

**Proposed Mixed Use  
Development - Health Facility  
& Single Residence  
Development**

**Traffic Impact & Carparking  
Assessment**

**66 William Street & 25  
Church Street, PORT  
MACQUARIE**


for

**PAULASTONEARCHITECT**

March 2023



## Traffic Impact Assessment Details

Edition / Revision No.	1	2	3	4	5
Document Status	Draft	DRAFT for Client Comment	Final Draft	Final Draft Parking Updated	FINAL Report Updated
Prepared By	Andy Davis Director 	Andy Davis Director 	Andy Davis Director 	Andy Davis Director 	Andy Davis Director 
Reviewed By	Craig Nethery Director 	Craig Nethery Director 	Craig Nethery Director 	Craig Nethery Director 	Craig Nethery Director 
Date	01 March 2023	30 March 2023	03 April 2023	29 August 2023	27 Sept 2023
Issued To	Internal Review	Paula Stone, Architect	Paula Stone, Architect	Paula Stone, Architect	Paula Stone, Architect

### StreetWise Road Safety & traffic Services Pty Ltd

PO BOX 1395  
Port Macquarie  
NSW 2444

Mob:- 0412 009 558 (Craig Nethery)  
Email:- craig@streetwisersa.com.au

Mob:- 0422 011 353 (Andy Davis)  
Email:- andy@streetwisersa.com.au

[www.streetwisersa.com.au](http://www.streetwisersa.com.au)



## CONTENTS

1. INTRODUCTION .....	4
1.1 General .....	4
1.2 Description of Project.....	4
1.3 Local Road Network .....	4
2. EXISTING TRAFFIC VOLUMES .....	10
2.1 Background Traffic Volumes.....	10
3. DEVELOPMENT TRAFFIC ASSESSMENT .....	11
3.1 Traffic Generation.....	11
3.2 Traffic Distribution.....	14
3.3 Bus Services .....	16
4. INTERSECTION REQUIREMENTS .....	16
4.1 Intersection Assessment .....	16
5. PEDESTRIAN ACCESS.....	16
6. ROAD SAFETY .....	17
6.1 Local Road Network.....	17
6.2 Intersection Sight Distance .....	17
6.3 Pedestrian Safety .....	17
6.4 Cycling Safety .....	17
7. SITE ACCESS.....	18
7.1 Site Access .....	18
7.2 Site Servicing .....	19
8. CARPARKING ASSESSMENT .....	19
8.1 Carparking Requirement .....	19
8.2 Parking allocation .....	22
8.3 Geometric Carpark Design Assessment.....	23
8.4 Carparking Classification.....	23
8.5 Carpark Layout .....	24
8.6 Bicycle and Motorcycle Parking .....	24
8.7 Disabled Parking.....	24
8.8 Driveway Access .....	25
8.9 Summary of carparking & vehicle access requirements for Development.....	25
9. SUMMARY .....	25
10. RECOMMENDATIONS .....	26

## APPENDICES

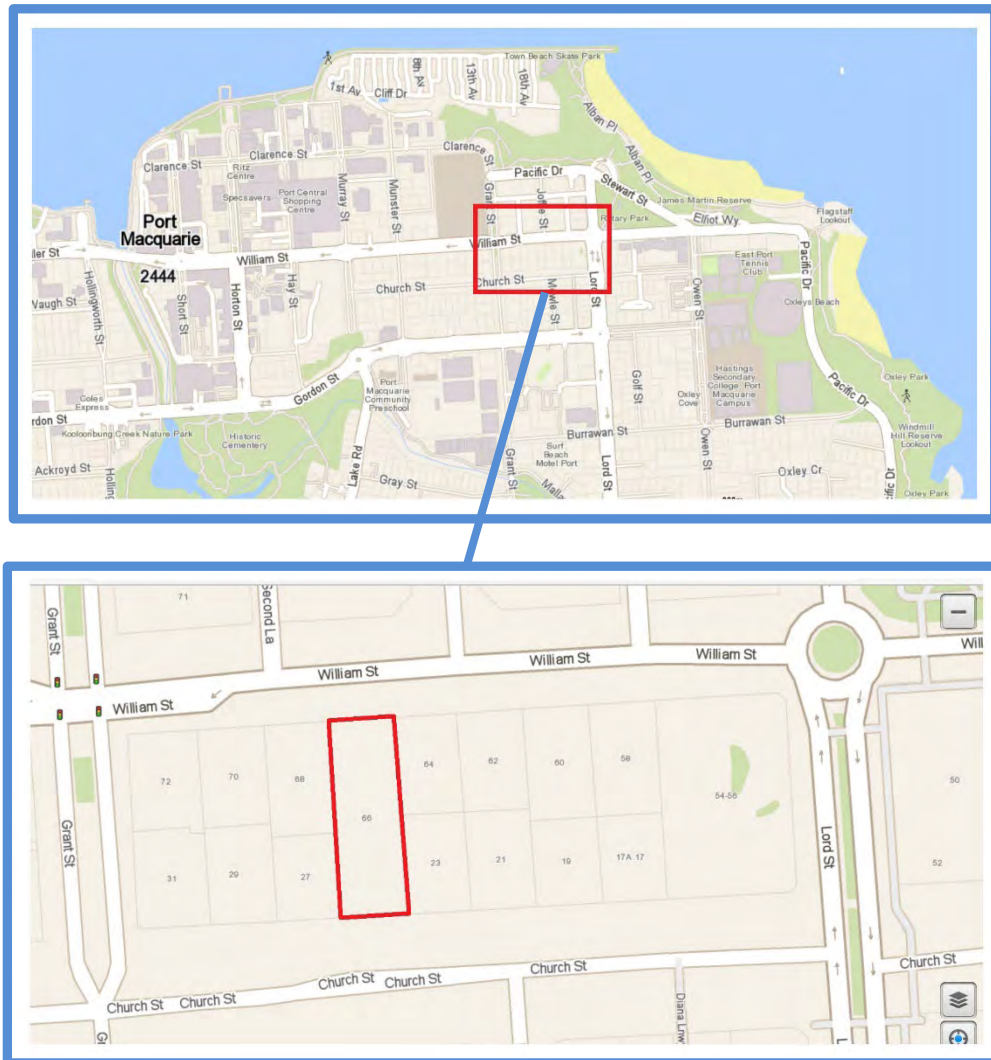
APPENDIX A - Development Proposal.....	27
APPENDIX B – Traffic Counts.....	32
APPENDIX C – Vehicle Turnpaths .....	34
APPENDIX D – Church Street Management Plan.....	36

..

## 1. INTRODUCTION

### 1.1 General

StreetWise Road Safety and Traffic Services have been engaged by Dr J C Heise, to prepare a Traffic Impact and Carparking Assessment for a proposed multi-level medical and residential development in William Street, Port Macquarie.



**Figure 1.1 – LOCALITY SKETCH**

### 1.2 Description of Project

This TIA will assess a proposal to construct a multi-level medical centre with single residential unit development, to be located on William Street, Port Macquarie. The development site is approximately 1225m<sup>2</sup>, and located just east of the Port Macquarie CBD on William Street. The site is described as Lot 1 DP: 350549 and Lot: 2 DP: 350549. These lots are located on the southern side of William Street, with frontage also on the northern side of Church Street. The site is currently vacant.

The proposed development will include 3 levels of medical, allied health activities, coffee nook, a single residence on Levels 5 & 6, as well as 2 levels of underground parking.

### 1.3 Local Road Network

The proposed development site is located on the southern side of William Street, and approximately 500m from the Port Macquarie CBD. Vehicle access to the site is proposed from Church Street, while the main pedestrian access will be from William Street.



### 1.3.1 William Street

William Street is a sub arterial road, which runs east-west through Port Macquarie's CBD and connects with Lord Street and Pacific Drive in the east. The development is located between the intersections with Lord Street (roundabout) and Grant Street (signalised).

In the vicinity of the development site, William Street includes 2 through lanes and a parking lane in either direction, with kerb and gutter both sides. William Street is 24m wide, within a 30m wide road reserve. Across the frontage of the proposed development, the parking lane is approximately 6.5m wide, with vehicles generally angle parking (rear to kerb).

The speed limit of William Street is 50km/h (urban default).



**Figure 1.2** – William Street, looking east towards Lord Street.



**Figure 1.3** – William Street, showing frontage of development site

### 1.3.2 Church Street

Church Street is a local road which connects Murray Street in the west to Owen Street in the east. Church Street is approximately 800m in length, and intersects with Munster Street, Grant Street, Mowle Street and Lord Street. The middle section of Church St, near the proposed development site,

includes a 23m wide sealed carriageway, within a 40m road reserve. Kerb blisters at the Mowle Street intersection defines 90° rear to kerb parking on the southern side of the road. Parking on the development (northern side) is not clearly defined, with some vehicles angle parked, and others parallel parked. Church Street includes kerb & gutter on both sides, but minimal pedestrian facilities.

The speed limit of Church Street is 50km/h (urban default).



**Figure 1.4** Church Street, looking west from Lord Street

#### 1.3.3 Grant Street

Grant Street is approximately 1.5km long and connects Savoy Street in the south to Clarence Street in the north. In the vicinity of Church Street, Grant Street is a sealed collector road which is approximately 23m wide with kerb & gutter both sides. Between Church and William Street, Grant Street includes centre parking, with parallel parking both sides.

The speed limit of Grant Street is 50km/h (urban default).



**Figure 1.5** – Grant Street, looking south across intersection with William Street

#### 1.3.4 Lord Street

Lord Street is a distributor road which connects the Port Macquarie CBD with the southern sections of Port Macquarie via Kennedy Drive. The roadway is 22m wide, with 2 lanes in either direction and kerbside parking both sides. In the vicinity of the proposed development, a landscaped median island separating the 2 carriageways of Lord Street, which means vehicles can only left in and out of the eastern end of Lord Street.

The speed limit of Lord Street is 60km/h.





**Figure 1.6** – Lord Street, looking south at intersection with Church Street

#### 1.3.5 Existing Intersection of William Street & Grant Street

The existing intersection of existing intersection of William St & Grant Street is located approximately 150m from the proposed development site. The intersection is a 4-way signalised intersection, priority given to William Street.

As can be seen from Figure 1.7 below, the existing layout includes 2 lanes each way on William Street, with dedicated right lanes in either direction. Grant Street is generally one lane wide, but widens to 2 lanes at the approach to the intersection.

The speedzone in the vicinity of the intersection is generally 50kmh, but reduces to a 40 kmh schoolzone on weekdays at peak school times.



**Figure 1.7** – Aerial view of the existing intersection of William St & Grant St

#### 1.3.6 Existing Intersection of William Street & Lord Street

The existing intersection of existing intersection of William St & Grant Street is located approximately 220m from the proposed development site. The intersection is a 4-leg roundabout, with 2 lanes on all approaches, apart from a single lane on the eastern approach from William Street.

The speedzone in the vicinity of the intersection is generally 50kmh.



**Figure 1.8** – Aerial view of the existing intersection of William St & Grant St

#### 1.3.7 Existing Intersection of Church Street & Grant Street

The existing intersection of existing intersection of Church St & Grant Street is located approximately 50m from the proposed development site. The intersection is a 4-way intersection, with Give Way signs in Church Street giving priority to Grant Street.

As can be seen from Figure 1.9 below, the existing layout includes a large area of sealed surface, but only one lane approaching from each leg of the intersection. Vehicles crossing from west to east on Church Street often have to undertake a 2-stage crossing, due to the poor sight distance resulting from parking in the centre of Grant Street.

The speedzone in the vicinity of the intersection is generally 50kmh.





**Figure 1.9 – Aerial view of the existing intersection of Church St & Grant St**

#### 1.3.8 Existing Intersection of Church Street & Lord Street

The existing intersection of Church St & Lord Street is located approximately 130m to the east of the proposed development site. The intersection is a T intersection, with Give Way signs in Church Street giving priority to Lord Street.

As can be seen from Figure 1.10 below, the existing layout only permits a left turn in to Church Street and a left turn out.

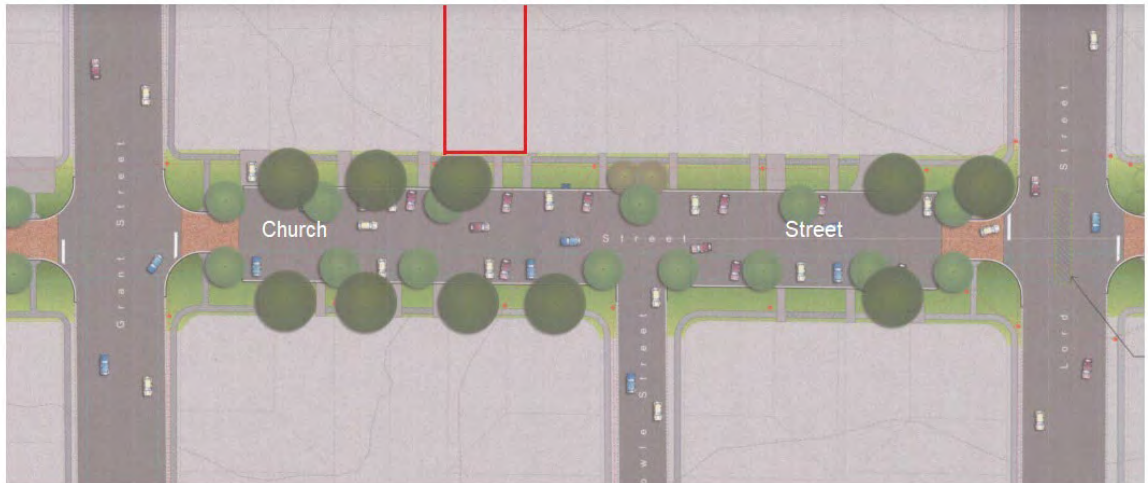
The speedzone of Lord Street, in the vicinity of the intersection is 50kmh.



**Figure 1.10 – Aerial view of the existing intersection of Church St & Grant St**

#### 1.3.9 Church Street – Future Layout

Church Street is a local street, with sections of wide sealed surface, and very wide shoulders. Council have previously prepared concept management plans, which have shown reduce lane widths, formalised parking and selected vegetation. However, recent discussions with Council have not required any consideration of previous traffic or street concept layouts. The proposed development was only required to consider a more recent Tree Management Plan prepared by King & Campbell for Council in 2009..

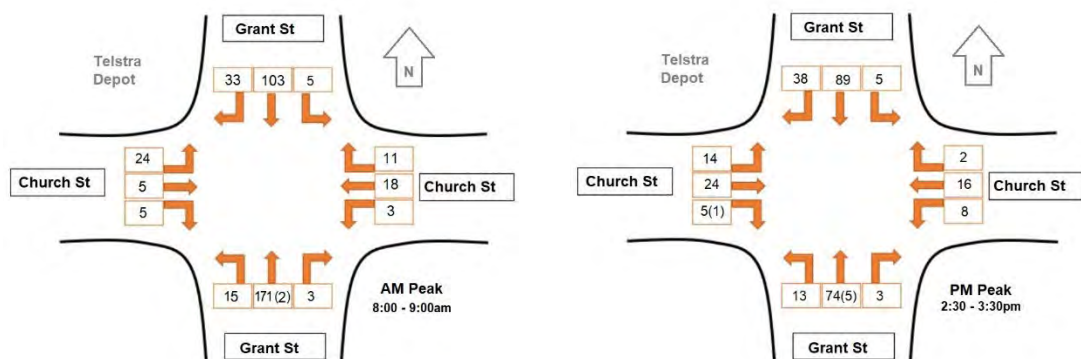


**Figure 1.11** – Detail of Church St Tree Management Plan (King & Campbell)

## 2. EXISTING TRAFFIC VOLUMES

### 2.1 Background Traffic Volumes

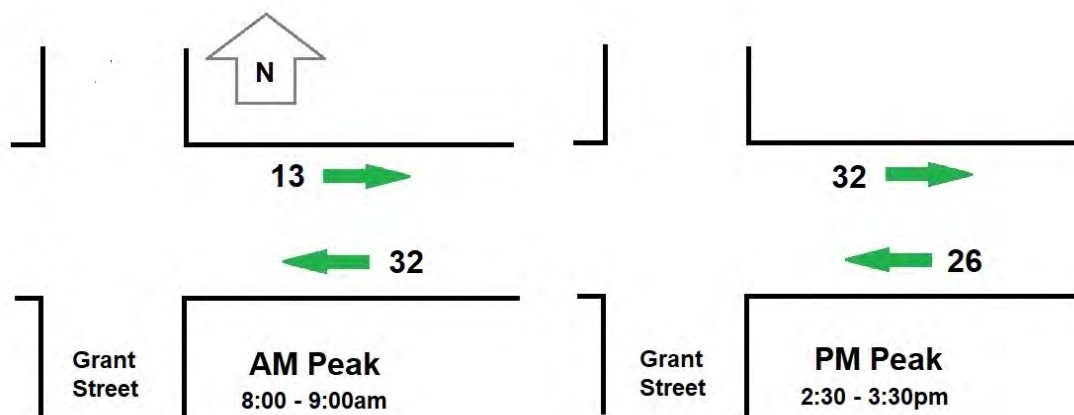
StreetWise undertook a manual traffic count at the existing intersection of Grant Street & Church Street on Friday 24 February and Wednesday 1 March, 2023. Appendix B includes the full traffic count volumes, while Figure 2.1 below shows the peak hour volumes through the intersection. Peak volumes within the vicinity of the development are heavily influenced by the nearby school (Port Macquarie Primary School).



**Figure 2.1.** Peak hour traffic volumes through the intersection of Grant St & Church St

In summary, the manual traffic count indicated:

- The total volumes through the intersection are relatively low with 396 movements per during the morning peak hour and 291 during the afternoon peak hour.
- AM peak hour is 8:00 – 9:00am, while PM peak hour is 2:30 – 3:30pm
- The major movements are straight through on Grant Street with a maximum of 171 vehicles heading north on Grant Street in the hour before school starting.
- Two buses were observed during the AM peak hour, and 6 during the afternoon. No other heavy vehicles were recorded during either counts.
- Movements in Church Street, in the vicinity of the proposed development were:



**Figure 2.2.** Peak hour traffic volumes in Church St (near development site)

### 3. DEVELOPMENT TRAFFIC ASSESSMENT

#### 3.1 Traffic Generation

##### 3.1.1 Description of Development

The proposal is a multi-storey, mixed used development which plans to provide space for medical and allied health activities. The lower levels include 2 undercover parking areas for staff, patients/customers and also residents. The ground floor and Levels 1 & 2 will provide space for medical activities, including GP clinics and specialists practitioners, as well as allied health activities such as pathology, pharmacy and physiotherapy. At this stage, not all floor area has been assigned, although the activities will be health or medical related. The top 2 floors (Level 4 & 5) will be a 5-bedroom, 2-storey residence.

##### 3.1.2 Traffic Generation Rates

The primary reference documents used to determine the traffic flow generated by the developments are the "TfNSW Guide to Traffic Generating Developments". Port Macquarie Hastings Council Development Control Plan 2013 no longer provide traffic generation rates for various landuse types. StreetWise also utilised other sources including previous assessments of similar developments, Traffic Impact Assessments for recently approved DA's in other council areas (including a new physiotherapy centre on the Central Coast).

The following traffic generation rates have been used for this assessment:

- GP Consulting - 10.4 trips per hour per 100m<sup>2</sup> of floor space (TfNSW)
- Pathology collection - 10.4 trips per hour per 100m<sup>2</sup> of floor space (TfNSW)
- Pathology lab - 10 daily trips per 100m<sup>2</sup> gross floor area ((TfNSW – office space)
- Pharmacy – 121 trips per day per 100m<sup>2</sup> GLFA (TfNSW – retail activity)
- Coffee Nook - 60 daily trips / 100m<sup>2</sup> GLFA (TfNSW)
- Visiting Medical Specialists - 10.4 trips per hour per 100m<sup>2</sup> of floor space (TfNSW)
- Physiotherapist - - 10.4 trips per hour per 100m<sup>2</sup> of floor space (TfNSW)
- Residential (see below)



### 3.1.3 Traffic Generation (Physiotherapy)

The TfNSW 'Guide to Traffic Generating Developments' does not provide any traffic generation rates for physiotherapy centres. However, StreetWise reviewed a similar sized development in a similar setting at Erina, New South Wales. B J Bradley & Associates prepared a Traffic Impact Assessment for a proposed physiotherapy centre, at 419 Terrigal Drive, Erina. The proposal (DA 57808/2020) was approved recently by Central Coast Council. The following is based on B J Bradley's TIA.

Tenancy 3, on Level 2, is approximately 379m<sup>2</sup>, and has adequate space for up to 4 practitioners.

#### 1-hour period Assumptions (worst case)

- 4 practitioners and 3 support staff would generally arrive prior to opening (say 8am). However, some practitioners having staggered start / finish times.
- Assuming an average attendance of 30 minutes including waiting time and consultation with a physiotherapist;
- 4 physiotherapists being in attendance at any one time;
- 3 admin staff
- 1 additional patient arrives at the start of an hour for each physiotherapist (total 6);
- 1 patient of each physiotherapist leaves at the end of the first half-hour;
- 1 more patient arrives for each physiotherapist just prior to the end of the first half-hour;
- 1 more patient arrives for each physiotherapist just prior to the end of the first hour;
- 4 patients depart at the end of the hour

In summary, a physiotherapy centre is likely to generate an average of 8 trips per hour at full operation i.e. 4 in & 4 out. At peak times, it is likely that staff commuter trips will increase the hourly volume to around 15.

### 3.1.4 Transport for NSW Guidelines (Residential)

The TfNSW 'Guide to Traffic Generating Developments' provides trip generation rates for Medium Density Residential Flat Buildings. A Technical Direction (TDT 2013/04a) provides updated generation rates, as shown below. The rates shown below were developed following 10 surveys of residential developments, which were conducted in 2012, eight within Sydney, and one each in the Hunter and Illawarra. All developments were (i) close to public transport, (ii) greater than six storeys and (iii) almost exclusively residential in nature. The weekday trip generation rates were as follows:

Weekday Rates	Sydney Average	Sydney Range	Regional Average	Regional Range
AM peak (1 hour) vehicle trips per unit	0.19	0.07-0.32	0.53	0.39-0.67
AM peak (1 hour) vehicle trips per car space	0.15	0.09-0.29	0.35	0.32-0.37
AM peak (1 hour) vehicle trips per bedroom	0.09	0.03-0.13	0.21	0.20-0.22
PM peak (1 hour) vehicle trips per unit	0.15	0.06-0.41	0.32	0.22-0.42
PM peak (1hour) vehicle trips per car space	0.12	0.05-0.28	0.26	0.11-0.40
PM peak (1 hour) vehicle trips per bedroom	0.07	0.03-0.17	0.15	0.07-0.22
Daily vehicle trips per unit	1.52	0.77-3.14	4.58	4.37-4.78
Daily vehicle trips per car space	1.34	0.56-2.16	3.22	2.26-4.18
Daily vehicle trips per bedroom	0.72	0.35-1.29	1.93	1.59-2.26

**Figure 3.1.** TfNSW Traffic Generation Rates for Medium Density Residential Developments

### 3.1.5 Future Traffic Generation - Residential

The proposed development includes 1 residential unit within the top 2 levels and includes 5 bedrooms, and 2 allocated carparking spaces. Using the traffic generation rates shown in Figure 3.1

above, the estimated hourly and daily vehicle trips in & out of the proposed development is shown below:

<b>Weekday Rates</b>	<b>Regional Ave Rate</b>	<b>No. of Units</b>	<b>Trips</b>	<b>No. of carspaces</b>	<b>Trips</b>	<b>No. of Bedrooms</b>	<b>Trips</b>
AM peak (1 hour) vehicle trips per unit	0.53	1	0.53				
AM peak (1 hour) vehicle trips per car space	0.35			2	0.7		
<b>AM peak (1 hour) vehicle trips per bedroom</b>	<b>0.21</b>					<b>5</b>	<b>1.05</b>
PM peak (1 hour) vehicle trips per unit	0.32	1	0.32				
PM peak (1hour) vehicle trips per car space	0.26			2	0.52		
<b>PM peak (1 hour) vehicle trips per bedroom</b>	<b>0.15</b>					<b>5</b>	<b>0.75</b>
Daily Trips per unit	4.58	1	4.58				
Daily Trips per per car space	3.22			2	6.44		
<b>Daily Trips per bedroom</b>	<b>1.93</b>					<b>5</b>	<b>9.65</b>

**Figure 3.2. Estimated Traffic Generation from Future Development using TfNSW Traffic Generation Rates for Medium Density Residential Developments**

Based on the worst case above (Figure 3.2), the residential component of the proposed development, StreetWise have adopted the estimated number of vehicles trips based on the total number of bedrooms to be provided, as shown below:

- AM peak hour trips 1
- PM peak hour trips 1
- Total daily Trips 10

It should be noted that the proposed development will be located within walking distance of Port Macquarie's CBD, and within a few minutes' walk from bus stops, restaurants, cafes, Town Beach, swimming pool, supermarkets and a bowling club. It is expected that residents may opt to walk to nearby destinations, and the total number of daily trips will likely be less than the number adopted above.

### 3.1.6 Future Traffic Generation

Using the traffic generation rates shown in Figure 3.1 above, the estimated hourly and daily vehicle trips in & out of the proposed development is shown below:

Activity	Rate	Area		Trips		Actual Trips	
		GFA	GLFA	Daily	Pk Hr	Daily	Pk Hr
GP Consulting	10.4 trips per hour per 100m <sup>2</sup> of floor space	535.7		560	56	340	34
Pathology collection	10.4 trips per hour per 100m <sup>2</sup> of floor space	36.13		40	4	40	4
Pathology lab (Ten 1)	10 daily trips per 100m <sup>2</sup> gross floor area	298.5		30	3	25	3
Pharmacy	121 trips per day per 100m <sup>2</sup> GLFA	43.85	36.6	45	5	30	3
Coffee Nook	60 daily trips / 100m <sup>2</sup>	13.0		8	1	8	1
Visiting Medical Specialists (Ten 2)	10.4 trips per hour per 100m <sup>2</sup> of floor space	128.7		13.4	2	8	2
Physiotherapist (Ten 3)	See Section 3.1.5	438.2		120	15	120	15
Medical Rooms (Ten 4)	10.4 trips per hour per 100m <sup>2</sup> of floor space	129.7		134	14	8	2
Residential	See Section 3.1.4			10	1	10	1
<b>Total</b>				<b>960.4</b>	<b>101</b>	<b>589</b>	<b>65</b>

**Figure 3.2. Estimated Traffic Generation for Proposed Development**

The table above shows the estimated vehicle trips to be generated by the overall development if every activity were separate entities, and fully operational for 5 days per week. However, it is likely that the total volumes generated by the development will be significantly less, due to the following:

- Internalisation – it is likely that many patients / customers to the future medical centre will utilise more than one activity at the site. For example, it is likely that a patient may visit a GP

and pathology collection in the same visit. Or visit the physio and pharmacy in the same trip. It is also likely that many patients, customers and staff will utilise the coffee nook.

- The majority of tenants of the future medical centre will be involved in medical activities i.e. GPs and visiting specialists. Many GPs do not operate 5 days a week, while specialists may only open their rooms 2 or 3 days a week. Other visiting specialists may only visit Port Macquarie a few days a month
- The medical centre is proposed within a medium density residential area and close to the Port Macquarie CBD. It is likely that many staff and customers will walk to the site, or use alternative transport (bus, taxi, Uber, community transport etc).
- It is also likely that the peak traffic generation of the proposed development will not co-incide with the peak hours of the local road network (which are influenced by the nearby school).

Based on the reasons above, StreetWise have adopted a reduced traffic generation rate for a number of the proposed activities, which results in the following volumes:

- AM & PM Peak Hour      **65**
- Daily                              **590**

### 3.2 Traffic Distribution

Vehicle access to the undercover parking of the proposed development will be via a driveway off Church Street. As discussed previously (and shown in Figure 1.1), the subject section of Church Street connects with Lord Street to the east and Grant Street to the west. Further to the west, Church Street also intersects with Munster Street and Murray Street. In the vicinity of the development, Mowle Street intersects with the southern side of Church Street. Each of these local roads provides a short connection with main roads (Lord Street, William Street and Gordon St), which provide easy access to most parts of Port Macquarie and surrounding areas.

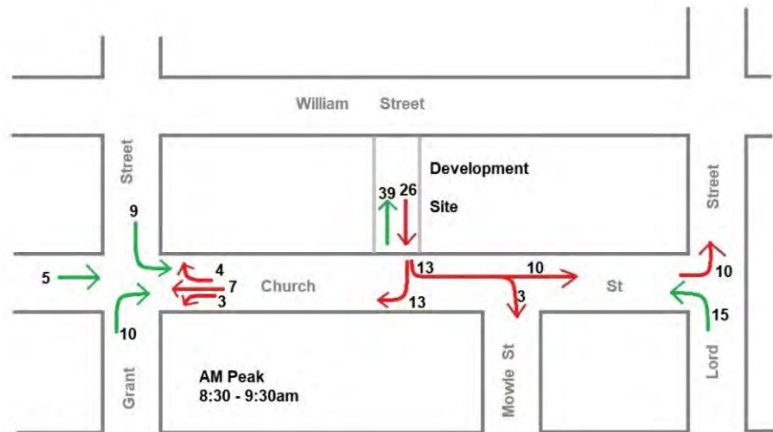
For the purposes of this assessment, it is assumed that vehicles will utilise a number of routes to access the site, and will disperse quickly into the road network on departure.

The distribution of traffic to & from the site is estimated to be constant throughout the day, with slightly more trips inbound in the AM peak, and outbound during the PM peak – say 60% in & 40% out between 8:30 – 9:30 am, and reversed in the afternoon i.e. 40% in and 60% out between 4:00 – 5:00pm. The following assumptions have also been adopted:

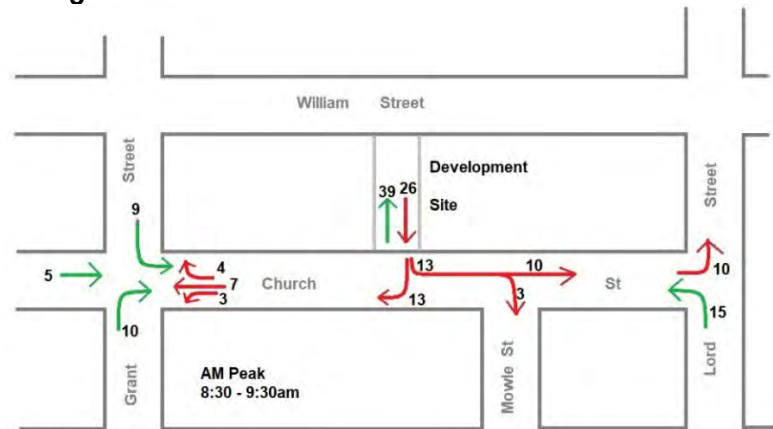
Likely peak hours:	8:30 – 9:30am & 4:00 – 5:00pm
Peak hour split:	AM 60% in & 40% out (39 in & 26 out)
	PM 40% in & 60% out (26 in & 39 out)

Figures 3.3 & 3.4 below provides a summary of the estimated trip distribution to & from the proposed development at AM and PM peak times.





**Figure 3.3. Estimated AM Traffic Generation & Distribution**



**Figure 3.4. Estimated PM Traffic Generation & Distribution**

The development will generate an estimated 65 trips per hour at peak times. As can be seen from Figures 3.3 and 3.4 above, the majority of the vehicle trips will utilise Church Street to enter and exit the proposed medical centre. While 65 additional trips per hour (approx. 1 per minute) is a relatively low number, it is expected that the numbers will disperse quickly, with a minimal number of additional trips being added to any movement through the adjacent intersections.

It should also be noted that a number of future customers may park in William Street, and enter the development via the main doors, which will further reduce the relatively low numbers on Church Street (See Figure 3.5 below). As can be seen from the photo below, there is currently angled, rear-to-kerb parking available for up to 5 vehicles across the frontage of the site, between the 2 existing trees.



**Figure 3.5. Looking south at William Street frontage of development site**

### 3.3 Bus Services

Bus services run regularly each day on Gordon Street, Lord Street and Munster Street, with connections to all parts of the local area. There are a number existing bus stops located within a few hundred metres of the development site, with the closest on Gordon Street, near the intersection with Grant Street (approx. 220m from development site).



Figure 3.6. Snapshot of current bus route map (from Busways website)

## 4. INTERSECTION REQUIREMENTS

### 4.1 Intersection Assessment

StreetWise undertook AM & PM manual traffic counts at the intersection of Grant Street & Church Street. The counted volumes were relatively low, and there were minimal queues or delays noted on any movement. It is likely that all movements through the existing layout are likely to have a Level of Service of 'A' (i.e. free-flowing). The estimated traffic volumes to be generated by the future development are also low (see Section 3 above) and will not have a significant impact on the operation of the intersection.

Similarly, the existing volumes through the intersection of Church Street and Lord Street are relatively low. The proposed development will add 25 movements an hour at peak times (left in and left out only), which will not have a significant impact on the operation of the existing intersection. It should be noted that Lord Street includes 2 lanes in either direction at this location, and has a capacity of up to 1900 vph (Table 4.3 - TfNSW Guide to Traffic Generating Developments). Council's website indicates current volumes on Lord Street (south of Gordon Street), were 13,700 per day, in both directions. This equates to approximately 700 vehicles an hour in the northbound lane during peak times (and likely less – given that a large portion of Lord Street northbound traffic turns left into Gordon Street).

## 5. PEDESTRIAN ACCESS

The main entry to the future medical centre is proposed off William Street, and it is anticipated that the majority of customers walking to the site will enter via the front doors. The existing concrete footpath across the frontage of the site connects with the CBD in the west, Town Beach to the east and further afield via the existing footpath network.

The design plans indicate there will be no pedestrian access proposed from Church Street, with no stairs or ramps to be provided.

## **6. ROAD SAFETY**

### **6.1 Local Road Network**

The majority of vehicle trips generated by the future medical centre will enter and exit the site via Church Street carpark access. As shown in Section 2, Church Street is a very wide road with low traffic volumes and relatively low speeds. Future customers will have adequate space to undertake turning manoeuvres without any significant impacts on existing traffic flows. Similarly, existing intersections in the vicinity of the development are either controlled by signals, or operate efficiently (i.e. have a Level of Service of A or B), which allow vehicles to access the site easily and safely.

The local road network also has the capacity to cater for existing traffic volumes (plus additional traffic generated by the development) with minimal reduction on existing efficiency and safety.

### **6.2 Intersection Sight Distance**

In accordance with the Austroads Guide to Road Design – Part 4a, Unsignalised and Signalised Intersections the Safe Intersection Sight Distance (SISD) for a design speed of 50km/h is 97m for a reaction time 2 seconds. The current intersection of Church St & Lord St generally conforms to this requirement (only sight distance to south is required).

The intersection of Church Street and Grant Street has a number of existing sight distance issues, including:

- Church St (eastbound) – sight distance to the south is reduced by vertical alignment (crest)
- Church St (eastbound) - sight distance to the north is reduced by centre parking
- Church St (westbound) – sight distance to the south is reduced by vertical alignment (crest)

### **6.3 Pedestrian Safety**

As mentioned previously, the existing footpath in William Street is satisfactory, and connects with the CBD/Town Beach precincts. However, a number of roads in the area do not include footpaths, and the pedestrian facilities in the vicinity of the development is incomplete. There is currently no footpath in Church Street, and there is only partial footpath on the eastern side of Grant Street between Gordon Street and William Street.

As discussed above, the majority of pedestrians to the future medical centre will likely enter via the main entry in William Street, and therefore utilise existing footpaths. However, anyone walking to and from the Gordon Street bus stop will need to cross to the western side of Grant Street to access an existing footpath. Also, there are no existing footpaths in Church Street to assist any person wanting access the medical centre from the rear carpark.

### **6.4 Cycling Safety**

There are no dedicated cycling lanes in the vicinity of the proposed medical centre. Cyclists currently utilise the parking lanes in William St, Lord St, Grant St and Gordon St, while Church St has a wide shoulder which can accommodate cyclists.

It is not anticipated that the future medical development will generate any significant number of cycling trips.

The relatively low increase in vehicle movements to be generated by the proposed development will not have any significant impact on existing cycling safety in this area.

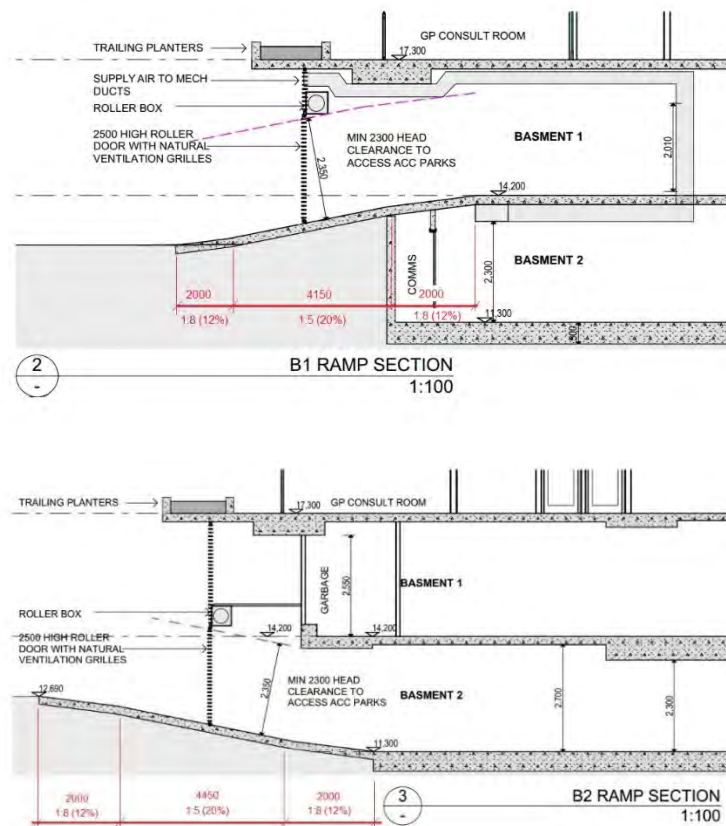


## 7. SITE ACCESS

### 7.1 Site Access

The design plans indicate that the development will include 2 x 6.1m driveways off the northern side of Church Street. The western driveway grades up to Basement 1, while the eastern driveway grades down to Basement 2. The driveways will provide 2-way access to both levels of undercover carparking. The proposed driveway meets the requirements of AS2890, which indicate driveways for a Category 3 or 3A development require a minimum width of 6.0m. Turnpath checks have been undertaken for the driveways, which indicate both have adequate width and satisfactory alignment to cater for 2 vehicles.

The full plan and section of the driveways are included in Appendix A.



**Figure 7.2 – Profile of proposed carpark access (Basement 1 above & Basement 2 below)**

The current plans show the future building will include:

- The northern driveway grades up slightly from the invert of the kerb & gutter on Church Street then grades up to Basement 1 – which complies with Council's standard driveway crossing.
- The southern driveway grades up slightly from the invert of the kerb & gutter on Church Street then grades down to Basement 2 – which complies with Council's standard driveway crossing.
- The separation between the 2 driveways is greater than 5m.
- The driveway width between the kerb and the property boundary is 5.5m, which complies with the requirements of AS 2890.
- The driveway longitudinal section between the Church Street kerb & gutter, and the boundary of the development site will comply with Council's Standard Driveway Profile

StreetWise have reviewed the location of the carpark accesses, and feel the 5.6m clearance between the 2 driveways is adequate, given that the designers have attempted to maximise the separation. As shown in the attached plans, the lower carpark level (Basement Level 2) will be reserved for staff only, while the upper carpark level (Basement Level 1) will be allocated for patients/customers to the site. It is proposed to signpost the carpark entries, and patients/customers will be clearly directed to the correct carparking level. It should also be noted that Church Street is a very wide street with low traffic volumes, and the likelihood of any conflict with local traffic is minimal. In summary, it is the opinion of StreetWise that the layout of the 2 driveways will provide safe vehicle access to and from the future carparking, providing adequate signage is provided, and kerbside parking is not permitted between the 2 driveways.

## 7.2 Site Servicing

It is anticipated the site will more than likely need to be serviced by

- Small delivery Vehicles / Couriers
- Garbage trucks

It is expected that regular deliveries to the site will generally be short-term, and undertaken by a small delivery van or car, utilising any available William Street on street parking, or within the 2 levels of undercover parking.

The design plans show a garbage storage room within the undercover carpark area, close to the entry to Basement 1. It is proposed that residential-sized wheelie bins will be utilised for general waste throughout the building, and stored in the basement storage room when full. Private collection is proposed from Church Street, with up to 7 wheelie bins planned to be wheeled out to the kerb by an employee.

Medical waste will be stored separately, and arrangements have been made to collect this waste regularly by a private company.

## 8. CARPARKING ASSESSMENT

### 8.1 Carparking Requirement

Council's Development Control Plan (Port Macquarie Hastings Council Development Control Plan 2013) specifies the following car parking requirements:

- Off-street parking shall be provided in accordance with the DCP.
- Parking design and layout to be completed in accordance with AS2890.1 & 6 for this development.
- Bicycle and motorcycle parking to be considered.

Based on the proposed activities, the following carparking rates from Council's DCP are to be applied to this development proposal.

#### 8.1.1 Ground Floor

Total Area 688.95m<sup>2</sup>

#### **Tenancy 1 - Coffee Nook**

Area 6.56m<sup>2</sup>

No. seats 4 max

Rate 1 per 7.5m<sup>2</sup> or 1 per 3 seats

Nominal number of parking spaces: 1

***Comment:** The majority of coffee nook customers will visit the site for other reasons & unlikely to use the basement parking spaces. Some may park in William St, or be waiting for an appointment elsewhere in the building. However, given the small area of the proposed coffee nook, it is likely only 1 staff will be required and 1 parking space will be required.*

*Actual number of parking spaces: 1*

**Tenancy 2 - Pathology**

Area 36.61m<sup>2</sup>  
Rooms 2  
Rate 3 spaces per practitioner + 1 space per 2 employees (2 practitioners)

Nominal number of parking spaces: 6

***Comment:** The majority of customers of the pathology rooms are likely to utilise the GP and pathology in the same visit. Actual number of parking spaces: 6*

**Tenancy 3 - Pharmacy**

Area 48.01m<sup>2</sup>  
Rate 1 space per 35m<sup>2</sup>

Nominal number of parking spaces: 2

***Comment:** The majority of customers of the pharmacy are likely to utilise the GP in the same visit. Actual number of parking spaces: 2*

**Tenancy 4 - GP Consulting**

Area 541.5m<sup>2</sup>  
No of Consulting Rm 10 consulting rooms for use by GPs  
Other activities: Treatment room, family consulting room, finance, practice manager  
Staff 15 (10 GPs, 2 nurses, 3 admin & 1 practice manager)  
Rate 3 spaces per practitioner + 1 space per 2 employees

Nominal number of parking spaces: 33

***Comment:** The proposed layout includes 10 consulting rooms, which could accommodate 10 GPs at full capacity. However, consulting rooms may also be utilised by nurses, or set aside for occasional minor surgery or other activities. It should be noted that all patients receiving treatment from nurses (vaccination, wound dressing etc) are required to see a GP first i.e. nurses don't generate additional patients or parking requirements*

*Also, many GPs work an average of 3 days per week, and it is rare to have all consulting rooms utilised at the one time. In addition, an increasing number of GP consultations are conducted 'online' these days, particularly if a patient does not require an examination i.e. request a prescription or require simple advice. It is estimated that an average of 7 GPs will utilise the consulting rooms at any one time. Therefore, a 30% reduction has been applied to the number of parking spaces. Actual number of parking spaces: 24*

**8.1.2 Level 1**

Total Area 567.37m<sup>2</sup>

**Tenancy 5 – Specialist Rooms**

Potential use – Skin specialist  
Area 128.7m<sup>2</sup>  
Staff 2 specialists + 2 staff  
Rate 3 spaces per practitioner + 1 space per 2 employees  
Nominal number of parking spaces: 7



**Comment:** It is common for visiting medical specialists to only utilise their consulting rooms for 1 or 2 days each week. Some may only visit Port Macquarie a few days each month, while others will spend time at hospitals either operating or visiting patients.  
**Actual number of parking spaces: 5**

**Tenancy 6 - GP staff area**

Area 105.3m<sup>2</sup>

Parking Spaces 0

**Comment:** The staff area is a proposed rest and meals area for staff working within the building. This area won't generate any requirement for parking.

**Tenancy 7**

Likely use - Pathology Laboratory

Area 297.3m<sup>2</sup>

Staff 6 max (including admin)

Rate 1 per 2 employee

Nominal number of parking spaces: 3

**Comment:** The proposed pathology lab will house up to 6 staff, but won't cater for any customers. It is estimated that 3 parking spaces will be required for staff

8.1.3 **Level 2**

Total Area 568.78m<sup>2</sup>

**Tenancy 8**

Likely use – Medical Specialists

Area 129.2m<sup>2</sup>

Staff 2 specialists + 2 staff

Rate 3 spaces per practitioner + 1 space per 2 employees

Nominal number of parking spaces: 7

**Comment:** As per visiting medical specialists above – Say 60% occupancy i.e. 5 spaces

**Tenancy 9**

Likely use – Physiotherapy Centre

Area 379m<sup>2</sup>

Physios 4

Staff 2

Rate 3 spaces per practitioner + 1 space per 2 employees

Nominal number of parking spaces: 14

**Comment:** StreetWise have utilised the traffic assessment from a physiotherapy centre at Erina, which was recently approved by Central Coast Council. The assessment was based on the parking and movements details from a similar business, which determined that the parking requirements for a physiotherapy centre averaged out at 2 spaces per practitioner + 1 per admin staff.

It is common for physios work at other locations such as hospitals, nursing homes etc. Some physios regularly visit patients at home, thereby reducing the parking requirement and number of vehicle trips generated by a physio practice.

It should also be noted that patients attending the future physio centre are also likely to visit other businesses within the centre i.e. GPs, specialists, pharmacy and/or the coffee nook.

**Actual number of parking spaces: 10**

#### 8.1.4 Level 3 & 4

##### **2 Storey (5 BDRM) Res Unit**

Rate 2 spaces

Nominal number of parking spaces: 2

Comment: Visitors can utilise undercover parking outside of work hours

#### 8.1.5 Parking Summary

Section 8 above estimates the number of onsite parking spaces the proposed medical centre will require, based on standard parking rates shown in Council's DCP and TfNSW 'Guide to Traffic Generating Developments'. StreetWise have assessed the proposed development using the above guides, but have also spoken to a number of GPs, specialists and allied health practitioners, as well as adopting parking rates from a similar (and recently approved) development for the future physiotherapy centre.

As discussed above, the future development will include a range of medical, allied health and associated businesses, which will result in a significant number of shared customers and a large proportion of customers/patients will visit more than one activity on the site i.e. the parking requirements for each business should not be considered individually. Therefore, for the purposes of this assessment, StreetWise have reduced the parking rate for a number of the future activities accordingly (as explained above).

The latest design plans indicate a total of **58** onsite spaces will be provided within Basement 1 and Basement 2.

Tenancy	Activity	Rate	Parking		Comment/reduction
			Raw	Actual	
1	Café (6.56m <sup>2</sup> )	1 space per 7.5m <sup>2</sup>	1	1	
2	Pathology collection (2 path )	3 Spaces per Path + 1 per 2 staff	6	6	Some customers are GP patients
3	Pharmacy (43.85m <sup>2</sup> )	1 space per 35m <sup>2</sup>	2	2	Majority of customers are GP patients
4	GP Consulting (10 x GPs + 2 nurses + 4 staff)	3 Spaces per GP + 1 per 2 staff	33	24	70% Occupancy
5	Skin Clinic (2 x spec + 2 staff)	3 Spaces per GP + 1 per 2 staff	7	5	3-day week per specialist
6	GP Staff Area	No parking generated.	0	0	
7	Pathology lab (6 x staff)	1 space per 2 staff	3	3	
8	Visiting Medical Specialists (2 docs + 2 staff)	3 Spaces per GP + 1 per 2 staff	7	5	2 - 3 day week per specialist
9	Physiotherapist (4 physios + 2 staff)	3 space per physio + 1 per staff	14	10	2 space per practioner
	Residential (5 x bdrms)	2 spaces	2	2	
Total			75	58	

**Figure 8.1 – Summary of future medical centre activities and parking requirements**

It should be noted that additional on-road parking is also available within William Street and Church Street. It is likely that many customers planning short-term stays (i.e. pharmacy and coffee nook) will park on the road in William Street or use the centre parking in Grant Street, rather than enter the undercover parking levels from Church Street.

#### 8.2 **Parking allocation**

It is proposed to utilise Basement 2 for parking for doctors and other staff at the centre, while Basement 1 will be for the use of patients and other customers of the medical centre. Signage at the carpark entry off Church Street will clearly direct drivers to the appropriate parking level. Figure 8.2 below a proposed allocation of parking areas for doctors, staff and patients/customers.

Tenancy	Activity	Staff (Medical)	Staff (non medical)	Capacity (rooms only not	Level B2	Level B1	Total parks
					Staff / Res Park allocated	Patron parking unallocated	
1	Coffee nook	0	1	100%	1	0	1
2	Pathology Rooms	2	0	100%	2	4	6
3	Pharmacy	By area	1	100%	1	1	2
4	GP Rooms	10	6 (2 nurses + 4 staff)	70%	10 2 (Public)	12	24
5	Skin Specialist	2	2	60%	2	3	5
6	GP Staff Room	0	0	0	0	0	0
7	Pathology Lab	0	3	100%	3	0	3
8	Specialist Rooms	2	2	60%	2	3	5
9	Physiotherapy	4	2	100%	5	5	10
	Residence (2 spaces)		0	100%	2	0	2
					28	28	58

**Figure 8.2 – Proposed allocation of future parking spaces.**

### 8.3 Geometric Carpark Design Assessment

The design of the carparking layout is specified in the 'Australian/New Zealand Standard, Parking Facilities Part 1: Off Street Carparking (AS/NZS 2890.1) and Australian/New Zealand Standard, Parking Facilities Part 6: Off street parking for People with Disabilities. The comments below relate assessment of the latest layout as provided to Streetwise Road Safety & Traffic Services.

### 8.4 Carparking Classification

The proposal is made up of the following land use components.

- Proposed medical rooms and allied health services
- Residential units (2-storey, 5 bedroom)

Undercover carparking for the development will be located on Basement Levels 1 & 2, and the layout can be found in Appendix A. The layout includes:

- 3 disabled spaces (2 on Level B1 & 1 on Level B2) and associated clearzone space
- 5 smaller spaces (to be signposted 'SMALL CARS ONLY') Note that some of the small car spaces are only marginally less than AS 2890 requirements.

A number of spaces also include ducting or other overhead obstructions, which will be clearly delineated and signposted.

Part 1 of AS2890 classifies the majority of this development as a Class 3 or 3a off-street car parking facility requiring a Category 2 driveway off a local road. Table 8.1 provides a comparison on the requirements of AS/NZS 2890.1 and AS/NZS 2890.6 applicable to the car parking proposal to be provided for the development.

Design Component	AS / NZS 2890.1 & AS / NZS 2890.6 Requirement	Proposed	Conformance with Standard
Parking Space	5.4m x 2.6m car space (To a wall)	5.4m x 2.6m car space	<b>YES</b>
	Additional 300mm when adjacent a wall	300mm	<b>YES</b>
	5.4m x 2.4m plus 5.4m x 2.4m shared zone disabled	5.4m x 2.6m plus 5.0m x 2.6m shared zone disabled (to a low kerb)	<b>YES</b>



Aisle Width	5.8m min (Class 3)	5.8 m	YES
Blind Aisle	1.0m	1.0m	YES
Driveway Width	Category 1 d/w = 6.0 to 9.0m	Combined 6.1m wide driveway	YES

**Table 8.1 – Summary Of Australian Standard Geometric Design Requirements**

Table 8.1 shows this development proposal generally adheres to the above Australian Standard Requirements. Note that the footpath crossing / driveway profile will need to comply with Council's standard drawings.

## 8.5 Carpark Layout

The design plans show the layout and dimensions for 2 levels of onsite, under-cover carparking.

Basement 1 is generally at ground level, and includes:

- a 2-way access driveway,
- security gate / roller door
- 28 spaces (including 3 small car spaces and 2 disabled spaces)
- Turning bay towards the northern end of the access aisle.
- Driveway and ramp up from Church Street

Basement 2 is below ground level, and includes:

- a 2-way access driveway
- security gate / roller door
- 30 spaces (including 2 small spaces and 1 disabled space)
- Turning bay towards the northern end of the access aisle
- Driveway and ramp down from Church Street
- Bike parking

The layout of the carpark generally conforms to the AS2890.1 design requirements. The proposed dimensions of the car spaces meet the minimum requirements, while the aisle widths also met the requirements of AS 2890.

Turnpath checks have been prepared for a number of locations within the basement levels, including around the ramps, entry door and various parking spaces. The turnpath checks indicate there is satisfactory space and manoeuvring area available within both levels of carparking.

The plans also indicate surface levels of the basement levels will provide adequate height and clearance to cater for most vehicles.

## 8.6 Bicycle and Motorcycle Parking

Council's DCP 2014 requires the consideration of off-street parking for bicycle and motorcycles for all developments. The design plans indicate an area for bicycle parking within both basement parking levels, but no formal parking is designated for motorbikes. However, there is space within both parking levels to park a number of motorbikes, if required.

## 8.7 Disabled Parking

The design plans indicate 3 disabled spaces will be provided within the 2 levels of undercover parking. Two spaces will be provided on Level B1 (customers & patients), and 1 on Level B2 (Doctors and staff). Each disabled space will include an adjoining shared space (with bollards to designate 'no

parking'). Each of the disabled spaces will be located close to the lifts, and easy access to each level of the building.

### **8.8 Driveway Access**

AS2890.1 requires the driveway accesses for this development to be a minimum of 6.0m wide. The driveway access should be located perpendicular to the road frontage (of Church Street). The design plans indicate the driveways will meet the minimum requirements, and turnpath checks indicate the driveways will be suitable to cater for the majority of vehicles.

### **8.9 Summary of carparking & vehicle access requirements for Development**

The development is required to provide a total of 58 onsite parking spaces in accordance with Council's DCP and other guidelines. The future development will include a total of 58 onsite, under-cover, off-street parking spaces (an excess of 2 spaces), which includes 3 x disabled spaces. Additional on-road parking is also available within William Street and Church Street.

The proposed layout will provide 28 spaces (including 2 disabled) on Level B1 for customers and patients, while Level B2 will be allocated to doctors and other staff. Signage at the Church Street entry will clearly delineate the 2 parking levels and direct drivers to the appropriate driveway.

Two 6.1m wide driveways will provide access to Basement Levels 1 & 2 from Church Street. Turnpath checks indicate the driveways have adequate width to cater for 2-way traffic.

## **9. SUMMARY**

StreetWise Road Safety and Traffic Services have been engaged by Dr Jason Heise to prepare a Traffic Impact and Carparking Assessment for a proposed multi-level medical centre development at 66 William Street and 25 Church Street, Port Macquarie, on a vacant lot that has frontages to both streets.

The proposed development will include 3 levels of medical rooms, coffee nook and allied health businesses, as well as a 2-storey, 5 bedroom residential unit on the upper levels. The development will also include 2 levels of underground carparking.

Pedestrian access to the future medical centre will be from the footpath in William Street, while vehicle access to the undercover parking will be from Church Street.

Existing traffic volumes in the vicinity of the proposed development are relatively low, particularly on Church Street, which has a total of less than 600 vehicles per day in both directions. Volumes on other streets in the area include: William Street (AADT of 6,400), Grant St (3500) and Lord St – south of Gordon St (14,500).

Access to the undercover parking levels of the future medical centre will be via Church Street. The majority of development generated vehicles will pass through the intersection of Grant Street & Church Street in the west or Church Street & Lord St in the east. Both existing intersections appear to operate efficiently, and have adequate capacity to cater for the additional traffic movements to be generated by the development. StreetWise consider the existing volumes are relatively low, the delays & queues are minimal, and there is no requirement to model or otherwise assess the operation of the intersection.

StreetWise utilised traffic generation rates from TfNSW 'Guide to Traffic Generating Developments', as well as adopting traffic rates from similar developments. Reductions to these rates, due mainly to internalisation, were adopted, due to a number of factors, including the likelihood of customers visiting

a number of businesses within the development in the one trip, and also the reduced number of working days/hours by specialist practitioners each week. The proposed development will add approximately **590** daily trips to the local road network, and **65** trips during the morning & afternoon peak hours. StreetWise have determined that the vehicle trips generated by the future medical centre will disperse quickly throughout the local road network, and have no significant impacts on any particular intersections or roads in the vicinity.

StreetWise have adopted Council's DCP, TfNSW Guide to Traffic Generating Developments and comparisons with similar developments to determine the parking requirements of the future medical centre. Due to internalisation, these rates were reduced due to the likelihood of customers visiting a number of businesses within the development in the one trip, and also the availability of existing on-road parking within the local road network. Customers may also walk to the future centre, or access via taxis or community transport. The development site is located close to the Port Macquarie CBD and within easy walk of a number of bus stops, with the closest located 220m away at the intersection of Gordon St & Grant St.

Overall, StreetWise have determined that 58 parking spaces will be required, and the layout indicates that 58 onsite parking spaces will be provided.

The configuration of the carparking layout is generally provided in accordance with the Australian Standard (2890.1) requirements. The proposed driveway will be 6.1m wide, with adequate width to cater for 2-way traffic flows (as indicated by turnpath checks).

Pedestrians will access the future medical centre via the main entry off William Street. The existing footpath in William Street provides connection to the CBD, Town Beach and other destinations. However, there is a lack of connectivity of the local footpath network, with no footpaths provided in Church Street, or the eastern side of Grant Street. .

## 10. RECOMMENDATIONS

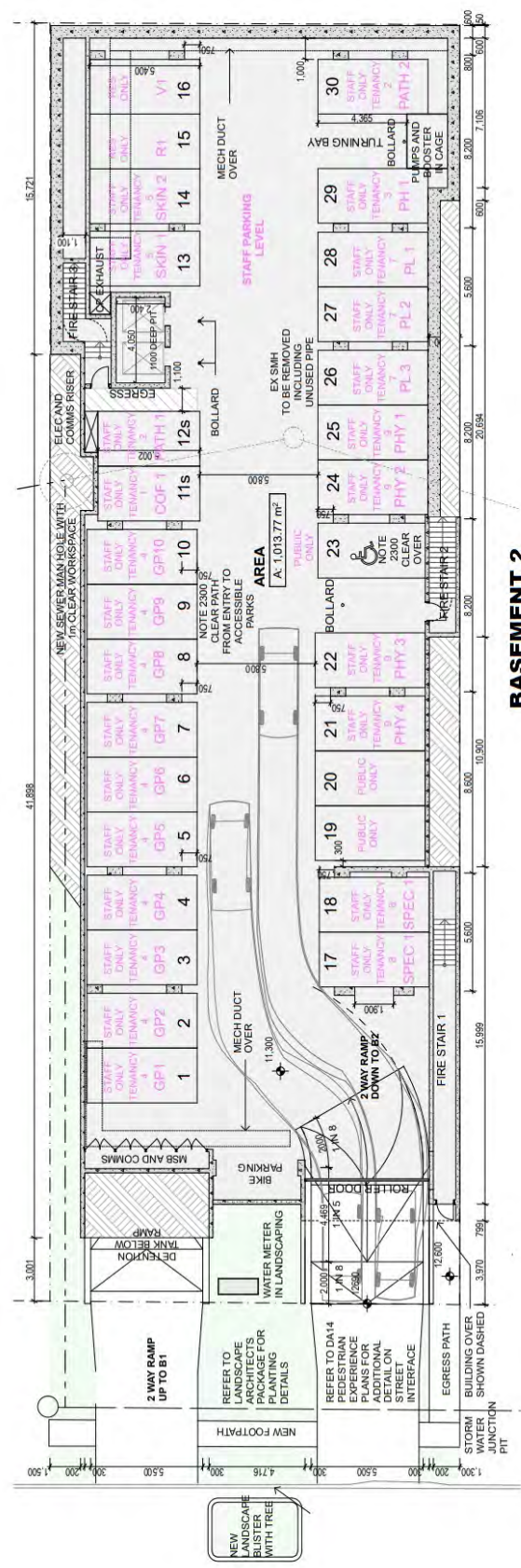
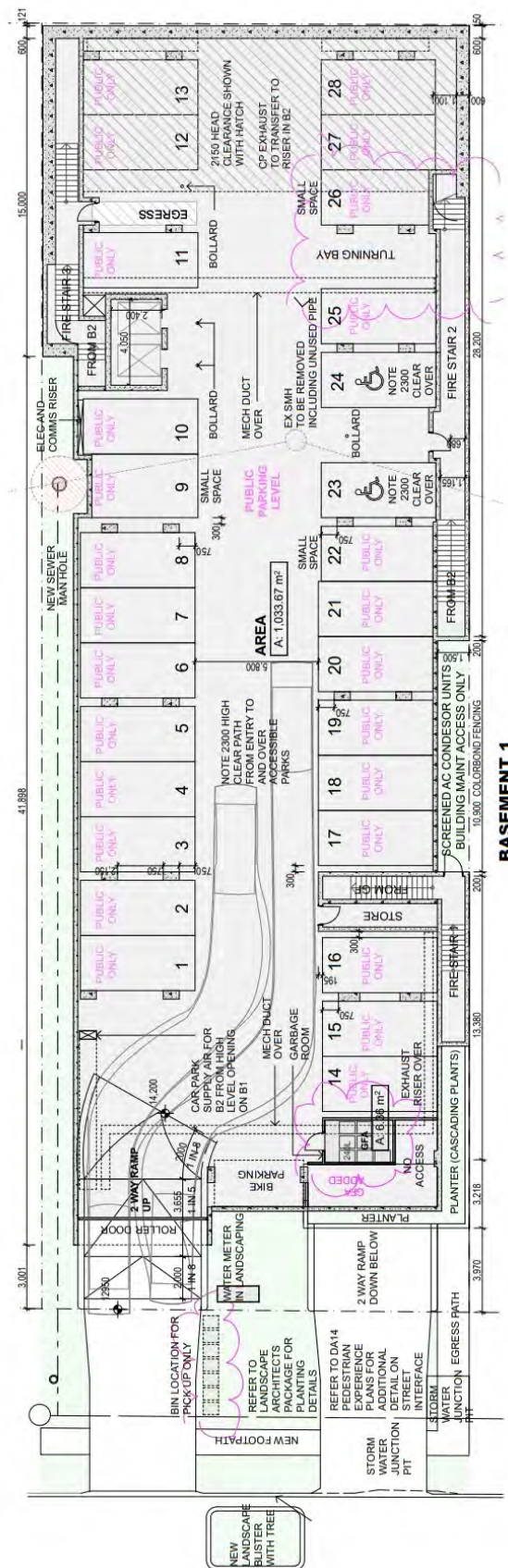
In summary, StreetWise Road Safety and Traffic Services recommend that the proposed development as being a suitable development based on the predicted traffic impacts, and the additional vehicle trips to be generated by the development will not have a significant impact on the efficiency or safety of the local road network. The local roads and nearby intersections have the capacity to cater for the additional trips to be generated by the development.

Access to the development and the carparking layout generally comply with Council's DCP, TfNSW guidelines and Australian Standards



## APPENDIX A DEVELOPMENT PROPOSAL

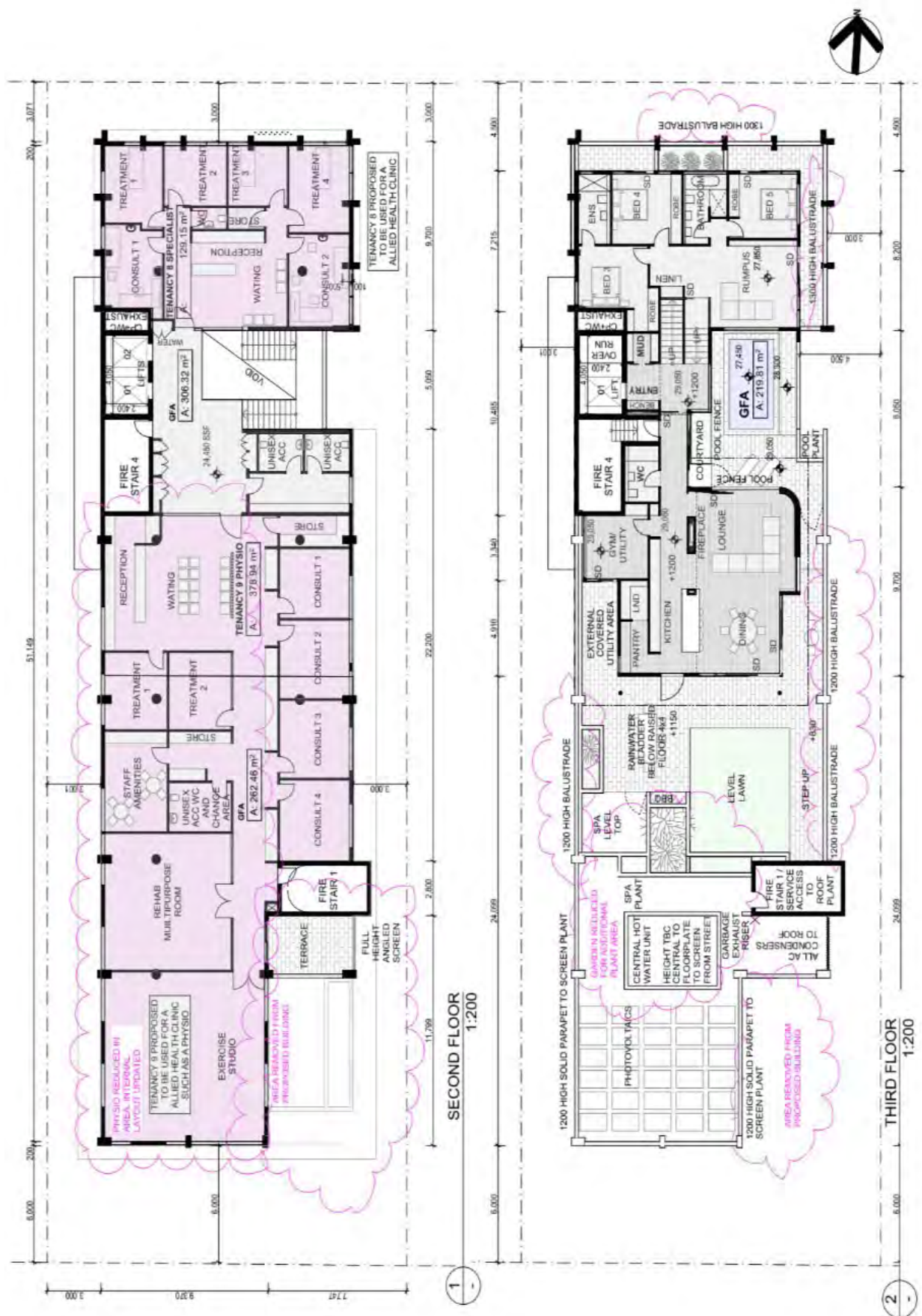
Basement 2  
Basement 1  
Ground Floor  
Floors 1 – 3  
Floor 4 & 5

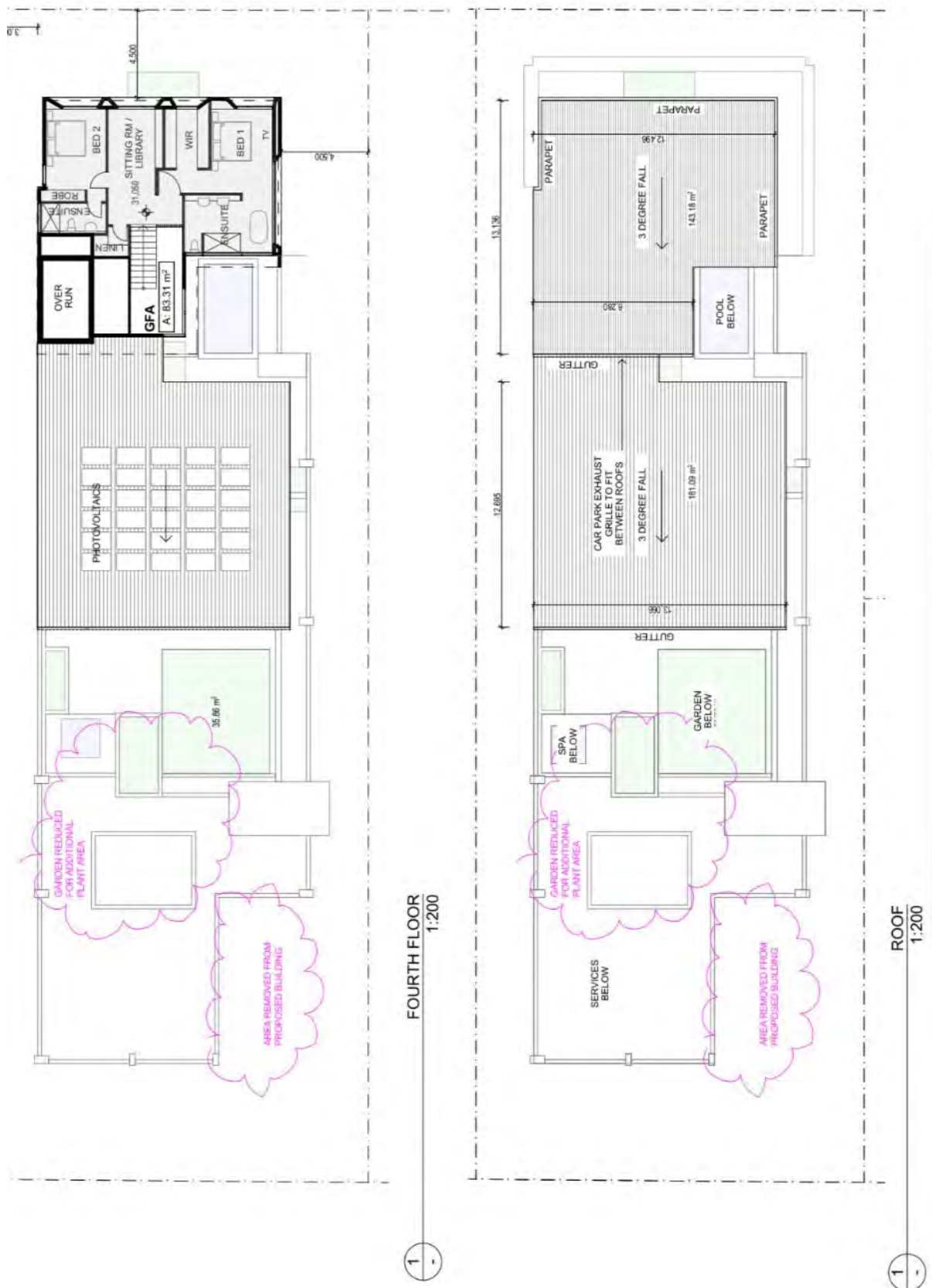




































**APPENDIX B**  
Raw Traffic Count Data  
Intersection of Waugh & Gore Streets



1		2		3		4		5		6		7		8		9		10		11		12		15 min Total	1 hr Total
																									
Church St (east)						Grant St (south)						Church St (west)						Grant St (north)							
Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy		
1		1		0		1		8		2		0		2		1		1		5		0		22	
1		2		1		0		11		3		1		4		4		1		12		1		41	
1		1		0		1		17		4		0		0		1		2		7		0		34	
1		6		0		1		10		1		2		1		6		0		13		1		42	139
2		3		1		0		24		3		0		1		6		0		22		0		62	179
1		2		1		0		32		3		2		1		4		9		20		2		77	215
5		7		0		2		60		4		2		1		8		8		35		2		134	315
3		6		1		1		53	2	5		1		2		6		16		26		1		123	396
2		2		0		0		22		3		1		1		5		5		12		0		53	387
																							0	310	
																							0	176	
																								566	

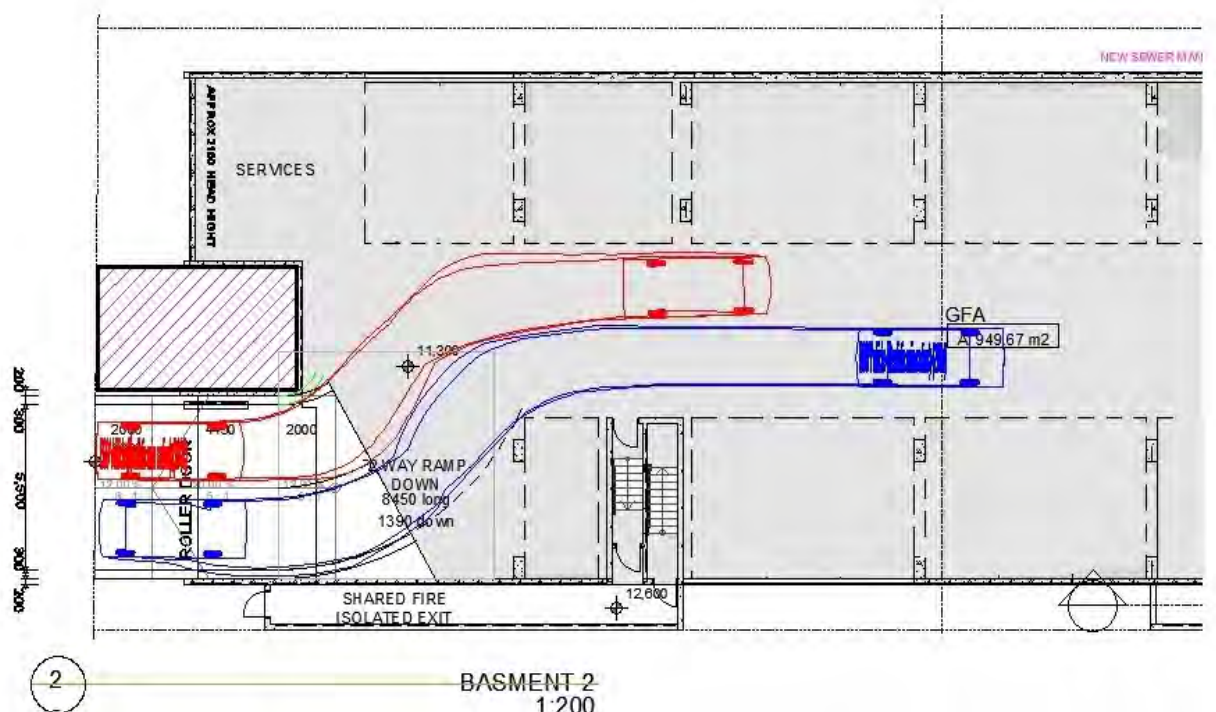
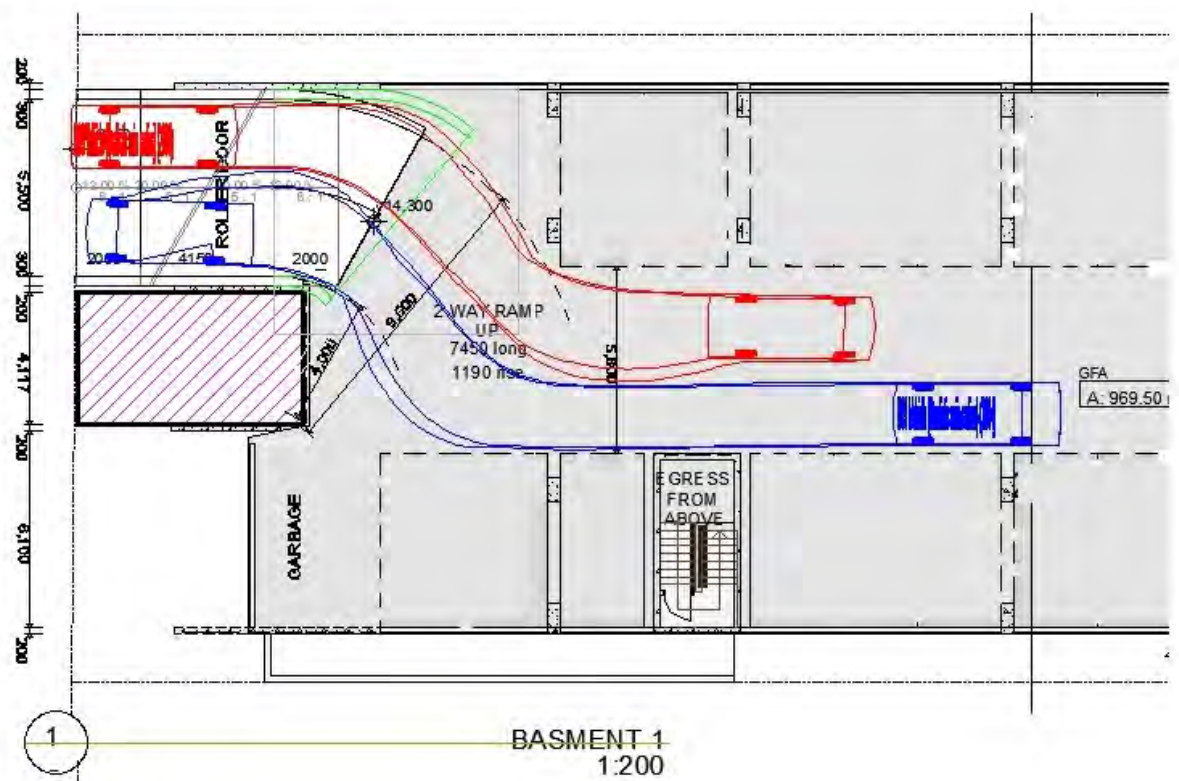
1		2		3		4		5		6		7		8		9		10		11		12		15 min Total	1 hr Total
																									
Grant St (north)																									
Church St (east)						Grant St (south)						Church St (west)						Grant St (north)							
Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy	Light	Hvy		
1		4		3		1		14		3		1		4		2		9		18		1		61	
1		5		5		1		23		4		2		1		8		14		33		2		118	
0		5		0		0		16		2		0		3		2		10		28		1		67	
0		2		0		1		16		4		1		3		2		5		10		1		45	291
0		2		0		1		16		2		2		3		1		3		19		1		50	280
0		2		3		2		11		3		1		4		2		2		18		1		49	211
0		4		2		0		20		3		2		3		2		3		16		1		56	200
1		8		0		1		22		1		0		5		1		1		7		1		48	203
0		2		0		0		18		2		0		8		2		2		6		2		42	195
																								0	146
																								0	90
																								475	



## APPENDIX C

### Vehicle Turnpath Checks

### Basement 1 & 2



**APPENDIX D**  
Church Street  
Tree Management Plan

