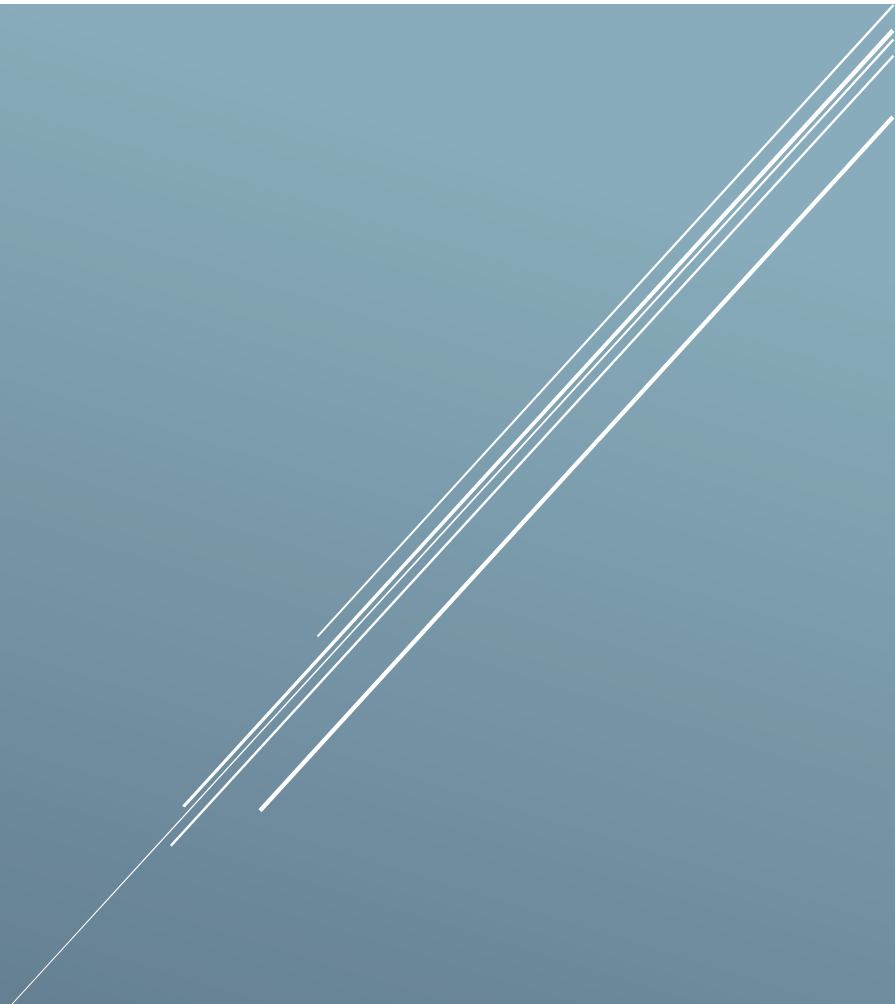


APPENDIX G TRAFFIC REPORT



SUNNYSIDE ESTATE WAGGA WAGGA

Preliminary Traffic Assessment Report

John Randall Consulting Pty Ltd

This report has been prepared by the office of
John Randall Consulting Pty Ltd
PO Box 489, Jamison Centre Macquarie, ACT 2614

Issue Date	Rev No	Author(s)	Checked	Approved
May 2020	0	JKR		
July 2020	1	JKR	JKR	JKR
July 2020	2	JKR	JKR	JKR
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JRC Job Number: Preliminary Traffic Assessment Report

Citation: JRC 2020, SUNNYSIDE ESTATE WAGGA WAGGA Report
Author(s): J Randall. 0049 Preliminary Traffic Assessment Report

File Name: Sunnyside Estate Wagga Wagga

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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY	1
2. INTRODUCTION.....	2
2.1 General.....	2
2.2 Site Location	2
2.3 Traffic Impact Assessment Structure	3

3. EXISTING CONDITIONS.....	4
3.1 Landuse	4
3.2 Site area.....	4
3.3 Road network.....	5
3.3.1 Road Hierarchy	5
3.3.2 Plumpton Road	6
3.3.3 Rowan Road	7
3.3.4 Holbrook Road	8
3.4 Existing traffic.....	8
3.5 Traffic Growth.....	9
3.6 Public Transport	9
3.7 Pedestrians and Cyclists.....	10

4. PROPOSED DEVELOPMENT	12
5. TRAFFIC GENERATION AND IMPACT	13
5.1 Traffic Generation from the proposed development	13
5.2 Total Traffic Generation	13
5.3 Traffic Distribution and Analysis.....	13
5.4 Plumpton Road Capacity	15
5.5 Wagga Wagga Heavy Vehicle By-pass	15

6. SHARED PATHS AND PEDESTRIAN NETWORKS	16
7. CONCLUSIONS AND RECOMMENDATIONS.....	17
8. REFERENCES.....	18
APPENDIX A – TRAFFIC COUNT DATA.....	19

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Table of Figures

Figure 1: Site location (source: WWCC maps 2020)	2
Figure 2: Landuse (source: WWCC maps 2020)	4
Figure 3: Road Hierarchy (source: Wagga Wagga City Council)	5
Figure 4: Plumpton Road adjacent to site looking north (Source: Google Earth 2020).....	7
Figure 5: Rowan Road south of site looking east (Source: Google Maps 2020)	7
Figure 6: Intersection of Plumpton Road and Rowan Road (Source: Sixmaps 2020).....	8
Figure 7: Wagga Wagga Bus Routes (Source: Busabout 2020)	10
Figure 8: Cycleway network (source WWCC Maps 2020).....	11
Figure 9: Off-road cycleway network (Source: WWCC Maps 2020).....	11

List of Tables

Table 1 Block sizes (source: WWCC Rates Notices 2020)	4
Table 2 Road categories (source WWCC).....	5
Table 3 Road capacities (source WWCC)	6
Table 4 ADT, AM, and PM Peak hour traffic volumes for Plumpton Road July 2017 (source WWCC Traffic Counts).....	8
Table 5 ADT, AM, and PM Peak hour traffic volumes for Plumpton Road July 2017 (source WWCC Traffic Counts).....	9
Table 6 Traffic distribution assumptions	13
Table 7 Estimated traffic volumes, 2017, 2020 and 2030.....	14

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1. EXECUTIVE SUMMARY

A rezoning application of 456 and 474 Plumpton Road will be submitted to Wagga Wagga City Council. The site is currently zoned RU1 under the Wagga City Council [WCC] zoning – Primary Production, and it is proposed to rezone the land to R5 to allow for residential development.

John Randall Consulting (JRC) has been engaged to prepare a preliminary report assessing the traffic impacts of a proposed residential estate development of 456 and 474 Plumpton Road, Wagga Wagga to support the rezoning application.

The Traffic Impact Assessment Report (TIAR) will discuss the traffic impacts of providing a residential estate road network connecting to Plumpton Road.

The conclusions drawn from the Traffic Impact Assessment Report (Refer Section 6 of this Report) are:

- The proposed residential estate would generate approx. 3,108 vehicles per day
- The peak hour traffic volume would be approx. 238 vehicles per hour
- Plumpton Road, to its intersection with Red Hill Road, has the capacity to accommodate the additional traffic generated from the proposed residential estate
- The roads connecting to the roundabout at the intersection of Plumpton Road and Red Hill Road have the capacity to accommodate the additional traffic generated from the proposed residential estate

2. INTRODUCTION

2.1 General

A rezoning application of 456 and 474 Plumpton Road will be submitted to Wagga Wagga City Council. The site is currently zoned RU1 under the Wagga City Council [WCC] zoning – Primary Production, and it is proposed to rezone the land to R5 to allow for residential development.

John Randall Consulting (JRC) has been engaged to prepare a preliminary report assessing the traffic impacts of a proposed residential estate development of 456 and 474 Plumpton Road, Wagga Wagga to support the rezoning application.

The Traffic Impact Assessment Report (TIAR) will discuss the traffic impacts of providing a residential estate road network connecting to Plumpton Road and possibly Rowan Road to the south of the subject site.

2.2 Site Location

The site is located some 430 metres south of the intersection of Lloyd Road and Plumpton Road, Rowan and to the west of Plumpton Road. The site extends to Rowan Road to the south. The site comprises Lot 23 DP 757246 and Lot 25 DP 757246.

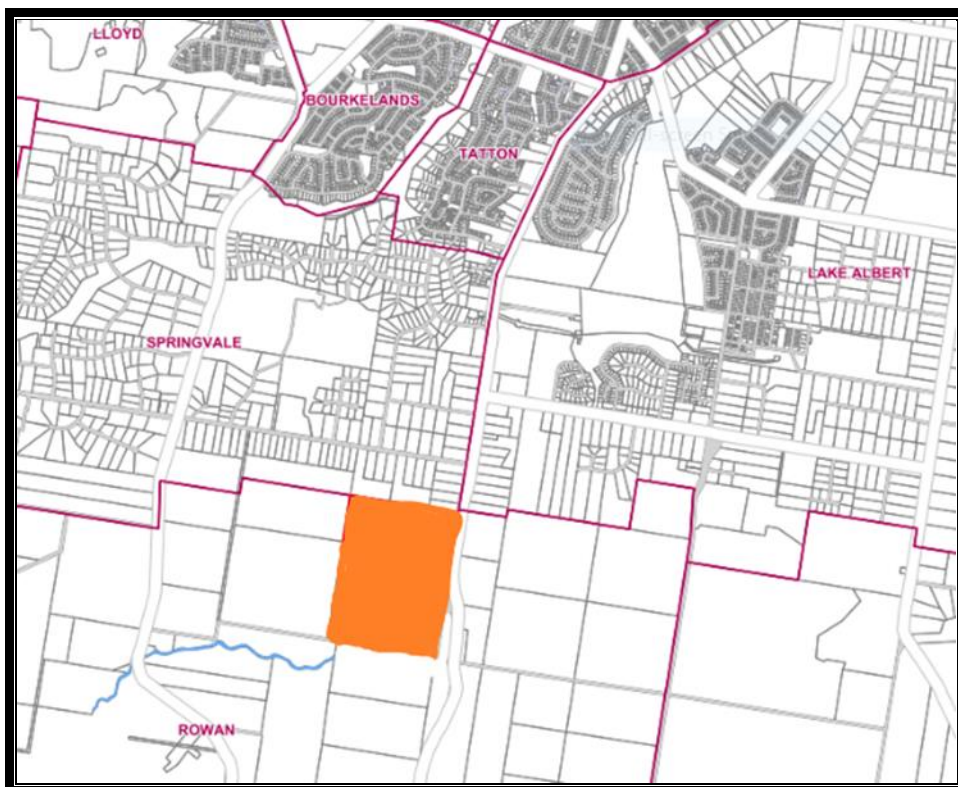


Figure 1: Site location (source: WWCC maps 2020)

2.3 Traffic Impact Assessment Structure

This traffic impact assessment is structured as follows:

Section 2	Introduction	Introduces the Traffic Impact Assessment
Section 3	Existing Conditions	Describes the existing landuse, road network, traffic and public transport for the area surrounding the proposed residential estate.
Section 4	Proposed Development	Describes the proposed development
Section 5	Traffic Generation and Impacts	Describes the traffic generation and impact of the proposed residential estate
Section 6	Conclusion and Recommendations	Concludes the outcomes of the study
Section 7	References	Details the references used in the preparation of this assessment
Appendices		Details Traffic Count Data

3. EXISTING CONDITIONS

The proposed development is located some 430 metres south of the intersection of Lloyd Road and Plumpton Road, extends to Rowan Road and is to the west of Plumpton Road. The proposed development is to be accessed via two intersections off Plumpton Road, no access is proposed to Rowan Road.

The site of the proposed residential estate contains a single farm residence with associated outbuildings.

3.1 Landuse

The site is currently zoned RU1 under the Wagga City Council [WWCC] zoning – Primary Production. The site is currently farmed growing crops and raising livestock. The land immediately north of the subject site is zoned residential.

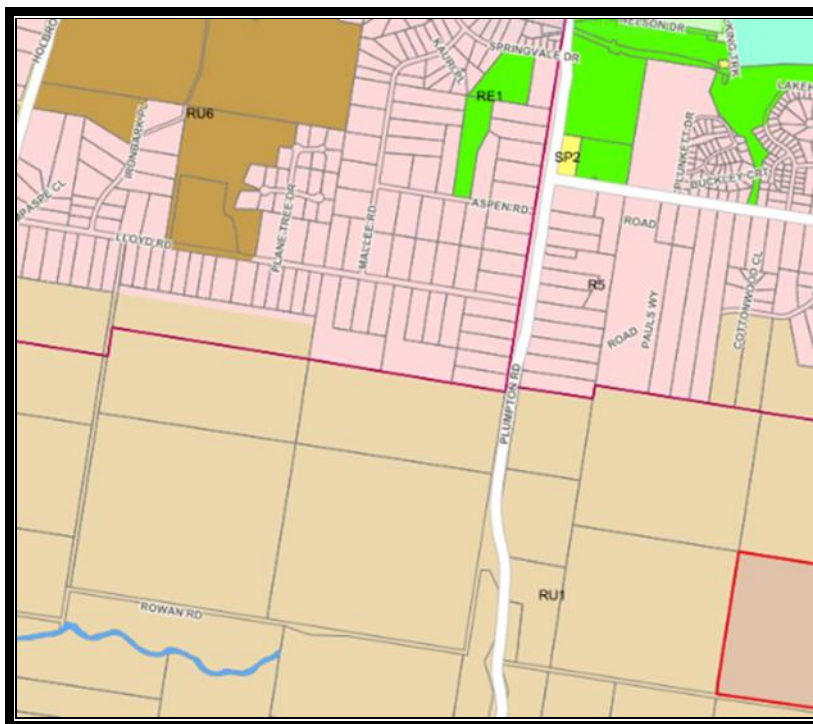


Figure 2: Landuse (source: WWCC maps 2020)

3.2 Site area

The subject site comprises approx. 110.17 hectares of land:

Address	Lot	Deposited Plan	Approx. area (ha)
474 Plumpton Road	23	757246	73.45
456 Plumpton Road	25	757246	36.72
			110.17

Table 1 Block sizes (source: WWCC Rates Notices 2020)

3.3 Road network

3.3.1 Road Hierarchy

Wagga Wagga City Council established a road hierarchy for the city and surrounds¹. The road hierarchy is detailed in Figure 3.



Figure 3: Road Hierarchy (source: Wagga Wagga City Council)

The road hierarchy nominates the following categories for various roads in the vicinity of the proposed residential estate:

Road	Category
Plumpton Road	Sub-arterial
Lake Albert Road	Collector
Holbrook Road	Regional
Red Hill Road	Sub-arterial
Koorringal Road	Sub-arterial
Rowan Road	Local road

Table 2 Road categories (source WWCC)

¹ The Wagga Wagga Integrated Transport Strategy and Implementation Plan 2040

The various categories of roads generally carry the following traffic volumes²:

Road category	Traffic volumes (vehicles per day)	Description
Arterial road	>15,000vpd	Arterial roads carry longer distance traffic to, from and across the urban area. They have connections with the state or national road network running between urban areas and operate as truck routes and carry heavy goods vehicles. The level of service for traffic flow should encourage rather than discourage traffic from using these roads. These roads are the responsibility of RMS.
Regional		Regional roads perform an intermediate function between the main arterial network of State Roads and council controlled local roads.
Sub-arterial	6,000 to 20,000vpd	Sub-arterial roads carry traffic between industrial, commercial, and residential areas. These roads generally form a grid with roads spaced around 1.5 kilometres apart and link specific land use areas or "cells" and carry a range of vehicle types including heavy goods vehicles.
Collector	5,000 to 10,000vpd	Collector roads link local roads to the arterial and sub-arterial roads. The route of collector roads discourages through traffic so that the cell formed by the grid only carries traffic belonging to or serving the cell. A 50 km/h speed limit would normally apply. While heavy vehicles are discouraged, bus services are permitted on these roads.
Local	1,500 to 2,000vpd	Local or access roads provide access to individual properties. An upper speed limit of 50 km/h will normally apply.

Table 3 Road capacities (source WWCC)

3.3.2 Plumpton Road

Plumpton Road forms the eastern boundary of the site for approx. 675metres where it joins with Rowan Road. It runs south from its intersection with Lake Albert Road and provides access for local traffic from nearby residential areas and the golf course as well as rural areas further south of the subject site. Plumpton Road terminates approx. 3.5km south of the subject site. Plumpton Road is classified as a sub-arterial road and is under the management of the Wagga Wagga City Council.

Adjacent to the subject site Plumpton Road has a road reserve of approximately 62metres and a two-way sealed carriageway width of approx. 8metres. The section of Plumpton Road adjacent the site is rural in nature, has table drains in the verge and does not have kerb and gutter as can be seen from Figure 4.

² The Wagga Wagga Integrated Transport Strategy and Implementation Plan 2040



Figure 4: Plumptre Road adjacent to site looking north (Source: Google Earth 2020)

3.3.3 Rowan Road

Rowan Road forms part of the eastern boundary of the site for approx. 575metres and the southern boundary of the site for approx. 910metres. Rowan Road runs south from its intersection with Plumptre Road for approx. 575metres and then west for approx. 2,550metres to join with Holbrook Road. Rowan Road is classified as a local road and is under the management of the Wagga Wagga City Council.

Adjacent to the subject site Rowan Road has a road reserve of approximately 20metres and an unsealed road carriageway width of approx. 4 to 6metres.



Figure 5: Rowan Road south of site looking east (Source: Google Maps 2020)



Figure 6: Intersection of Plumptre Road and Rowan Road (Source: Sixmaps 2020)

3.3.4 Holbrook Road

Holbrook Road is located approx. 1,640metres to the west of the site connecting with Rowan Road which forms the southern boundary of the site. Holbrook Road is classified as a Regional Road and connects the township of Holbrook to the south and to the Wagga Wagga City centre to the north.

3.4 Existing traffic

Due to the current COVID 19 epidemic, traffic counts were not undertaken for this report as it was considered any counts would likely underestimate the normal traffic volumes.

During July 2017 Wagga Wagga City Council conducted traffic counts on Plumptre Road between Red Hill Road and Lansdowne Avenue and between Springvale Drive and Gregadoo Road. The results of the traffic counts are shown in tables in Appendix A. A summary of the July 2017 ADT, AM and PM peak hour traffic volumes (vph) for Plumptre Road are shown below in the Table 4.

July 2017 Location ³	ADT	AM	PM	85th % speed
Plumptre Road between Red Hill Road and Lansdowne Avenue both directions	7,997	850 (8 to 9am)	786 (5 to 6pm)	57.6km/hr
Plumptre Road between Springvale Drive and Gregadoo Road both directions	4,523	711 (8 to 9am)	583 (3 to 4pm)	71.3km/hr

Table 4 ADT, AM, and PM Peak hour traffic volumes for Plumptre Road July 2017 (source WWCC Traffic Counts)

³ Traffic Impact Assessment, 52 Plumptre Road, Proposed Residential Rezoning, Wagga Wagga, NSW Report September 2017, Peter Meredith Consulting

3.5 Traffic Growth

A 2% per annum traffic growth was applied to the existing volumes to allow for the increase in background traffic volumes arising from general increases across the network. The 2020 AM and PM peak hour traffic volumes (vph) for Plumpton Road increase as shown below in the Table 5.

July 2020 Location ⁴	ADT	AM	PM	85th % speed
Plumpton Road between Red Hill Road and Lansdowne Avenue both directions	8,486	902 (8 to 9am)	834 (5 to 6pm)	57.6km/hr
Plumpton Road between Springvale Drive and Gregadoo Road both directions	4,800	756 (8 to 9am)	619 (3 to 4pm)	71.3km/hr

Table 5 ADT, AM, and PM Peak hour traffic volumes for Plumpton Road July 2017 (source WWCC Traffic Counts)

It is noted however that the Wagga Wagga Web Site indicates that the population increase for the period 2019 to 2036 is expected to be 1.12% hence this percentage will be adopted for this report for the increase in traffic post 2020.

3.6 Public Transport

Public buses operate in the Lake Albert area on both Plumpton Road and Brindabella Drive which are town and school buses routes. Busabout Wagga Wagga (<https://busaboutwagga.com.au/timetables-and-maps/969/>) currently operates the Brindabella Drive / Plumpton Road route 8 times per day, Monday to Friday and 4 times a day on the weekend days.

Provision will be made within the proposed residential estate for bus stops, discussions will be held with the local bus operator regarding extending the bus services through the estate once the estate works are complete and the dwellings are occupied.

The bus routes are detailed in Figure 7.

⁴ Traffic Impact Assessment, 52 Plumpton Road, Proposed Residential Rezoning, Wagga Wagga, NSW Report September 2017, Peter Meredith Consulting

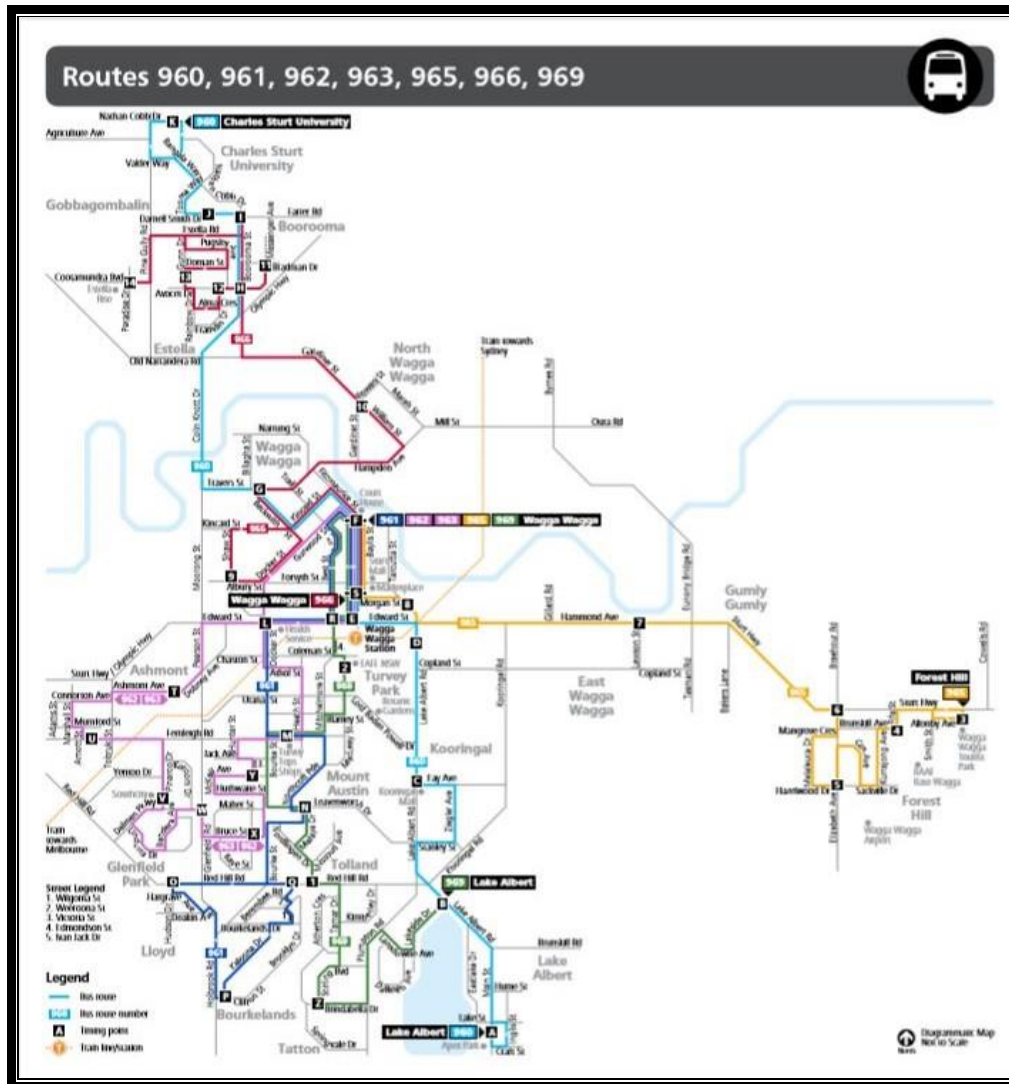


Figure 7: Wagga Wagga Bus Routes (Source: Busabout 2020)

3.7 Pedestrians and Cyclists

There are no pedestrian or cyclist facilities adjacent to the site.

The nearest shared path for pedestrians and cyclists is some 1.715km north of the site at the intersection of Plumpton Road and Nelson Drive (refer Figures 8 and 9). The shared path is off road and approx. 2.0m wide and continues to the city centre.

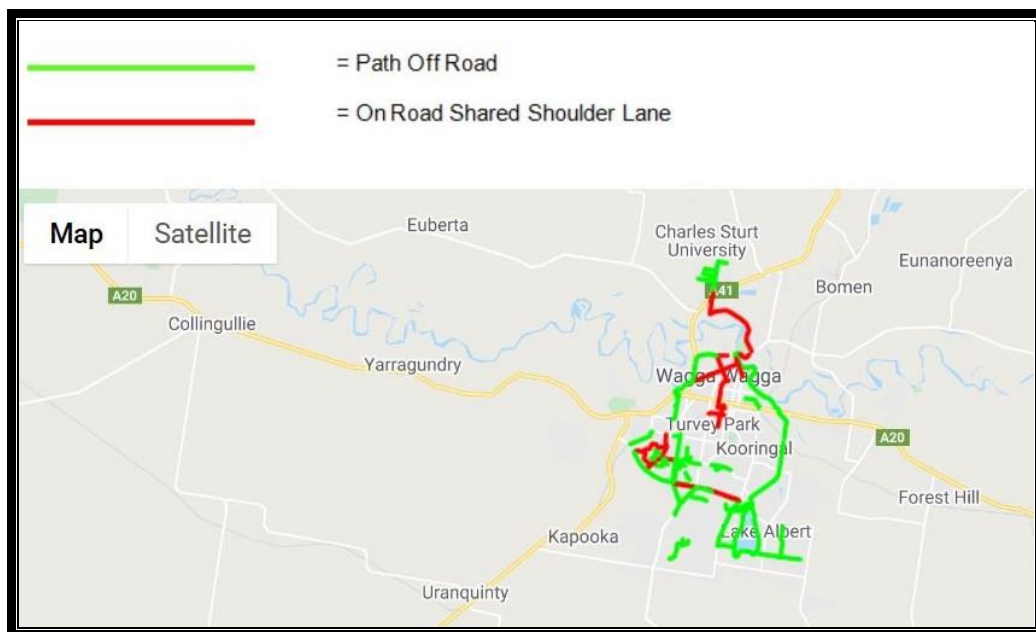


Figure 8: Cycleway network (source WWCC Maps 2020)

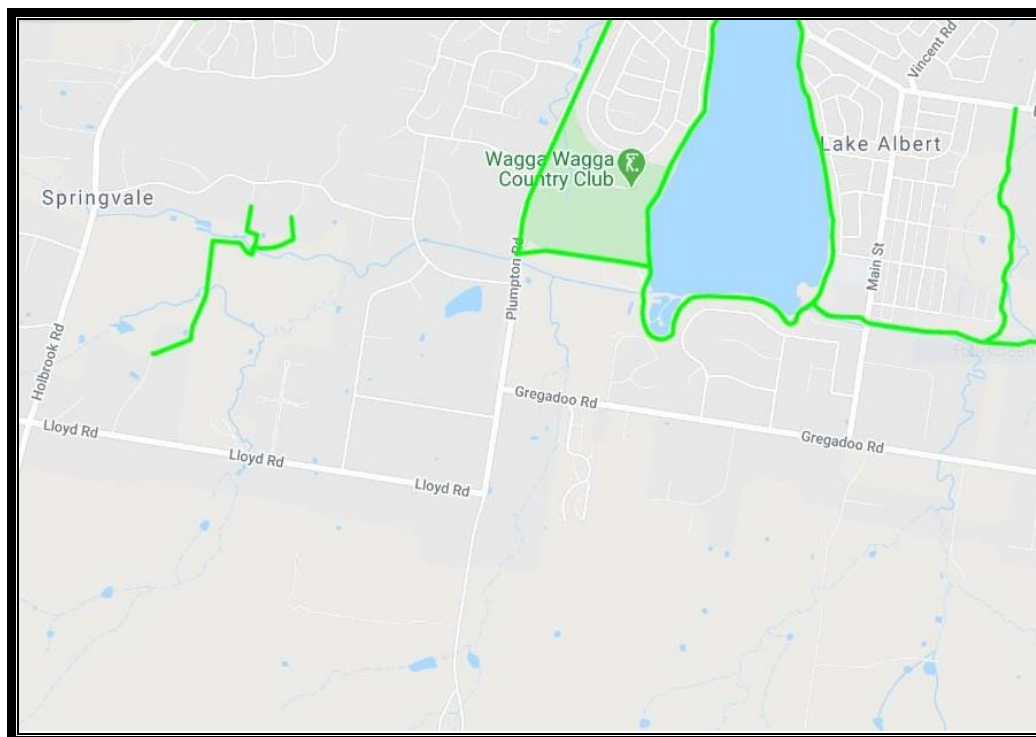


Figure 9: Off-road cycleway network (Source: WWCC Maps 2020)

4. PROPOSED DEVELOPMENT

The proposal seeks to rezone blocks 456 and 474 Plumpton Road, which are currently zoned RU1 Primary Production, to R5 General Residential. There is also a small neighbourhood shop proposed within the residential estate which will service the residents within the estate and is not expected to be a destination for residents from the broader community.

Preliminary estate planning has been undertaken and it is anticipated the site will yield circa 420 blocks greater than 1,000 sqm in area together with a small neighbourhood shop, open space / parkland and wetlands. The residential estate would be developed over several years with an initial 50 to 100 blocks in the first stage then subsequent stages of approx. 50 blocks per year but depending on demand.

In the above development scenario, peak traffic from the residential estate would not occur for approx. 8 to 10 years.

5. TRAFFIC GENERATION AND IMPACT

5.1 Traffic Generation from the proposed development

Traffic generation levels for the proposed residential estate are established using the rates suggested in the RMS Guide to Traffic Generating Developments Technical Direction and TDT 2013/04a Updated Traffic Surveys. Traffic generation rates for Dwelling Houses (regional areas) are used for the residential estate. Assumed generation rates are as follows:

Residential Dwellings Houses

- Daily vehicle trips (vpd) = 7.4 per dwelling
- Weekday average peak hour vehicle trips (vph) = 0.78 per dwelling

5.2 Total Traffic Generation

The total traffic generated for the fully developed estate for approx. 420 lots is shown below:

- Daily vehicle trips = 3,108vpd
- Weekday average peak hour vehicle trips = 328vph

5.3 Traffic Distribution and Analysis

Traffic generated by the development will be distributed throughout the broader road network depending on origin/destination and route choices. This can be estimated by assessing likely origins and destinations based on existing traffic flows.

The following assumptions have been made in determining the distribution of traffic:

Assumption	Justification
In the AM peak, 70% of traffic generated by the estate will be outbound, and 30% inbound. In the PM peak, the corresponding split will be 30/70. Weekday outbound AM Peak 230vph Weekday inbound AM Peak 99vph Weekday outbound PM Peak 99vph Weekday inbound PM Peak 230vph	Industry standard based on <i>RMS Guide to Traffic Generating Developments</i> and a review of existing traffic movement data.
In the AM, all traffic from the estate will exit the estate and turn left onto Plumpton Road and in the PM all traffic will enter the estate turning right from Plumpton Road.	All traffic generators are towards Plumpton Road.

Table 6 Traffic distribution assumptions

In a worst-case scenario, all traffic resulting from the residential estate would travel along Plumpton Road to the roundabout at the intersection of Plumpton Road / Red Hill Road / Koorringal Road / Lake Albert Road. From the roundabout the traffic is likely to disperse depending on the destination of the driver. In this case the resulting traffic on Plumpton Road would be as detailed below:

July 2017 Location ⁵	ADT (vpd)	AM (vph)	PM (vph)	85th % speed
Plumpton Road between Red Hill Road and Lansdowne Avenue both directions	7,997	850 (8 to 9am)	786 (5 to 6pm)	57.6km/hr
Plumpton Road between Springvale Drive and Gregadoo Drive both directions	4,523	711 (8 to 9am)	583 (3 to 4pm)	71.3km/hr
July 2020 Location ⁶	ADT (vpd)	AM (vph)	PM (vph)	
Plumpton Road between Red Hill Road and Lansdowne Avenue both directions	8,486	902 (8 to 9am)	834 (5 to 6pm)	
Plumpton Road between Springvale Drive and Gregadoo Drive both directions	4,800	756 (8 to 9am)	619 (3 to 4pm)	
July 2020 Location	ADT (vpd)	AM (vph)	PM (vph)	
Estimated Traffic due to new estate	3,108	328	328	
Total Traffic July 2020 Location				
Plumpton Road between Red Hill Road and Lansdowne Avenue both directions	11,593	1,205	1,139	
Plumpton Road between Springvale Drive and Gregadoo Drive both directions	7,908	1,084	947	
Total Traffic 2030 allowing for 1.12% growth	ADT (vpd)	AM (vph)	PM (vph)	
Growth factor	1.1178	1.1178	1.1178	
Plumpton Road between Red Hill Road and Lansdowne Avenue both directions	12,959	1,347	1,273	
Plumpton Road between Springvale Drive and Gregadoo Drive both directions	8,840	1,211	1,058	

Table 7 Estimated traffic volumes, 2017, 2020 and 2030

^{5&6} Traffic Impact Assessment, 52 Plumpton Road, Proposed Residential Rezoning, Wagga Wagga, NSW Report September 2017, Peter Meredith Consulting

5.4 Plumpton Road Capacity

As noted in section 5.3 above, in a worst-case scenario, all traffic resulting from the proposed residential estate would travel along Plumpton Road to the roundabout at the intersection of Plumpton Road / Red Hill Road / Koorinal Road / Lake Albert Road. Plumpton Road is classified as a sub-arterial road and has a capacity of 6,000 to 20,000vpd (Table 3 above). The projected traffic in 2030 for Plumpton Road, in the section with the heaviest traffic, between Red Hill Road and Lansdowne Avenue both directions is 12,959 vehicles per day which is within the stated capacity of Plumpton Road.

5.5 Wagga Wagga Heavy Vehicle By-pass

Rowan Road has been identified as a possible future corridor south of the Sturt Highway to provide a bypass of Wagga Wagga to provide efficient, safe, and low impact movement for freight between Sydney and Adelaide⁷. Should this eventuate there would be an Arterial Road immediately south of the block proposed to be developed. As there are HV electrical lines along the northern side of Rowan Road, the closest development would be some 140metres from the northern boundary of Rowan Road. This distance would provide ample opportunity to construct sound mounds to ameliorate any noise issues from such an arterial road.

⁷ The Wagga Wagga Integrated Transport Strategy and Implementation Plan 2040

6. SHARED PATHS AND PEDESTRIAN NETWORKS

Pedestrian paths will be constructed along the main roads within the proposed residential estate and along the electrical easements to promote safe pedestrian movements within the estate.

As noted in section 3.7 of this report, the nearest shared path is at the intersection of Plumpton Road and Nelson Street. In addition to a path network within the proposed residential estate, and as an *active travel initiative* the developer proposes to construct a shared path along Plumpton Road from the estate entry to Nelson Drive connecting into the existing shared path network.

7. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are made:

- The proposed estate would generate approx. 3,108 vehicles per day
- The peak hour traffic volume would be approx. 238 vehicles per hour
- Plumpton Road to its intersection with Red Hill Road has the capacity to accommodate the additional traffic generated from the proposed residential estate
- The roads connecting to the roundabout at the intersection of Plumpton Road and Red Hill Road have the capacity to accommodate the additional traffic generated from the proposed residential estate

The following recommendations are made:

- Consistent with Wagga Wagga City Council active travel policies, the provision of a shared path from the proposed residential estate to the intersection of Plumpton Road and Nelson Drive is investigated during the detailed planning stage of the project
- An analysis of the roundabout at the north end of Plumpton Road be undertaken with the anticipated traffic from the residential estate included in the analysis to determine whether an upgrade is required
- Other intersections along Plumpton Road be discussed with WWCC and SIDRA analysis be undertaken where required

8. REFERENCES

1. Traffic Impact Assessment, 52 Plumpton Road, Proposed Residential Rezoning, Wagga Wagga, NSW Report September 2017, Peter Meredith Consulting
2. Roads and Maritime Services (RMS) Guide to Traffic Generating Developments, Version 2.2 October 2002 for traffic generation predictions and Technical Direction TDT 2013/04a Updated Traffic Surveys.
3. Austroads Guide to Road Design (AGRD) Part 4A: Unsignalised and Signalised Intersections.
4. RMS supplement to Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections.
5. Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers.
6. Signalised and Unsignalised Intersection Design and Research Aid (SIDRA). SIDRA Intersections 6.1 Plus software.
7. Engineering Guidelines for Subdivisions and Development Standards Adopted April 2017 WWCC
8. Development Servicing Plan (DSP) Stormwater Cardno, Jan 2020, Section 3 Demographic and Land Use Planning Information
9. The Wagga Wagga Integrated Transport Strategy and Implementation Plan 2040
10. Wagga Wagga City Council Web Site

APPENDIX A – TRAFFIC COUNT DATA

Plumpton Road Traffic Data (2017)⁸:

A1: Plumpton Road between Red Hill Road and Lansdowne Avenue weekly count

A2: Plumpton Road between Red Hill Road and Lansdowne Avenue speed stats

A3: Plumpton Road between Springvale Drive and Gregadoo Road weekly count

A4: Plumpton Road between Springvale Drive and Gregadoo Road speed stats

A1: Plumpton Road between Red Hill Road and Lansdowne Avenue weekly count

WeeklyVehicle:394 Page 2

Weekly Vehicle Counts

WeeklyVehicle:394

Site: Plumpton rd.0.0N
Description: Between Redhill & Lansdowne
Filter time: 0:00 Monday, 6 June 2016 => 0:00 Monday, 13 June 2016
Scheme: Vehicle classification (ARX)
Filter: CIs(1 2 3 4 5 6 7 8 9 10) Dir(NESW) Sp(10,160) Headway(>0)

Hour	Mon 06 Jun	Tue 07 Jun	Wed 08 Jun	Thu 09 Jun	Fri 10 Jun	Sat 11 Jun	Sun 12 Jun	Averages 1 - 5	1 - 7
0600-0700	2	11	15	19	15	41	37	12.4	20.0
0700-0800	4	4	2	8	7	25	27	5.0	12.4
0800-0900	5	6	6	9	10	18	37	7.4	13.1
0900-1000	4	8	9	5	7	4	21	4.4	10.4
1000-1100	12	12	14	10	13	8	7	12.2	10.9
1100-1200	39	51	56	39	34	19	16	35.8	44.9
1200-1300	220	194	214	208	192	83	52	205.6	166.1
1300-1400	421	477	462	514	436	179	67	466.0	367.3
1400-1500	875<	960<	874<	881<	651<	335	187	850.2<	681.9<
1500-1600	539	561	522	551	535	424	350	541.6	497.4
1600-1700	427	446	474	452	472	520	426	454.2	459.6
1700-1800	478	447	466	457	498	546<	499<	469.2	484.4
1800-1900	525	427	501	461	512	544<	495<	485.2	495.0
1900-2000	464	452	458	495	480	452	446	469.8	463.9
2000-2100	485	511	493	535	555	527	466	515.8	509.4
2100-2200	832<	748	752	846<	686	465	492	768.8	605.3<
2200-2300	699	716	766	749	715	464	460	729.0	652.7
2300-2400	790	799<	921<	782	740<	460	384	786.2<	682.1
Totals	442	461	492	484	485	377	277	472.8	431.1
0700-1900	254	248	265	297	273	216	163	267.4	245.1
1900-2200	139	182	214	221	196	139	128	188.4	172.6
2200-2300	97	132	117	143	151	139	123	128.0	126.9
2300-2400	42	67	62	84	118	114	89	70.6	79.4
Totals	28	16	28	27	47	80	45	29.2	38.7
0700-1900	6977	7004	7081	7207	6775	5292	4543	7006.8	6411.3
1900-2200	7697	7760	7991	8076	7577	5869	5009	7799.2	7124.0
2200-2300	7757	7643	7961	8167	7742	5662	5143	7698.0	7242.1
2300-2400	7848	7935	8082	8277	7848	6182	5308	7997.6	7354.0
AM Peak	0600	0600	0800	0800	0800	1100	1100		
	875	960	874	881	651	546	499		
PM Peak	1500	1700	1700	1500	1700	1200	1200		
	832	798	821	846	740	544	495		

* - No data.

⁸ Traffic Impact Assessment, 52 Plumpton Road, Proposed Residential Rezoning, Wagga Wagga, NSW Report September 2017, Peter Meredith Consulting

A2: Plumpton Road between Red Hill Road and Lansdowne Avenue speed stats

SpeedStat-398 Page 2

Speed Statistics

SpeedStat-398
 Site: Plumpton rd.0.0N
 Description: Between Redhill & Lansdowne
 Filter time: 9:57 Tuesday, 31 May 2016 => 8:35 Wednesday, 15 June 2016
 Scheme: Vehicle classification (ARX)
 Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0)

Vehicles = 95970
 Posted speed limit = 60 km/h, Exceeding = 7482 (7.80%), Mean Exceeding = 62.17 km/h
 Maximum = 126.7 km/h, Minimum = 16.0 km/h, Mean = 50.5 km/h
 85% Speed = 57.6 km/h, 95% Speed = 61.2 km/h, Median = 51.1 km/h
 20 km/h Pace = 41 - 61, Number in Pace = 82084 (85.53%)
 Variance = 62.97, Standard Deviation = 7.94 km/h

Speed Bins (Partial days)

Speed	Bin	Below	Above	Energy	vMult	n * vMult
0 - 10	0	0.0%	95970 100.0%	0.00	0.00	0.00
10 - 20	765	0.8%	95205 99.2%	0.00	0.00	0.00
20 - 30	1330	1.4%	93875 97.8%	0.00	0.00	0.00
30 - 40	5335	5.5%	88560 92.3%	0.00	0.00	0.00
40 - 50	33060	34.4%	55000 57.8%	0.00	0.00	0.00
50 - 60	48018	50.0%	7482 7.8%	0.00	0.00	0.00
60 - 70	7166	7.5%	296 0.3%	0.00	0.00	0.00
70 - 80	267	0.3%	29 0.0%	0.00	0.00	0.00
80 - 90	22	0.0%	7 0.0%	0.00	0.00	0.00
90 - 100	5	0.0%	2 0.0%	0.00	0.00	0.00
100 - 110	0	0.0%	2 0.0%	0.00	0.00	0.00
110 - 120	1	0.0%	1 0.0%	0.00	0.00	0.00
120 - 130	1	0.0%	0 0.0%	0.00	0.00	0.00
130 - 140	0	0.0%	0 0.0%	0.00	0.00	0.00
140 - 150	0	0.0%	0 0.0%	0.00	0.00	0.00
150 - 160	0	0.0%	0 0.0%	0.00	0.00	0.00
160 - 170	0	0.0%	0 0.0%	0.00	0.00	0.00
170 - 180	0	0.0%	0 0.0%	0.00	0.00	0.00
180 - 190	0	0.0%	0 0.0%	0.00	0.00	0.00
190 - 200	0	0.0%	0 0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
 Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

Limit	Below	Above
0 60 (PSL)	60488 92.2%	7482 7.8%

A3: Plumpton Road between Springvale Drive and Gregadoo Road weekly count

VirtWeeklyVehicle-396 Page 2

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-396

Site: Plumpton rd.0.0S
Description: Between Gregadoo & Springvale
Filter time: 12:00 Thursday, 27 July 2017 => 12:00 Friday, 4 August 2017
Scheme: Vehicle classification (ARX)
Filter: Cts(1 2 3 4 5 6 7 8 9 10) Dir(NESW) Sp(10,160) Headway(>0)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
								1 - 5	1 - 7
Hour									
0000-0100	9.0	2.0	2.0	3.0	3.5	17.0	21.0	4.0	7.8
0100-0200	5.0	1.0	2.0	5.0	0.0	11.0	12.0	2.2	4.5
0200-0300	0.0	1.0	0.0	1.0	3.0	9.0	24.0	1.3	5.1
0300-0400	2.0	1.0	1.0	2.0	2.0	6.0	18.0	1.7	4.3
0400-0500	3.0	5.0	5.0	4.0	10.0	6.0	7.0	6.5	6.0
0500-0600	25.0	22.0	40.0	23.0	26.0	13.0	19.0	27.2	23.6
0600-0700	87.0	97.0	101.0	96.0	88.0	28.0	23.0	91.2	74.8
0700-0800	250.0	260.0	260.0	245.0	239.5	77.0	32.0	249.0	200.4
0800-0900	781.0<	683.0<	706.0<	697.0<	701.0<	153.0	122.0	711.5<	568.8<
0900-1000	272.0	238.0	276.0	295.0	278.0	216.0	206.0	272.8	257.4
1000-1100	242.0	203.0	238.0	231.0	244.5	307.0<	243.0	233.8	244.1
1100-1200	263.0	265.0	221.0	251.0	252.5	296.0	274.0<	250.8	259.4
1200-1300	207.0	229.0	238.0	262.5	275.0	280.0	240.0	245.7	249.3
1300-1400	192.0	208.0	246.0	227.0	224.0	297.0<	244.0	220.7	232.1
1400-1500	244.0	254.0	275.0	269.0	314.0	296.0	235.0	270.8	269.5
1500-1600	548.0<	542.0<	564.0<	597.0<	653.0<	282.0	251.0<	583.5<	504.3<
1600-1700	352.0	444.0	512.0	375.0	383.0	286.0	240.0	406.8	370.9
1700-1800	431.0	391.0	414.0	388.0	378.0	261.0	248.0	398.3	362.4
1800-1900	188.0	229.0	271.0	223.0	254.0	194.0	148.0	231.7	216.5
1900-2000	118.0	117.0	125.0	115.0	132.0	96.0	99.0	120.3	114.6
2000-2100	58.0	81.0	84.0	100.0	107.0	72.0	57.0	88.2	82.4
2100-2200	39.0	52.0	62.0	65.0	74.0	73.0	36.0	59.5	58.3
2200-2300	22.0	22.0	31.0	30.0	63.0	62.0	21.0	33.3	35.4
2300-2400	6.0	4.0	11.0	10.5	32.0	30.0	8.0	12.3	14.0
Totals									
0700-1900	3970.0	3946.0	4221.0	4060.5	4198.5	2951.0	2483.0	4075.5	3735.0
0600-2200	4272.0	4293.0	4393.0	4426.5	4599.0	3220.0	2698.0	4434.8	4083.0
0600-0000	4300.0	4319.0	4435.0	4467.0	4696.5	3312.0	2727.0	4480.5	4115.3
0000-0000	4346.0	4353.0	4685.0	4505.0	4741.0	3374.0	2822.0	4523.3	4167.0
AM Peak	0800	0800	0800	0800	0800	1000	1100		
	781.0	682.0	706.0	697.0	701.0	307.0	274.0		
PM Peak	1500	1500	1500	1500	1500	1300	1500		
	548.0	542.0	564.0	597.0	653.0	297.0	251.0		

* - No data.

A4: Plumpton Road between Springvale Drive and Gregadoo Road speed stats

SpeedStat-397 Page 2

Speed Statistics

SpeedStat-397
 Site: Plumpton rd.0.0S
 Description: Between Gregadoo & Springvale
 Filter time: 9:18 Thursday, 27 July 2017 => 14:32 Friday, 4 August 2017
 Scheme: Vehicle classification (ARX)
 Filter: CIs(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0)

Vehicles = 33893
 Posted speed limit = 60 km/h, Exceeding = 15694 (46.30%), Mean Exceeding = 69.12 km/h
 Maximum = 151.2 km/h, Minimum = 13.5 km/h, Mean = 60.6 km/h
 85% Speed = 71.3 km/h, 95% Speed = 79.6 km/h, Median = 59.0 km/h
 20 km/h Pace = 49 - 69, Number in Pace = 24386 (71.89%)
 Variance = 104.60, Standard Deviation = 10.23 km/h

Speed Bins (Partial days)

Speed	Bin	Below	Above	Energy	vMult	n * vMult
0 - 10	0 0.0%	0 0.0%	33893 100.0%	0.00	0.00	0.00
10 - 20	13 0.0%	13 0.0%	33880 100.0%	0.00	0.00	0.00
20 - 30	93 0.3%	106 0.3%	33787 99.7%	0.00	0.00	0.00
30 - 40	311 0.9%	417 1.2%	33476 98.8%	0.00	0.00	0.00
40 - 50	3896 10.3%	3913 11.5%	29980 88.5%	0.00	0.00	0.00
50 - 60	14206 42.2%	18199 53.7%	15694 46.3%	0.00	0.00	0.00
60 - 70	9751 28.8%	27050 81.2%	5943 17.5%	0.00	0.00	0.00
70 - 80	4305 12.7%	32255 95.3%	1639 4.8%	0.00	0.00	0.00
80 - 90	1505 4.4%	31760 93.6%	133 0.4%	0.00	0.00	0.00
90 - 100	117 0.3%	33877 100.0%	16 0.0%	0.00	0.00	0.00
100 - 110	12 0.0%	33881 100.0%	12 0.0%	0.00	0.00	0.00
110 - 120	2 0.0%	33891 100.0%	2 0.0%	0.00	0.00	0.00
120 - 130	1 0.0%	33892 100.0%	1 0.0%	0.00	0.00	0.00
130 - 140	0 0.0%	33892 100.0%	1 0.0%	0.00	0.00	0.00
140 - 150	0 0.0%	33892 100.0%	1 0.0%	0.00	0.00	0.00
150 - 160	1 0.0%	33893 100.0%	0 0.0%	0.00	0.00	0.00
160 - 170	0 0.0%	33893 100.0%	0 0.0%	0.00	0.00	0.00
170 - 180	0 0.0%	33893 100.0%	0 0.0%	0.00	0.00	0.00
180 - 190	0 0.0%	33893 100.0%	0 0.0%	0.00	0.00	0.00
190 - 200	0 0.0%	33893 100.0%	0 0.0%	0.00	0.00	0.00

Total Speed Rating = 0.00
 Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

Limit	Below	Above
0 60 (PST)	18199 53.7%	15694 46.3%