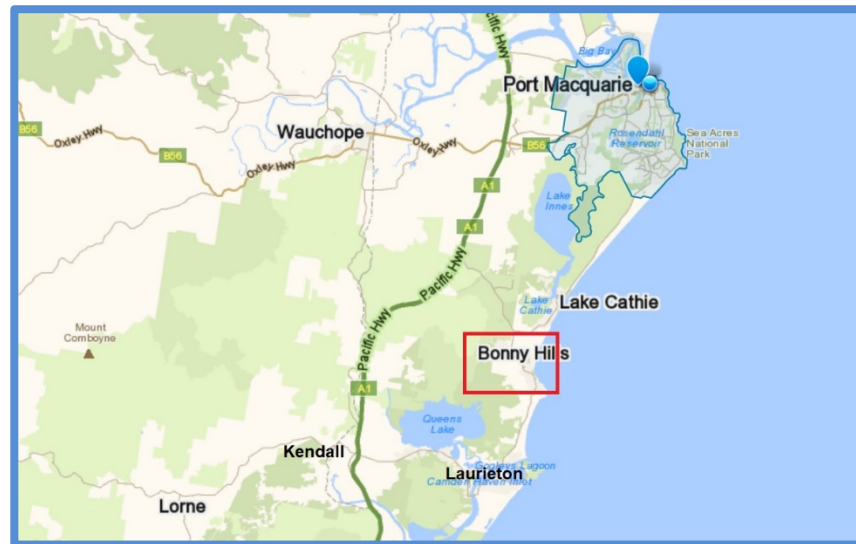
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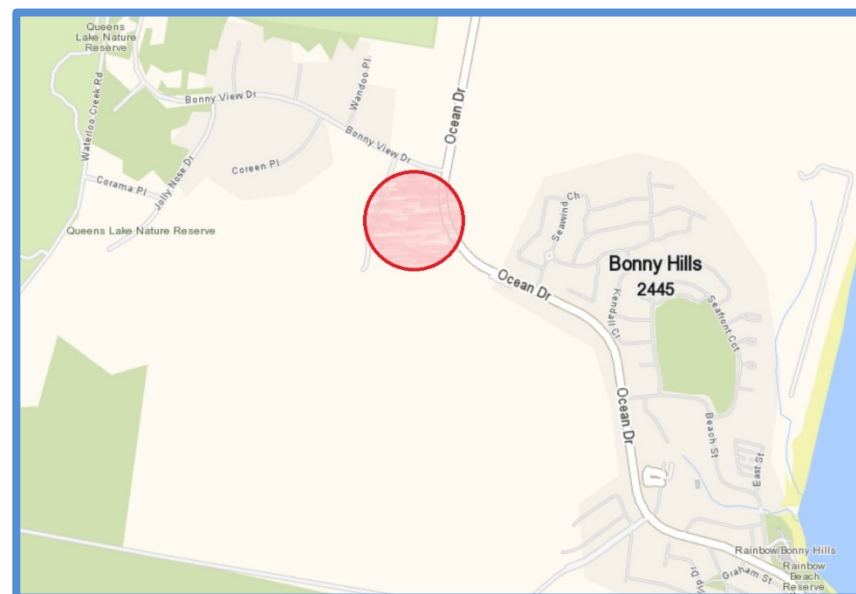
## 1. INTRODUCTION

### 1.1 General

StreetWise Road Safety and Traffic Services have been engaged to prepare a Traffic Impact Assessment and report for a proposed Seniors Living residential development at the intersection of Bonny View Drive and Ocean Drive, Bonny Hills. The site is approximately 10km north of Laurieton, and 20kms south of the Port Macquarie CBD. The proposed development is described as LOT 4 DP844371 and LOT 1 DP 1018270, and is located on a vacant lot of land on the southern side of Bonny View Drive.



**Figure 1.1 – Locality Plan**



**Figure 1.2 – Site Plan**

### 1.2 Scope

This traffic impact assessment of the proposed Bonny View Drive residential development, includes:

- Completion of a Site Inspection
- Complete an AM & PM Peak Manual Intersection Count for the existing intersection of Bonny View Drive with Ocean Drive, Bonny Hills
- Liaise / Consult with Port Macquarie Hastings Council

- Assess the traffic impacts including:
  - Determine Traffic Generation (Fully completed and occupied development)
  - Distribute Traffic Assignment (Fully completed and occupied development)
  - Intersection / Access Sight Distance Assessment
  - Intersection / Access Design Assessment
  - Determine Traffic Generation (Construction traffic)
- Determine the impacts of the additional traffic on the local network and adjacent intersections
- Review internal roadways, if required
- Prepare a Traffic Impact Assessment report in accordance with the RMS Guide to Traffic Generating Developments.

### 1.3 Description of Project

The site of the proposed seniors living residential development at Bonny Hills is currently vacant grassland, surrounded by established rural residential lots. The subject site is approximately 20.78 hectares, and bordered by Bonny View Drive to the north and Ocean Drive to the east. The lot is relatively flat, and generally cleared with some tall trees located across the site.

The proposed development involves construction of roads, stormwater and others infrastructure to service a proposed 250 residential units. The preliminary plans indicate that access will be provided via Bonny View Drive.

The residential development is planned for older residents, and will provide a range of onsite facilities including a community centre/club house, swimming pool, lawn bowls, tennis court, gym, men's shed, doctors' consultation rooms, pool, par 3 golf course and caravan storage.



**Figure 1.3 – Proposed Development Layout**



## 2. ROAD NETWORK

### 2.1 Local Road Network

The proposed development site is located approximately 2km north of the township of Bonny Hills, within the Port Macquarie Hastings Council area. The main access to the site is proposed via a driveway off Bonny View, which connects with Ocean Drive. A secondary emergency access to the development will likely be required from Ocean Drive.

#### 2.1.1 Ocean Drive

Ocean Drive borders the eastern boundary of the proposed development. Ocean Drive is a rural arterial road which connects the township of Port Macquarie to the Camden Haven area. The road is also a section of a tourist route (Tourist Drive 10) that connects the Pacific Highway at Blackmans Point in the north to the Pacific Highway at Kew in the south.

In the vicinity of the development site, Ocean Drive is generally 9m wide, with one lane in either direction. The carriageway includes 1.2m wide sealed shoulders and grassed tabledrains on both sides. The speed limit of Ocean Drive between Lake Cathie and Bonny Hills is generally 70kmh.

In the vicinity of the proposed development, Ocean Drive widens to provide bus bays on either side of the road, as well as turn lanes into Bonny View Drive.



Figure 2.1: Looking south on Ocean Drive, the towards the proposed development site and existing intersection with Bonny View Drive

#### 2.1.2 Bonny View Drive

Bonny View Drive is a sealed, rural local road which is generally 6.5 - 7m wide, with one lane in either direction, gravelled shoulders and informal grassed tabledrains on both sides. The road is approximately 1.4km in length, and provides access to around 80 rural properties. The majority of the rural properties include existing residences. A number of short local roads also connect with Bonny View Drive, including Wandoo Place, Nasus Place, Nemrach Place, Kulla Place, Jolly Nose Drive and Coreen Place.



Figure 2.2: Looking east on Bonny View Drive (across the frontage of the proposed development) at the intersection with Ocean Drive.

## 2.2 Intersections

Ocean Drive intersects with Bonny View Drive immediately to the north of the development site at a channelised T-intersection. The intersection includes painted centrelines, a 75m sheltered right-turn lane, a dedicated left turn lane (130m) and a raised median at the northern end to provide shelter for pedestrians.

As discussed previously, a bus bay is provided on both sides of the road, with a bus shelter also included on the northbound side. A concrete footpath is provided on the southbound side, which connects with a short footpath on the northbound side via the crossing discussed above. A short section of kerb & gutter on both sides defines the bus bays and left turn out of Bonny View Drive.

Guardfence is provided on the southern side of the intersection to protect northbound vehicles from the steep roadside batter.

The intersection with Bonny View Drive is not currently controlled by STOP or GIVE WAY signage.



Figure 2.3: Looking at the Ocean Drive intersection from Bonny View Drive looking north (left) and south (right).

## 2.3 Local Bus Service

Port Macquarie company, Busways, provides bus services in the Bonny Hills area. A number of local and inter-town bus routes, including school services, utilise Ocean Drive in the vicinity of the proposed development. There is an existing bus stop on the northbound carriageway of Ocean Drive, immediately north of the intersection with Bonny View Drive. The local bus service (33K Kendall to Port Macquarie) does not generally stop at Bonny View Drive. However, around 4 school buses an hour utilise the stop during the morning and afternoon peak periods.



As discussed previously, there are existing bus bays on both sides of Ocean Drive, immediately north of the intersection with Bonny View Drive. However, while onsite for the manual traffic count, StreetWise did not note any buses utilising the southbound bus bay. Instead, southbound buses turned right into Bonny View Drive, undertook a U-turn on a widened, unsealed shoulder and dropped off/picked up students at the bus stop. The buses then turned right onto Ocean Drive and continued south.



Figure 2.4: Aerial view of existing bus turnaround (left) and detail of unsealed surface (right).

### 3. TRAFFIC VOLUMES

#### 3.1 Existing Traffic Volumes

StreetWise undertook a manual traffic count at the intersection of Bonny View Drive and Ocean Drive, (i.e. in the vicinity of the proposed development), on Thursday 21 July 2021. The full results of the count is attached in Appendix B, at the back of this report. It should be noted that the StreetWise count is likely impacted by the current COVID situation, with a significant reduction in tourist numbers from Sydney and other regions, as well as recommendations for people to work from home and limit un-necessary travel.

Therefore, StreetWise consulted council records which indicate the following:

- An AADT of 8500 on Ocean Drive in 2019 (daily total of both directions)
- An AADT of 520 on Bonny View Drive in 2016

If we apply an annual growth factor of 2% p.a. to the council volumes, it indicates that the Ocean Drive AADT determined by StreetWise is down by approximately 20% on Council's volumes, which is assumed to be the result of the 'COVID Factor'.

Therefore, StreetWise have adopted Council's AADT for Ocean Drive, applied a 2% growth factor, and adjusted the volumes for the peak hour intersection movements. When the same process is applied to Council's AADT for Bonny View Drive (2016), the numbers are slightly less than the StreetWise manual count. Therefore, the recent traffic count volumes have been adopted for movements in & out of Bonny View Drive. The following has also been adopted for the adjusted intersection volumes:

- The morning peak hour occurred between 7:45 – 8:45am, while the afternoon peak occurred between 3:30 & 4:30pm (as per StreetWise manual count).
- The ratio of north and south movements from the StreetWise manual count
- The ratio of bus & heavy vehicle movements from the StreetWise manual count

Figures 3.1 (below) shows the adjusted peak hour volumes and turn movements at the intersection. The diagram also shows the following information:

- Peak volumes on Ocean Drive, just north of intersection is 969 i.e. 9690 AADT



- Heavy vehicle movements were low (max 4%), with local buses making up the majority
- Total hourly trips on Bonny View Drive are relatively low (max of 62 in both directions – AM peak). The majority of these movements are the result of school students being picked up or dropped off i.e. many of the vehicles undertook a U-turn near the intersection

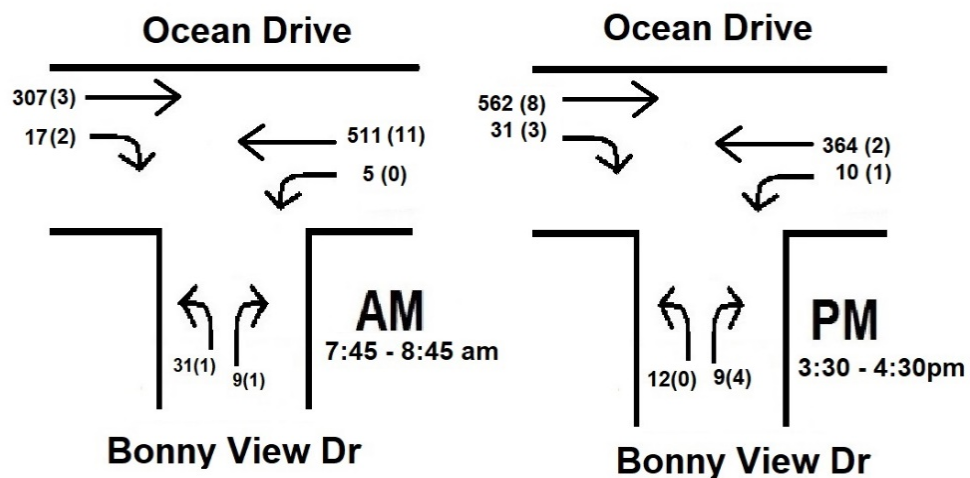


Figure 3.1: Results of manual traffic count – Bonny View Dr & Ocean Dr (bus movements shown in brackets)

### 3.2 Future Traffic Volumes

An annual growth factor of 2% has been adopted by StreetWise for the purposes of this assessment. This will result in daily volumes on the local road network increasing by 2% per annum, or approximately 18% increase by the year 2031, when the proposed development is likely to be completed and fully occupied.

It should be noted that the applicant plans to construct the seniors living development in stages, dependent on market demand. After discussions with the applicant, StreetWise have adopted a rate of 50 units per year, but this may vary.

### 3.3 Development Generated Volumes

The applicant proposes to 241 new units within the subject residential development. The RMS 'Guide to Traffic Generating Developments', does not include a traffic generation rate for seniors living developments. Instead, the RMS recommends assessing a similar type of development within the same area, and utilising a similar traffic generation rate.

StreetWise have previously undertaken a 12-hour assessment of the Ocean Club Resort, an Over 50's residential development. The Ocean Club Resort was selected as a comparative development to assess the traffic volumes and patterns generated, as this development is located within the Port Macquarie Hastings LGA at Lake Cathie - approximately 2kms from the proposed Bonny View site.

A full day observation count was completed Thursday 28th June 2017 to determine a traffic generation rate. It was found that the Ocean Club Resort currently has 155 residents occupied generating a peak hour traffic generation rate of 3.6 trips per unit / lot per day with a calculated weekday average peak hour vehicle trips = 0.37 per lot or 58 vehicles/hr.

Figure 3.2 below shows a summary of the traffic generation rates at the Ocean Club Resort. It was observed that the flow of traffic was generally spread over the mid-morning to early afternoon period with a peak period between 12:15pm to 1:15pm

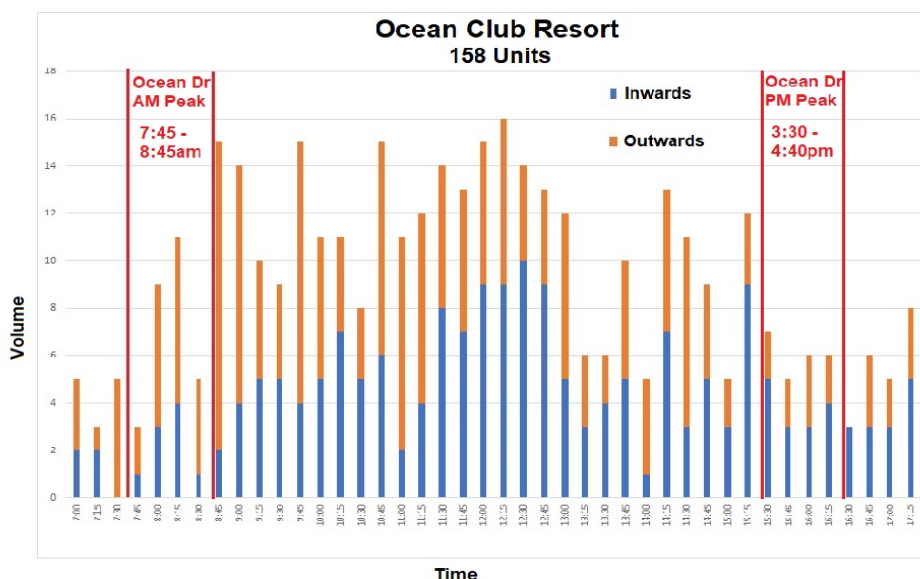


Fig.3.2 Ocean Club Resort Traffic Flow Data – Thursday 28 06 2017

Based on results of the Ocean Club traffic assessment, and previous discussions with Port Macquarie Hastings Council, a rate of 4 trips per day per unit has been adopted for this assessment. This is judged to be a reasonable assumption, given the relatively small sized lots (approx. 300m<sup>2</sup>), the attraction of this type of development for older-aged residents, the provision of alternative transport options and the low trip generation of similar developments (as per RMS guidelines). It should also be noted that Port Macquarie-Hastings Council have recently accepted a rate of 4 vehicle trips per unit for other manufactured housing developments in the Port Macquarie council area.

Also, as shown in Figure 3.2 above, the peak traffic generation from a seniors living site generally occurs between mid-morning and early afternoon i.e. 9:00am – 1:00pm. And with the majority of residents retired or not in full time work, it has been shown that this type of development does not have a significant impact on the normal peak hours within the local road network. Also, it is proposed to include a number of facilities within the development such as a medical centre, pool, golf course etc, which will reduce the overall number of vehicle trips generated by the completed development.

The assessment of the Ocean Club Resort indicates a rate of approximately 0.18 – 0.21 trips per unit is generated by the site during peak times within the local road network. However, for the purposes of this assessment, a rate of 0.4 trips per unit has been adopted for peak hours i.e. 10% of the total day time vehicle trips.

Therefore, using the assumed traffic generation rate of an average 4 vehicle trips per unit per day, and 0.4 trips per peak hour:

Proposed number of units	241
Average trips per unit	4 per day
Total trips per day (250 units)	964
Average peak hr trips per unit	0.4 per unit
Total trips per local peak hour (7:45am & 3:30pm)	97 trips

The construction of the proposed Seniors Living development will likely be undertaken in stages over approximately 5-year period. Figure 3.3 below shows the estimated traffic volumes to be generated by the development if it is built in (say) 10 stages of equal size. It should be noted that the peak hours listed are those currently experienced on Ocean Drive, and not the expected peak traffic volumes in & out of the future development. A plan showing the proposed staging is included in Appendix 1.

Stage	Year	Units per Year	Total Units	Total Daily Trips	Peak Hr Trips 7:45am & 3:30pm
1 & 2	2022	47	47	188	19
3 & 4	2023	47	94	376	38
5 & 6	2024	49	143	572	57
7 & 8	2025	48	191	764	76
9 & 10	2026	50	241	964	97

Fig.3.3 Traffic generation per stage of proposed development.

### 3.4 Trip Assignment

For the purposes of this assessment, the following assumptions have been adopted, based on existing movements in the area, and the assessment of similar developments:

- It is likely almost all movements in and out of the future development will be via the intersection of Ocean Drive and Bonny View Drive. For the purposes of this assessment, 100% of movements generated by the proposed development will be to & from the east.
- Based on the existing conditions, future peak hour movements will generally be split 70:30 i.e. 70% out and 30% in during the morning peak, and the reverse situation in the evening.
- Vehicle trips of future residents are likely to be to a variety of destinations such as Lake Cathie, Laurieton, Port Macquarie, Pacific Highway, cafes, golf clubs etc. For the purposes of this assessment, we have adopted a ratio of 60% to the north and 40% to the south.
- The majority of the generated vehicle movements will be light vehicles i.e. the percentage of heavy vehicles is likely to be less than 3%.

Accordingly, the additional traffic movements to be generated by the completed and fully occupied development at peak times (within local network) are shown in Figure 3.4 below.

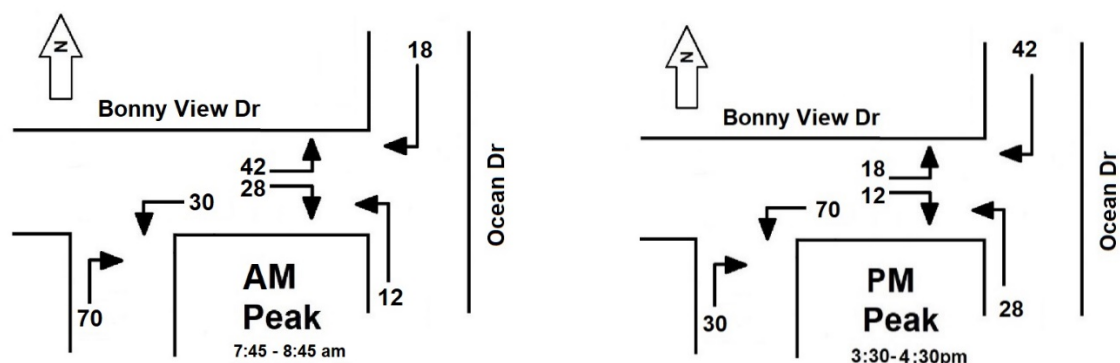


Figure 3.4: Estimated peak hour vehicle trips to be generated by completed development

Figure 3.5 below shows the estimated peak hour movements in and out of the completed development, and the 2031 traffic volumes on Ocean & Bonny View Drive, using a 2% per annum growth factor.

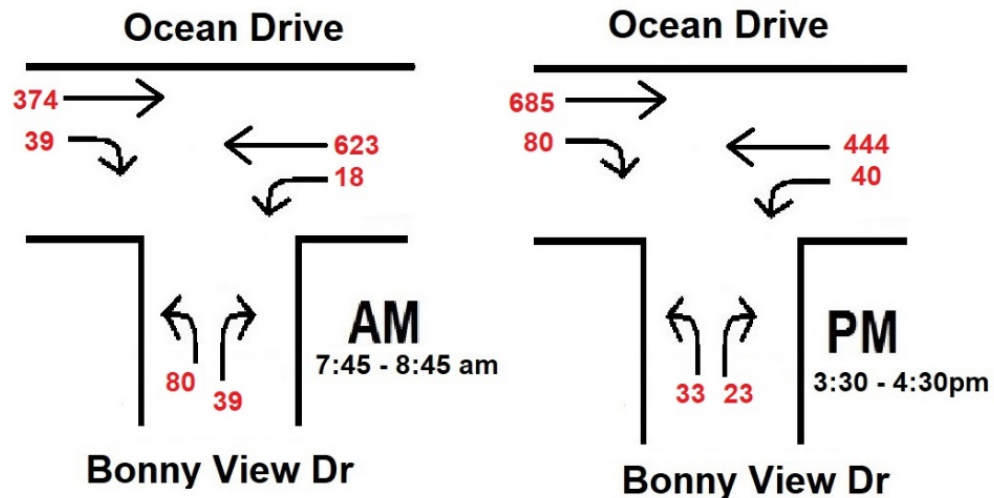


Figure 3.5: Estimated future peak hour volumes through intersection (2031)

### 3.5 Road Capacity

Austrroads guidelines indicate that a 2-way, high standard road (such as Ocean Drive) can safely & efficiently cater for up to 1700 vehicles per hour per lane, or a total of 3200 vph in both directions (see Fig 3.6 below).

## Two-lane Roads

See Section 4.2,  
Austrroads (2020)

- Roads with one-lane of travel in each direction
- Generally include rural roads and highways
- Classified into three categories

*As per HCM (2016):*

- Capacity of a two-lane highway is **1700 pc/h per direction** of travel and is nearly independent of the directional distribution of traffic
- For extended lengths of two-lane highway, the capacity will not exceed **3200 pc/h for both directions** of travel combined.

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Figure 3.6: Lane capacity of 2-lane roads (Austrroads)

Also, Austrroads 'Guide to Traffic Management – Part 3: Traffic Studies & Analysis', includes a chart showing the lane capacities of major roads, based on volumes, speeds and Level of Service. The following diagram (Fig 3.7) shows the existing volumes on roads in the vicinity of the proposed development. It should be noted that a Level of Service of 'C' is considered acceptable. As can be seen from the diagram, both Ocean Drive (LoS of 'B') and Bonny View Drive (LoS of 'A') are both operating well below current capacity, and have adequate capacity to cater for future traffic growth, including the additional vehicle movements generated by the proposed development.



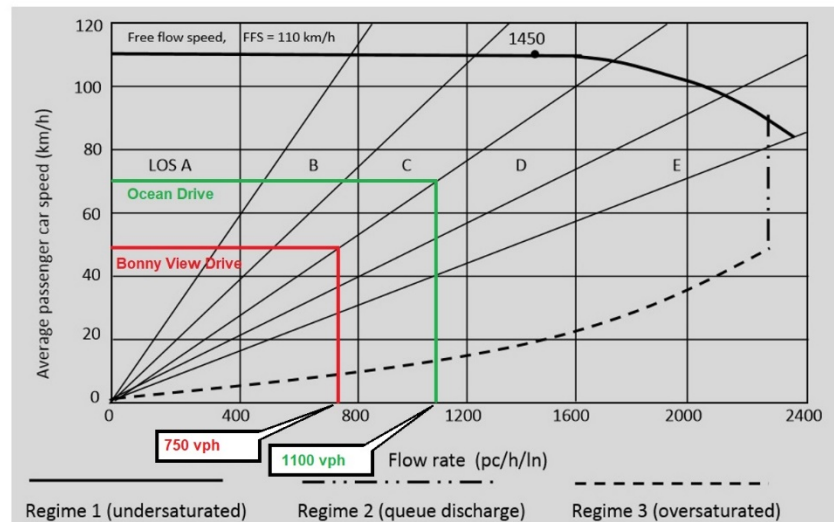


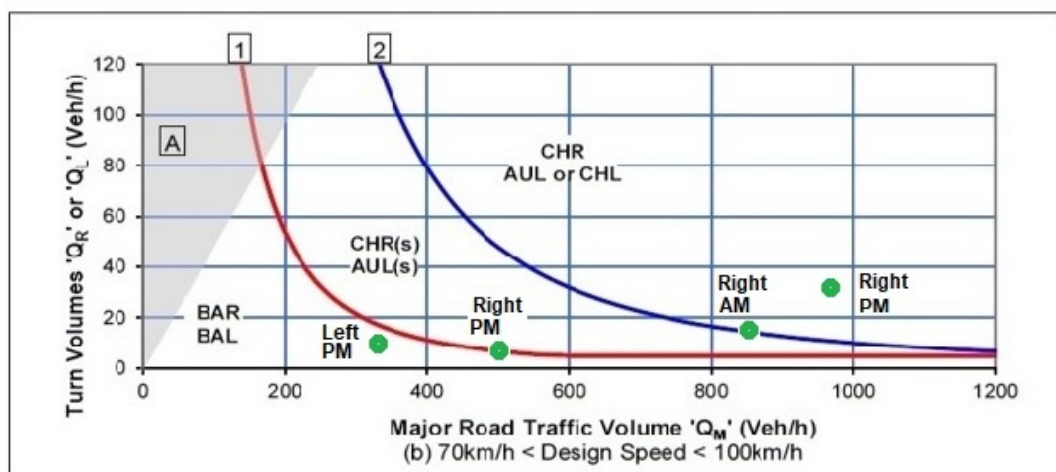
Figure 3.7: Lane capacity and Level of Service (Austroads)

### 3.6 Intersection assessment

#### 3.6.1 Intersection Layout

The proposed development is adjacent to the existing intersection of Ocean Drive and Bonny View Drive, and it is proposed that all traffic movements generated by the development will pass through this intersection. As can be seen from the Austroads Intersection Warrant (*AustRoads Guide to Traffic Management Part 6*) in Figure 3.8 below, when the existing volumes through the intersection of Ocean Drive and Bonny View Drive, the graph indicates the existing channelised intersection is satisfactory, including a longer turn lane to cater for right turn movements.

#### Intersection of Ocean Dr & Bonny View Dr



#### Existing Volumes

Figure 3.8: Warrant for Intersections: Existing Traffic Volumes (2021)

Figure 3.9 below shows the Austroads Intersection Warrant with estimated 2031 traffic volumes plotted. These volumes have been calculated using a 2% annual growth factor, but do not include traffic generated by the proposed development in Bonny View Drive. As can be seen from the chart below, all turn movements from Ocean Drive will require a separate turn lane, and likely require lengthening of the existing right turn lane in Ocean Drive.

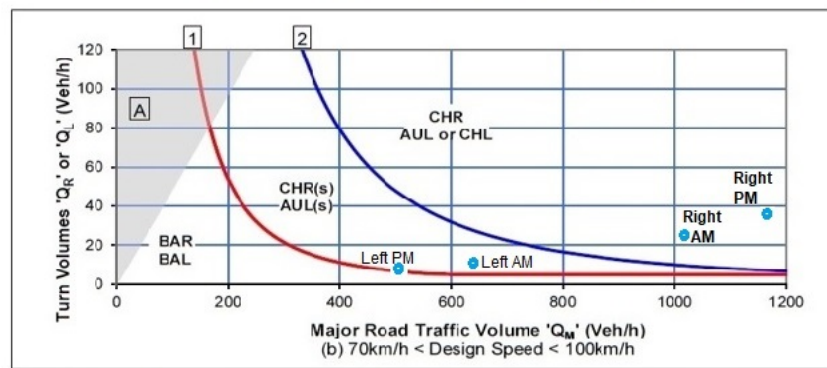
**Intersection of Ocean Dr & Bonny View Dr****2031 Volumes - 2% growth - No development**

Figure 3.9: Warrant for Intersections: Future Traffic Volumes (2031)

Figure 3.10 below shows the Austroads Intersection Warrant with estimated 2031 traffic volumes plotted, as well as traffic generated by the proposed development. These volumes have been calculated using a 2% annual growth factor, and include peak hour traffic from the proposed seniors living site. As can be seen from the graph below, all turn movements from Ocean Drive will require a separate turn lane, and likely require lengthening of the existing right turn lane in Ocean Drive (similar to any upgrades required by 10-year traffic growth without development).

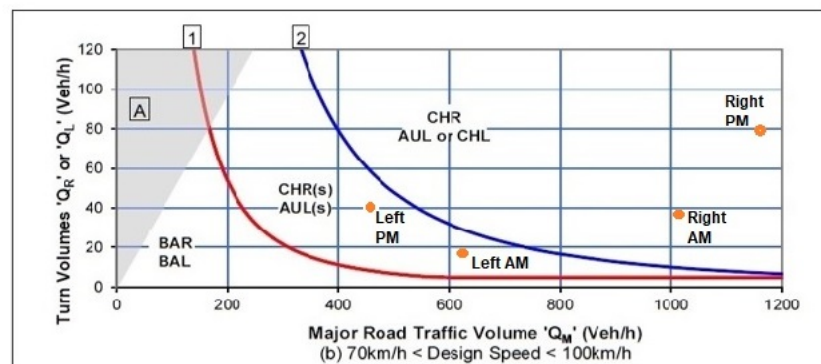
**Intersection of Ocean Dr & Bonny View Dr****2031 Volumes - 2% growth + development**

Figure 3.10: Warrant for Intersections: Future Traffic Volumes (2031), including development

**3.7 Future Intersection Layout**

StreetWise contacted Port Macquarie Hastings Council in regard to future upgrades of Ocean Drive in the vicinity of the proposed development, including the future layout of the Ocean Drive & Bonny View Drive intersection. Council's responses were as follows:

**Justine Jeffery (Infrastructure Planning Support Officer):** We would like to advise that Council does not currently have any plans to duplicate Ocean Drive south of Houston Mitchell Drive roundabout. The section of Ocean Drive from Houston Mitchell Drive north to the Lake Cathie town centre (Ernest St) is identified for duplication, however, has no confirmed timeframe. There are no upgrades planned for the intersection of Ocean Drive and Bonny View Drive. For clarity I have directly answered your questions below.

***Is Ocean Drive planned to be upgraded to 2 lanes in either direction?***

*There are no current plans for duplication of Ocean Dr south of Houston Mitchell Drive. As stated above there are strategic plans for the duplication between Houston Mitchell Dr and Ernest St.*

***Will the Bonny View Drive intersection be upgraded to a 2-lane roundabout?***

*No, there are currently no plans to upgrade this intersection to a Roundabout.*

***Will these works occur within the next 10 years?***

*No. As Above.*

**David Troemel (Development Contributions Planner):** *I can confirm that there are no upgrades to the Bonny View Drive intersection included in the Area 13, 14 & 15 Contribution Plan.*

It should be noted that Port Macquarie Hastings Council have recently developed a Draft Corridor Plan for Ocean Drive (Port Macquarie to Kendall), which proposes one lane in either direction between Houston Mitchell Drive and Bonny Hills.

StreetWise also requested information in regard to the proposed Bonny Hills Bypass, which is shown on concept plans to be adjacent to the eastern boundary of the proposed development. However, Council were unable to provide any information. Similarly, the Ocean Drive Draft Corridor Plan does not include any details of a Bonny Hills Bypass.

### **3.8 Construction traffic**

During the construction stage, it is proposed to access the site from Bonny View Drive. The development will require extensive earthworks, as well as construction of roads, stormwater and other infrastructure. These activities will require delivery of plant, machinery and materials, as well as regular deliveries of concrete, aggregates, housing units and materials etc.

The majority of staff commuting, and materials deliveries will generally be before 7:00am, and therefore outside of peak times within the local road network. The volume of deliveries and other movements are likely be relatively low (say less than 10 per hour) and have minimal impact on local traffic movements.

A Construction Traffic Management Plan will generally be required for a major civil project (such as a residential development) which will provide more accurate construction traffic volumes, timing of the construction staging, vehicle movement plans and details of any required traffic control.

### **3.9 Adjoining Development**

StreetWise are not aware of any proposed developments on the adjoining lots of the proposed development. The majority of properties on Bonny View Drive are zoned R5 (Large Lot Residential) but there may be pressure in the future to re-zone this area to allow smaller lots and more residences. To the north of the subject site, there is currently a large amount of development occurring within the Area 14 (Lake Cathie – Bonny Hills) precinct, particularly north of Houston Mitchell Drive.

Similarly, the area immediately to the east of the development site, between Ocean Drive and the coast is designated R1 (General Residential) and will likely see a significant amount of housing development within the next 10 – 20 years.

The significant amount of development currently happening within the Area 14 precinct will likely result in high growth of traffic volumes on the main roads, particularly Ocean Drive, and is the main reason a relatively high growth rate of 2% has been adopted for the purposes of this assessment.



### 3.10 Development impacts on local road network

As discussed in Section 3.3 above, the proposed development will generate approximately 1000 trips per day, or around 100 trips during morning and afternoon peak times when fully completed and occupied. These volumes are relatively low, and when distributed into 'in & out' movements, as well as 'north & south', will not have any significant impact on the local road network.

According to Table 1.5 from Council's Auspec Guidelines (D0.1 Geometric Road Design), Ocean Drive conforms with the description 'rural arterial road'. Austroads guidelines indicate the 2-lane, high standard road has capacity to cater for up to 3200 vehicles per hour.

StreetWise estimate the maximum peak hour volumes in one direction will be 765, which includes annual growth and trips generated by the proposed development, and a total of around 1200 per hour in both directions. It is therefore considered that there is currently adequate capacity within Ocean Drive to cater for 10 years growth, and the additional trips to be generated by the development, without any significant loss of safety or efficiency.

The existing channelised layout at the intersection of Ocean Drive and Bonny View Drive has been shown to be suitable for the future (2031) traffic volumes, including the additional trips to be generated by the development. It should be noted that the peak traffic generation of the proposed seniors living development is generally outside the current peak periods of the local road network.

### 3.11 Intersection Sight Distance

The applicant is proposing to construct an intersection and access off the southern side of Bonny View Drive, approximately 220m west of the existing intersection with Ocean Drive. Sight distance to the east is approximately 160m. The sight distance is constrained by the curving alignment of the road and roadside trees (see Figure 3.11 below).



Figure 3.11: Looking east towards Ocean Drive from the proposed access

Sight distance to the west is greater than 300m (see Figure 3.12 below).



Figure 3.12: Looking west from the proposed access



The existing speed limit of Bonny View Drive is 50kmh (urban default). The AustRoads Guide to Road Design : Part 4A – Unsignalised and Signalised Intersections, indicates the following is required (for standard vehicles and a reaction time of 2.0 seconds):

Approach Sight Distance (min requirements)	55m
Safe Intersection Sight Distance (desired)	97m

Therefore, the existing sight distance in either direction is satisfactory to provide safe access to and from the proposed development, with minimal impacts on through traffic on Bonny View Drive.

#### **4. FUTURE ROAD UPGRADES**

##### **4.1 Ocean Drive**

Concept plans for the future of the Ocean Drive Corridor indicate that one lane in either direction will be maintained between Houston Mitchell Drive and the Bonny Hills township. However, it is proposed to widen the existing roadway to provide a centre median island and formal road shoulders.

##### **4.2 Bonny View Drive**

It is expected that any DA approval will include conditions to upgrade Bonny View Drive across the frontage of the development. It should be noted that the existing roadway includes informal widening to allow school buses to turn around near the intersection with Ocean Drive.

##### **4.3 Ocean Drive Intersection**

The current layout of Ocean Drive & Bonny View Drive is channelised intersection, with a sheltered right turn into the side road, and widening of Ocean Drive to assist vehicles turning left in & out. An assessment of the right turn lane should be undertaken to ensure the existing length is suitable to cater for:

- the existing right turn volumes
- the future right turn volumes (i.e. existing + 10 yrs annual growth)
- future turn volumes (i.e. existing + 10 yrs annual growth + development traffic)

##### **4.4 Area 14 contributions plan**

Advice from Port Macquarie Hastings Council indicates that any upgrade of Ocean Drive or the intersection with Bonny View Drive are not included in any current contribution plan.

#### **5. SUMMARY**

- The proposed development involves 241 residential units, and will generate 964 daily trips and 97 trips at peak times.
- The existing traffic volumes on Ocean Drive, in the vicinity of the development, are 9690 vehicles per day, and a total of 970 during peak hours. This is expected to grow at a rate of approximately 1% p.a. for the next 10 years (when the development is completed and fully occupied).
- The existing traffic volumes on Bonny View Drive, in the vicinity of the development, are 620 vehicles per day, and a total of 62 during peak hours.

- Peak traffic times in the vicinity of the development were observed to be 7:45 – 8:45am and 3:30 – 4:30pm (within the local road network).
- Peak traffic generation from the proposed development is expected to be 9:00am – 1:00pm.
- The site will have direct access to Bonny View Drive via a new intersection, then to Ocean Drive via an existing channelised intersection.
- The proposed access intersection will have adequate sight distance in both directions to provide safe access to and from the development site with minimal impact on through traffic.
- The existing capacity of Ocean Drive and Bonny View Drive is satisfactory to cater for the increase resulting from annual growth + the additional traffic generated by the proposed development.
- The existing channelised intersection of Ocean Drive and Bonny View Drive is suitable to cater for the proposed future traffic volumes, including the additional traffic generated by the proposed development.

## 6. RECOMMENDATIONS

- The existing CHR channelised intersection at the intersection of Ocean Drive & Bonny View Drive is suitable to cater for existing and future traffic volumes through the layout. However, an assessment of the right turn movements should be undertaken to ensure the existing right turn lane has sufficient length to cater for expected queue lengths without impacting on southbound traffic.
- Bonny View Drive should be upgraded to cater for the increase in traffic generated by the proposed development, including turn movements in & out of the site. Any upgrade of Bonny View Drive should also include a formal pedestrian connection between the development and the existing bus stop in Ocean Drive.
- Any upgrade of Bonny View Drive should include consideration of formalising the existing bus-turnaround at the eastern end of Bonny View Drive. However, given that the majority of the existing bus movements are school-related, it is not considered that the roadworks required to cater for bus movements should be funded by the development.
- Port Macquarie Hastings Council to confirm the future location of the proposed Bonny Hills Bypass, and the subsequent impacts on the roadworks required by the proposed development.
- In summary, StreetWise Road Safety and Traffic Services recommend that the proposed development as being a suitable development based on the predicted traffic impacts, and the additional vehicle trips to be generated by the development will not have a significant impact on the efficiency or safety of the local road network, and that the local roads and intersections have the capacity to cater for the additional trips generated by the development.

## 7. REFERENCE MATERIAL

Austrroads – AGRD04A - 17 Guide to Road Design Part 4A – Unsignalised and Signalised Intersections

Austrroads – AGDRD06A – 17 Guide to Road Design Part 6A – Paths for walking and cycling

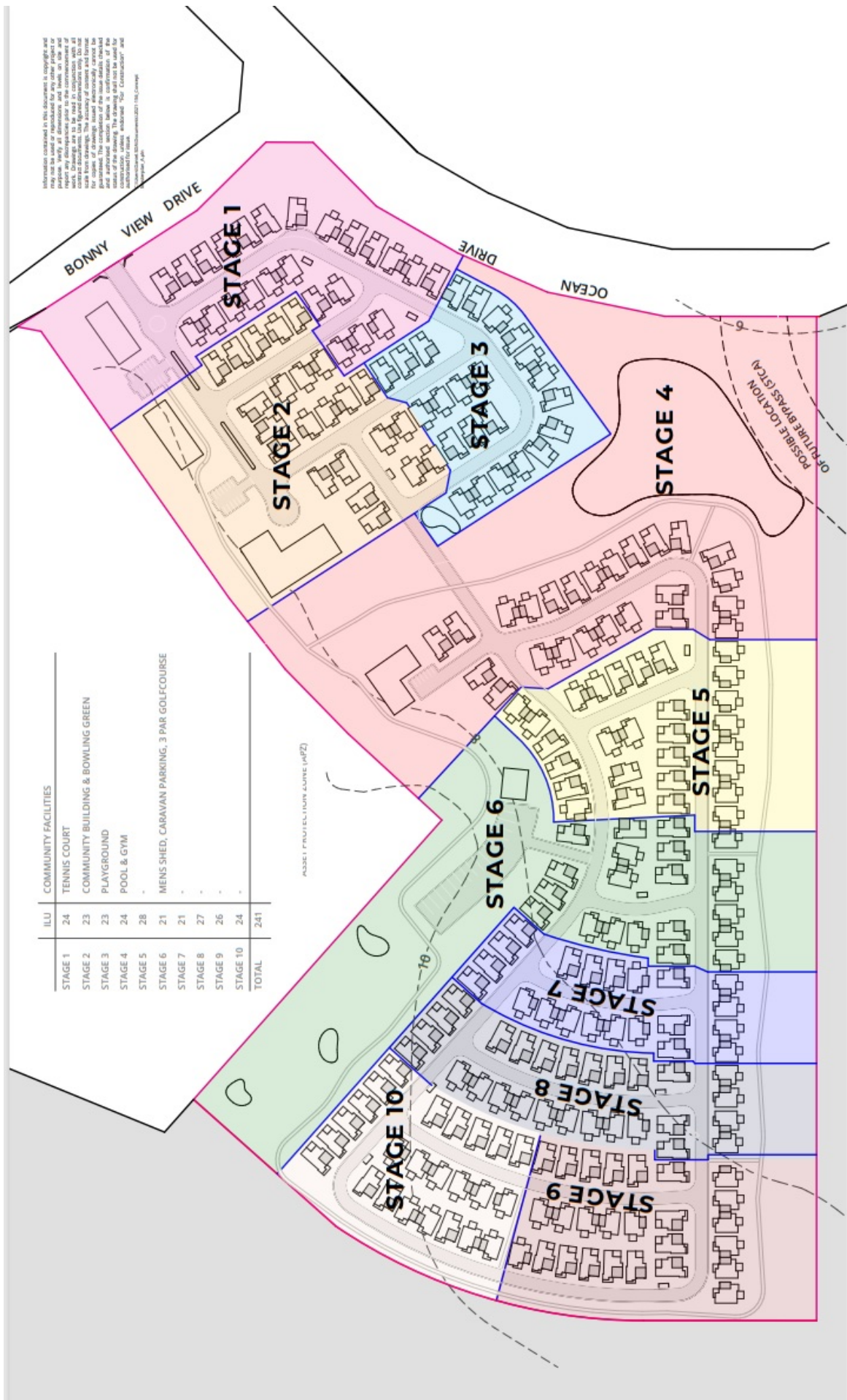
Austrroads – AGRD03 -09 Guide to Road Design Part 3 – Geometric Design

Austrroads – AGTM03 – 13 Guide to Traffic Management Part 3 – Traffic Studies and Analysis

RMS – TDT2013/04a – Guide to Traffic Generating Developments – Updated traffic Surveys

RTA – TTR – 002 – 02 – Guide to Traffic Generating Developments

**Appendix A**  
**Proposed Site Plan including Staging**





## Appendix B Traffic Count Results

[illegible]