
# TRAFFIC AND PARKING ASSESSMENT

## EXTENSION TO CARAVAN PARK LIFESTYLE VILLAGE
## SUNRISE VILLAGE

## LOT 3622 DP 622485 AND LOT 2 DP 622229
## 4029 & 4045 NELSON BAY ROAD, BOBS FARM

**PREPARED FOR: HOMETOWN (AUSTRALIA) PTY LTD**

**NOVEMBER 2021**

**REF:21/196**

**TRAFFIC AND PARKING ASSESSMENT**
**EXTENSION TO EXISTING LIFESTYLE VILLAGE**
**SUNRISE VILLAGE**

**HOMETOWN (AUSTRALIA) PTY LTD**

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**4029 & 4045 NELSON BAY ROAD, BOBS FARM**

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## QUALITY ASSURANCE

This document has been prepared, checked and released in accordance with the Quality Control Standards established by Intersect Traffic Pty Ltd.

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# 1. INTRODUCTION

Intersect Traffic Pty Ltd (Intersect Traffic) was engaged by Hometown (Australia) Pty Ltd to prepare a traffic and parking assessment for the proposed extension to an existing caravan park lifestyle village known as Sunrise Village. The proposed extension is located to the east of Sunrise Village on Lot 3622 in DP 6222485 and Lot 2 in DP 622229, 4029 & 4045 Nelson Bay Road, Bobs Farm. The proposal is to provide for approximately 67 additional sites; a new community facility; and drainage basins.

The assessment has been undertaken to support a rezoning for the project to Port Stephens Council. The proposed development plan is provided within ***Appendix 1***.

The aim of this assessment is to determine the likely impact of the development on the adjacent local road network due to the traffic generated by the development. This report presents the findings of the traffic impact assessment and includes the following:

1. An outline of the existing road network in the vicinity of the proposed development.
2. An assessment of the likely peak traffic generation from the development and the caravan park approved over 16 Trotters Road, Bobs Farm (119 long term sites).
3. An assessment of the likely traffic impacts of the proposal and the caravan park approved over 16 Trotters Road, Bobs Farm (119 long term sites) on the adjacent road network in particular in terms of the capacity of the existing road network linking to the sub-arterial road network.
4. An assessment of the proposed development access and on-site parking.
5. Presentation of conclusions and any recommendations.

This assessment has been carried out with reference to the *RTA's Guide to Traffic Generating Developments*, Austroads *Guide to Road Design Guidelines* (2019), Austroads *Guide to Traffic Management Guidelines (2020)*. Port Stephens Council's DCP and the NSW Local Government Manufactured Home Village / Caravan Park Regulations as well as utilising information provided by ADW Johnson Pty Ltd.

# 2. SITE DESCRIPTION

The subject site is located on the northern side of Nelson Bay Road, Bobs Farm immediately south of Trotters Road between Fenningham Island Road and Binders Road, approximately 4.2 kilometres west of the Anna Bay post office and 11 kilometres south-west from the Nelson Bay CBD. To its northern boundary the property has a road frontage to Trotters Road and to its southern boundary it has a road frontage to Nelson Bay Road. The western boundary of the site adjoins the existing Sunrise caravan park lifestyle village. To the north of the existing Sunrise Village, a 119 long term site caravan park has also been approved. The development site is mainly flat, partially vegetated land containing two dwellings and associated structures. The subject site is shown in ***Figure 1*** in context with the surrounding properties, developments and roads.


***Figure 1 – Site Location Plan***

The site has the following property descriptors:

- Formal title of Lot 3622 in DP 6222485 and Lot 2 in DP 622229,
- Address of 4029 & 4045 Nelson Bay Road, Bobs Farm,
- Area of approximately 4.2 ha, and
- Zoning of RU2 – Rural Landscape pursuant to Port Stephens Local Environmental Plan 2013.

The site is currently served by two existing residential accesses one via Nelson Bay Road, and another via Trotter Road. ***Photographs 1 & 2*** below show the site, and the access at Trotter Road

*Photograph 1 – Development site from Nelson Bay Road*

*Photograph 2 – Existing site access off Trotter Road*

# 3. EXISTING ROAD NETWORK

## 3.1 Nelson Bay Road

Nelson Bay Road is a designated B-Double route. It is a sub-arterial road and a classified main road (MR 108) and is therefore under the care and control of Transport for NSW (TfNSW). It commences at Nelson Bay at its eastern end and runs through to Industrial Drive at Mayfield near Newcastle. Near the site, Nelson Bay Road is a rural style construction with no hard stand footpaths and limited street lighting along its edges. It is a four lane two way divided sealed road with separate carriageways for each direction of travel and a raised concrete or vegetated central median with grassed verges and table drains on both sides of the road. Lane widths are between 3.2 metres and 3.5 metres with a sealed shoulder / breakdown lane / cycleway approximately 3.5 metres in width on both sides of the road. An 80 km/h speed limit applies to this section of Nelson Bay Road and at the time of inspection it was observed to be in good condition. There are a number of U-turn bays provided along this section of road including at both the Trotter Road intersection (for eastbound and westbound traffic) and Binder Road (for westbound traffic). Near the site, Nelson Bay Road intersects with Trotter Road via a give way priority controlled rural seagull intersection with dedicated turning bays while the Nelson Bay Road / Binder Road intersection near the existing Sunrise Village access is constructed as a give way priority controlled left out only intersection with a right turn in dedicated turn bay. ***Photograph 3*** shows Nelson Bay Road along the side frontage.

*Photograph 3 – Nelson Bay Road along site frontage*

## 3.2 Trotter Road

Trotter Road is a local road that runs west from Nelson Bay Road. Its primary function is to provide vehicular access to properties along its length. As a local road, Trotter Road is under the care and control of Port Stephens Council and is a two lane two way rural unsealed road with grassed verges and table drains on both sides of the road. The carriageway width is

approximately 6 metres wide. A 50 km/h speed limit would apply to this section of road and at the time of inspection it was observed to be in fair condition as shown in ***Photograph 4***.

***Photograph 4 – Trotter Road – adjacent to the site.***

## 3.2 Binder Road

Binder Road is a local road that runs north from Nelson Bay Road. Its primary function is to provide vehicular access to properties along its length including the existing Sunrise Lifestyle Village. As a local road, Binder Road is under the care and control of Port Stephens Council and to the Sunrise Village access is a two lane two way rural sealed road with grassed verges and table drains on both sides of the road. The carriageway width is approximately 6.5 metres wide. A 50 km/h speed limit would apply to this section of road and at the time of inspection it was observed to be in good condition as shown in ***Photograph 5***.


*Photograph 5 – Binder Road near Sunrise Village access*

# 4. ROAD NETWORK IMPROVEMENTS

There are no known further road network improvements currently programmed that will increase the capacity of the local road network with the recently completed duplication of Nelson Bay Road near the site doubling the capacity of the local road network. Maintenance and reconstruction work in the area would be carried out in line with Port Stephens Council's and TfNSW Annual Works Programmes.

Further to the above, Trotters Road is conditioned to be upgraded as part of a Caravan Park approval at 16 Trotters Road, Bobs Farm, opposite the existing Sunrise Village to the north. Condition 124 of the consent for this development (DA16-2007-15-4) states:

*Prior to the commencement of use, Trotter Road is to be upgraded to Council's Rural access class road (currently 6 metre sealed carriageway 1 x 106 ESAs) across the frontage of the development to the intersection of Trotter Road and Nelson Bay Road.*

# 5. TRAFFIC VOLUMES

Northern Transport Planning and Engineering undertook manual intersection counts at the Nelson Bay Road / Trotter Road and Nelson Bay Road / Binder Road intersections on Thursday 11th November 2021 (PM) and Friday 12th November 2021 (AM). These counts determined the peak hour traffic periods for the local road network as 7.30 am to 8.30 am and 3 pm to 4 pm. The tally sheets for the manual traffic counts are provided within ***Appendix 2.***

The maximum 2021 two-way mid-block peak hour traffic volumes calculated from the counts are as shown in ***Table 1*** below. These figures for the purpose of this assessment have been extrapolated to 2031 values by applying a background traffic growth of 1.5 % per annum for a period of 10 years. The likely 2021 and 2031 peak traffic volumes are as shown in ***Table 1*** below.

### *Table 1 – Existing and Future Peak Hour Traffic Volumes no development*

| Road | Section | 2021 | | 2031 | |
|---|---|---|---|---|---|
| | | AM (vtph) | PM (vtph) | AM (vtph) | PM (vtph) |
| Nelson Bay Road | west of Binder Road | 1533 | 1671 | 1779 | 1939 |
| Nelson Bay Road | east of Binder Road | 1549 | 1697 | 1798 | 1969 |
| Nelson Bay Road | west of Trotter Road | 1549 | 1697 | 1798 | 1969 |
| Nelson Bay Road | east of Trotter Road | 1591 | 1741 | 1846 | 2021 |
| Binder Road | north of Nelson Bay Road | 20 | 34 | 23 | 39 |
| Trotter Road | north of Nelson Bay Road | 67 | 57 | 78 | 66 |

# 6. ROAD CAPACITIES

The capacity of the road network is generally determined by the capacity of intersections. However, for urban roads Table 4.3 of the RTA's Guide to Traffic Generating Developments, reproduced below, provides some guidance on mid-block capacities for a level of service (LoS) C.

**Table 4.3**
**Typical mid-block capacities for urban roads with interrupted flow**

| Type of Road | One-Way Mid-block Lane Capacity (pcu/hr) | |
|---|---|---|
| Median or inner lane: | Divided Road | 1,000 |
| | Undivided Road | 900 |
| Outer or kerb lane: | With Adjacent Parking Lane | 900 |
| | Clearway Conditions | 900 |
| | Occasional Parked Cars | 600 |
| 4 lane undivided: | Occasional Parked Cars | 1,500 |
| | Clearway Conditions | 1,800 |
| 4 lane divided: | Clearway Conditions | 1,900 |

*Source: - RTA's Guide to Traffic Generating Developments (2002).*

Based on the above, Nelson Bay Road as a 4 lane divided road in this location would have a one-way mid-block capacity of at least 1900 vtph and a two-way mid-block capacity of 3,800 vtph for a LoS C.

Trotter Road and Binder Road, as local roads would have a one-way mid-block capacity of at 900 vtph and a two-way mid-block capacity of 1,800 vtph for a LoS C. However, as they mainly provide direct access to residential dwellings the environmental capacity goals for the road network are also relevant. Table 4.6 of the *RTA Guide to Traffic Generating Developments* provides guidance on the environmental capacity goals for local streets. This table is reproduced below.

**Table 4.6**
**Environmental capacity performance standards on residential streets**

| Road class | Road type | Maximum Speed (km/hr) | Maximum peak hour volume (veh/hr) |
|---|---|---|---|
| Local | Access way | 25 | 100 |
| | Street | 40 | 200 environmental goal |
| | | | 300 maximum |
| Collector | Street | 50 | 300 environmental goal |
| | | | 500 maximum |

**Note:** Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

*Source: - RTA's Guide to Traffic Generating Developments (2002).*

Binder Road and Trotter Road being local roads have an environmental capacity of a maximum of 300 vtph based on the table above. Therefore, the two-way mid-block road capacities adopted within this assessment are;

- Nelson Bay Road - 3,800 vtph; and
- Trotter Road and Binder Road - 300 vtph.

As the current peak traffic volumes on Nelson Bay Road, Trotter Road and Binder Road determined in ***Section 5*** above are less than the technical mid-block or environmental capacities determined above it is concluded the local road network has spare capacity to cater for additional traffic generated by the proposal subject to satisfactory intersection performance.

# 7. ALTERNATE TRANSPORT MODES

Port Stephens Coaches run bus services from Newcastle to Nelson Bay and around the Tomaree Peninsula as shown in the extract of the bus route maps in ***Figure 2*** below. Whilst covering a large area of the Tomaree Peninsula the nearest bus stops to the site are on Nelson Bay Road at the existing Sunrise Village for eastbound traffic and at Trotter Road and Binder Road for westbound traffic. Route 130 (Newcastle – Fern Bay – Newcastle Airport – Salt Ash – Bobs Farm – Anna Bay – Gan Gan – Salamander Bay – Corlette – Nelson Bay – Fingal Bay), Route 135 (Raymond Terrace to Nelson Bay via Heatherbrae and Williamtown) and Route 131 (Newcastle – Fern Bay – Newcastle Airport – Salt Ash – Bobs Farm – Taylors Beach –– Salamander Bay – Corlette – Nelson Bay – Fingal Bay), access these bus stops on Nelson Bay Road. The bus stops are all within 200 metres of the site therefore are considered convenient enough to the site for residents of the lifestyle village to use these bus services.

Further Sunrise Village is trialling their own minibus shuttle service to Salamander Bay and Nelson Bay shopping centres currently once a week but with the intention of providing additional services once a demand is established and the village grows in terms of residents. It is therefore concluded the existing and future Sunrise Lifestyle Village provides good access to public transport.

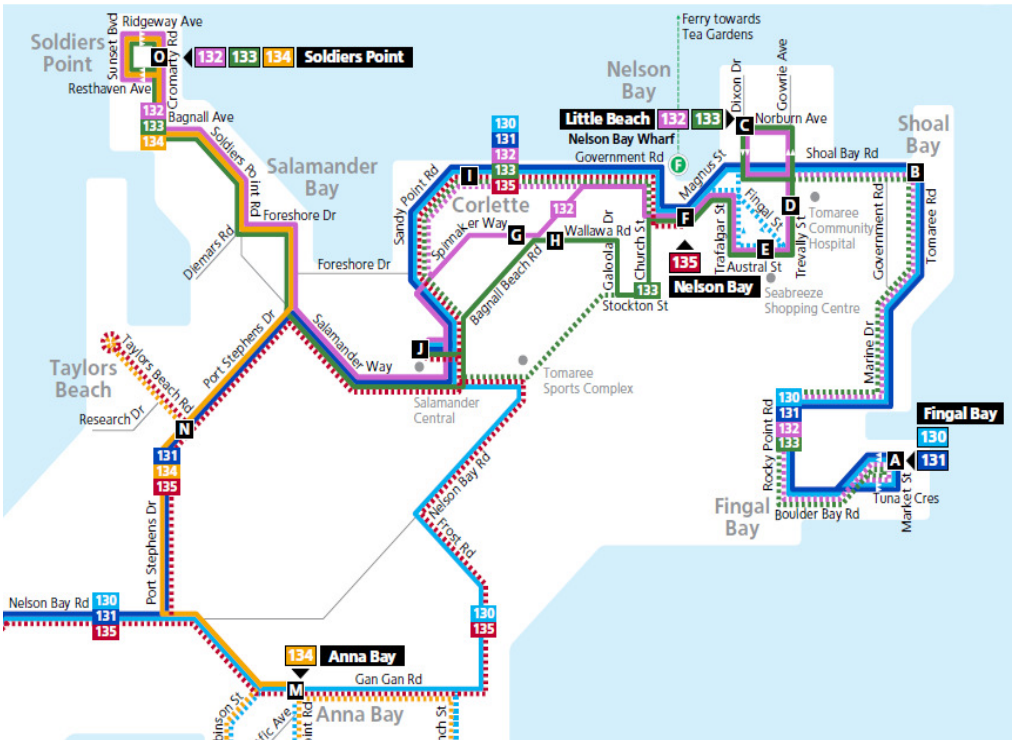



*Figure 2 – Bus Route Map Extract*

There is no pedestrian infrastructure in the area. There are no constructed footpaths near the site, with some grassed verges, as seen in previous photographs, that may be utilised by pedestrians. Pedestrians would generally need to utilise the existing road shoulder and verges where possible. This would be suitable for Binder Road and Trotter Road, given the low traffic numbers, however, Nelson Bay Road would not be suitable for pedestrian travel in most locations.

Cycle lane markings are present on Nelson Bay Road near the site within the sealed shoulders and these on-road cycleways can be utilised by cyclists for site access. No cycle way markings are present on Binder Road or Trotter Road. Cyclists would therefore need to share the travel lanes on these roads however this would be suitable for cyclists given the low speed and low traffic volumes. During site inspections and traffic counts little cycle traffic was observed on Nelson Bay Road

***Photograph 6*** below shows the bus stop in front of the existing Sunrise Lifestyle Village while ***Photograph 7*** below shows the cycleway markings and sealed shoulders on Nelson Bay Road near the site.


***Photograph 6 – Bus Stop on Nelson Bay Road near site***

*Photograph 7 – Cycleway markings and sealed shoulders on Nelson Bay Road*

# 8. PROPOSED DEVELOPMENT

The proposal involves an extension to the existing Sunrise Lifestyle Village long term caravan park, through development of existing vacant land on two lots east of the existing development, to provide approximately 67 additional sites.

Specifically, the development will include the provision of:

- Demolition of existing structure on the site and earthworks
- Provision of an additional 67 long term sites,
- Additional community facility,
- Extension of existing Sunrise Lifestyle Village internal roads to provide connection to the existing village and its facilities and provided internal road for access to new sites.
- New vehicular access to Trotter Road approximately at the location of the existing access to Trotter Road,
- On-site residence and visitor parking (14 spaces within 2 car parking areas); and
- Drainage and landscaping including provision of two on-site detention basins.

The development concept plans are shown in ***Appendix 1***.

# 9. TRAFFIC GENERATION

The existing long term caravan park that is currently operating in Sunrise Village has approximately 110 long term sites currently occupied with approval for 193 lots. The existing site is responsible for all the traffic currently generated on Binder Road with the peak two-way mid-block traffic volumes of 20 vtph AM and 34 vtph PM. The AM and PM traffic generation rates for the existing Village is therefore determined from this data as:

**AM rate** = 20 / 110
= 0.19 vehicle trips per dwelling.

**PM rate** = 34 / 110
= 0.31 vehicle trips per dwelling.

This data corresponds well with other survey work undertaken by Intersect Traffic and Barry Bradley & Associates at similar developments at Anna Bay (Latitude One), Neath (Hunter Valley Van Village) and Chain Valley Bay (Valhalla Lifestyle Village) therefore is considered relevant for this assessment. It has been used to estimate future traffic from the expanded Sunrise Lifestyle Village.

Utilising the existing traffic generation rates from the village, the subject development with 67 new sites will generate the following additional traffic in the AM and PM peak periods.

**AM Peak hour trips** = 67 x 0.19 vtph
= **13 vtph**

**PM Peak hour trips** = 67 x 0.31 vtph
= **21 vtph**

However, the real impact on the intersection will be an additional 269 sites; being the additional 67 sites within the subject development plus the 83 (193 - 110) undeveloped sites of the existing approved Sunrise caravan park lifestyle village; and 119 sites at the approved caravan park at 16 Trotters Road, and can be calculated as follows:

**AM Peak hour trips** = 269 x 0.19 vtph
= **51 vtph**

**PM Peak hour trips** = 269 x 0.31 vtph
= **83 vtph**

Therefore, the additional AM and PM peak hour traffic to be distributed on the road network, 51 vtph AM and 83 vtph PM, is to be distributed as follows based on the existing traffic counts.

- 50 % of new traffic will use the Binder Road access while 50 % will use the new Trotter Road access;
- AM traffic is split 65% outbound and 35% inbound which is mirrored in the PM,
- AM inbound and outbound traffic being split 60/40 Nelson Bay Road east/west and is opposite in the PM period, and
- Westbound outbound traffic from Binder Road undertakes a U-turn movement within the U-turn bay on Trotter Road.

There may be some variations to the distributions however their impact is considered insignificant. The resulting trip distribution is presented diagrammatically in ***Figure 3*** below.

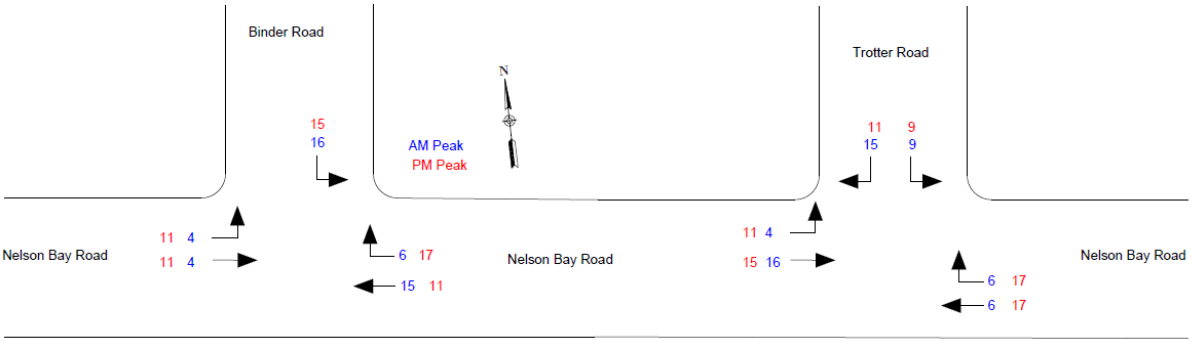



*Figure 3 – Development Traffic Trip Distribution*

# 10. TRAFFIC IMPACT ASSESSMENT

## 10.1 Road Network Capacity

This assessment has determined (***Section 6***) that the existing road network around the site is currently operating below its technical or environmental mid-block two way capacity and has spare capacity to cater for additional traffic from the proposed development. ***Section 9*** of this report determined that the subject development is likely to generate 13 AM and 21 PM additional vehicle trips per hour during the road network peaks, and with the unoccupied sites of the existing Sunrise Lifestyle Village development, the overall impact will be 51 AM and 83 PM additional vehicle trips per hour during the road network peaks. The resulting additional traffic distributed as shown in ***Figure 3*** is not sufficient for Nelson Bay Road or Binder Road and Trotter Road to reach their respective two-way mid-block capacities as shown in ***Table 2*** below.

*Table 2 – Two-way mid-block road capacity check*

| Road | Section | Capacity | 2021 | | 2031 | | Development traffic | |
|---|---|---|---|---|---|---|---|---|
| | | vtph | AM (vtph) | PM (vtph) | AM (vtph) | PM (vtph) | AM | PM |
| Nelson Bay Road | west of Binder Road | 3800 | 1556 | 1704 | 1802 | 1972 | 23 | 33 |
| Nelson Bay Road | east of Binder Road | 3800 | 1590 | 1751 | 1839 | 2023 | 41 | 54 |
| Nelson Bay Road | west of Trotter Road | 3800 | 1590 | 1751 | 1839 | 2023 | 41 | 54 |
| Nelson Bay Road | east of Trotter Road | 3800 | 1629 | 1799 | 1884 | 2079 | 38 | 58 |
| Binder Road | north of Nelson Bay Road | 200 | 46 | 77 | 49 | 82 | 26 | 43 |
| Trotter Road | north of Nelson Bay Road | 200 | 101 | 105 | 112 | 114 | 34 | 48 |

Therefore, it is reasonable to conclude the development will not adversely impact on the levels of service experienced on the state and local road network.

## 10.2 Intersection Capacity

The intersections that are most likely to be impacted by this development are the Nelson Bay Road / Binder Road give way controlled T-intersection and the Nelson Bay Road / Trotter Road give way priority controlled seagull T-intersection.

The impact of this development on the operation of these intersections can be determined by using the SIDRA INTERSECTION modelling software. The SIDRA INTERSECTION software package predicts likely delays, queue lengths and thus levels of service that will occur at intersections. Assessment is then based on the level of service requirements of the TfNSW shown below.

**Table 4.2**
**Level of service criteria for intersections**

| Level of Service | Average Delay per Vehicle (secs/veh) | Traffic Signals, Roundabout | Give Way & Stop Signs |
|---|---|---|---|
| A | < 14 | Good operation | Good operation |
| B | 15 to 28 | Good with acceptable delays & spare capacity | Acceptable delays & spare capacity |
| C | 29 to 42 | Satisfactory | Satisfactory, but accident study required |
| D | 43 to 56 | Operating near capacity | Near capacity & accident study required |
| E | 57 to 70 | At capacity; at signals, incidents will cause excessive delays<br>Roundabouts require other control mode | At capacity, requires other control mode |

*Source: - RTA's Guide to Traffic Generating Developments (2002).*

This software package predicts likely delays, queue lengths and thus levels of service that will occur at intersections. The assumptions made in the modelling were:

- Post development AM and PM peak hours were modelled in the peak AM and PM peak period for 2021 and 2031,
- 2031 AM and PM traffic volumes post development were determined using a background traffic growth rate of 1.5% per annum on Nelson Bay Road,
- Critical gap acceptance based on minimum recommended values by Austroads.
- Development traffic was distributed onto the road network as per ***Figure 3***, and
- The intersection was modelled as per its current configuration.

Summaries of the results of the relevant AM and PM modelling for the 'worst' case for the Nelson Bay Road / Binder Road give way controlled T-intersection and the Nelson Bay Road / Trotter Road give way controlled T-intersection are shown below in ***Tables 3 & 4***, while the Sidra Movement Summary Tables for the models are provided in ***Appendix 3***.

### *Table 3 – Nelson Bay Road / Binder Road intersection – Sidra results summary*

| Modelled Peak | Degree of Saturation (v/c) | Worst Average Delay (s) | Worst Level of Service | 95% back of queue length (cars) |
|---|---|---|---|---|
| 2021 AM | 0.226 | 15.3 | B | 0.1 |
| 2021 AM + developments | 0.227 | 15.6 | B | 0.1 |
| 2031 AM | 0.262 | 18.4 | B | 0.1 |
| 2031 AM + developments | 0.264 | 18.8 | B | 0.1 |
| 2021 PM | 0.254 | 17.8 | B | 0.3 |
| 2021 PM + developments | 0.255 | 18.8 | B | 0.3 |
| 2031 PM | 0.293 | 22.3 | B | 0.3 |
| 2031 PM + developments | 0.296 | 23.7 | B | 0.4 |

This modelling shows that the Nelson Bay Road / Binder Road give way controlled T-intersection will continue to operate satisfactorily with the additional traffic generated by the subject development, including the yet to be developed sites of the existing Sunrise Village development, and the yet to be developed sites approved at 16 Trotters Road, and with background traffic growth through to 2031. The average delay, levels of service and queue lengths for all movements remain

within the thresholds determined by TfNSW as representing satisfactory operation. All worst case LoS results were for the right turn into Binder Road, while all other movements in all models were a LoS A.

### *Table 4 – Nelson Bay Road / Trotter Road intersection – Sidra results summary*

| Modelled Peak | Degree of Saturation (v/c) | Worst Average Delay (s) | Worst Level of Service | 95% back of queue length (cars) |
|---|---|---|---|---|
| 2021 AM | 0.224 | 22.7 | B | 0.2 |
| 2021 AM + developments | 0.229 | 20.9 | B | 0.2 |
| 2031 AM | 0.260 | 29.9 | C | 0.2 |
| 2031 AM + developments | 0.265 | 26.6 | B | 0.3 |
| 2021 PM | 0.256 | 28.3 | B | 0.2 |
| 2021 PM + developments | 0.260 | 27.4 | B | 0.3 |
| 2031 PM | 0.297 | 39.3 | C | 0.3 |
| 2031 PM + developments | 0.302 | 39.3 | C | 0.4 |

This modelling shows that the Nelson Bay Road / Trotter Road give way controlled seagull T-intersection will continue to operate satisfactorily with the additional traffic generated by the subject development, including the yet to be developed sites of the existing Sunrise Village development, and the yet to be developed sites approved at 16 Trotters Road, and with background traffic growth through to 2031. The average delay, levels of service and queue lengths for all movements remain within the thresholds determined by TfNSW as representing satisfactory operation. All worst case LoS results were for the right turn out of Trotter Road, while all other movements in all models were a LoS A or LoS B.

It is therefore concluded the proposed development will not adversely impact on the efficiency of Nelson Bay Road / Binder Road give way controlled T-intersection or the Nelson Bay Road / Trotter Road give way controlled seagull T-intersection, both of which have sufficient spare capacity to cater for the development without a requirement for any intersection upgrading works.

## *10.3 On-Site Car Parking*

The proposed development will generate an on-site parking demand. Therefore, on-site parking in accordance with the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005* will need to be provided. The relevant requirements within the Regulation are:

*Resident Parking*

*1 resident parking space per dwelling site*

*Visitor Parking*

*1 visitor parking space for each 10 (and any remaining fraction of 10) of long-term sites*

*Accessible Parking*

*1 visitor accessible parking space per 100 sites or fraction of 100 sites*

*Resident and visitor parking is to be 6.1 metres x 2.5 metres while the accessible visitor car parks are to comply with Australian Standard AS2890.6-2009 Parking facilities Part 6: Off-street parking for people with disabilities.*

Noting that on completion of the proposed expansion a total of 67 additional long term sites would exist within the park the following additional on-site parking, to that already approved in the Sunrise Lifestyle Village, is required to be provided:

- Resident Parking – 67 car parks
- Visitor Car Parking – 67 / 10 = 7 car parks
- Accessible Visitor Car Parking 67 / 100 = 1 accessible car park (within the 18 visitor car parks to be provided).

On examination of the plans it was found that:

- As each site has an area in excess of 150 $m^2$ it is considered there is sufficient room on each site to provide an on-site resident car park; and
- 14 visitor car parking spaces are shown.

Therefore the plans are required to show 1 accessible space within the visitor car park near the community facility which will result in the number of visitor car parks being reduced to 13 spaces which is still compliant with the caravan park regulations. Whilst not dimensioned there is adequate space for the visitor (including access) car parking spaces to be provide on-site to the dimensioned requirements.

It is therefore concluded that in regard to on-site car parking the proposal would meet the requirements of the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005.*

## 10.4 Access

The proposed extension would utilise the existing combined entry / exit access at Binder Road through internal road connections however a new combined entry / exit access near the existing property access to Trotter Road is proposed in the extension. Access to the site and individual sites would be required to meet the requirements of the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005* as well as Australian Standard *AS2890.1-2004 Parking facilities Part 1: Off-street car parking.*

In regard to the regulation the important requirements and an assessment of compliance are:

- A dwelling site must have access to an access road – Proposal is compliant.
- In the case of a divided entrance and exit road the width of the sealed road on either side of the median must be at least 5 metres. – It is not proposed to have a divided access road within the development and therefore the proposed site access is compliant with this requirement.
- A forecourt 4 metres x 20 metres needs to be provided for incoming vehicles – Existing access arrangements to Binder Road comply with this requirement.
- The width of an access road (internal) must be 6 metres for two way flow or 4 metres for one way flow and one way flow needs to be indicated by a conspicuous sign. The proposal complies with this requirement.

Overall, it is therefore considered reasonable to conclude the existing and proposed internal roads access roads are suitable for two way flow of vehicles.

Trotter Road adjoining the site will be sealed by the developers of 16 Trotter Road, as part of their recently approved caravan park. Noting the existing 6m width and the future sealing of this road, no further upgrades would be required as this treatment is compliant with Austroad guidelines for two way traffic flows less than 500 vtph. Sight distance along Trotter Road at the proposed new access should comply with Figure 3.2 of Australian Standard *AS 2890.1-2004 Parking facilities Part 1: Off street car parking.* For a 50 km/h speed environment (Trotter Road) the standard

recommends a minimum sight distance of 45 metres. By observation on site the sight distance at both these accesses are in excess of 200 metres and thus compliant with the Standard.

## 10.5 Servicing

The proposed extension will not alter current servicing of the site though more frequent service vehicle movements may be required. As the existing servicing conditions are not changing it is reasonable to conclude servicing of the extended village will not adversely impact on the local road network.

## 10.6 Alternate Transport Modes

The development site is currently suitably serviced by public transport bus service provided by Port Stephens Coaches as well as a limited on trial private minibus shuttle operated by the park which may be expanded in the future. The proposal is not expected to generate enough public transport demand to require any change to the existing public transport services or require additional infrastructure. Therefore, the provision of additional public transport infrastructure within or adjacent to the proposed development is not considered warranted.

The sealed shoulder on both sides of Nelson Bay Road along the site frontage is marked as an on-road bicycle lane. This is the only bicycle specific infrastructure in the area however it passes the development site. The additional bicycle traffic generated by this development would not be significant enough to warrant the extension of this on road cycleway.

The proposal may generate some pedestrian traffic looking to utilise the public transport services around the site. However, without any existing external pedestrian infrastructure (paths) in the area to connect to it would not seem reasonable to require this development to provide this infrastructure external to the site. Internal pedestrian linkages will be provided within the development to direct pedestrian traffic to the various components of the development.

# 11. CONCLUSIONS

This traffic impact assessment for the proposed extension to the existing Sunrise caravan park lifestyle village on Lot 3622 in DP 6222485 and Lot 2 in DP 622229, 4029 & 4045 Nelson Bay Road, Bobs Farm has determined the following:

- As existing traffic volumes on the local road network are less than the technical and environmental mid-block two way capacities of the roads there is spare capacity to cater for the additional traffic generated by this development.
- The site is currently serviced by public transport operated by Port Stephens coaches and an on trial private minibus shuttle for residents operated by the Village whilst other alternate transport mode infrastructure is generally not available in the immediate vicinity of the site.
- The proposed development is predicted to generate approximately an additional 13 vtph AM and 21 vtph PM in the peak periods on the local road network.
- The additional traffic generated by the development, including the occupation of the unoccupied sites of the existing Sunrise development, and the recent caravan park approval at 16 Trotters Road, will not cause Nelson Bay Road, Binder Road or Trotter Road to reach their relevant mid-block two way capacities therefore subject to satisfactory intersection operation the local road network has sufficient spare capacity to cater for the development.
- Sidra Intersection modelling has shown that the likely additional traffic from the full development of the proposed expansion of the park will not have an adverse impact on the operation / capacity of the Nelson Bay Road / Binder Road T- intersection and the Nelson Bay Road / Trotter Road seagull intersection post development in 2021 and in 2031 with ten years traffic growth at 1.5 % per annum. Therefore the development's impact, including the occupation of the unoccupied sites of the existing Sunrise development, and the recent caravan park approval at 16 Trotters Road, will be unnoticeable at any other intersection on the road network.
- The proposed development provides sufficient on-site parking provision to meet the likely peak parking demand generated by the development and satisfy the requirements of the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) regulation 2005.*
- The proposed extension will not alter current servicing of the site though more frequent service vehicle movements may be required. As the existing servicing conditions are not changing it is reasonable to conclude servicing of the extended village will not adversely impact on the local road network.
- The existing access to the site and the proposed new access to the site of Trotter Road is compliant with the requirements of the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005* and the proposed internal access roads would also comply with the regulation for two way traffic flow on the internal access roads.
- Trotter Road is currently wide enough to cater for two way traffic flow and is therefore suitable for use by the development, noting that this is conditioned to be sealed under the consent for 16 Trotters Road.
- Suitable sight distance in accordance with Australian Standard AS 2890.1-2004 *Parking facilities Part 1: Off street car parking* is available at the proposed new Trotter Road access to be utilised by the development.
- The additional demand generated by the development for alternate transport modes such as public transport, walking and cycling will be low. Therefore, no nexus exists for the provision of external facilities to encourage the use of these alternate transport modes.

# 12. RECOMMENDATION

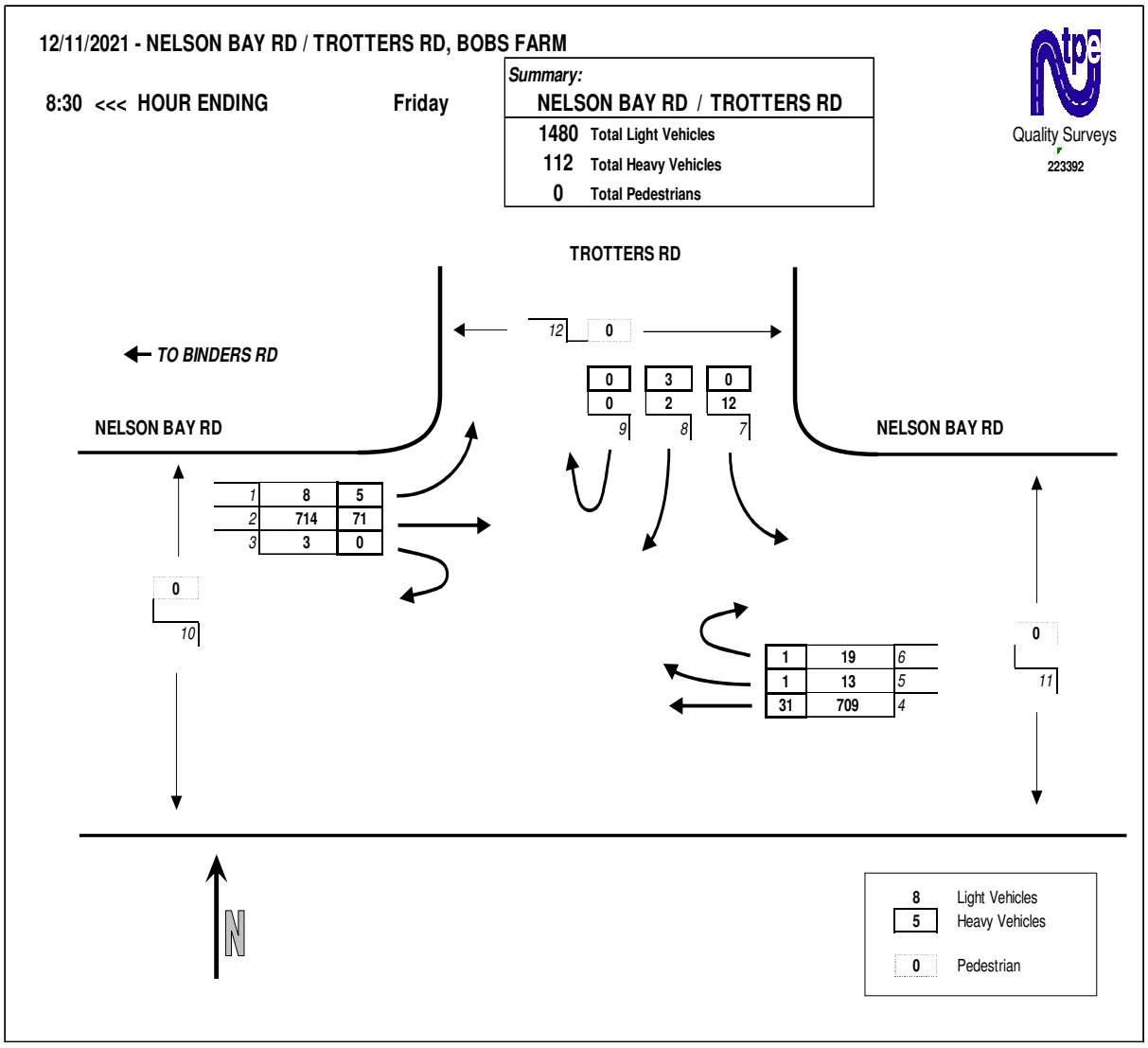
Having undertaken this traffic and parking assessment of the proposed extension to the existing Sunrise caravan park lifestyle village on Lot 3622 in DP 6222485 and Lot 2 in DP 622229, 4029 & 4045 Nelson Bay Road, Bobs Farm it is recommended that the proposal can be supported from a traffic impact perspective as the development will not have an adverse impact on the local road network and will comply with all the requirements of Port Stephens Council, Australian Standards, TfNSW and the Caravan Park Regulations.

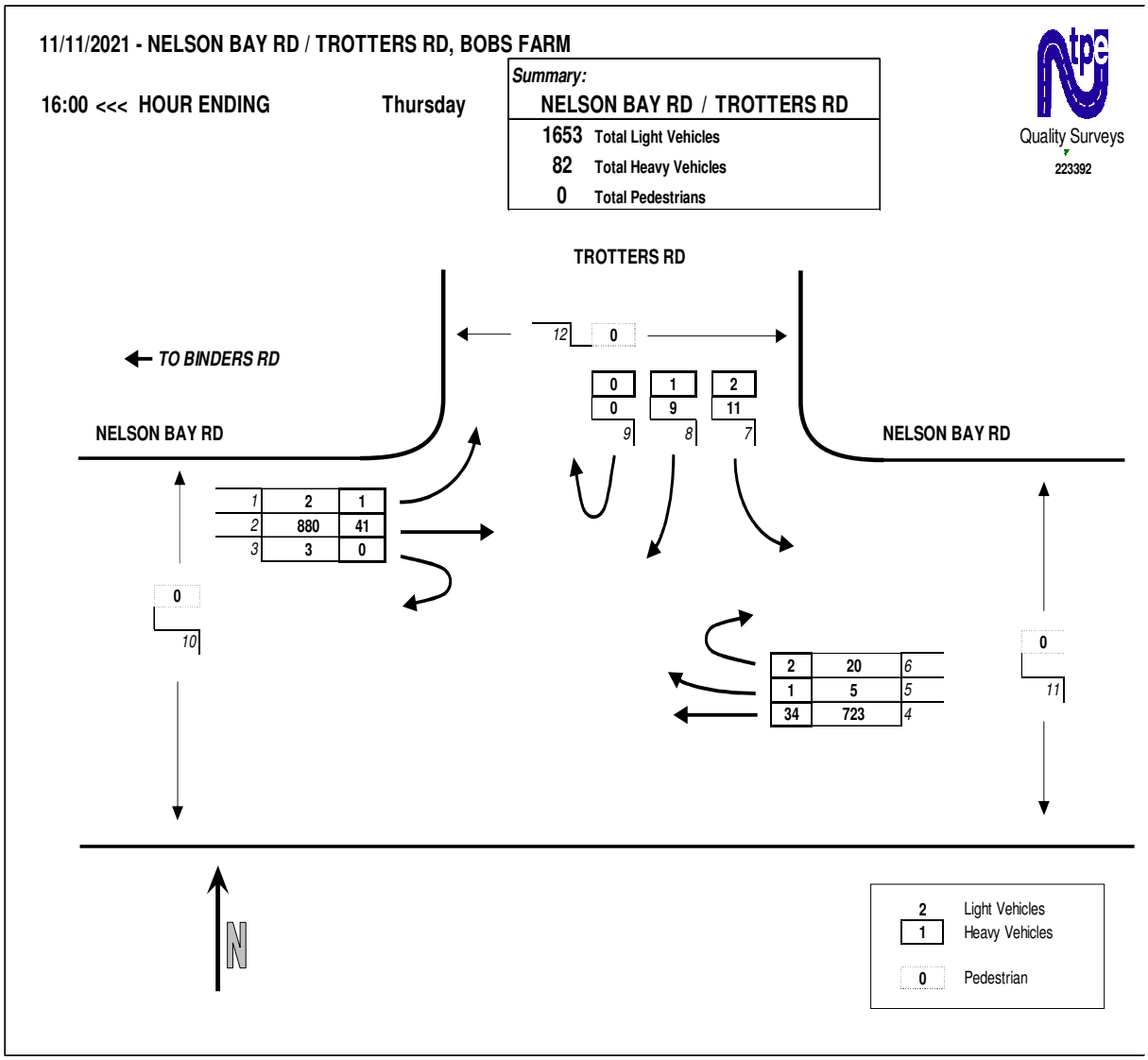
***JR Garry BE (Civil), Masters of Traffic***
***Director***
***Intersect Traffic Pty Ltd***

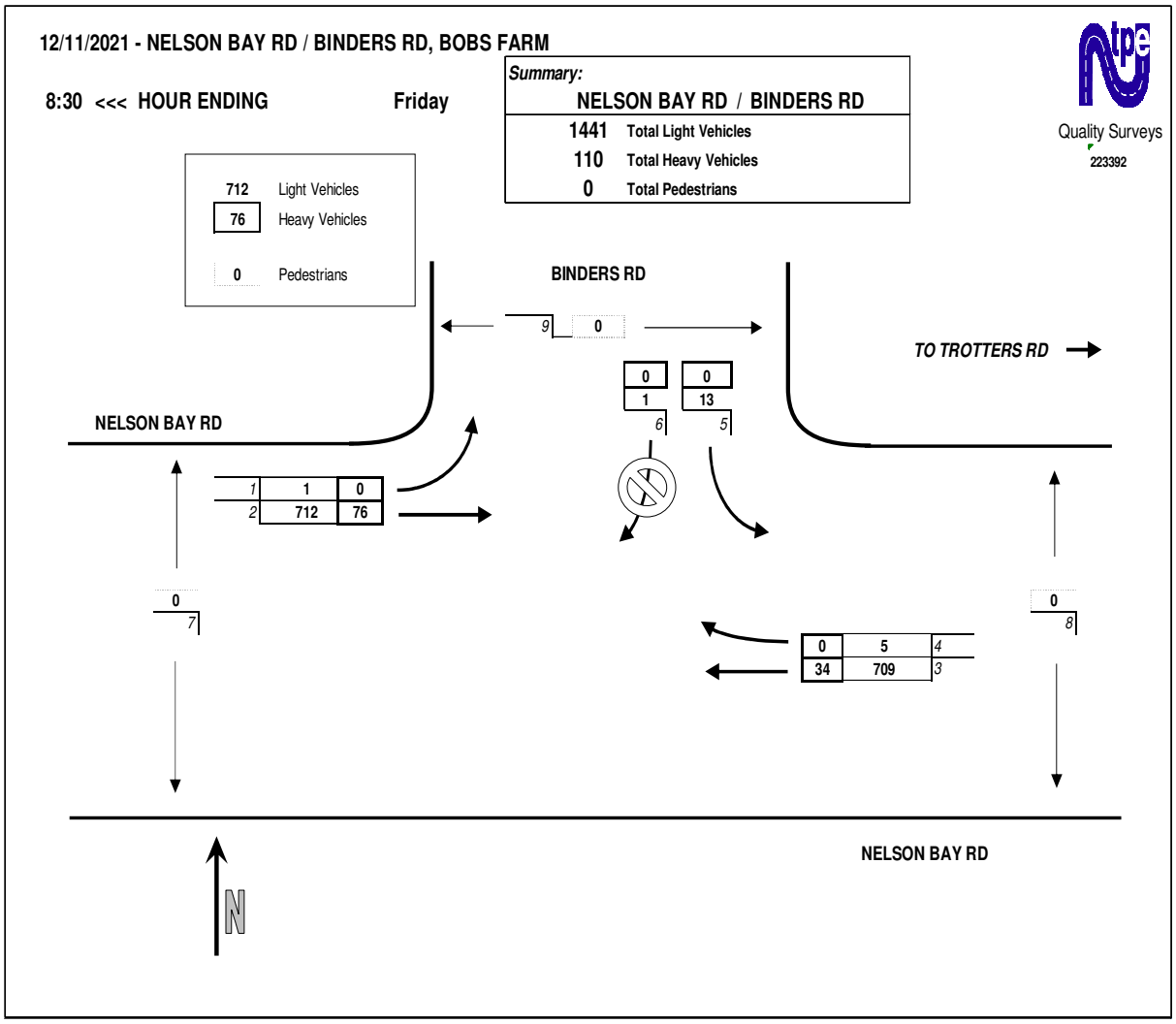
# APPENDIX 1
## DEVELOPMENT PLANS

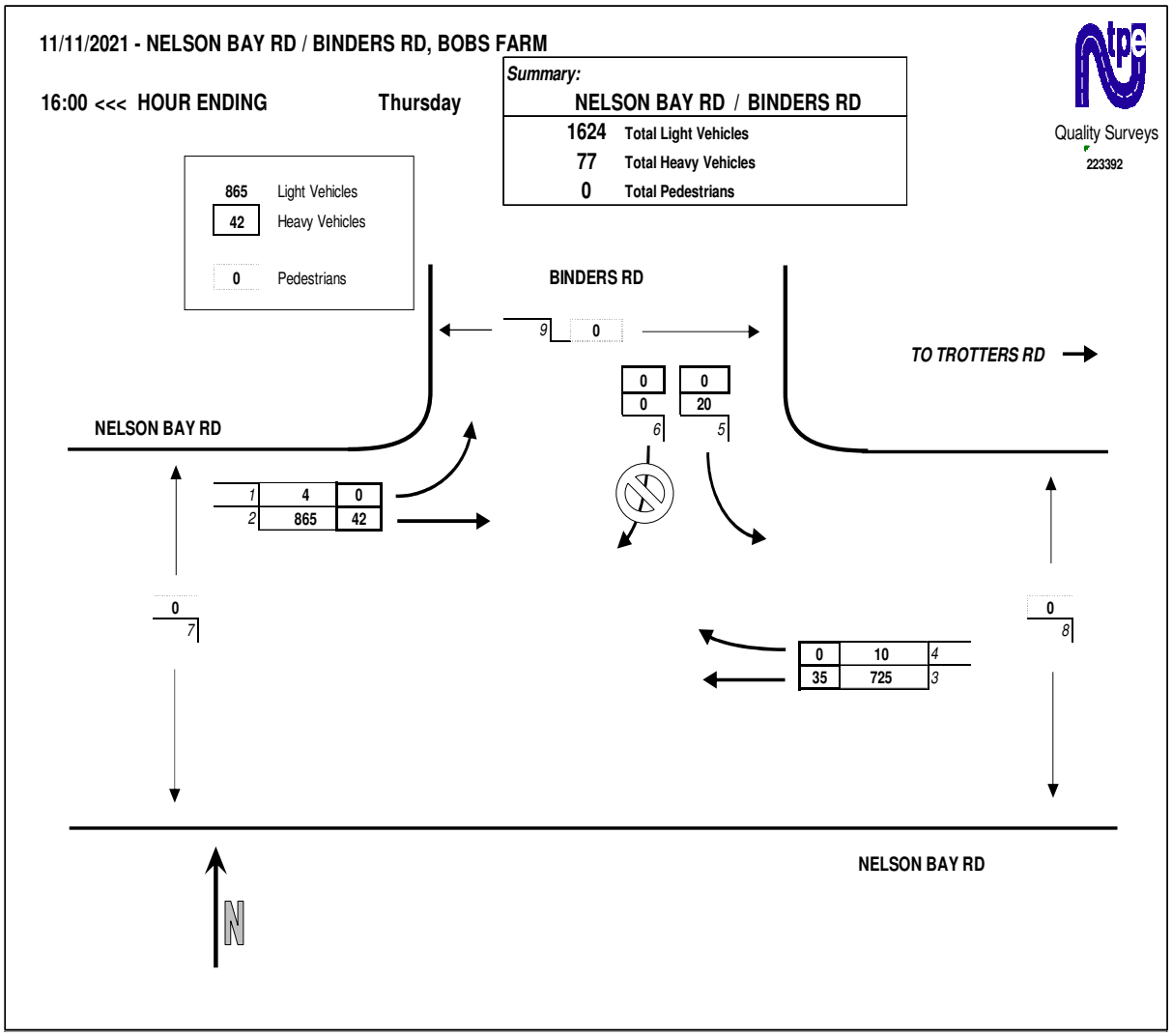

Trotter Road
Entry Avenue 16m reserve
Local Street 3.5m reserve
Community Facility
Basin
Basin
Nelson Bay Road
STAGE 4
SITES = 99 SITES ( STAGE 1 & STAGE 2)
HOMETOWN AUSTRALIA
COMMUNITIES
project Sunrise
address 4011 Nelson Bay Rd, Bobs Farm NSW 2316
drawing title Draft Concept Plan
date 11/21
scale 1:1500 @ A3
drawn HTA
drawing no.
issue A
job no.
A 16/11/21 Preliminary issue
issue date revision

# APPENDIX 2
## MANUAL TRAFFIC COUNT SHEETS


12/11/2021 - NELSON BAY RD / TROTTERS RD, BOBS FARM
8:30 <<< HOUR ENDING
Friday
Summary:
NELSON BAY RD / TROTTERS RD
1480 Total Light Vehicles
112 Total Heavy Vehicles
0 Total Pedestrians
Quality Surveys
223392
TROTTERS RD
TO BINDERS RD
NELSON BAY RD
NELSON BAY RD
N
8 Light Vehicles
5 Heavy Vehicles
0 Pedestrian


11/11/2021 - NELSON BAY RD / TROTTERS RD, BOBS FARM
16:00 <<< HOUR ENDING
Thursday
Summary:
NELSON BAY RD / TROTTERS RD
1653 Total Light Vehicles
82 Total Heavy Vehicles
0 Total Pedestrians
Quality Surveys
223392
TROTTERS RD
TO BINDERS RD
NELSON BAY RD
NELSON BAY RD
12
0
0
1
2
0
9
11
9
8
7
1
2
1
2
880
41
3
3
0
0
10
2
20
6
1
5
5
34
723
4
0
11
N
2 Light Vehicles
1 Heavy Vehicles
0 Pedestrian


12/11/2021 - NELSON BAY RD / BINDERS RD, BOBS FARM
8:30 <<< HOUR ENDING
Friday
Summary:
NELSON BAY RD / BINDERS RD
1441 Total Light Vehicles
110 Total Heavy Vehicles
0 Total Pedestrians
Quality Surveys
223392
712 Light Vehicles
76 Heavy Vehicles
0 Pedestrians
BINDERS RD
TO TROTTERS RD
NELSON BAY RD
NELSON BAY RD
N


11/11/2021 - NELSON BAY RD / BINDERS RD, BOBS FARM
16:00 <<< HOUR ENDING
Thursday
Summary:
NELSON BAY RD / BINDERS RD
1624 Total Light Vehicles
77 Total Heavy Vehicles
0 Total Pedestrians
Quality Surveys
223392
865 Light Vehicles
42 Heavy Vehicles
0 Pedestrians
BINDERS RD
TO TROTTERS RD
NELSON BAY RD
NELSON BAY RD
N

# APPENDIX 3
## SIDRA SUMMARY TABLES

# MOVEMENT SUMMARY

## Site: 101 [NBR_Binder Rd 2021AM (Site Folder: General)]

Nelson Bay Road / Binder Road Bobs Farm
November 2021
Site Category: (None)
Give-Way (Two-Way)

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] veh/h | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 5 | T1 | 743 | 34 | 782 | 4.6 | 0.207 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.9 |
| 6 | R2 | 5 | 0 | 5 | 0.0 | 0.016 | 15.3 | LOS B | 0.0 | 0.3 | 0.69 | 0.84 | 0.69 | 51.8 |
| Approach | | 748 | 34 | 787 | 4.5 | 0.207 | 0.1 | NA | 0.0 | 0.3 | 0.00 | 0.01 | 0.00 | 79.6 |
| North: Binder Road | | | | | | | | | | | | | | |
| 7 | L2 | 14 | 0 | 15 | 0.0 | 0.017 | 7.5 | LOS A | 0.1 | 0.4 | 0.43 | 0.63 | 0.43 | 56.9 |
| Approach | | 14 | 0 | 15 | 0.0 | 0.017 | 7.5 | LOS A | 0.1 | 0.4 | 0.43 | 0.63 | 0.43 | 56.9 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 1 | 0 | 1 | 0.0 | 0.001 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 65.4 |
| 11 | T1 | 788 | 76 | 829 | 9.6 | 0.226 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.9 |
| Approach | | 789 | 76 | 831 | 9.6 | 0.226 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| All Vehicles | | 1551 | 110 | 1633 | 7.1 | 0.226 | 0.2 | NA | 0.1 | 0.4 | 0.01 | 0.01 | 0.01 | 79.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [NBR_Binder Rd 2021PM (Site Folder: General)]

Nelson Bay Road / Binder Road Bobs Farm
November 2021
Site Category: (None)
Give-Way (Two-Way)

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] veh/h | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 5 | T1 | 760 | 35 | 800 | 4.6 | 0.211 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.9 |
| 6 | R2 | 10 | 0 | 11 | 0.0 | 0.039 | 17.8 | LOS B | 0.1 | 0.8 | 0.74 | 0.91 | 0.74 | 50.0 |
| Approach | | 770 | 35 | 811 | 4.5 | 0.211 | 0.3 | NA | 0.1 | 0.8 | 0.01 | 0.01 | 0.01 | 79.3 |
| North: Binder Road | | | | | | | | | | | | | | |
| 7 | L2 | 20 | 0 | 21 | 0.0 | 0.027 | 7.9 | LOS A | 0.1 | 0.6 | 0.46 | 0.66 | 0.46 | 56.6 |
| Approach | | 20 | 0 | 21 | 0.0 | 0.027 | 7.9 | LOS A | 0.1 | 0.6 | 0.46 | 0.66 | 0.46 | 56.6 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 4 | 0 | 4 | 0.0 | 0.002 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 65.4 |
| 11 | T1 | 907 | 42 | 955 | 4.6 | 0.252 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 911 | 42 | 959 | 4.6 | 0.252 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| All Vehicles | | 1701 | 77 | 1791 | 4.5 | 0.252 | 0.3 | NA | 0.1 | 0.8 | 0.01 | 0.01 | 0.01 | 79.1 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.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Project: C:\Work Documents\Projects\2021\2021.196 - Bobs Farm Caravan Park\Sidra\NBR_Binder_Trotter.sip9

# MOVEMENT SUMMARY

## ▽ Site: 101 [NBR_Binder Rd 2021AM + development (Site Folder: General)]

Nelson Bay Road / Binder Road Bobs Farm
November 2021
Site Category: (None)
Give-Way (Two-Way)

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] veh/h | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 5 | T1 | 758 | 34 | 798 | 4.5 | 0.211 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.9 |
| 6 | R2 | 11 | 0 | 12 | 0.0 | 0.036 | 15.6 | LOS B | 0.1 | 0.8 | 0.70 | 0.89 | 0.70 | 51.6 |
| Approach | | 769 | 34 | 809 | 4.4 | 0.211 | 0.3 | NA | 0.1 | 0.8 | 0.01 | 0.01 | 0.01 | 79.2 |
| North: Binder Road | | | | | | | | | | | | | | |
| 7 | L2 | 30 | 0 | 32 | 0.0 | 0.037 | 7.6 | LOS A | 0.1 | 0.9 | 0.44 | 0.66 | 0.44 | 56.9 |
| Approach | | 30 | 0 | 32 | 0.0 | 0.037 | 7.6 | LOS A | 0.1 | 0.9 | 0.44 | 0.66 | 0.44 | 56.9 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 5 | 0 | 5 | 0.0 | 0.003 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 65.4 |
| 11 | T1 | 792 | 76 | 834 | 9.6 | 0.227 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 797 | 76 | 839 | 9.5 | 0.227 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.7 |
| All Vehicles | | 1596 | 110 | 1680 | 6.9 | 0.227 | 0.3 | NA | 0.1 | 0.9 | 0.01 | 0.02 | 0.01 | 78.9 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# MOVEMENT SUMMARY

## Site: 101 [NBR_Binder Rd 2021PM + development (Site Folder: General)]

Nelson Bay Road / Binder Road Bobs Farm
November 2021
Site Category: (None)
Give-Way (Two-Way)

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] veh/h | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 5 | T1 | 771 | 35 | 812 | 4.5 | 0.215 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.9 |
| 6 | R2 | 27 | 0 | 28 | 0.0 | 0.109 | 18.8 | LOS B | 0.3 | 2.4 | 0.77 | 0.92 | 0.77 | 49.3 |
| Approach | | 798 | 35 | 840 | 4.4 | 0.215 | 0.7 | NA | 0.3 | 2.4 | 0.03 | 0.03 | 0.03 | 78.2 |
| North: Binder Road | | | | | | | | | | | | | | |
| 7 | L2 | 35 | 0 | 37 | 0.0 | 0.047 | 8.0 | LOS A | 0.2 | 1.1 | 0.47 | 0.69 | 0.47 | 56.5 |
| Approach | | 35 | 0 | 37 | 0.0 | 0.047 | 8.0 | LOS A | 0.2 | 1.1 | 0.47 | 0.69 | 0.47 | 56.5 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 15 | 0 | 16 | 0.0 | 0.009 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 65.4 |
| 11 | T1 | 918 | 42 | 966 | 4.6 | 0.255 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 933 | 42 | 982 | 4.5 | 0.255 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 79.5 |
| All Vehicles | | 1766 | 77 | 1859 | 4.4 | 0.255 | 0.5 | NA | 0.3 | 2.4 | 0.02 | 0.03 | 0.02 | 78.3 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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Project: C:\Work Documents\Projects\2021\2021.196 - Bobs Farm Caravan Park\Sidra\NBR_Binder_Trotter.sip9

# MOVEMENT SUMMARY

## Site: 101 [NBR_Binder Rd 2031AM (Site Folder: General)]

Nelson Bay Road / Binder Road Bobs Farm
November 2021
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] veh/h | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 5 | T1 | 743 | 34 | 908 | 4.6 | 0.240 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| 6 | R2 | 5 | 0 | 5 | 0.0 | 0.021 | 18.4 | LOS B | 0.1 | 0.4 | 0.75 | 0.91 | 0.75 | 49.6 |
| Approach | | 748 | 34 | 913 | 4.5 | 0.240 | 0.2 | NA | 0.1 | 0.4 | 0.00 | 0.01 | 0.00 | 79.6 |
| North: Binder Road | | | | | | | | | | | | | | |
| 7 | L2 | 14 | 0 | 15 | 0.0 | 0.019 | 8.0 | LOS A | 0.1 | 0.5 | 0.47 | 0.66 | 0.47 | 56.5 |
| Approach | | 14 | 0 | 15 | 0.0 | 0.019 | 8.0 | LOS A | 0.1 | 0.5 | 0.47 | 0.66 | 0.47 | 56.5 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 1 | 0 | 1 | 0.0 | 0.001 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 65.4 |
| 11 | T1 | 788 | 76 | 963 | 9.6 | 0.262 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 789 | 76 | 964 | 9.6 | 0.262 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| All Vehicles | | 1551 | 110 | 1891 | 7.1 | 0.262 | 0.2 | NA | 0.1 | 0.5 | 0.01 | 0.01 | 0.01 | 79.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [NBR_Binder Rd 2031PM (Site Folder: General)]

Nelson Bay Road / Binder Road Bobs Farm
November 2021
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] veh/h | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 5 | T1 | 760 | 35 | 928 | 4.6 | 0.245 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| 6 | R2 | 10 | 0 | 11 | 0.0 | 0.052 | 22.3 | LOS B | 0.2 | 1.1 | 0.81 | 0.93 | 0.81 | 47.1 |
| Approach | | 770 | 35 | 939 | 4.6 | 0.245 | 0.3 | NA | 0.2 | 1.1 | 0.01 | 0.01 | 0.01 | 79.2 |
| North: Binder Road | | | | | | | | | | | | | | |
| 7 | L2 | 20 | 0 | 21 | 0.0 | 0.030 | 8.5 | LOS A | 0.1 | 0.7 | 0.50 | 0.70 | 0.50 | 56.1 |
| Approach | | 20 | 0 | 21 | 0.0 | 0.030 | 8.5 | LOS A | 0.1 | 0.7 | 0.50 | 0.70 | 0.50 | 56.1 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 4 | 0 | 4 | 0.0 | 0.002 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 65.4 |
| 11 | T1 | 907 | 42 | 1108 | 4.6 | 0.293 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 911 | 42 | 1112 | 4.6 | 0.293 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.7 |
| All Vehicles | | 1701 | 77 | 2072 | 4.5 | 0.293 | 0.3 | NA | 0.2 | 1.1 | 0.01 | 0.01 | 0.01 | 79.2 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 21 November 2021 6:06:32 AM
Project: C:\Work Documents\Projects\2021\2021.196 - Bobs Farm Caravan Park\Sidra\NBR_Binder_Trotter.sip9

# MOVEMENT SUMMARY

## Site: 101 [NBR_Binder Rd 2031AM + development (Site Folder: General)]

Nelson Bay Road / Binder Road Bobs Farm
November 2021
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] veh/h | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 5 | T1 | 758 | 34 | 926 | 4.5 | 0.244 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| 6 | R2 | 11 | 0 | 12 | 0.0 | 0.046 | 18.8 | LOS B | 0.1 | 1.0 | 0.76 | 0.91 | 0.76 | 49.3 |
| Approach | | 769 | 34 | 938 | 4.4 | 0.244 | 0.3 | NA | 0.1 | 1.0 | 0.01 | 0.01 | 0.01 | 79.2 |
| North: Binder Road | | | | | | | | | | | | | | |
| 7 | L2 | 30 | 0 | 32 | 0.0 | 0.041 | 8.1 | LOS A | 0.1 | 1.0 | 0.48 | 0.69 | 0.48 | 56.4 |
| Approach | | 30 | 0 | 32 | 0.0 | 0.041 | 8.1 | LOS A | 0.1 | 1.0 | 0.48 | 0.69 | 0.48 | 56.4 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 5 | 0 | 5 | 0.0 | 0.003 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 65.4 |
| 11 | T1 | 792 | 76 | 968 | 9.6 | 0.264 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 797 | 76 | 973 | 9.5 | 0.264 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.7 |
| All Vehicles | | 1596 | 110 | 1942 | 6.9 | 0.264 | 0.3 | NA | 0.1 | 1.0 | 0.01 | 0.02 | 0.01 | 79.0 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## ▽ Site: 101 [NBR_Binder Rd 2031PM + development (Site Folder: General)]

Nelson Bay Road / Binder Road Bobs Farm
November 2021
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**Vehicle Movement Performance**

| Mov ID | Turn | INPUT VOLUMES [ Total veh/h | HV ] veh/h | DEMAND FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 5 | T1 | 771 | 35 | 942 | 4.5 | 0.250 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| 6 | R2 | 27 | 0 | 28 | 0.0 | 0.146 | 23.7 | LOS B | 0.4 | 3.1 | 0.83 | 0.94 | 0.83 | 46.3 |
| Approach | | 798 | 35 | 970 | 4.4 | 0.250 | 0.7 | NA | 0.4 | 3.1 | 0.02 | 0.03 | 0.02 | 78.2 |
| North: Binder Road | | | | | | | | | | | | | | |
| 7 | L2 | 35 | 0 | 37 | 0.0 | 0.052 | 8.6 | LOS A | 0.2 | 1.2 | 0.51 | 0.73 | 0.51 | 56.0 |
| Approach | | 35 | 0 | 37 | 0.0 | 0.052 | 8.6 | LOS A | 0.2 | 1.2 | 0.51 | 0.73 | 0.51 | 56.0 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 15 | 0 | 16 | 0.0 | 0.009 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 65.4 |
| 11 | T1 | 918 | 42 | 1121 | 4.6 | 0.296 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 933 | 42 | 1137 | 4.5 | 0.296 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 79.5 |
| All Vehicles | | 1766 | 77 | 2144 | 4.4 | 0.296 | 0.6 | NA | 0.4 | 3.1 | 0.02 | 0.03 | 0.02 | 78.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Monday, 22 November 2021 1:28:21 PM
Project: C:\Work Documents\Projects\2021\2021.196 - Bobs Farm Caravan Park\Sidra\NBR_Binder_Trotter.sip9

# MOVEMENT SUMMARY

## Site: 1 [NBR_Trotter 2021 AM (Site Folder: General)]

## Network: N101 [NBR_Trotter 2021 AM (Network Folder: General)]

Nelson Bay Road / Trotter Road Bobs Farm
November 2021
Site Category: (None)
Stop (Two-Way)

**Vehicle Movement Performance**

| Mov ID | Turn | DEMAND FLOWS [ Total veh/h | HV ] % | ARRIVAL FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 6 | R2 | 36 | 5.9 | 36 | 5.9 | 0.119 | 15.6 | LOS B | 0.2 | 1.1 | 0.73 | 0.90 | 0.73 | 41.9 |
| Approach | | 36 | 5.9 | 36 | 5.9 | 0.119 | 15.6 | NA | 0.2 | 1.1 | 0.73 | 0.90 | 0.73 | 41.9 |
| North: Trotter Road | | | | | | | | | | | | | | |
| 7 | L2 | 34 | 3.1 | 34 | 3.1 | 0.081 | 7.7 | LOS A | 0.1 | 0.8 | 0.56 | 0.72 | 0.56 | 44.1 |
| 8 | T1 | 8 | 25.0 | 8 | 25.0 | 0.081 | 22.7 | LOS B | 0.1 | 0.8 | 0.56 | 0.72 | 0.56 | 44.6 |
| Approach | | 42 | 7.5 | 42 | 7.5 | 0.081 | 10.7 | LOS A | 0.1 | 0.8 | 0.56 | 0.72 | 0.56 | 44.2 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 17 | 31.3 | 17 | 31.3 | 0.011 | 7.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 56.1 |
| 5 | T1 | 826 | 9.0 | 826 | 9.0 | 0.224 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.9 |
| Approach | | 843 | 9.5 | 843 | 9.5 | 0.224 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 78.8 |
| All Vehicles | | 921 | 9.3 | 921 | 9.3 | 0.224 | 1.3 | NA | 0.2 | 1.1 | 0.05 | 0.08 | 0.05 | 73.7 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 21 November 2021 8:54:32 AM
Project: C:\Work Documents\Projects\2021\2021.196 - Bobs Farm Caravan Park\Sidra\NBR_Binder_Trotter.sip9

# MOVEMENT SUMMARY

## Site: 1 [NBR_Trotter 2021 AM + development (Site Folder: General)]

## Network: N101 [NBR_Trotter 2021AM + development (Network Folder: General)]

Nelson Bay Road / Trotter Road Bobs Farm
November 2021
Site Category: (None)
Stop (Two-Way)

**Vehicle Movement Performance**

| Mov ID | Turn | DEMAND FLOWS [ Total veh/h | HV ] % | ARRIVAL FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 6 | R2 | 42 | 5.0 | 42 | 5.0 | 0.144 | 16.1 | LOS B | 0.2 | 1.3 | 0.74 | 0.90 | 0.74 | 41.6 |
| Approach | | 42 | 5.0 | 42 | 5.0 | 0.144 | 16.1 | NA | 0.2 | 1.3 | 0.74 | 0.90 | 0.74 | 41.6 |
| North: Trotter Road | | | | | | | | | | | | | | |
| 7 | L2 | 43 | 2.4 | 43 | 2.4 | 0.152 | 7.8 | LOS A | 0.2 | 1.6 | 0.61 | 0.78 | 0.61 | 42.8 |
| 8 | T1 | 24 | 8.7 | 24 | 8.7 | 0.152 | 20.5 | LOS B | 0.2 | 1.6 | 0.61 | 0.78 | 0.61 | 42.9 |
| Approach | | 67 | 4.7 | 67 | 4.7 | 0.152 | 12.4 | LOS A | 0.2 | 1.6 | 0.61 | 0.78 | 0.61 | 42.8 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 21 | 25.0 | 21 | 25.0 | 0.013 | 7.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 57.8 |
| 5 | T1 | 843 | 8.9 | 843 | 8.9 | 0.229 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 864 | 9.3 | 864 | 9.3 | 0.229 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.02 | 0.00 | 78.7 |
| All Vehicles | | 974 | 8.8 | 974 | 8.8 | 0.229 | 1.8 | NA | 0.2 | 1.6 | 0.07 | 0.11 | 0.07 | 72.0 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Monday, 22 November 2021 1:29:17 PM
Project: C:\Work Documents\Projects\2021\2021.196 - Bobs Farm Caravan Park\Sidra\NBR_Binder_Trotter.sip9

# MOVEMENT SUMMARY

## Site: 1 [NBR_Trotter 2031 AM (Site Folder: General)]

## Network: N101 [NBR_Trotter 2031 AM (Network Folder: General)]

Nelson Bay Road / Trotter Road Bobs Farm
November 2021
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**Vehicle Movement Performance**

| Mov ID | Turn | DEMAND FLOWS [ Total veh/h | HV ] % | ARRIVAL FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 6 | R2 | 36 | 5.9 | 36 | 5.9 | 0.152 | 19.3 | LOS B | 0.2 | 1.4 | 0.79 | 0.92 | 0.79 | 39.2 |
| Approach | | 36 | 5.9 | 36 | 5.9 | 0.152 | 19.3 | NA | 0.2 | 1.4 | 0.79 | 0.92 | 0.79 | 39.2 |
| North: Trotter Road | | | | | | | | | | | | | | |
| 7 | L2 | 34 | 3.1 | 34 | 3.1 | 0.099 | 8.2 | LOS A | 0.1 | 1.0 | 0.61 | 0.77 | 0.61 | 42.6 |
| 8 | T1 | 8 | 25.0 | 8 | 25.0 | 0.099 | 29.9 | LOS C | 0.1 | 1.0 | 0.61 | 0.77 | 0.61 | 42.8 |
| Approach | | 42 | 7.5 | 42 | 7.5 | 0.099 | 12.5 | LOS A | 0.1 | 1.0 | 0.61 | 0.77 | 0.61 | 42.6 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 17 | 31.3 | 17 | 31.3 | 0.011 | 7.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 56.1 |
| 5 | T1 | 959 | 9.0 | 959 | 9.0 | 0.260 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 976 | 9.4 | 976 | 9.4 | 0.260 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 78.9 |
| All Vehicles | | 1054 | 9.2 | 1054 | 9.2 | 0.260 | 1.3 | NA | 0.2 | 1.4 | 0.05 | 0.07 | 0.05 | 73.9 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 21 November 2021 8:54:50 AM
Project: C:\Work Documents\Projects\2021\2021.196 - Bobs Farm Caravan Park\Sidra\NBR_Binder_Trotter.sip9

# MOVEMENT SUMMARY

**Site: 1 [NBR_Trotter 2031 AM + development (Site Folder: General)]**

**Network: N101 [NBR_Trotter 2031 AM + development (Network Folder: General)]**

Nelson Bay Road / Trotter Road Bobs Farm
November 2021
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**Vehicle Movement Performance**

| Mov ID | Turn | DEMAND FLOWS [ Total veh/h | HV ] % | ARRIVAL FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 6 | R2 | 42 | 5.0 | 42 | 5.0 | 0.185 | 20.3 | LOS B | 0.2 | 1.7 | 0.81 | 0.93 | 0.83 | 38.6 |
| Approach | | 42 | 5.0 | 42 | 5.0 | 0.185 | 20.3 | NA | 0.2 | 1.7 | 0.81 | 0.93 | 0.83 | 38.6 |
| North: Trotter Road | | | | | | | | | | | | | | |
| 7 | L2 | 43 | 2.4 | 43 | 2.4 | 0.191 | 8.4 | LOS A | 0.3 | 1.9 | 0.69 | 0.84 | 0.69 | 40.8 |
| 8 | T1 | 24 | 8.7 | 24 | 8.7 | 0.191 | 26.6 | LOS B | 0.3 | 1.9 | 0.69 | 0.84 | 0.69 | 40.6 |
| Approach | | 67 | 4.7 | 67 | 4.7 | 0.191 | 14.9 | LOS B | 0.3 | 1.9 | 0.69 | 0.84 | 0.69 | 40.7 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 21 | 25.0 | 21 | 25.0 | 0.013 | 7.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 57.8 |
| 5 | T1 | 979 | 8.9 | 979 | 8.9 | 0.265 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 1000 | 9.2 | 1000 | 9.2 | 0.265 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 78.8 |
| All Vehicles | | 1109 | 8.8 | 1109 | 8.8 | 0.265 | 1.9 | NA | 0.3 | 1.9 | 0.07 | 0.10 | 0.07 | 72.1 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Monday, 22 November 2021 1:29:46 PM
Project: C:\Work Documents\Projects\2021\2021.196 - Bobs Farm Caravan Park\Sidra\NBR_Binder_Trotter.sip9

# MOVEMENT SUMMARY

## Site: 1 [NBR_Trotter 2021 PM (Site Folder: General)]

## Network: N101 [NBR_Trotter 2021PM (Network Folder: General)]

Nelson Bay Road / Trotter Road Bobs Farm
November 2021
Site Category: (None)
Stop (Two-Way)

**Vehicle Movement Performance**

| Mov ID | Turn | DEMAND FLOWS [ Total veh/h | HV ] % | ARRIVAL FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 6 | R2 | 29 | 10.7 | 29 | 10.7 | 0.128 | 19.4 | LOS B | 0.2 | 1.2 | 0.79 | 0.92 | 0.79 | 39.0 |
| Approach | | 29 | 10.7 | 29 | 10.7 | 0.128 | 19.4 | NA | 0.2 | 1.2 | 0.79 | 0.92 | 0.79 | 39.0 |
| North: Trotter Road | | | | | | | | | | | | | | |
| 7 | L2 | 37 | 11.4 | 37 | 11.4 | 0.134 | 8.6 | LOS A | 0.2 | 1.5 | 0.64 | 0.80 | 0.64 | 41.3 |
| 8 | T1 | 14 | 23.1 | 14 | 23.1 | 0.134 | 28.3 | LOS B | 0.2 | 1.5 | 0.64 | 0.80 | 0.64 | 41.6 |
| Approach | | 51 | 14.6 | 51 | 14.6 | 0.134 | 13.9 | LOS A | 0.2 | 1.5 | 0.64 | 0.80 | 0.64 | 41.4 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 6 | 16.7 | 6 | 16.7 | 0.004 | 7.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 60.1 |
| 5 | T1 | 969 | 4.5 | 969 | 4.5 | 0.256 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 976 | 4.5 | 976 | 4.5 | 0.256 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.6 |
| All Vehicles | | 1056 | 5.2 | 1056 | 5.2 | 0.256 | 1.3 | NA | 0.2 | 1.5 | 0.05 | 0.07 | 0.05 | 74.2 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


Organisation: INTERSECT TRAFFIC PTY LTD | Licence: NETWORK / 1PC | Processed: Sunday, 21 November 2021 8:55:08 AM
Project: C:\Work Documents\Projects\2021\2021.196 - Bobs Farm Caravan Park\Sidra\NBR_Binder_Trotter.sip9

# MOVEMENT SUMMARY

**Site: 1 [NBR_Trotter 2021 PM+ development (Site Folder: General)]**

**Network: N101 [NBR_Trotter 2021PM + development (Network Folder: General)]**

Nelson Bay Road / Trotter Road Bobs Farm
November 2021
Site Category: (None)
Stop (Two-Way)

**Vehicle Movement Performance**

| Mov ID | Turn | DEMAND FLOWS [ Total veh/h | HV ] % | ARRIVAL FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 6 | R2 | 47 | 6.7 | 47 | 6.7 | 0.205 | 20.4 | LOS B | 0.3 | 2.0 | 0.81 | 0.94 | 0.85 | 38.5 |
| Approach | | 47 | 6.7 | 47 | 6.7 | 0.205 | 20.4 | NA | 0.3 | 2.0 | 0.81 | 0.94 | 0.85 | 38.5 |
| North: Trotter Road | | | | | | | | | | | | | | |
| 7 | L2 | 46 | 9.1 | 46 | 9.1 | 0.207 | 8.7 | LOS A | 0.3 | 2.2 | 0.69 | 0.85 | 0.70 | 40.3 |
| 8 | T1 | 25 | 12.5 | 25 | 12.5 | 0.207 | 27.4 | LOS B | 0.3 | 2.2 | 0.69 | 0.85 | 0.70 | 40.3 |
| Approach | | 72 | 10.3 | 72 | 10.3 | 0.207 | 15.3 | LOS B | 0.3 | 2.2 | 0.69 | 0.85 | 0.70 | 40.3 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 18 | 5.9 | 18 | 5.9 | 0.010 | 7.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 63.4 |
| 5 | T1 | 985 | 4.4 | 985 | 4.4 | 0.260 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 1003 | 4.4 | 1003 | 4.4 | 0.260 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 79.2 |
| All Vehicles | | 1122 | 4.9 | 1122 | 4.9 | 0.260 | 2.0 | NA | 0.3 | 2.2 | 0.08 | 0.10 | 0.08 | 71.9 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# MOVEMENT SUMMARY

## Site: 1 [NBR_Trotter 2031 PM (Site Folder: General)]

## Network: N101 [NBR_Trotter 2031PM (Network Folder: General)]

Nelson Bay Road / Trotter Road Bobs Farm
November 2021
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**Vehicle Movement Performance**

| Mov ID | Turn | DEMAND FLOWS [ Total veh/h | HV ] % | ARRIVAL FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 6 | R2 | 29 | 10.7 | 29 | 10.7 | 0.174 | 25.7 | LOS B | 0.2 | 1.6 | 0.85 | 0.95 | 0.87 | 35.1 |
| Approach | | 29 | 10.7 | 29 | 10.7 | 0.174 | 25.7 | NA | 0.2 | 1.6 | 0.85 | 0.95 | 0.87 | 35.1 |
| North: Trotter Road | | | | | | | | | | | | | | |
| 7 | L2 | 37 | 11.4 | 37 | 11.4 | 0.177 | 9.3 | LOS A | 0.2 | 1.9 | 0.73 | 0.88 | 0.73 | 38.8 |
| 8 | T1 | 14 | 23.1 | 14 | 23.1 | 0.177 | 39.3 | LOS C | 0.2 | 1.9 | 0.73 | 0.88 | 0.73 | 38.5 |
| Approach | | 51 | 14.6 | 51 | 14.6 | 0.177 | 17.5 | LOS B | 0.2 | 1.9 | 0.73 | 0.88 | 0.73 | 38.7 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 6 | 16.7 | 6 | 16.7 | 0.004 | 7.3 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 60.1 |
| 5 | T1 | 1125 | 4.5 | 1125 | 4.5 | 0.297 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 1131 | 4.5 | 1131 | 4.5 | 0.297 | 0.1 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.6 |
| All Vehicles | | 1211 | 5.1 | 1211 | 5.1 | 0.297 | 1.4 | NA | 0.2 | 1.9 | 0.05 | 0.06 | 0.05 | 74.1 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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# MOVEMENT SUMMARY

**Site: 1 [NBR_Trotter 2031 PM+ development (Site Folder: General)]**

**Network: N101 [NBR_Trotter 2031PM + development (Network Folder: General)]**

Nelson Bay Road / Trotter Road Bobs Farm
November 2021
Site Category: (None)
Stop (Two-Way)
Design Life Analysis (Final Year): Results for 10 years

**Vehicle Movement Performance**

| Mov ID | Turn | DEMAND FLOWS [ Total veh/h | HV ] % | ARRIVAL FLOWS [ Total veh/h | HV ] % | Deg. Satn v/c | Aver. Delay sec | Level of Service | AVERAGE BACK OF QUEUE [ Veh. veh | Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: Nelson Bay Road | | | | | | | | | | | | | | |
| 6 | R2 | 47 | 6.7 | 47 | 6.7 | 0.279 | 28.0 | LOS B | 0.4 | 2.7 | 0.87 | 0.97 | 0.99 | 34.0 |
| Approach | | 47 | 6.7 | 47 | 6.7 | 0.279 | 28.0 | NA | 0.4 | 2.7 | 0.87 | 0.97 | 0.99 | 34.0 |
| North: Trotter Road | | | | | | | | | | | | | | |
| 7 | L2 | 46 | 9.1 | 46 | 9.1 | 0.278 | 10.9 | LOS A | 0.4 | 3.1 | 0.78 | 0.94 | 0.90 | 36.6 |
| 8 | T1 | 25 | 12.5 | 25 | 12.5 | 0.278 | 39.3 | LOS C | 0.4 | 3.1 | 0.78 | 0.94 | 0.90 | 35.9 |
| Approach | | 72 | 10.3 | 72 | 10.3 | 0.278 | 20.9 | LOS B | 0.4 | 3.1 | 0.78 | 0.94 | 0.90 | 36.4 |
| West: Nelson Bay Road | | | | | | | | | | | | | | |
| 10 | L2 | 18 | 5.9 | 18 | 5.9 | 0.010 | 7.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.63 | 0.00 | 63.4 |
| 5 | T1 | 1143 | 4.4 | 1143 | 4.4 | 0.302 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 79.8 |
| Approach | | 1161 | 4.4 | 1161 | 4.4 | 0.302 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 79.3 |
| All Vehicles | | 1280 | 4.8 | 1280 | 4.8 | 0.302 | 2.4 | NA | 0.4 | 3.1 | 0.08 | 0.10 | 0.09 | 71.3 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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