

Temple Park

Transport Assessment

Tolent Living Ltd

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Quality information

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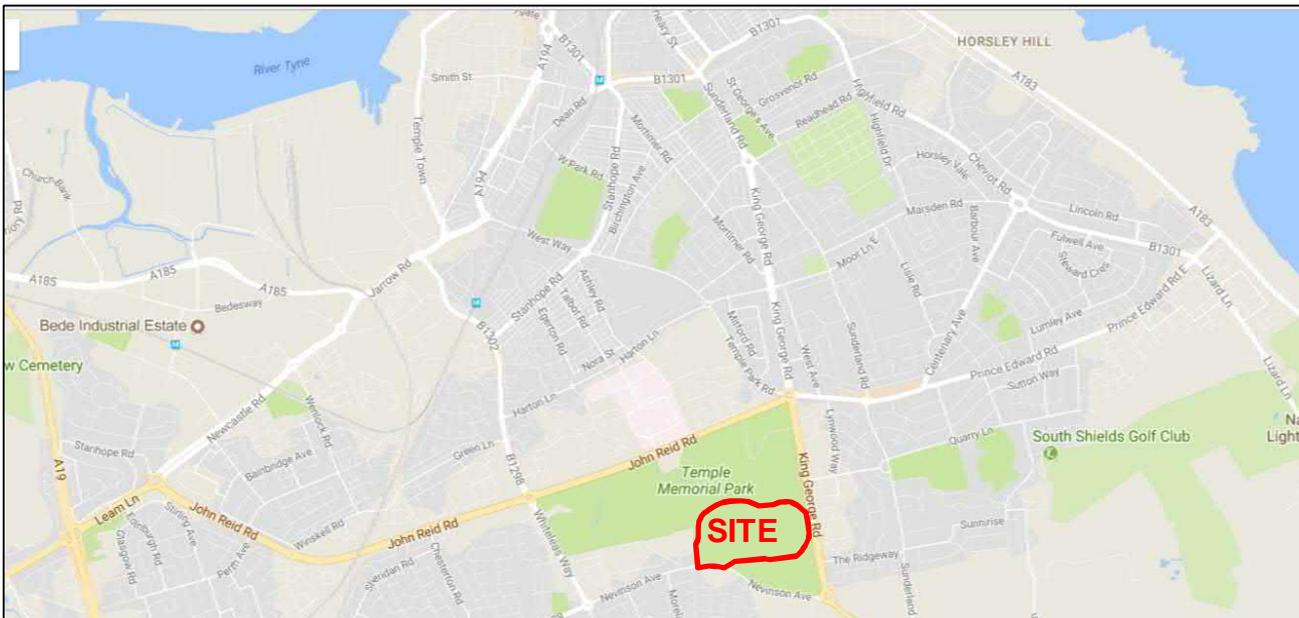
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1. Introduction

1.1 Introduction

AECOM has been commissioned by Tolent Living Limited to provide a Transport Assessment in support of a planning application for a new sports facility located at Temple Park, South Shields. The proposed sports facility will be located immediately North of Nevinson Avenue. The site location is shown in Figure 1.

Figure 1. Site Location



Source: Google Maps

The purpose of this Transport assessment is to provide an independent, comprehensive and systematic review of transport issues relating to the proposed development. It identifies the anticipated transport impacts of the scheme and outlines any necessary improvements to accessibility and safety from all modes of travel, particularly for alternatives to the car, such as walking, cycling and public transport.

The Transport assessment will identify the impact of the proposed development, provide details of the proposed development, show sustainable transport options and it also considers the road safety analysis.

1.2 Report Structure

Following the introduction, this report has been prepared under the following sections:

- **Section 2** – Reviews the relevant National, Regional and Local planning policies;
- **Section 3** – Examines the existing conditions at the site;
- **Section 4** – Considers accessibility by sustainable transport;
- **Section 5** – Provides details of the proposed development;
- **Section 6** – Considers road safety for the area;
- **Section 7** – Examines the trip generation and traffic impact for the proposed development;
- **Section 8** – Provides summary and conclusions.

2. Policy Considerations

2.1 National Policies

[Door to Door - A strategy for improving sustainable transport integration \(2013\)](#)

The Door to Door strategy describes the governments vision for integrated sustainable journeys. It sets out what is wanted from transport providers and what the government are doing to support Door-to-Door journeys.

The strategy focuses on 4 core areas which need to be addressed so that people can be confident in choosing greener modes of transport:

- accurate, accessible and reliable information about different transport options for their journey;
- convenient and affordable tickets, for an entire journey;
- regular and straightforward connections at all stages of the journey and between different modes of transport; and
- safe and comfortable transport facilities.

Door to Door states that by *'Supporting society by providing a well-connected and accessible transport system that is safe and secure, we can help improve public health and the quality of life'*

The proposed sports facility will improve public health and quality of life in its own right, but will also be very accessible by a safe and secure public transport network. The area surrounding Temple Park has many bus stops located on roads surrounding the site.

[The Transport White Paper - Creating Growth, Cutting Carbon – Making Sustainable local Transport Happen \(2011\)](#)

The Government's vision for a sustainable local transport system is set out in the January 2011 Transport White Paper: "Creating Growth, Cutting Carbon – Making Sustainable Local Transport Happen."

The White Paper acknowledges that transport Government is to improve the economic deficit which it is currently facing. However, the Paper also recognises that the current levels of carbon emissions from transport cannot be sustained if the nation is to meet its national commitments on climate change as well as creating a safer and cleaner environment in which to live. With this in mind, the Government highlights sustainable transport solutions as a means by which the economy can grow which will also see a positive impact on the local environment. Provision is essential for economic growth if the

Whilst the Paper outlines the funding options which will be available for sustainable transport schemes, it also recognises that investment alone will not be enough and that help needs to be given to people to ensure that the transport choices they make are good for society as a whole. The Paper recognises that it is at the local level where most can be done to encourage sustainable transport modes and implement sustainable transport schemes. Solutions should be developed for the places they serve, tailored for the specific needs and behaviour patterns of individual communities.

Within the Paper, sustainable transport considers more than just public transport, walking and cycling schemes and acknowledges that it is not feasible for some trips to be undertaken by these modes. There is therefore a realisation that the car will continue to be an important mode of transport and a focus should be given to making car travel greener through electric and other low emission vehicles.

2.2 Local Policies

[Tyne and Wear Transport Plan](#)

'Tyne and Wears third Local Transport Plan is based around a hierarchy of measures that prioritise low-cost solutions and active travel. That does not preclude targeted investment in new infrastructure to support the economic growth that we hope will return strongly in the years ahead. Underpinning all our interventions is the need for better information, so that people can make informed decisions about their travel options, and a commitment to safety on all modes. Where resources are limited for new investment, it is crucial to keep our existing transport links in good order. So we have emphasised the importance of maintaining the current asset base to meet the needs of the future.'

The common theme in all our measures, large or small, is the wish to make travel around the region – particularly using sustainable modes – easier, safer and more reliable.'

This Transport Plan highlights how new development will be built in the most accessible locations so that the demand for travel within Tyne and Wear is minimised. As there is already a sports and leisure centre at the Temple Park location the demand for travel will not be a significant increase. Buses run regularly on most surrounding roads of the site, leading to the public having a simple travel journey.

Within the Tyne and Wear Transport Plan it mentions particularly focusing on active travel, walking and cycling, and investing in the existing network. New cycle schemes and other sustainable transport may be encouraged around the area as the proposed development is a sports facility. Schemes such as the 'Bus Corridor Improvement Programme' have long term ambitions to improve the network. These ambitions are:

- 'To assist in the reduction of congestion:
- To increase the number of people using buses;
- To provide the conditions for more quicker, reliable and punctual bus services;
- To improve passenger waiting facilities;
- To facilitate the provision of improved information and remove some of the barriers to integration between travel modes; and
- To ensure that all key centres across Tyne and Wear are easily accessible by bus.'

South Tyneside Local Authority Transport Partnership Policy Statement 2014/15

This policy statement sets out the way in which South Tyneside Council has decided to exercise its powers and duties in relation to the provision of school and college transport for learners aged 16-19 in accordance with Section 509 of the Education Act 1996, as amended by Section 83 of the Education and Inspections Act 2006.

- 'The policy should encourage and promote travel options designed to improve the physical well-being of those who use them.
- Any transport assistance offered must be efficient and effective in terms of both sustainability and cost and may require the young person or their family to make a reasonable contribution to the overall cost.'
- 'To support young people in this objective South Tyneside Council, in conjunction with the Tyne and Wear Passenger Transport Executive and Nexus, will provide affordable transport to allow students to travel within the Tyne and Wear area.'

Part of South Tyneside Council's goal is encouraging efficient and effective travel and looking to improve the physical well-being of sustainable travellers. The council offers reduced ticket prices to support young people using public transport. There will be a large amount of young people traveling to and from the sports facility on a daily basis, this means South Tyneside's plan to improve the physical well-being of those using sustainable transport can be achieved as they will be travelling to take part in sports.

- 'Increased employment rate'
- 'Our partnership has a key role to play in stimulating jobs and growth in the local economy.'

The proposed sports facility will create a number of jobs when complete as the facility club house and shop will need regular staff, providing job opportunities for the area.

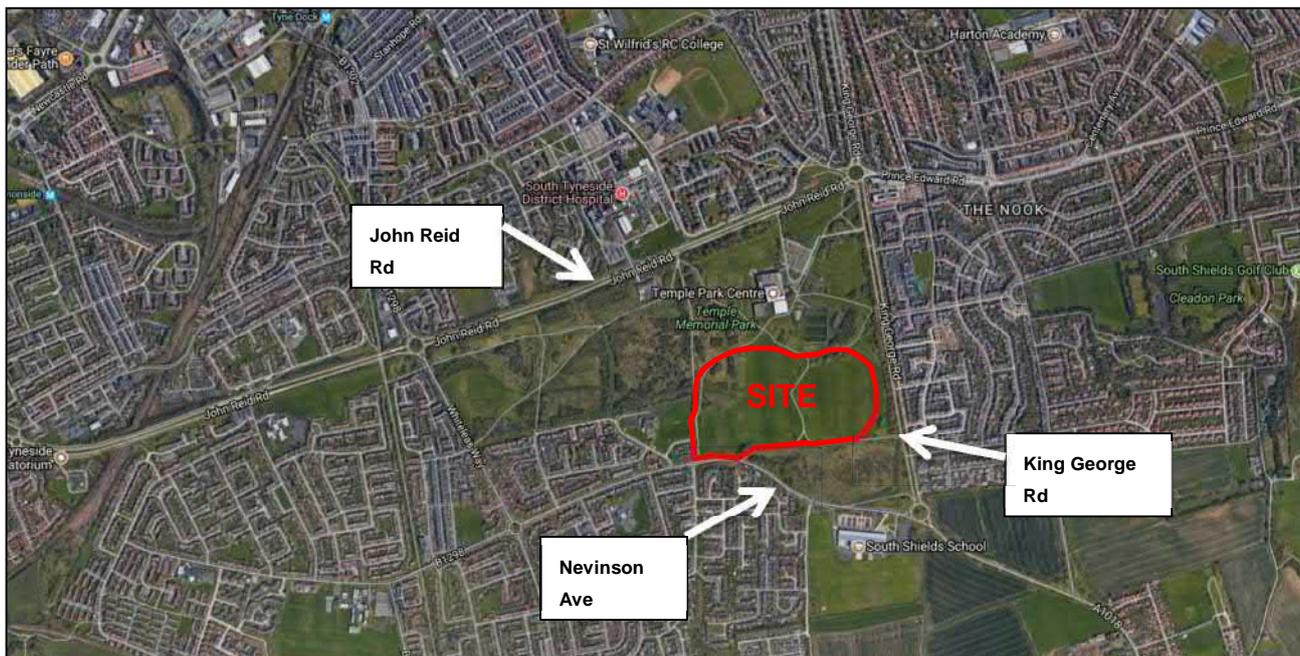
The facility could attract big sports tournaments on occasion, bringing lots of people to the area and increasing the local economy.

3. Existing Conditions

3.1 Introduction

The site is currently green field land located north of Nevinson Avenue and immediately west of King George Road. The new sports facility will be built directly south of the Temple Park leisure centre on the existing playing fields. Temple Park Leisure Centre is regularly used by various people taking part in fitness classes, using the sports facilities or the gym. There is a 240 space car park located to the front of the existing Temple Park Leisure Centre with an access off John Reid Road and an exit onto King George Road.

Figure 3-1 Existing Site



Source: Google maps

3.2 Surrounding Network

The key local roads surrounding the site are:

- Nevinson Avenue;
- King George Road; and
- John Reid Road.

Nevinson Avenue is subject to a 20mph a speed limit due largely to the residential nature of the road and South Shields Community School taking access from the south side of the road. Street lighting and footpaths are present on both sides of the carriageway making it an accessible for pedestrians. There are three uncontrolled pedestrian crossings along Nevinson Road covering the area where the proposed development will be located. There is a shared footway and cycle way on the northern side of the carriageway linking Nevinson Road to King George Road in the east and the playing feels to the north. The proposed site will take access from this road.

King George Road is a two way dual carriageway with a speed limit of 30mph. the northbound carriageway has a dedicated bus and cycle lane for the majority of its length, stopping for the traffic merging from Temple Park Leisure Centre approximately 130m south of the four arm roundabout with the John Reid Road. The southbound carriageway has a dedicated cycle lane for the majority of its length until the junction of The Ridgeway. Footpaths and street lighting on present on both sides of the carriageway.

John Reid Road is a dual carriageway with a speed limit of 40mph which runs immediately north of the proposed development the site. Both sides of the carriageway have street lighting and footways for the full road length. The existing access to the Temple Park Centre is off the west bound carriageway of John Reid Road.

3.3 Existing Traffic

Levels of existing traffic on the local road network were surveyed as follows:

- Automatic Traffic Count on Nevinson Avenue at the location of the proposed site access (25/09/2017 – 01/10/2017);
- Classified junction turning count on 21/09/2017 at the roundabout junction of Nevinson Avenue / King George Road / A1018 (21/09/2017);
- Classified junction turning count on 21/09/2017 at the roundabout junction of John Reid Road / Temple Park Road / King George Road / Prince Edward Road;
- Classified junction turning count on 12/10/2017 at the roundabout junction of Nevinson Avenue / Whiteleas Way / B1298.

The survey data was analysed to convert the classified counts to passenger car units (PCU). Traffic matrices were then produced for junction turning movements and %HGV for use in the junction models.

4. Accessibility by Sustainable Transport

4.1 Introduction

The site is accessible on foot, by cycle and by using public transport. Sustainable transport can be a suitable and healthy form of transport for all people. This section summarises the accessibility of the new development site by these sustainable transport modes.

4.2 Pedestrians

Two kilometres is regarded as the preferred maximum acceptable walking distance for pedestrians without mobility impairments for some common facilities. The report ‘Providing for Journeys on Foot, by IHT dated 2000’ includes the preferred walking distances shown in Table 1.

Table 1 – CIHT desired walking distances

CIHT Standard	Town Centres	Commuting/ School	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1km	800m
Preferred Maximum	800m	2km	1.2km

(Source: Providing for Journeys on Foot, IHT 2000)

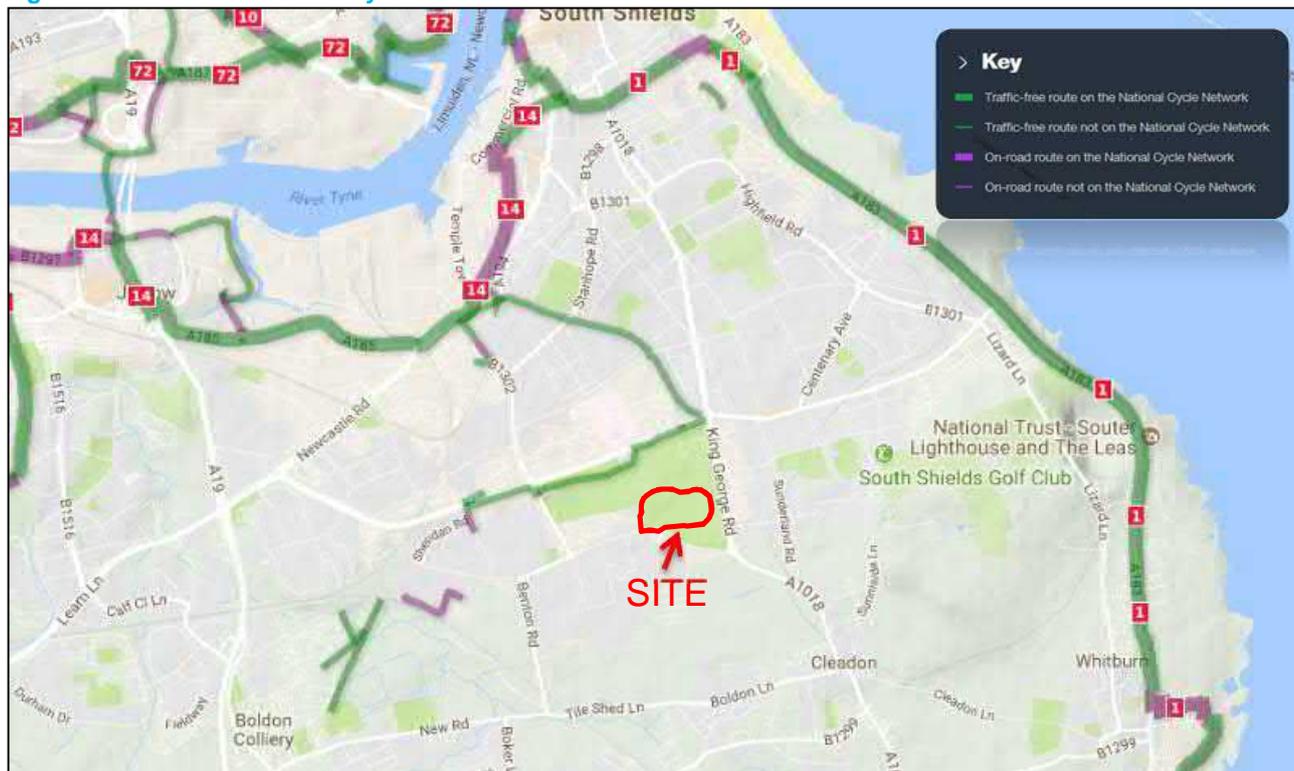
Transporting on foot relates to trips such as short shopping trips, journeys to school, access to leisure facilities such as the new development, local visiting and walks to bus stops as part of a bigger journey. The local highway infrastructure around the proposed site is accessible for pedestrians to walk their journeys to the facility as the local roads are well lit and there are safety barriers on some of the higher speed roads. The ground around the Temple park site is mostly flat meaning transporting on foot is desirable.

The site has multiple paths leading up to it coming from all housing estates surrounding it. The local public who are residents of the area have safe and simple walking routes to the new facility therefore walking is a viable option for transportation to the new facility. Immediately east of the proposed site is The Nook housing estate which consists of Ridgeway Primary School. North of the Nook is a shopping area which has a Tesco, subway, Greggs, Superdrug, Sainsbury's and more. This is only a 10 minute walk from the new facility.

4.3 Cyclists

Cycling represents around 4% of journeys to work nationally but has the potential to cater for many more trips and is considered a viable mode of travel for journeys less than five kilometres. Cycle use is considered a feasible means of transport over short to medium distances. It is influenced by many of the same factors as walking but will also be influenced by route conditions, traffic levels and secure parking at destination. The availability of traffic-free cycle routes that are direct and safe can have a positive effect on cycling levels.

Figure 4-1 National and Local Cycle Routes



(Source: Sustrans / Google maps)

There is a traffic free route that runs along the footway on the south side of John Reid Road. This can encourage people to cycle to the new sports facility as it provides a safe route for cyclists.

The National cycle route number 14 starts in Darlington town centre then passes through Middlesbrough, Billingham, Hartlepool, Durham and Consett until it heads to the River Tyne passing through Hamsterly mill, Rowlands Gill and Swalwell. From Swalwell it follows the River Tyne until it comes to an end in South Shields roughly 800 meters south of South Shields metro station. This cycle route could be used for someone cycling to the facility from a further distance away. Most of the route is traffic free giving the cyclists a safer option of travel than on road cycling. To access this cycle route from the site follow one of the public footpaths north until you reach John Reid Road.

4.4 Public Transport

The bus is generally considered a viable mode of travel over short and medium distances although some routes and services with limited stops can make longer distances viable.

The Institution of Highways and Transportation (IHT) in their document ‘Planning for Public Transport in Developments’ (1999) advises that bus stops should be located within 400m of a development for ease of accessibility. The development is located in close proximity to existing bus stops on Nevinson Avenue and King George Road.

Figure 4-1 Bus Stop Locations



(Source: Google maps)

Shown in Figure 4-2 are the existing bus stops on the roads surrounding the site. The closest bus stops to the new sports facility are roughly 10-20 meters from the main access gate at the south west of the site and there is a bus stop on both sides of the road. From these stops buses go directly to South Shields centre and Newcastle upon Tyne or Marsden. At the bus interchange a wider network is available. From the stop next to South Shields School buses 3 and 4 run regularly along Nevinston Avenue with other buses running at less frequent times. This is shown in **Figure 4-3**.

Tyne Dock metro station is about 1 mile away from the proposed site which would take roughly 20/25 minutes on foot. The metro line can give access to multiple places in the north east, such as; Newcastle Airport, Newcastle, Whitley bay, Tynemouth, Gateshead, South Shields and Sunderland. The metro service runs regularly and is a good form of transport as large distances can be covered fast and a lot of people use it making it sustainable.

Figure 4-2 Existing Bus Services for the stops at the proposed site access

Service No.	Stop Name	Route	Mon - Fri	Sat	Sun
3	Whiteleas Nevinson Avenue SE bound	South Shields	5:16, 6:17, 6:56, 7:23, then roughly every 10 minutes until 19:00 when its every half hour until 23:30	7:37, 7:57, 8:13 then roughly every 12 minutes till 18:33 when its every half hour till 23:30	Half hourly from 11:03 to 23:03 and then last bus at 23:30.
4	Whiteleas Nevinson Avenue W bound	South Shields (centre)	6:00, 6:37, 7:17, then every 12 minutes till 18:40 when its roughly every half hour till 23:15	Roughly every 12 minutes from 8:11 to 17:44, 18:02, 18:20 then every half hour till 23:16	Every 20 minutes fro 10:41 to 23:41 till it ends at 23:16
2	Whiteleas Nevinson Avenue SE bound	South Shields (centre)	No Service	5:22, 6:02, 6:42	6:12, 8:12, 8:42, 9:12, 9:42, 10:32
X34	Whiteleas Nevinson Avenue W bound	Newcastle City Centre	07:29, 8:29, 9:04, 9:29, 10:09, then roughly every half an hour till 15:14, 15:59, 16:39, 17:19, 18:04, 18:24, 18:54, 19:41, 20:51	7:24, 7:54, 8:54, 8:24, then every half hour from 9:34 to 16:34, 17:09, 17:49 and last bus 18:40	No Service
1	Whiteleas Nevinson Avenue W bound	South Shields (Centre)	No Service	5:58 and 6:38	6:48, 7:08, 7:28, 7:58, 8:48, then every half hour till 10:18
575	Whiteleas Nevinson Avenue W bound	Horsley Hill - Bede	6:55	No Service	No Service
S542	Whiteleas Nevinson Avenue SE bound	Boldon Colliery	7:46	No Service	No Service
S525	Whiteleas Nevinson Avenue SE bound	Whitburn	15:58	No Service	No Service
S556	Whiteleas Nevinson Avenue SE bound	Hebburn – South Shields	15:27	No Service	No Service
S805	Whiteleas Nevinson Avenue SE bound	Brockley Whins - Whiteleas	07:57	No Service	No Service
S808	Whiteleas Nevinson Avenue SE bound	Whitburn - West Harton	17:01	No Service	No Service
S812	Whiteleas Nevinson Avenue SE bound	Harton (Tyne and wear) - Boldon Colliery	15:25	No Service	No Service
S806	Whiteleas Nevinson Avenue W bound	Brockley Whins	14:55	No Service	No Service

4.5 Summary

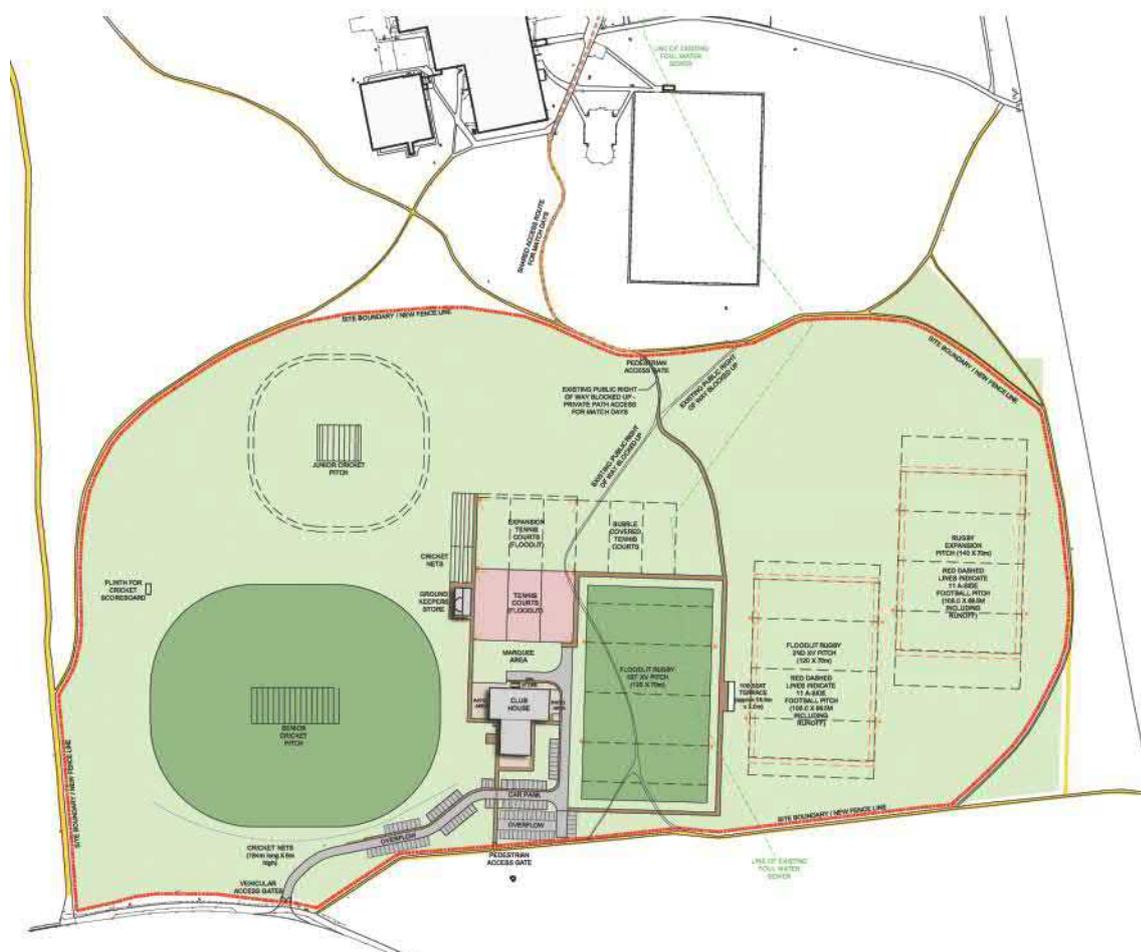
It can be seen that walking, together with public transport and cycle use, will provide a safe, convenient alternative transport mode for trips to / from the site. Overall, the site is very accessible by sustainable transport and is therefore provides a good location for the proposed development in terms of accessibility.

5. Proposed Development

5.1 Introduction

Westoe and South Shields Club Ltd is proposing a new sports facility which will consist of Senior cricket pitch, Rugby pitch, a dual use rugby and football pitch, three tennis courts, a club house incorporating squash courts, a general car park and overflow car park. There are also aspirations to expand the facility in the future to include a junior cricket pitch, additional tennis courts and additional rugby pitch. Plan shown in figure 5-1.

Figure 5-1 Proposed Development Layout



5.2 Proposed Access

The main vehicle access is located at the south west of the site off Nevinson Avenue. This is will also form the pedestrian access to the site. The site boundary will be secured with paladin fencing and secure gates. The existing public footpath crossing the site will be stopped up with existing pedestrian routes around the perimeter of the site used as an alternative. The proposed access is in the current location of the Nevinson Avenue – Tarragon Way bus stop. As a result of the development it is proposed that the bus stop be relocated approximately 65 metres to the south east on Nevinson Avenue. The exact location of this bus stop will be fixed through the Council's procedures for public consultation on new or relocated bus stops and will be informed by the responses to this process.

5.3 Proposed Parking

Car parking will be provided by the developer on site, a general car park with car parking on both sides of the access road will provide a total of 50 spaces. The general car park is to be used for regular days for club members and visitors. When the facility is busy, on match days for example, there is an overflow car park providing additional parking for 52 cars. The existing Temple Park leisure centre also has over 200 car parking spaces that could be used for visitors to the facility at busy periods.

6. Road Safety Analysis

6.1 Introduction

Collision Data was obtained from South Tyneside Council for the period 31st March 2014 to 1st April 2017, The area of interest includes John Reid Road and Nevinson Avenue. A map showing the locations of the roads is shown in Figure 4.1. The full accident reports can be found in Appendix A.



Figure 6-1 Study Area

During the study period there was a total of 32 collisions which 27 of them occurred on John Reid road and 5 took place on Nevinson avenue. All collisions apart from one were only slight collisions, the other was a serious. No fatalities have been recorded within the last 3 years. A summary of the collision data is shown in table 2.

Table 2 – Collision Analysis Summary

Year	Slight	Serious	Fatal	Total
2014	10	0	0	10
2015	11	0	0	11
2016	6	1	0	7
2017 (8 months)	4	0	0	4
Total	31	1	0	32

To understand the accident record in relation to the proposed site, the following local roads have been assessed in more detail;

- John Reid Road
- Nevinson Avenue

John Reid Road

27 collisions have occurred on John Reid Road in the last three year, four of which happened because of pedestrians not looking properly or not taking care when trying to cross John Reid road. One of these collisions was serious and involved a young girl running out on to the road and being hit by a car, a reason for this incident is most likely to be lack of road safety knowledge and not knowing how to use a pedestrian crossing. The other three pedestrian collisions were only slight collisions caused by not using pedestrian crossings correctly or by not looking when crossing the road.

Other slight collisions that have occurred around John Reid Road are such as vehicles not leaving enough space between the vehicle in front causing vehicles to collide with the rear of other vehicles in front. This happened in dry conditions on a number of occasions.

Nevinson Avenue

All 5 collisions which occurred on Nevinson Avenue in the last 3 years were only slight collisions. One of these incidents was due to a quick movement on a bus which lead to a passenger getting injured. Another incident happened where a bus was pulling away and caused a passenger to fall from there seat. In 2014 a pedestrian on a pedal bike came from behind the bus and was hit by a car travelling northeast.

6.2 Temporal Variation

Examination of the time and day of accidents have revealed no identifiable trends relating to the occurrence of accidents to a specific time of day or month, other than what is considered normal variation of traffic volume. Table 2 provides a summary.

Table 3 - Collisions occurring by Month

Month	No of Collisions
January	5
February	1
March	3
April	1
May	3
June	2
July	2
August	4
September	1
October	1
November	5
December	4
Total	32

6.3 Summary

Road collision data for the surrounding roads of the proposed site has highlighted the occurrence of 32 collisions that have took place over the past 3 years. Most of the collisions can be attributed to some form of pedestrian and/or driver error. The only slightly common pattern is the amount of pedestrians crossing the road without being aware traffic is coming and

a collision has happened. This could be down to pedestrian error. There are multiple signs telling pedestrians to look left and right for on coming vehicles to prevent collisions happening.

7. Trip Generation and Traffic Impact

7.1 Introduction

This section examines the trip generation of the proposed multi use sports facility accessed via Nevinson Avenue. It sets out the methodology used in deriving the trip generation of the proposed development and the distribution of the development traffic onto the local road network. Then it goes on to asses the impact of the development traffic on the junctions of:

- proposed site access junction on Nevinson Avenue;
- roundabout junction of Nevinson Avenue / King George Road / A1018 (21/09/2017);
- roundabout junction of John Reid Road / Temple Park Road / King George Road / Prince Edward Road;
- roundabout junction of Nevinson Avenue / Whiteleas Way / B1298.

7.2 Trip Generation

The trip generation for the proposed development has been based on estimates of people visiting the site provided by the existing sports facility. The table below sets out the person trip generation for the whole site:

Table 4. Predicted Person Trip Generation

	07:00 – 12:00	12:00 – 18:00	18:00 – 23:00
Monday	44	28	72
Tuesday	44	48	82
Wednesday	44	28	82
Thursday	44	48	82
Friday	34	38	100
Saturday	40	192	166
Sunday	220	242	146

Source: (QAD Architects)

To convert the person trips to equivalent vehicle trips the following very conservative assumption have been made:

- 2 occupants per vehicle for Friday PM and weekends and one per vehicle for weekdays;
- all vehicles for each surveyed period arrive and depart in same hour.

Applying these assumptions results in the trip generation shown in **Table 5** below:

Table 5. Predicted Person Trip Generation

	07:00 – 12:00	12:00 – 18:00	18:00 – 23:00
Monday	44	28	72
Tuesday	44	48	82
Wednesday	44	28	82
Thursday	44	48	82
Friday	34	38	50
Saturday	20	96	83
Sunday	110	121	73

7.3 Trip Distribution and Assignment

The development trips were distributed to the local road network in the proportions of the observed traffic flows passing the site and the turning movements to and from the site at each subsequent junction.

The resultant assignment of development traffic is shown in Appendix B

7.4 Average Annual Daily Traffic Flows

Traffic flows from the automatic traffic count that was undertaken near the proposed site access on Nevinson Avenue have been analysed with regard to Average Annual Daily Traffic (AADT) flows. These flows are generally used in Air Quality Assessments.

The total development traffic from the sports ground taken as average annual daily traffic would be 261 vehicles – i.e. 261 arrivals and 261 departures.

When compared to the traffic on Nevinson Avenue this would constitute less than 8% of the traffic observed on Nevinson Avenue. This level of development traffic would only occur at the site access itself. Tables showing the comparison between the existing and development AADT traffic at the site access are shown below.

Table 6. Average Annual Daily Traffic (AADT)

	Eastbound	Westbound
Surveyed AADT	3519	3390
Distribution	51%	49%
Development AADT	265	256
% increase as a result of development	7.5%	7.5%

Table 7. Average Annual Daily Traffic (AAWT)

	Eastbound	Westbound
Surveyed AAWT	3786	3584
Distribution	51%	49%
Development AAWT	168	159
% increase as a result of development	4.4%	4.4%

As development traffic distributes around the road network traffic levels will reduce further. As existing traffic on King George Road / A1018 are significantly higher than on Nevinson Road the percentage increase in AADT traffic as a result of the development will be insignificant being far lower than 8%. Therefore, **Table 6** demonstrates that the traffic generated by the proposed development will not result in AADT traffic increasing by more than 10% in any location which is generally taken as the minimum increase likely to result in elevated levels of pollutants needing assessment.

Noise assessments are generally based on Average Annual Weekday Traffic (AAWT) for specific time periods. Looking at AAWT traffic over 24 hour periods the percentage increase is less than 5% at the development site access and will be considerably less elsewhere as demonstrated in **Table 7** above.

7.6 Junction Assessments

The junctions that will be assessed in this report are;

- proposed site access junction on Nevinson Avenue;
- roundabout junction of Nevinson Avenue / King George Road / A1018 (21/09/2017);
- roundabout junction of John Reid Road / Temple Park Road / King George Road / Prince Edward Road;
- roundabout junction of Nevinson Avenue / Whiteleas Way / B1298.

The appropriate industry standard modelling software PICADY and ARCADY from the TRL software Junctions 9 have been used to model the operations of the priority and roundabout junctions, with the geometric parameters and observed traffic flows of each junction entered into the computer packages.

In PICADY, the time periods assessed are divided into a number of 15-minute time segments in order to simulate the likely arrival pattern of traffic more effectively. The results returned in the models are the Ratio of Flows to Capacity (RFC) and Mean Maximum Queue (MMQ) in each time segment, measured in number of vehicles. The maximum RFC value for each movement is likely to be observed over the central 15-30 minute period of the hour under consideration.

RFC values between 0.00 and 0.85 are generally accepted as representing stable operating conditions, values between 0.85 and unity represent variable operation (i.e. possible queues building up at the junction during the period under consideration and increases in vehicle delay moving through the junction). RFC values in excess of unity represent overloaded conditions (i.e. congested conditions).

Each junction has been modelled for Base and Base plus Development traffic for 2017, and 2027.

Proposed Site Access – PICADY

An operational capacity assessment has been undertaken using Junctions 9 PICADY software on the proposed access junction on Nevinson Avenue. The arm orientation is;

- Arm A – Nevinson Avenue (west);
- Arm B – Site Access; and
- Arm C – Nevinson Avenue (east).

Table 8. Proposed Site Access PICADY Results

Movement	Weekday AM		Weekday PM		Saturday		Sunday	
	RFC	MMQ	RFC	MMQ	RFC	MMQ	RFC	MMQ
Base Flows 2017								
B – AC	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
C - AB	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Base Flows + Development Flows 2017								
B – AC	0.12	0.1	0.22	0.3	0.23	0.3	0.29	0.4
C - AB	0.04	0.0	0.08	0.0	0.11	0.1	0.12	0.2
Base Flows 2027								
B – AC	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
C - AB	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
Base Flows + Development Flows 2027								
B – AC	0.13	0.2	0.22	0.3	0.26	0.3	0.32	0.5
C - AB	0.05	0.1	0.08	0.1	0.12	0.2	0.14	0.2

As can be seen in **Table 8** the proposed site access operates well within capacity in the future years of 2027 in both the AM, PM, Saturday and Sunday peak periods. These results indicate that the simple priority junctions will be sufficient to serve the development.

King George Rd/Nevinson Ave Roundabout ARCADY Results

An operational capacity assessment has been undertaken using Junctions 9 ARCADY software on this existing roundabout junction. The output of this junction modelling is given in **Table 9** below;

Table 9. King George Rd/Nevinson Ave Roundabout ARCADY Results

Movement	AM		PM	
	RFC	MMQ	RFC	MMQ
Base Flows 2017				
1 – Shields Road	0.37	0.6	0.34	0.5
2 – Nevinson Avenue	0.28	0.4	0.25	0.3
3 – King George Road	0.34	0.5	0.42	0.7
Base Flows + Development Flows 2017				
1 – Shields Road	0.37	0.6	0.35	0.6
2 – Nevinson Avenue	0.29	0.4	0.28	0.4
3 – King George Road	0.35	0.6	0.43	0.8
Base Flows 2027				
1 – Shields Road	0.41	0.7	0.31	0.5
2 – Nevinson Avenue	0.31	0.5	0.23	0.3
3 – King George Road	0.38	0.6	0.38	0.6
Base Flows + Development Flows 2027				
1 – Shields Road	0.42	0.7	0.36	0.6
2 – Nevinson Avenue	0.34	0.5	0.28	0.4
3 – King George Road	0.39	0.7	0.44	0.8

As can be seen in **Table 9** the existing junction operates well within capacity in the future years of 2027 in both the AM and PM peak periods. These results indicate that the existing junction will have sufficient capacity to serve the development.

King George Rd/Nevinson Ave Roundabout ARCADY Results

An operational capacity assessment has been undertaken using Junctions 9 ARCADY software on this existing roundabout junction. The output of this junction modelling is given in **Table 10** below;

Table 10. King George Rd/Nevinson Ave Roundabout ARCADY Results

Movement	AM		PM	
	RFC	MMQ	RFC	MMQ
Base Flows 2017				
1 – Whiteleas Way SB	0.33	0.5	0.53	1.2
2 – Nevinson Avenue	0.48	0.9	0.43	0.8
3 – Whiteleas Way NB	0.43	0.8	0.34	0.5
4 – Galsworthy Road	0.55	1.2	0.60	1.5
Base Flows + Development Flows 2017				
1 – Whiteleas Way SB	0.34	0.5	0.56	1.3
2 – Nevinson Avenue	0.51	1.1	0.50	1.0
3 – Whiteleas Way NB	0.44	0.8	0.36	0.6
4 – Galsworthy Road	0.56	1.3	0.62	1.6
Base Flows 2027				
1 – Whiteleas Way SB	0.37	0.6	0.54	1.2
2 – Nevinson Avenue	0.54	1.2	0.44	0.44
3 – Whiteleas Way NB	0.50	1.0	0.34	0.34
4 – Galsworthy Road	0.62	1.7	0.60	0.60
Base Flows + Development Flows 2027				
1 – Whiteleas Way SB	0.38	0.6	0.56	1.3
2 – Nevinson Avenue	0.58	1.4	0.50	1.0
3 – Whiteleas Way NB	0.51	1.1	0.36	0.6
4 – Galsworthy Road	0.63	1.8	0.62	1.7

As can be seen in **Table 10** the existing junction operates well within capacity in the future years of 2027 in both the AM and PM peak periods. These results indicate that the existing junction will have sufficient capacity to serve the development.

John Road/King George Road/Temple Park Road/Prince Edward Road Roundabout ARCADY Results

An operational capacity assessment has been undertaken using Junctions 9 ARCADY software on this existing roundabout junction. The output of this junction modelling is given in **Table 11** below;

Table 11. John Road/King George Road/Temple Park Road/Prince Edward Road Roundabout ARCADY Results

Movement	AM		PM	
	RFC	MMQ	RFC	MMQ
Base Flows 2017				
1 – Prince Edward Drive	0.59	1.5	0.53	1.4
2 – King George Road NB	0.80	3.9	0.66	2.0
3 – John Reid Road	0.77	3.4	0.97	17.5
4 – Temple Park Road	0.32	0.5	0.53	1.1
5 – King George Road SB	0.55	1.3	0.74	2.8
Base Flows + Development Flows 2017				
1 – Prince Edward Drive	0.60	1.5	0.59	1.3
2 – King George Road NB	0.81	4.1	0.69	2.2
3 – John Reid Road	0.78	3.5	0.99	22.3
4 – Temple Park Road	0.33	0.5	0.55	1.2
5 – King George Road SB	0.56	1.3	0.76	3.0
Base Flows 2027				
1 – Prince Edward Drive	0.70	2.3	0.59	1.5
2 – King George Road NB	0.94	11.5	0.69	2.0
3 – John Reid Road	0.90	7.7	0.98	20.7
4 – Temple Park Road	0.39	0.7	0.54	1.2
5 – King George Road SB	0.65	1.8	0.75	2.9
Base Flows + Development Flows 2027				
1 – Prince Edward Drive	0.71	2.4	0.60	1.5
2 – King George Road NB	0.96	13.3	0.70	2.3
3 – John Reid Road	0.91	8.4	1.00	26.6
4 – Temple Park Road	0.40	0.7	0.56	1.2
5 – King George Road SB	0.66	1.9	0.77	3.2

As can be seen in **Table 11** the existing junction above the 0.85 RFC level in the base scenarios without development. However, in all scenarios the junction never exceeds its theoretical capacity of 1.00 RFC. The level of development traffic travelling through this junction, even with the very conservative assumptions in relation to trip generation, is very small, particularly during the weekday AM and PM peak periods. No account has been taken of the beneficial effect that moving the existing sports facilities will have on this junction. As more traffic will be removed from the road network in this area than is added by the proposed development, the true impact is likely to be an improvement in performance. Thus, the impact of the proposed development could in no way be considered severe enough to warrant any form of junction improvement as a result of the proposed development.

Full junction modelling outputs are given in Appendix C.

7.7 Summary

The junctions within the study area have all been modelled using TRL software Junctions 9. The findings of the modelling are that the impact of the proposed development will not have a detrimental effect on the existing highway network.

8. Summary and Conclusion

8.1 Summary

AECOM have prepared this Transport Assessment on behalf of Tolent Living Ltd, in support of a planning application for a new multi-use sports facility on Nevinson Avenue..

The existing infrastructure, site characteristics and surrounding road network have been reviewed and considered in the context of the proposed development

Existing public transport provision at the site has been examined and shown to be good. A Travel Plan has been produced to ensure that the development strives to reduce the need to travel, especially by car. The Travel Plan includes proposed measures to encourage use of all modes of transport other than single occupancy car trips.

8.2 Conclusions

The traffic impact of the development on the local road network has been assessed, demonstrating that the site access junction and neighbouring highway junctions can operate in a satisfactory manner in future scenarios, inclusive of the development.

The road safety record of the highway network within the study area has been examined and no significant road safety problems have been identified.

Thus, under current assessment the impact of the proposed development is in no way severe, and there are no highway related grounds on which this application should not be given planning consent.