

Hannah

Please find enclosed the Transport Assessment for Penistone Grammar School.

Application Ref PP-07313721 v1

The Green Travel Plan will be sent imminently.

Kind regards

With Compliments

Nick Baxter

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Proposed Expansion at Penistone Grammar School

Transport Assessment

Barnsley Metropolitan Borough Council


DRAFT

Project number: 60550992

October 2017

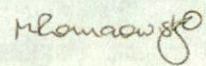
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1. Introduction

1.1 Background

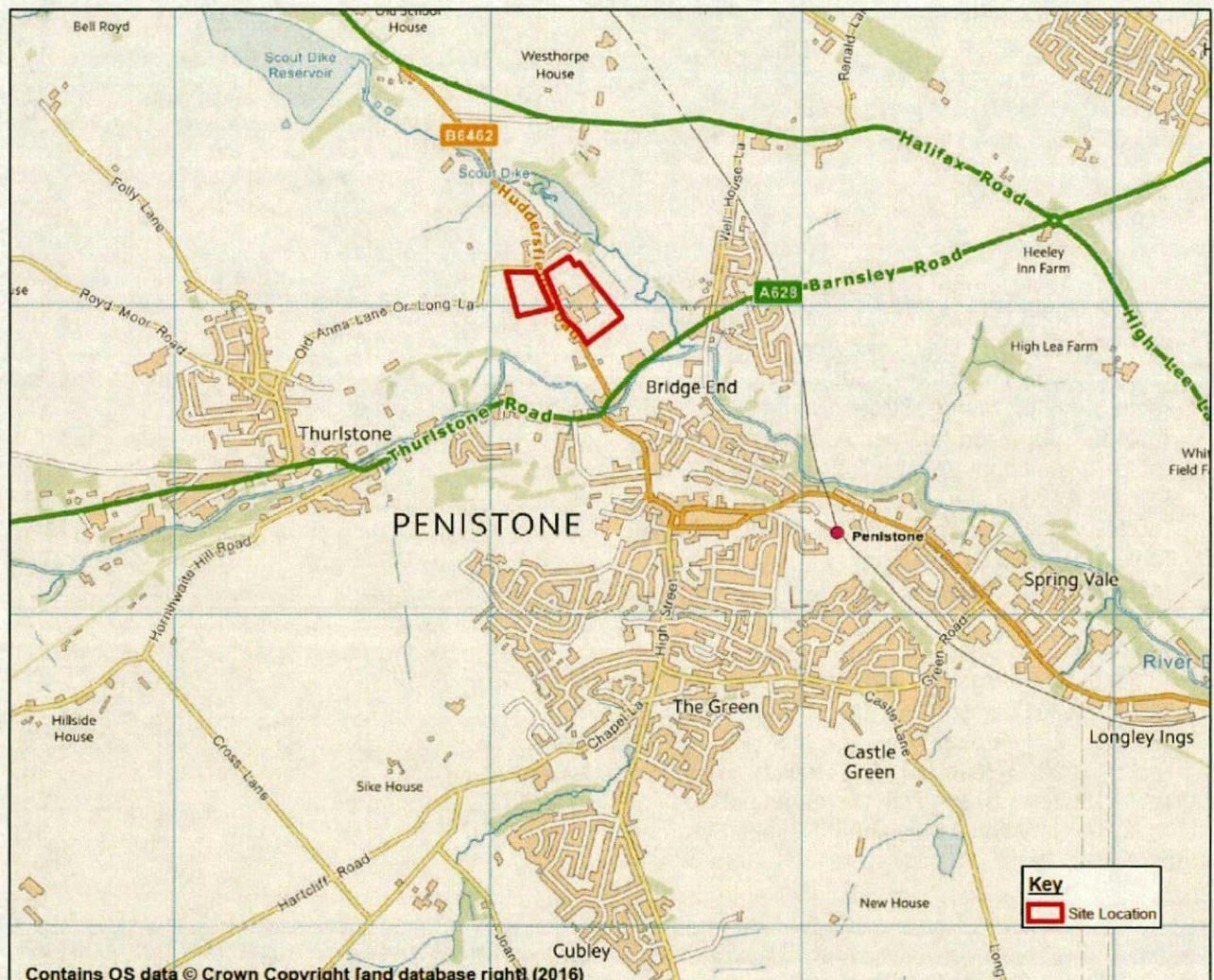
AECOM have produced this Transport Assessment (TA) on behalf of Barnsley Metropolitan Borough Council (BMB) in support of proposals for an expansion to the existing Penistone Grammar School, located north east of Penistone, Barnsley. The site location is shown below in Figure 1, and is contained within **Appendix A**.

The site already serves Penistone Grammar School, and also operates as the ALC Sports Centre, making it a community based amenity for families and children. The site lies on the northern edge of Penistone town and approximately 800m north of Penistone Town Centre. The school currently has provision for 1,350 pupils aged between 11 and 18.

The area surrounding the primary school is mostly agricultural with land to the north comprising residential properties. The main entrance and reception is north of the building and provides access for pedestrians approaching from the north as well as students who travel by school bus. Students who travel on foot from Bridge End, enter the campus via the south entrance. Cycle shelters are situated at both the North and south approaches to school.

The school takes access onto the B6462 Huddersfield Road (opposite Old Anna Lane) to the north of the site and has an existing parking area and Bus Park, with a separate entrance to a delivery area for delivery vehicles.

Figure 1: Site Location



1.2 Report Structure

Following this introductory chapter, this Transport Assessment includes the following:

- Section 2 outlines relevant national and local policy documents;
- Section 3 summarises existing conditions at the proposed development site;
- Section 4 details the accessibility of the development site, identifying sustainable transport modes;
- Section 5 describes the development proposals including access and car parking;
- Section 6 presents the trip generation of the proposed site;
- Section 7 summarises the operation of key junctions; and
- Section 8 provides a summary and conclusion.

The following appendices are found at the end of the report:

- Appendix A: Supporting Documents
- Appendix B: Accident Data
- Appendix C: TRICS Data
- Appendix D: Modelling Outputs

2. Policy Review

2.1 Introduction

This section of the Transport Assessment sets out the policy context within which the proposal has been developed. National transport and planning policy seeks to support the promotion of accessibility by all travel modes, particularly those by sustainable modes. The following documents have been reviewed:

- National Planning Policy Framework (2012);
- South Yorkshire Local Transport Plan; and
- Barnsley Core Strategy (2011)

2.2 National Policy

2.2.1 National Planning Policy Framework (2012)

The National Planning Policy Framework (NPPF) was adopted in 2012 and superseded the Planning Policy Guidance Notes. It considers three dimensions to sustainable development:

- Economic – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation;
- Social – supporting strong, vibrant and healthy communities by providing the supply of housing required to meet the needs of present and future generations; and
- Environmental – contributing to protecting and enhancing our natural, built and historic environment.

Chapter 4 'Promoting Sustainable Transport', states that all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment, to consider:

- The opportunities for sustainable transport modes depending on the nature and size of the site, to reduce the need for major infrastructure;
- Ensure a safe and sustainable access to the site can be achieved for all people; and
- Improvements are undertaken within the transport network that cost effectively limits the significant impacts of the development.

The NPPF states that developments should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

Paragraph 37 highlights the importance of balancing land uses within their area so that people can be encouraged to minimise journey lengths for employment, shopping, leisure, education and other activities.

It is stated within Chapter 8: Promoting Healthy Communities that the government attaches great importance to ensuring that a sufficient choice of school places is available to meet the needs of existing and new communities. Local planning authorities should take a proactive, positive and collaborative approach to meeting this requirement, and to development that will widen choice in education. They should:

- Give great weight to the need to create, expand or alter schools; and
- Work with schools promoters to identify and resolve key planning issues before applications are submitted.

2.3 Local Policy

2.3.1 South Yorkshire Local Transport Plan

The Local Transport Plan and the 'Sheffield City Region Transport Strategy' (SCRT) defines the priorities for the transport system for the next 15 years. It includes overarching aims as follows:

- Supporting economic growth;
- Enhancing social inclusion and health;
- Reducing emissions; and
- Maximising safety.

To achieve the overarching aims, the document identifies strategic policies. The most relevant policies for this development are:

- To develop public transport that connects people to jobs and training in both urban and rural areas;
- To develop user-friendly public transport;
- To ensure public transport is accessible to all;
- To reduce carbon emissions;
- To encourage active travel and develop high quality cycling and walking networks;
- To provide information and travel advice for the users of all modes of transport, so that they can make informed travel choices; and
- To encourage safer road use and reduce casualties on the roads.
- A series of actions are also mentioned which will support the policies outlined above:
- More travel options will be given to people using a range of public transport enhancements (additional train, tram vehicles, etc);
- We will work with businesses, schools, hospitals and key organisations to offer them and their staff assistance in planning their personal or business travel. We will provide detailed information on public transport options, walking routes and cycling facilities, tailored for their specific needs and preferences;
- The mitigation of the disparity in safety statistics between different user groups will focus on education, training programmes and provision of information. We will continue engaging with school travel plans, encouraging Walking Buses and promoting seat belt wearing;
- Pedestrian-friendly streets and footpaths will be designed as well as a continuous cycling network. The council will also support car clubs and car sharing schemes, making information about these travel options easy to find.

2.3.2 Barnsley Core Strategy (2011)

The government introduced a new planning system through the Planning and Compulsory Purchase Act 2004 that aims to respond more quickly to changing circumstances. As a result of these reforms Development Plans are being replaced by Local Development Frameworks.

The Barnsley Local Development Framework (LDF) follows national and former regional guidance but reflects local views and the situation in Barnsley. It establishes policies and proposals for the development and use of land up to the year 2026. It will be used when considering planning applications and to co-ordinate investment decisions that affect the towns, villages and countryside of Barnsley.

There are a number of key principles that have guided the preparation of Barnsley Core Strategy:

- Regard to and alignment with national, regional and local strategies and One Barnsley's Sustainable Community Strategy

- Regard to national planning policy
- The impact of the spatial strategy and policies on sustainability and climate change issues
- Deliverability to ensure proposals are achievable within the plan period (to 2026)
- Infrastructure requirements to ensure that proposals and policies are adequately supported by existing or planned infrastructure.
- Regard to the comments received through the process of adopting the Core Strategy.

Because access and sustainable travel are such important elements of achieving sustainable development, Barnsley's Transport Strategy is part of the LDF. The key principles and strategic policies are included in this chapter and are embedded throughout the Core Strategy.

As explained in the Climate Change Section and Policy CSP1, reducing the impact of climate change is a key objective of the Core Strategy. In response to this challenge, the policies included in this Transport Strategy aim to contribute to the reduction in transportation related greenhouse gas emissions.

The overall aim for sustainable travel is firstly to reduce the need to travel, but where travel is necessary to make it easy for people to move between home, work, health, community and leisure facilities by walking, cycling, or where necessary using public transport. We want to reduce the need for individuals with a car to use it for these journeys. We also need to ensure that everybody has a real alternative option, other than the car.

However, we recognise that some journeys will need to be made by road, including the movement of freight. Where these journeys are necessary we want to make sure the existing road network is used more efficiently, supporting a good bus network, allowing public transport, cars and freight to move quickly between their destinations, both within and outside the borough. This will have the added benefit of improving local air quality.

Achieving these aims will need us to change our travel behaviour, but by encouraging these 'smarter choices' and efficient movement, this strategy will also play a part in improving local prosperity, health, quality of life and reduce the impact of climate change. It aims to minimise the impact of travel on the environment and will help to reduce Barnsley's carbon emissions.

These aims are also reflected in the ambitions of the Sustainable Community Strategy, which realises the importance of having a high performing integrated transport system (Ambition 10) and recognises the role transportation can play in helping Barnsley to become a strong, healthy and just society. It recognises transport's role in reducing high levels of obesity, particularly among children, by facilitating a major increase in walking and cycling through the Fit for the Future programme, created to improve health and reduce health inequalities in Barnsley (Ambition 5).

In addressing these aims for accessible, inclusive and sustainable travel, Barnsley's Transport Strategy is consistent with the national goals set out in 'Delivering a Sustainable Transport System' (Department for Transport, November 2008) and Local Transport Plan guidance.

2.4 Conclusion

The overriding theme of The National Planning Policy Framework is that developments should be accessible by sustainable means of transport as well as to all members of the local community, this theme is also echoed within the South Yorkshire Local Transport Plan 2011-2026 and Barnsley Core Strategy (2011).

It is considered that the development site is located in an area with very good existing public transport links which already serve the site specifically and will support sustainable travel and reduce the reliance on private vehicular modes, as is considered in sections to follow.

In addition to the above, the school also provides existing cycling infrastructure and sets targets for sustainable travel through the production of the School Travel Plan, which further encourages sustainable travel to the site.

In summary, the proposals are considered to be in accordance with national and local planning policy from a transport perspective.

3. Baseline Conditions

3.1 Introduction

This section of the Transport Assessment provides details of the site location and provides a summary of the existing highway conditions in the vicinity of the site.

3.2 Site Access

The proposed development will continue to take access from Huddersfield Road, with the pick-up / drop-off area remaining as is existing, which is accessed in the northwest corner of the site and leads to the dedicated school Bus Park and existing car park which accommodates 202 cars, with an additional 10 additional spaces for disabled parking.

The main entrance and reception is north of the building and provides access for pedestrians approaching from the north as well as students who travel by school bus. Students who travel on foot from Bridge End, enter the campus via the south entrance. Cycle shelters are situated at both the North and south approaches to school, with approximately 20 covered Sheffield stands located at the north entrance and 40 covered Sheffield stands located at the south entrance.

3.3 Existing Road Network

B6462 Huddersfield Road

The B6462 Huddersfield Road is located to the west of the site and runs in a north / south alignment, connecting to the A629 at its northern extent and the A628 at its southern extent approximately 400m south of Penistone Grammar School.

The road provides a single carriageway in both directions, with a speed limit of 30mph. A footway approximately 1.5m wide is provided along its western side of carriageway within the vicinity of the school, with street lighting also provided. A footbridge is provided from the main school building, which links to the football pitches to the west of the B6462 in order to facilitate safe crossing for school children during school hours.

Traffic Regulation Orders are in place along the B6462 near to the school, with yellow zig-zag keep clear markings located on either side of the carriageway at the southern entrance to the school, which prohibit stopping between 8am-5pm Mon- Fri and restricted parking is in place along either side of the carriageway near to the school which prohibits parking between 8am – 6pm Mon-Fri. However, parking is permitted along the northbound carriageway to the north of the footbridge near to the main entrance of the school.

A628 Barnsley Road / Thurlstone Road

The A628 runs in an east / west alignment and is located to the north of Penistone Town Centre, a single carriageway is provided in each direction and a 30mph speed limit upon its approaches to Penistone. Footways and street lighting are provided on either side of the carriageway near to its junction with the B6462 Huddersfield Road.

A signalised pedestrian crossing facility is provided at its junction with B6462 Bridge Street, which facilitates crossing movements for pedestrians travelling to / from Penistone Town Centre towards the southern entrance to the school.

Bus Stops are located either side of the carriageway to the west of its junction with B6462 Bridge Street, which offer additional stopping services to those that serve the school directly.

3.4 Road Safety

Road traffic accident data from the most recent full five year period has been collected, which covers the time period from 01/01/2012 to 31/12/2016. The full data is included with **Appendix B**, but is summarised in the following section for ease of reference.

Table 2: B6462 Huddersfield Road Accidents

Incident No.	Severity	Date	Hours of:	Vehicles	Causation	Description
B-00413-12	Slight	09.05.2012	Daylight	2	Careless Driving / Loss of Control	Vehicle lost control on left hand bend and veered into oncoming vehicle.
B-00844-13	Slight	10.12.2013	Daylight	1	Failed to look properly	Child stepped out from behind parked car into path of vehicle and collision occurred.

3.4.2 A628 Barnsley Road

Six incidents occurred along the A628 Barnsley Road, all of which were classed as slight in severity and three of which occurred at the A628 / Well House Lane junction. One of the six accidents involved a pedestrian, which was due to the pedestrian been intoxicated; however all other incidents were due to driver error.

Table 3: A628 Barnsley Road Accidents

Incident No.	Severity	Date	Hours of:	Vehicles	Causation	Description
B-00679-15	Slight	13.07.2015	Darkness	1	Impaired with alcohol	Vehicle collides with Intoxicated pedestrian.
1675313	Slight	28.05.2016	Daylight	2	Failed to look properly	Vehicle collided with another vehicle turning into an address.
B-00080-15	Slight	25.01.2015	Darkness	2	Failed to look properly	Vehicle pulled out of junction in the path of oncoming vehicle.
B-00192-12	Slight	20.02.2012	Darkness	2	Dazzling headlights	Vehicle emerged from junction into path of oncoming vehicle
B-01202-15	Slight	08.11.2015	Darkness	1	Inexperienced driver – Loss of control	Driver lost control and collided with kerb and bus shelter.
B-00421-12	Slight	10.05.2012	Daylight	2	Sudden Braking	Vehicle braked to let another reverse out of driveway, vehicle following did not react in time and collision occurred.

3.4.3 A628 Thurlstone Road

Two incidents occurred along the A628 Thurlstone Road within the study area, both of which were classed as slight in severity and both of which were due to careless driving. Both incidents took place near to the A628 Thurlstone Road / Talbot Road junction, with one of the incidents involving a collision with a child of school age.

Table 4: A628 Thurlstone Road Accidents

Incident No.	Severity	Date	Hours of:	Vehicles	Causation	Description
B-00819-12	Slight	12.09.2012	Daylight	3	Following too close – Driver Inexperience	Vehicle slowed to turn right, rear end shunt occurred as vehicle failed to flow in time and caused collision.
B-01144-15	Slight	10.12.2015	Daylight	1	Failed to look properly – Careless driving	Vehicle travelling along the A628 with school children present on both sides and collided.

3.4.4 A6462 Market Street / Market Place / B6462 Shrewsbury Road Junctions.

Seven incidents occurred along the A6462 Market Street / Market Place / B6462 Shrewsbury Road Junctions, two of which were classed as serious and four slight in severity. All of the incidents recorded involved a pedestrian, of which six were due to failing to look properly and one due to reckless driving.

Table 5: A6462 Market Street / Market Place / B6462 Shrewsbury Road Accidents

Incident No.	Severity	Date	Hours of:	Vehicles	Causation	Description
1661098	Serious	20.04.2016	Daylight	1	Failed to look properly	Pedestrian crosses and collides with oncoming vehicle.
1642940	Serious	31.01.2016	Daylight	1	Impaired by alcohol – Failed to look properly	Pedestrian stepped out into path of oncoming vehicle, hit at slow speed and fell to the ground.
B-00661-12	Slight	24.07.2012	Daylight	1	Failed to look properly – Blind Spot	Driver reversing into side entrance as pedestrian walked into path of vehicle.
B-01126-12	Slight	06.12.2012	Darkness	1	Failed to look properly – Failed to judge vehicle	Pedestrian stepped out in front of vehicle during bad weather conditions.
B-00355-13	Slight	20.06.2013	Daylight	1	Failed to look properly – Blind Spot.	Vehicle waiting for gap in traffic, pedestrian through he had stopped to allow him across, collision occurred.
B-00587-15	Slight	03.07.2015	Daylight	1	Failed to look properly	Vehicle turning right, pedestrian steps out at the same time – collision occurs.
B-00402-15	Slight	04.05.2015	Daylight	1	Impaired by alcohol – Careless / reckless driving.	Pedestrian stepped out into the road to talk to driver of vehicle, driver then ran over

foot of pedestrian.

3.4.5 Accident Summary

A total of 17 incidents were reported over the 60 month period between 01/01/2012 and 31/12/2016, of which were 15 were classified as slight and 2 serious in severity. Through analysis of the data it was concluded that the majority of incidents were as a result of driver /pedestrian and poor judgement on behalf of drivers pulling out of junctions or pedestrians stepping into the carriageway.

The majority of the accidents occurred away from the proposed site, however two incidents involved children which were slight in severity.

4. Accessibility

4.1 Introduction

This chapter of the Transport Assessment considers the existing provision for sustainable travel to and from the proposed site. The site is well served by a range of sustainable transport links.

4.2 Access for Pedestrians

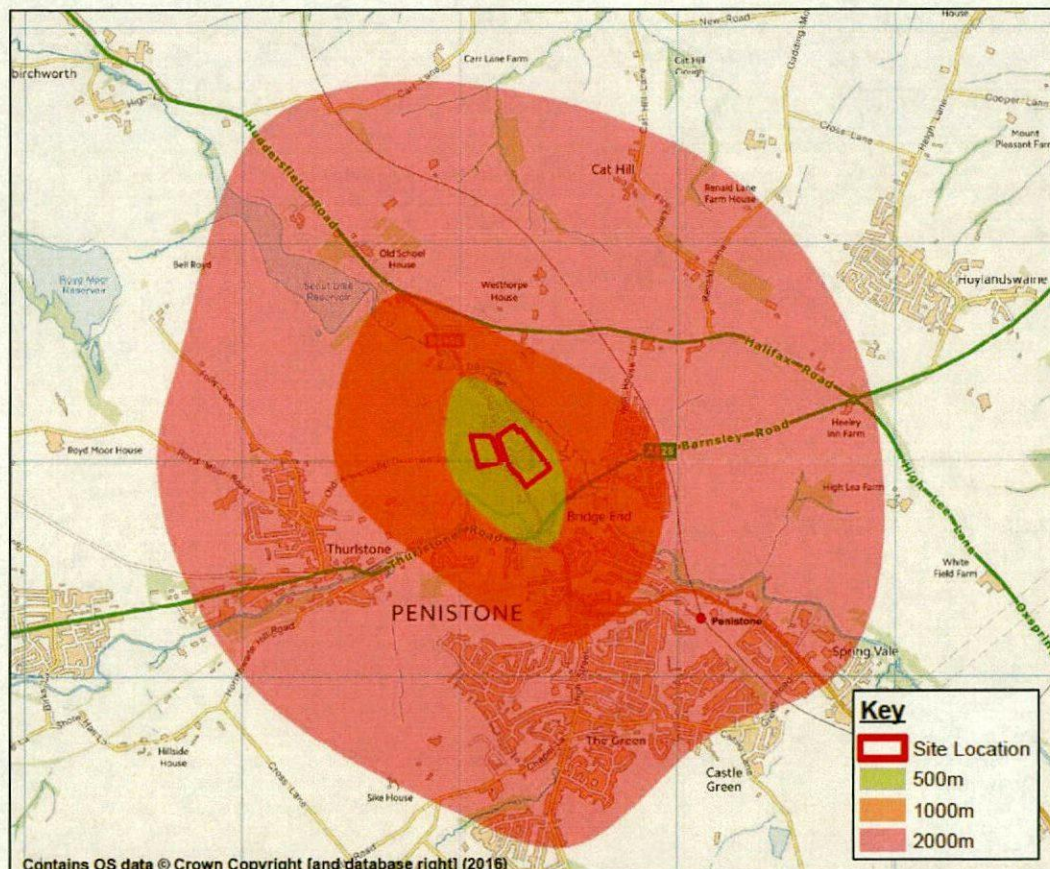
Walking is the most sustainable form of travel due to the positive environmental effects including zero harmful emissions. It also provides distinct health benefits and is the lowest cost form of travel. Fig 3 illustrates the indicative 1km and 2km walking isochrones centred on the site access location, with 2km considered to be the 'preferred maximum walking distance' for school trips as specified in the Chartered Institute of Highways and Transportation (CIHT) 'Providing for Journeys on Foot' as shown in Table 6 below.

Table 6: Suggested Acceptable Walking Distance

	Town Centres (m)	Commuting / School / Sight-seeing (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred Maximum	800	2,000	1,200

Using the CIHT guideline walking distances for a School, a plan illustrating 500m, 1000m and 2000m catchment areas from the site has been produced using GIS software and as shown in Figure 3 below.

Figure 3: Walking Distance



As shown in Figure 3, the surrounding residential areas of Penistone and Thurlstone are accessible within a 2km walking distance of the School.

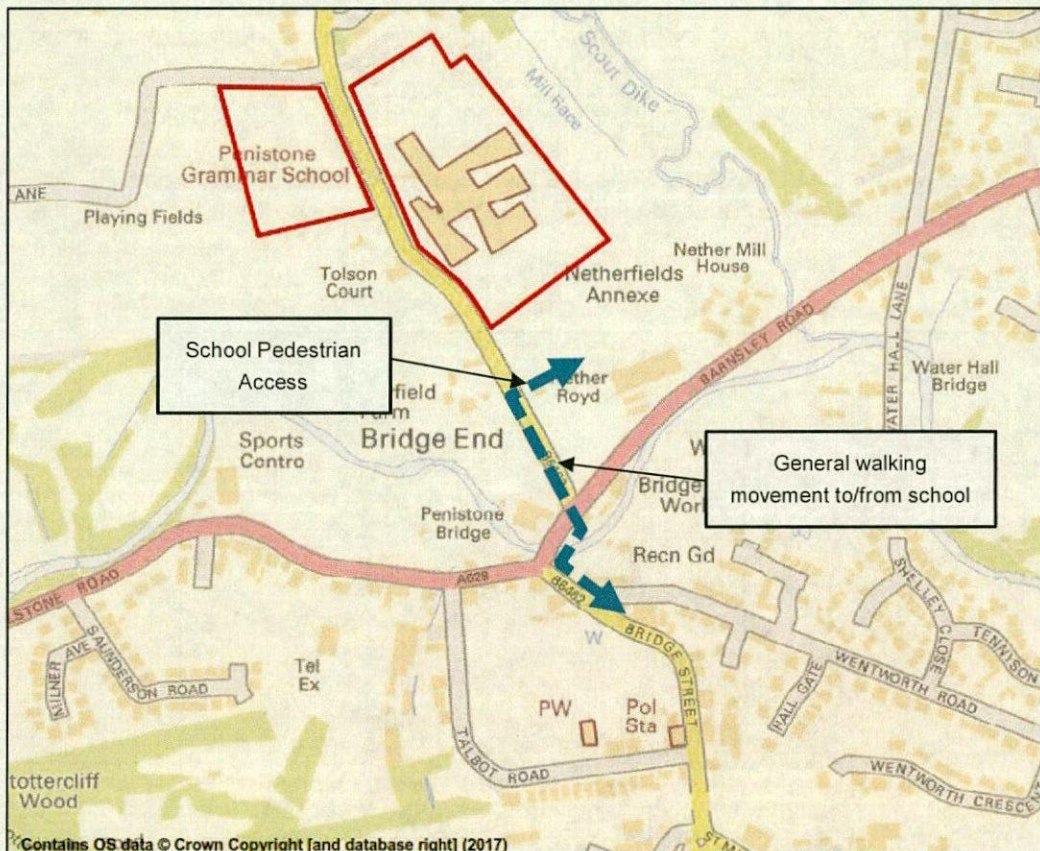
The B6462 Huddersfield Road is located to the west of Penistone Grammar School, a footway approximately 1.5m wide is provided along its western side carriageway within the vicinity of the school, with street lighting also provided.

A footbridge across the B6462 Huddersfield Road is provided specifically for use of the Grammar School, which links from the main School Building east of the B6462, to the football courts located to the west of the B6462, the walkway facilitates safe crossing for school children during school opening hours.

To the south of the site, an uncontrolled crossing is provided to the south of the site to facilitate movements across the B6462, whereas a signalised pedestrian crossing facility is provided at the A628 Thurlstone Road / B6462 Bridge Street junction, for movements across the A628 carriageway.

It has been observed that during school arrival and departure times, the general movement of children from this access is to cross the road adjacent to the access, walk along the western side of Huddersfield Road, then along the A628, before crossing at the pedestrian crossing onto Bridge Street, which leads to the centre of Penistone. This movement is indicated in Figure 4.

Figure 4: Walking Route to / from the School



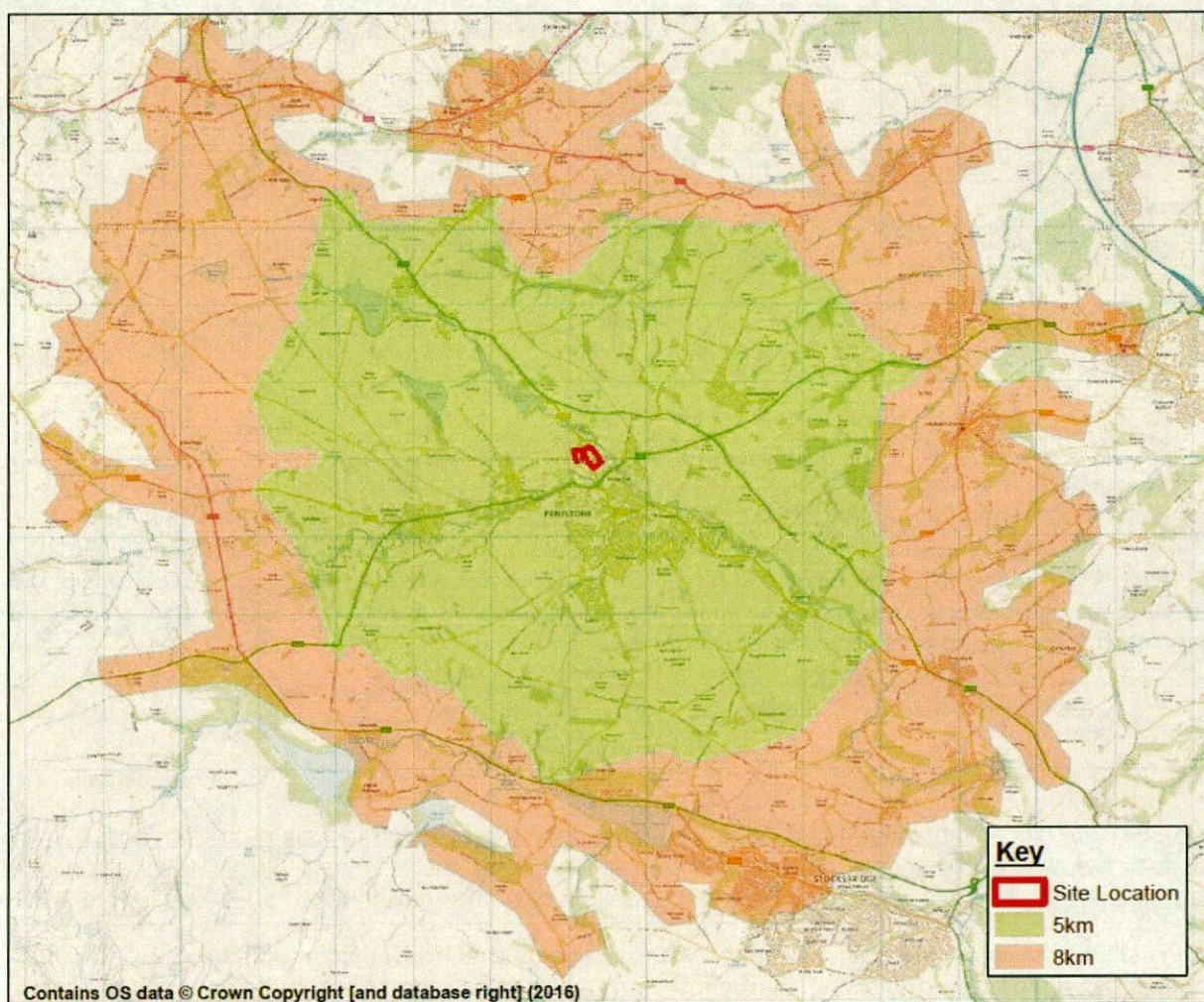
4.3 Access for Cyclists

As with pedestrian accessibility, the level of a site's cycle accessibility depends upon a combination of the distance from local amenities and the standard of existing cycle infrastructure. It should, however, be noted that that cycle infrastructure can include facilities shared with vehicles and pedestrians as well as dedicated cycle-only infrastructure.

Cycling is widely recognised as a sustainable alternative to car journeys. In respect of acceptable cycle distances, "Local Transport Note 2/08: Cycling Infrastructure Design", published by DfT, states that many utility cycle trips are less than three miles (approximately five kilometres), but for commuter journeys a distance of over five miles (approximately eight kilometres) is not uncommon, which may be appropriate for staff members travelling to / from the school.

In light of the DfT Local Transport Note, a plan illustrating a 5km and 8km catchment from the site has been produced using ArcOnline GIS software, as shown in Figure 5.

Figure 5: Cycling Distance



As can be seen from Figure 5, the site location enables a high level of access to / from surrounding Towns and Villages within a 5km cycling distance, which may be appropriate for some school children wishing cycle to school from neighbouring Towns and Villages. These include areas such as Thurlstone and Millhouse Green to the west, Ingbirchworth to the north and Hoylandswaine to the east.

Further afield, within an 8km cycle distance from the site, areas such as Thurgoland, Stocksbridge and Denby Dale can also be accessed within the distance outlined for commuter journeys, which may be appropriate for staff members wishing to commute from further afield.

Notwithstanding the above, bus stops within Penistone Town Centre and Penistone Railway Station can also be accessed within a journey less than 2km distance from the school. These additional transport interchanges offer staff member's further opportunity to undertake a sustainable multimodal journey to / from the destinations further afield.

In addition the above, existing cycle routes within the vicinity of the site are shown in Figure 6. The cycle routes shown on the figure have been obtained from Sustrans online cycling map (link: <http://www.sustrans.org.uk/ncn/map>).

Figure 6: Cycle Routes - Sustrans



As shown in Figure 6 above, National Cycle Route 62 is located to the south of the A628 and runs in an east / west alignment near to the site. NCN 62 provides a mostly traffic free route within the vicinity of the site, connecting to Dodworth and Silkstone Common to the east and to Millhouse Green to the west of the site. NCN 62 also connects to Local Route 627 at Millhouse Green, which runs in a north / south alignment providing an on-road route, which connects to Millhouse Green at its southern extent and Shepley and Kibburton at its northern extent.

4.4 Public Transport Accessibility

4.4.1 Buses

The CIHT guidance states that 400m is the maximum desirable distance to walk in order to access bus facilities, which is equivalent to a five-minute walk based on approximately 1.4m/s walking speed. This distance is generally considered as being a reasonable walking distance to bus stops from a site.

As the site operates as an existing Grammar School, a large Bus Park is provided within the site with space to accommodate 16 busses. The School Bus Car Park is located north of the main school building and is accessed via the main site entrance, located along the B6462 Huddersfield Road.

There are high number of busses that serve the School during AM and PM peak school peak hours between 07:00-08:00 and 15:00-16:00, these bus services are detailed at **Appendix A** within the Penistone Grammar School Bus Timetable (2016/2017 Academic Year).

It should be noted that these bus services are subject to changes, however currently there are a total of 13 school bus services that serve the site specifically, which cover the residential areas of Barnsley detailed below:

- Barnsley, Crane Moor, Dodworth, Green Moor, Hoylandswaine, Mapplewell, Silkstone Townhead;

- Barugh Green, Crow Edge, Dunford Bridge, Hade Edge, Ingbirchworth, Maythorne, Silkstone Common, Victoria;
- Carlecotes, Cubley, Gawber, Higham, Kexborough, Oxspring, Springvale, Wilthorpe; and
- Cawthorne, Darton, Gilroyd, Hood Green, Kingstone, Penistone Green, Thurgoland, Wortley.

In addition to the above, although further than the CIHT suggested walking distance, there are a number of additional services that can be accessed at Penistone Market place, approximately 850m walking distance from the site.

Therefore, it is considered that the existing bus services operating at the site allow give a high level of accessibility by sustainable travel for both students and staff.

4.4.2 Trains

Penistone Railway Station is located to the south east of the School, approximately 1.4 km from the site, which is within the preferred maximum walking distance to the site.

The station is accessed off the B6462 Sheffield Road and connects Huddersfield with Sheffield via Penistone, with a train each hour in either direction between the hours of 06:00-23:00 Mon-Fri, 07:00-23:00 Saturday and 10:00- 20:00 Sunday.

Bus stops are provided within the vicinity of the station along B6462 Sheffield Road, with additional stopping services to those provided at the Grammar School and one school bus service (Number 408) which serves both the Grammar School and the Railway Station. Therefore offering a realistic opportunity for both staff and pupils to undertake a multi modal journey to / from the site.

The station also provides a number of facilities such as covered cycle parking (16), toilets, waiting room, covered seating, telephone and car parking with space for 15 vehicles.

Based on the above, Penistone Railway Station offers a realistic alternative to private car use for both students and staff travelling to / from areas of Huddersfield or Sheffield.

4.5 Summary

This section of the report has shown that the proposed development site is situated in a good location for access by sustainable modes.

5. Development Proposals

5.1 Introduction

This chapter provides details of the proposed development including access and parking arrangements.

5.2 Proposed Development

It is proposed that Penistone Grammar School will be enlarged to allow an increase in the net capacity of pupils from 1,350 to 1,600 with effect from September 2018. The increase in capacity relates to Year 7 to 11 from circa 270 pupils per year group, to 320 pupils.

It is proposed that the additional students will be accommodated by re-modelling areas within the existing school without the need for an extension, for example one of the proposals is to install a mezzanine floor in a large double height space.

5.3 Car Parking

The car park accommodates 202 cars with 10 additional spaces clearly marked for disabled parking; the car park is used by members of staff, visitors and sixth formers.

Members of the public who use the ALC Sports Centre facilities after 5.00PM and weekends park their vehicles in the bus bay area and the main car park.

It is not proposed to change the car parking provision at the site, as this is considered sufficient to accommodate any additional vehicle trips associated with the increase in staff / pupil numbers.

5.4 Proposed Access

The proposed development will continue to take access from Huddersfield Road, with the pick-up / drop-off area remaining the same as existing, which is accessed in the northwest corner of the site and leads to the dedicated school Bus Park and existing car park.

The main entrance and reception is north of the building and will continue to provide access for pedestrians approaching from the north as well as students who travel by school bus. Students who travel on foot from Bridge End, will continue to enter the campus via the south entrance.

6. Trip Generation and Distribution

6.1 Introduction

This chapter outlines the anticipated traffic generation of trips as a consequence of the proposed increase in overall pupil numbers.

6.2 Trip Generation

6.2.1 Existing School Travel Plan Based Assessment

Assessment has been undertaken based on the proposed additional 250 pupils at the school, with a modal split derived using the most recent Penistone Grammar School Travel Plan (2011).

As such, the total person trip generation, based on the 2011 census modal split is shown below.

Table 7: Additional Vehicle Trips – Travel Plan Derived

AM Peak (08:00-09:00)

Mode	2011 School Census Modal Split	Number of Trips
Bus (type not known)	31.4%	79
Car/Van	2.5%	6
Car Share	0.6%	2
Cycle	0.1%	0
Dedicated school bus	27.9%	70
Metro/ Tram/ Light rail	0.0%	0
Other	0.0%	0
Public Service bus	1.8%	5
Train	0.0%	0
Taxi	0.3%	1
Walk	35.6%	89

Based on the above, a high number of pupils at the school are predicted to undertake journeys to / from school via bus and walking trips. The addition of 250 pupils at the school is therefore expected to result in approximately 79 additional public bus trips, 70 additional dedicated school bus trips and 89 additional walking trips during the AM and PM school peak hours.

Due to high number of pupils expected to walk to / from the school, proposed mitigation measures are considered within Section 8 of this report, in order to provide an improved level of pedestrian safety within the vicinity of the school.

In comparison, a personal vehicle modal split of 2.5% is predicted for pupil journeys to school. As such, the additional vehicle trips associated with 250 pupils are likely to be 6 vehicle arrivals in the AM peak and 6 departures in the PM peak.

In addition to the above, it is estimated that there will be approximately 42 additional staff members associated with the proposals. This has been calculated based on the 2011 Travel Plan, which states

that in 2011 there were 267 staff members associated with 1,576 pupils aged 11-18. This figure has been pro-rated for an additional 250 pupils, which gives a total of 42 additional staff members.

In order to provide a robust estimate it is considered that all additional staff would travel to work by car. Table 7 indicates the proposed additional peak hour vehicle movements.

Table 8: Additional Vehicle Trips – Travel Plan Derived

	AM Peak (08:00-09:00)			PM Peak (15:00-16:00)		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Vehicle Trips	48	6	54	6	48	54

Based on the above, the Travel Plan based assessment predicts an additional 54 two-way movements during the AM peak and 61 two-way movements during PM peak. It should be noted that the above assessment is particularly robust. The 42 additional staff vehicle trips account for staff members including part time teachers and support staff, which may not be required to visit the school every day.

6.2.2 TRICS Assessment

In order to check the robustness of the proposed vehicle estimates stated above, a further consideration of proposed trips has been undertaken using the TRICS database (v7.4.1). This has been interrogated to derive a weekday AM (08:00-09:00) and PM (15:00-16:00) peak hour vehicle trip rates for sites of a similar size and nature to the development proposals. Sites have been selected based on TRICS land use category 'Education – Secondary School' for geographical areas excluding London, Ireland and Scotland.

There is currently capacity for 1,350 pupils at the school and it is proposed that the capacity of the new facility will be 1,600. Therefore, the maximum potential number of trips which could be generated by the additional 250 pupils at the school has been determined based on TRICS total vehicle trip rates, which are shown in the following table. Full outputs from TRICS are contained within **Appendix C** of this report.

Table 9: Additional Vehicle Trips – TRICS Derived

	AM Peak (08:00-09:00)			PM Peak (15:00-16:00)		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Vehicle Trip Rate	0.158	0.103	0.261	0.076	0.087	0.163
Vehicle Trips	40	26	65	19	22	41

Based on the above, the TRICS derived assessment, based on total vehicle trip rates applied to the proposed increase of 250 pupils predicts an additional 65 two-way movements during the AM peak and 41 two-way movements during PM peak. The total two-way trips are in line with those derived from the Travel Plan. The trip generation is similar to that generated from the School Travel Plan, therefore the trips are considered appropriate.

It is considered that the first principles approach detailed above and in Table 7 is likely to be a more accurate representation of expected vehicle trips in comparison to the TRICS derived assessment. As such, it is considered that the assessment will be based on this.

6.3 Trip Distribution

For the purposes of the assessment, it has been considered that all vehicles associated with additional staff and pupils would approach the site from the Penistone direction on Huddersfield Road. The distribution of additional vehicle movements through the key junctions being assessed has been considered as follows. The table below indicates the movement of vehicles as they depart the site, with distribution reversed in the opposite direction.

Table 10: Traffic Distribution

Junction	Arm	Percentage Split
A628 Barnsley Road / B6462 Huddersfield Road	A628 Barnsley Road (East)	50%
	A628 Barnsley Road (West)	50%
A628 Barnsley Road / B6462 Bridge Street	B6462 Bridge Street	50%
	A628 (West)	50%

7. Operational Assessment

7.1 Introduction

This section of the Transport Assessment provides details on the anticipated impact of the proposed expansion on the local road network. Operational assessments have been undertaken for the weekday AM and PM peak hours.

7.2 Base Flows and Growth Factors

Classified traffic counts were undertaken in September 2017 and the resultant traffic flows have then been growthed using TEMPRO NTM growth factors for Barnsley 023 from a base year of 2017 and assessment year of 2023.

An assessment year of 2023 represents an assessment 5 years post the registration of the planning application.

The increase in capacity relates to Years 7 to 11 only and will allow for an increase from 270 to 320 in the Year 7 intake from 2018 onwards, therefore an assessment year of 2023 also represents the school operating at its proposed capacity of 1,600 pupils.

The selected area chosen was 'urban' and 'principal' was selected as the road type, the growth factors applied to the 2017 surveyed flows for the AM and PM peaks are as follows:

- 1.0969 - 2017 to 2023 Weekday AM Peak; and
- 1.0955 - 2017 to 2023 Weekday PM Peak.

7.3 Assessment Hours

The peak hours identified from the traffic surveys are 07.45 – 08.45 in the AM and 16.30 – 17.30 in the PM. These periods have subsequently been used for assessment within this study. Whilst traffic associated with the school will likely have impacts earlier than the PM peak hour identified, the additional school traffic has been included within the identified peak to indicate a worst case scenario.

7.4 Operational Assessments

The junctions considered for operational assessments are those most likely to be affected by the potential development sites, these are:

- Junction 1: A628 Barnsley Road / B6462 Huddersfield Road; and
- Junction 2: A628 Barnsley Road / B6462 Bridge Street.

The modelling software package Junctions 9 has been used to assess the operation of Junction 1. The Junctions software uses Ratio to Flow Capacity (RFC) to measure the capacity of the junction. RFC values of 0.85 or less are considered to indicate the junction is operating satisfactorily, values of 0.85 – 1.0 are considered to that some queuing and delay is starting to occur, and values above 1.0 are considered to represent a condition whereby further extended delay and queuing is predicted to occur.

The result show the maximum RFC result across all arms at each of the above junctions, these result have then been compared in order to determine the likely effect of each potential development scenario.

Junction 2 is a signalised crossroads therefore has been modelled using LINSIG 3. In LINSIG 3 a Degree of Saturation (DoS) value of 90% or less typically demonstrates that a junction arm or turning movement is operating within capacity and is therefore unlikely to experience excessive queuing.

The theoretical capacity of the overall junction is expressed as the 'Practical Reserve Capacity' (PRC). The PRC % indicates how much spare capacity a junction may have, therefore a PRC of 0% represents a junction operating at its capacity limit.

All associated Traffic Flow Diagrams associated within the assessments are included in **Appendix D**, with all modelling outputs for the assessment provided in **Appendix E**.

The scenarios that have been undertaken for the assessment are as follows:

- 2017 Base;
- 2017 Base + Development;
- 2023 Base; and
- 2023 Base + Development.

7.4.1 Junction 1: A628 Barnsley Road / B6462 Huddersfield Road

The results of the assessments are summarised below, with full outputs provided in **Appendix E**.

Table 11: 2017 Base AM / PM Peaks

Movement	AM		PM	
	RFC	QUEUE	RFC	QUEUE
Huddersfield Road to Barnsley Road East & West	0.789	3	0.441	1
Barnsley Road East to Barnsley Road West & Huddersfield Road	0.162	0	0.013	0

Table 12: 2017 Base + Development AM / PM Peaks

Movement	AM		PM	
	RFC	QUEUE	RFC	QUEUE
Huddersfield Road to Barnsley Road East & West	0.830	4	0.562	1
Barnsley Road East to Barnsley Road West & Huddersfield Road	0.225	0	0.019	0

Table 13: 2023 Base AM / PM Peaks

Movement	AM		PM	
	RFC	QUEUE	RFC	QUEUE
Huddersfield Road to Barnsley Road East & West	0.936	8	0.510	1
Barnsley Road East to Barnsley Road West & Huddersfield Road	0.186	0	0.015	0

Table 14: 2023 Base + Development AM / PM Peaks

Movement	AM		PM	
	RFC	QUEUE	RFC	QUEUE
Huddersfield Road to Barnsley Road East & West	0.986	11	0.635	2
Barnsley Road East to Barnsley Road West & Huddersfield Road	0.253	0	0.022	0

Results indicate that the junction is predicted to operate satisfactorily in 2017 during the AM and PM peak hours, with the additional traffic added.

Increased base levels of traffic in 2023 would likely lead to the junction approaching its capacity, with the additional traffic associated with the school predicted to further worsen the capacity, although the predicted increases in queue length are not considered to be severe.

7.4.2 Junction 2: A628 Barnsley Road / B6462 Bridge Street

The results of the assessments are summarised below, with full outputs provided in **Appendix D**.

Table 15: 2017 Base AM / PM Peaks

Movement	AM		PM	
	DoS	QUEUE	DoS	QUEUE
Barnsley Road SB Ahead Left	91.3%	18	96.7%	25
Thurlstone Rd EB Ahead Right	69.3%	12	61.8%	5
Bridge Street NB Right Left	93.5%	19	97.8%	20

Table 16: 2017 Base (With Development) AM / PM Peaks

Movement	AM		PM	
	DoS	QUEUE	DoS	QUEUE
Barnsley Road SB Ahead Left	95.4%	20	100.1%	31
Thurlstone Rd EB Ahead Right	72.5%	13	74.5%	5
Bridge Street NB Right Left	92.1%	18	98.3%	21

Table 17: 2023 Base AM / PM Peaks

Movement	AM		PM	
	DoS	QUEUE	DoS	QUEUE
Barnsley Road SB Ahead Left	100.2%	28	106.0%	48
Thurlstone Rd EB Ahead Right	75.9%	14	81.7%	7
Bridge Street NB Right Left	102.4%	31	107.1%	36

Table 18: 2023 Base (With Development) AM / PM Peaks

Movement	AM		PM	
	DoS	QUEUE	DoS	QUEUE
Barnsley Road SB Ahead Left	99.4%	27	109.4%	56
Thurlstone Rd EB Ahead Right	77.9%	16	81.7%	7
Bridge Street NB Right Left	99.2%	27	107.5%	38

The results indicate that the junction is predicted to operate nearing capacity during the 2017 Base AM peak and at capacity during the 2017 PM peak, the Bridge Street SB and NB arms are predicted the highest DOS at 96.7% and 97.8% respectively during the PM peak and associated queue of 25 and 25 PCU's respectively.

With the development traffic, the junction would again operate nearing capacity during the AM peak and at capacity during the PM peak, with an increase in predicted queueing at the Bridge Street SB and NB arms of 6 and 1 PCU respectively.

In the future year of 2023, the junction is predicted to operate over capacity without the development, with a maximum DoS of 107.1% and associated queues of 48 vehicles. With the addition of the development traffic, the junction would be made slightly worse, with a maximum DoS of 109.4% and associated queue of 56 vehicles.

8. Mitigation

8.1 Introduction

School census derived trip generation indicated approximately 89 additional pupils are expected to walk to / from school. As such, this section outlines the potential mitigation that could be brought forward in conjunction with the proposed expansion of the school. Proposed mitigation measures include an additional controlled pedestrian crossing and widening of footways, which are discussed in further detail below.

8.2 Proposed Pedestrian Crossing, Huddersfield Road

It has been observed that during school arrival and departure times, the general movement of children from the southern pedestrian access is to cross the road adjacent to the access, walk along the western side of Huddersfield Road, then along the A628, before crossing at the pedestrian crossing onto Bridge Street, which leads to the centre of Penistone.

As indicated in section 3.4.1, an accident occurred in 2013 where a child stepped out from behind a parked car into path of vehicle, causing a slight injury. It has also been observed that traffic flows during the peak periods are relatively high (538 two-way vehicles during the AM peak hour),

Based on the above, it is considered that a controlled pedestrian crossing point would be recommended in this location adjacent to the southern pedestrian access.

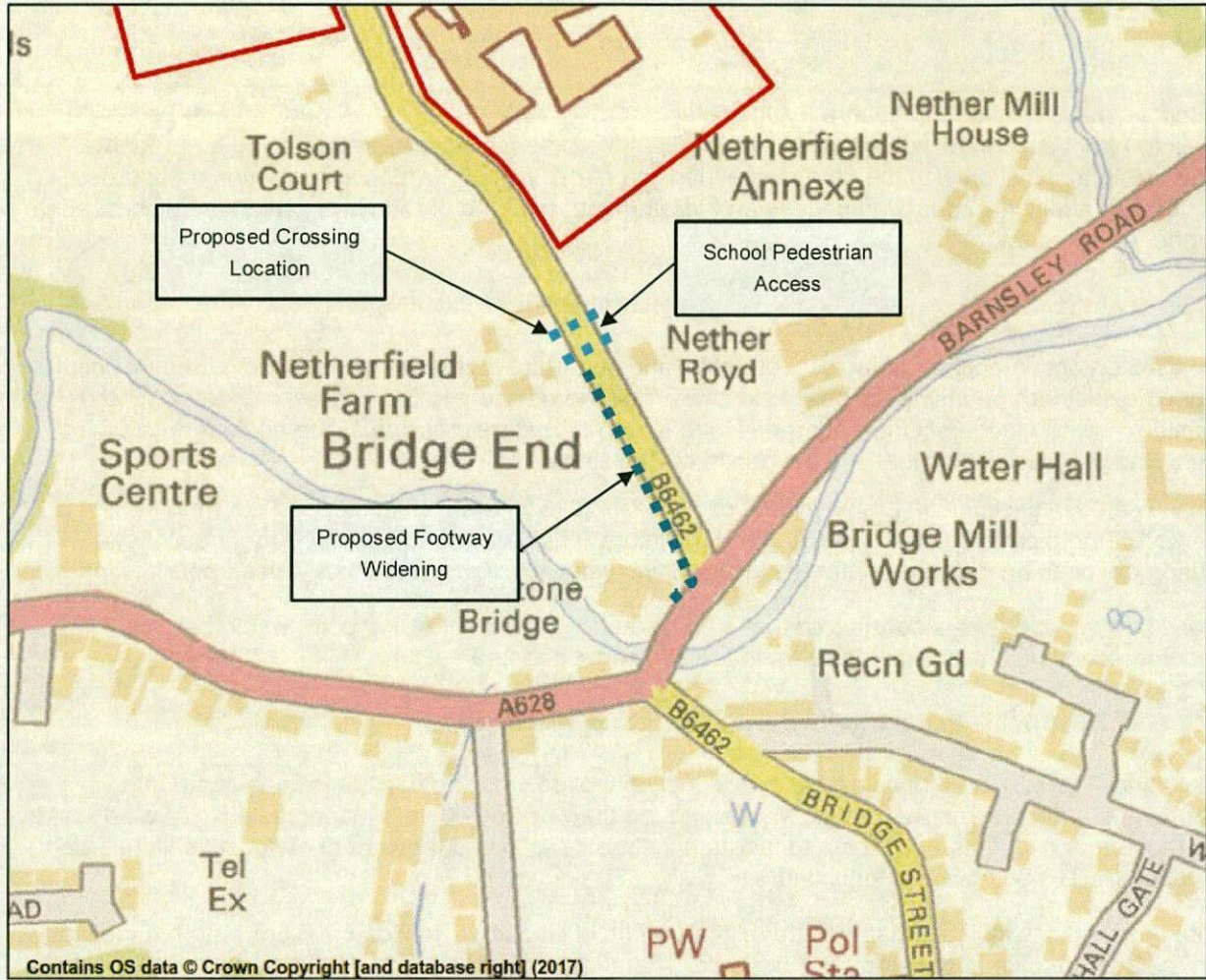
8.3 Proposed Footway Widening, Huddersfield Road

In conjunction with the proposal for a new signal controlled crossing point, it is considered that improvements to the footway, such as widening, on the western side of Huddersfield Road would also be recommended. This would help to facilitate the most significant movement of school children along Huddersfield Road towards Penistone.

Site observations indicate that the approximate width of Huddersfield Road is 6.5m, with the footway on the western side approximately 1.5m wide. Therefore, scope exists to potentially widen the footway in appropriate locations.

An indication of the recommended improvements for both the proposed crossing and footway widening is shown in Figure 7.

Figure 7: Proposed Improvements, Huddersfield Road



9. Summary and Conclusion

The following summarises the findings of this Transport Assessment:

9.1 Introduction

AECOM have produced this Transport Assessment (TA) on behalf of Barnsley Metropolitan Borough Council (BMBC) in support of proposals for an expansion to the existing Penistone Grammar School, located north east of Penistone, Barnsley.

The site already serves Penistone Grammar School, and also operates as the ALC Sports Centre, making it a community based amenity for families and children. The site lies on the northern edge of Penistone town and approximately 800m north of Penistone Town Centre. The school currently has provision for 1,350 pupils aged between 11 and 18.

9.2 Policy Review

The TA sets out the policy context within which the proposal has been developed. National transport and planning policy seeks to support the promotion of accessibility by all travel modes, particularly those by sustainable modes. The following documents have been reviewed:

- National Planning Policy Framework (2012);
- South Yorkshire Local Transport Plan; and
- Barnsley Core Strategy (2011).

The assessment of the proposals against national, regional and local policy / guidance confirms its acceptability in transport and land use planning terms.

9.3 Baseline Conditions

This section of the TA provides details of the site location and provides a summary of the existing highway conditions in the vicinity of the site.

The proposed development will continue to take access from Huddersfield Road, with the pick-up / drop-off area remaining as per existing, which is accessed in the northwest corner of the site and leads to the dedicated school Bus Park and existing car park.

Road traffic accident data from the most recent full five year period has been collected, which covers the time period from 01/01/2012 to 31/12/2016. Analysis of the data showed that in total 17 incidents were reported between 2012 and 2016, of which 15 were slight in severity and 2 were serious.

The majority of the accidents occurred away from the proposed site, however two incidents involved children which were slight in severity.

9.4 Accessibility

This section considers the existing provision for sustainable travel to and from the proposed site. The site is well served by a range of sustainable transport links.

9.5 Development Proposals

This section provides details of the proposed development including access and parking arrangements. It is proposed that the existing premises of Penistone Grammar School will be enlarged and increase the net capacity of pupils from 1,350 to 1,600 with effect from September 2018. The increase in capacity relates to Year 7 to 11 from circa 270 pupils per year group, to 320 pupils (increase of 50 pupils over the five year groups equals an increase of 250 pupils overall).

Car parking and site access is proposed to remain unchanged as part of the expansion.

9.6 Trip Generation and Distribution

This section outlines the anticipated traffic generation of trips as a consequence of the proposed development. A comparison of proposed trips generated by a TRICS assessment and a first principles approach using information from the School Travel Plan was undertaken. Whilst both trip generations were similar, it was considered that the first principles approach would likely be a more accurate representation of expected trips.

The trip generation has been assumed as 48 vehicles arrivals and 6 departing in the AM peak hour, with 6 arrivals and 48 departures in the PM peak hour.

In addition to the above, the census based trip generation predicts there are likely to be 89 additional pedestrian within each peak hour.

9.7 Operational Assessments

This section provides details on the anticipated impact of the proposed expansion on the local road network. Operational assessments have been undertaken for the weekday AM and PM peak hours.

The junctions considered for operational assessments are those most likely to be affected by the potential development sites, these were assumed as follows:

- Junction 1: A628 Barnsley Road / B6462 Huddersfield Road; and
- Junction 2: A628 Barnsley Road / B6462 Bridge Street.

The scenarios undertaken included assessment in 2017 and 2023 with and without development traffic included.

The results of the assessments are summarised in Table 18.

Table 19: Junction Assessment Results Summary

Scenario	Period	Junction 1	Junction 2
Base 2017	AM	✓	~
	PM	✓	~
Base 2017 (With Development)	AM	✓	~
	PM	✓	X
Base 2023	AM	~	X
	PM	✓	X
Base 2023 (With Development)	AM	~	~
	PM	✓	X

Key: ✓ Under capacity ~ Approaching Capacity X Over Capacity

Junction 1 is predicted to operate satisfactorily in 2017 during the AM and PM peak hours, with the additional traffic added. Increased base levels of traffic in 2023 would likely lead to the junction to approach its capacity, with the additional traffic associated with the school predicted to further worsen the capacity.

In the future year of 2023, Junction 2 is predicted to operate over capacity without the development, with a maximum DoS of 107.1% and associated queues of 48 vehicles. With the addition of the development traffic, the junction would be made slightly worse, with a maximum DoS of 109.4% and associated queue of 56 vehicles.

It should be noted that the peak hours identified from the traffic surveys are 07.45 – 08.45 in the AM and 16.30 – 17.30 in the PM. These periods have subsequently been used for assessment within this study. Whilst traffic associated with the school will likely have impacts earlier than the PM peak hour identified, the additional school traffic has been included within the identified peak to indicate a worst case scenario.

9.8 Mitigation

Proposed mitigation is recommended to include; a new controlled pedestrian crossing on Huddersfield Road adjacent to the southern pedestrian access; and widening of the footway along the western side of Huddersfield Road.

9.9 Conclusion

Given the findings of this TA it is considered that the traffic impacts relating to the development proposals, if appropriately mitigated, would be minimal and that the site accords with national, regional and local policy.

Appendix A – Supporting Documents

Appendix B TRICS Data

Appendix C – Traffic Flow Diagrams

Appendix D – Modelling Outputs

