



PENISTONE PARK AND RIDE

Transport Assessment



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1. Introduction

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1.1: Introduction

This Transport Assessment (TA) has been prepared by Barnsley Metropolitan Borough Council (BMBC) to support a planning application for a new Park & Ride (P&R) facility on land adjacent to Penistone Rail Station in Barnsley. The proposed P&R will be accessed from a newly constructed link from an existing access spur off Lairds Way, 67m south of its current junction with the B6462 (Sheffield Road). The site will accommodate approximately 100 parking spaces with a final number subject to Network Rail approval processes. For the purposes of this assessment, this TA assesses the maximum feasible number of spaces within the current boundary of the site.

The project is being promoted to accommodate existing and forecast demand for rail travel in Barnsley and builds on wider funding commitments to improve the Sheffield to Huddersfield line.

This Transport Assessment will set out the policy context, describe the proposals in detail, and assess the impact of the proposals on the public highway network.

This project is funded through the City Region Sustainable Transport Settlement (CRSTS).

1.2: Project Background

The site is located directly to the east of Penistone Rail Station, approximately 500m east of Penistone Town Centre, and approximately 8km west of Barnsley Town Centre. The site is bounded to the west by the Huddersfield-Sheffield train line, Sheffield Road to the north, Lairds Way to the east and a derelict parcel of brownfield land to the south.

The existing parking facilities available for rail users at Penistone Rail Station are limited to approximately 15 spaces, alongside covered cycle storage facilities.

The proposals will result in a net increase of 85 parking spaces over the current provision.

Barnsley Metropolitan Borough Council's 2016 Infrastructure Delivery Plan proposes a P&R facility at the station to support growth in Barnsley up to 2033.

The car park will provide additional P&R facilities for users of the rail station, and is intended to provide for greater use of the station linked to the wider strategic bid to improve the Penistone Line which seeks to upgrade the route to provide two trains per hour and is being led by Kirklees Council, and the wider TransPennine Route Upgrade by Network Rail, particularly for journeys to Barnsley, Sheffield and Huddersfield, and destinations beyond.

The proposals complement wider LUF funding being provided to Kirklees Council to upgrade the Penistone Line and to create Mobility Hubs along the line.

The wider investment project under which the P&R proposals are to be delivered will also provide a pedestrian bridge over the existing railway. This will replace the existing barrow crossing, improving both pedestrian safety and accessibility. This improvement is proposed under permitted development and is not included within this planning application.

1.3: Scope of Report

The structure of the TA is set out as below:

- Chapter 2 describes the relevant planning context;
- Chapter 3 describes the site location and proposed project context;
- Chapter 4 outlines the existing traffic conditions;
- Chapter 5 sets out the development proposals;
- Chapter 6 identifies the personal injury collisions in the relevant area;
- Chapter 7 details the assessment methodology;
- Chapter 8 shows the results of the modelling; and
- Chapter 9 provides the conclusion of the assessment.

2.1: National Planning Policy Framework (NPPF) 2023

The National Planning Policy Framework sets out the government planning policies for England. Its aim is to allow local authorities to produce their own distinctive local and neighbourhood plans which reflect the need of their community.

The framework states that the planning system should manage patterns of growth to address potential impacts of development on transport networks; and promote walking, cycling, and public transport.

This improvement aligns with the intention and approach of the NPPF by delivering improvements to accessibility of the rail station, increasing public transport mode share.

Improving local transport connections is necessary in order to bring forward the additional housebuilding which has been identified in the area. This demonstrates BMBC's commitment to delivering the requirements for new developments under the NPPF. Delivering this project will enable more non-car journeys to be made, facilitating greater development without adversely impacting the road network in future.

The proposed P&R development is consistent with the NPPF since it is readily accessible by public transport, in addition to having good walking and cycling links within the proximity of the site. This proposal will provide additional parking capacity at the station, thereby encouraging and enabling more people to park then ride and incorporate rail travel into their journeys, rather than relying on the private car for the entirety of the journey. Given the proposed site is vacant and well-served by local road networks, it is not expected that the development will have a significant negative transport effect.

2.2: South Yorkshire Mayoral Combined Authority (SYMCA) Transport Strategy 2019

The SYMCA Transport Strategy outlines several policies aiming to improve the transport network across the region.

The Transport Strategy sets out on a strategic level how the region intends to better connect the major urban and economic growth centres to enable the better flow of people, goods, businesses, and ideas across the City Region, as well as promoting the rural and visitor economies. By doing so it will help create jobs, secure new investment, and grow our economy.

The strategy sets out the following vision. *“We will build a transport system that works for everyone, connecting people to the places they want to go within the Sheffield City Region as*

well as nationally and internationally. Our transport system will be safe, reliable, clean, green and affordable. It will be one of the best in the United Kingdom and Europe”.

It also sets out the ambition for achieving overall method of travel mode share increases of bus trips by 18%, rail trips by 100% by 2040 in order to achieve the mode share necessary to achieve its objectives.

The development of a new P&R facility at Penistone Rail Station will help facilitate these goals by enabling more people to access the railway, thereby better connecting residents and businesses with opportunity across the region. The P&R also meets the goal set by SYMCA of being ‘cleaner and greener’, through encouraging more people to travel via sustainable modes.

2.3: Barnsley Rail Strategy 2025

Barnsley’s Rail Strategy published in 2025 delivers a clear strategic vision and rationale for investment in Barnsley’s rail network. It recognises the local and national aspirations and seeks to create a framework in which further investment is made.

The Rail Strategy identifies that improvements and investment in the rail network in Barnsley is crucial to delivering improvements to Barnsley’s economy, health outcomes, access to education, and reductions in deprivation.

The strategy outlines a number of options and priorities for investment which target improvements in the rail network in Barnsley and development of a new park and ride facility at Penistone was identified as a key improvement priority within this strategy, stating that inadequate car parking space is an issue constraining the service in Penistone.

This project aligns to the strategy by directly seeking to deliver the additional car parking spaces. This demonstrates that the Penistone Station Footbridge and P&R Scheme adheres to local strategies giving broader strategic vision and integration with the intentions and priorities of the local authority.

2.4: Barnsley Council Local Plan 2019

The Local Plan identifies a number of housing sites to be brought forward to facilitate housing supply in the local area. However, the mitigation cost for rail enhancement falls above the expected financial contributions from new housing alone. The Infrastructure Delivery Plan also identified the need for significant transport infrastructure interventions in Penistone to address existing congestion and traffic issues.

Investing in Penistone Rail Station to improve the attractiveness of rail journeys will support local housing growth by reducing the overall impact on the road network of new housing sites and increase rail mode share. BMBC’s Local Plan sets out several policies relevant to transportation and this proposal.

Policy T1 states the priority of implementing transport network improvements as supported by evidence from modelling and feasibility studies etc. This proposal will align to this policy by having undertaken Junctions 11 modelling of the new access at Lairds Way and feasibility studies alongside public consultations and stakeholder engagement with the local community.

Policy T5 Reducing the Impact of Road Travel: This policy states that BMBC aims to implement measures to ensure the current road system is used efficiently. Penistone is one of Barnsley's Principal Towns and sees high volumes of traffic; sustained growth in car trips caused by new housing developments will generate significant road vehicle derived pollutants, and so this improvement will align to this policy by reducing the mode share of road vehicles by providing more attractive transport alternatives.

This proposal also meets the requirements of BMBC's 2022 Sustainable Travel Supplementary Planning Document (SPD) and 2019 Parking SPD.

2.5: Barnsley Transport Strategy 2022

BMBC's Transport Strategy sets out several objectives regarding transportation, of which Objective 2: Support Economic Growth and Regeneration states that BMBC aims to deliver the sustainable transport investment which is required to support the growth that Barnsley expects to see in order to facilitate increased transport demand in the future.

The strategy outlines that the borough needs investment and development in the transport network in order to help people move around and access health, education, employment, and commercial opportunities to thrive.

The strategy sets out targets for increasing the public transport mode share to 33% by 2030, this is in order to achieve the goals set out in the Transport Strategy, the wider Barnsley 2030 objectives, and aligning to the SYMCA Transport Strategy. This application aligns by delivering improvements to Penistone Rail Station, enabling the projected growth to take place and limiting the impact to the local transport network.

The expected growth across the borough will create additional pressure on the transport network which already sees high volumes of traffic and levels of congestion in key locations in the network. Developing this improvement scheme to address these issues will enable the network to continue functioning while accounting for the additional growth.

3. Scheme Context

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Penistone Rail Station provides access to a combination of a mixed residential and commercial sites in the local area, approximately 500m east of Penistone Town Centre, and approximately 8km west of Barnsley Town Centre. The rail station provides access by rail from Penistone to key trip attractors such as Barnsley, Sheffield, and Huddersfield. This section will cover the local transport network at and around the application site.

3.1: Site Location

Penistone Rail Station is situated within an urban environment within the settlement of Penistone. It is well situated for providing local access to major destinations by rail.

Penistone Rail Station is accessed by road from the B6462 Sheffield Road which connects Penistone Town Centre to the A628 Barnsley Road.

The site is located on land adjacent to Penistone Rail Station, on the eastern side of the Huddersfield - Sheffield railway line and is bound by Sheffield Road to the north, Lairds Way to the east and a derelict parcel of brownfield land to the south.

The site location is shown in Figure 1.

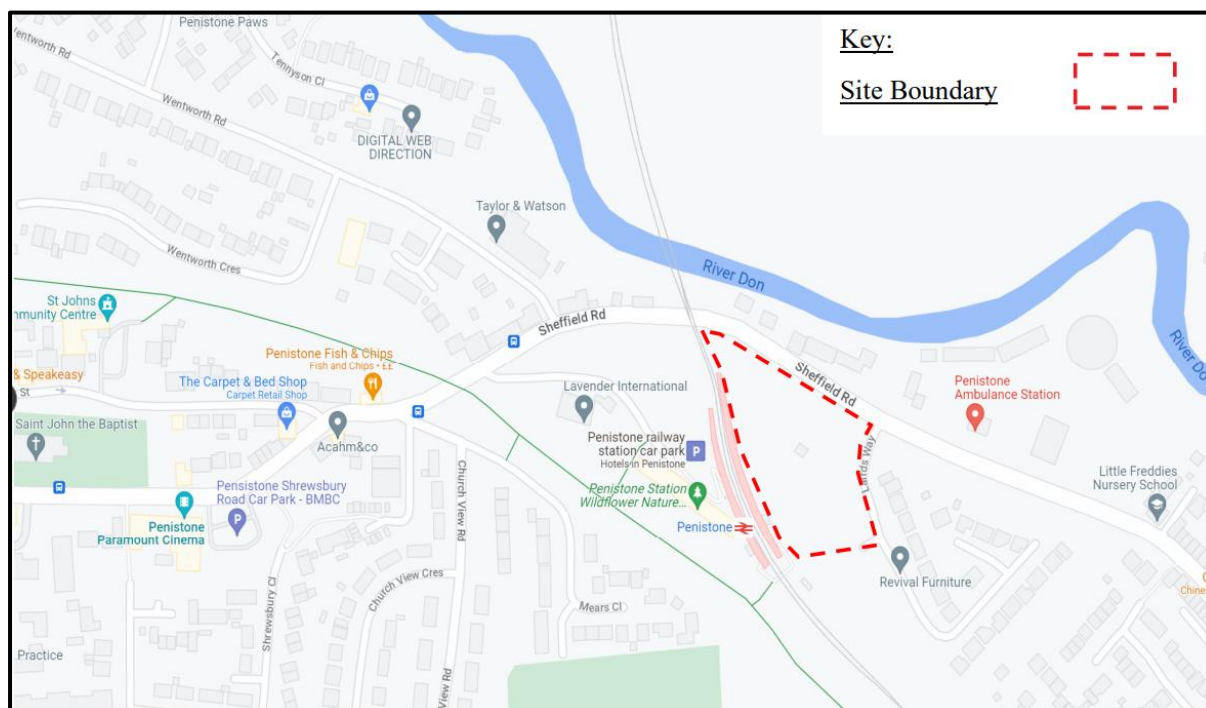


Figure 1: Site location

4. Existing Provisions

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4.1: Local Transport Network

Penistone Rail Station is currently accessed from the B6462 Sheffield Road from the junction with its current unadopted access road. The existing junction is an uncontrolled T Junction. This access road currently provides access to both Penistone Rail Station and some small commercial units which are situated adjacent to the rail station.

Sheffield Road is a two-lane standard highway that forms part of the classified road network. It is subject to a 30mph posted speed limit and has two height restricted arched bridges in the vicinity of the site, one for rail and one now carrying the Trans Pennine Trail. A continuous pedestrian footway is provided along the north side of Sheffield Road.

Lairds' way is an existing priority-controlled junction with the B6462 Sheffield Road that serves as access to 32 residential dwellings. Lairds Way has footway links onto Sheffield Road with an existing pedestrian refuge islands to the east of the junction. Sheffield Road at this point remains a standard two-lane highway with localised central widening to accommodate the refuge island and a downstream (east) right turn ghost island into Penistone Ambulance Station located on the north side of Sheffield Road. Lairds Way has sufficient visibility onto Sheffield Road.

4.2: Existing Parking Provision

Details of nearby car parks and their capacities are provided below.

Off-Street Parking

Locations of existing off-street parking, including total number of spaces and parking charges are provided in Table 1.

Table 1: Parking Provision in the vicinity of the site.

Car Park	Spaces	Charges
Penistone Rail Station Car Park	Approximately 15 spaces including two accessible parking bays.	Parking is free
Penistone Shrewsbury Road Car Park – Barnsley Metropolitan Borough Council (approx. 400m walking distance west of the site)	Approximately 50 spaces including 3 accessible parking bays and some include charging for EV's.	Parking is free
Penistone Park Lane Car Park Barnsley Metropolitan Borough Council (approximately 600m walking distance miles west of the site)	Approximately 14 spaces.	Parking is free

On-Street Parking

There is no formal on-street parking provided in the site's vicinity. However, unrestricted on-street parking is possible on nearby streets.

4.3: Active Travel Provision

The TransPennine Trail (TPT) Route 62 runs along the former railway line which enters Penistone from the south shadowing the current railway line, passes adjacent to and connecting to Penistone Rail Station then continues north-west along the former railway line. This provides a direct access to the rail station by means of non-car modes.

The TPT route at this location has a sealed surface of approximately 2.5m width shared surface.

The TPT provides access by walking, wheeling, and cycling to various locations along the strategic active travel network:

- West: Dunford Bridge;
- East: Barnsley, Wombwell; and
- South: Wortley, Stocksbridge, Sheffield.

4.4: Public Transport

The area in the vicinity of the proposal is served by both bus and rail forms of public transport, providing the opportunity to encourage alternative modes of travel.

4.4.1: Bus

There are existing bus routes which pass along the B6462 Sheffield Road. As well as providing public transport links to the Barnsley Town Centre, Rotherham, and Doncaster, they also provide connections to other nearby local villages.

There are two bus stops situated approximately 35m from the junction of B6462 Sheffield Road and the Access Road, both with simple flag-post stops. Pedestrian footways are provided along Sheffield Road north kerbline and along its south kerbline up to entering the Access Road.

These services also enable interchange to regional transport services across the combined authority and beyond.

- The 23 bus service uses the B6462 Sheffield Road and travels between Millhouse Green and Stocksbridge;
- The 24 bus service uses the B6462 Sheffield Road and travels between Ingbirchworth and Barnsley;
- The 24a bus service uses the B6462 Sheffield Road and travels between Penistone and Barnsley; and
- The 29 bus service uses the B6462 Sheffield Road and travels between Holmfirth and Sheffield.

A summary of the bus services at the nearby bus stops passing the application site is shown in Table 2.

Table 2: Local Bus Services

Stop	Service	Route	Frequency	
			Mon-Sat	Sun
Sheffield Road/Station Approach	23	Millhouse Green - Stocksbridge	120 minutes	-
Sheffield Road/Station Approach	24	Ingbirchworth - Barnsley	120 minutes	-
Sheffield Road/Station Approach	24a	Penistone - Barnsley	2 per day	120 minutes
Sheffield Road/Station Approach	29	Holmfirth – Sheffield	180 minutes	120 minutes
Sheffield Road/Church View Road	23	Stocksbridge – Millhouse Green	120 minutes	-
Sheffield Road/Church View Road	24	Barnsley - Ingbirchworth	120 minutes	-
Sheffield Road/Church View Road	24a	Barnsley - Penistone	2 per day	120 minutes
Sheffield Road/Church View Road	29	Sheffield - Holmfirth	180 minutes	120 minutes

4.4.2: Rail

There are existing rail services which serve Penistone Rail Station. As well as providing links to the Barnsley Town Centre, Sheffield, and Huddersfield, they also provide connections to other nearby local centres.

There is a local stopping service which stops at Penistone Rail Station once per hour in each direction. A summary of the rail services at Penistone Rail Station is shown in Table 3.

Table 3: Local Rail Services

Rail Service	Type	Route	Frequency	
			Mon-Sat	Sun
Northern Railway	Local Stopping Service	Huddersfield – Sheffield via Barnsley	60 minutes	60 minutes

5. Scheme Details

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5.1: Proposed Layout

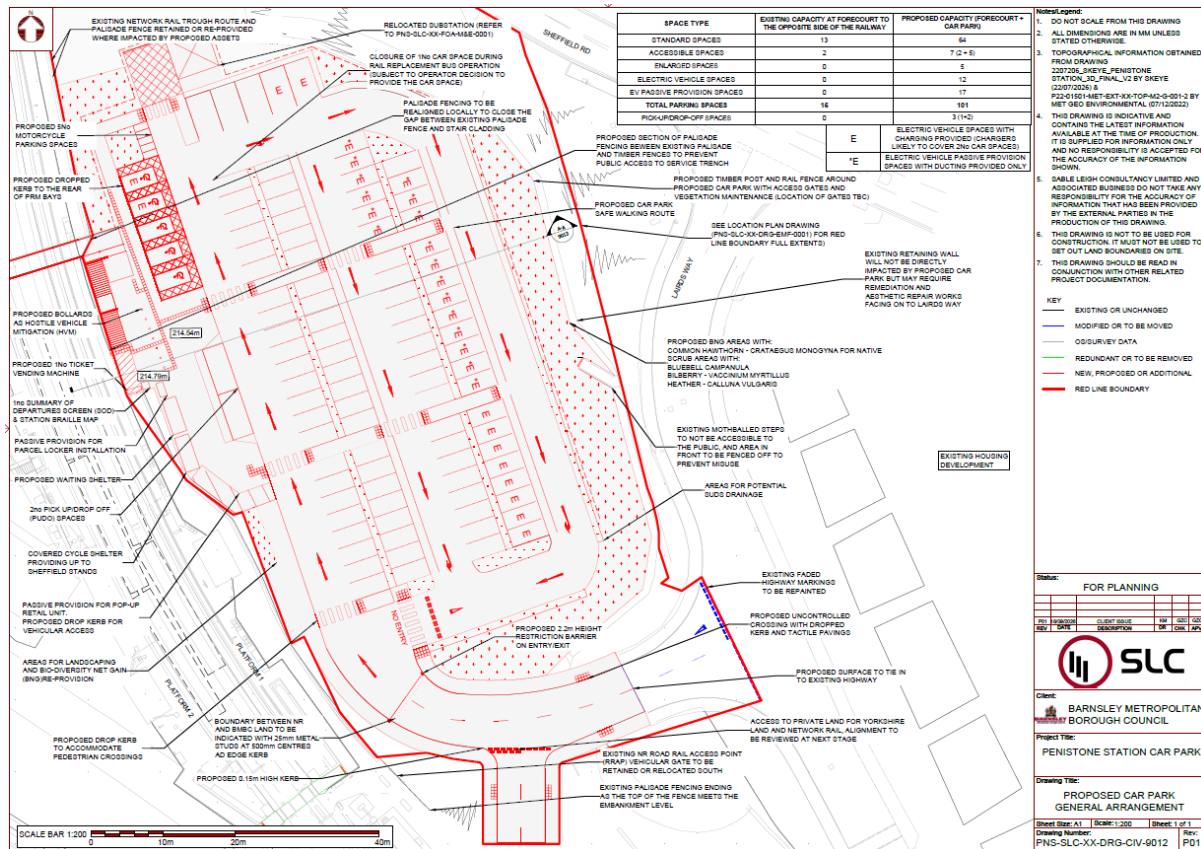


Figure 2: Proposed Scheme Layout

The proposals will deliver a new surface-level car park to provide 'Park and Ride' facilities for commuters at Penistone Rail Station, which will complement the replacement of the existing barrow crossing with a new pedestrian footbridge. The facility will utilise an existing access spur from Lairds Way, as shown on the General Arrangement Plan (ref: PEN-ARUP-ZZ-XX-DR-C-0001), also attached as Appendix A.

The access junction and associated link are fixed but the exact details of the internal layout remain subject to ongoing Network Rail approvals. The layout of the P&R and the wider facility largely reflect the topography of the site. The bank and tree buffer fronting Sheffield Road and the junction of Lairds Way will be maintained, and the Park and Ride area is located within the existing levelled area, where the two derelict structures are located. For the purposes of assessment, a maximum number of spaces will be assessed.

The existing car park at the west of the rail line is proposed to be reconfigured to a short stay drop off, reducing the current 15 spaces to 3, of which two are to be marked as accessible parking bays.

There are no highway alterations proposed to the Lairds way junction or Sheffield Road to which it joins.

In summary, the proposals include the following:

- A total of 100 parking spaces, including five accessible parking bays and five enlarged spaces in accordance with the standards of the Parking SPD1 and 12 EV charging spaces (of which one will be laid to accessible standards). In addition to this EV parking provision, a further 18 spaces will be EV charging capable, with the ability to provide EV charging facilities in future when the demand arises for them;
- In line with the requirement in the Parking SPD, 5% of total provision will be made for motorcycles;
- Reconfiguration of the existing station car park situated to the west of the rail station;
- Provision of a cycle shelter;
- A total of 2no. drop-off/taxi bays will be provided, alongside a waiting shelter; and,
- The proposals have been designed to enable a rail replacement bus to drop-off/collect passengers, when required.

5.2: Access Proposals

Pedestrian Access

Existing footways around the rail station will be retained; the present pedestrian access from the current station access road to the west, and from the TPT to the south will remain unchanged.

A primary movement route which connects the proposed P&R site to Lairds Way will be via a footway on either side of the new access road into the site from Lairds Way. Though it is predicted that most movement into the site from this direction is likely to be made by car, it will enable residents living in the southeast of Penistone to access the station on foot via this new entrance, rather than taking a much longer route into the station via the existing station entrance.

The new footway will run around the southern and western perimeter of the site and will generally be 3m in width. It will provide at grade access to Platform 1 of the station.

A further length of new footway (2m in width) will also be provided at the site entrance, linking into the western footway on Lairds Way and forming part of a wider network of pedestrian routes through the car park.

It is also proposed that the new P&R will be connected to Platform 2 of the station via an accessible footbridge. This is to be provided under permitted development rights.

Cycle Access

Cycling access to the new station facilities will be provided along the existing adopted highway access spur off Lairds Way.

A dedicated 4m x 6m cycle shelter will be provided, which will encourage and enable more people to travel to the station by bicycle.

Vehicle Access

The park and ride layout is being designed to facilitate access by rail replacement buses including provision of a bus layby for a single rail replacement bus. A junction spur is also proposed, as a means of safeguarding the potential future development of the parcel of land to the immediate south of the site.

Vehicular access to/from the new proposed parking area will be from the site access road via Lairds Way. From the proposed new junction with Lairds Way, vehicles will turn left out of the site onto Lairds Way, before turning either left or right onto Sheffield Road.

The current vehicle access to/from the existing parking area west of the rail station will be retained.

Emergency Vehicles

Emergency vehicles will access the proposed site via the surrounding local highway network comprising of Lairds Way and the proposed site access road. Access to the site and Penistone Rail Station can also be made via the existing station access road.

5.3: Swept Path Information

The proposal's access link and internal circulatory movements have been tracked using AutoCAD vehicle tracking software for the below vehicles:

- Two way movements for large 4x4 vehicle.
- A bus rail replacement service; and
- A fire tender vehicle.

Swept path details are shown in Appendix B

5.4: Public Transport

The proposals are built around improving accessibility to public transport services, and the increase in the number of park and ride parking spaces is an important benefit which the proposed improvements will deliver.

The bus service provision is proposed to be retained, with services accessed from bus stops along Sheffield Road. These bus services support the rail station services by providing a nearby public transport service. This supports multimodal public transport journeys.

The new park and ride provision will be designed to accommodate rail replacement buses. This will secure the future resilience of rail related travel during periods of unforeseen travel disruption.

The improvements to the station will enhance the accessibility of the station platforms and the safety of crossing from one platform to the other. This will provide additional utility to the rail service and encourage greater rail journeys in Penistone and support wider regional investment in rail.

Park and Ride sites have been demonstrated to be a desirable utility provided at rail stations. The significant expansion of park and ride spaces in the proposal will provide a significant enhancement to the attractiveness of the station, its services, and the rail journeys it facilitates.

These proposed works will also coincide with broader improvement schemes to improve the rail services at Penistone Rail Station, seeking to increase the frequency of the rail services. Future improvements to the rail network is expected to further increase the benefit that the additional park and ride capacity will deliver.

5.5: Active Travel

The proposed intervention is well located to take advantage of enhanced active travel connections to the wider walking, wheeling and cycling network in Barnsley. Penistone Rail Station is situated adjacent to the Trans Pennine Trail which follows past the station along the former railway line. The existing pedestrian access from the rail station to the Trans Pennine Trail will remain and provide a continued access to the network. This will facilitate existing and future pedestrian journeys for multimodal journeys.

The proposed alterations to the station are designed to enhance the accessibility of the station and improve the user experience. The replacement of the level crossing with a pedestrian footbridge will provide a safer method of crossing between platforms, in line with Network Rail standards and objectives. The provision of lifts at the footbridge will provide access between the station platforms for wheeled and less mobile users.

5.6: Design Standards

The BMBC Parking SPD has been used to inform the standards to which the vehicle parking element of the Park and Ride facility has been designed. These standards identify that the “parking bays should be 5m long and 2.5m wide” and “clearly marked and defined”. The proposed facility included within the application aligns to these requirements.

Likewise, the proposed inclusion of cycle stands within the facility will also be covered in line with Section 8 of the Parking SPD to provide for “long stay” trips. The South Yorkshire residential Design Guide (SYDRG) has been used to inform the access road design. The proposed intervention includes a new pedestrian footbridge spanning the railway, to provide access between platforms replacing the existing level crossing.

This project proposes to use the “LM-Type” standard footbridge design option set out by Network Rail to provide a tested and proven design standard which has been implemented at other stations in the country. An Approval In Principle (AIP) has been secured in 2024 for the design and construction of the bridge. The bridge design adheres to the Network Rail design standards for footway width, elevations, track gauge, staircase accessibility, and lift access.

The station has been designed to adhere to the accessibility standards facilitated by the Equality Act 2010, providing step-free access and tactile paving across the station.

5.7: Public Engagement

This project has undergone extensive public and stakeholder consultation through its development including drop in events, consultations, and surveys to obtain feedback from the general public and stakeholders on the proposals.

Feedback gathered throughout the engagement process is intended to directly inform the design evolution of the project and the subsequent planning submission (including the preparation of a Statement of Community Engagement). A 'You Said We Did' document has also been produced to summarise the project response to the feedback received, which is intended to be publicly available on the local authority website.

Members of the public were invited to comment on the proposals during a three-week consultation window from the 15th of June to the 6th of July 2026. An online feedback form was produced in order to collate thoughts on key themes.

In addition, drop-in engagement events took place as follows:

- 18th June 2026 at St John Community Centre, Penistone;
- 23rd June 2026 at Wortley Wagyu Café, Wortley; and
- 25th June 2026 at St Aidan's Church and Community Hall, Oxspring.

In total, 162 responses were received within the 3-week engagement period of which:

- 33 responses received by e-mail
- 120 responses were received via online feedback form; and
- 9 responses were received by paper forms available at the drop in events.

In addition, Barnsley Metropolitan Borough Council published a Facebook post addressing the schemes proposals. The post's statistics are as follows:

- 9,737 views (64% follows vs 36% non-followers);
- 34 interactions (11 reactions, 10 comments, 13 shares); and
- 92 clicks.

The engagement found that a majority of respondents were supportive of the project, and this has been demonstrated in the Statement of Community Engagement.

As such, local residents and key stakeholders have been involved from an early stage in the design process and the planning of the project. This has been reflected in the broad community support for the proposal. The comments received were then used to feed back into the development of the design option from an early stage in coordination with other surveys and feasibility studies. This project can therefore demonstrate a clear commitment to engaging with the public and understanding the needs and desires of stakeholders in relation to the project.

6. Personal Injury Collisions

6

6.1: Personal Injury Collisions

An assessment of Personal Injury Collisions at and around the site of the Lairds Way/Sheffield Road junction was undertaken as this would be the key access junction relating to a key road on the public highway.

The Study area is shown below in figure 3.

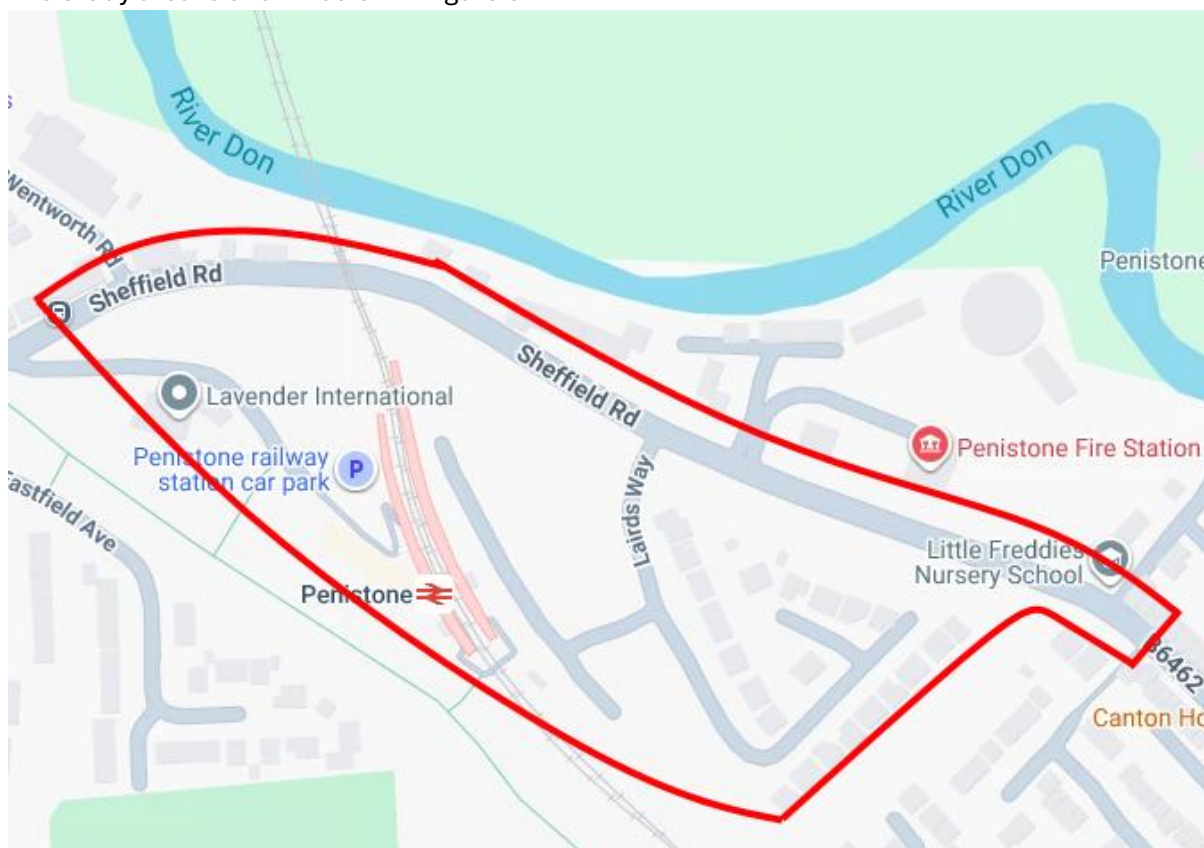


Figure 3: Assessment area for Personal Injury Collisions.

There were found to be no record any incidents within 100m of the junction in either direction during the latest five year time period of 2020-2024.

It is therefore deemed that there are no established road safety issues or concerns associated with the current access to the station.

As no changes are proposed to be made to the public highway at this location, it is therefore deemed that there will not be any mitigations or concerns that need to be incorporated into the proposed intervention.

7. Assessment Parameters

7

An assessment has been undertaken to understand the impact of the proposed P&R on the immediate highway network at the B6462 Lairds Way Junction.

It is considered that the key impacts of the proposed new park and ride facility will be during peak hours as drivers arrive at, and depart from, the new park and ride in the typical commuter peaks.

As such it is expected that these flows would arrive in time to align with the expected rail service timings, however in order to produce a robust “worst case” scenario, these have been aligned to the surveyed peak hours.

A traffic flow diagram is shown in Figure 5 below highlighting the different movements within the junction.

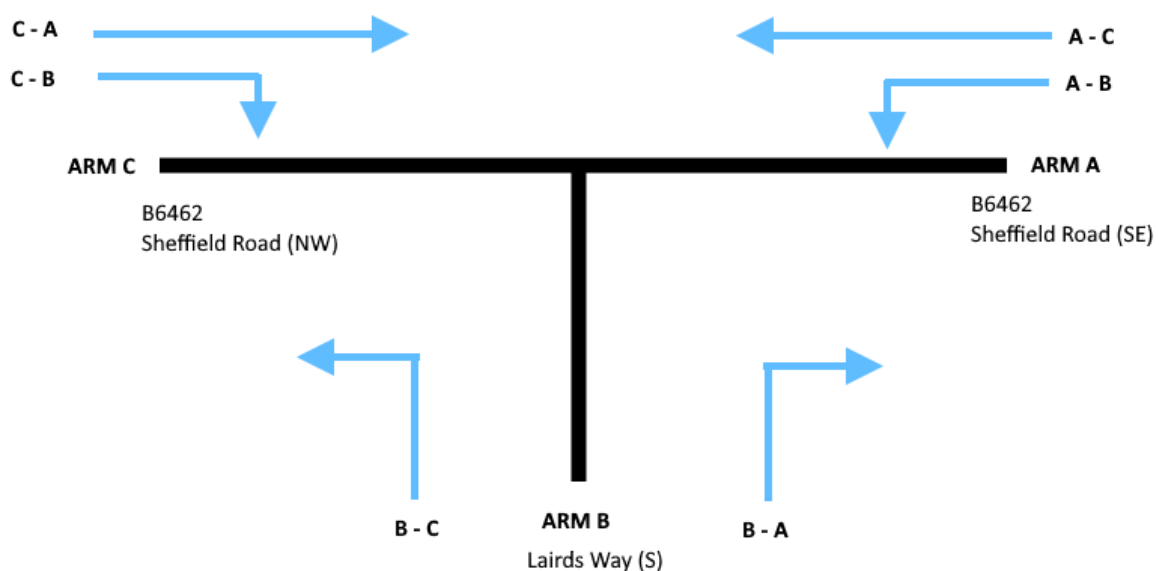


Figure 5: Lairds Way Junction Turning Diagram

7.1: Development Trip Generation

For the purpose of assessment, the total number of trips per day will represent the total number of spaces provided at the proposed P&R. This equates to 100 entry and 100 exit movements across the day.

The removal of rail user parking provision at the existing station car park will be captured within the total trips to the new P&R site.

Drop off / collection trips will be dependent on the current direction of travel for rail passengers and are not specifically generated as new trips for the purpose of assessment. Any increase in drop off/collection movements is challenging to identify with any real degree of accuracy.

It is therefore proposed that additional drop/collection trips linked to the proposed P&R have not been separated out. For planning application purposes, this approach is further supported as being robust by both the assessment approach and forecast scenarios below.

7.2: Development Trip Assignment

The proposed vehicle trips have been assigned to the highway network through the development of a gravity model using census information for LSOA/MSOA's data within 5km of the site.

The approach taken identifies existing station based trips and serves to discount these pass-by movements as they are already travelling on the network and are therefore not new vehicle movements.

Assigning all movements on the public highway network both east and west of the proposed P&R demonstrates that beyond the junction of B6462 / Lairds Way, no junctions are predicted to experience more than 30 two way trips in the peak hour.

The methodology taken to allocate new vehicle trips on the network is summarised below.

- 2021 LSOA population data is used to assess an initial journey split at the Lairds Way/Sheffield Rd Junction. This is based on the LSOA's within a 5km catchment of the and uses population size to initially identify trip origins;
- 2021 Journey to Work data for the Penistone MSOA used to determined destination of all vehicle trips in Penistone;
- Existing station passby trips assigned a predicted route of arrival; and
- Total movements equate to a 40/60 split to the East and West Sheffield Rd arms of the Lairds Way junction.

The trip assignment gravity model is shown in greater detail in Appendix C.

7.3: Traffic Survey Information

A traffic survey was commissioned in September 2026 to determine existing traffic conditions. Data from the traffic survey was analysed to identify the peak hours of movement at the B6462 Sheffield Road / Lairds Way junction. The peak hour of movement in the AM time period was 08:15 to 09:15 and in the PM time period it was 16:45 to 17:45.

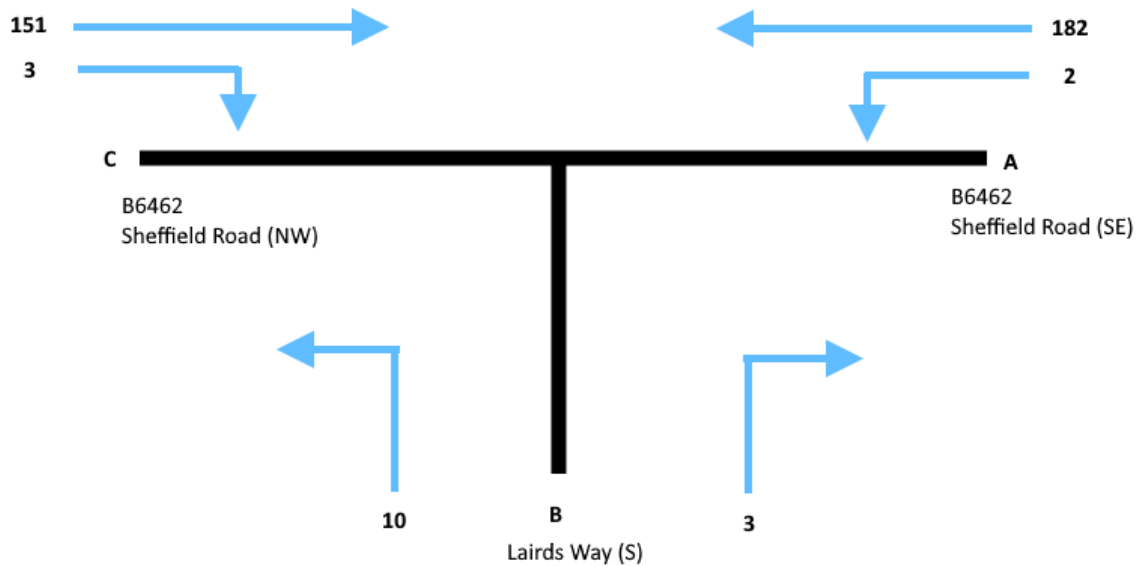
Full traffic survey information is included as Appendix D.

Further rail related survey information has been obtained for all passengers boarding and alighting throughout June 2026. This has been provided by day of the week, departure time of services and direction of travel. Whilst this highlights the tidal nature of existing rail movements being southbound (Barnsley/Sheffield) in the AM and Northbound in the PM, this also

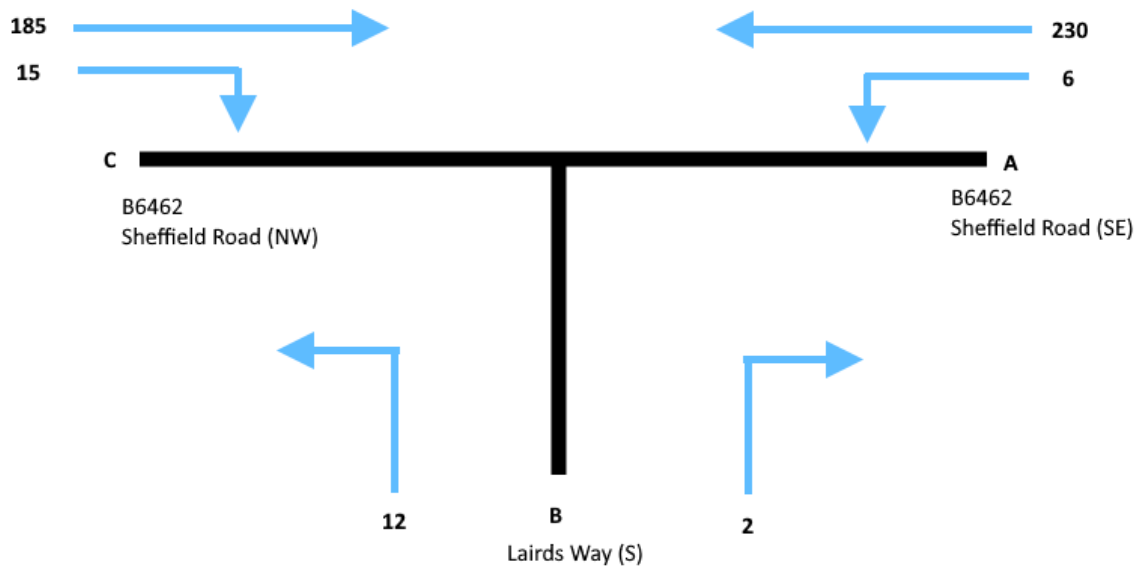
demonstrates that the pattern of rail related demand peaks prior to the identified highway network peak hour periods.

The baseline AM and PM peak hour traffic flows are shown below:

2026 Baseline AM Traffic Flow Results



2026 Baseline PM Traffic flow Results



7.4: Assessment Scenarios

Three different scenarios are assessed to identify any current or future highway capacity concerns. These include:

- Base Year 2026 (when the traffic surveys were undertaken);
- Do Minimum 2031 (traffic growth across the 5 years has been applied); and
- Do Something 2031 (Do Minimum traffic flows in addition to the full impact of the development being fully occupied).

Junction flows (Origin and Destination) will change depending upon the scenario being assessed. However, HV% (Percentage of Heavy Goods Vehicles) will remain the same across all scenarios, as well as the junction geometries.

Within each assessment hour in the AM and PM time period, there will be two 15-minute period peaks (08:30 – 08:45 & 08:45 – 09:00) in the AM time period and (17:00 – 17:15 & 17:15 – 17:30) in the PM time period. Modelled demand will be loaded according to these shorter periods rather than profiling movements equally across the modelled one hour periods.

The selected four peak 15 minute periods ((08:30 – 08:45 & 08:45 – 09:00) and 17:00 – 17:15 & 17:15 – 17:30) are intended to represent the spiked arrival and departure patterns of a P&R site. Therefore, each 15-minute peak represents a train arriving or departing.

The full demand for the P&R site will be applied to the identified network peak hours to provide a robust assessment of potential highway capacity implications at the B6462 Sheffield Road / Lairds Way junction. In reality given rail moments occur at naturally earlier times of day, any impact of rail related vehicle movements will fall outside of peak highway network movements, during periods when existing traffic flows are circa 30% below that of the highway network peak hour.

Given the worst scenario approach to appraisal and the relative minor nature of the existing junction and the development trip generation, it has been selected not to produce a 2026 base plus development traffic as the 2031 scenarios will provide sufficient evidence of the development related impacts on the highway network.

7.5: TEMPro Growth and Committed Development

For the Do Minimum Scenario (2031) a traffic growth factor of 1.05637% was applied to the AM traffic flows and a growth factor of 1.05668% was applied for PM the traffic flows. The growth factors have been derived from the TEMPro database, using the Middle Layer Super Output Area (MSOA) for Barnsley 024 (E02001532).

The following site is included in the assessment as committed development:

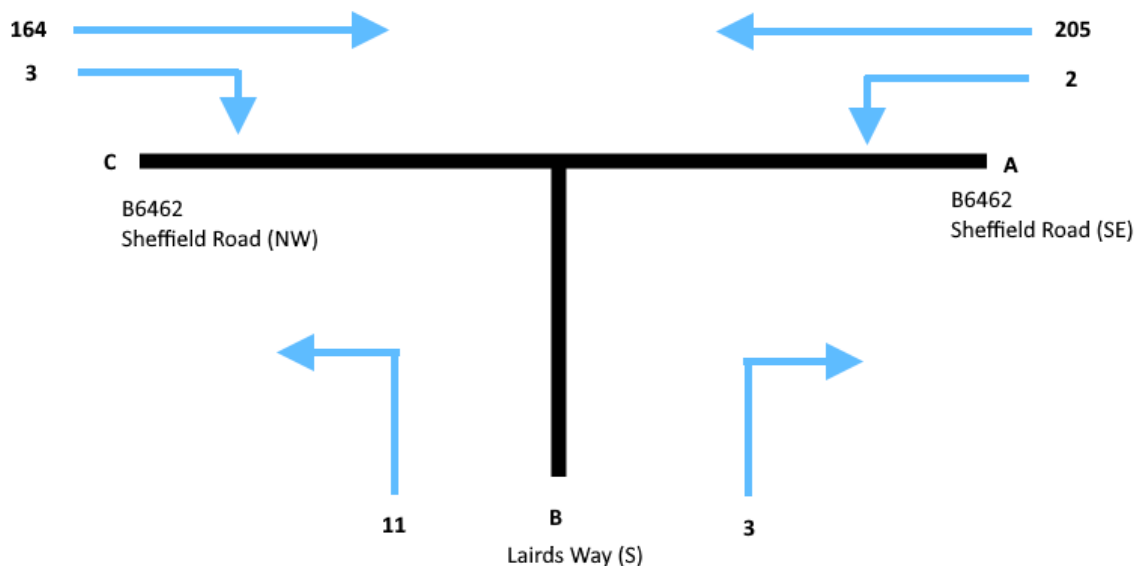
- Planning Application **2023/0692** Land off Sheffield Road – 30 dwellings.

In line with TAG Unit M4 forecasting guidance section 7.3, relevant committed developments dwellings have been deducted from future household assumptions to produce an adjusted growth rate anticipated to improve the accuracy of the forecast by avoiding double-counting of commitments already being developed and included within the baseline scenario model.

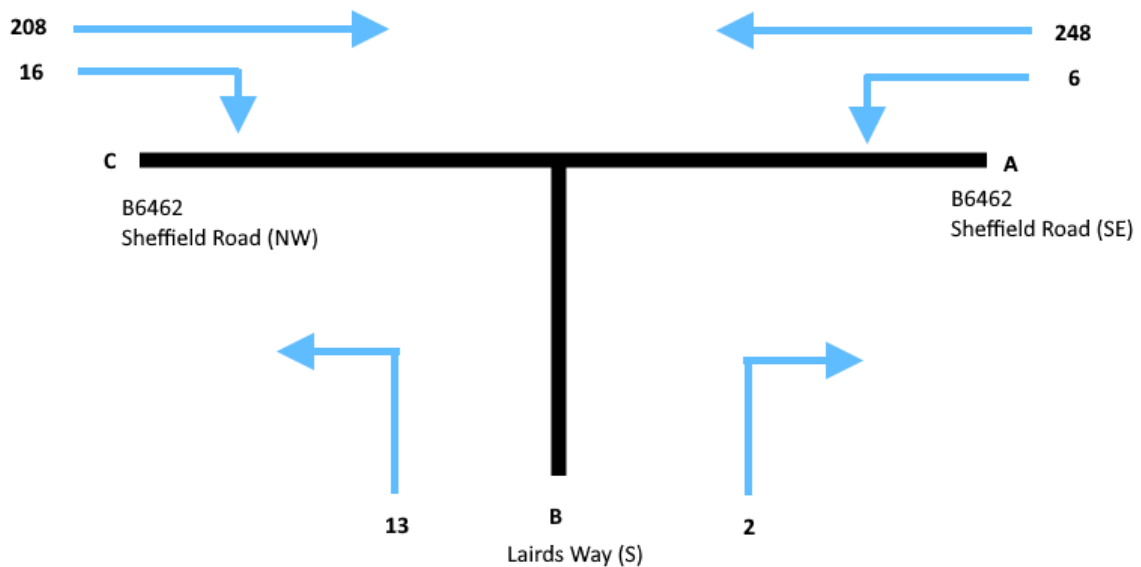
Adjusted growth factors have been derived from NTEM to account for the committed developments which have been included within the 2031 opening year scenario.

Traffic flow diagrams for all scenarios assessed are included in Appendix E, with do minimum and do something scenarios summarised below:

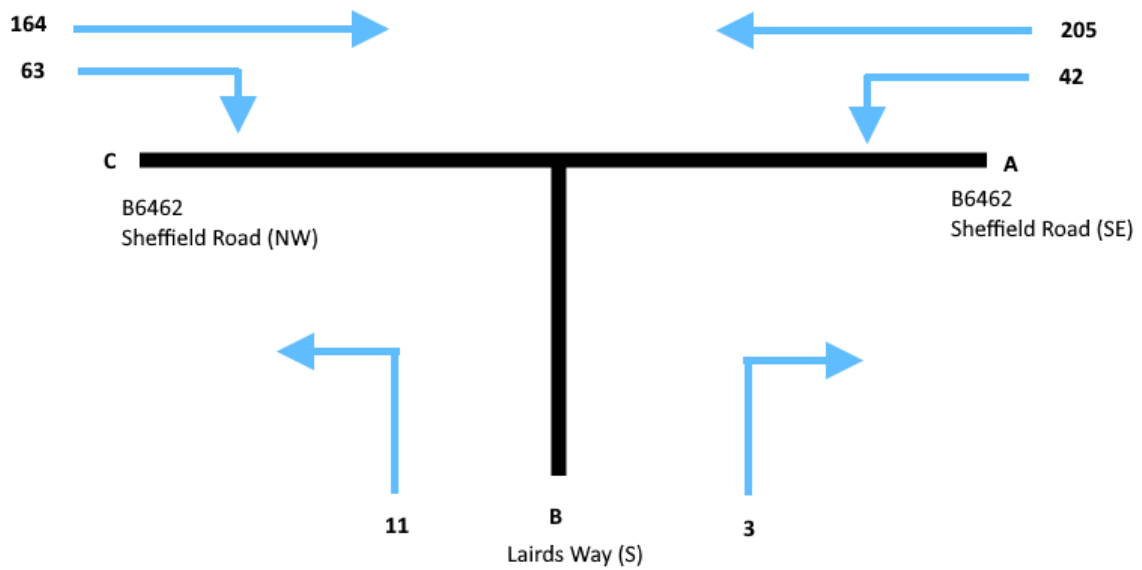
2031 Do Minimum AM Traffic Flow Results



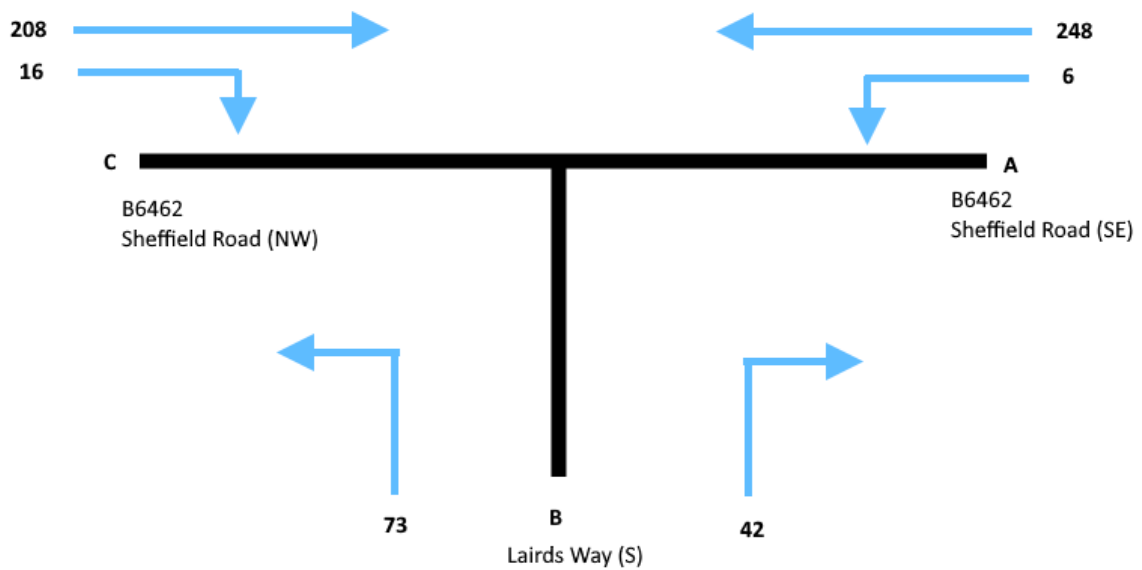
2031 Do Minimum PM Traffic Flow Results



2031 Do Something AM Traffic Flow Results



2031 Do Something PM Traffic Flow Results



8. Assessment Results

8

To determine the impact of the proposed development traffic on the local highway network, Sheffield Road / Lairds Way junction was assessed utilising the PICADY module within the TRL Junctions 11 software package.

Junctions 11 software has been used to prepare the model. Junctions 11 software analyses the traffic movements on each arm of the junction and assesses the junctions Ratio Flow to Capacity (RFC) and queue lengths in PCU's. Acceptable junction performance is determined by a ratio of flow to capacity of less than 0.85.

8.1: 2026 Base Year

The 2026 base year performance of the B6462 Sheffield Road / Lairds Way junction during the AM and PM peak hours is shown in Table 4 below. The results demonstrate that there are no performance concerns from a capacity or queue perspective on either main or side arms of the junction.

Table 4: 2026 Baseline AM / PM Model Results

Sheffield Road / Lairds Way Modelling Summary – 2026 Base				
Arms	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lairds Way – Sheffield Road (E) / Sheffield Road (W)	0.02	0.0	0.02	0.0
Sheffield Road (W) – Sheffield Road (E) / Lairds Way	0.00	0.0	0.02	0.0

8.2: 2031 Do Minimum

The 2031 future year performance of the B6462 Sheffield Road / Lairds Way junction during the AM and PM peak hours is shown in Table 5 below. This accounts for the current base year traffic flows with the additional background growth and committed development traffic included. The results demonstrate that there are no performance concerns from a capacity or queue perspective on either main or side arms of the junction.

Table 5: 2031 Do Minimum AM / PM Model Results

Sheffield Road / Lairds Way Modelling Summary – 2031 Base + Committed Development				
Arms	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lairds Way – Sheffield Road (E) / Sheffield Road (W)	0.02	0.0	0.03	0.0
Sheffield Road (W) – Sheffield Road (E) / Lairds Way	0.01	0.0	0.03	0.0

8.3: 2031 Do Something

The 2031 future year development related impacts to the B6462 Sheffield Road / Lairds Way junction during the AM and PM peak hours are shown in Table 6 below. This accounts for the current base year traffic flows with the additional background growth and committed development traffic and the proposed vehicle trips associated with a new park and ride site included. The results demonstrate that there are no performance concerns from a capacity or queue perspective on either main or side arms of the junction.

Table 6: 2031 Do Something AM / PM Model Results

Sheffield Road / Lairds Way Modelling Summary – 2031 Base + Committed Development + Development Traffic				
Arms	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Lairds Way – Sheffield Road (E) / Sheffield Road (W)	0.02	0.0	0.12	0.1
Sheffield Road (W) – Sheffield Road (E) / Lairds Way	0.10	0.1	0.03	0.0

The above assessment results demonstrate that the junction continues to operate significantly below theoretical capacity limits in all scenarios assessed. Full Junctions 11 model outputs for all scenarios are included in Appendix F.

Ultimately, the results show that the residual impact of the proposed park and ride development upon the B6462 Lairds Way junction will be negligible. The robustness of the above assessment results is further confirmed by the approach taken to apply all development related impacts to the identified network peak hour period, when in reality, the park and ride related movements will be more sporadic across arrival and departure flows and potentially fall outside of the busiest highway demand hours of the transport network.

9.1: Summary

The scope of this TA was agreed with BMBC's Highway Development Control (HDC) to determine the scope of the scenarios necessary to demonstrate the impact of the proposals.

This Transport Assessment has demonstrated alignment with local planning policy and the BMBC Local Plan 2019. The proposal also fits within the wider Barnsley Transport Strategy 2022, aligning to Objective 2: Support Economic Growth and Regeneration, and the Barnsley 2025 Rail Strategy. It is therefore demonstrated to align to local, regional, and national planning strategies where relevant.

The site of the proposed park and ride is well connected by non-car modes of transport including bus and walking, wheeling and cycling. The proposals are tied to wider improvements, including the provision of a new pedestrian footbridge at Penistone Station.

Through assessment of the impacts to the public highway network, a number of scenarios have been considered to test the impact of the Penistone Station Park and Ride Scheme. Within this TA, the following scenarios have been assessed:

- 2026 Baseline Scenario (AM/PM Peak Hours);
- 2031 Do Minimum Scenario (AM/PM Peak Hours); and
- 2031 Do Something Scenario (AM/PM Peak Hours).

The 2031 Do Something Scenario includes the implementation of the new Park and Ride improvements.

This TA has provided a robust assessment of the highway related impacts of the proposals, and the assessment approach has demonstrated that the existing B6462 Sheffield Road / Lairds Way junction will operate within acceptable capacity limitations in all scenarios assessed.

9.2: Conclusion

The implementation of the proposed Park and Ride will have a significant positive impact on the Penistone area and the results of detailed assessment show the residual cumulative impact of the proposals on the highway network to be negligible.

It is therefore concluded that there are no highways or transport reasons to prevent planning permission for this application to be granted.