

100 South Creek Road, Cromer

Warehouse 1 – Swim School
Transport Impact Assessment



Prepared by: Stantec Australia Pty Ltd for Aquatic Achievers

on 24/01/2022

Reference: 301401124

Issue #: B

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Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	13/12/2021	Final	Ashish Modessa	Steve Manton	Steve Manton	Steve Manton
B	24/01/2022	Final – updated plans	Ashish Modessa	Steve Manton	Steve Manton	

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1. INTRODUCTION

1.1. Background

It is understood that a development application is to be lodged with Northern Beaches Council (Council) for a proposed swim school within Warehouse 1 of the approved but yet-to-be constructed Northern Beaches Business Park at 100 South Creek Road, Cromer.

The proposal incorporates a swim school that can accommodate up to 14 staff and up to 86 students/patrons. Warehouse 1 has an area of 1,089 square metres gross floor area (GFA).

Aquatic Achievers engaged GTA, now Stantec (GTA) to undertake a transport impact assessment of the proposal.

1.2. Proposal

Aquatic Achievers proposes to operate the swim school with the following operating characteristics:

- Hours of Operation: 6:30am – 9:00pm Monday to Sunday
- Staff: 6-14 employees at any one time, 40 employees overall
- Person capacity: 100 persons (including staff)
- Parking allocation: 35 spaces within the business park (31 spaces in the basement and four adjacent to the warehouse).

Classes will mostly be 30-minute sessions and will be run in small groups with approximately 2-4 children per class, with some 45- to 60-minute classes with 6-12 children per class (only weekday PM and weekends). The swim school is targeting children from three months of age to 11 years old. Class frequency is dependent on the time of day and day of the week, ranging from five classes on weekday mornings to 13 classes on weekend mornings. An indicative average operating schedule is shown in Table 1.1.

Table 1.1: Indicative average operating schedule

Time Period	Classes per session	Children per class	Children per hour ¹
Weekday AM	5	3	30
Weekday PM	8	3	48
Weekend AM	13	3	78

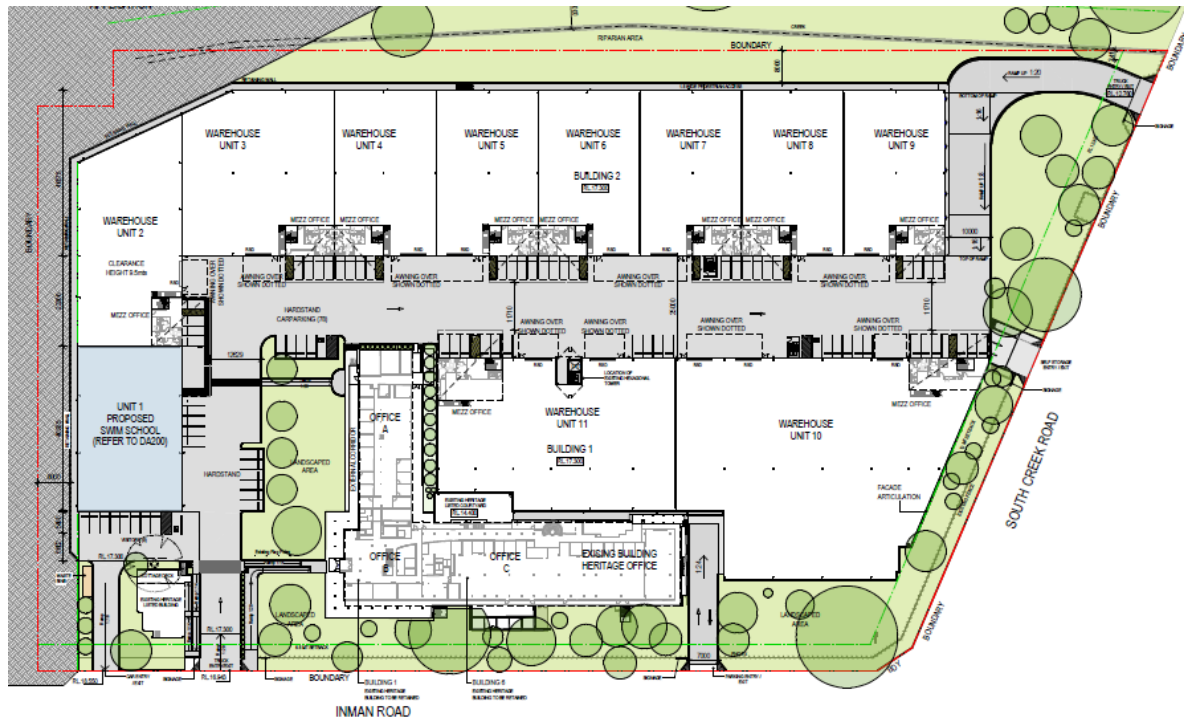
1. Based on average of 2 sessions per hour (i.e. 2 x 30 minute sessions)

It is expected that the swim school would be operating at capacity during the weekend AM (100 per cent), at 50 per cent during the weekday AM and 75 per cent during the weekday PM.

Figure 1.1 shows the overall approved Northern Beaches Business Park, with the allocated basement car parking for the swim school (31 spaces) shown in Figure 1.2 and the proposed layout for the swim school in Warehouse 1 (including the 4 adjacent parking spaces) shown in Figure 1.3.

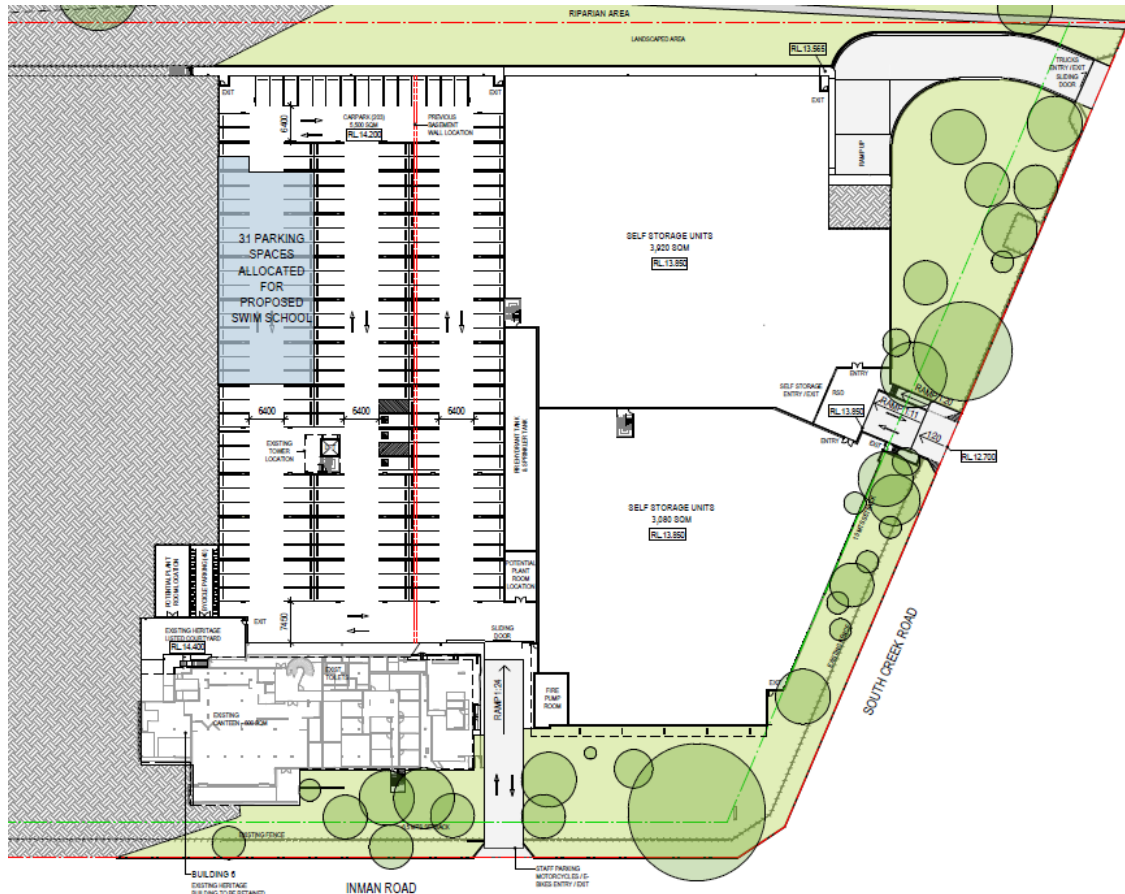
INTRODUCTION

Figure 1.1: Northern Beaches Industrial Park



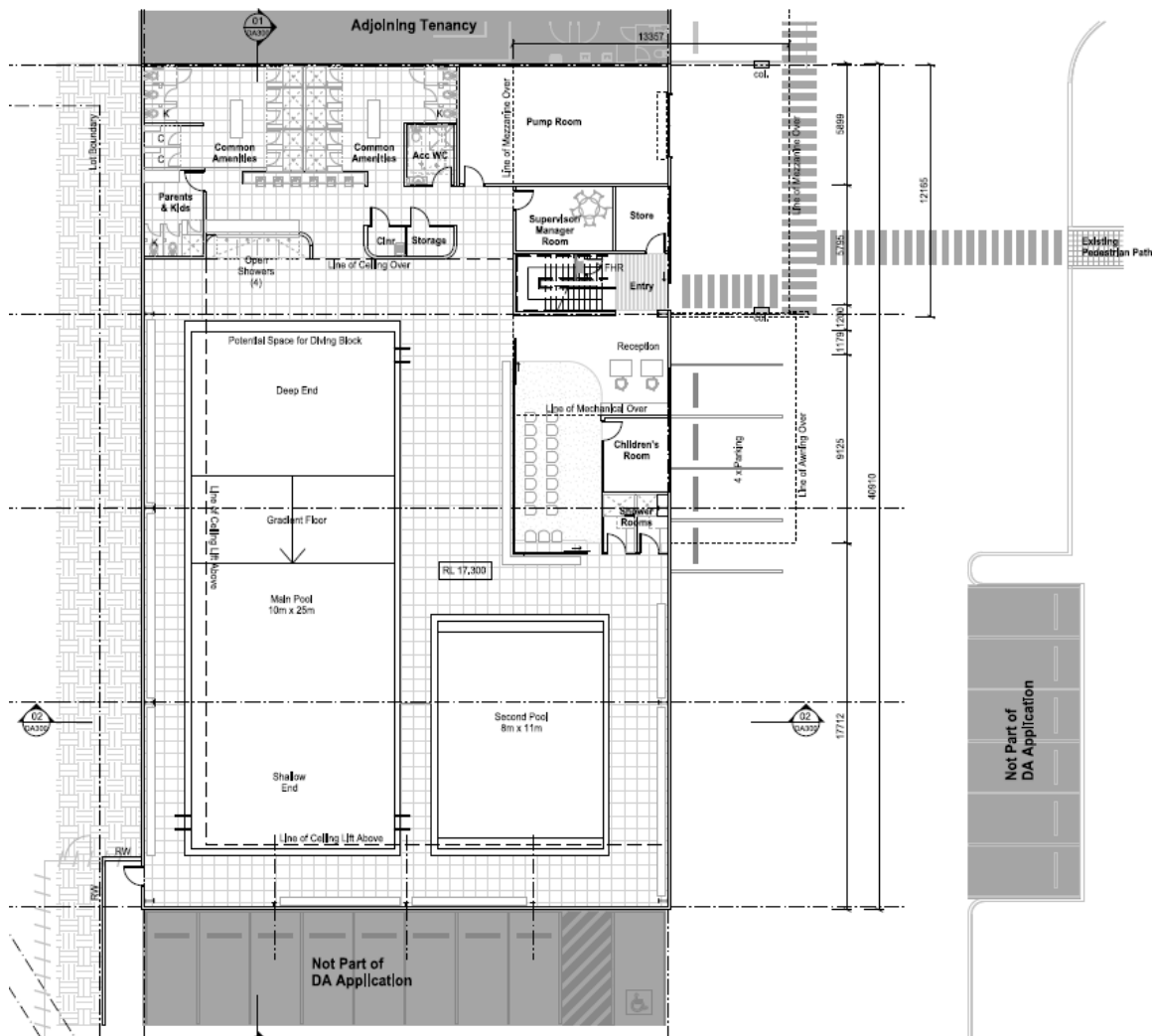
Source: Drawing Number 21202 DA100 Revision B, prepared by SBA Architects, dated 8 December 2021

Figure 1.2: Warehouse 1 – Aquatic Achievers Basement Parking Allocation



Source: Drawing Number 21202 DA110 Revision B, prepared by SBA Architects, dated 8 December 2021

Figure 1.3: Warehouse 1 – Aquatic Achievers layout



Source: Drawing Number 21202 DA200 Revision J, prepared by SBA Architects, dated 18 January 2022

1.3. Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposal, including consideration of the following:

- existing traffic and parking conditions surrounding the site
- suitability of the proposed parking in terms of supply (quantum) and layout
- pedestrian and bicycle requirements
- service vehicle requirements
- suitability of the proposed access arrangements to the site
- the traffic generating characteristics of the proposal
- the transport impact of the proposal on the surrounding road network.

1.4. References

In preparing this report, reference has been made to the following:

- an inspection of the site and its surrounds for approved Northern Beaches Business Park Development Application

INTRODUCTION

- Warringah Development Control Plan (DCP) 2011
- Warringah Local Environmental Plan (LEP) 2011
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2018
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- Northern Beaches Business Park, 100 South Creek Road, Cromer, TIA, prepared by GTA Consultants, dated 27 October 2020
- plans for the proposed development prepared by SBA Architects, Drawing Set 21202
- other documents and data as referenced in this report.

2. EXISTING CONDITIONS

2.1. Location

The subject site is Warehouse 1 of the approved Northern Beaches Business Park at 100 South Creek Road, Cromer. The warehouse comprises 1,089 square metres GFA. The site has a land use classification of IN1 General Industrial and is currently occupied by vacant industrial and commercial/ office facilities that will be redeveloped as part of the approved business park.

The surrounding properties predominantly include industrial developments to the north and south, Cromer Park sports fields to the southwest, Northern Beaches Secondary College (Cromer Campus) to the west and residential uses to the east of the site.

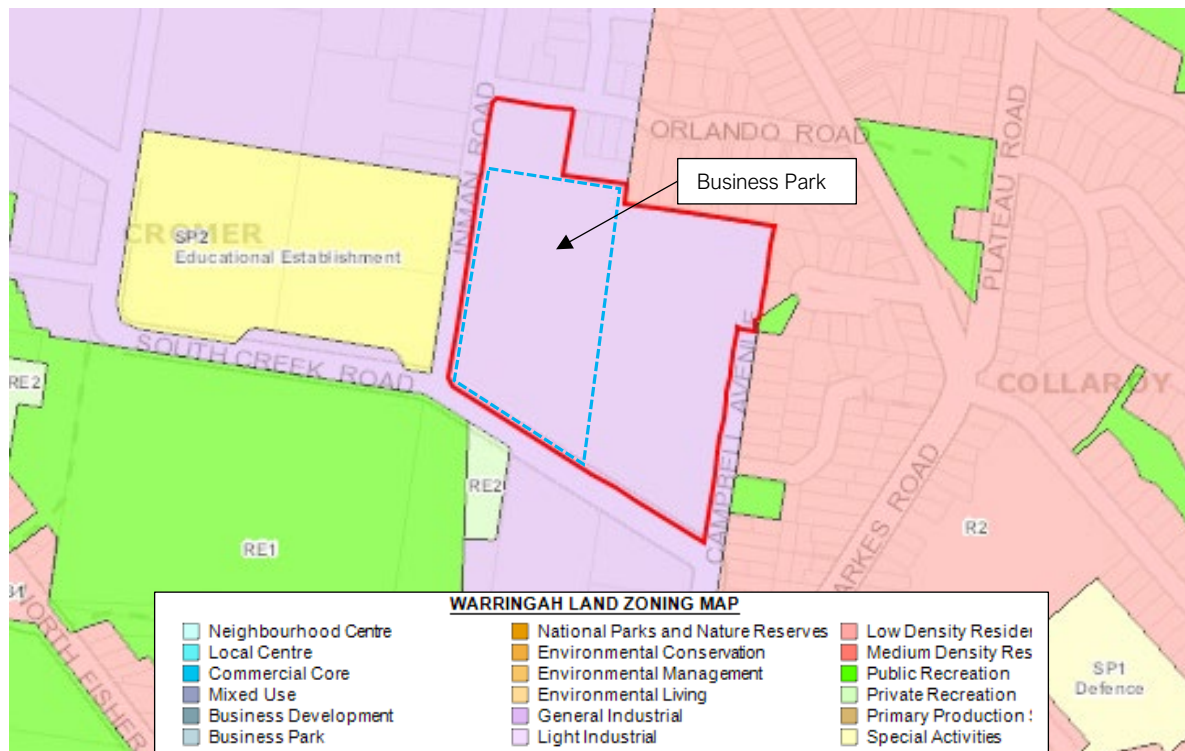
The location of the Northern Beaches Business Park and its surrounding environs is shown in Figure 2.1, while the Local Environmental Plan (LEP) land use map is shown in Figure 2.2.

Figure 2.1: Subject site and its environs



Base image source: Nearmap, accessed 10 September 2021

Figure 2.2: Land use map



Base image source: Warringah LEP 2011

2.2. Transport Network

2.2.1. Road Hierarchy

Roads are classified according to the functions they perform. The main purpose of defining a road's functional class is to provide a basis for establishing the policies which guide the management of the road according to their intended service or qualities.

In terms of functional road classification, State roads are strategically important as they form the primary network used for the movement of people and goods between regions, and throughout the State. Transport for NSW (TfNSW) is responsible for funding, prioritising and carrying out works on State roads. State roads generally include roads classified as freeways, state highways, and main roads under the Roads Act 1993, and the regulation to manage the road system is stated in the Australian Road Rules, most recently amended on 19 March 2018.

TfNSW defines four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

Arterial Roads – Controlled by TfNSW, typically no limit in flow and designed to carry vehicles long distance between regional centres.

Sub-Arterial Roads – Managed by either Council or TfNSW under a joint agreement. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their aim is to carry through traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).

Collector Roads – Provide connectivity between local sites and the sub-arterial road network, and typically carry between 2,000 and 10,000 vehicles per day.

Local Roads – Provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

2.2.2. Surrounding Road Network

Along the frontages of the site, South Creek Road, Inman Road, Orlando Road and Campbell Avenue function as local roads. South Creek Road and Campbell Avenue become sub-arterial roads east and south, respectively, of where they intersect.

These roads have a posted speed limit of 50 kilometres per hour, with one traffic lane and kerbside parking in each direction. There is a combination of unrestricted and eight-hour time restricted kerbside parking near the site. Inman Road and Orlando Road have dedicated on-road bicycle shoulder lanes between the kerbside parking and the traffic lanes.

Further to the south and east of the site, Pittwater Road provides the main arterial road connection for the area. Pittwater Road is a 20-kilometre arterial road that generally aligns north-south linking Mona Vale to the north with Manly to the south. It is a two-way road configured with three traffic lanes in each direction, including peak direction kerbside bus lanes (southbound in the morning peak periods and northbound in the afternoon peak periods) with kerbside parking at other times. It has a posted speed limit of 60 kilometres per hour.

The key roads are shown in Figure 2.3 to Figure 2.8.

Figure 2.3: Inman Road (looking north)



Figure 2.4: Inman Road (looking south)



Figure 2.5: South Creek Road (looking east)



Figure 2.6: South Creek Road (looking west)



Figure 2.7: Pittwater Road (looking east)



Figure 2.8: Pittwater Road (looking west)



2.3. Car Parking

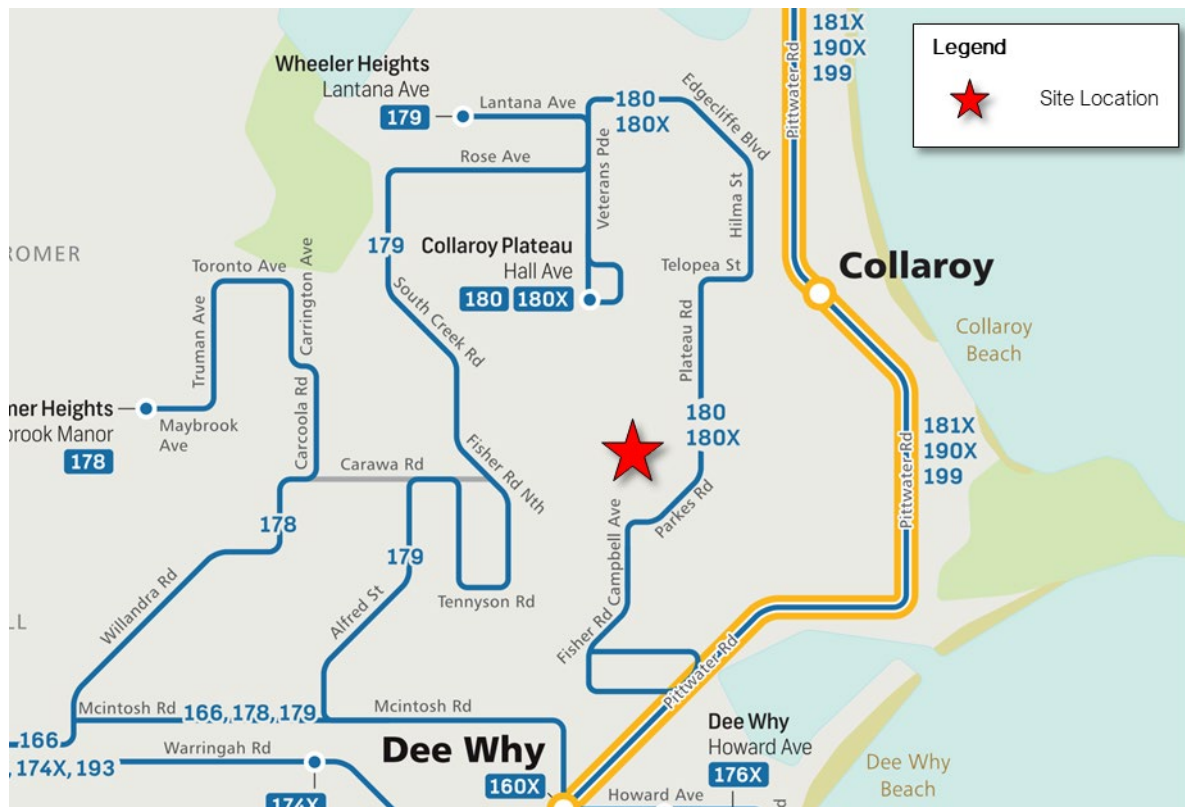
A review of publicly available car parking near the site indicates that eight-hour restricted parking is available on both sides of Inman Road and South Creek Road, with unrestricted parking on Orlando Road.

2019 observations of on-street car parking suggest there is low demand during the afternoon peak period. There were less than 30 vehicles parked in the afternoon along Inman Road (19 spaces both sides) and South Creek Road (nine spaces both sides), which have kerbside supply of approximately 80 spaces and 75 spaces respectively on both sides. This suggests there are at least 125 spaces available.

2.4. Public Transport

The site is serviced by the 180 bus route, with several stops within a 400-metre radius of the site (along Parkes Road). The 180 bus route links Collaroy Plateau and Warringah Mall. It operates at 20-minute intervals in the AM peak, interpeak and the PM peak. It operates at 30-minute intervals in the evening off-peak. A review of the public transport is shown indicatively in Figure 2.9.

Figure 2.9: Surrounding public transport network



Base image source: Transport for NSW, accessed 04 August 2021

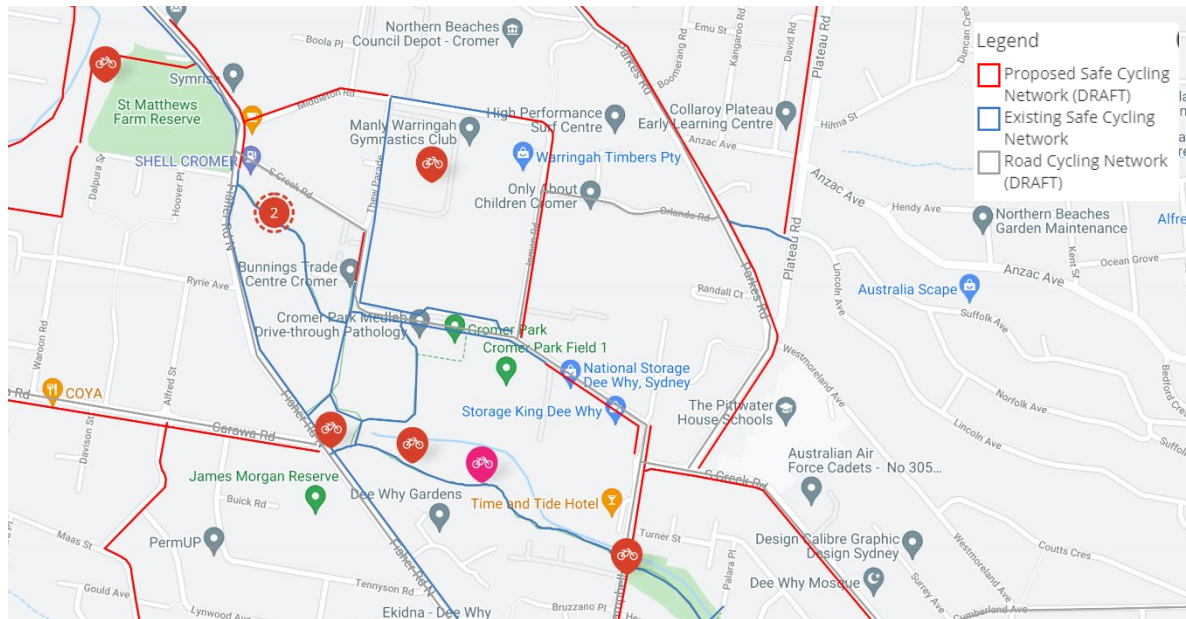
In addition, the 179 bus route operates along Fischer Road North, an approximately 12-minute walk from the site, linking Wheeler Heights and Warringah Mall.

2.5. Walking and Cycling Infrastructure

Footpaths are available on the south side of South Creek Road near the site and on the east side of Inman Road. The existing South Creek Road footpath ends at the bus stop adjacent to the site, with opportunity to extend the footpath to the South Creek Road/ Campbell Avenue roundabout.

On-road cycle shoulder lanes are located on both sides of Inman Road and Orlando Road, with off-road shared paths provided adjacent to Cromer Park and Northern Beaches Secondary College (Cromer Campus). The draft Northern Beaches Bike Plan proposes new and extended shared paths along Inman Road and South Creek Road towards Pittwater Road, illustrated in Figure 2.10.

Figure 2.10: Surrounding cycling network



Base image source: https://northernbeaches.mysocialpinpoint.com/northern-beaches-bike-plan?_ga=2.245940676.1585324789.1572220515-667743252.1572220515#/, accessed 04 August 2021

3. PARKING AND LOADING APPRAISAL

3.1. Car Parking Requirements

3.1.1. Industrial Park Provisions

The approved Northern Beaches Business Park will provide 279 car spaces across the estate, split between basement parking and spaces adjacent to warehouses on the ground level hardstand area.

Vehicle access to the basement car park is via Inman Road. Access to the ground level hardstand area warehouses is also via Inman Road, with an egress driveway provided on South Creek Road. Pedestrian access from the street is via Inman Road, with no changes proposed to the arrangement approved as part of the broader business park.

Under the leasing agreement it is understood that Aquatic Achievers would be allocated 35 spaces, 31 spaces in the basement and four spaces adjacent to warehouse 1.

No changes are proposed to the basement car parking layout/ arrangement as part of this DA. The four spaces adjacent to warehouse 1 are proposed to be relocated west to improve the entrance and back-of-house for the swim school. In general, swept paths and design review were completed as part of the approved Northern Beaches Business Park. The relocated parking adjacent to warehouse 1 complies with Australian Standards (AS2890.1:2004).

3.1.2. Parking Requirements

The car parking requirements for different development types are set out in Warringah DCP 2011. A review of land uses suggests that a gymnasium would be indirectly related to the proposed use. The parking rate for a gymnasium is 4.5 spaces per 100 square metres GFA and is adopted from the TfNSW Guide to Traffic Generating Developments 2002 (TfNSW Guide 2002).

Application of this parking rate to the proposed swim school (1,089 square metres GFA) results in a parking requirement of 49 spaces.

3.1.3. Empirical Assessment of Car Parking Demand

A first-principles assessment of the anticipated average demand has also been completed using the following input variables provided by Aquatic Achievers based on their other swim schools:

- Classes per session: the number of classes which occur at the same time (e.g. five classes run at the same time in the AM, likely according to swimming skill level).
- Sessions per hour: The number of sessions that occur within one hour (for the purposes of this assessment all sessions have been assessed as 30 minutes, therefore two sessions can occur every hour).
- Children per class: the number of children in each class is expected to fluctuate depending on the time of day, however, for the purposes of this assessment an average of three children per class has been adopted.
- Children per vehicle: information provided by the operator suggests that one in every four children has a sibling that also attends at the same time (i.e. 1.25 children per vehicle).

PARKING AND LOADING APPRAISAL

- Staff on duty: the number of staff on-duty and therefore also requiring car parking at the time. Information provided by the operator suggests that there is a level of carpooling by staff at their existing centres at a rate of 1.5 staff per vehicle.

The resultant average demand during the peak periods is provided in Table 3.1.

Table 3.1: Average parking demand estimate

Time Period	Classes per session	Session per hour	Children per class	Patron parking demand	Staff on duty	Staff parking demand	Total parking demand
Weekday AM	5	2	3	24	6	4	28
Weekday PM	8	2	3	38	9	6	44
Weekend AM	13	2	3	62	14	9	71

Table 3.1 suggests that the proposal could generate demand for 28 and 44 parking spaces on the weekday AM and PM peaks respectively, increasing to 71 spaces in the weekend AM peak. It is noted that the Warringah DCP 2011 (and TfNSW Guide 2002) parking rate for a gymnasium is slightly more than the weekday PM demand.

3.1.4. Adequacy of Car Parking Supply

The proposal will be allocated a total of 35 spaces, of which 31 spaces will be within the basement car park that is accessed via Inman Road. A lift is proposed to be located close to the allocated basement spaces to provide access to the ground level and swim school. There are designated accessible car parking spaces provided across the estate, including three spaces in the basement car park, that can be used by swim school visitors/ staff.

The allocation is suitable to accommodate the anticipated weekday AM peak demand (28 spaces) based on the first-principles assessment, with minor reliance on available on-street parking to accommodate the additional demand for nine spaces in the weekday PM peak.

The site has some 400 metres of frontages along South Creek Road and Inman Road that provides kerbside parking for up to 40 vehicles directly adjacent to these site frontages. It is generally considered acceptable for a development to rely on 50 to 60 per cent of the available site frontage(s) to accommodate parking demand, which promotes on-street activation and traffic calming. Given traditional commercial, warehouse and industrial uses expected with the business park typically generate lower demand in the weekday PM peak, there would be minimal conflicting demand for such on-street parking.

On weekends, there could be an additional demand for 36 spaces, over and above the allocation of 35 spaces. With most of the commercial, warehouse and industrial uses within the business park expected to be closed on weekends, the applicant proposes to negotiate an agreement with the property manager and/ or directly with surrounding tenants to use some of the remaining 244 spaces available across the site (preferably also in the basement) to contain all demand on-site as far as practicable. The additional spaces could be signposted for swim school use on weekends only. Again, some use of kerbside parking adjacent to the site is also entirely acceptable given on-street demand on weekends could be lower than weekdays as most businesses are not operating, with only the nearby sports fields being the likely generators for parking. A review of historic available Nearmap aerial photography suggests that when sports are held at the nearby fields and school on Saturdays, any overflow demand is primarily along South Creek Road with some demand also on Inman Road. Given the location of the swim school at the northern end of the business park, any minor on-street parking demand that occurs will primarily be along Inman Road near the swim school and therefore would not conflict with other nearby demand.

3.2. Bicycle Parking Requirements

Warringah DCP 2011 does not provide bicycle parking rates for swim school uses, with the nearest land use type being a recreational facility. The DCP bicycle parking requirement for a recreational facility is summarised in Table 3.2, which indicates eight bicycle parking spaces would be required for the proposed development.

Table 3.2: Warringah DCP 2011 bicycle parking spaces

Use	Size	AS2890.3 Class	Bicycle parking rate	Bicycle parking requirement
Recreational Facility	13 staff (at any one time)	Class 1-2	1 per 4 employees + 1 per 1,500 spectators	3 bicycle parking spaces
	1,089m ² GFA	Class 3	1 per 200m ² GFA + 1 per 250 spectator spaces	6 bicycle parking spaces

The business park will have some 40 on-site bicycle parking spaces that can accommodate the modest demand expected to occur with the proposal.

3.3. Loading Requirements

Warringah DCP 2011 does not provide service vehicles parking rates. It is expected that the swim school will be serviced by 6.4-metre-long small rigid vehicles, with less than one delivery daily.

A loading area is provided adjacent to the pump room, which will require service vehicles to partially enter the pump room through the roller shutter door so pedestrian paths are not obstructed. As such, the roller door will have a clear opening height of at least 3.5-metres to permit such access. Out of operating hours, service vehicles can utilise the angled parking provided adjacent to warehouse 1.

On this basis, the available loading provision is more than suitable for the swim school, with swept path analysis and design review for the business park completed as part of the approved Northern Beaches Business Park.

4. TRANSPORT APPRAISAL

4.1. Traffic Generation

4.1.1. Approved Development

The approved business park was assessed to generate 168 and 181 vehicle trips in the weekday AM and PM peak hours respectively (GTA, now Stantec, 2020). This was determined to be less than the historic use on the site. As a result, the business park was determined to generate approximately 130 vehicles less during the peak hours, or at least 40 per cent less traffic compared to the previous site operation.

4.1.2. Warehouse 1 – Swim School

The TfNSW Guide 2002 provides an hourly rate of nine vehicle trips per 100 square metres for gymnasium uses. Adopting this rate for the proposal (1,089m² GFA) suggests that the proposal could generate up to 98 vehicles per hour.

A first-principles assessment of average trip generation has also been undertaken that builds on the assessment completed for parking demand. The assessment utilises the following input variables:

- Classes per session: the number of classes which occur at the same time (e.g. five classes run at the same time in the AM, likely according to swimming skill level).
- Sessions per hour: The number of sessions that occur within one hour (for the purposes of this assessment all sessions have been assessed as 30 minutes, therefore two sessions can occur every hour).
- Children per class: the number of children in each class is expected to fluctuate depending on the time of day, however, for the purposes of this assessment an average of three children per class has been adopted.
- Children per vehicle: information provided by the operator suggests that one in every four children has a sibling that also attends at the same time (i.e. 1.25 children per vehicle).
- Trips per parking space: it is expected that each space will generate two vehicle trips (one trip in and one trip out), with minimal to no drop off/ pick up activities.
- It is presumed that staff arrive and depart outside of swim school peak hours.

Based on the above information, Table 4.1 sets out the average resultant vehicle generation during the peak periods.

Table 4.1: Average traffic generation estimates

Time Period	Classes per session	Session per hour	Children per class	Parking demand	Trips per parking space	Trips per hour
Weekday AM	5	2	3	24	2	48
Weekday PM	8	2	3	38	2	76
Weekend AM	13	2	3	62	2	124

Table 4.1 indicates that the proposal could generate 48 trips in the weekday AM peak, 76 trips in the weekday PM peak and 124 trips in the weekend AM peak. The weekday PM peak generation determined

using the gymnasium rate from the TfNSW Guide 2002 falls between the weekday PM and weekend AM trip generation estimates.

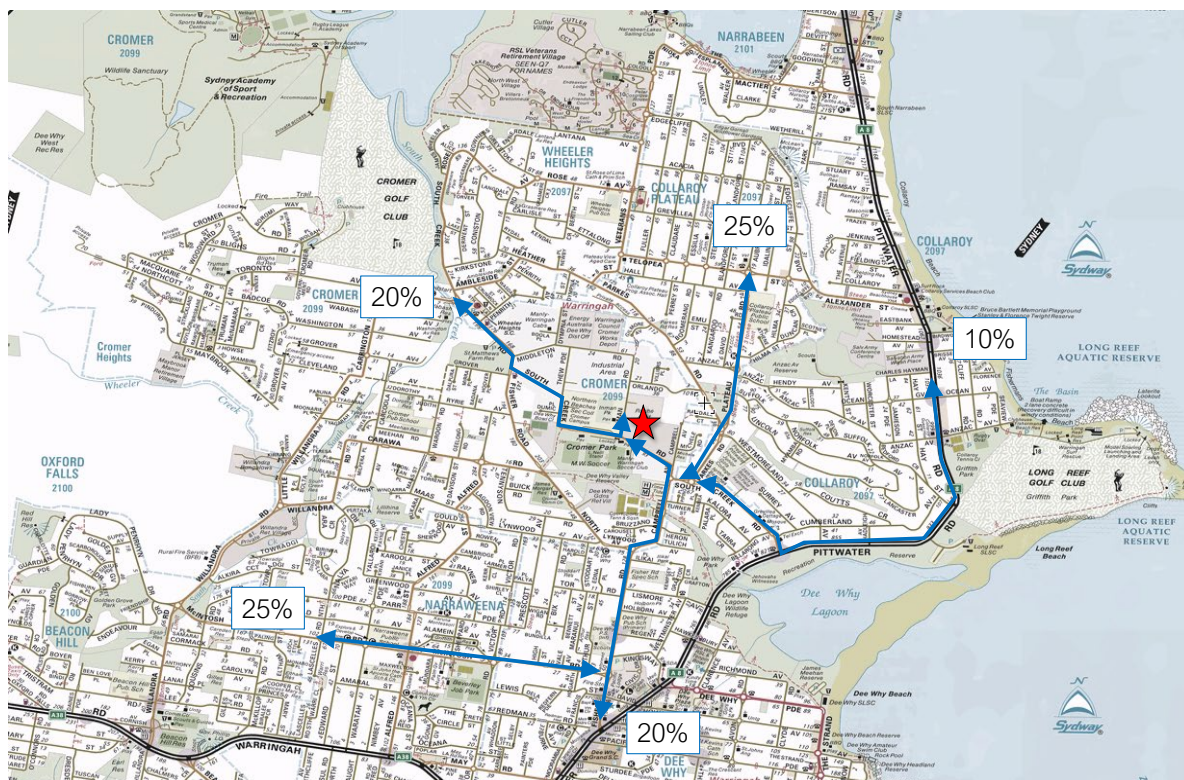
4.2. Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposal will be influenced by several factors, including the:

- configuration of the arterial road network near the site
- existing operation of intersections providing access between the local and arterial road network
- likely distribution of swim students in relation to the site
- configuration of access points to the site.

Unlike traditional commercial, warehouse and industrial uses that generate traffic with broader and wider origins and destinations, catchments for swim schools are typically local. The anticipated directional distribution is illustrated in Figure 4.1 and considers the residential catchment around the swim school, including Cromer itself, Wheeler Heights, Collaroy Plateau, Collaroy, Narrabeen and Dee Why. As a result, most of the anticipated traffic generated by the swim school will not use Pittwater Road to access the site, but will instead use the local road network that provides more direct and free flowing access.

Figure 4.1: Directional Distribution



Base source: Sydway

In addition, the directional split of traffic (i.e. the ratio between the inbound and outbound traffic movements) for the proposal is expected to be 50 percent entering and 50 per cent exiting during the peak periods.

4.3. Traffic Impact

4.3.1. Intersection Operation

The transport impact assessment (GTA, 2020) that accompanied the broader Northern Beaches Business Park development application assessed the operation of the 2019 surveyed intersections using SIDRA INTERSECTION¹, a computer based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by Transport for NSW, is vehicle delay. SIDRA INTERSECTION determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 4.2 shows the criteria that SIDRA INTERSECTION adopts in assessing the level of service.

Table 4.2: SIDRA INTERSECTION level of service criteria

Level of Service (LOS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

4.3.2. 2019 Conditions

Table 4.3 presents a summary of the 2019 operation of the intersections, extracted from the Northern Beaches Business Park transport impact assessment (GTA, 2020). Signalised intersection results are based on the overall operation, whilst unsignalised intersection results are based on the worst movement.

Table 4.3: 2019 Conditions

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Pittwater Road/ South Creek Road (traffic signals)	AM	East	0.83	13	312	A
		North	0.80	57	115	E
		West	0.53	20	138	B
		Overall	0.83	21	312	B
	PM	East	0.70	11	74	A
		North	0.60	54	75	D
		West	0.71	9	144	A
		Overall	0.71	14	144	A

¹ Program used under license from Akcelik & Associates Pty Ltd.

Intersection	Peak	Leg	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
South Creek Road/ Inman Road (priority control)	AM	East	0.14	6	4	A
		North	0.11	7	3	A
		West	0.11	5	0	A
	PM	East	0.17	6	5	A
		North	0.16	8	4	A
		West	0.14	6	0	A

Table 4.3 indicates that the study intersections historically operated satisfactorily during the peak periods. There is some queuing along Pittwater Road in the peak direction, which is expected along an arterial road. South Creek Road experiences some delays during the peak periods as the green time priority is given to Pittwater Road.

4.3.3. Base Conditions (2019 plus approved Northern Beaches Business Park)

The Northern Beaches Business Park transport impact assessment (GTA, 2020) also reassessed the study intersections to include traffic associated with the proposed business park, with the SIDRA modelling results reproduced in Table 4.4.

Table 4.4: 2019 plus approved NBBP development operating conditions

Intersection	Peak	Leg	Existing Level of Service (LOS)	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
Pittwater Road/ South Creek Road (traffic signals)	AM	East	A	0.85	16	343	B
		North	E	0.81	60	127	E
		West	B	0.74	19	245	B
		Overall	B	0.85	23	343	B
	PM	East	A	0.61	11	100	A
		North	D	0.71	52	92	D
		West	A	0.78	14	203	A
		Overall	A	0.78	17	203	B
South Creek Road/ Inman Road (priority control)	AM	East	A	0.23	6	9	A
		North	A	0.13	8	4	A
		West	A	0.11	5	0	A
	PM	East	A	0.18	6	5	A
		North	A	0.22	9	6	A
		West	A	0.14	6	0	A

Table 4.4 indicates that the Northern Beaches Business Park would not affect the existing LoS for any movement such that it drops below an acceptable LoS D (note: South Creek Road is already LoS E in the AM peak under 2019 conditions).

The 95th percentile queuing from Pittwater Road into South Creek Road in the right turn bay was expected to increase marginally from 59 to 66 metres (one vehicle) and therefore at the limit of the right turn bay and taper. It was also noted that the filtered right turn allows at least the first vehicle to store in front of the stop line during the phase. Given this is an infrequent occurrence (statistically less than twice in the PM peak hour), GTA, now Stantec did not consider that this warranted mitigation, which was accepted by relevant authorities as part of the development application approval process.

On this basis, the anticipated traffic volumes associated with the Northern Beaches Business Park were not expected to compromise the safety or function of the surrounding road network.

4.3.4. Warehouse 1 – Swim School

Although the proposed swim school is anticipated to generate more traffic than traditional commercial, warehouse and industrial uses, most of the traffic is anticipated to be from nearby residential areas thus using the local road network to access the swim school more directly.

It is noted that although the weekend AM peak trips generated by the proposal are the highest (as illustrated in Table 4.1), the development traffic is unlikely to have a significant effect on the road network, as it would operate both outside the network peak of the surrounding road (for a weekend, the peak is typically around midday), and outside opening hours of traditional commercial, industrial and warehouse uses, which would be generally closed for the weekend.

As per Figure 4.1 it is estimated that only 10 per cent of development traffic will use Pittwater Road, specifically the South Creek Road intersection, to access the site. This equates to five to eight vehicles in the weekday peaks and 12 vehicles in the weekend AM peak. Once directional split (i.e. inbound or outbound) is considered, this is less than six vehicles per hour each direction during any peak.

The post-development traffic modelling completed for the Northern Beaches Business Park suggested that the Pittwater Road/ South Creek Road signalised intersection would operate at LoS B in the weekday peak hours. A review of nearby TfNSW permanent counter data for Pittwater Road² suggests that average daily two-way traffic volumes in 2018- 2019 are around 15 per cent lower on a weekend compared to a weekday. Therefore, the intersection would operate better on a weekend, with the additional 12 vehicles per hour generated by the proposal expected to have minor impact to its operation.

The post development traffic modelling also suggested that the South Creek Road/ Inman Road priority-controlled intersection, which will carry all the development traffic, would operate at LoS A in the weekday peak hours, with plenty of capacity to accommodate the increased demand.

Overall, the anticipated traffic volumes associated with the swim school are not expected to compromise the safety or function of the surrounding road network during either the weekday or weekend peaks.

² Station ID 55049 located 20 metres north of Jenkins Street, Collaroy

5. CONCLUSION

Based on the analysis and discussions presented within this report, the following conclusions are made:

1. Based on a first-principles assessment, the proposed swim school is expected to generate an average demand for 28 and 44 car parking spaces in the weekday AM and PM peaks respectively, increasing to 71 spaces in the weekend AM peak.
2. The proposed supply of 35 car parking spaces is generally acceptable with reliance on available on-street parking to accommodate the minor level of additional demand forecast during the weekday PM peak.
3. Given that most of the commercial, warehouse and industrial uses are expected to be closed on weekends, the applicant proposes to negotiate an agreement with the property manager and/ or directly with surrounding tenants to use some of the spare 244 car parking spaces available across the site for the additional demand of 36 spaces forecast during the weekend AM peak.
4. Approved angled parking adjacent to warehouse 1 is proposed to be relocated west to improve the entrance and back-of-house for the swim school and remains compliant with Australian Standards.
5. The proposal requires nine bicycle parking spaces. There are 40 bicycle spaces provided across the business park to accommodate the demand associated with the proposal.
6. Swim schools have low demand for deliveries and waste collection, therefore the available provision would be suitable for the proposal.
7. Based on a first-principles assessment, the proposal is expected to generate on average 48 trips in the weekday AM peak, 76 trips in the weekday PM peak and 124 trips in the weekend AM peak.
8. Although the proposed swim school is anticipated to generate more traffic than traditional commercial, warehouse and industrial uses, most of the traffic will be from nearby residential areas thus using the local road network to access the swim school instead of Pittwater Road.
9. There is adequate capacity in the surrounding road network to cater for the traffic generated by the proposal.
10. On this basis, the proposed swim school can be supported from a traffic and transport perspective.

