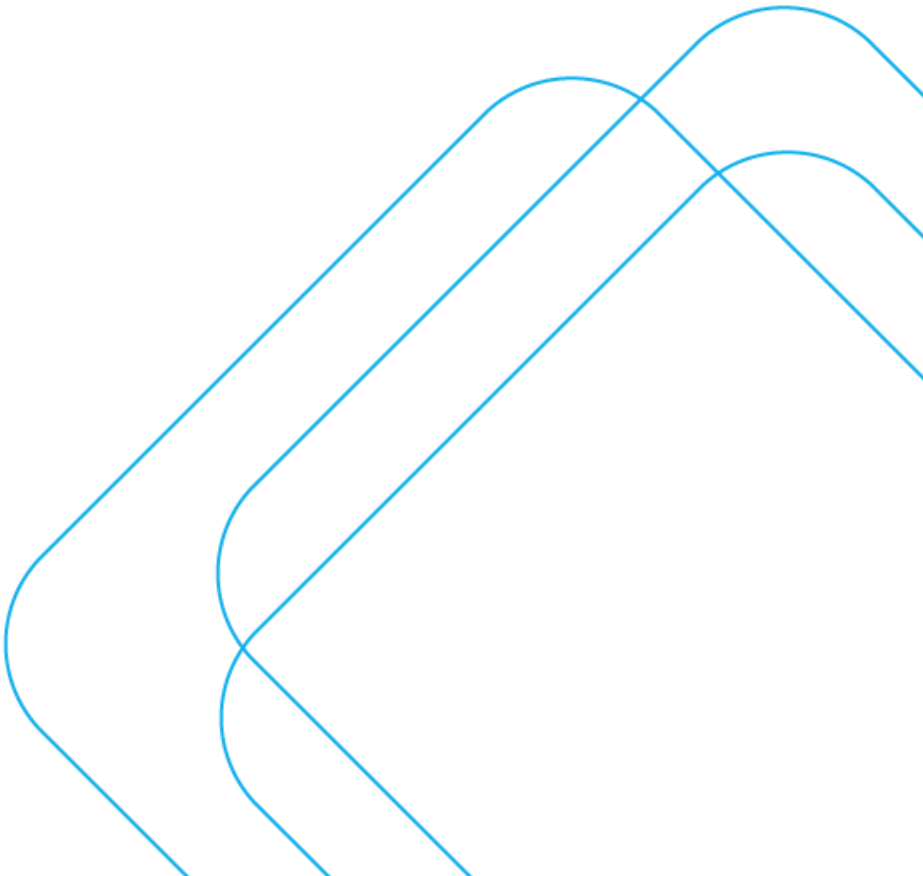
SCT Consulting

ST GEORGE HOSPITAL

Stage 3 additional works - Traffic and Transport Impact Assessment

28 NOVEMBER 2024

SCT Consulting acknowledges
the traditional owners of the lands
on which we work.
We pay our respects to Elders
past, present and emerging.



Quality Assurance

Project:	St George Hospital		
Project Number:	SCT_00673		
Client:	Health Infrastructure	**ABN:**	89 600 377 397
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1.0	25 November 2024	Draft report
2.0	28 November 2024	Final report

Contents

Appendices

1.0 Introduction

1.1 Purpose of report

This Traffic and Transport Impact Assessment has been prepared by SCT Consulting on behalf of the Health Infrastructure NSW (the Applicant) to assess the potential environmental impacts that could arise from the refurbishment works at St George Hospital at 16 Kensington Street, Kogarah (the **site**).

This report has been prepared to review the traffic and transport impacts for construction works associated with the redevelopment of St George Hospital.

– This report accompanies a Review of Environment Factors that seeks approval for the refurbishment of the existing St George Hospital, which involves the following works:
  - Internal refurbishment works within existing hospital buildings.
  - Burt Nielson Wing Level 1 – Fluoroscopy
  - Burt Nielson Wing Level 2 – Paediatrics and CYF
  - Clinical Services Building & Services Block Ground Floor – Back of House
  - Ward Block Level 2 – Multi-faith, Patient Transit and AAU
  - Tower Ward Block Level 4 – Renal
  - Tower Ward Block Level 6 – Surgical
  - Prichard Wing Various Levels – Sexual Health, Antenatal and Gynaecology
  - Acute Services Building Level 7 – Palliative Care
– Minor extension for a new Clinical Waste building within the hospital campus and new covered walkways
– Services upgrade/ modification works & new services installations including but not limited to lighting, hydraulics, mechanical, fire and stormwater and drainage
– Demolition of existing buildings within the hospital campus and wider precinct
– Civil & Landscaping works adjacent to Belgrave Street for continuation of the Ambulatory Care main entry forecourt area

For a detailed project description, refer to the Review of Environmental Factors prepared by Ethos Urban.

1.2 Site Description

The St George Hospital is located on Kensington Street, Kogarah, within the Georges River Council Local Government Area (LGA) on Bidjigal Country. The hospital site is approximately 12 kilometres south of the Sydney CBD and has an area of approximately 5.16 hectares.

The hospital is located in a cluster of health and education uses within the Kogarah town centre. It comprises a number of buildings associated with the hospital campus situated around an internal road network.

St George Hospital is within proximity of transport services and key road links, including Kogarah Railway Station approximately 350 metres to the north of the site and Princes Highway to the east of the site. An aerial image of the site is shown in **Figure 1-1**.

Figure 1-1 Site aerial

Source: Nearmap, edits by Ethos Urban

1.3 Statement of Significance

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed development, it is determined that:

– The extent and nature of potential impacts are minor and will not have significant adverse effects on the locality, community and the environment;

– Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

1.4 REF reporting requirements

The REF reporting requirements addressed by this document have been outlined in **Table 1-1** below.

Table 1-1 REF requirements addressed by this report

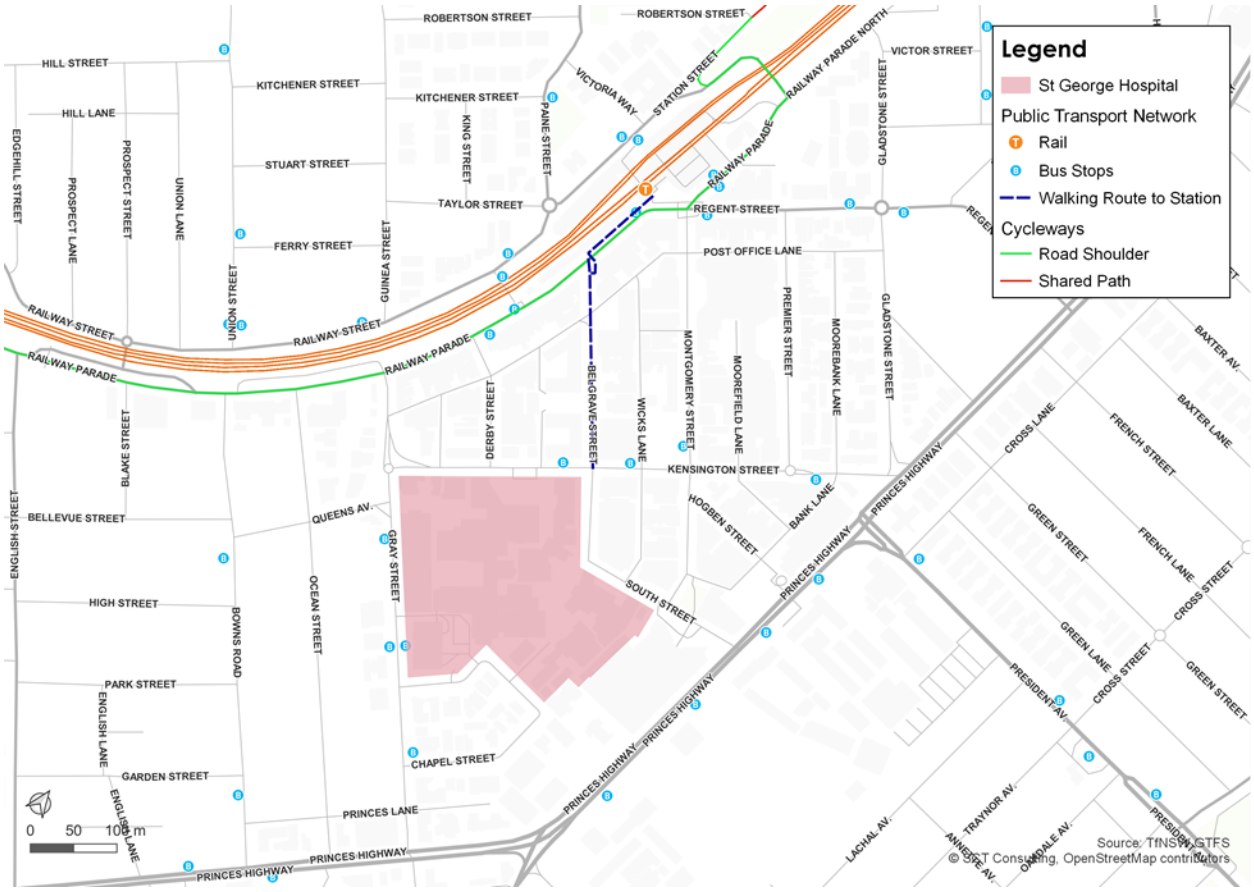
Item	Requirement	Relevant Report Section
Operational activities		
3.4	A Description of changes any to the parking arrangements.	Section 3.3
	– If there is a new facility, where will users park?	Section 3.3
	– If there are changes to an existing facility, what are the resultant traffic and parking changes necessary.	Section 3.3
Traffic, Access and Parking		
6.2.1	Provide a transport and accessibility impact assessment. Whilst inclusions are not defined within the above requirement statement we have included the following:	This document.
	– an analysis of the existing transport network,	Section 2.0
	– including the road hierarchy and	Section 2.2
	– any pedestrian, bicycle or public transport infrastructure,	Section 2.3
	– details of the proposed development,	Section 0
	– provisions for servicing and loading/unloading.	Section 3.4
	– analysis of the impacts of the proposed development (including justification for the methodology used),	Section 4.0
	– identification of potential traffic impacts on road capacity,	Section 4.1.4
	– intersection performance and road safety (including pedestrian and cyclist conflict) and	Section 4.1.4
	– construction routes and vehicle movements	Section 4.1.1 | 4.1.2
	– access and parking arrangements,	Section 4.2
	– mitigation measures	Section 6.0

2.0 Existing conditions

2.1 Site context

St George Hospital serves as the primary hospital precinct in the Georges River LGA and is well-positioned to serve this function through public transport and road networks. It is located at the centre of Kogarah, bounded by Kensington Street, Belgrave Street and Gray Street, as shown in **Figure 2–2-1**. The hospital is located adjacent to the T4 Eastern Suburbs and Illawarra Line, connecting to strategic centres such as Hurstville and Sutherland. To the east of the hospital is Princes Highway which provides road network connections to major arterial roads such as Rocky Point Road, King Georges Road and President Avenue.

Figure 2–2-1 St George Hospital Area



2.2 Road network and classification

The current road network surrounding St George Hospital is shown in **Figure 2-2**. There are two major state roads adjacent to St George Hospital, namely Princes Highway and Rocky Point Road. As primary and arterial roads, they are the predominant vehicular routes into the precinct. These roads carry significant traffic volumes and typically operate close to their operation capacity, particularly during commuter peak hours. Railway Parade to the north of St George Hospital is a classified regional road, providing a connection between Kogarah and Hurstville (running parallel to the railway line). Gray Avenue extends Gray Street to Rocky Point Road which connects to San Souci to the south-east and the Sutherland Shire via Taren Point Road.

As the primary traffic route serving the precinct, the Princes Highway carries over 3,000 vehicles per hour during peak periods in both directions. On the western boundary of St George Hospital, Gray Street carries more than 800 vehicles per hour in both directions during the AM and PM peak hours.

Figure 2-2 Surrounding road network

2.3 Walking and cycling infrastructure

There is currently no dedicated cycleway infrastructure in the Kogarah Town Centre. There is a road shoulder designated as a cycleway along Railway Parade between Carlton and Kogarah Station as shown in **Figure 2–2-1**. Additionally, there are no proposed cycleways around the hospital according to the Local Strategic Planning Statement. Although there is a plentiful provision of recreational cycleways in parks and green spaces throughout Georges River Council, the current cycle network is limited from a mobility and connectivity perspective, decreasing the likelihood that individuals will cycle for transport.

Pedestrian footpaths are available on both sides of roads around St George Hospital and provide complete pedestrian connectivity to Kogarah Town Centre and Kogarah Train Station. Furthermore, pedestrian zebra crossings and signalized crossings provide crossing opportunities within Kogarah Town Centre across Railway Parade, a busy collector road. There are three total pedestrian entrances to the hospital, via Kensington Street car park, Belgrave Street and Gray Street, all of which are accessible via a paved footpath. Overall, walking infrastructure is well provisioned in the business area surrounding St George Hospital.

2.4 Public transport network

St George Hospital is within walking distance to Kogarah Train Station and several bus stops located throughout Kogarah Town Centre. As shown in **Figure 2-3,** the site is situated approximately 350m south of Kogarah Train Station. Train services run to Kogarah Station once every five to 10 minutes during peak hours and every 10 minutes in either direction during off-peak hours.

Figure 2-3 Public transport surrounding St George Hospital

Several bus routes operate in the Kogarah Town Centre, connecting the hospital to other major town centres in the region. An excerpt of the bus operator maps has been included in **Figure 2-4**. These bus routes include:

– Bus route 446 connects St George Hospital to Roselands.

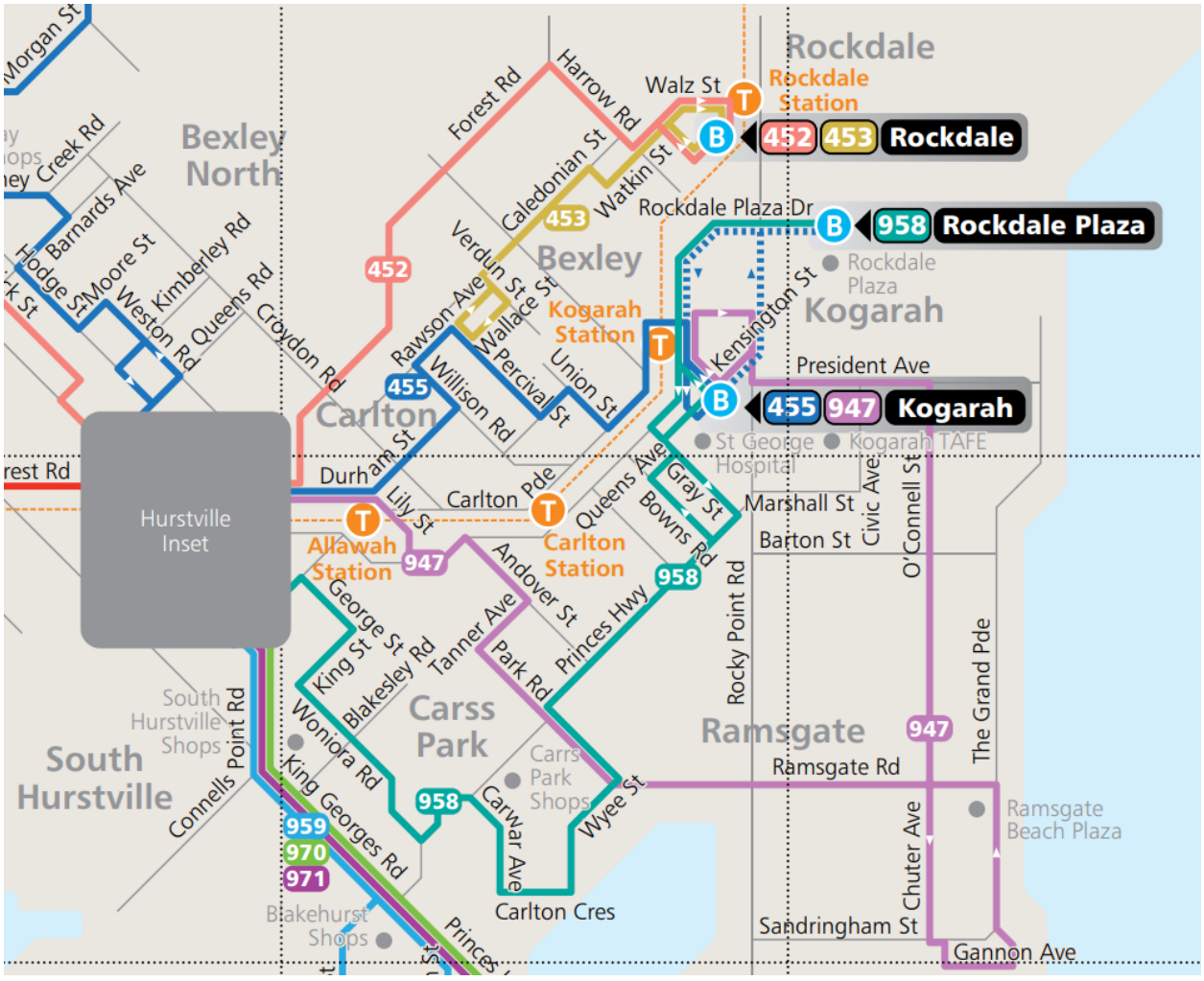
– Bus routes 455 and 947 connect St George Hospital to Hurstville.

– Bus routes 476 and 477 bus routes connect to Sans Souci and Miranda to Rockdale respectively, passing the study area on Gray Street.

– Bus route 958 bus route connects Kogarah to Sylvania and South Hurstville residential areas.

– Bus route 422 connects Kogarah Town Centre from Railway Parade to Ultimo and Haymarket.

Figure 2-4 Bus operator map excerpt



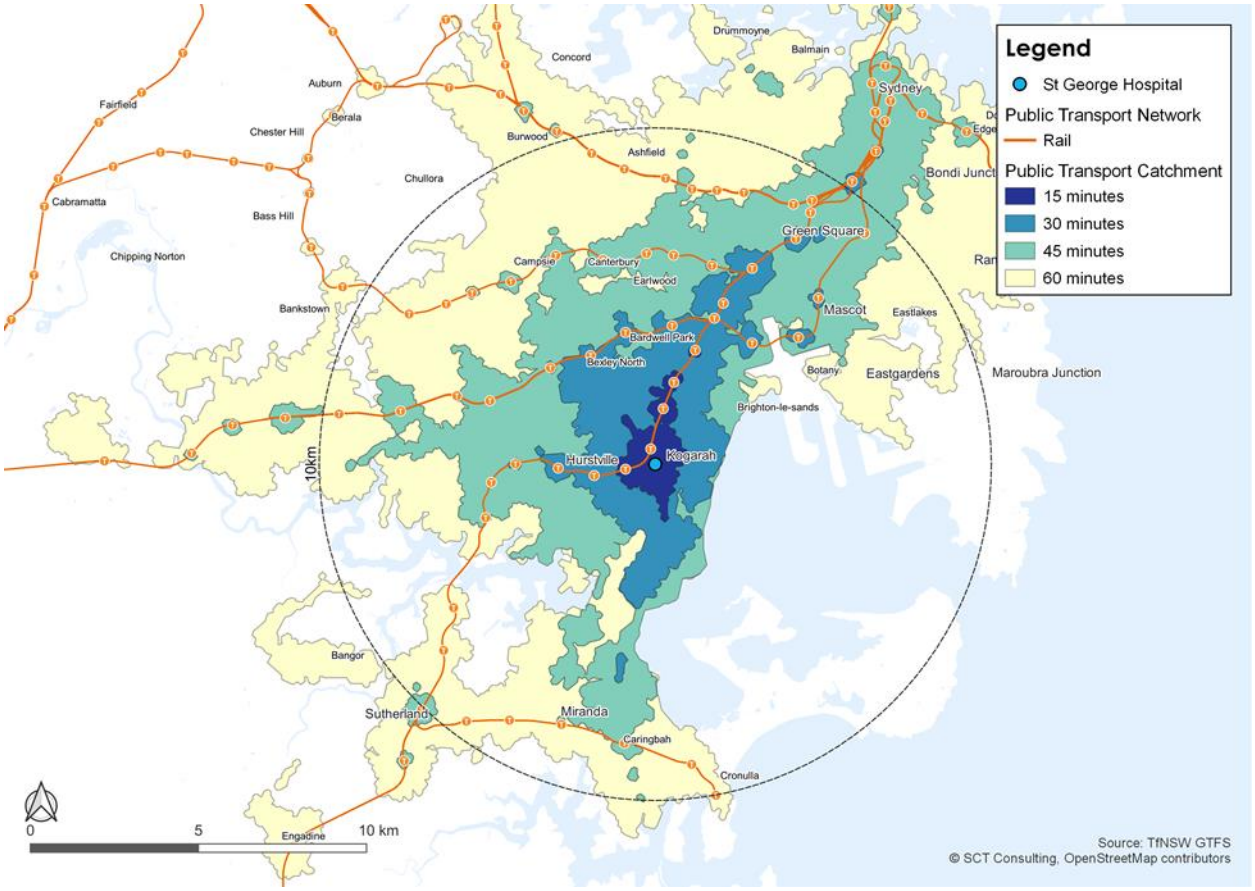
Source: Transport for NSW, 2022

The frequency of bus services in Kogarah Town Centre is highlighted in **Figure 2-5** below, with most services departing on Railway Parade. Services depart along Railway Parade approximately once every five minutes from 8am to 9am on a typical weekday. Gray Street also sees a high frequency of services with buses departing once every six minutes.

Figure 2-5 Bus frequency in Kogarah Town Centre between 8-9am

Overall, St George Hospital is well-connected to nearby strategic centres and other suburbs within Greater Sydney via public transport. As illustrated in **Figure 2-6**, the site is located 15 minutes away from Hurstville when taking public transport. Suburbs including the Sydney CBD region, Miranda, Green Square, and Mascot are located roughly 30 to 45 minutes away whilst Randwick, Maroubra and Eastgardens are located within the 60-minute catchment.

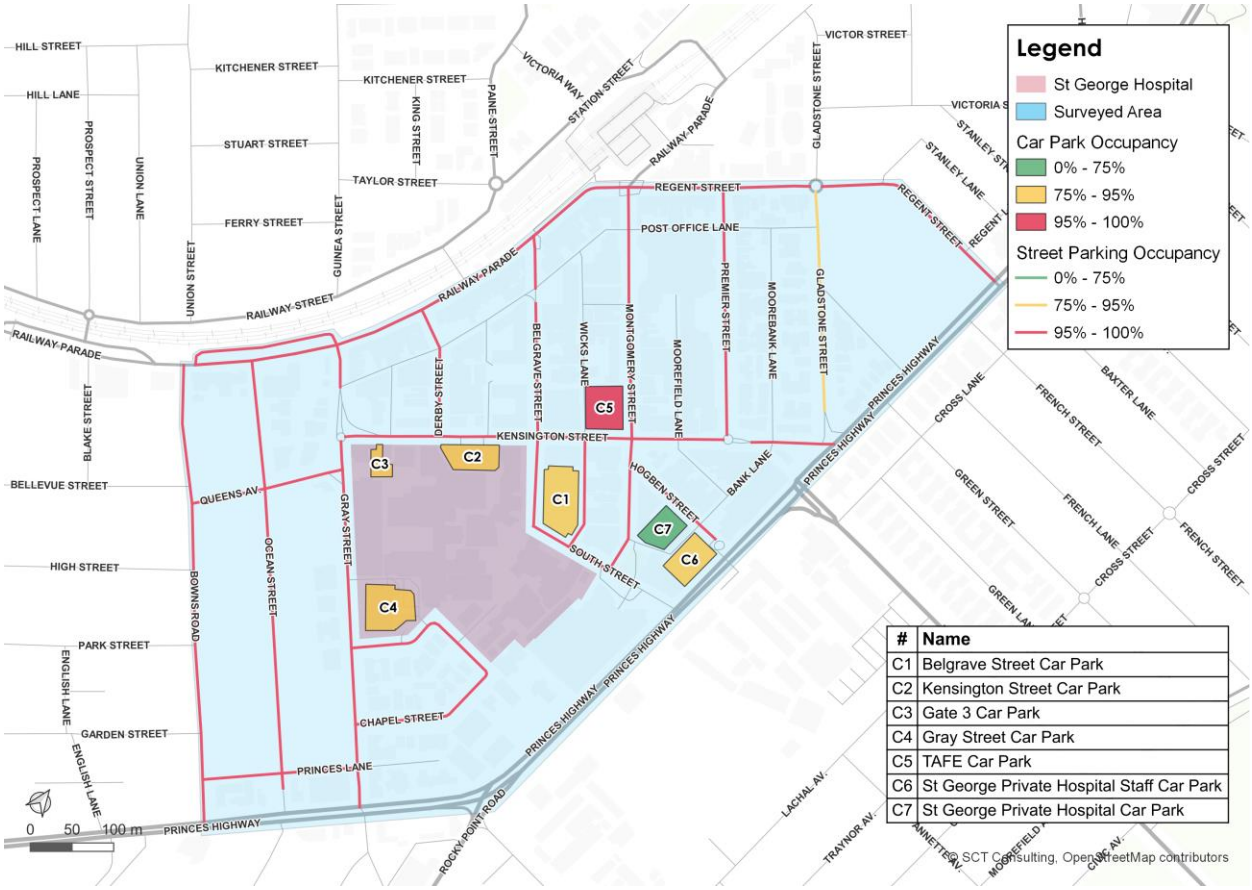
Figure 2-6 Public transport catchment to St George Hospital



2.5 Current parking demand

The current parking demand is based on two site visits conducted on 30 March 2021, from 10am to 12pm and a second survey conducted on 14 December 2021 from 6am to 6pm at Belgrave Street and Gray Street Car Parks. These surveys were conducted as part of the original SSDA application (SD311024). Available parking spaces are labelled and illustrated in **Figure 2-7**, incorporating information from both surveys. Overall, there is little parking availability throughout Kogarah Town Centre as the current parking demand far exceeds supply.

Figure 2-7 Current on-street and off-street parking spaces



2.5.1 On-street parking

The on-street parking spaces along main streets west of the precinct, including Bowns Road, Ocean Street and Gray Street are all at capacity with 90 to 100 per cent of car park occupancy. On the north side of the precinct, main roads such as Railway Parade, Montgomery Street and Belgrave Street offer on-street parking on both sides of the road, but with only one to two hours time limit. Similarly, local residential roads such as Derby Street and O'Keefes Lane have on-street parking. Wicks Lane does not offer any on-street parking. Hogben Street is located on the east side of the precinct, it has two hour angled parking spaces on one side of the street and a few parallel parking spaces available on the other side. However, Hogben Street also has a direct entry point to the St George Hospital car park.

2.5.2 Off-street parking

There are currently four car parks owned by St George Hospital and three car parks that are owned by other parties within the precinct.

The car parks that are owned by St George Hospital include:

– Belgrave Street car park

– Gray Street car park

– Kensington Street car park

– Gate 3 car park

In addition, the car parks that are not owned by St George Hospital include:

– TAFE car park

– St George Private Hospital car park

Belgrave Street car park is located at the intersection of the south end of Belgrave Street and South Street. With Belgrave Street being a main road within the precinct and South Street as a connector road leading the traffic to Princes Highway, the traffic flow and parking demand on both streets are high. When surveyed in December 2021,

the car park has a capacity of 569 parking spaces in total with 94 per cent occupancy, indicating a spare capacity of 64 spaces. Of these 64 spaces, only eight spaces were unreserved and available for patient parking. Being the biggest car park in the precinct, Belgrave Street car park serves visitors, staff and patients of St George Hospital with both reserved and unreserved parking spaces.

The Gray Street car park is located outside the main entrance to the hospital and is a very attractive parking location for patients and staff as a result. When surveyed in December 2021, the facility has a total capacity of 604 parking spaces with 92 per cent occupancy. 49 spare parking spaces were observed during survey periods. It is located at the intersection between Gray Street and Short Street and serves visitors, patients, and staff with permitted basement parking access.

Kensington Street car park provides 51 parking spaces and three spaces reserved for patient transport vehicles primarily serving patients. It is located on Kensington Street, between Derby Street and O'Keefes Lane. Kensington Street connects Gray Street with Princes Highway while intersecting main streets including Belgrave Street and Montgomery Street. It was discovered that from 10am to 12pm, Kensington Street Car park is 90 per cent occupied with five spaces available as spare parking spaces.

With approximately 20 parking spaces available, Gate 3 car park is 90 per cent occupied with only two spare spaces at 10am on a weekday. Being a staff-only car park that is located only 70 meters away from the Kensington Street Car park, the Gate 3 car park caters to a portion of the reserved parking demand on Kensington Street, allowing a total of 71 available off-street parking spaces on Kensington Street.

Belgrave Street, Kensington Street and Gray Street car parks are paid visitor parking spaces but staff can attain parking permits from St George Hospital.

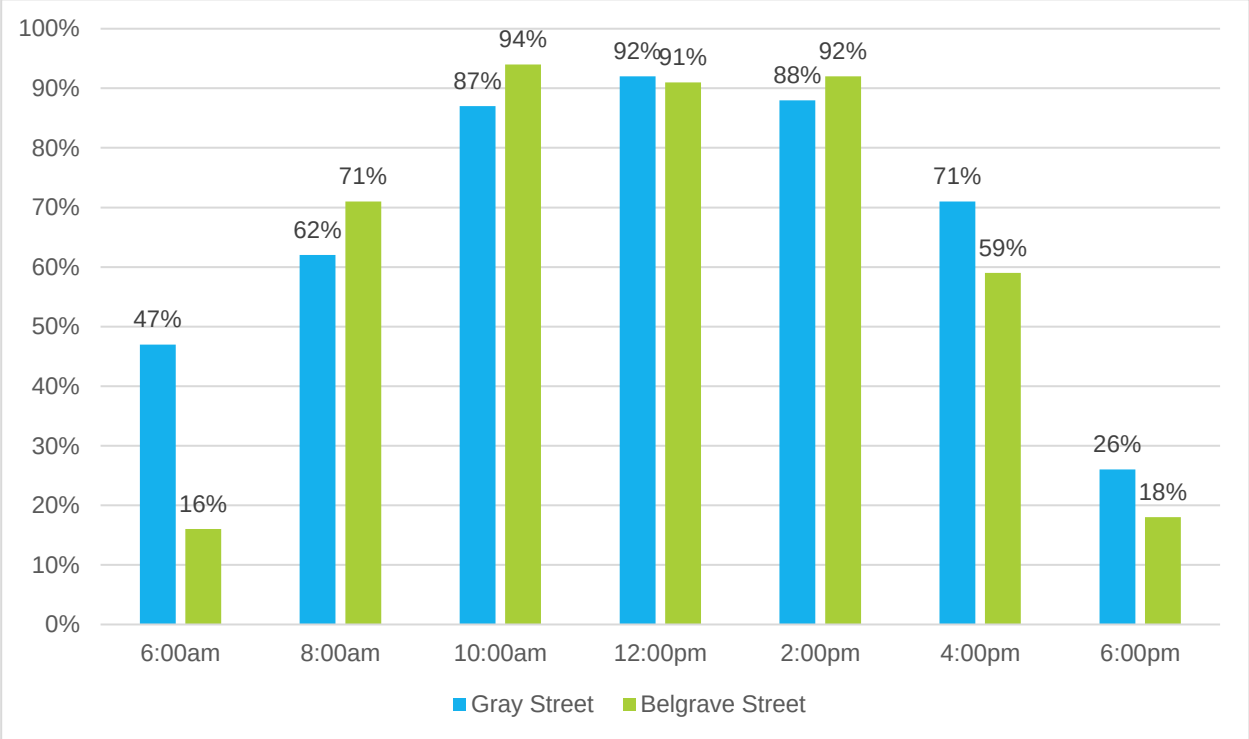
Table 2-1 summarises parking availability across surveyed parking facilities in proximity to St George Hospital. Overall, there are around 1,244 parking spaces in St George Hospital owned car parks with only around 120 spaces available from 10am to 12pm on a weekday. Out of these 120 spaces, only 56 are unreserved for patient parking. In parking facilities not associated with St George Hospital, a total of 73 spaces were found to be available at the St George Private Hospital car park however a majority of these spaces are reserved with only two spaces available to patients.

Table 2-1 Car park occupancy around St George Hospital

Car Park	Total Spaces	Utilised spaces	Spare spaces (unreserved)	Occupancy
Operated by St George Hospital				
Belgrave Street car park	569	534	64 (8)	94%
Kensington Street car park	51	46	5 (5)	90%
Gate 3 car park	20	20	2 (0)	90%
Gray Street car park	604	555	49 (43)	92%
Subtotal	*1,244*	*1,155*	*120 (56)*	-
Not operated by St George Hospital				
Hogben Street car park	71	67	4 (0)	94%
St George Private Hospital car park	224	155	69 (2)	69%
TAFE car park	88	88	0 (0)	100%
Subtotal	*383*	*310*	*73 (2)*	-
Grand Total	**1,627**	**1,465**	**193 (58)**	-

The occupancy of Gray Street and Belgrave Street car parks was surveyed in December 2021 over a 12 hour period. As shown in **Figure 2-8**, parking capacity begins to peak at 10am with Gray Street reaching 92 per cent and Belgrave Street reaching 94 per cent occupancy. This peak typically resolves around 4pm.

Figure 2-8 Car park occupancy over time on a typical weekday



3.0 The proposal

3.1 Proposed works

The works outlined for this document are relatively minor to the Main Works as part of Stage 3 Redevelopment of St George Hospital. Five work items are proposed for this package of work and are outlined below:

– Internal refurbishment works within existing hospital buildings, specifically:
  - Burt Nielson Wing Level 1 – Fluoroscopy
  - Burt Nielson Wing Level 2 – Paediatrics and CYF
  - Clinical Services Building & Services Block Ground Floor – Back of House
  - Ward Block Level 2 – Multi-faith, Patient Transit and AAU
  - Tower Ward Block Level 4 – Renal
  - Tower Ward Block Level 6 – Surgical
  - Prichard Wing Various Levels – Sexual Health, Antenatal and Gynaecology
  - Acute Services Building Level 7 – Palliative Care
– A minor extension for a new Clinical Waste building within the hospital campus and new covered walkways
– Services upgrade/ modification works & new services installations including but not limited to lighting, hydraulics, mechanical, fire and stormwater and drainage. This will take place in conjunction with the other four work items.
– Demolition of existing buildings within the hospital campus and wider precinct, these are the:
  - Renal Care Centre (not part of the renal department in the Tower Ward Block)
  - Banksia Building – store, landscape and pain clinic
  - Rose Cottage – part of the Day Rehab
  - Older Adult Health Building
  - Eye Clinic
– Civil & Landscaping works adjacent to Belgrave Street for continuation of the Ambulatory Care main entry forecourt area.

The location and footprint of the proposed work items are shown overleaf in **Figure 3-1**.

Figure 3-1 Proposed works packages, locations and indicative footprints

Source: SCT Consulting and Jacobs, 2024

3.2 Proposed development schedule

Works for the development are expected to commence in the first quarter of 2025 (Q1 2025) and finish by the first quarter of 2027 (Q1 2027). The schedule for each work item can be seen in **Table 3-1**.

Table 3-1 Redevelopment works schedule

Works	Program	Comments
Refurbishment	Q1 2025 – Q4 2025	Works outlined in **Section 3.1** will occur one-by-one and not simultaneously
Extension for a new Clinical Waste building	Q1 2026 – Q3 2026	Works will be completed in parallel with civil and and landscaping work
Services upgrade works & new services installations (i.e. lighting, hydraulics, mechanical, fire, stormwater and drainage)	Q1 2025 – Q3 2026	Works will be completed in parallel with civil and and landscaping and refurbishment
Demolition of existing buildings	Q1 2026 - Q1 2027	Nil
Civil & Landscaping works adjacent to Belgrave Street	Q1 2026 - Q1 2027	Works will be completed in parallel with extension of the Back Of House for the Clinical Waste building

The timeline of the proposed development works is shown in **Table 3-2**.

Table 3-2 Development timeline

Works	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Q1 2027
Stage 3 Main works (Previously approved)									
Refurbishment									
Extension for a new Clinical Waste building									
Services upgrade works & new services installations (i.e. lighting, hydraulics, mechanical, fire, stormwater and drainage)									
Demolition of existing buildings									
Civil & Landscaping works adjacent to Belgrave Street									

3.3 Construction traffic generation

The work force from the 'Stage 3 Main works' will be reallocated to the proposed works, considered as part of this REF, as construction activities wind down in 2025. Therefore, no additional traffic generation from personnel is anticipated. Traffic associated with construction activities will fall given the larger workforce required to fulfil the approved 'Stage 3 Main works' scope is no longer required.

Each package of work will generate traffic demand (for activities such as material delivery). But, as with workforce demand, these will not exceed the traffic generation as part of the Stage 3 Main Works. The daily maximum traffic generation for each of the work packages in **Table 3-1** are outlined overleaf in **Table 3-3.**

Table 3-3 Construction traffic generation from the development

Works	Heavy vehicle (HV) generation per day	Light vehicle (LV) generation per day	Total vehicles
Refurbishment	1	4	**5**
Extension for a new Clinical Waste building	2	2	**4**
Services upgrade works & new services installations (i.e. lighting, hydraulics, mechanical, fire, stormwater and drainage)	As part of the 'Refurbishment' works	As part of the 'Refurbishment' works	**-**
Demolition of existing buildings	4	0	**4**
Civil & Landscaping works adjacent to Belgrave Street	4	0	**4**

The proposed works are not anticipated to generate any additional operational traffic, as no new facilities that would expand patient or staff capacity are proposed.

Based on the construction program outlined in **Table 3-2** the anticipated peak daily demand during the construction period would be a maximum of 10 heavy vehicles and two light vehicles.

3.4 Construction and personnel parking

As the workforce from Stage 3 Main Works will be reallocated, no additional parking demand from personnel is anticipated. Parking demand, compared to what is currently experienced as part of the ongoing Stage 3 Main Works, will reduce.

As per the Construction Transport Management Plan completed for Stage 3, additional parking will not be provided on-site. Traffic generated as part of the works (**Table 3-3**) will primarily be delivering materials and removing waste and spoil. Delivery vehicles are proposed to use existing loading docks and service vehicle parking spaces outside of peak hospital operation periods when required. This will be coordinated with dock managers from the hospital, so as not to impact hospital operations. Delivery vehicles will depart once unloaded. Construction vehicles that are to be loaded with spoil or waste will be contained within the worksite and will depart once loaded.

No changes are proposed to the existing hospital parking arrangements outlined in **Section 2.5**, as the works proposed do not increase patient or staff capacity.

4.0 Traffic and Transport Impact

4.1 Road network impacts

4.1.1 Construction traffic generation

As noted in **Section 3.3**, construction traffic volumes are expected to peak between Q1 - Q3 2026 with up to two light vehicles and 10 heavy vehicles per day. Traffic volumes will be lower than those currently experienced as part of the Stage 3 Main Works. Stage 3 Main Works are anticipated to generate 15 heavy vehicles per day. Construction vehicles will be limited to state and regional road network where practical to limit impacts on local streets.

4.1.2 Work hours

Construction work hours will be:

– Weekdays: 7am-6pm

– Saturdays: 8am-1pm

– Sundays and public holidays: No work permitted

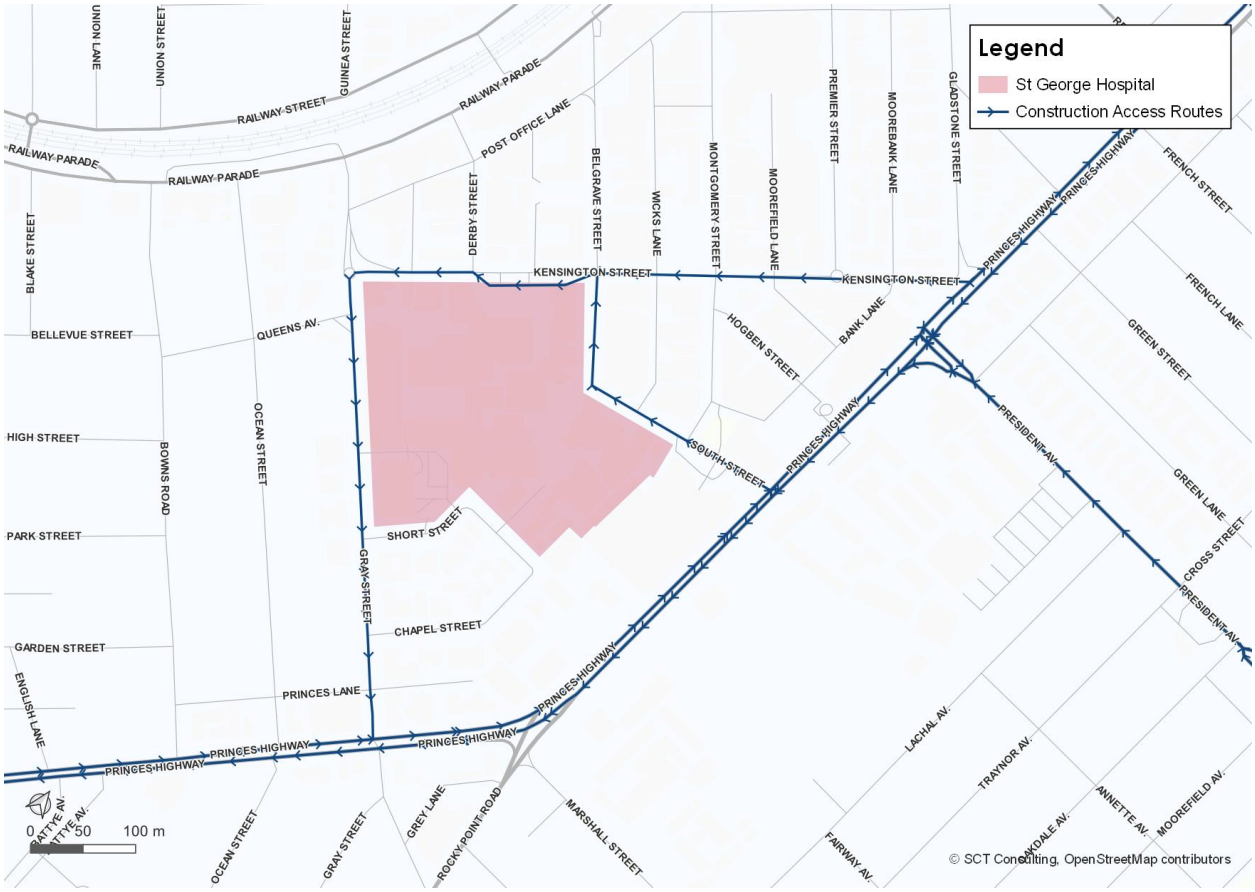
Construction Vehicles will usually arrive and depart within either the am or pm depending on scheduling. Deliveries will likely take place outside of peak operational periods for the hospital. Where loading dock access is required, this will be co-ordinated with the hospital to ensure no conflict occurs.

Workers would be informed of site operating hours during site induction. There may be a need for isolated examples of construction activities to occur outside of the nominated time periods. For example, demolition works that may disrupt the operations of the hospital. In these cases, approval will be sought from the relevant authorities.

4.1.3 Construction vehicle routes

As per the CTMP for Stage 3 Works, construction vehicles will be limited to state and regional road network where practical to limit impacts on local streets. Network access by heavy vehicles to the site is likely to be via Princes Highway, an arterial road running south of St George Hospital. Kensington Street may be accessed from Princes Highway via South Street and Belgrave Street or directly from Princes Highway when travelling eastbound, as shown in **Figure 4-1**.

Figure 4-1 Construction access routes



4.1.4 Network performance

Traffic volumes were collected on the 30th March 2021 as part of the previously completed, and approved, Stage 3 SSDA application. Surveys were undertaken between 7:45am to 8:45am and 4:30pm – 5:30pm at the following key intersections:

– Princes Highway / Gray Street

– Princes Highway / South Street

– Princes Highway / Kensington Street

– Kensington Street / Gray Street

It is expected that construction traffic will use these same intersections to access the hospital site.

For the previous assessment a per annum growth rate of 1.05% over 10 years was applied to the volumes at these intersections based on historical traffic growth data on the Princes Highway in the vicinity of the hospital. The intention of applying a growth rate was to test the future operations of the hospital. In 2031, these intersections were found to be operating at a Level of Service (LOS) C, with average delays ranging from 8.1 seconds to 40.2 across the four intersections during the AM and PM peak periods.

For context, intersection LOS is a typical design tool used by the NSW Government to identify where roads are congested and require further investigations. The LOS as defined in TfNSW's (2013) Traffic Modelling Guidelines is summarised in **Table 4-1**. A LOS of C indicates satisfactory intersection performance for the subject location(s).

Table 4-1 Level of Service definitions

Level of Service	Average Delay per Vehicles (sec/h)	Performance explanation
A	Less than 14.5	Good operation
B	14.5 to 28.4	Good with acceptable delays and spare capacity
C	28.5 to 42.4	Satisfactory
D	42.5 to 56.4	Operating near capacity
E	56.5 to 70.4	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.
F	70.5 or greater	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.

Source: TfNSW, 2013

Applying the growth rate to 2026 yields the expected background traffic during the peak construction period. The traffic volumes at the intersections, as well as the percentage that the construction traffic represents if it were to all be routed through a single one of the intersections during the AM and PM peaks, is shown in **Table 4-2**.

Table 4-2 2026 traffic volumes and construction traffic as a percentage of total traffic volumes

Intersection	2026 AM peak traffic	2026 PM peak traffic	Per cent construction traffic
Princes Highway / Gray Street	4523	4888	0.27%
Princes Highway / South Street	5188	5926	0.23%
Princes Highway / Kensington Street	3371	3889	0.36%
Kensington Street / Gray Street	1910	1580	0.76%

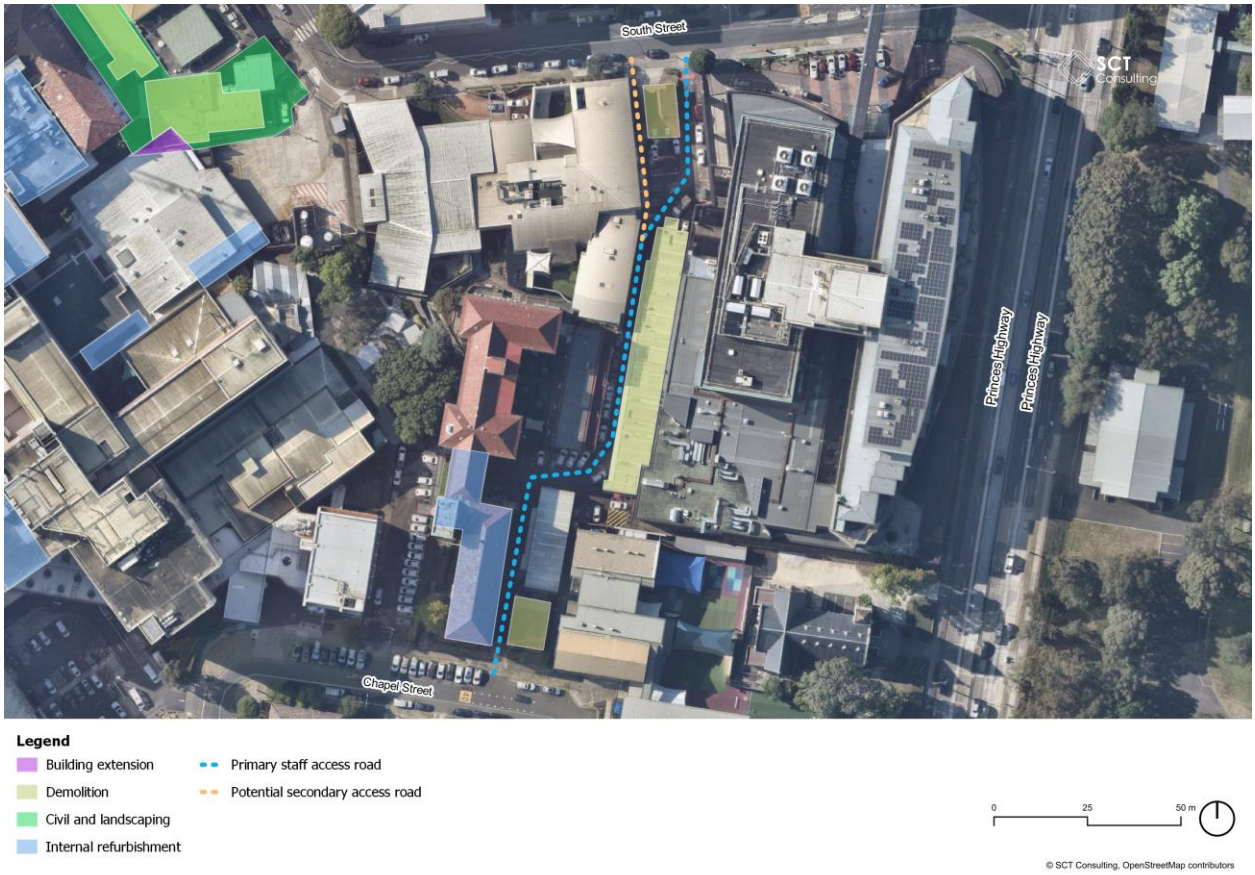
Table 4-2 shows that construction traffic associated with the works outlined in **Section 3.1** would result in a negligible increase over the traffic volumes expected in 2026, less than 0.76%. Given that the intersections were previously found to be performing satisfactorily at LOS C in 2031, it is expected that they would perform at a similar or better level of performance in 2026.

4.1.5 Road closures

No public roads are proposed to be closed or have their capacity limited for the duration of the proposed works. However, the one-way internal road from Chapel Road to South Street seen in **Figure 4-2**, may need to have its access limited for the demolition of the Renal Clinic Building and Banksia Clinic Building. This road is closed to the public and pedestrians and used as access to onsite staff parking. There is an alternative secondary access route (**Figure 4-2**) that could potentially be used to allow for vehicle circulation should the primary access road need to be used for construction vehicles.

Should both access roads need to be closed simultaneously, works could be conducted outside of operational hours, such that staff using the internal road are not impacted.

Figure 4-2 Staff vehicle route from Chapel Street to South Street



Source: Jacobs, Nearmap and markup from SCT Consulting, 2024

4.2 Parking impacts

As outlined in **Section 3.4**, the parking strategy will remain the same as for the Stage 3 Main Works. No net increase in parking demand is anticipated as personnel from Stage 3 Main Works Construction will be reallocated to this work package. There will be no operational impact on current hospital parking arrangements once the works are completed, as there will not be an increase in staff or patient capacity.

Temporary adjustments to certain parking spaces may be required to allow for vehicle manoeuvring and ingress/egress at particular locations. This would likely be for a short period of time during construction work hours.

To minimise car usage, the contractor will be encouraged to assist with the transportation of workers to site and encourage workers to use the public transport facilities in the vicinity of the site (**Section 2.4**). Site personnel will also be encouraged to consider car-pooling wherever practicable. The CTMP states that staff related with the construction works should not park on the public road.

The CTMP recommended that an onsite tool drop off and storage facility is included in the construction site management such that construction personnel can drop tools to the site by vehicle and then store them on site for the duration of works. This will enable workers to travel to the site via public transport without having to transport tools.

As per the Construction Transport Management Plan completed for Stage 3, additional parking will not be provided on-site. **Section 2.5** highlights that Off street parking locations operated by St George Hospital at the Belgrave Street car park, Kensington Street car park, Gate 3 car park and Gray Street car park still have capacity, should vehicle travel by personnel be required.

Delivery vehicles are proposed to use existing loading docks and service vehicle parking spaces outside of peak hospital operation periods when required. This will be coordinated with dock managers from the hospital, so as not to impact hospital operations. Delivery vehicles will depart once unloaded. Construction vehicles that are to be loaded with spoil or waste will be contained within the worksite and will depart once loaded.

Construction traffic will enter and exit the site in forward direction for delivery or removal of goods and material to limit their impact on the road network unless approval is sought.

4.3 Public transport impacts

The proposed development works will have minimal impact on the public transport network. The proposed construction works will not require the relocation of any existing bus stops or routes. There are frequent public services highlighted in **Section 2.4**, in the vicinity of St George Hospital which can accommodate personnel travel to and from the site.

4.4 Green Travel Plan

A Green Travel Plan (GTP) was prepared for the Stage 3 Redevelopment and included in the supporting SSDA at the time of submission. The GTP presents aims for shifting towards sustainable transport modes, sets mode share targets, and proposes strategies to achieve these targets and aims. Whilst the scope of works proposed in the REF won't impact staff or patient numbers it is recommended that the principles and actions outlined in the GTP be aligned, where feasible, with the works outlined in this REF submission.

A copy of the GTP is provided in **Appendix A**.

5.0 Conclusion

This Traffic and Transport Impact Assessment to assess the potential environmental impacts that could arise from the refurbishment works at St George Hospital as part of Stage 3 redevelopment. This assessment has concluded the following:

– Construction traffic for these works will likely peak in Q1-Q3 of 2026.

– Traffic generation during the peak will be at a maximum of 12 vehicles per day (10 heavy vehicles and two light vehicles) and will not exceed traffic generation as part of the ongoing Stage 3 redevelopment works.

– These 12 vehicles represent less than 0.76% of traffic volumes on the surrounding road network in 2026 and will not impact the road network's operation.

– No public roads will require closure during the proposed works.

– Parking demands will not exceed those as part of the ongoing Stage 3 redevelopment works, with no additional onsite parking being proposed. Off street parking locations operated by St George Hospital at the Belgrave Street car park, Kensington Street car park, Gate 3 car park and Gray Street car park have capacity if required.

– The works will have minimal impact on the public transport network.

6.0 Mitigation Measures

The following mitigation measures outlined in **Table 6-1**, are recommended to be implemented to reduce the impact on the road network and hospital operations.

Table 6-1 Construction mitigation measures

Project Stage	Mitigation Measures	Relevant Section of Report
Construction	Construction vehicles will be limited to state and regional road network, where practical, to limit impacts on local streets.	Section 4.0
Construction	Construction vehicles will be scheduled to arrive outside of peak operational hours for the hospital	Section 4.0
Construction	Construction vehicles using hospital delivery docks shall be coordinated with the dock manager or hospital personnel to reduce their impact on hospital operations.	Section 4.0
Construction	Construction workers shall be encouraged to use public transport services and not park their vehicles on public roads	Section 4.0
Construction	Closure of internal hospital roads that will impact hospital vehicles or staff shall be carried out outside of operational hours or configured such that traffic control and / or alternate access pathways are provided.	Section 4.0

APPENDIX A

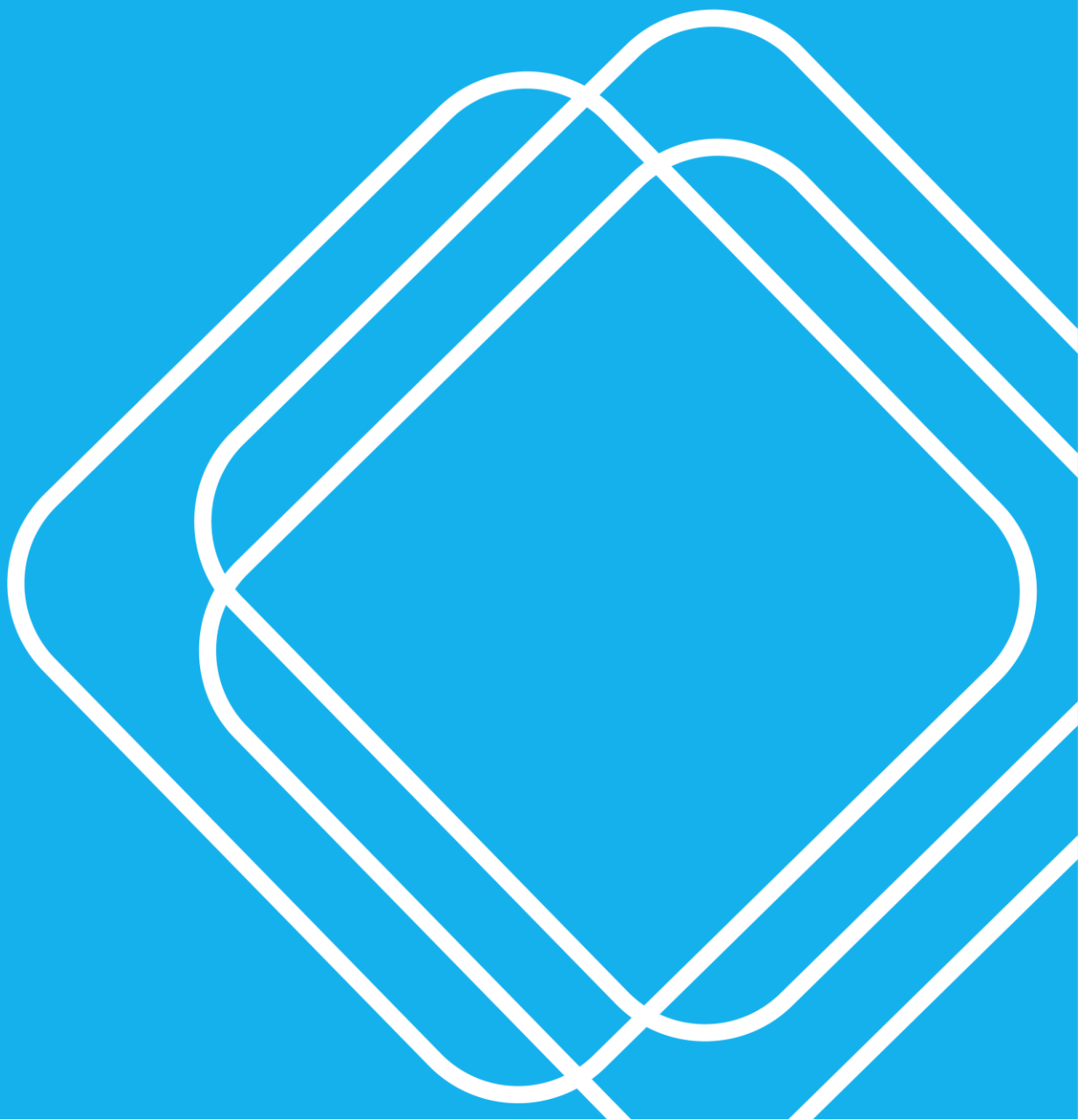
GREEN TRAVEL PLAN

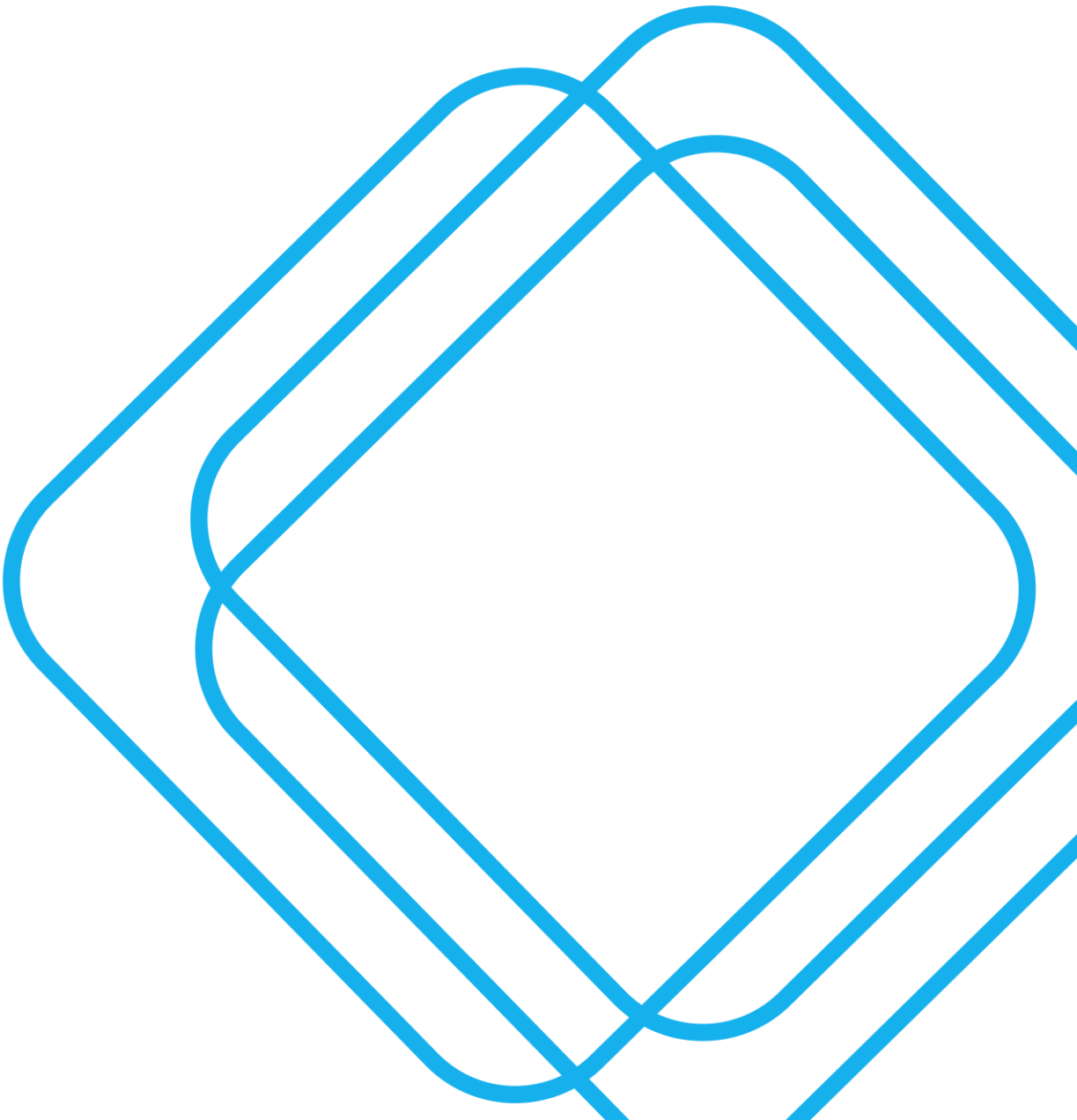
SCT Consulting

ST GEORGE HOSPITAL STAGE 3 REDEVELOPMENT

Green Travel Plan

18 MARCH 2022





Quality Assurance

Project:	St George Hospital Stage 3 Redevelopment		
Project Number:	SCT_00229		
Client:	Health Infrastructure	**ABN:**	89 600 377 397
Prepared by:	SCT Consulting PTY. LTD. (SCT Consulting)	**ABN:**	53 612 624 058

Quality Information	
Document name:	St George Hospital Stage 3 Redevelopment
Prepared:	Matthew Cen, Consultant
Reviewed:	Seamus Christley, Director
Authorised:	Seamus Christley, Director

Revision	Revision Date	Details
1.0	18 March 2022	Initial draft for external review

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Executive Summary

What is a Green Travel Plan and why implement one?

St George Hospital (SGH) is currently located within walking distance to public transport with pedestrian connectivity through Kogarah Town Centre just north of the hospital. Despite this, there is a heavy reliance on private vehicle usage for staff and visitors travelling to and from the precinct, placing pressure on the demand for parking facilities and the operation of the surrounding road network. As a result, St George Hospital would benefit from promoting and supporting the adoption of sustainable transport modes by staff and visitors through strategies proposed by this Green Travel Plan.

A Green Travel Plan is a living document that supports this change. The document is owned by St George Hospital and the South Eastern Sydney Local Health District (SESLHD), which centralises and communicates sustainable transport strategies to staff and visitors of the hospital. As a living document, the strategies outlined by the document will evolve to reflect changes in travel behaviour and targets.

Aims

The primary objectives of this Green Travel Plan are to:

– Increase public transport mode share amongst staff, utilising the existing public transport connectivity provided by the nearby T4 Eastern Suburbs and Illawarra Line and surrounding bus services.

– Promote the adoption of cycling and walking to and from SGH, for part of or the entire journey.

– Reduce parking demand for activities associated with SGH operations.

Background

'Private car' is currently the primary mode of travel to and from SGH despite its proximity to public transport networks. Both staff and visitors prefer driving to and from the precinct and this places pressure on the surrounding road network and the over-saturated parking supply. Public transport usage is notably lower than Greater Sydney averages whilst driving is higher than average. This heavy reliance on driving provides a baseline from which a shift towards sustainable modes of travel can be achieved.

Targets

Targets have been established based on the current travel patterns to SGH, as well as staff perceptions towards potentially switching to other modes. The 5-year mode share targets proposed by this Green Travel Plan are described in words as the following:

– Baseline targets:

  - Double existing public transport mode share from nine per cent to restore pre-COVID-19 mode share of 18 per cent.
  - Triple existing cyclist mode share from 0.3 per cent to 0.9 per cent.
  - Maintain walking mode share of four per cent.

– Stretch targets:

  - Triple existing public transport mode share from nine per cent to 27 per cent to close the mode share gap between St George Hospital and the Georges River LGA.
  - Raise cycling mode share from 0.3 per cent to City of Sydney average of 3.5 per cent.
  - Maintain walking mode share of four per cent.

Quantitatively, **Table E-1** outlines the mode share targets below. These targets not only aim to bring staff mode share closer to pre-COVID-19 conditions but also promote a trajectory towards higher sustainable transport adoption.

Table E-1 5-year target mode shares

Mode	Current Mode Share	5 year Mode Share Targets	
		Baseline	Stretch
Private vehicle	86%	76%	68%
Public transport	9%	18%	27%
Cycling	0.3%	0.9%	3%
Walking	4%	5%	5%

Strategies

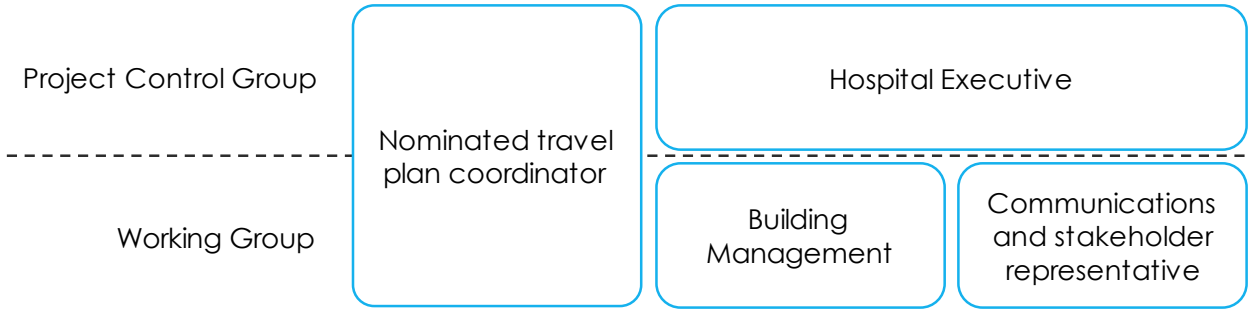
The strategies proposed by this Green Travel Plan fall into the following categories:

- **Green Travel Plan:** Providing a centralised document to communicate sustainable transport strategies.
- **Communication to staff:** Ensuring staff are aware of the strategies outlined by this Green Travel Plan.
- **Public transport:** Promoting the use of public transport located around St George Hospital.
- **Cycling:** Supporting the adoption of cycling as an active transport mode through training programs and cost incentives.
- **Walking:** Identifying and rectifying challenges to walking in the area surrounding SGH.
- **Parking demand reduction:** Disincentivising parking around SGH to ease the oversubscription of the current parking supply.
- **Advocacy:** As an organisation, St George Hospital should represent the interests of staff and visitors to advocate for larger-scale changes which involve external stakeholders such as Georges River Council.

Next steps

The establishment of a governance structure is crucial for the endorsement and ongoing support for this Green Travel Plan. A proposed governance structure is presented in **Figure E–1**.

Figure E–1 Proposed Governance Structure



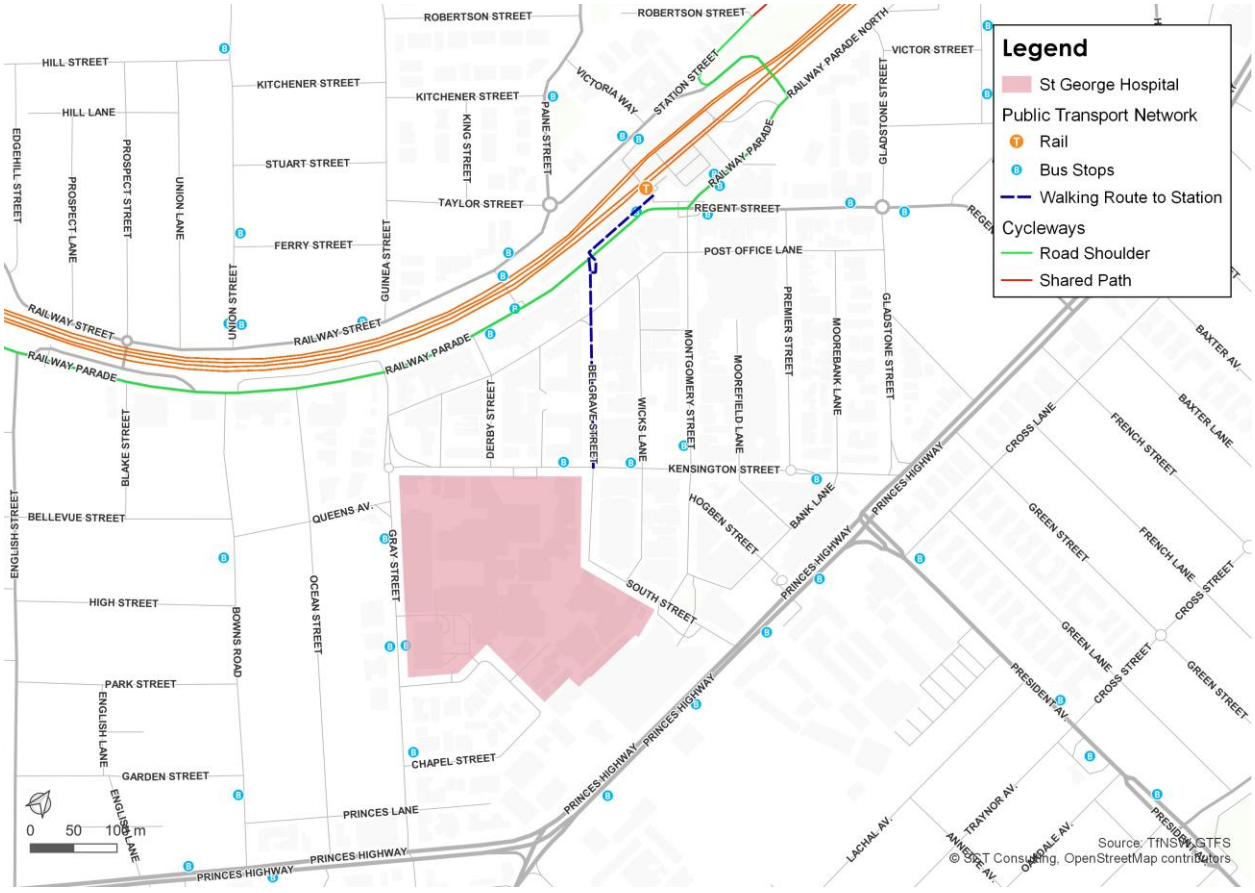
It would be the ongoing responsibility of the Working Group to deliver, monitor and measure the effectiveness of these strategies, as well as amend or add to them to steer progress towards outlined targets. The Project Control Group serves to endorse and approve funding for strategies and related schemes.

1.0 Introduction

1.1 Site overview

St George Hospital (SGH) is located just south of Kogarah Town Centre and serves as the primary hospital precinct in the Georges River Local Government Area (LGA). It is located within walking distance to Kogarah Train Station which provides connections to the T4 Eastern Suburbs and Illawarra Train Line as well as several bus routes operating at bus stops throughout the Town Centre, as shown in **Figure 1–1**. The public transport connectivity to St George Hospital provides the potential for adopting sustainable transport alternatives which support sustainable travel modes as the primary form of access.

Figure 1–1 St George Hospital Area



1.2 Aims

A Green Travel Plan serves to centralise communication of sustainable transport practices and strategies into a single document. This document outlines the existing travel behaviour of staff and visitors travelling to and from St George Hospital (SGH) and proposes strategies to shift this behaviour towards more sustainable modes.

The aims of this Green Travel Plan include the following:

– Increase public transport mode share amongst staff, utilising the existing public transport connectivity provided by the nearby T4 Eastern Suburbs and Illawarra Line and surrounding bus services.

– Promote the adoption of cycling and walking to and from SGH, for part or the entire journey.

– Reduce parking demand for car parks in the area as supply is currently at capacity.

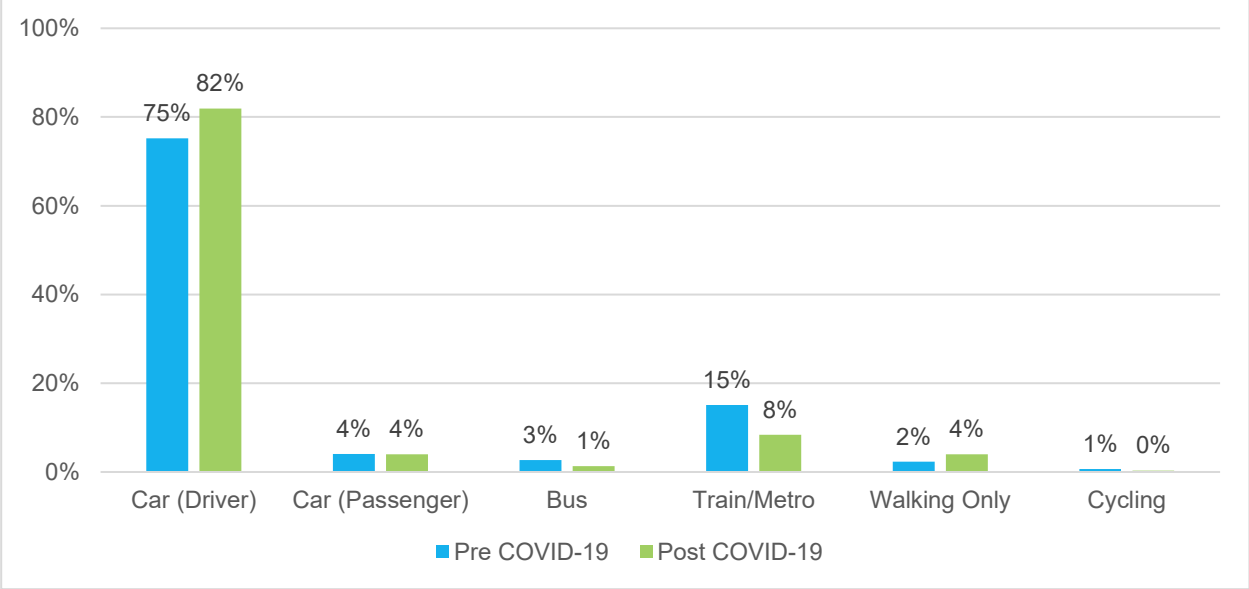
2.0 Existing travel behaviour

2.1 Staff travel survey 2022

In January 2022, a travel survey was conducted by SCT Consulting and The Mercurius Group to identify how staff travelled to and from St George Hospital as well as their attitudes towards other travel modes. A total of 342 responses were received.

The mode share of respondents is visualised in **Figure 2–1** below with a strong preference for private vehicles as the primary mode of travel to and from work. Before COVID-19 approximately 75 per cent of staff drove to work and four per cent travelled as passengers in a private vehicle. The impact of COVID-19 has resulted in the percentage of respondents who travel by private vehicle increasing to 82 per cent. This has been offset by a reduction in public transport usage from 18 per cent to nine per cent.

Figure 2–1 Staff travel survey mode share



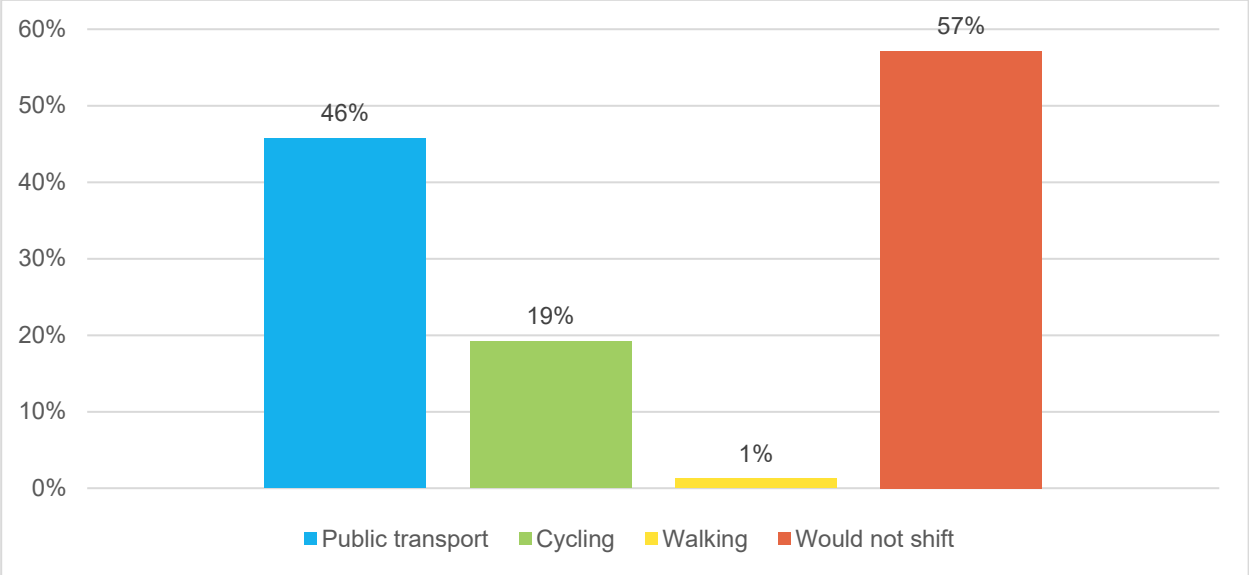
To further understand driver behaviour, respondents were asked to provide their main reasons for travelling by car. A majority of respondents stated alternatives took too long and preferred the comfort and convenience of a private vehicle. Other notable reasons are summarised in **Table 2-1** below. Overall, staff tend to prefer private vehicles for their flexibility and comfort compared to other modes rather than a lack of alternate modes.

Table 2-1 Main reason for driving

Reason for driving	Respondents
Alternatives take too long (e.g. indirect or infrequent)	65%
Comfort/convenience of a private vehicle compared to alternatives	53%
Need the car to drive somewhere else before or after work	29%
Unpredictable work hours	22%
Alternatives are hard to access (e.g. long walks to stations)	22%
Parking is available at the hospital	17%
There are no alternatives (e.g. no bus service)	10%
Health reasons	4%

Staff who drive were asked about their likelihood to change travel modes based on their typical travel distance. Summarised in **Figure 2–2**, many drivers would consider changing to either catching public transport or cycling to work. The percentage of drivers willing to consider walking to work is low as most live too far from the hospital for walking to be a feasible alternative.

Figure 2–2 Percentage of drivers who would consider switching modes



Note: Percentage total is greater than 100 per cent as staff were allowed to select multiple modes.

Results from the staff travel survey show a clear potential for mode shift away from private vehicle usage. With appropriate incentives and commitment, there is an opportunity to boost public transport and cycling mode share amongst staff. One of the key components of any Green Travel Plan is how the workplace/company supports staff in achieving this aim through continued engagement. This will be central to supporting St George Hospital achieve its intended modal shift targets.

2.2 Travel behaviour

2.2.1 Staff mode share

Transport for NSW (TfNSW) publishes Journey to Work statistics by Travel Zone from the 2011 Census[1]. Travel Zones are a spatial unit of geography used by TfNSW for transport modelling and analysis. St George Hospital shares a Travel Zone with the surrounding local area as shown in **Figure 2–3**. St George Hospital is part of Travel Zone 2738 with approximately 1,718 workers. Since SGH makes up a large portion of the job supply, Travel Zone 2738 provides a good representation of the hospital's mode share.

[1] TfNSW (2011), Journey to Work data. Note that from the 2016 Census, the Australian Bureau of Statistics introduced stricter measures to prevent individuals from identification at small geographies. Consequently, Journey to Work data by Travel Zone is not available from the 2016 Census.

Figure 2–3 Travel Zones around SGH

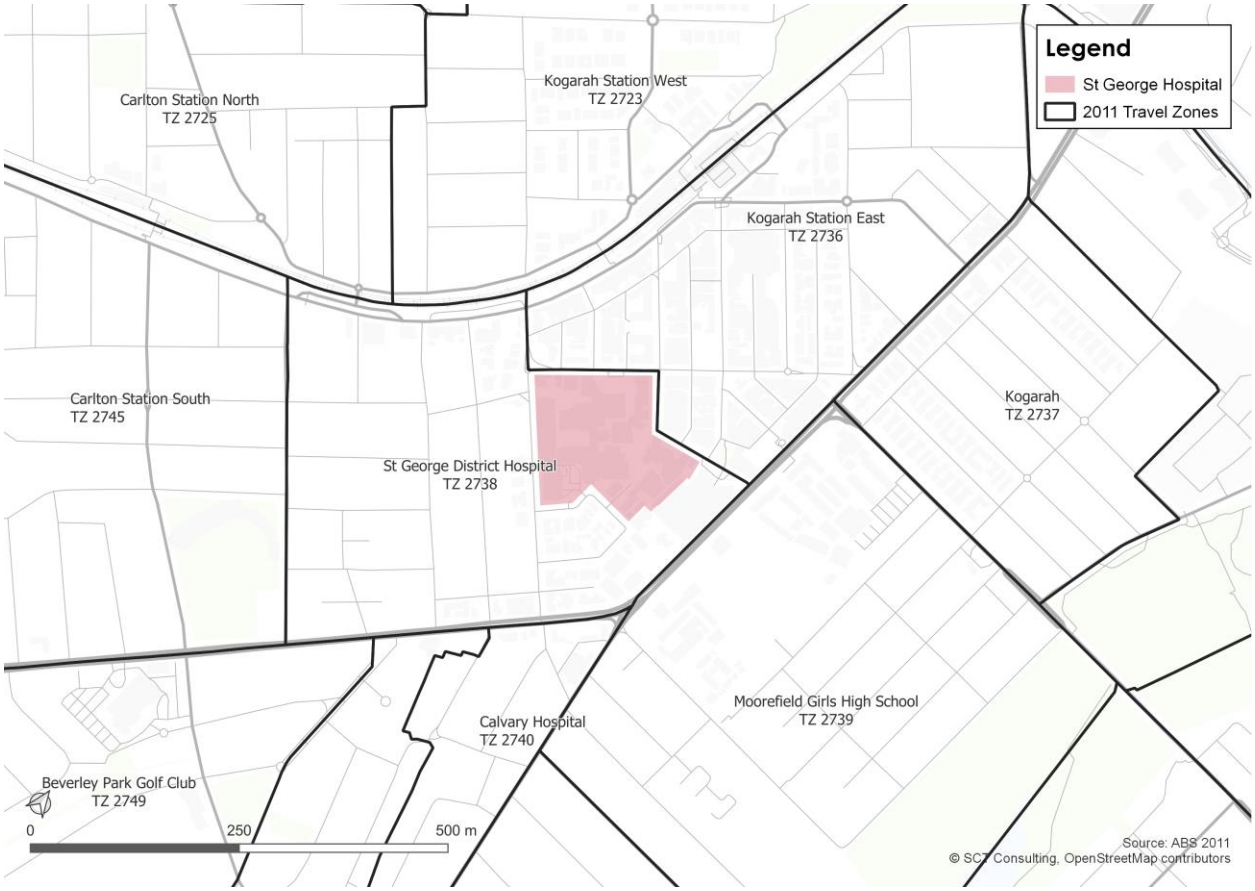
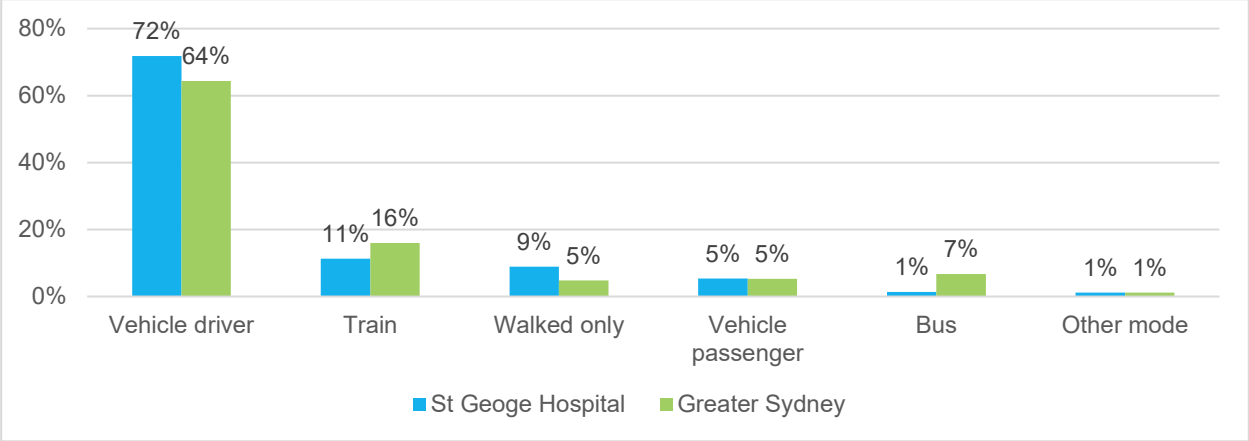


Figure 2–4 shows data for the SGH Travel Zone from the 2011 Census to understand how staff travel to work. For over 4,000 staff at SGH, 72 per cent drove to work, 11 per cent arrived by train and nine per cent walked (only mode). This is a heavy reliance on cars and is expected due to the spread of staff home locations.

Figure 2–4 Mode share of staffs at St George Hospital



Source: Transport for NSW 2011

In total, 2,860 employees travel to work by car (including both drivers and passengers). This mode share is distributed uniformly across all origin Travel Zones as illustrated in **Figure 2–5**. **Figure 2–6** presents the absolute numbers of SGH workers that drive to work. Interpretation of these two figures in combination highlights that staff are equally inclined to drive regardless of their place of residence.

Figure 2–5 Proportion of St George Hospital Travel Zone workers that drive to work

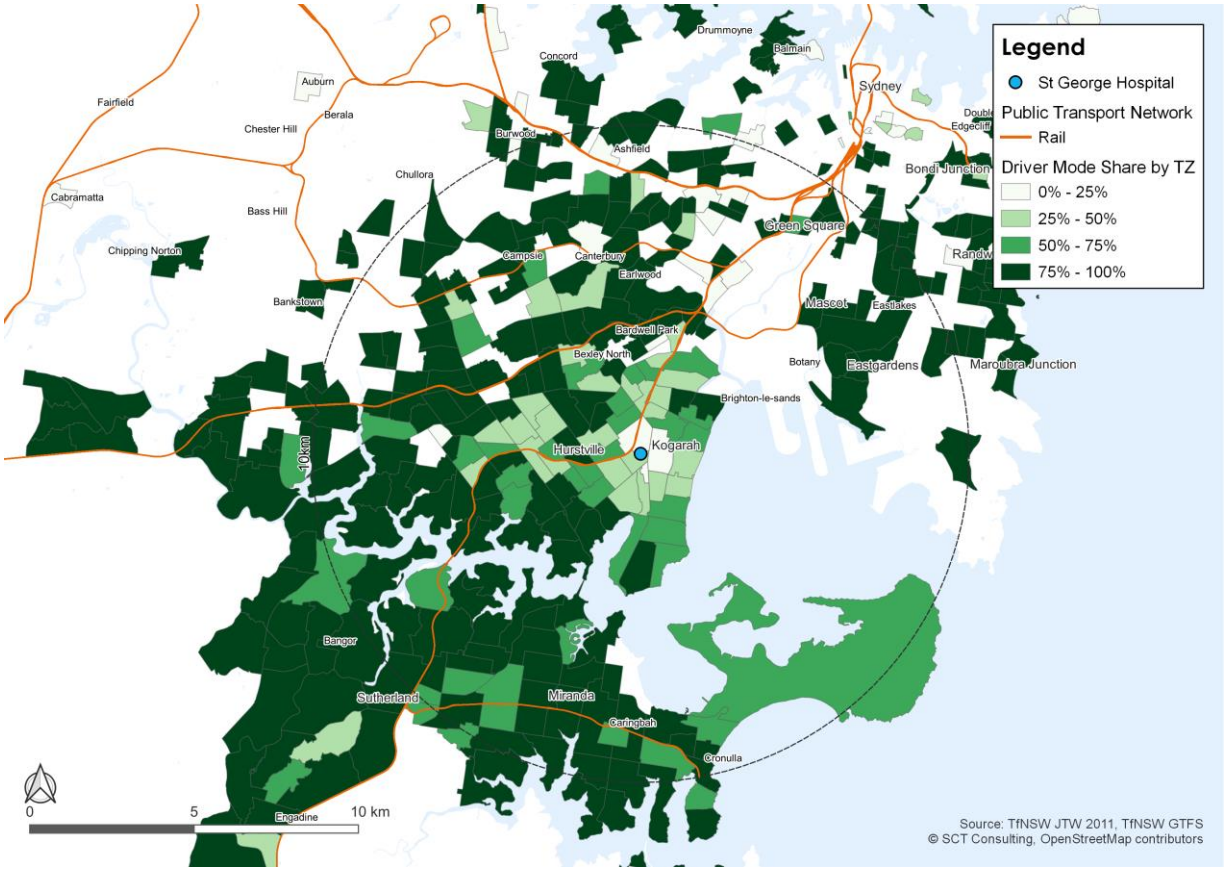


Figure 2–6 Number of St George Hospital Travel Zone workers that drive to work

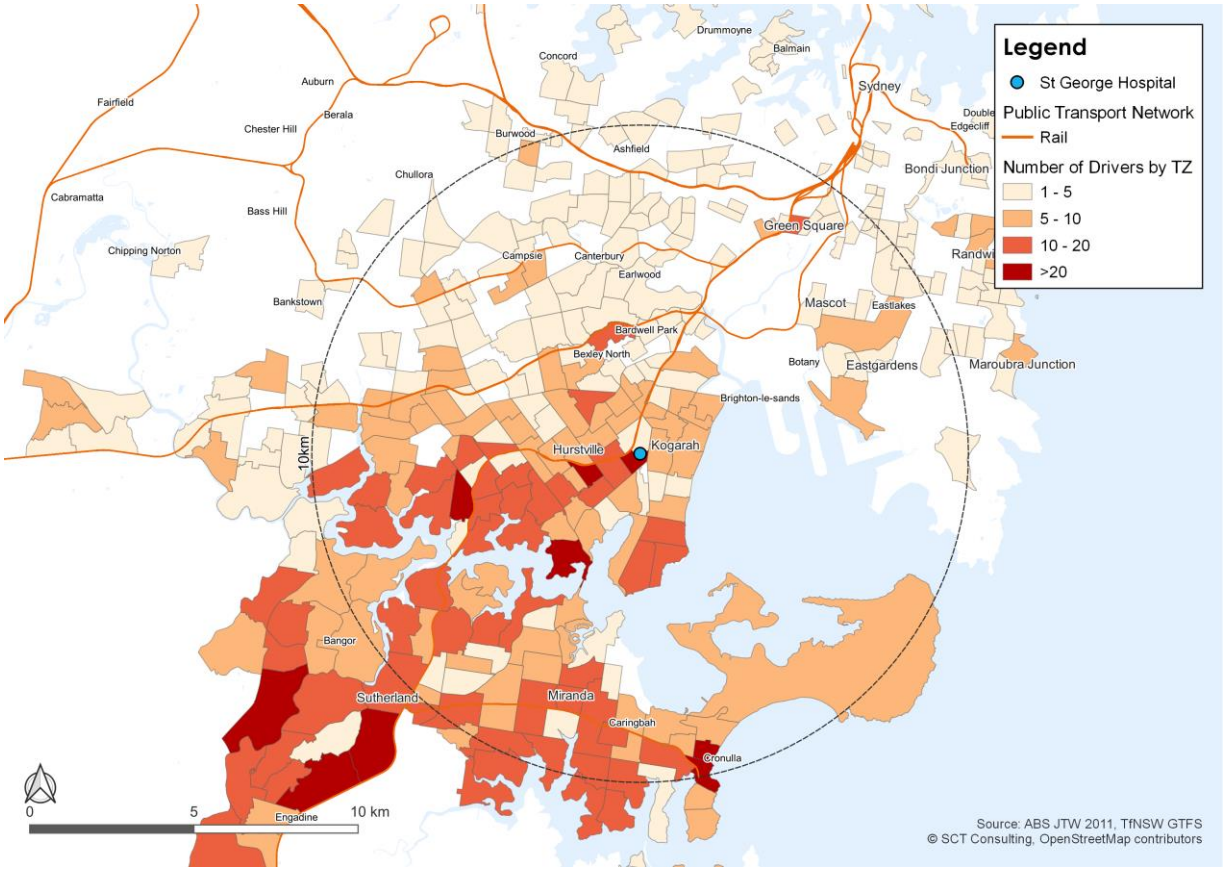
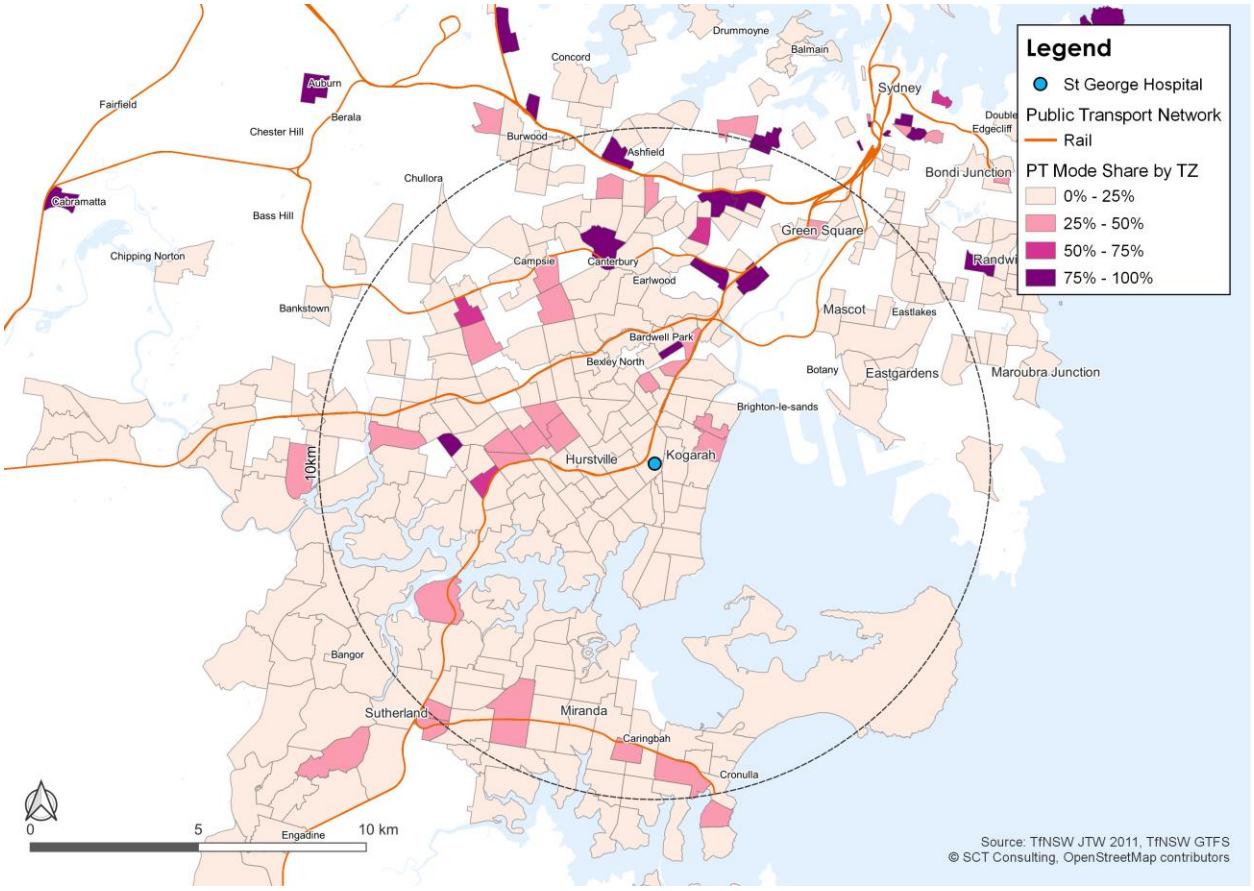


Figure 2–7 shows the proportion of St George Hospital Travel Zone workers that catch public transport to work is relatively consistent across all travel zones. Living within 5km of the hospital, staff are likely to find that driving directly to the hospital is faster and cheaper than walking to a station, waiting for a service and then walking to the hospital. Despite Kogarah train station being less than a ten-minute walk away, most staff who live in nearby suburbs also tend to drive to the hospital.

Figure 2–7 Proportion of St George Hospital Travel Zone workers that catch public transport to work

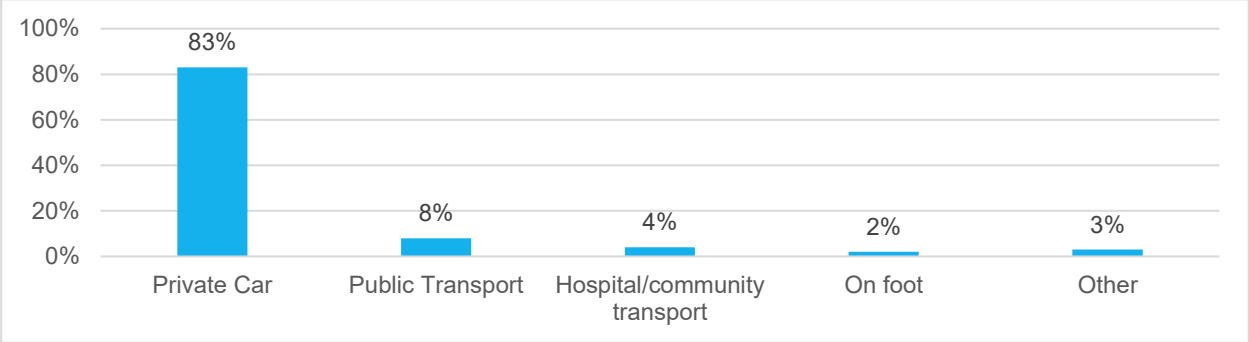


2.2.2 Patient mode share

While there is no formal travel survey for patients, the Bureau of Health Information (BHI) runs regular patient surveys across NSW that include questions on travel.

Figure 2–8 shows the mode shares for outpatients travelling to SGH. With a car mode share of 83 per cent, it is evident that most outpatients rely on cars to travel to the hospital. Even though SGH is within a walkable distance from Kogarah Train station with frequent train and bus services available, the public transport mode share is only eight per cent. This could be due to the nature of a hospital, where travelling by car is the most convenient transport mode in certain circumstances for patients. Additionally, only two per cent of outpatients travel on foot, which is understandable as SGH is one of the main hospitals in south Sydney serving a wide range of nearby suburbs that are not within walkable distances to Kogarah. It is unlikely this mode share will change substantially as individuals tend to prefer private vehicles for their convenience and route flexibility when travelling while ill or with health issues.

Figure 2–8 Mode shares of outpatients

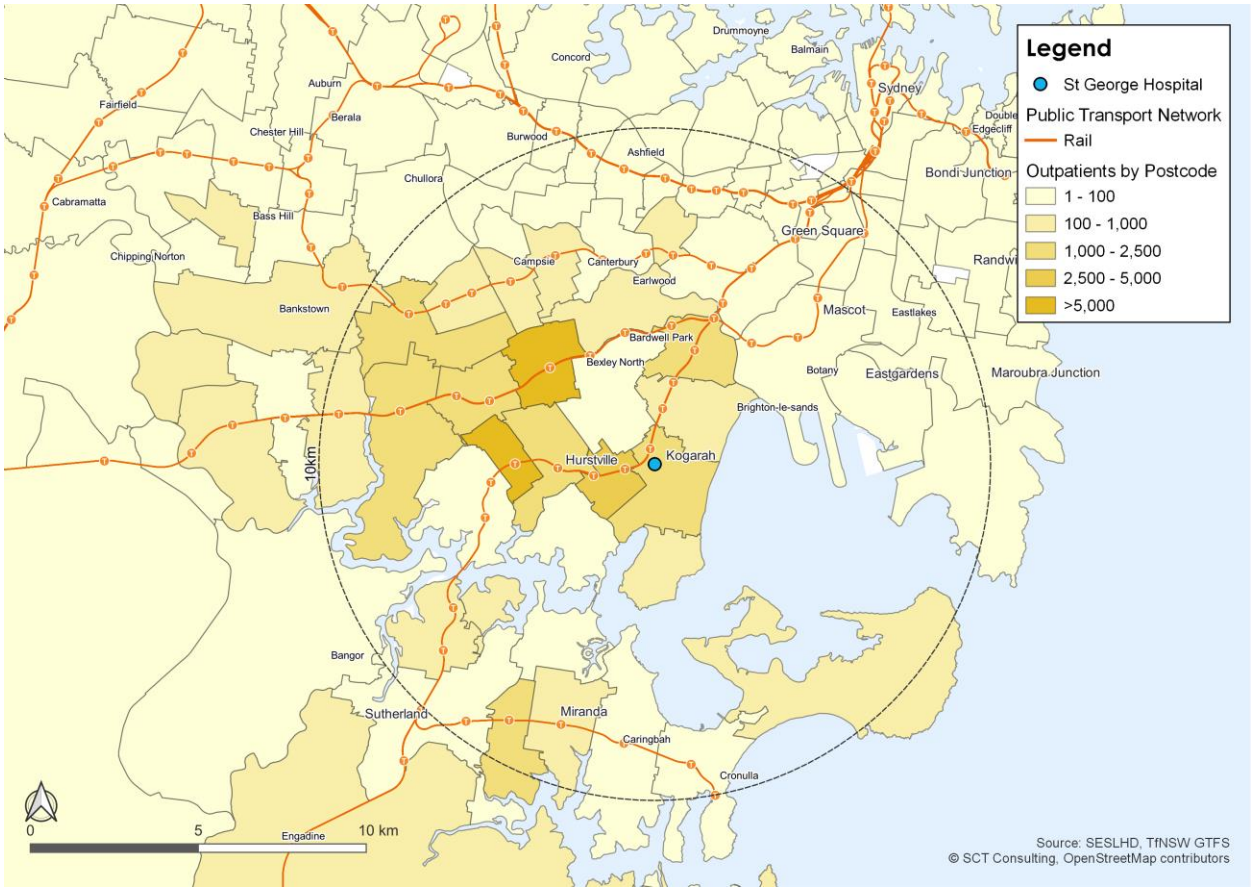


Source: Bureau of Health Information, 2016 Outpatients survey

2.2.3 Patient home locations

St George Hospital had over 65,000 admissions and 270,000 outpatient service events in the 2019/20 financial year. The postcode of each patient was sourced from SESLHD databases and is illustrated below in **Figure 2–9**. Most admitted patients at SGH come from southern Sydney, with the highest concentration from the Hurstville, Bexley and Kogarah postcodes.

Figure 2–9 Home locations of outpatients by postcode



2.3 Walking and cycling infrastructure

There is currently no dedicated cycleway infrastructure in the Kogarah Town Centre. There is a road shoulder designated as a cycleway along Railway Parade between Cartlon and Kogarah Station as shown in **Figure 1–1**. Additionally, there are no proposed cycleways around the hospital according to the Local Strategic Planning Statement. Although there is a plentiful provision of recreational cycleways in parks and green spaces throughout Georges River Council, the current cycle network is limited from a mobility and connectivity perspective, decreasing the likelihood that individuals will cycle for transport.

Pedestrian footpaths are available on both sides of roads around St George Hospital and provide complete pedestrian connectivity to Kogarah Town Centre and Kogarah Train Station. Furthermore, pedestrian zebra crossings and signalized crossings provide crossing opportunities within Kogarah Town Centre across Railway Parade, a busy collector road. There are three total pedestrian entrances to the hospital, via Kensington Street car park, Belgrave Street and Gray Street, all of which are accessible via a paved footpath. Overall, walking infrastructure is well provisioned in the business area surrounding St George Hospital.

2.4 Public transport

St George Hospital is within walking distance to Kogarah Train Station and several bus stops located throughout Kogarah Town Centre. As shown in **Figure 2–10**, the site is situated approximately 350m south of Kogarah Train Station. Train services run to Kogarah Station once every five to 10 minutes during peak hours and every 10 minutes in either direction during off-peak hours.

Figure 2–10 Public transport surrounding St George Hospital

Several bus routes operate in the Kogarah Town Centre, connecting the hospital to other major town centres in the region. An excerpt of the bus operator maps has been included in **Figure 2–11** below. These bus routes include:

– Bus route 446 connects St George Hospital to Roselands.

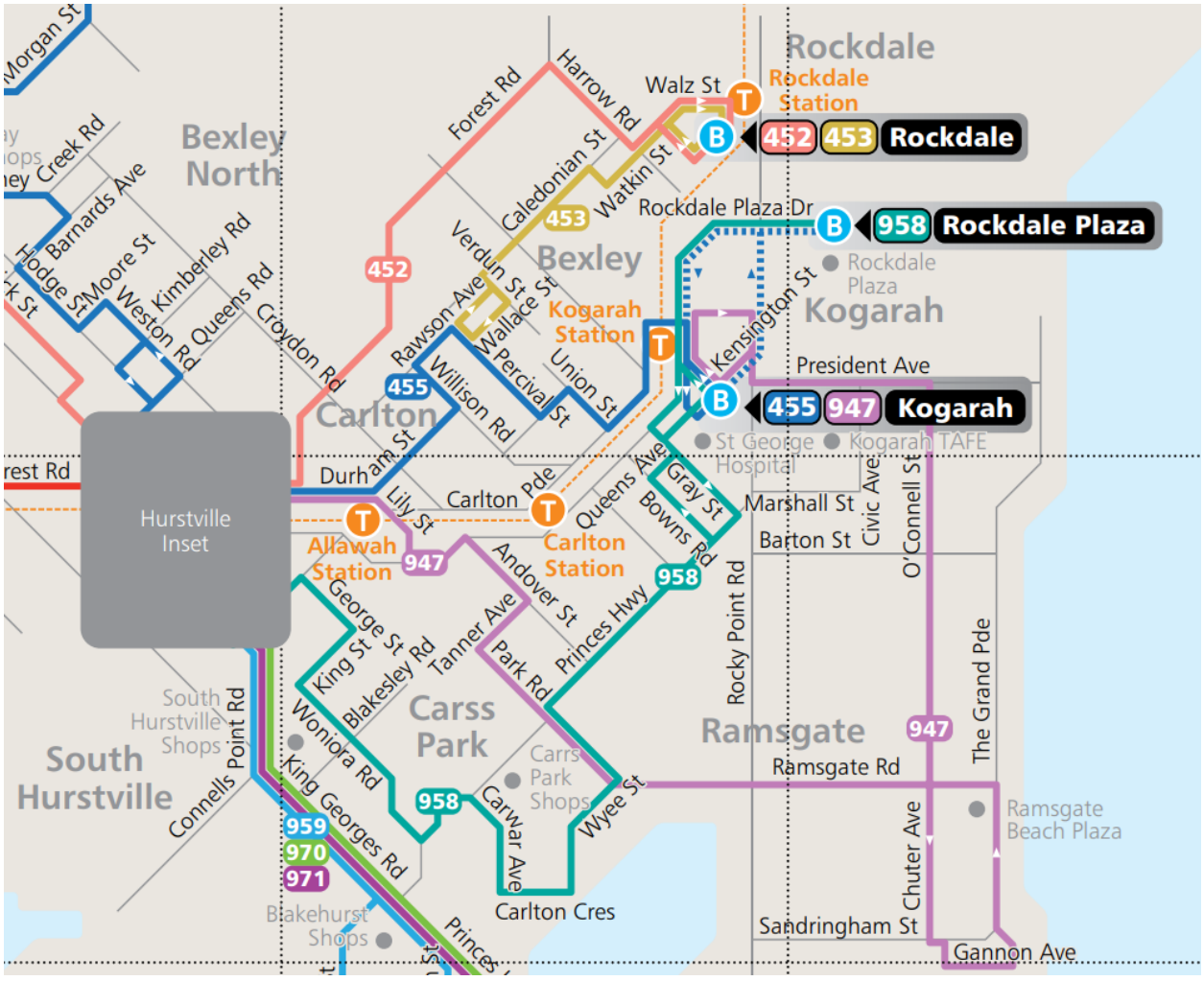
– Bus routes 455 and 947 connect St George Hospital to Hurstville.

– Bus routes 476 and 477 bus route connects to Sans Souci and Miranda to Rockdale respectively, passing the study area on Gray Street.

– Bus route 958 bus route connects Kogarah to Sylvania and South Hurstville residential areas.

– Bus route 422 connects Kogarah Town Centre from Railway Parade to Ultimo and Haymarket.

Figure 2–11 Bus operator map excerpt



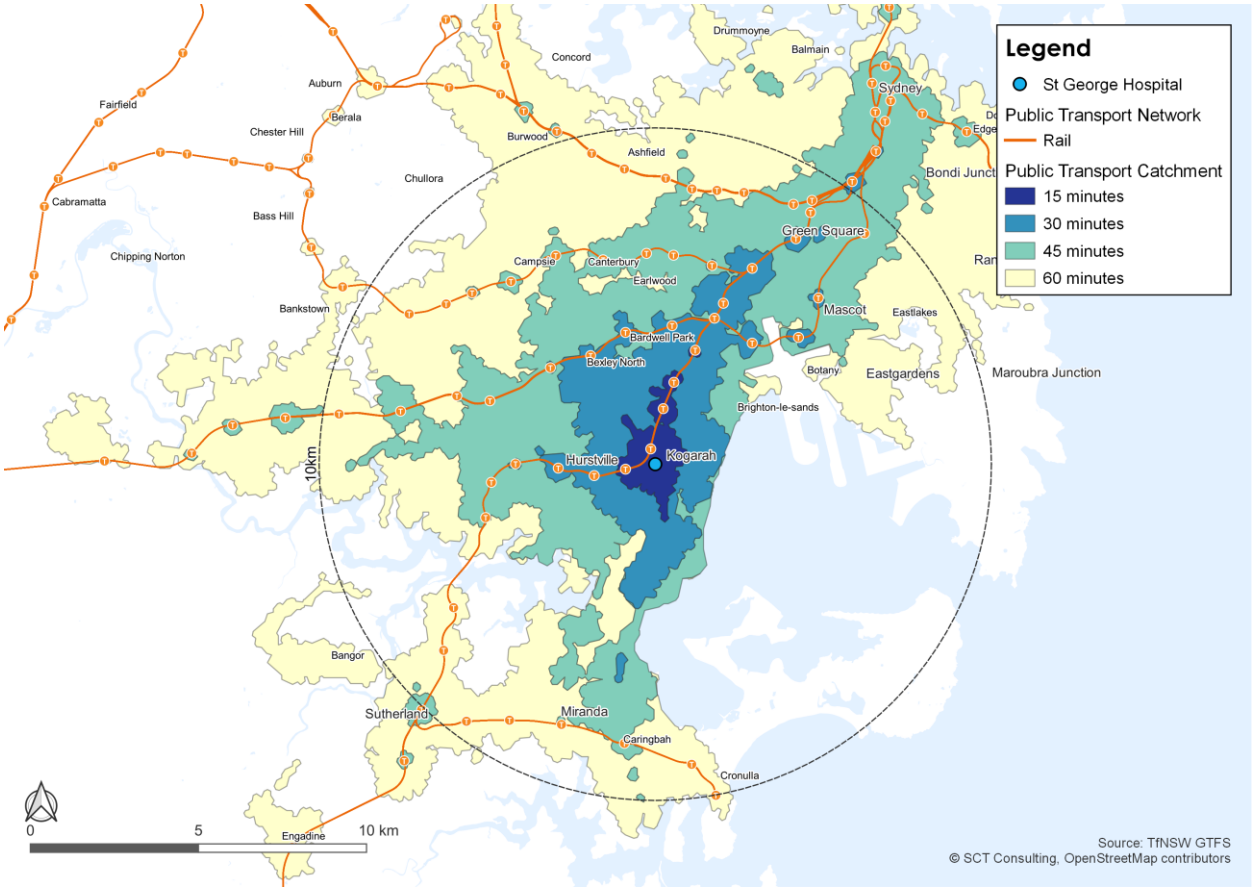
Source: Transport for NSW, 2022

The frequency of bus services in Kogarah Town Centre is highlighted in **Figure 2–12** below, with most services departing on Railway Parade. Services depart along Railway Parade approximately once every five minutes during 8-9AM on a typical weekday. Gray Street also sees a high frequency of services with buses departing once every six minutes.

Figure 2–12 Bus frequency in Kogarah Town Centre between 8-9AM

Overall, SGH is well-connected to nearby strategic centres and other suburbs within Greater Sydney via public transport. As illustrated by **Figure 2–13**, the site is located 15 minutes away from Hurstville when taking public transport. Suburbs including the Sydney CBD region, Miranda, Green Square, Mascot is roughly 30 to 45 minutes whilst Randwick, Maroubra and Eastgardens are located within the 60-minute catchment.

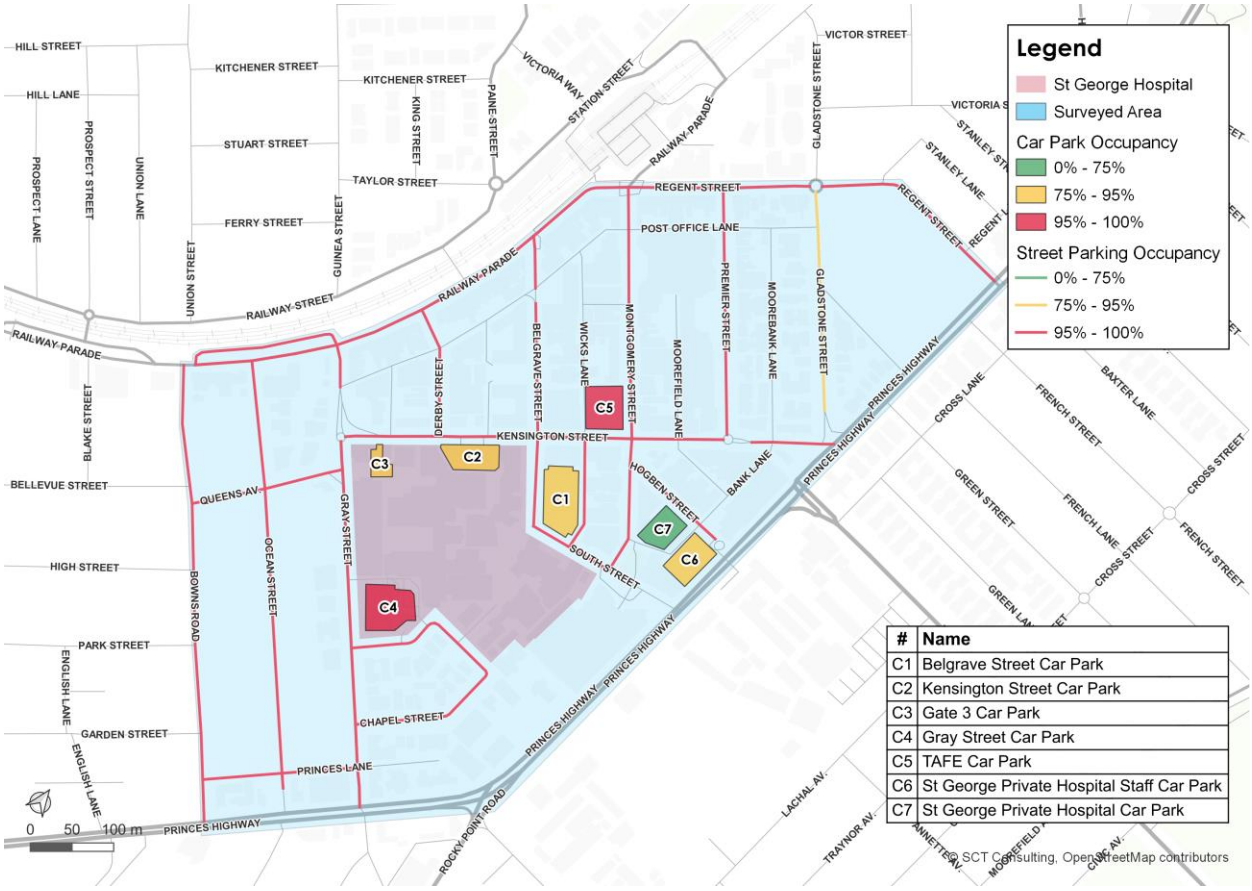
Figure 2–13 Train and bus network catchment to St George Hospital



2.5 Parking demand and supply

The current parking demand is based on a site visit conducted on 30 March 2021, from 10AM to 12PM. Available parking spaces are labelled and illustrated in **Figure 2–14**. Overall, there is little parking availability throughout Kogarah Town Centre as the current parking demand far exceeds supply.

Figure 2–14 Current on-street and off-street parking spaces



2.5.1 On-street parking

The on-street parking spaces along main streets west of the precinct, including Bowns Road, Ocean Street and Gray Street are all at capacity with 90 to 100 per cent of car park occupancy. On the north side of the precinct, main roads such as Railway Parade, Montgomery Street and Belgrave Street offer on-street parking on both sides of the road, but with only one to two hours time limit. Similarly, local residential roads such as Derby Street and O'Keefes Lane have on-street parking. Wicks Lane does not offer any on-street parking. Hogben Street is located on the east side of the precinct, it has two hour angled parking spaces on one side of the street and a few parallel parking spaces available on the other side. However, Hogben Street also has a direct entry point to the St George Hospital car park.

2.5.2 Off-street parking

There are currently four car parks owned by St George Hospital and three car parks that are owned by other parties within the precinct.

The car parks that are owned by St George Hospital include:

– Belgrave Street car park

– Gray Street car park

– Kensington Street car park

– Gate 3 car park

In addition, the car parks that are not owned by St George Hospital include:

– TAFE car park

– St George Private Hospital car park

Belgrave Street car park is located at the intersection of the south end of Belgrave Street and South Street. With Belgrave Street being a main road within the precinct and South Street as a connector road leading the traffic to Princes Highway, the traffic flow and parking demand on both streets are high. When surveyed in December 2021, the car park has a capacity of 569 parking spaces in total with 94 per cent occupancy, indicating a spare capacity of 64 spaces. Of these 64 spaces, only eight spaces were unreserved and available for patient parking. Being the biggest car park in the precinct, Belgrave Street car park serves visitors, staff and patients of St George Hospital with both reserved and unreserved parking spaces.

The Gray Street car park is located outside the main entrance to the hospital and is a very attractive parking location for patients and staff as a result. When surveyed in December 2021, the facility has a total capacity of 604 parking spaces with 92 per cent occupancy. 49 spare parking spaces were observed during survey periods. It is located at the intersection between Gray Street and Short Street and serves visitors, patients, and staff with permitted basement parking access.

Kensington Street car park provides 51 parking spaces and three spaces reserved for patient transport vehicles primarily serving patients. It is located on Kensington Street, between Derby Street and O'Keefes Lane. Kensington Street connects Gray Street with Princes Highway while intersecting main streets including Belgrave Street and Montgomery Street. It was discovered that from 10AM to 12PM, Kensington Street Car park is 90 per cent occupied with five spaces available as spare parking spaces.

With approximately 20 parking spaces available, Gate 3 car park is 90 per cent occupied with only two spare spaces at 10AM on a weekday. Being a staff-only car park that is located only 70 meters away from the Kensington Street Car park, the Gate 3 car park caters to a portion of the reserved parking demand on Kensington Street, allowing a total of 71 available off-street parking spaces on Kensington Street.

Belgrave Street, Kensington Street and Gray Street car parks are paid visitor parking spaces but staff can attain parking permits from St George Hospital.

Table 2-2 summarises parking availability across surveyed parking facilities in proximity of St George Hospital. Overall, there are around 1,125 parking spaces in St George Hospital owned car parks with only around 49 spaces available from 10AM to 12PM on a weekday. Out of these 49 spaces, only 35 are unreserved for patient parking. In parking facilities not associated with St George Hospital, a total of 73 spaces were found to be available at the St George Private Hospital car park however a majority of these spaces are reserved with only two spaces available to patients.

Table 2-2 Car park occupancy around St George Hospital

Car Park	Total Spaces	Utilised spaces	Spare spaces (unreserved)	Occupancy
Operated by St George Hospital				
Belgrave Street car park	569	534	64 (8)	94%
Kensington Street car park	51	46	5 (5)	90%
Gate 3 car park	20	20	2 (0)	90%
Gray Street car park	604	555	49 (43)	92%
Subtotal	*1,244*	*1,155*	*120 (56)*	
Not operated by St George Hospital				
Hogben Street car park	71	67	4 (0)	94%
St George Private Hospital car park	224	155	69 (2)	69%
TAFE car park	88	88	0 (0)	100%
Subtotal	*383*	*310*	*73 (2)*	
Grand Total	**1,627**	**1,465**	**193 (93)**	

3.0 Mode Share Targets

Individuals travelling to and from SGH have a higher preference towards private vehicle travel, thus placing significant pressure on parking supply. Current travel patterns for staff at St George Hospital is presented in **Table 3-1** alongside 2016 journey to work mode shares of workers in Georges River Local Government Area (LGA) and Sydney LGA. The travel data show a clear reduction in public transport and cycling mode shares during COVID-19. Restoration of these mode shares serves as a logical baseline target for this Green Travel Plan.

Table 3-1 Current mode shares

Mode	St George Hospital		Georges River LGA	Sydney LGA
	Pre COVID-19	Post COVID-19		
Private vehicle	79%	86%	64%	26%
Public transport	18%	9%	30%	41%
Cycling	0.7%	0.3%	0.3%	3.5%
Walking	2%	4%	4%	28%

Source: Australian Bureau of Statistics, 2016

5-year targets have been set to promote the adoption of public and active transport modes and to reduce the demand for parking. These targets are based on travel patterns and perceptions of staff at the Hospital, as well as travel patterns of other individuals working in the Georges River Local Government Area. A set of conservative and aggressive targets have been developed and are described in words as the following:

– Baseline targets:
  - Double existing public transport mode share from nine per cent to restore pre-COVID-19 mode share of 18 per cent.
  - Triple existing cyclist mode share from 0.3 per cent to 0.9 per cent.
  - Maintain walking mode share of four per cent.

– Stretch targets:
  - Triple existing public transport mode share from nine per cent to 27 per cent to close the mode share gap between St George Hospital and the Georges River LGA.
  - Raise cycling mode share from 0.3 per cent to City of Sydney average of 3.5 per cent.
  - Maintain walking mode share of four per cent.

Quantitatively, mode share targets are presented below in **Table 3-2**. These targets aim to reduce the mode share of private vehicle use and align the public transport mode share of staff closer to that of other workers in Georges River LGA as well as supporting and promoting cycling mode share. While it is unlikely that St George Hospital will achieve a walking mode share similar to Sydney LGA, supporting walking around the campus would benefit all staff as they walk to access other modes. The reduced private mode share targets will reduce the demand for parking from staff. This returns parking supply to visitors and patients, who are likely to continue relying on private vehicles to access services at SGH.

Table 3-2 5 year mode share targets

Mode	Current Mode Share	5 year Mode Share Targets	
		Baseline	Stretch
Private vehicle	86%	76%	68%
Public transport	9%	18%	27%
Cycling	0.3%	0.9%	3%
Walking	4%	5%	5%

4.0 Green Travel Plan Framework

4.1 Objectives

The overarching objective of this Green Travel Plan is to reduce the reliance on private vehicle modes and promote the use of sustainable transport modes. To achieve this goal, supporting objectives include:

- **OBJ1:** Increase mode share of public transport, walking, and cycling modes.
- **OBJ2:** Promoting the health benefits of active transport modes.
- **OBJ3:** Provide staff and visitors with the support and facilities needed to promote sustainable transport modes.
- **OBJ4:** Raise awareness and encourage the use of current and future sustainable transport networks.
- **OBJ5:** Reduce the number of trips made by car to and from St George Hospital and its demand on parking supply.

4.2 Proposed strategies and measures

Strategies proposed to achieve these aims can be categorised into the following:

- **Green Travel Plan:** A formal and living document owned and endorsed by the SESLHD used to centralise and communicate sustainable travel measures to staff and visitors.
- **Communication to staff:** As part of the implementation of the Green Travel Plan, all new staff are to be made aware of the Plan and its purpose during induction. Continued information dissemination to staff will also help engagement.
- **Public transport:** The proximity of Kogarah Train Station to St George Hospital presents a realistic opportunity to promote public transport and increase its mode share amongst staff.
- **Cycling:** Cycling has a low adoption rate amongst staff with less than one per cent of staff respondents stating they cycled to the Hospital. Although bicycle parking is provided on campus, further work is needed to promote cycling as a method of travel to work.
- **Walking:** The footpaths around St George Hospital provide continuous connectivity into Kogarah Town Centre located immediately north of the campus. Walking amenity impacts last mile public transport journeys and staff who find on-street parking.
- **Parking demand reduction:** Car parking facilities around the Hospital are continually at capacity, indicating significant demand pressure and oversubscription of parking. The staff travel survey conducted in 2022 showed over 75 per cent of respondents travelling to the Hospital via private car with less than four per cent of respondents travelling as car passengers.
- **Advocacy:** St George Hospital and SESLHD should represent the travel interests of staff and visitors and explore the implementation of larger strategies involving external stakeholders including:

Table 4-1 Proposed Green Travel Plan strategies

ID	Strategy	Measurement and Monitoring	Objectives Achieved
Green Travel Plan			
GTP1	This Green Travel Plan provides a framework to support and promote the use of sustainable modes of transport by outlining strategies endorsed and implemented by St George Hospital. These strategies will change over time as travel patterns evolve. In response, this document is a living document, meaning it will change over time and requires ownership by stakeholders for effective implementation.	– An annual travel survey of staff and visitors should be conducted to understand trends in travel patterns over time. – Occupancy surveys of car parks operated by the Hospital and street parking in the surrounding area should be conducted to determine trends in parking demand. – Occupancy of cycle parking on Hospital grounds should be monitored to identify changes in cycling mode share.	**OBJ2, OBJ3, OBJ4**
Communication to staff			
COM1	Familiarising new staff with locations of local public transport, such as Kogarah Train Station, bus routes and stops. Common walking and cycling routes, as well as on-campus bicycle parking, should be included as part of this process to provide a holistic overview of hospital access via public transport. Locations of and access to end-of-trip facilities including showers, change rooms, and lockers should also be provided.	– Annual travel survey of staff to be owned and conducted by a nominated staff member or working group to collect and assess staff travel patterns to discern the ongoing effectiveness of Green Travel Plan communication and adoption. – Monitoring of end of trip facility usage, including bicycle parking.	**OBJ1, OBJ2, OBJ3, OBJ4, OBJ5**
COM2	Consolidate and act on feedback from staff regarding their hesitancies and challenges to identify and potentially address issues common to many individuals.		
Public transport			
PT1	Subsidising public transport costs, such as OPAL, and providing OPAL top-up services at retail outlets on campus.	– Annual travel survey of staff to understand trends in travel patterns, particularly staff opinions on public transport. – Track occupancy of trial shuttle buses to determine an appropriate permanent service.	**OBJ1, OBJ3, OBJ5**
PT2	Provide trip planning services to new and existing staff to communicate individualised public transport options.		
PT3	Investigate a trial shuttle bus service between St George Hospital and partnering hospitals in the SESLHD such as The Sutherland Hospital.		

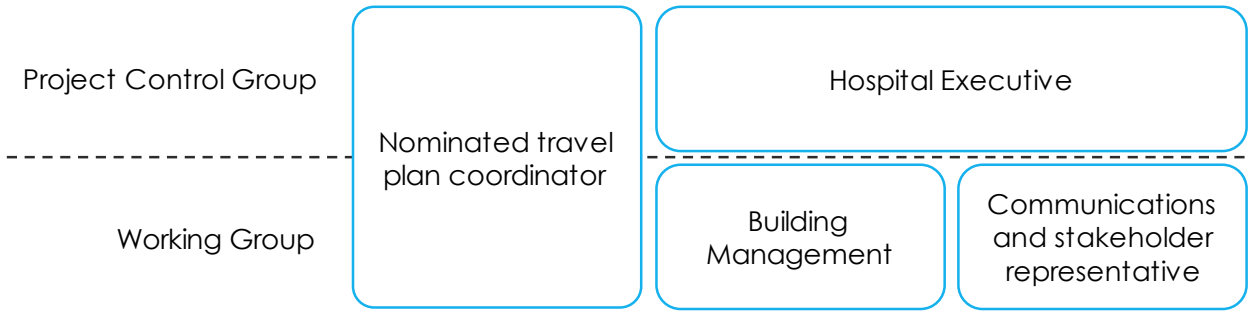
ID	Strategy	Measurement and Monitoring	Objectives Achieved
Cycling			
CYC1	Improving and maintaining the existing end of trip facilities.	– Annual travel survey of staff to understand trends in travel patterns and opinions of staff on cycling to work. – Monitoring of bicycle parking spaces on campus to track trends in uptake and demand.	**OBJ2, OBJ3**
CYC2	Providing and facilitating cycling classes to build cycling confidence in staff.		
CYC3	Initiate a bike trial program where staff can rent a bike and equipment to reduce introductory investment costs.		
CYC4	Subsidise the purchase of bicycles and electric bicycles for staff.		
Walking			
WAL1	Reduce barriers to walking, including during night conditions as some staff complete shifts after dark.	– Annual travel survey of staff to understand trends in travel patterns and opinions of staff on walkability. This includes identifying barriers to walking around SGH. – Annual patient travel survey to understand requirements of visitors accessing the Hospital.	**OBJ2, OBJ3**
WAL2	Improved lighting along common pedestrian routes.		
WAL3	Provision of wayfinding and local area walking maps.		
Parking demand reduction			
PAR1	Launch a carpooling service owned and operated by the Hospital or SESLHD to match staff living in similar locations.	– Occupancy surveys of car parks operated by the Hospital and street parking in the surrounding area should be conducted to determine trends in parking demand. – Monitoring of parking entries and exits would provide an indicator of turnover, reflecting trends in parking duration and the proportion of short to long term parking.	**OBJ4, OBJ5**
PAR2	Reduce the volume of parking permits and subsidies for staff parking to minimise the promotion of private vehicles as a preferred travel mode.		
PAR3	Allocate a greater portion of existing parking revenue, or alternatively increase parking rates, to fund and subsidise public transport and cycling incentives.		
Advocacy			
ADV1	Work with Georges River Council to create an Active Transport Plan outlining any future development of walking and cycling infrastructure around St George Hospital and Kogarah Town Centre. This would overview plans for cycling lanes as well as improved street lighting and walking amenities.	– Survey staff to quantify interest in initiatives listed above and continue monitoring staff opinion on effectiveness during and after implementation.	**OBJ1, OBJ2, OBJ3, OBJ4**

ID	Strategy	Measurement and Monitoring	Objectives Achieved
ADV2	Represent staff in the advocacy of increasing train service frequency to Kogarah Train Station in peak periods to Transport for NSW and Sydney Trains. Staff are currently required to interchange at Hurstville despite both train stations being on the T4 Eastern Suburbs and Illawarra Line.		
ADV3	Represent staff in the advocacy of a local bus route to the Hospital in suburbs surrounding Kogarah. This service would operate during peak periods only, aimed at transporting staff and patients.		

5.0 Next steps

To achieve the mode share targets outlined in this Green Travel Plan, the next steps include the endorsement and ownership of this document by St George Hospital and the SESLHD, and the establishment of a governance structure to identify avenues for the implementation of proposed strategies. A governance structure is proposed in **Figure 5–1** below.

Figure 5–1 Proposed Governance Structure



It would be the ongoing responsibility of the Working Group, consisting of a nominated travel plan coordinator, building management and a communications and stakeholder representative, to deliver, monitor and measure the effectiveness of these strategies, as well as amend or add to them to steer progress towards outlined targets. The Project Control Group would involve the nominated travel plan coordinator and the hospital executive and serves to endorse and approve funding for strategies and related schemes.

Overall, this governance structure provides a foundation for the implementation and ongoing support of this Green Travel Plan and is a crucial element in its effectiveness in delivering subsequent strategies.

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