

Traffic



TaylorThomsonWhitting

---

# Shoalhaven Cancer Care Centre Traffic and Parking Report

---

## for Health Infrastructure

10<sup>th</sup> May 2011

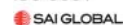
Job No: 101498

Taylor Thomson Whitting (NSW) Pty Ltd Consulting Engineers ACN 113 578 377  
48 Chandos Street St Leonards NSW 2065 PO Box 738 Crows Nest 1585  
T 61 2 9439 7288 F 61 2 9439 3146 ttwsyd@ttw.com.au www.ttw.com.au

This document is copyright and is the property of Taylor Thomson Whitting (NSW) Pty Ltd and must not be used without authorisation



Quality  
ISO 9001



SYDNEY

CANBERRA

MELBOURNE

QEC 22375

# Table of Contents

	<b>Page</b>
<b>1.0 INTRODUCTION.....</b>	<b>3</b>
<b>2.0 DEVELOPMENT PROPOSAL .....</b>	<b>3</b>
2.1 PROJECT DESCRIPTION .....	3
2.2 DEVELOPMENT SITE .....	4
<b>3.0 TRAFFIC AND PARKING .....</b>	<b>5</b>
3.1 ACCESS AND ROAD SYSTEM .....	5
3.2 PARKING SUPPLY AND DEMAND .....	6
3.3 ACCESSIBILITY.....	7
<b>4.0 TRAFFIC IMPACT .....</b>	<b>8</b>
<b>5.0 CONCLUSION .....</b>	<b>9</b>
APPENDIX A           BUS ROUTES	

## **1.0 INTRODUCTION**

As part of the proposed South Coast Regional Cancer Network redevelopment, Taylor Thomson Whitting have been engaged by Health Infrastructure to advise on structural, civil and traffic aspects of the project.

This report relates to new development of the Shoalhaven Cancer Care Centre (SCCC) with respect to traffic engineering and parking requirements for the proposed new works.

The proposed new Cancer Centre will function independently from the Hospital where all its functions particularly those related to infrastructure requirements (such as access and parking) will take place on site.

This report has been prepared on the basis of traffic engineering and transport planning principles and relevant NSW Planning and the RTA's guidelines. It should be noted that there are no specific guidelines by the authorities for these types of developments where case specific assessment should be carried out.

## **2.0 DEVELOPMENT PROPOSAL**

### **2.1 Project Description**

The Shoalhaven Cancer Care Centre was identified as part of NSW Health's Radiotherapy Services Strategic Plan 2016 and has already been allocated \$23.8 million in federal funding and \$10 million from the NSW Government.

The site adjoins Shoalhaven District Memorial Hospital, which is located at the northern side of the new Cancer Care site. It is a free standing structure on a "greenfield" site, and is not connected to the existing hospital other than by a pedestrian pathway adjacent to the existing oval.

The Centre will have the full time equivalent of 44 health professional jobs such as nursing, medical support, radiotherapy specialists, doctors and medical specialist staff.

The project will provide:

- two radiotherapy treatment bunkers;
- a range of associated treatment and planning equipment including a new computed tomography (CT) scanner and orthovoltage/superficial x-ray machine;
- expansion of chemotherapy treatment places from 6 to 14;
- patient consult areas;
- waiting and reception space;
- clinical trial facilities;
- patient information and support services; and
- a 10 bedroom patient and carer accommodation facility.

## 2.2 Development Site

The development site is to the south of the current Shoalhaven Hospital site, with the proposed location at the corner of Scenic Drive and North Street. Scenic Drive forms the western boundary of the site while North Street will limit its southern side.

The site is currently a greenfield site, with the high point of the site in the south-west corner, falling towards the north-west, towards the current oval. An internal pedestrian pathway will join this site and the existing Shoalhaven Hospital.

The relevant key items include:

- Access will be provided via Scenic Drive and off North Street.
- The proposed access road will improve access to the site, and an area for turning will be allocated within the site boundary.
- A total of some 62 parking spaces are proposed for the unit.

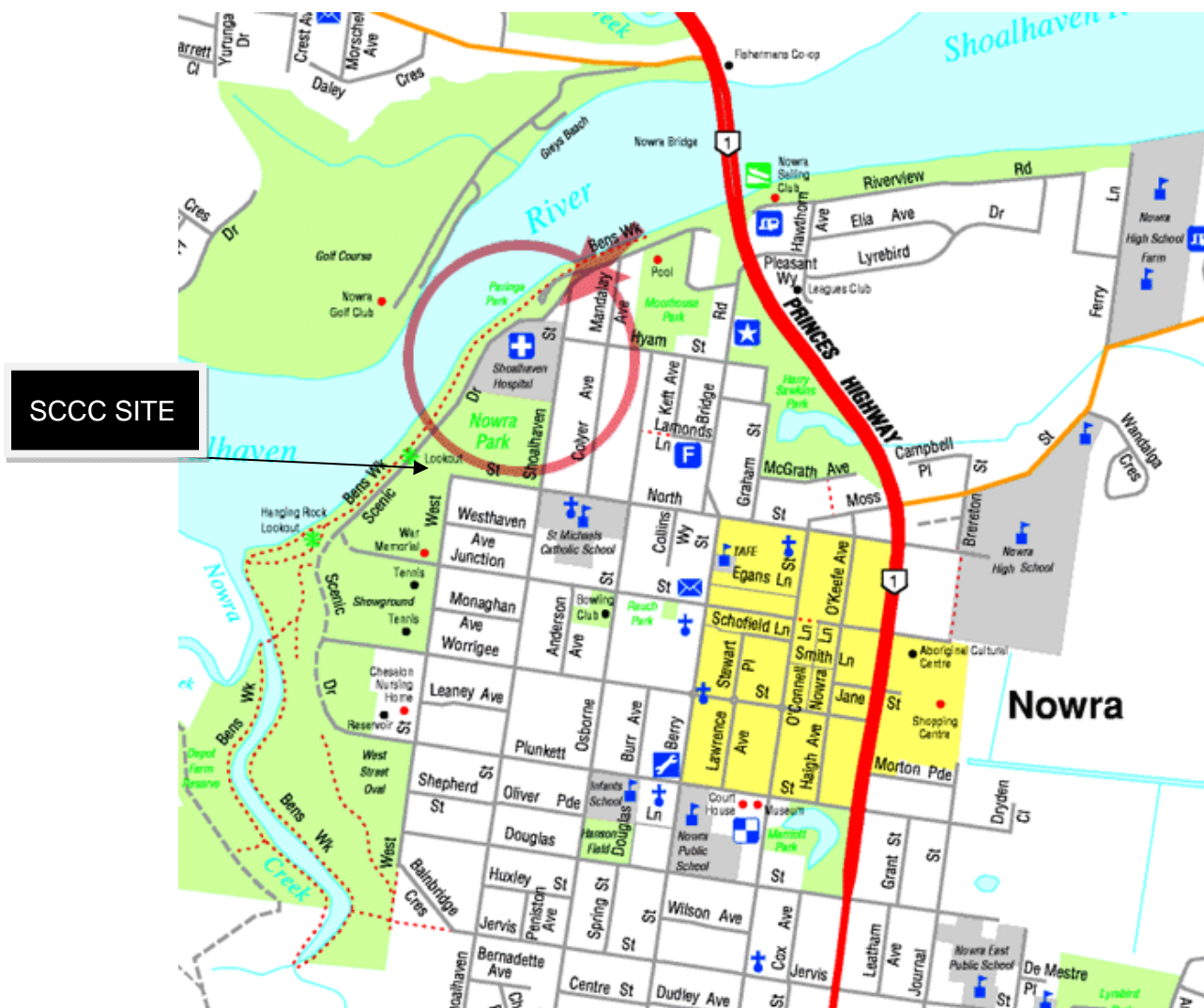


Figure 2.1

Locality Map

### 3.0 TRAFFIC AND PARKING

#### 3.1 Access and Road System

Access to the site will be provided via Scenic Drive (in and out) with an egress driveway off North Street. These streets form a t-junction intersection which provides an access to the proposed site via North Street and Scenic Drive (two way vehicular movements along these streets).

Scenic Drive has a carriageway width of about 8m at the vicinity of the site. Average daily traffic (ADT) volumes along Scenic Drive at north of North Street is recorded at **1031** vehicles per day (vpd) – equivalent to 150 vehicles per hour (vph). North Street provides a link between Scenic Drive and Shoalhaven Street from west to east. Traffic volumes along Shoalhaven Street, north of North Street are reported at 1594 vpd (Council Data, 2009) – equivalent to 230 vph (two way i.e. less than 200vph per direction). Considering **Table 3.1**, all these roads operate at a good level of service with ample capacity.

#### Street System Operation

The term “level of service” for **road capacity** has been defined by AUSTRROADS as:

*A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and or passengers.*

*A level of service definition generally describes these conditions in terms of factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety. In general there are six levels of service designated from A to F, with level of service A representing the best operating conditions (ie free flow) and level of service F the worst (ie forced or breakdown flow).*

One-way hourly volumes for urban roads during peak hours and recommended level of service are shown in **Table 3.1**.

**Table 3.1 Urban Road Peak Hour Flows per Direction**

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

*Source: RTA Guidelines 1995*

Architectural drawings illustrate access arrangement for the site.

Access to the site will be accommodated via two driveways (as mentioned before one from Scenic Drive and one from North Street) with over 6.0m width for each driveway. All vehicular traffic movements to and from the site will be in forward direction. The access from Scenic Drive will accommodate two way movements (in and out) while the driveway off North Street will be used as egress only particularly for larger vehicles.

The proposed access arrangements provide pick up and set down facility at the entrance to the new building accommodating car pool/ride activities.

Service vehicles (generally small trucks, vans) and ambulance can enter/exit via Scenic Drive or egress onto North Street. It is expected that most of these movements take place as an entry from one Scenic Drive and exit from North Street. The proposal also includes appropriate area for service and delivery vehicles as shown in the relevant architectural drawings.

### 3.2 Parking Supply and Demand

It should be noted that Council's planning policies or the RTA's Guide to traffic generating developments do not indicate specific parking provision for these types of developments and assessments should therefore be based on site specific requirements/demand.

Based on staff number provided by the Area Health Service, a total of 44 full time staff would be required for the proposed Cancer Care unit. This will require a staff parking demand of **35** spaces. This is based on previous studies for similar sites e.g. Wagga Wagga, Concord and Tamworth Hospitals (URaP-TTW 2009, 2008 and 2010) where a vehicular car use of some 80% has been reported among staff.

The parking demand for the proposed site is estimated on the basis of the following assumptions based on similar Cancer Care units such as Gosford and Wyong Hospitals (URaP-TTW, 2010) and information supplied by Health Services:

<u>Population</u>	<u>Parking Demand</u>
Staff Number: 44 spaces	80% car use = <b>35</b>
Designated staff (Chief Physicist, etc.)	<b>3</b> spaces
Radiotherapy: 30/day with 40 min/treatment	30 per 6hrs = <b>5</b> spaces
Radiotherapy planning: 5/day- 1.5hr/treatment	5/3hrs = <b>2</b> spaces
Chemotherapy: 30/day with 9 over 5hrs	
12 bet 2-5 hrs and 9 less 2hrs	11/3hrs + 9/3hrs + 10 dropped off = <b>7</b> spaces
Clinical: 30/day- 45min-1hr per treatment	30/6hrs = <b>5</b> spaces
Accommodation: 10 units with 50% car use	<b>5</b> spaces
<b>Total</b>	<b>62 spaces</b>

Therefore a total of some **38** parking spaces will be adequate for staff while additional parking of **24** spaces is proposed for the patients/visitors and accommodation units.

Accordingly, the proposed development site provides **62** parking spaces including **4** accessible spaces. A parking bay for ambulance (per required specific dimensions) has also been provided as part of the proposal. An additional parking space for use of radiotherapy unit is included as part of the proposed plan for the site.

### **3.3 Accessibility**

The entrance to the Shoalhaven District Memorial Hospital's main public car park is off Scenic Drive, Nowra.

Public buses stop just outside the Hospital's entrance. Shoal Bus provides services between the Hospital and main destinations such as town centres, shopping centre and public transport hubs (such as Bomaderry Train Station and Nowra Bus Terminal). A map of bus routes (No721 and 722) and their timetables are shown in **Appendix A**.

Bus routes 721 and 722 provide services along Shoalhaven and North Streets. This will provide a close and direct bus access to the site.

The development proposal will provide appropriate pedestrian and cyclists' facilities in accordance with relevant guidelines and Australian Standards. Provision for people with movement difficulty and/or with wheel chair will be provided as part of the proposed development at the entry to the site and connections to car parking area.

Pedestrian path and facilities within the proposed development site are shown as part of the architectural drawings.

Provision of **5** bicycle parking spaces (mainly for staff use over 10% of staff number) is also included as part of the proposal.

Four (4) accessible car parking spaces are included as part of the proposal while pick up and set down facility is also provided.

The principles of sustainable transport have strongly been supported as part of the proposed development by provision of pick up and set down facility and bicycle parking for staff (including showers and change rooms) as well as availability of bus services along North and Shoalhaven Streets adjacent to the development site.

It is however important to note that the proposed development is a cancer care unit where some of its users could have certain limitation and restrictions in terms of their mobility and accessibility. Therefore, appropriate consideration and professional judgements are required in assessment of these types of facilities where generic guidelines on provision of alternative means of transport are not fully relevant.

## 4.0 TRAFFIC IMPACT

The following provides a basis to assess the traffic generation during a one hour peak period for the site:

- 70% arrival or departure of staff (as not all staff arrive or depart at the same one hour time): **35** vph
- Assume all patients arrive or depart during a one hour peak time (including those who are dropped off): 20 vph
- Considering the characteristics of the residential units, there would be no peak hour vehicular trip generation.

Therefore, the activities of the site would not generate more than **55** vehicular trips during a one hour peak period. This is equivalent to less than 1 vehicle per one minute.

This level of traffic volume in traffic engineering terms is very low and would have no significant impact on operation of intersections and road network.

The parking provision of the site meets its required demand and will accommodate all parking requirements as the result of its activities. Therefore, no adverse impact on parking conditions of the area will be experienced as all parking activities associated with the Centre's activities will occur on site.

### Construction Traffic and Operation

Construction traffic will be limited to use of major approach routes to site via Princes Highway, Bridge Road with access from Scenic Drive with minimal impact on residential streets. A construction traffic management plan (CTMP) should be prepared prior to commencement of the construction works (i.e. part of the development condition of consent). CTMP will identify all required measures for traffic movements of various modes including pedestrians and cyclists.

Considering the existing spare capacity of the road system (per Table 3.1), the traffic associated with the construction activities will be comfortably accommodated as part of the existing road system.



## 5.0 CONCLUSION

The proposed new Cancer Centre will function independently from the Hospital where all its functions particularly those related to infrastructure requirements (such as access and parking) will take place on site. Accordingly, all traffic and parking requirements are based on site specific criteria and these are met in accordance with relevant guidelines and traffic engineering standards.

There would be no adverse traffic and parking impacts as the result of the proposed Cancer Centre. This is on the basis that:

- A total of 62 car parking spaces will be provided in order to meet the demand of the proposed development.
- The traffic generation from the activities of the new Cancer Care Centre will have a negligible impact on operation of intersections and road system and they will continue to operate at a good level of service.

The bus routes 721 and 722 along Shoalhaven and North Streets provide a close and direct access to the proposed Cancer Care Centre while appropriate pedestrian facilities will be provided as part of the proposal.

The proposed access arrangements provide pick up and set down facility at the entrance to the new building accommodating car pool/ride activities.

The proposed access arrangements are satisfactory while they should meet relevant guidelines and Australian Standards.

The following provides comments on generic requirements (draft) of **Director General of Planning** on the proposed development:

- This report has been prepared on the basis of traffic engineering and transport planning principles and relevant RTA's guidelines. It should be noted that there are no specific guidelines by the authorities for these types of developments where case specific assessment should be carried out.
- The report identifies vehicular traffic that will be generated from the site and its required parking provision.
- The proposed development is a Cancer Care Centre (CCC) which has a specific characteristic where not all DG's draft requirements would accurately apply. The CCC operates independently and contains relatively small developments. Within this context, it provides adequate parking for its users while access to and from site will be accommodated for all types of vehicular movements per relevant Australian Standards.
- The proposed CCC provides easy access for people with movement difficulty while pick up and set down facility is also provided on site.
- The site plan for the CCC illustrates pedestrian facilities and bicycle parking.
- The principles of sustainable transport to promote active and public transport have been included as part of the proposal, while it is acknowledged that such measures are more applicable for larger development sites.

- The Construction Traffic Management Plan will be prepared prior to the commencement of construction works and will address vehicular, pedestrian and cyclists traffic requirements.

Prepared by:  
**TAYLOR THOMSON WHITTING  
(NSW) PTY LTD**



**KAM TARA**  
Technical Director

Authorised by:  
**TAYLOR THOMSON WHITTING  
(NSW) PTY LTD**



**PAUL YANNOULATOS**  
Technical Director

**APPENDIX A**

# Bomaderry & North Nowra

## Bus Map B



### Legend

- Bus Route
- Educational Institution
- Shops
- Hospital
- Train Station
- School
- Map Reference

**721** Route Number







### Stewart Place Bus Terminal

**Stand 1**  
705, 709, 721, 722

**Stand 2**  
735

Stewart Place

Schofields Ln

Monday to Friday										Saturday	
map ref	Route Number	721	721	721	721	721	721	721	721	721	721
	<b>Bus departs...</b>	am	am	am	am	pm	pm	pm	pm	am	am
<b>F</b>	Tartarian Cr / Elvin Dr	7:20	#	....	#	....	#	*	#	#	#
<b>G</b>	Cambewarra Rd / McDonalds	7:26	8:05	8:58	10:20	12:20	2:20	3:15	4:20	8:18	9:55
<b>H</b>	Bomaderry Public School	7:44	8:25	9:00	10:22	12:22	2:22	3:30	4:22	8:20	9:57
<b>I</b>	<b>Rail Clock Tower</b>	7:47	8:30	9:02	10:24	12:24	2:24	3:34	4:24	8:22	9:59
	<i>Train departs to Kiama</i>	7:53	....	9:09	....	....	....	....	4:25	8:48	10:45
	<i>Train arrives from Kiama</i>	....	....	....	....	12:21	2:18	....	4:20	....	....
<b>J</b>	Bunberra St / Robey St	7:48	#	9:05	10:27	12:27	2:27	*	4:27	8:24	10:02
<b>K</b>	Ferntree Dr / Cavalier Pde	7:32	#	9:08	10:30	12:30	2:30	3:23	4:30	8:26	10:05
<b>L</b>	Yeovil Dr / Ramsey Gr	....	8:09	9:10	10:32	12:32	2:32	*	4:32	8:28	10:07
<b>M</b>	Lyndhurst Dr Shops	....	8:11	9:11	10:33	12:33	2:33	3:19	4:33	8:29	10:08
<b>N</b>	Lyndhurst Dr / Jasmine Dr	7:34	8:12	9:12	10:34	12:34	2:34	3:20	4:34	8:30	10:09
<b>O</b>	Meroo Rd / Jasmine Dr	7:35	8:13	9:13	10:35	12:35	2:35	*	4:35	8:31	10:10
<b>P</b>	Alfred St / Samuel St	7:38	8:17	9:15	10:37	12:37	2:37	*	4:37	8:33	10:12
<b>Q</b>	Meroo Rd / Leonard St	7:41	8:20	9:18	10:40	12:40	2:40	....	4:40	8:36	10:15
<b>R</b>	Sampson Cr / Ritchie St	7:43	8:22	9:20	10:42	12:42	2:42	....	4:42	8:38	10:17
<b>S</b>	Beinda St / Bowada St	....	8:31	9:26	10:48	12:48	2:48	....	4:48	8:43	10:23
<b>I</b>	<b>Bomaderry Train Station</b>	7:47	8:30	9:24	10:46	12:46	2:46	3:34	4:46	8:41	10:21
	<i>Train departs to Kiama</i>	7:53	....	....	....	1:10	....	....	5:05	8:48	10:45
	<i>Train arrives from Kiama</i>	....	....	....	....	12:21	2:18	....	4:20	....	....
<b>E</b>	<b>Bomaderry TAFE (Highway)</b>	7:53	8:32	9:27	10:49	12:49	2:49	3:35	4:49	8:44	10:23
	<b>Bus arrives...</b>										
<b>A</b>	<b>Stocklands</b>	....	....	9:33	10:55	12:55	2:55	3:45	4:55	8:49	10:28
<b>B</b>	<b>Nowra Bus Terminal (Stewart Pl)</b>	8:00	8:50	9:38	11:00	1:00	3:00	3:50	5:10	8:54	10:33
<b>D</b>	<b>Shoalhaven Hospital</b>	....	*	9:40	11:03	1:03	3:09	....	5:19	9:04	*

### Explanations

- # On-demand stop. Please call 4423 2122 to arrange a pickup from this location.
- \* Bus sets down only, does not pick up passengers.
- .... No Service.