OPTIMA

Intelligent Highways Solutions

Hartcliff Road, Penistone

Proposed Residential Development

Transport Assessment
(& Travel Plan)

Persimmon Homes

July 2013 (Rev 1)

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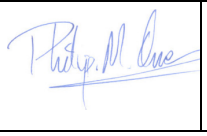
Signature				

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1 Introduction

1.1.1 This Transport Assessment (TA) and incorporated Travel Plan (TP) has been undertaken by Optima to consider the highways and transportation issues raised by a proposed residential development on land to the north of Hartcliff Road, Penistone.

1.1.2 The TA has been prepared in accordance with the DfT's March 2007 "Guidance on Transport Assessment" document and supports a planning application made by Persimmon Homes for 159 dwellings. Further details of the proposed development, which is also referred to as the Site within this report, are provided in Chapter 3.

1.1.3 The scope and content of this report has been discussed and broadly agreed with the highways officer at Barnsley Metropolitan Borough Council (BMBC) – in particular at the meetings held on 22nd February 2013 and 10th April 2013.

1.1.4 A public consultation exercise was held on the 13th June 2013 and consideration has also been given to these discussions in the preparation of this report.

1.1.5 This document sets out the transport issues relating to the proposed development and identifies what measures will be provided, as appropriate, to accommodate any transport impacts associated with the scheme. The TA considers the sustainability of the Site, reviewing the provision for, and quality of, facilities and connections to and from the surrounding areas. It covers a variety of topics which are set out within the following chapters:

- Chapter 2 – describes the Site itself and the existing transport conditions;
- Chapter 3 – defines the development proposals including the proposed access strategy;
- Chapter 4 – describes the accessibility of the Site by non-car modes;
- Chapter 5 – describes the Travel Plan (TP) which sets out a package of measures to improve the mode choice for those traveling to and from the Site;
- Chapter 6 – sets out the trip generation and distribution methodologies applied in the assessments of the highway network;
- Chapter 7 – provides a commentary of the capacity assessments that have been undertaken to determine the impact of the development on the highway network. This section also describes how the Base and Design traffic flows have been determined; and
- Chapter 8 – highlights the conclusions of the report.

2 Existing Conditions

2.1 INTRODUCTION

2.1.1 This chapter describes the Site and considers the existing conditions on the surrounding highway network for a range of transport modes.

2.2 EXISTING SITE

2.2.1 The development Site is located along the western fringe of Penistone and is situated approximately 10km west of Barnsley and 16km south of Huddersfield. The Site in relation to the strategic and local highway network is shown on Figures 1 and 2 respectively.

2.2.2 The Site is generally rectangular in shape and has an overall area of approximately 4.8 hectares. The Site is bound by undeveloped land to the west, Hartcliff Road to the south, private residential properties to the east and Schole Hill Lane to the north.

2.2.3 A public right of way runs east-west through the centre of the Site connecting into the adjacent residential estate.

2.3 EXISTING LOCAL HIGHWAY NETWORK

2.3.1 Hartcliff Road has a variable carriageway width along its length – being some 5.8m to 6.0m in the vicinity of the Site frontage but to the east narrowing down to approximately 4m at a bend in the road where it becomes known as Chapel Lane. This bend has restricted forward visibility and therefore significantly reduces vehicular speeds along this route. Continuing eastwards Chapel Lane widens again to some 5m to 6m before forming a priority crossroads junction with High Street/Mortimer Road/The Green.

2.3.2 No footways are provided on Hartcliff Road in the vicinity of the Site. Chapel Lane initially provides a single footway on the northern side but a southern footway is also provided as Chapel Lane routes east to meet Mortimer Road.

2.3.3 Hartcliff Road has the following approximate traffic flows typically routing past the frontage of the development Site:

- Annual Average Daily Traffic (two-way) 699 vehicles;
- Weekday Morning Peak Hour (two-way) 75 vehicles
- Weekday Evening Peak Hour (two-way) 79 vehicles

2.3.4 Hartcliff Road is currently subject to a 60mph speed limit along the majority of the Site frontage, reducing to a 30mph limit towards the eastern boundary of the Site. As described in Chapter 3 due to the geometry/alignment of the road actual vehicular speeds along the Site frontage align more closely with the 30mph limit.

2.3.5 Clarel Street lies to the east of the Site and is an adopted, lit highway some 450m in length to its priority junction with High Street. It has an average carriageway width of 5.5m with 2.0m footways to both sides. Clarel Street and the surrounding roads are residential in nature, are subject to a speed limit of 30mph and serve the local bus route. Just west of its junction with High Street the following approximate traffic flows typically route along Clarel Street:

- Annual Average Daily Traffic (two-way) 1093 vehicles;
- Weekday Morning Peak Hour (two-way) 116 vehicles

- Weekday Evening Peak Hour (two-way) 93 vehicles

2.3.6 Clarel Street meets High Street to form a staggered priority crossroads junction with Downing Square. High Street, which has a varying carriageway width of between 5.6m to 8.0m and footways to both sides (in the vicinity of the junction) extends in a northerly direction through the centre of Penistone towards the A628. To the south High Street becomes known as Mortimer Road and continues southwards for some 3.5km until it meets the A616.

2.3.7 Chapel Field Lane forms a priority T-junction with Clarel Street to the east of the Site and routes northwards towards the town centre. Chapel Field Lane is subject to a 30mph speed limit and provides good quality footways which generally have a width of some 1.8m to 2.0m. Scholes Hill Lane meets with Chapel Field Lane to provide further pedestrian access along the northern boundary of the Site.

2.4 BUS FACILITIES

2.4.1 The nearest bus stops are located to the east on Chapel Field Lane some 200m from the centre of the Site. The northbound bus stop benefits from a shelter and seating. A summary of the bus services on Chapel Field Lane is shown in Table 2.1.

Table 2.1 –Bus Service Summary – Chapel Field Lane

Service	Route	2 Way Service Frequency	Days of Operation
Chapel Field Lane			
21	Barnsley – Gilroyd – Dodworth – Silkstone – Oxspring – Penistone - Cubley	2 per hour	Weekday
		2 per hour	Saturday
		2 per hour*	Sunday

*operates as service 21A

2.4.2 Bus service 21 connects to Dodworth, Silkstone and Barnsley where additional public transport services are available. The route of bus service 21 is shown on the plan attached in Appendix A.

2.4.3 Service 21 also provides a connection to Penistone Grammar during term time to coincide with the start and finish times at the school.

2.5 RAIL FACILITIES

2.5.1 Penistone Train Station is located approximately 1.5km to the north east of the development site, which is equivalent to an approximate 20 minute walk time and just over a 5 minute cycle ride. Penistone Train Station provides regular connections to Huddersfield (1 per hour) and Sheffield (1 per hour).

2.5.2 Penistone station benefits from cycle lockers and some car parking, providing future residents with an opportunity to park and ride. The station facilities include seating, enclosed waiting areas and ramp access.

2.6 TRAFFIC SURVEYS

2.6.1 A series of junction and link counts were undertaken in March 2012 and May 2013 at several locations on the local highway network. Following feedback from the public consultation event a speed survey was also undertaken on Mortimer Road (in the vicinity of the Chapel Lane junction) during June 2013.

2.6.2 A summary of the surveys is provided in Table 2.2 and the locations are shown on Figure 3.

Table 2.2 – Summary of Traffic Surveys

Location	Type	Date Undertaken	Assessment Periods
1. Hartcliff Road	ATC (Fully Classified)	Friday 9th March to Thursday 15th March 2012	24hr
2. Clarel Street	ATC (Fully Classified)	Friday 9th March to Thursday 15th March 2012	24hr
3. Chapel Lane/Mortimer Road/The Green junction	Fully Classified Manual Turning Count	Tuesday 21st May 2013	07:00 – 10:00 & 16:00 – 19:00
4. Clarel Street/High Street junction	Fully Classified Manual Turning Count	Tuesday 21st May 2013	07:00 – 10:00 & 16:00 – 19:00
5. Mortimer Road (in vicinity of Chapel Lane)	Speed Radar Gun Survey	Tuesday 25th June 2013	Off Peak

2.6.3 The traffic count surveys identified the existing weekday morning and evening peak hour periods as follows:

- Weekday AM Peak – 08:15 to 09:15; and
- Weekday PM Peak - 17:15 to 18:15.

2.7 EXISTING ACCIDENT DATA ANALYSIS

2.7.1 Personal injury accident data has been obtained for the highway network in the vicinity of the Site for the most recently available five year period between January 2008 and March 2013 (which corresponds to an actual 64 month period). The area covered includes the junction of Chapel Field Lane/Bluebell Avenue to the north, High Street to the east and Hartcliff Road to the south. The area also covers the extent of Clarel Street and Chapel Lane and their associated junctions with High Street/Mortimer Road. The accident data, including a location plan, obtained from BMBC is attached in Appendix B.

2.7.2 For the 64 month period, there have been a total of just two personal injury accidents within the study area – both of which were classified as being slight in nature. No serious accidents or fatalities have been recorded during this period.

2.7.3 No accidents have occurred along the Hartcliff Road frontage where the vehicular access into the Site is proposed. Similarly no accidents have been recorded in the vicinity of Chapel Field Lane or Clarel Street where various pedestrian/cycle links will be provided. In fact no accidents have involved pedestrians or cyclists within the entire accident study area.

2.7.4 A single slight accident has occurred on the Chapel Lane corridor and involved two vehicles on a straight section of road with sufficient width. The accident is not considered to relate to the layout of the corridor or its operation.

2.7.5 The second and remaining accident occurred at the High Street/Clarel Street junction and involved a bus entering High Street hitting a car travelling southbound. This also resulted in only a slight injury.

2.7.6 The very low incidence of accidents over a 64 month period combined with differing causal factors and locations within the study area, lead to the conclusion that there are no specific concerns relating to existing highway safety.

3 Development Proposals and Access Strategy

3.1 INTRODUCTION

3.1.1 This section of the report provides details of the development scheme including the proposed access arrangements.

3.1.2 The development proposals, which are shown on the Masterplan drawing contained in Appendix C, comprise the following:

- 159 residential dwellings; and
- Associated parking, landscaping and infrastructure Works.

3.2 VEHICULAR ACCESS

Proposed Site Access Junction

3.2.1 Vehicular access to the Site is proposed from a simple priority T junction on Hartcliff Road – as shown on the layout drawing contained in Appendix D.

3.2.2 As shown on the layout drawing visibility splays of 2.4x40.0m are proposed at the Site Access junction. The recorded 85th percentile traffic speeds at this location on Hartcliff Road are 27.7 mph eastbound and 27.0 mph westbound. Manual for Streets requires visibility splays of 2.4x40m where traffic speeds are 30mph and therefore the proposed provision slightly exceeds this requirement.

3.2.3 As described in Chapter 6 some of the Site frontage falls within the existing 60mph speed limit. As demonstrated drivers are generally travelling at less than half this speed and therefore, whilst it is not considered strictly necessary based on the surveys, it is suggested that the existing 30mph limit on Hartcliff Road is extended westwards beyond the proposed Site Access in order to formalise the situation.

3.2.4 The Site Access road itself is proposed as a 5.5m wide carriageway with 2.0m footways to both sides. The footways are also proposed to extend along both sides of the Site frontage for some length from the junction.

3.2.5 New retaining structures will be provided at the back of these footways to accommodate the level differences between the Site and Hartcliff Road. These retaining structures would align behind the proposed visibility splays meaning that over short lengths the footway will slightly exceed 2.0m in width. The proposed retaining structures will tie into the existing retaining walls where the proposed Hartcliff footways terminate.

Existing Hartcliff Road/Chapel Lane Bend

3.2.6 As already described in Chapter 2, Hartcliff Road narrows to the east of the Site down to some 4.0m at a fairly sharp bend in the road, necessitating single vehicle operation. As a result of the bend forward visibility is also reduced. The drawing in Appendix E shows the existing highway layout at this location including the minimum stopping sight distance (SSD) of 16.2m.

3.2.7 This lower SSD provides a natural traffic calming feature by reducing visibility and consequently also reducing vehicle speeds. Both Manual for Streets and the South Yorkshire Residential design guide (SYRDG) recommend introducing traffic calming features such as bends which reduce forward visibility as this reduces vehicle speeds and accidents. In accordance with MfS an SSD of 16.2m corresponds to a speed of less than 15mph.

3.2.8 Furthermore paragraph B.1.3.4 of the South Yorkshire Residential Design Guide (SYRDG) states that:

> *"forward visibilities below those given in Table 7.1 of Manual for Streets will be permissible, since limiting forward visibility assists in reducing traffic speeds. But a minimum forward visibility of 15m shall always apply."*

3.2.9 Both the national and regional policy view is therefore that limiting SSD causes a reduction in vehicle speeds and occurrence of accidents. And this is evidenced in this location by the fact that no personal injury accidents have been recorded in the 64 month period between January 2008 and March 2013.

3.2.10 Additionally, even allowing for an increase in traffic associated with the development (refer to Chapter 6 for further details), the traffic flows on the Hartcliff Road/Chapel Lane corridor are very low. As such the frequency of opposing vehicles meeting each other at this specific location is low. Furthermore the residual cumulative impact of the development is certainly not considered to be 'severe' (as referenced in paragraph 32 of the NPPF).

3.2.11 The drawing in Appendix E also demonstrates that the swept path of a refuse vehicle can satisfactorily manoeuvre through this point. This is the worst case vehicle associated with the development Site (a fire tender is less onerous in terms of vehicle manoeuvring).

3.2.12 It is therefore concluded that this corridor would continue to operate safely and satisfactorily in the post-development scenario. Notwithstanding this, pre-application discussions have been held with Highways Officers at BMBC on this specific issue where the Council indicated that some localised improvements may be sought which will benefit both new and existing residents. The Council's further feedback on this is awaited.

Existing Chapel Lane/Mortimer Road Junction

3.2.13 The majority of the development traffic will emerge onto High Street/Mortimer Road at the Chapel Lane junction some 400m to the east of the Site.

3.2.14 A speed survey has been undertaken to ascertain the required visibility splays as set out in MfS for vehicles emerging from Chapel Lane. In order to ascertain the required stopping sight distance (SSD) for the visibility to the north, the recorded 85th percentile southbound speed of 25mph has been input into the SSD formula provided at paragraph 7.5.3 of MfS. This results in a required visibility splay of 31m to the left at the Chapel Lane junction. The visibility to the south has also been assessed with the northbound recorded speed of 29mph, resulting in a required visibility splay of 39m to the right.

3.2.15 The drawing contained in Appendix F shows the existing layout of the Chapel Lane crossroads with the required visibility splays of 31m to the north and 39m to the south. Both the northern and southern visibility splays can be achieved at the existing Chapel Lane junction.

3.3 PEDESTRIAN/CYCLE ACCESS

3.3.1 As shown on the Masterplan in Appendix C pedestrian/cycle access points are shown to the eastern and northern boundaries of the Site connecting to Chapel Field Lane/Clarel Street and Schole Hill Lane respectively. Based on the fact that virtually all of the local facilities including bus stops, schools, shops, doctors, dentists, railway station and the town centre are situated to the north-east of the Site then the vast majority of pedestrian trips can be expected to utilise these two proposed links/routes.

3.3.2 Similarly, whilst pedestrians could of course feasibly access the Site from the proposed Hartcliff Road junction, it is envisaged very few, if any, would do so in consideration of the lack of any desirable or necessary destination.

3.3.3 Also as shown on the Masterplan, within the Site numerous internal pedestrian/cycle links will be provided.

4 Site Accessibility

4.1 INTRODUCTION

4.1.1 This chapter describes the accessibility of the Site by non-car modes.

4.2 ACCESSIBILITY BY FOOT

4.2.1 The residential design guide "Manual for Streets" (MfS) advises that "*walkable neighbourhoods are typically characterised by having a range of facilities within ten minutes (up to about 800m) walking distance of residential areas…"* (ref para 4.4.1). However, this is not regarded as an upper limit in MfS and reference is also made to walking offering "*the greatest potential to replace short car trips, particularly those under 2km*". The acceptability of walking trips up to 2km (an approximate 25 minute walk time) is also supported in the IHT document 'Providing for Journeys on Foot'.

4.2.2 Using GIS Network Analyst software typical walk times (up to 25 mins) to specific local facilities situated in close proximity to the proposed Site are shown on Figure 4. This demonstrates that:

- The centre of Penistone can be reached within a 10-15 minute walk of the Site where numerous shops/facilities can be found including food retail (Tesco Superstore, Co-operative Supermarket and a Spa convenience store), doctors/health centre, dentist, pharmacist, post office, cash points, library, cinema, pubs, restaurants and takeaways. As well as providing convenient services to local residents the majority of these facilities also provide accessible employment opportunities;
- The nearest School (St John the Baptists CoE infant and junior) is within a 5 to 10 minute walk distance of the Site with the nearest day nursery located just west of the development Site also within a 5 minute walk; and
- Penistone Grammar School is the nearest secondary school and sixth form and it can be reached within a 20-25 minute walk from the Site.

4.2.3 It is therefore concluded that the proposed Site will provide excellent accessibility by foot to a vast range of services and facilities – the majority of which are within a 15 minute walk. As shown on Figure 4 additional services/facilities are available within a 15 to 25 minute timeframe.

4.2.4 Furthermore the Travel Plan will have a positive influence on the sustainable travel choices made by residents of the development Site.

4.3 ACCESSIBILITY BY CYCLE

4.3.1 An acceptable and comfortable distance for general cycling trips is considered to be up to 5 kilometres as referred to in Local Transport Note 2/08 (published by the DfT). However, the same guidance also refers to commuting cycle trips up to 8km. Using GIS Network Analyst software typical cycle times (with 30 mins approximating to around an 8km distance) from the Site are shown on Figure 5. This figure shows that:

- All of the numerous shops and facilities within Penistone including schools, healthcare and food stores can be reached within less than a 5 minute cycle of the Site;
- The nearest rail station in Penistone is accessible within an approximate 5 to 10 minute cycle ride; and
- Penistone Grammer School can be reached within a 10 minute cycle ride of the development site.

4.3.2 It is therefore concluded that the proposed Site will provide excellent accessibility by cycle to a vast range of local services and facilities within a five minute cycle ride as well as access to the surrounding towns and villages such as Thurlstone and Hoylandswaine which are beyond the immediate local area.

4.3.3 Furthermore the Travel Plan will have a positive influence on the sustainable travel choices made by residents of the development Site.

4.4 ACCESSIBILITY BY BUS

4.4.1 The nearest bus stops to the Site are located on Chapel Field Lane immediately east of the Site with the northbound stop provided with a shelter and seating. The location of the stops in relation to the Site is shown on Figure 4.

4.4.2 The pedestrian footway link to the eastern boundary of the site from Chapel Field Lane as described in the previous chapter, ensures that the entire Site lies within a short 5 minute walk (some 400m) of these stops.

4.4.3 From the Chapel Field Lane stops, indicative journey times (taken from timetable information) to the following destinations are as follows:

- Penistone Town Centre – within a 5 minute journey time on average; and
- Barnsley Town Centre – within a 50 minute journey time on average.

4.4.4 Bus services also provide a connection to Penistone Grammar School during term time to coincide with the start and finish times at the school.

4.4.5 All of the buses travel to the major public transport interchange at Barnsley. This provides passengers with the opportunity to access additional bus/coach services from Barnsley Rail and Bus Station. These connections provide the opportunity to conveniently access regional and national services and destinations.

4.4.6 It is therefore concluded that the proposed Site will provide good accessibility by bus. Furthermore the Travel Plan will have a positive influence on the sustainable travel choices made by residents of the development Site.

4.5 ACCESSIBILITY BY RAIL

4.5.1 Penistone Train Station is located approximately 1.5km to the north east of the development Site, which is less than a 20 minute walk time and just over a 5 minute cycle. Penistone Train Station provides regular connections to Huddersfield (1 per hour) in an approximate 30 minute journey time and Sheffield (1 per hour) in a 45 minutes journey time. Direct services to major destinations such as London, Leeds and Manchester can be accessed from these stations.

4.5.2 It is therefore concluded that the proposed Site will provide reasonable accessibility to rail services. Furthermore the Travel Plan will have a positive influence on the sustainable travel choices made by residents of the development Site.

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5 Travel Plan

5.1 INTRODUCTION

5.1.1 This TP sets out potential facilities/initiatives to encourage residents to use sustainable transport along with suggested initiatives for consideration by the developer marketing company. This TP contains the following elements:

- Objectives and scope of the Plan;
- Travel Plan targets;
- Description of roles and responsibilities;
- Potential additional measures to encourage, promote and increase the use of public transport, cycling and walking and reduce the level of single occupancy car trips; and
- A brief communication strategy.

5.2 OBJECTIVES AND SCOPE OF THE PLAN

5.2.1 The Travel Plan shall, by containing appropriate measures, assist in improving the environment by reducing the number of trips made to and from the development by private car. Residents shall be made aware of the measures included within the Travel Plan in order that positive benefits can be delivered and the number of trips undertaken by public transport, walking or cycling can be increased.

5.2.2 In order to ensure that the measures contained within the Travel Plan are capable of delivering a sustainable travel demand pattern for the development it is important to identify some key objectives. The overall travel management objectives for the proposed development are:

- Promoting walking, cycling and public transport as the primary mode of travel; and
- To deliver mode shift from single occupancy car journeys to alternative modes including multi-occupancy vehicle trips.

5.3 TARGETS

5.3.1 The Travel Plan will aim to promote travel choice for the occupiers and users of the development, and hence to increase the use of sustainable transport modes.

5.3.2 Mode split targets will be set that will seek to reflect or improve on the predicted traffic generation figures set out in Chapter 6 of this report.

5.4 ROLES AND RESPONSIBILITIES

5.4.1 An important aspect of a successful Travel Plan is the allocation of sufficient resources to enable it to happen. This can in part be achieved by the recognition from the outset of the roles and responsibilities of those who will be involved. This will ensure the appropriate allocation of time and resources to those charged with managing the process.

5.4.2 An appointed site management company will act as the Travel Plan Co-ordinator (TPC) for the development. The anticipated duties of the Travel Plan Co-ordinator will include:

- Acting as a single point of contact for all transport, access and travel related issues for the development;

- Obtaining and providing site occupants with up to date details of information relating to access to the site via sustainable modes;
- Liaison with BMBC and other key stakeholders; and
- Ensuring that a copy of the Travel Plan is provided within marketing information packs as well as providing details of the site's accessibility by sustainable modes on the developments website and within any newsletters.

5.5 TRAVEL PLAN MEASURES

5.5.1 In addition to the internal Site infrastructure proposed, the following measures will be included in the TP:

Walking and Cycling

- A plan showing the key pedestrian routes to the site including any crossing facilities;
- A plan showing the key cycling routes to the site including any crossing facilities and details/locations of cycle parking (this information may be combined with the pedestrian plan).
- Details of nearby cycle shops including location, contact information and those that may offer discounts on cycles and repairs/maintenance.
- Provide details of third party walking and cycling organisations such as 'bikebudi' (www.bikebudi.com), 'walkbudi' (www.walkbudi.com) and 'walkit' (www.walkit.com).
- Provide details of cycling events throughout the year.
- Promote and encourage walking and cycling to work, through events such as 'Bike to Work Day' and 'Bike Week' (www.bikeweek.org), to heighten awareness.
- Provide details of the DfT Cycle to Work scheme available at http://www.dft.gov.uk/pgr/sustainable/cycling/cycletoworkschemeimplementat5732 .

Public Transport

- Provision of up to date information relating to bus services, routes, destinations, times/frequencies.
- Details of bus stop locations close to the site;
- Details of all school bus services close to the site;
- Details of any AccessBus scheme for disabled users.
- Details of personalised public transport journey planner information.
- Any bus promotional offers including details of concessionary travel; and
- Contact details of taxi operators and locations of nearby taxi ranks.

School Travel

5.5.2 The responsibility for obtaining the most up to date information regarding local schools rests with the Travel Plan Co-ordinator. This package of information will include school location, distance from the Site, appropriate pedestrian/cycle routes to the school and details of public transport services. This information will be made available to residents in the welcome packs.

5.5.3 The Travel Plan Co-ordinator will also investigate (by talking to schools and/or parents) which local schools operate a School Travel Plan, what measures are already in place, and whether a Walk to School Campaign is promoted.

Home Delivery Services

5.5.4 The Travel Plan Co-ordinator will promote the use of home delivery services including providing details of local grocery stores and information on stores which provide home delivery services.

5.6 COMMUNICATION

5.6.1 The public transport authority should be contacted regarding the provision of leaflets, timetable and promotions/offers.

5.6.2 All prospective residents will be made aware of the implementation of the Travel Plan at the Site and the sustainable travel options available potentially via a marketing website.

5.6.3 The TPC should consider membership of any local authority Travel Plan Network which may be established during the lifetime of the Travel Plan.

6 Trip Generations and Distributions

6.1 INTRODUCTION

6.1.1 This chapter sets out the trip generations and distribution methodologies associated with the proposed development Site for 159 residential units.

6.2 VEHICULAR TRIP GENERATIONS

6.2.1 To determine appropriate residential trip rates reference has been made to the TRICS database to establish total vehicular trip rates. The time periods selected are the weekday morning (08:00-09:00) and evening (17:00-18:00) peak hour periods. Survey sites within the database have been chosen using the following parameters:

- Land use Residential/Houses Privately Owned selected;
- Multi modal vehicular trip rates selected;
- Surveys undertaken in the last seven years;
- Sites with comparable access to similar public transport facilities;
- London & Irish sites excluded;
- Town Centre, Neighbourhood Centre and Edge of Town Centre excluded; and
- Range of households between 75 and 300 selected

6.2.2 This selection process yields 8 surveys completed at representative sites and the TRICS outputs for these have been attached at Appendix G for information. The resulting weekday peak hour total vehicular trip rates are shown in Table 6.1.

6.2.3 Based on the characteristics of the sites that have been selected being representative of the development site it is appropriate to apply average trip rates. This methodology is in accordance with the Department for Transport (DfT) document Guidance on Transport Assessment (GTA) which states that 85th percentile trip rates should only be used when appropriate, comparable sites cannot be found. The selected sites are comparable.

Table 6.1 – Proposed Total Vehicular Average Weekday Trip Rates

	Total Vehicular Trip Rates (per unit)		
Time Period	Arrivals	Departures	Total
AM 08:00 - 09:00	0.136	0.454	0.590
PM 17:00 – 18:00	0.413	0.200	0.613

6.2.4 The total vehicular trip rates shown in Table 6.1 have been multiplied by 159 (the proposed number of dwellings) to give the total vehicular trip generations as shown in Tables 6.2 and 6.3 for the AM and PM peaks respectively.

Table 6.2 – Proposed AM Total Vehicular Weekday Trip Rates and Generations

	Arrivals	Departures	Total
Trip Rate	0.136	0.454	0.590
Trip Generation	22	72	94

Table 6.3 – Proposed PM Total Vehicular Weekday Trip Rates and Generations

	Arrivals	Departures	Total
Trip Rate	0.413	0.200	0.613
Trip Generation	66	32	98

6.3 TRIP DISTRIBUTION AND ASSIGNMENT

6.3.1 The traffic distribution of the proposed development has been assessed based on local travel patterns contained within the 2001 census data and this information has been obtained from www.nomisweb.co.uk. The raw data collected covers the whole of the United Kingdom and as such it has not been appended to this report.

6.3.2 Application of the journey to work data from the census is considered to be an appropriate base for determining the peak hour distribution, due to the fact that the majority of residential morning and evening peak hour trips will be journeys to and from work.

6.3.3 The proposed development is located within the Penistone West ward boundary. The travel to work data for all of the residents who travel to work by car has been summarised on Spreadsheet SD1 attached at Appendix H. The travel to work by car information (raw data) that was originally interrogated included destinations across the United Kingdom i.e. the raw data had multiple destinations that had no recording of trips between Penistone West and that particular destination. Therefore, Spreadsheet SD1 has been amended to only include wards in the UK that served as a journey to work destination for residents of Penistone West as recorded in the 2001 Census.

6.3.4 These area specific distributions have then been assigned to one of the six following routes to/from the Site:

- A628 (W);
- A628 (E);
- A629 (N)
- A629 (S) – via Green Lane;
- A616 – via Mortimer Road; and
- Penistone High Street.

6.3.5 The assignment process is detailed on the Spreadsheet SD1 contained in Appendix H and produces the proposed vehicular distributions summarised in Table 6.4. These distributions are to be applied to both the AM and PM peak hour development generated trips.

Table 6.4 – Proposed Residential Vehicular Distribution - Route Assignment Summary

A628 (W)	A628 (E)	A629 (N)	A629 (S)	A616	Penistone Centre	**Total**
8.20%	**34.88%**	**11.93%**	**20.70%**	**18.54%**	**5.74%**	**100%**

6.3.6 Having established the geographic distribution of all residential trips from the selected ward it is then necessary to assign the car driver distributions on to the highway network. This has been completed by first producing a visual distribution map of the car trips – as shown on Figure 105.

6.3.7 To illustrate the specific distribution and routing of traffic to and from the development site, the values shown in Table 6.4 have then been applied to the trip generations in Tables 6.2 and 6.3 to produce the following residential trip generation diagrams:

- Figure 106 - Proposed Weekday AM Peak Development Flows
- Figure 107 - Proposed Weekday PM Peak Development Flows

7 Identification of Impacts

7.1 INTRODUCTION

7.1.1 This chapter describes the impact of the development trips on the highway network and identifies any mitigation works required. During pre-application discussions with BC the scope/extent of the highway network to be tested was broadly agreed and the junctions to be assessed are as follows:

- Chapel Lane/High Street/The Green/Mortimer Road Crossroads; and
- Hartcliff Road/Site Access.

7.2 PEAK HOUR TRAFFIC FLOWS

7.2.1 As referred to in Chapter 2, the May 2013 traffic surveys identify the following existing weekday peak hour periods:

- Weekday AM Peak – 08:15 to 09:15; and
- Weekday PM Peak - 17:15 to 18:15.

7.2.2 The traffic count flows for these periods are shown on Figures 101 and 102 for the morning and evening peak hours respectively and will be used to provide an insight into the existing operation of the junctions.

Future Assessment Year and Traffic Growth

7.2.3 In accordance with the DfT guidelines on the preparation of Transport Assessments it is necessary to test the capacity of the highway network for 'a minimum of 5 years post registration of the application'. However, in consideration of a future year assessment it is also important to recognise the likely future build out of the scheme, therefore a design year of 2018 has been deemed a realistic date for completion of the development.

7.2.4 Background traffic growth rates, between 2013 and 2018, have been obtained from TEMPRO v6.2 and these values are as follows:

- AM peak hour growth rate of 6.4%; and
- PM peak hour growth rate of 6.7%;

7.2.5 Applying these growth rates to the 2013 traffic counts produces the base traffic flows shown on Figures 103 and 104 for the morning and evening peak hours respectively.

7.2.6 As discussed and agreed with BC at pre-application discussions there are no consented sites that require inclusion within the base year traffic flows. Notwithstanding this of course the background growth rate applied already includes for an element of traffic from other development sites.

Design Traffic Flows

7.2.7 Adding the proposed development trips described in Chapter 6 to the base traffic flows produces the design traffic flows and these are shown diagrammatically on Figures 108 and 109 for the morning and evening peak hours respectively.

7.2.8 It should be noted that these design traffic flows are considered to be robust for the following reasons as no discount has been applied to the development trip generations to allow for the effect of the proposed Travel Plan.

7.3 OPERATIONAL ASSESSMENT OF HIGHWAY NETWORK

7.3.1 This section describes the junction capacity assessments which have been undertaken. Full software output data can be found in Appendix I.

Existing Chapel Lane/High Street/The Green/Mortimer Road Priority Crossroads

7.3.2 The existing layout of the Chapel Lane/High Street/The Green/Mortimer Road junction is shown in Appendix F and has been modelled as a 4 arm priority crossroad junction using the PICADY software. The junction has initially been modelled for the AM and PM peak hours with surveyed traffic flows and the results are summarised in Table 7.1.

Table 7.1 Chapel Lane/Mortimer Road/The Green/High Street AM and PM 2013 Count (Existing Junction)

Movement	AM		PM	
	RFC	Mean Q	RFC	Mean Q
Chapel Lane	0.08	0	0.11	0
Mortimer Road	0.00	0	0.00	0
The Green	0.01	0	0.00	0
High Street	0.05	0	0.10	0

All Queue values are in PCUs

7.3.3 The results in Table 7.1 show that the existing junction with the count flows is predicted to operate significantly below capacity in both the AM and PM peak periods. These results reflect the low flows at the junction, the surveyed queue lengths as well as on-site observations. It is therefore considered that the model is representative.

7.3.4 The junction has then been modelled for the 2018 Base situation i.e. the count information has been growthed to represent the levels of traffic that is predicted would be on the network without the proposed development being constructed. The results of the assessment for the AM and PM base peak periods are summarised in Table 7.2.

Table 7.2 Chapel Lane/Mortimer Road/The Green/High Street AM and PM 2018 Base (Existing Junction)

Movement	AM		PM	
	RFC	Mean Q	RFC	Mean Q
Chapel Lane	0.08	0	0.12	0
Mortimer Road	0.00	0	0.00	0
The Green	0.01	0	0.00	0
High Street	0.06	0	0.11	0

7.3.5 The results in Table 7.2 demonstrate that the junction when modelled in the 2018 base situation will continue to operate comfortably within capacity. All of the predicted RFC values at the junction are significantly below the desired threshold of 0.85, above which it is considered that any capacity problems are exacerbated.

7.3.6 The final assessment of the junction is completed for the design scenario i.e. the 2018 base traffic added to the predicted development traffic. The results are given in Table 7.3.

Table 7.3 Chapel Lane/Mortimer Road/The Green/High Street AM and PM 2018 Design (Existing Junction)

Movement	AM		PM	
	RFC	Mean Q	RFC	Mean Q
Chapel Lane	0.20	0	0.17	0
Mortimer Road	0.00	0	0.00	0
The Green	0.01	0	0.00	0
High Street	0.09	0	0.20	0

All Queue values are in PCUs

7.3.7 The results in Table 7.3 show that the proposed development traffic can be comfortably accommodated by the existing priority crossroads.

Proposed Site Access Priority Junction

7.3.8 The proposed Site Access junction is shown on the drawing contained in Appendix D and has been modelled as a simple 3 arm priority junction using the PICADY software. The junction has been modelled for the AM and PM design peak hours and the results are summarised in Table 7.4.

Table 7.4 Site Access/Hartcliff Road AM and PM 2018 Design (Proposed Junction)

Movement	AM		PM	
	RFC	Mean Q	RFC	Mean Q
Site Access	0.13	0	0.06	0
Hartcliff Road	0.04	0	0.11	0

All Queue values are in PCUs

7.3.9 The results in Table 7.4 show that the proposed site access junction is predicted to operate comfortably within capacity in both the AM and PM peak periods with no queuing predicted.

8 Summary and Conclusions

8.1.1 This report has addressed the highways and transport issues raised by the proposed development of 159 dwellings on land to the south of Hartcliff Road, Penistone.

8.1.2 The scope and content of the TA has been discussed with the highways officer at Barnsley Metropolitan Borough Council (BMBC) and a public consultation exercise was held on the 13th June 2013.

8.1.3 Vehicular access to the Site is proposed from a simple priority T junction on Hartcliff Road. The junction layout complies with the required geometric standards including 2.4x40.0m visibility splays which actually slightly exceed Manual for Streets (MfS) requirements in accordance with the surveyed traffic speeds. Some of the Site frontage falls within the existing 60mph speed limit. It has been demonstrated that drivers are generally travelling at less than half this speed and therefore, whilst not considered strictly necessary based on the surveys, it is suggested that the existing 30mph limit on Hartcliff Road is extended westwards beyond the proposed Site Access in order to formalise the situation.

8.1.4 Hartcliff Road narrows to the east of the Site at a fairly sharp bend in the road, necessitating single vehicle operation. As a result of the bend the Stopping Sight Distance (SSD) is also reduced. This lower SSD provides a natural traffic calming feature by reducing visibility and consequently also reducing vehicle speeds. Both the national and regional policy view is therefore that limiting SSD causes a reduction in vehicle speeds and occurrence of accidents. And this is evidenced in this location by the fact that no personal injury accidents have been recorded in the 64 month period between January 2008 and March 2013.

8.1.5 Additionally, even allowing for an increase in traffic associated with the development, the traffic flows on the Hartcliff Road/Chapel Lane corridor are very low. As such the frequency of opposing vehicles meeting each other at this specific location is low. Furthermore the residual cumulative impact of the development is certainly not considered to be 'severe' (as referenced in paragraph 32 of the NPPF). It is therefore concluded that this corridor would continue to operate safely and satisfactorily in the post-development scenario. Notwithstanding this, pre-application discussions have been held with Highways Officers at BMBC on this specific issue where the Council indicated that some localised improvements may be sought which will benefit both new and existing residents.

8.1.6 Pedestrian/cycle access points are proposed to the eastern and northern boundaries of the Site connecting to Chapel Field Lane/Clarel Street and Schole Hill Lane respectively. Pedestrians/cyclists can also access the Site from the proposed vehicular access junction on Hartcliff Road to the south. Based on the fact that the vast majority of local facilities are situated to the north-east of the Site it is envisaged very few pedestrians, if any, would utilise the southern access.

8.1.7 Numerous internal pedestrian/cycle links will be provided within the Site to facilitate and encourage walking and cycling. The location of the Site along with the implementation of these links results in the achievement of the following accessibility criteria:

- The centre of Penistone can be reached within a 10-15 minute walk and 5 minute cycle where numerous shops/facilities can be found including food retail, health care, post office, cash points and leisure establishments.

- The nearest School (St John the Baptists CoE infant and junior) is within a very short cycle ride or 5 to 10 minute walk distance of the Site with the nearest day nursery located just west of the development Site; and
- Penistone Grammar School is the nearest secondary school and sixth form and it can be reached within a 20-25 minute walk or 10 minute cycle ride;

8.1.8 It is therefore concluded that the proposed Site will provide excellent accessibility by foot and cycle to a vast range of services and facilities – the majority of which are within a 15 minute walk or 5 minute bike ride.

8.1.9 The nearest bus stops are located on Chapel Field Lane ensuring that the entire Site lies within a short 5 minute walk (some 400m) of these stops. The bus service routes to Penistone (typical 5 minute journey time), Barnsley (typical 50 minute journey time) as well as connecting to Penistone Grammar School during term time.

8.1.10 Penistone Train Station is located approximately 1.5km to the north east of the development Site, which is less than a 20 minute walk time and just over a 5 minute cycle. Penistone Train Station provides regular connections to Huddersfield (1 per hour) in an approximate 30 minute journey time and Sheffield (1 per hour) in a 45 minutes journey time.

8.1.11 It is therefore concluded that the proposed Site will provide a good level of public transport accessibility.

8.1.12 A review of the personal injury accident data has been undertaken for the study area, which has shown that there are no specific accident concerns. This conclusion is based on the infrequency and random nature/location of accidents over the most recently available 64 month period.

8.1.13 The development trip generations have been predicted using the TRICS database information and junction assessments have been undertaken across the local highway network using industry standard software. This analysis has demonstrated that the junctions assessed have sufficient capacity in both the base and design scenarios to accommodate development traffic.

8.1.14 These junctions have also been assessed against design standards in order to ensure they comply with geometric requirements and it is concluded that the junctions will operate safely and satisfactorily.

8.1.15 From all of the work undertaken it is concluded that there are no reasons on highways or transport grounds why the development Site should not be granted planning permission for residential purposes.