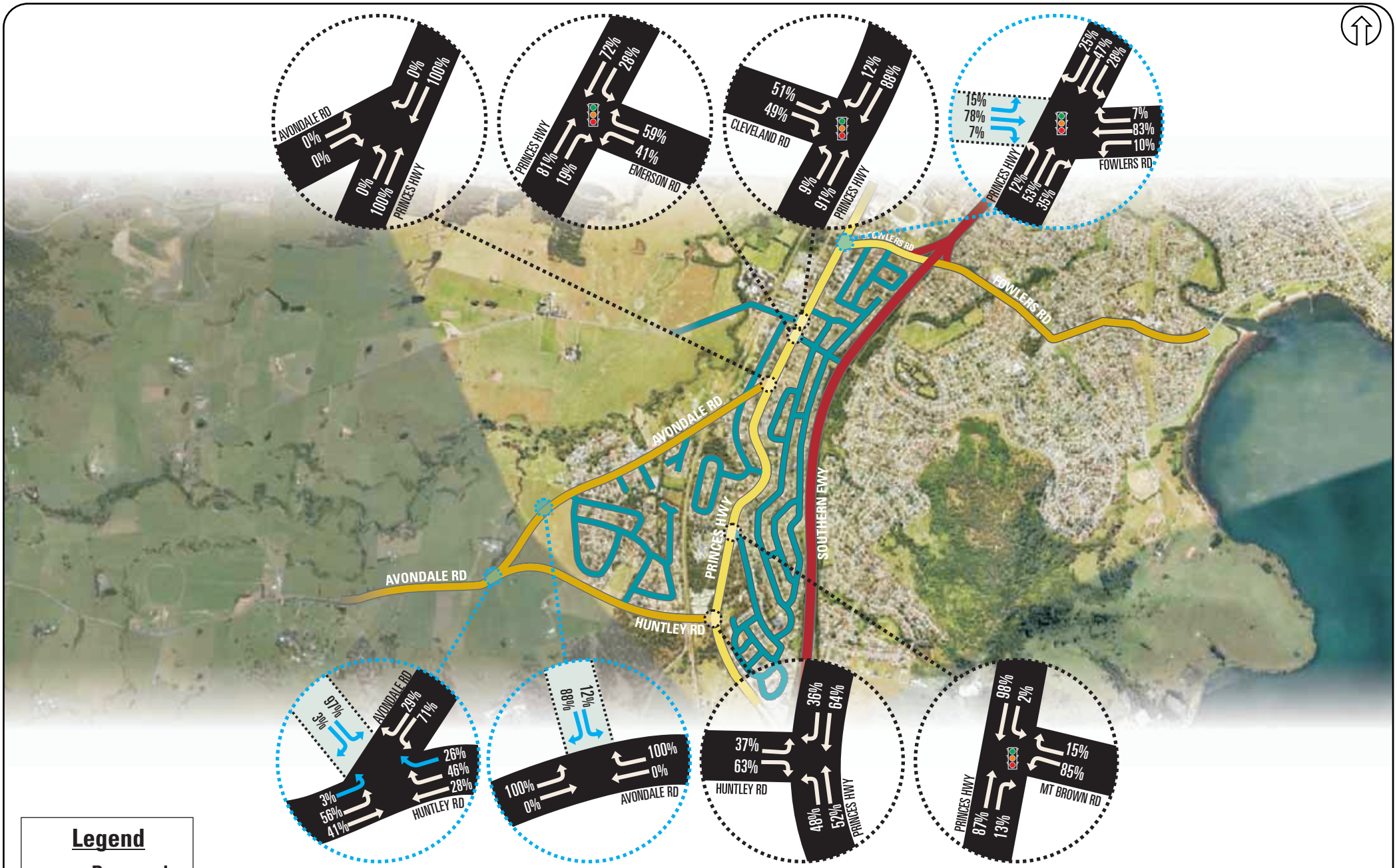

2016 AM Base plus IIHP Development Distribution and Assignment

Date: 06.04.09 | Project No: FR108121

Figure No: 5.9

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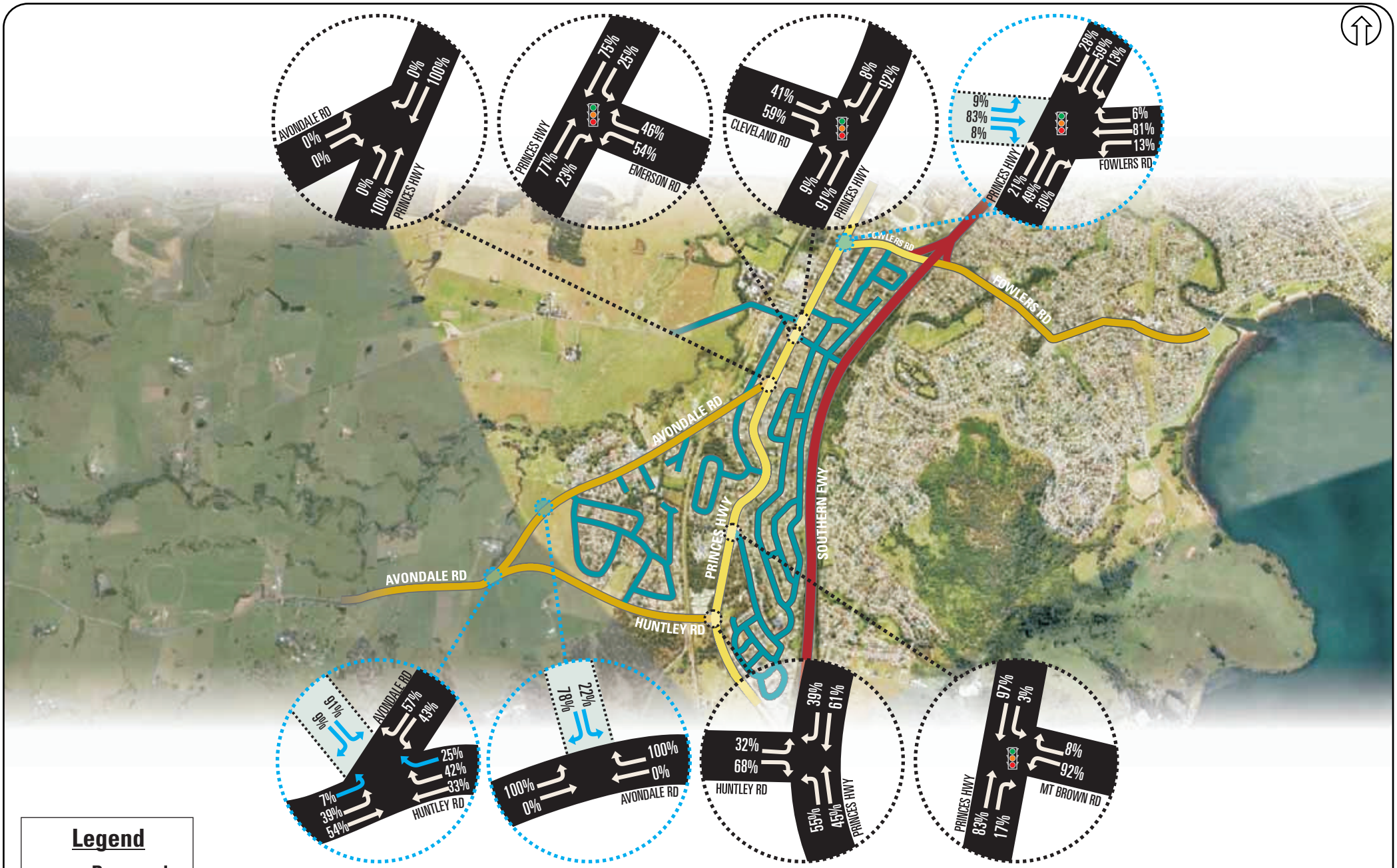

2016 PM Base plus IIHP Development Traffic Distribution and Assignment

Date: 06.04.09 | Project No: FR108121

Figure No: 5.10

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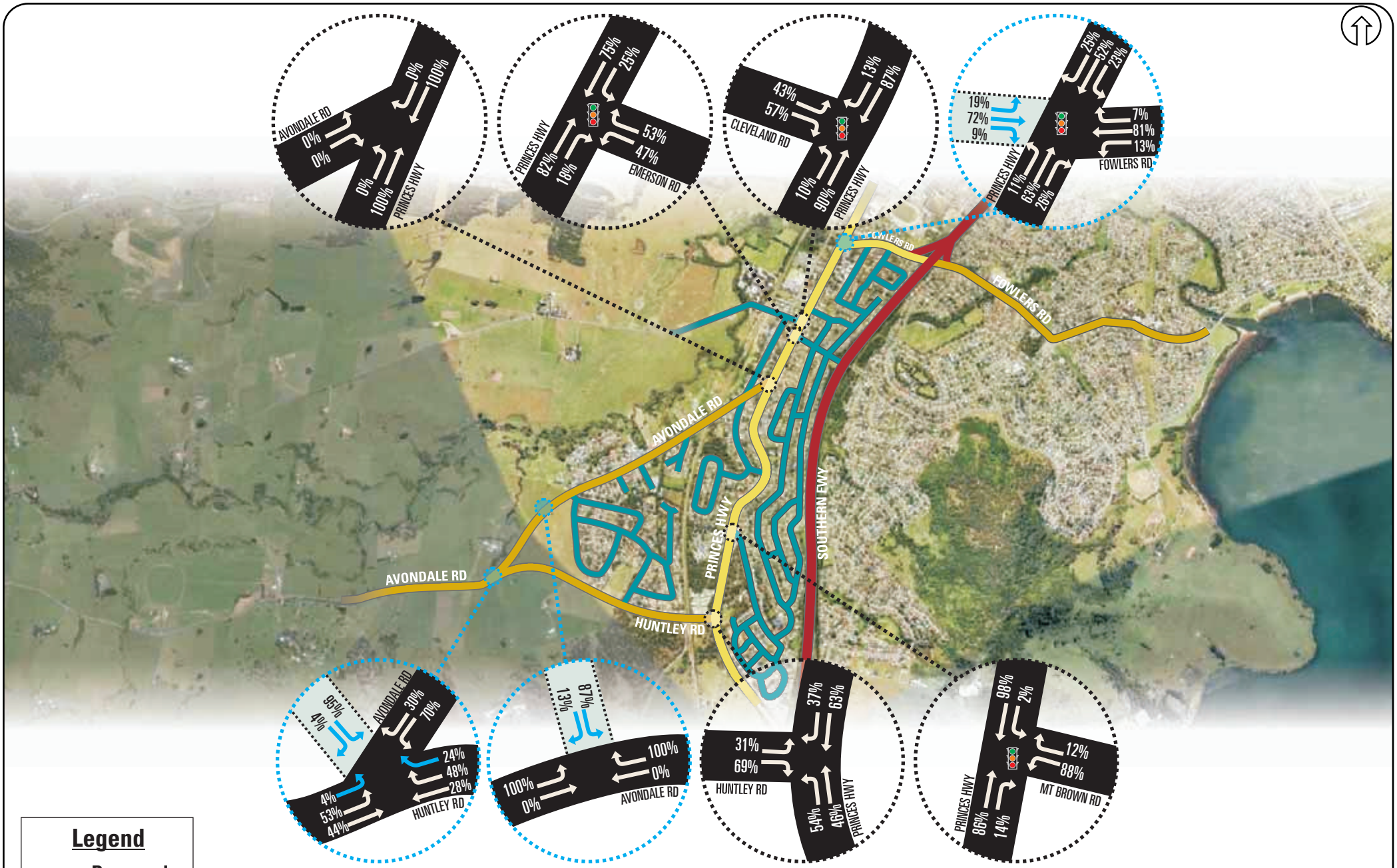

Legend

- Proposed Road Link

2026 AM Base plus IIHP Development Traffic Distribution and Assignment

Date: 06.04.09 | Project No: FR108121

Figure No: 5.11

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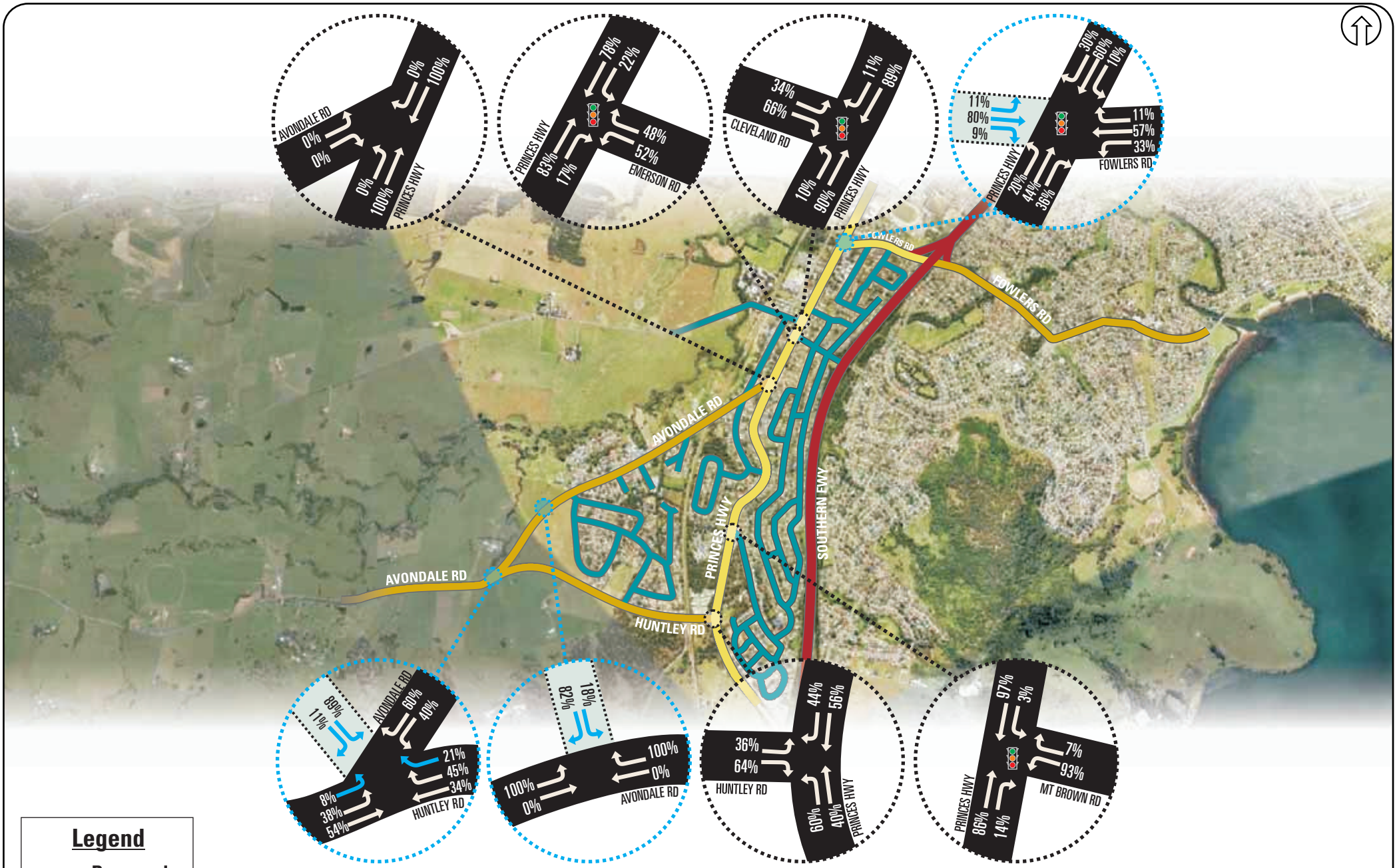

2026 PM Base plus IIHP Development Traffic Distribution and Assignment

Date: 06.04.09 | Project No: FR108121

Figure No: 5.12

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5.4 PUBLIC TRANSPORT TRIP GENERATION

Public transport trip generation forecasts were undertaken only for the ultimate scenario (year 2026 with full development). The forecasts were based on the modal share targets required by the Ministry of Transport, and not on likely patronage based on current service levels. Additionaly, an alternative mode share of 5.3% was also assessed to measure the impact of a mode shift of 4% from the existing patronage levels. Further information on the development of this mode shift is provided in Section 7.2.2.

The following assumptions were used to estimate the public transport trip generation:

- Scenario 1 - 'Business As Usual' modal share to public transport of 1.3% for trips with the IIHP as a destination;
- Scenario 1 - 'Business As Usual' modal share to public transport of 4.2% for trips with the IIHP as an origin;
- Scenario 2 - future modal share to public transport of 25% for all trips, as required by the Ministry of Transport;
- Scenario 2 Modified - future modal share of 5.3%, which represents a mode shift of approximately 4% from the existing mode share for public transport;
- 80% of all trips will be incoming and 20% outgoing in the AM peak for all land uses;
- 35% of all trips will be incoming and 65% outgoing in the PM peak for hospital and medical facilities;
- 30% of all trips will be incoming and 70% outgoing in the PM peak for retail facilities;
- 50% of all trips will be incoming and 50% outgoing in the PM peak for gymnasium and restaurant facilities; and
- 20% of all trips will be incoming and 80% outgoing in the PM peak for commercial and residential facilities.

Table 5.11 to Table 5.13 demonstrate the public transport trip generation calculations.

Table 5.10 Scenario 1 - Business as Usual - Public Transport Trip Generation

Land Use Category	Public Transport Total Trips			Directional Splits				Peak Hour Public Transport Trips (pph)			
	AM (pax)	PM (pax)	Daily (pax)	AM IN	AM OUT	PM IN	PM OUT	AM IN	AM OUT	PM IN	PM OUT
Private Hospital / Medical Centre	12	12	117	80%	20%	35%	65%	9	2	4	8
Retail	7	15	109	80%	20%	30%	70%	6	1	4	10
Commercial	7	7	70	80%	20%	20%	80%	6	1	1	6
Gymnasium / Restaurant	1	1	9	80%	20%	50%	50%	1	0	1	1
Residential (incl. Aged & Disabled)	7	7	69	80%	20%	20%	80%	6	1	1	6
Total	**33**	**41**	**373**					**27**	**7**	**12**	**29**

Table 5.11 Scenario 2 - 25% Mode Share Public Transport Trip Generation

Land Use Category	Public Transport Total Trips			Directional Splits				Peak Hour Public Transport Trips (pph)			
	AM (pax)	PM (pax)	Daily (pax)	AM IN	AM OUT	PM IN	PM OUT	AM IN	AM OUT	PM IN	PM OUT
Private Hospital / Medical Centre	225	226	2255	80%	20%	35%	65%	180	45	79	147
Retail	139	279	2092	80%	20%	30%	70%	112	28	84	195
Commercial	134	134	1341	80%	20%	20%	80%	107	27	27	107
Gymnasium / Restaurant	13	21	170	80%	20%	50%	50%	11	3	10	10
Residential (incl. Aged & Disabled)	52	52	521	80%	20%	20%	80%	42	10	10	42
Total	**564**	**712**	**6380**					**451**	**113**	**211**	**502**

Table 5.12 Scenario 2 Modified - 5.3% Mode Share Public Transport Trip Generation

Land Use Category	Public Transport Total Trips			Directional Splits				Peak Hour Public Transport Trips (pph)			
	AM (pax)	PM (pax)	Daily (pax)	AM IN	AM OUT	PM IN	PM OUT	AM IN	AM OUT	PM IN	PM OUT
Private Hospital / Medical Centre	48	48	478	80%	20%	35%	65%	38	10	17	31
Retail	30	59	443	80%	20%	30%	70%	24	6	18	41
Commercial	28	28	284	80%	20%	20%	80%	23	6	6	23
Gymnasium / Restaurant	3	4	36	80%	20%	50%	50%	2	1	2	2
Residential (incl. Aged & Disabled)	11	11	110	80%	20%	20%	80%	9	2	2	9
Total	**119**	**151**	**1352**					**96**	**24**	**45**	**106**

5.5 PARKING REQUIREMENTS

Relevant Development Control Plans (DCP's) from Wollongong City Council were used to determine parking requirements for this development. The parking requirements according to the land uses provided on site are shown below. For those land uses without parking rates provided, similar land use type parking rates have been applied.

Retail

- 1 car space per 25m2

This rate has been applied to all retail facilities including smaller specialty shops within each of the land uses (e.g. chemist, café, florist etc) and to the supermarket facility.

Commercial

- 1 car space per 40m2

This rate has been applied to all training and meeting rooms used for both internal and external purposes.

Health Consulting Rooms

- 1 car space per 35m2 plus 1 space per job OR 3 spaces per suite

Hospital

- 1 car space per 2 beds

One Bedroom Dwelling

- 0.75 car space per dwelling plus 0.25 car space per dwelling for visitors

Two Bedroom Dwelling

- 1 car space per dwelling plus 0.25 car space per dwelling for visitors

Nursing Homes

- 1 car space per 4 beds

This rate has been applied to the Illawarra International Aged and Disabled Centre.

Industry/Bulky Goods

- 1 car space per 60m2

This rate has been applied to the laundry, dry cleaning and maintenance facilites.

Disabled and Accessible Parking

A total of 1 space per 50 car parking spaces has been provided which equates to 2% of total parking.

5.5.1 Car Parking

Car parking for this development will be provided on site and spread throughout the site.

Table 5.13 Car Parking Requirements by Land Use Type

Land Use	Number of Suites	No of Beds	No of Jobs	TOTAL GFA (m2)	USEABLE GFA[1] (m2)	Car Parking Spaces Required	Car Parking Spaces Provided
Retail	97	-	-	9,200	6,440	256	-
Commercial	-	-	-	13,950	9,765	245	-
Health Consulting Rooms	-	-	-	19,250	13,475	417	-
Hospital	-	375	170	41,100	28,770	360[2]	-
One Bedroom Dwelling	-	110	-	6,500	4,550	110[3]	-
Two Bedroom Dwelling	-	62	-	4,940	4,340	78[4]	-
Nursing Home	-	280	-	4,000	2,800	70	-
Industry/Bulky Goods	-	-	-	3,200	2,240	37	-
Therapy[5]	-	-	-	600	420	20	-
Day Surgery[6]	-	-	20	2,500	1,750	60	-
Pathology/Radiology[7]	-	-	90	5,000	3,500	90	-
Disabled/Accessible	-	-	-	-	-	30	-
					TOTAL	**1773**	**2146**

Notes:
1 the useable GFA calculated is 70% of the total GFA
2 includes staff parking for 170 persons
3 this includes visitor parking
4 this includes visitor parking
5 this car parking allowance caters for the number of staff plus at least 40 spaces for patients as this is the capacity for patients within the waiting room
6 this car parking allowance caters for the therapy rooms and pool
7 this car parking allowance for staff and deliveries only

Table 5.14 above indicates that ample on site parking is provided for this development. The amount of car parking required is 1,773 car spaces. A total of 2,146 car spaces have been designed, which includes an additional 373 car parking spaces. Given that an oversupply of parking is proposed, no spill-over of car parking is expected on neighbouring roads or local residential streets.

5.5.2 Service & Delivery Vehicle Parking

Service and delivery vehicle parking are to be provided on an' as needs' basis and will be located near to main building entrances or loading dock areas.

5.5.3 Bicycle Parking

Table 5.14 Bicycle Parking Requirements

Land Use	Bicycle Parking Rate	Number of Beds	No of Staff	No of Units	Minimum Total No of Bicycle Spaces Required	Maximum Total No of Bicycle Spaces Required
Retail						
Residents/Staff	3-5%S		53		2	3
Visitors	5-10%S		53		3	5
Commercial						
Residents/Staff	3-5%S		10		1	1
Visitors	5-10%S		10		1	1
Hospital Including Consulting Rooms						
Residents/Staff	5-10%S or 10-15%B	375	541		38	56
Visitors	5-10%S		541		27	54
Accommodation – Residential Units						
Residents/Staff	20-30%U			130	26	39
Visitors	5-10%U			130	7	13
Accommodation – Aged Care / Seniors Living						
Residents/Staff	3-5%U			42	1	2
Visitors	3-5%U			42	1	2
Industry/Bulky Goods						
Residents/Staff	3-5%S		10		1	1
Visitors	5-10%S		10		1	1
Therapy						
Residents/Staff	3-5%S		20		1	1
Visitors	5-10%S		20		1	2
Day Surgery						
Residents/Staff	5-10%P		20		1	2
Visitors	5-10%S		20		1	2
Pathology/Radiology						
Residents/Staff	5-10%P		80		4	8
Visitors	5-10%S		80		4	8
TOTAL					**121**	**201**

Source: NSW Department of Infrastructure, Planning and Natural Resources 'Planning Guidelines for Walking & Cycling' December 2004
Where: S-staff, P-practitioners, B-beds, U-units.

Table 5.15 shows that a minimum of 121 and a maximum of 201 bicycle parking spaces should be provided at this facility.

Approximately six bicycles are able to fit within one car parking space. It is recommended that lockers or compounds are provided for staff and bike racks are provided for visitors. The bike racks can be accommodated within car parking spaces and at locations near building entrances.

5.5.4 Parking Management Strategy

It is recommended that a parking management strategy be implemented to consider the following items:

- Parking enforcement;
- Parking permits and fees;
- Security and maintenance; and
- Regulatory and directional signage.

5.6 ROAD WIDTH REQUIREMENTS

5.6.1 Access Intersections

The site will have eleven driveway accesses. Four of these will be located on Huntley Road and seven on Avondale Road. Each driveway is discussed below (refer to **Figure 5.13** which shows driveway access locations, parking locations and parking capacities). All driveways have been designed in accordance with AS2890 *Off Street Parking* and assume the likely number of vehicles utilising each driveway for either car parking or loading dock purposes.

Avondale Road

Driveway No 1 – This driveway will provide truck only access to Stages 1 and 4. This driveway will be designed to accommodate Heavy Rigid Vehicles (HRV) and therefore will require a 12.5 metre wide combined entry/exit driveway with 1.5 metre splays.

Driveway No 2 – This driveway will provide car only access to Stages 1, 2 and 4. This driveway will be designed to accommodate light vehicles only and therefore requires a 6 – 8 metre entry, 6 - 8 metre exit and 1 – 3 metre median separator.

Driveway No 3 – This driveway will provide truck only access to Stages 2 and 3. This driveway will be designed to accommodate Heavy Rigid Vehicles (HRV), and therefore will require a 12.5 metre wide combined entry/exit driveway with 1.5 metre splays.

Driveway No 4 – This driveway will provide car only access to Stage 3. This driveway will be designed to accommodate light vehicles only, and therefore requires a 6 metre entry, 4 - 6 metre exit and 1 – 3 metre median separator.

Driveway No 5 – This driveway will provide ambulance only access to Stage 3. This driveway will require a 6 - 9 metre wide combined entry/exit driveway.

Driveway No 6 – This driveway will provide truck only access to Stages 5A and 5B. This driveway will be designed to accommodate Articulated Vehicles (AV), and therefore will require a 12.5 metre wide combined entry/exit driveway with 1.5 metre splays.

Driveway No 7 – This driveway will provide car only access to Stages 5A and 5B. This driveway will be designed to accommodate light vehicles only and therefore requires a 6 metre entry, 4 - 6 metre exit and 1 – 3 metre median separator.

Huntley Road

Driveway No 8 – This driveway will provide car only access to Stage 5A. This driveway will be designed to accommodate light vehicles and will be entry only. This driveway will require a 6 - 8 metre entry to accommodate two lanes of entering vehicles. This access will provide the main entry to the hospital and the largest car park on the site. Vehicles entering from the west will be forced to utilise Lane 1 and those making the right turn from the east will be directed into Lane 2. From this entry, vehicles will be able to drop off or pick up passengers as well as enter the main car park. The main car park has a capacity to hold 1,000 car parking spaces.

Driveway No 9 – This driveway will provide car only access for exiting vehicles from Stage 5A. This driveway will be designed to accommodate light vehicles and be exit only. This driveway will require a 6 - 8 metre exit to accommodate two lanes of exiting vehicles. The exit driveway will allow two lanes upon exit. The left lane will be dedicated left only, and the right lane a right turn only.

Driveway No 10 – This driveway will provide light vehicle access to Stages 5A, 5C, 6, 7 and 8A. This driveway will be designed to accommodate light vehicles only and therefore require a 6 metre entry, 4 - 6 metre exit and 1 – 3 metre median separator. This access will provide an entry to the central buildings of the site accessed from Huntley Road. One driveway access will be provided for both entry and exit to the central car park. One lane entry and one lane on exit to be provided.

Driveway No 11 – This driveway will provide car only access for exiting vehicles from Stage 8B. This driveway will be designed to accommodate light vehicles and be exit only with no right turn movements allowed. This driveway will require a minimum 3 metre exit width.

5.6.2 Internal Roads

All internal roads should be of a low speed environment. The internal roads must cater for the necessary design vehicles utilising them and allow for pedestrians and cyclist circulation. To enable a low speed environment traffic calming measures should be considered. Traffic calming measures are not advisable for those areas which will require ambulance access. The internal road design is discussed in greater detail in section 7.3.

5.6.3 Loading Docks

Loading docks for both trucks and ambulances will require provision.

The minimum service bay dimensions for loading docks as recommended by Australian Standards are shown in **Table 5.16** below.

Table 5.15 Loading Dock Service Bay Dimensions

Truck Type	Bay Width (m)	Bay Length (m)	Platform Height (m)	Vertical Clearance (m)
Medium Rigid Vehicle (MRV)	3.5	8.8	0.95-1.10	4.5
Heavy Rigid Vehicle (HRV)	3.5	12.5	1.10-1.40	4.5
Articulated Vehicle (AV) / Semi Trailer	3.5	19.0	1.10-1.40	4.5

Source: AS2890.2 - 2002 Parking facilities Part 2: Off-street commercial vehicle facilities

The amount and location of loading docks required for this development for each building will be determined upon further design of the site.