

Coed Darcy

Transport Assessment

St. Modwen Developments Ltd.

November 2021

Transport Assessment

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1. Introduction

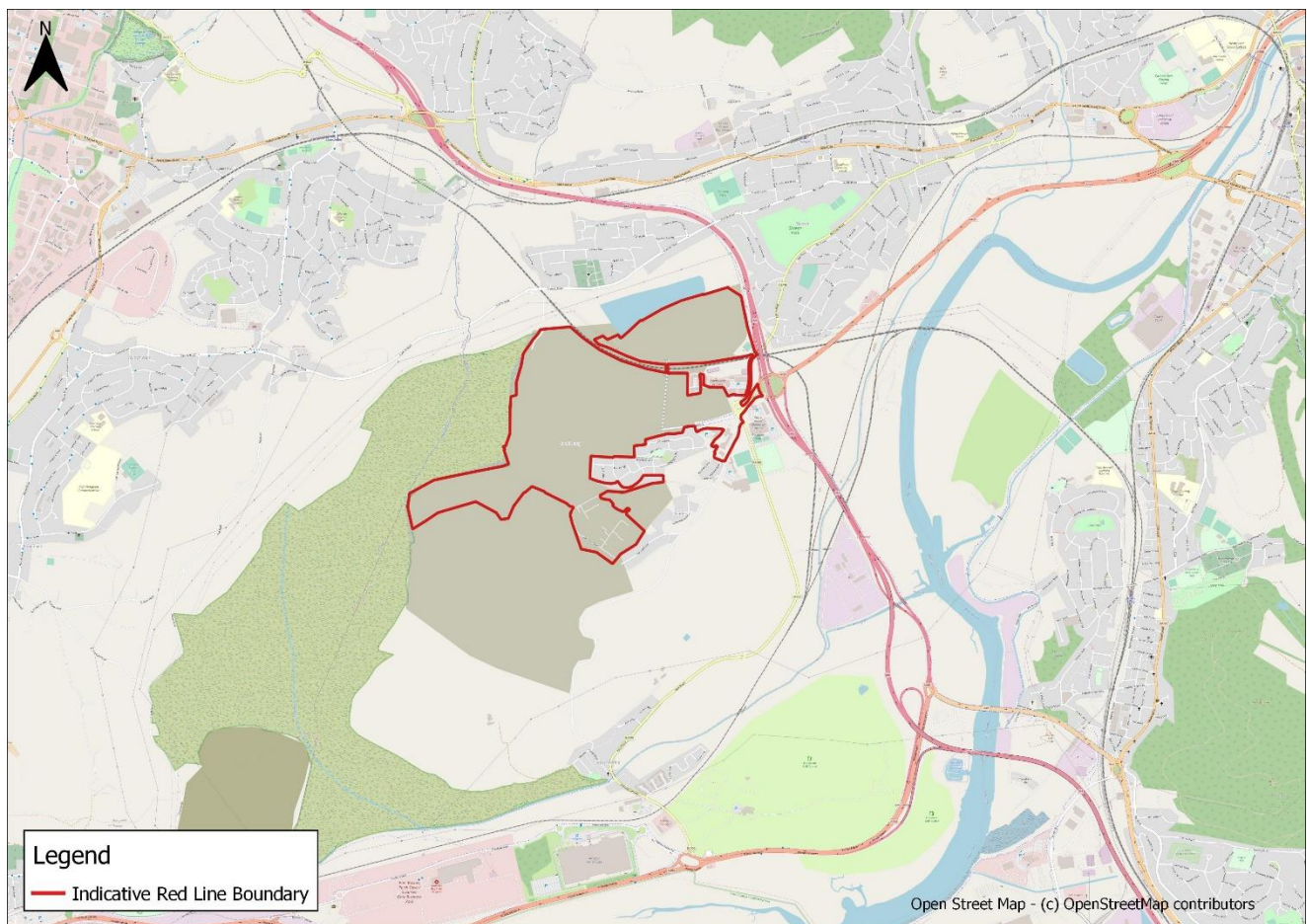
1.1. Background

Atkins has been commissioned to prepare a Transport Assessment (TA) and Framework Travel Plan (FTP) to support the planning application for a mixed use development at Coed Darcy, Llandarcy.

The site was subject to a previous Outline Planning Application (OPA) submitted on 15th March 2005 (P/2005/0393) comprising of 4,000 dwellings and associated land uses (employment, retail, commercial and education) and was subsequently granted outline approval by Neath Port Talbot County Borough Council (NPTCBC) in February 2008.

The site location is outlined on Figure 1-1.

Figure 1-1 - Site Location Plan



1.2. Report Purpose

The purpose of this TA is to evaluate the transportation aspects of the development proposals and consider the existing highway network and sustainable transport provision within the vicinity of the proposed development. The TA has been prepared in accordance with Welsh Government Technical Advice Notes (TAN) 18 and the Wales Transport Strategy.

This TA should be read in conjunction with the FTP for the proposed development prepared by Atkins.

1.3. Scoping

Pre-Application scoping discussions were undertaken with NPTCBC at the start of the project and form the basis of this TA.

1.4. Report Structure

This report includes the following sections:

- **Section 2** provides a review of relevant national and local policy and guidance;
- **Section 3** describes the baseline conditions, in terms of the local highway network, personal injury accident (PIA) data and multi-modal accessibility;
- **Section 4** provides details of the proposed development, including site access arrangements;
- **Section 5** discusses the estimated trip generation and assignment;
- **Section 6** summarises the impact of the development proposals;
- **Section 7** provides a summary of the mitigation proposals; and
- **Section 8** summarises the findings and conclusions.

2. Planning Policy and Guidance

2.1. Introduction

This section provides a review of the transportation policy that is considered relevant to the proposed development at a national and local level. The following documents have been included in this review:

National Policy:

- Future Wales – the National Plan (February 2021)
- Wales Spatial Plan – People, Places, Futures (2008)
- Planning Policy Wales (edition 11, February 2021)
- The Wales Transport Strategy 2021
- Technical Advice Note 18: Transport (TAN18)
- Active Travel Act 2013 (Wales)

Regional Policy:

- Joint Transport Plan for South West Wales (2015 -2020)

Local Policy:

- Neath Port Talbot Borough Council's Local Development Plan 2011-2026
- Neath Port Talbot Borough Council's Local Development Plan 2011-2026, Parking Standards Supplementary Planning Guidance (October 2016)
- Neath Port Talbot Borough Council's Local Development Plan 2011-2026, Design Supplementary Planning Guidance (July 2017)

2.2. National Policy

2.2.1. Future Wales – the National Plan 2040 (February 2021)

Future Wales is the national development framework for Wales which will set the direction for development in Wales until 2040. It is a development plan which addresses national priorities through the planning system, these priorities include; sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of communities.

Policy 2 – Shaping Urban Growth and Regeneration – Strategic Placemaking – the growth and regeneration of towns and cities should positively contribute towards building sustainable places that support active and healthy lives, with urban neighbourhoods that are compact and walkable, organised around mixed-use centres and public transport, and integrated with green infrastructure.

Policy 6 – Town Centre First – significant new commercial, retail, education, health, leisure and public service facilities must be located within town and city centres. They should have good access by public transport to and from the whole town or city and, where appropriate, the wider region.

Policy 11 – National Connectivity – planning authorities should support developments associated with improvements to national connectivity and, where appropriate, maximise the opportunities that arise from them. Additionally, planning authorities must ensure that new developments contribute towards the improvement and development of the National Cycle Network and key links to and from it.

Policy 12 – Regional Connectivity – Planning authorities must plan the growth and regeneration of the National and Regional Growth Areas to maximise opportunities arising from the investment in public transport, including identifying opportunities for higher density, mixed-use and car-free development around metro stations. Active travel must be an essential and integral component of all new developments, large and small. Planning authorities must integrate site allocations, new development and infrastructure with active travel networks and, where appropriate, ensure new development contributes towards their expansion and improvement. Planning authorities must act to reduce levels of car parking in urban areas, including supporting car-free developments in accessible locations and developments with car parking spaces that allow them to be converted to other uses over time. Where car parking is provided for new non-residential development, planning authorities should seek a minimum of 10% of car parking spaces to have electric vehicle charging points.

2.2.2. Wales Spatial Plan – People, Places, Futures (2008)

The Wales Spatial Plan sets out the planning agenda at a spatial level with five guiding themes which underpin the national vision:

- Building sustainable communities;
- Promoting a sustainable economy;
- Valuing our environment;
- Achieving sustainable accessibility; and
- Respecting distinctiveness.

The Plan makes links between sustainable development and transport, stating that development should increase access to rail and bus services where possible, and provide priority for these modes. The document states that developments should aim to make better use of existing transport infrastructure to achieve sustainable access to jobs and services. This encompasses the need to ensure that communities are well connected to main public transport corridors, are provided with safe walking and cycling routes and use existing road capacity with maximum efficiency. In addition to this, the plan notes that road building in general is not a sustainable solution to the pattern of traffic growth.

2.2.3. Planning Policy Wales (edition 11, February 2021)

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government and aims to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales.

PPW places emphasis on Transport Assessments accompanying planning applications for developments as they assist in helping to anticipate the impacts of development so that they can be understood and catered for appropriately. It is noted that Transport Assessments provide a basis for negotiation on scheme details including the level of parking, and measures to limit or reduce levels of air pollution. Additionally, they should cover the transport impacts of the construction phase and provide an important basis for the preparation of Travel Plans.

Chapter 2, People and Places: Achieving Well-being Through Placemaking indicates that plan making and development management contributes towards the creation of sustainable places and improved well-being of communities. As such, PPW indicates a series of key planning principles, these principles include:

- Growing our economy in a sustainable manner – the planning system should enable development which contributes to long term economic well-being, making the best use of existing infrastructure and planning for new supporting infrastructure and services;
- Making best use of our resources – the efficient use of resources underpins sustainable development therefore the planning system should ensure development is resilient to climate change and contribute towards decarbonising society;
- Facilitating accessible and healthy environments – development should support healthy lives, providing high-quality places which are barrier-free to all members of society;
- Creating and sustaining communities – places should ensure the right mix of good quality/well designed homes, jobs, services, infrastructure and facilities so that people feel content with their everyday lives; and
- Maximising environmental protection and limiting environmental impact – natural, historic and cultural assets must be protected, promoted, conserved and enhanced with negative environmental impacts avoided.

Chapter 3, Strategic and Spatial Choices identifies a series of key aspects of design indicating that design must reduce the inequality of access to essential services, education and employment with design measures improving accessibility by walking, cycling and public transport. This chapter also notes that design should avoid the creation of car-based developments by maximising opportunities for people to make sustainable and healthy travel choices. To maximise non-car mode journeys, infrastructure measures proposed within the site should be integrated with existing infrastructure and the strategic cycle network.

Chapter 4, Active and Social Places sets key outcomes which the policy will aim to achieve through the delivery of a more effective and efficient transport system that focuses on sustainable travel and better integration between transport measures and land-use planning. These include:

- Accessibility by means of active travel and public transport;
- Minimising the need to travel and reducing reliance on car travel;
- Convenient access to goods and services;

- Reduction of environmental risks;
- Promotion of physical and mental health and well-being; and
- Provision of community based facilities and services.

Chapter 5, Productive and Enterprising Places considers the economic aspects of place-making with the policy indicating that the provision of sustainable transport infrastructure will be essential to build prosperity, tackle climate change, reduce airborne pollution and improve the social, economic and cultural well-being of Wales.

2.2.4. The Wales Transport Strategy 2021

The Wales Transport Strategy sets out a vision for how the transport system can help deliver the Welsh priorities. As well as setting out short-term and long-term priorities this strategy has also developed plans explaining how the priorities will be achieved.

The vision of the Wales Transport Strategy is for an accessible, sustainable and efficient transport system.

The priorities include:

1. Bring services to people in order to reduce the need to travel;
2. Allow people and goods to move easily from door to door by accessible, sustainable and efficient transport services and infrastructure;
3. Encourage people to make the change to more sustainable transport;

The ambitions of The Wales Transport Strategy are:

- A transport system that contributes to a more equal Wales and to a healthier Wales, that everyone has the confidence to use;
- A transport system that delivers a significant reduction in greenhouse gas emissions, maintains biodiversity and enhances ecosystem resilience, and reduces waste;
- A transport system that contributes to our wider economic ambitions, and helps local communities, supports a more sustainable supply chain, uses the latest innovations and addresses transport affordability;
- A transport system that supports the Welsh language, enables more people to use sustainable transport to get to arts, sport and cultural activities, and protects and enhances the historic environment;

The Wales Transport Strategy also sets out a series of mini-plans which show how individual transport sectors and modes will deliver the priorities, these mini-plans include:

- Active travel – this is in line with the Active Travel (Wales) Act to make walking and cycling the normal choice for shorter journeys because active travel is better for our health, our environment and our economy. In order to do this the following will be priorities over the next five years:
 - The default speed limit will be changed from 30mph to 20mph in built-up areas to reduce traffic related injuries and fatalities and make walking and cycling safer and more attractive;
 - Put in place a priority framework which ensures that all new developments, including new school and health facilities, make provision for walking and cycling from the outset;
 - Train and develop professionals in best practice active travel design and guidance to ensure high quality infrastructure is put in place;
 - Develop a package of 'soft' behaviour change measures, such as aiming to make cycle training available for all and travel planning, to complement 'hard' infrastructure investments; and
 - Support safer, better cycle paths and more space of walking and cycling through closing roads for vehicle traffic, more facilities for pedestrians, and support for cycle training and safety schemes for all road users.

2.2.5. Technical Advice Note 18 (Transport)

Technical Advice Note 18 (TAN18) elaborates on the relationship between land-use planning and transport and outlines a range of key principles that should inform future patterns of development. It outlines a range of principles that should be adopted to ensure that economic development can create a basis for sustainable travel patterns. These include:

- Ensuring that development is located near to employment, retail and services with good access by modes other than car;

- Ensuring that development is located within good walking and cycling access to primary and secondary schools, and good public transport links to higher education and employment;
- Favour schemes which include ancillary land uses including local shops, services and employment;
- Provide parking in line with policy standards and in relation to public transport accessibility and capacity;
- Provide layouts which incorporate traffic management measures including home zones, traffic calming, 20mph speed limits and layouts which enable public transport to pass through easily; and
- Provide layouts and densities which maximise walking and cycling opportunities to local facilities and public transport stops.

The Transport Assessment should be used to determine the necessity of a travel plan, and travel plans should relate to targets for the reduction of road traffic and the promotion of walking, cycling and public transport.

2.2.6. Active Travel Act 2013 (Wales)

The Active Travel Act aims to make active travel the most attractive option for shorter journeys. The Act requires local authorities in Wales to produce active travel maps and deliver year on year improvements in active travel routes and facilities. It requires highways authorities in Wales to enhance routes for pedestrians and cyclists in all new road schemes along with having regard to the needs of walkers and cyclists in a range of other functions.

2.2.7. Active Travel Act 2013 (Wales): Design Guidance

This document was published under the Active Travel Act (Wales) and provides advice on the planning, design, construction, and maintenance of active travel networks for all parties, including the public during consultation stages. The guidance highlights the need for all roads, tracks, paths and footways within a site and its access points to be designed in accordance with the Design Guidance.

2.3. Regional Policy

2.3.1. Joint Transport Plan for South West Wales (2015-2020)

The Local Transport Plan targets a series of Programme Priority Areas from the Wales Transport Strategy and the National Transport Plan, these include:

- Economic growth, supporting and safeguarding jobs in the city region;
- Access to employment, reducing economic inactivity by delivering safe access to major employment sites in the city region;
- Tackling poverty, maximising the contribution that transport services can make to targeting improvements to tackling poverty and target improvements at the most disadvantaged communities;
- Sustainable travel and safety, encouraging safer, healthier and more sustainable travel; and
- Access to services, connecting communities and enabling access to key services.

The LTP has a vision for a better connected region through improving transport and access to facilitate economic regeneration, to reduce deprivation and to support the development and use of more sustainable and healthier modes of transport.

The objectives for a better connected region are:

4. To improve the efficiency and reliability of the movement of people and freight within and beyond South West Wales to support economic growth in the City Region
5. To improve access for all to a wide range of services and facilities including employment and business, education and training, health care, tourism and leisure activities
6. To improve the sustainability of transport by improving the range and quality of, and awareness about, transport options, including those which improve health and well being
7. To improve integration between policies, service provision and modes of transport in South West Wales
8. To implement measures which will protect and enhance the natural and built environment and reduce the adverse impact of transport on health and climate change
9. To improve road safety and personal security in South West Wales

In order to meet the vision and objectives there are a series of policies which include:

- Improving access between key settlements and sites:

- Policy KS1 – work collaboratively to develop improved public transport services, to link key settlements and their hinterlands with strategic corridors and employment sites;
- Policy KS2 – seek to improve the journey time reliability between key settlements and strategic local employment sites; and
- Policy KS3 – improve walking and cycling links within and between key settlements.
- Integrating local transport:
 - Policy IT1 – improve interchange facilities to reduce barriers to multi modal journeys
- Reducing Greenhouse gas emissions and other environmental impacts from transport:
 - Policy E1 – work collaboratively to ensure that new development is located where there is sustainable access. For existing land allocations the emphasis will be on securing realistic alternatives to single car occupancy as part of the development process;
 - Policy E2 – facilitate and promote improved rail and bus services, walking, cycling and car sharing to encourage modal shift and improve air quality; and
 - Policy E3 – encourage the take up and development of travel planning to reduce single occupancy car commuting.
- Increasing safety and security:
 - Policy SS1 – seek to reduce the number of road casualties and collisions through improvements to highways and traffic management; and
 - Policy SS2 – work collaboratively to promote the safety of and safe behaviour by all road and rail users.

2.4. Local Policy

2.4.1. Neath Port Talbot Local Development Plan (2011 – 2026)

The Local Development Plan (LDP) guides future development of an area and provides a clear vision for the County Borough setting out where, when and how much new development can take place in the period up to 2026. The aim of the document is to provide developers and the public with certainty about the planning framework for Neath Port Talbot.

Strategic Policy SP20 Transport Network notes that the transport system and infrastructure will be developed in a safe, efficient and sustainable manner through the following measures:

- Implementing key transport projects and supporting schemes identified in the Regional Transport Plan;
- Promoting connectivity and access to public transport through improving bus and rail facilities;
- Supporting enhancements to the walking and cycling network;
- Promoting park and share schemes along key highway routes;
- Promoting efficient use and links to the transport network through the identification of a road hierarchy;
- Restricting development which would have an unacceptable impact on highway safety;
- Requiring development proposals to be designed to provide safe and efficient access and promote sustainable transport;
- Requiring appropriate parking provision; and
- Facilitating movement of freight by means other than road.

Policy TR2 Design and Access of New Development states that development proposals will only be permitted where all of the following criteria, where relevant, are satisfied:

- The development does not compromise the safe, effective and efficient use of the highway network and does not have an adverse impact on the highway safety or create unacceptable levels of traffic generation;
- Appropriate levels of parking and cycling facilities are provided and the access arrangements for the site allow for the safe manoeuvring of any service vehicles associated with the planned use;
- The development is accessible by a range of travel means, including public transport and safe cycle and pedestrian routes; and
- Transport Assessments and Travel Plans are provided for developments that are likely to create significant traffic generation.

2.4.2. Neath Port Talbot County Borough Council Local Development Plan 2011-2026 – Parking Standards Supplementary Planning Guidance (October 2016)

This document provides information about the standards that will need to be achieved in respect of parking provision across Neath Port Talbot (NPT) setting out the relevant matters that will need to be taken into consideration when developments are being planned.

The standards upon which these parking standards are based is upon the CSS Wales' Wales Parking Standards 2014 document.

The NPT parking standards use designated zones numbered 1 to 6 derived from the Wales Parking Standards 2014. Each zone has differing designated levels of parking for development management purposes. Zone 1 applies to city centres with high levels of accessibility to all services and zone 6 applies to rural, countryside locations with low levels of accessibility. The Coed Darcy site lies within Zone 4.

Upon completion, Coed Darcy development would be classed as suburban or near urban in Zone 4 as there will be an at least hourly bus service to the town centre and local facilities will be within 400m walking distance of housing.

The interpretation and application of the parking standards rests with the Local Authority and in assessing the parking requirements for a particular development, the planning authority will need to take into account the following factors in relation to the development and its location:

- Accessibility to and the service provided by the public transport system;
- The availability of private buses or the extent of car pooling;
- The relative proportions of full time/part time/local catchment of labour;
- Accessibility by walking and cycling;
- The existing and possible future congestion in streets adjacent to the development; and
- Accessibility to and the availability of public and/or private car parking space in the vicinity.

The car parking standards for residential land uses are noted in Table 2-1.

Table 2-1 - Residential land use car parking standards

Type of Development	Residents	Visitors
Houses	1 space per bedroom (maximum requirement 3 spaces)	1 space per 5 units
Apartments	1 space per bedroom (maximum requirement 3 spaces per apartment)	1 space per 5 units

Visitor parking should be designed as an integral part of the development where it is required and must take into account the needs of the disabled.

Additional parking considerations for Zone 4 include:

- 1 space per 20m² of an office block;
- 1 space per 60m² for shops of <200m², for shops and small supermarkets of (201m²-2,000m²) 1 space per 20m² and for supermarkets and superstores of >2,000m² 1 space per 14m²;
- 1 space per 5 seats for cinemas, theatres and conference centres;
- 1 space per 3 non-resident staff and 1 space per 7m² of dining area; and
- 1 commercial vehicle space and 1 space per 5 children for primary schools and secondary schools.

Cycle parking should be located in a safe, secure and convenient location. Care should also be taken to ensure that cycle parking facilities are not located where they may obstruct pedestrians, disabled persons and particularly people with sight problems. To ensure security, cycle parking facilities should be located in areas that are visible and allow for informal surveillance.

The following cycle parking provision should be provided:

- Houses – cycle storage should be designed on-plot;
- Apartments – 1 stand per 5 bedrooms;

- Offices – 1 stand per 200m²;
- Shops – 1 stand per 500m²;
- Primary School – 1 stand per 5 staff and 1 stand per 20 children; and
- Secondary School – 1 stand per 5 staff and 1 stand per 6 students of age 17.

2.4.3. Neath Port Talbot Borough Council's Local Development Plan 2011-2026, Design Supplementary Planning Guidance (July 2017)

This document provides information about the design issues in Neath Port Talbot (NPT) and sets out the relevant matters that need to be taken into consideration when developments are being planned.

Design is a wide-ranging term and within this document, design includes the physical appearance of a new building; the ease of access for all; the impacts on existing development; and the protection of natural resources. Planning Policy Wales (PPW) provides the overarching planning framework for sustainable development within Wales and sets out five key aspects of good design: access; character; community safety; environmental sustainability; and movement.

The NPT Design Standards (Policy BE1) specify that all development proposals are expected to demonstrate high quality design which fully takes into account the natural, historic and built environmental context and contributes to the creation of attractive, sustainable places. High quality design from a transport perspective includes:

- The development would not have a significant adverse impact on highway safety, the amenity of occupiers of adjacent land or the community;
- The development achieves and creates attractive, safe places and public spaces, taking account of 'Secured by Design' principles;
- The development places a full role in achieving and enhancing an integrated transport and communications network promoting the interests of pedestrians, cyclists and public transport and ensures linkages with the existing surrounding community; and
- The layout and design of the development achieves inclusive design by ensuring barrier free environments, allowing access by all and making full provision for people with disabilities.

The layout and movement of a development and access is critical to achieving high quality design. The layout of a development should consider how people will move around the development and should encourage use by all transport modes. Routes within the development should connect to the existing road network to promote a sense of identity and prevent segregation. Vehicular and pedestrian routes should be visually open and integrate to other networks. Footpaths and cycleways should be provided in locations that encourage use and have good visibility and should be part of the active street frontage. Good design and connectivity is more likely to encourage walking and cycling and create attractive places.

All new developments should ensure inclusive design, to ensure a development can be accessed by all. Inclusive design elements which new developments will be expected to meet include:

- Ensure all streets and public spaces are safe and accessible and should not provide any additional barriers to any users, such as wheelchair users, people with restricted mobility or people with pushchairs;
- Have consideration for the location and design of street furniture, signage, lighting and paving and design these to reflect the needs of all potential users; and
- Ensure the use of materials does not provide any barriers to access. The surfacing of roads, pavements and amenity areas should consider the needs of partially sighted people or those with impaired mobility.

2.5. Policy Summary

This TA has been prepared in line with the national and local policy context outlined above, and in accordance with Welsh Government Technical Advice Notes (TAN) 18 and the Wales Transport Strategy.

3. Baseline Conditions

3.1. Introduction

This section of the TA outlines the site location and provides details of the surrounding highway network and provision for sustainable travel, including pedestrian and cycle access to the site.

3.2. Site Location

The proposed development is located on the site of the former BP Oil Refinery at Llandarcy. The Coed Darcy development is located between Neath and Swansea, just west of M4 Junction 43. Swansea City Centre lies 4km south-east of the site whilst Neath town centre lies circa 3.5km north-east. The site is currently accessed from the B4290 which feeds off Junction 43 of the M4 via the Northern Access Road (which has been implemented under the existing planning permission).

The railway line dissects the northern and central part of the proposed development site. The far northern boundary adjoins the 'north site' reservoir (which lies outside of the site boundary) and the M4 abuts the eastern boundary of this part of the site.

There are approximately 300 dwellings already built and occupied at Coed Darcy, accessed via Heathland Way. In addition, Darcy Business Park is located to the north of the B4290 signalised junction.

The location of the development site in the context of the existing highway network is shown on Figure 3-1.

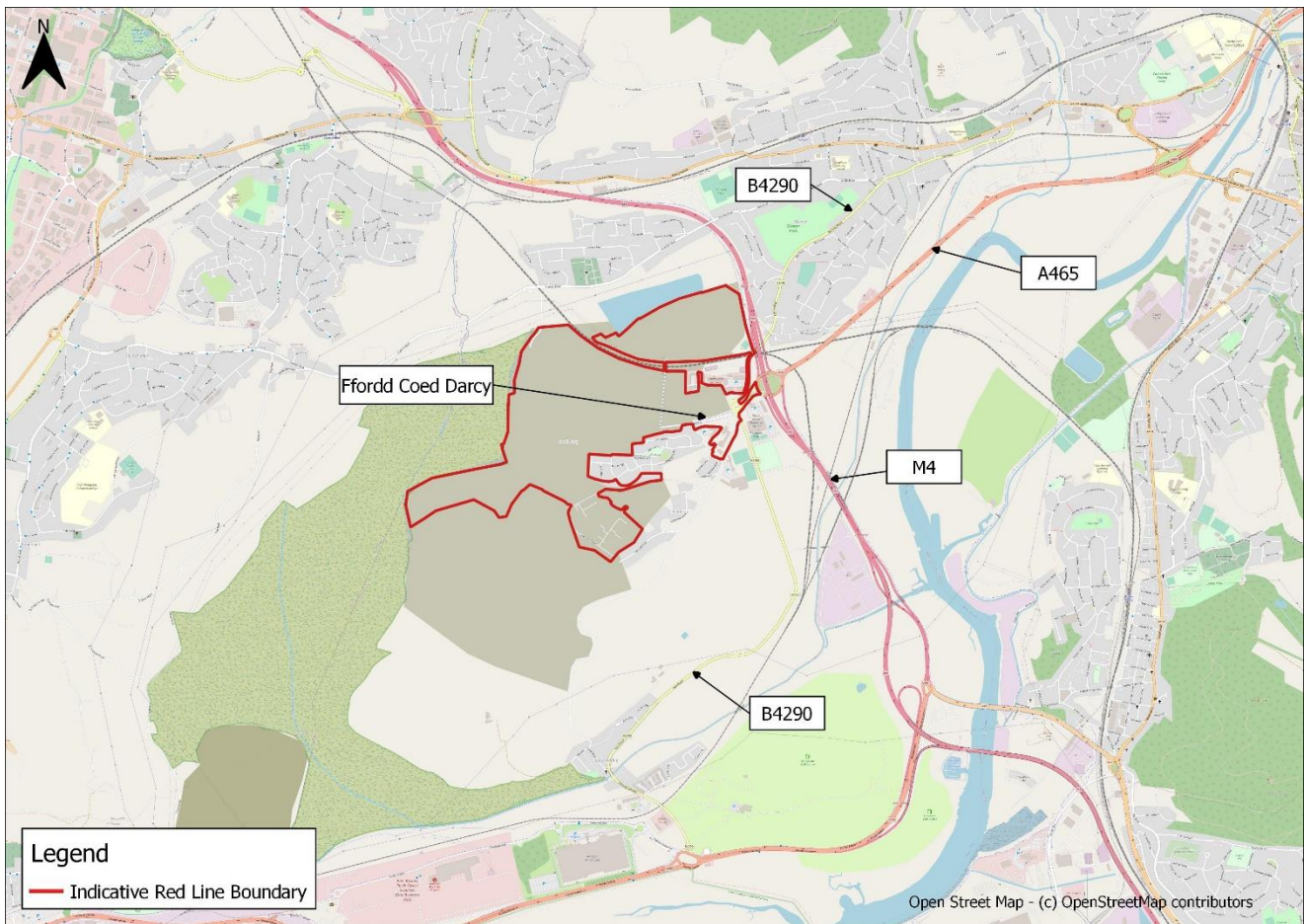
3.3. Local Highway Network

The site has good access to the strategic road network (SRN). The development site is located adjacent to M4 Junction 43 which connects to the A465, and the M4. Eastbound the M4 provides access to South East Wales and beyond, and westbound to South West Wales.

Access to Swansea is either via routes along the M4 to adjacent motorway junctions, or along the B4290 through Jersey Marine and onto the A483 Fabian Way.

Figure 3-1 outlines the development site (shown in red) within the context of the local highway network.

Figure 3-1 - Local Highway Network



Ffordd Coed Darcy

Ffordd Coed Darcy is a single carriageway road subject to a 30mph speed limit which runs from the B4290 into Coed Darcy. At the approach to the B4290 junction the road splits into two lanes with a third lane at the junction for left turning traffic. There are shared use paths for cyclists and pedestrians on either side of the carriageway as well as street lighting.

B4290

The B4290 is a single carriageway road which provides access to Skewen and Neath Abbey to the north of Coed Darcy, and the A483 and Jersey Marine to the south. The B4290 is subject to a 30mph speed limit between Jersey Marine and the A483. This section of the B4290 has a series of traffic calming measures and has a shared use path for pedestrians and cyclists. Between Llandarcy and Skewen the B4290 is subject to a 30mph speed limit, and there is lit pedestrian footway provision. Between Llandarcy and Jersey Marine the B4290 is subject to varying speed limits of 40mph, 50mph and 60mph.

The B4290 is subject to a 7.5T weight restriction except for access to Jersey Marine village at the junction of A483 / B4290 and the M4 Junction 43/ B4290.

A465

The A465 is a dual-carriageway road subject to national speed limit. The A465 is an east-west road which runs between M4 Junction 43 at Llandarcy to Hereford. The A465 provides access to towns including Neath, Merthyr Tydfil, and Abergavenny.

M4

Coed Darcy is located adjacent to M4 Junction 43. The M4 is subject to national speed limit and provides access between South West Wales to the west and London to the east. The M4 is a heavily used road serving both strategic and local traffic.

3.4. Walking, Cycling and Horse-riding Assessment Report Summary

A Walking, Cycling and Horse-riding (WCHAR) assessment has been undertaken in accordance with Design Manual for Roads and Bridges (DMRB) GG 142 as part of the Coed Darcy scheme. This assessment has reviewed the existing facilities and provision for pedestrians, cyclists and equestrians. The scheme is classified as a 'large scheme' for a WCHAR assessment, as such the overall study area has been chosen to cover an approximate distance of 5km around the scheme. This section provides a summary of the WCHAR report, the full report is included in Appendix A.

In addition to desktop study, a site visit was undertaken on Monday 20th September 2021 between the hours of 0930-1630. The site visit covered the Coed Darcy development as well as M4 Junction 43.

There is a mixture of walking and cycling infrastructure across the study area which varies in terms of meeting current design standards (such as Active Travel Act Guidance 2021, LTN 1/20). Footways are located adjacent to the highway network within the built-up areas and vary in terms of width (<0.5m to 2m approximately) and condition. Vegetation overgrowth and verge creep have reduced the available widths of a lot of the footway provisions. There is street lighting present on some of the footway network, but not on the link between B4290 Pen-Y-Heol and Heol Crymlyn, or between M4 J43 and the A48. A detailed review of the existing conditions of Ffordd Coed Darcy, B4290 between Ffordd Coed Darcy and M4 Junction 43, M4 Junction 43, and B4290 Pen-Y-Heol to Heol Crymlyn link are provided below.

Ffordd Coed Darcy

During the site visit approximately three pedestrians were seen using the shared footways around the B4290/Ffordd Coed Darcy junction and two cyclists were seen on the carriageway. The key observations made along Ffordd Coed Darcy were:

- There are shared facilities (approximately 3m wide) on either side of Ffordd Coed Darcy, but no buffer zone between carriageway and shared-use path are present;
- There are toucan crossings located on the Ffordd Coed Darcy and southern B4290 arms of the Ffordd Coed Darcy / B4290 junction;
- The staggered island available for pedestrians and cyclists on the Ffordd Coed Darcy arm of the junctions is narrow (approximately 1m-1.5m wide) which is not appropriate for high usage by all users. In addition, it may not be suitable either for two wheelchairs or pushchairs to pass each other, or two larger cycle types for example cargo bikes;
- Directional cycle signage is blocked and a pinch point is in place due to the placement of existing street furniture at B4290/Ffordd Coed Darcy junction;
- Detritus evidence suggests that minor ponding occurs on south-eastern Toucan crossing across B4290 at the Ffordd Coed Darcy/B4290 junction; and
- There is an uncontrolled crossing across the access junction to The Harvester restaurant which has poor visibility from its southern side. This issue has subsequently been raised by NPTCBC during the stakeholder liaison.

B4290 between Ffordd Coed Darcy and M4 Junction 43

During the site visit no users were seen on the footway whilst the assessment team were on site. The key observations made along B4290 between Ffordd Coed Darcy and M4 Junction 43 found that there are shared facilities provision for pedestrians and cyclists from Ffordd Coed Darcy / B4290 junction connecting into a segregated provision that links to the M4 Junction.

However, the tie-in of the shared facilities to M4 Junction 43 is not aligned, existing signage posts creates a pinch point, and the existing advanced direction signage blocks the view of the footpath status sign, which itself is incorrect (segregated provision sign shown for shared and vice versa), and the segregated route has been hampered by verge creep. Due to verge creep, the segregated route width has been reduced from approximately 3m to 2.5m.

There is an uncontrolled crossing across the B4290 leading to Coed Darcy Business Park. This crossing has contradicting signage and road markings, and the path and uncontrolled crossing points on the B4290 splitter island is hampered by verge creep (approximately 2.5m width down to 2m).

M4 Junction 43

During the site visit no users were seen on the footway whilst the assessment team were on site. The key observations made at M4 Junction 43 during the site visit are outlined below:

- The uncontrolled crossing across the westbound off-slip was not aligned, lacked tactile paving, did not have a demand input unit, and suffered from detritus build-ups;
- The segregated provision across the junction suffered from verge creep, which completely blocked the pedestrian side of the route, separation marks were faded, no barrier protecting users from the steep bank at the rear of the provision, and the existing lighting column was assumed to be affected by overgrown vegetation blocking it's light pool;
- The uncontrolled crossing across the eastbound on-slip was not aligned, lacked tactile paving, did not have a demand input unit, and temporary signage completely blocks visibility between motor vehicles and segregated path users (looking towards A465 from the southern side of the eastbound on-slip crossing); and
- The segregated link connecting the M4 Junction to National Cycle Network 4 was unlit.

B4290 Pen-Y-Heol to Heol Crymlyn

During the site visit two pedestrians were seen using the B4290 Pen-Y-Heol to Heol Crymlyn link. The key observations made along the B4290 Pen-Y-Heol to Heol Crymlyn link included:

- Existing shared provision connecting B4290 Pen-Y-Heol ends with an uncontrolled crossing to a narrow footway (approximately <1m wide) that connects to the Heol Crymlyn Link. There is no tactile provision at the uncontrolled crossing point, and visibility at the uncontrolled crossing was very poor due to the car parking area. The available footway width has also been reduced greatly due to vegetation growth;
- The existing walking and cycling signage was worn and tired looking;
- On the link to Heol Crymlyn at the B4290 Pen-Y-Heol end of the link there is a gate which was seen open and closed by the assessment team. The link is relatively steep in certain sections, and is a mixture of segregated and shared provision. However the only occasion of a segregated/ shared signage is located approximately halfway along the link;
- Verge creep and overgrown vegetation affect visibility and provision width of the link between B4290 Pen-Y-Heol and Heol Crymlyn; and
- At the Heol Crymlyn end of the link there is a staggered barrier arrangement and no onward provision for cyclists.

Initial desktop study of the bus stops within the study area prior to the site visit found no standard layout for a bus stop. Bus stops located in more urban areas tended to have more infrastructure at each stop for example flag, layby, timetable, bus markings, compared to bus stops in rural areas. Some bus stops appeared to be lacking infrastructure such as a flag and timetable indicating that they could be special request stops. In addition, due to the differing layout of bus stops some users may not be able to use a service due to accessibility issues such as lack of appropriate kerbing or footways leading to the bus stop.

The following stakeholders were contacted during the course of the assessment report; Welsh Government, South Wales Trunk Road Agency, Neath Port Talbot County Borough Council, Sustrans Cymry, Cycling UK, Ramblers, and Wheelrights The Swansea Bay Cycle Campaign Group. The Lead Assessor chose not to contact any equestrian groups for this Assessment Report due to the location of the site being predominately urban and the sparse nature of any nearby equestrian routes (and bridleways), stables and riding centres. The responses received or gathered from the consultees outlined the following themes:

- The existing facilities at M4 Junction 43 are outdated and not accessible for all pedestrians and walkers;
- Users are put off using M4 Junction 43 due to its unsafe nature;
- M4 Junction 43 acts as a key component for active travel routes between the development and surrounding areas; and
- Some issues with infrastructure on the run up to the junction, such as the Harvester Junction (poor visibility) and B4290/ Ffordd Coed Darcy Junction (narrow refuge islands).

3.5. Walking and Cycling Audit

A walking and cycling audit was conducted for five different routes in the vicinity of Coed Darcy as agreed with NPTCBC. The route audits were undertaken during a site visit on Monday 20th September 2021. The five walking and cycling routes audited were:

- Coed Darcy to Heol Crymlyn;
- Coed Darcy to Skewen Railway Station;
- Coed Darcy to Neath Railway Station;
- Coed Darcy to Briton Ferry Railway Station; and
- Jersey Marine to Afan Way (A483 Junction)

The walking and cycling route audit tool from Welsh Active Travel Act Guidance was used to audit the routes. The walking tool is scored out of 20 indicators (with one non-scored), and the cycling tool of 25 indicators. Each indicator is scored out of a maximum of 2 points, with a maximum of 40 points available for walking routes, and 50 available for a cycling route. The scores are then converted to percentages to establish if a route is a 'pass' or 'fail'. The pass/fail thresholds are presented in Table 3 -1.

Table 3 -1 - Welsh Active Travel Act Guidance - Audit Tool score criteria

Score (%)	Pass fail
80%	Pass (desirable score)
70%	Pass
60-69%	Fail (but may be eligible to be passed with a statement)
60% or below	Fail
Any score with a critical fail	Fail

A summary of the results of the walking and cycling audits are presented in Table 3-2. Full details of the walking and cycling audit are presented in Appendix B.

Table 3-2 - Walking and Cycling Route Audit Tool Results - Existing Situation

Route No.	Route Description	Cycling Audit			Walking Audit		
		Score (out of 50)	%	Pass/Fail	Score (out of 40)	%	Pass/Fail
1	Coed Darcy to Heol Crymlyn	8	16%	Fail – critical fails	4	10%	Fail – critical fails
2	Coed Darcy to Skewen Railway Station	9	18%	Fail – critical fails	11	28%	Fail – critical fails
3	Coed Darcy to Neath Railway Station	10	20%	Fail – critical fails	10	25%	Fail – critical fails
4	Coed Darcy to Briton Ferry Railway Station	16	32%	Fail – critical fails	8	20%	Fail – critical fails
5	Jersey Marine to Afan Way (A483 Junction)	17	34%	Fail – critical fails	8	20%	Fail – critical fails

Table 3-2 shows that each route undertaken as part of the walking and cycling audit fails based on their existing condition and provision. In addition each of the routes also had critical fails on some indicators.

3.6. Sustainable Transport

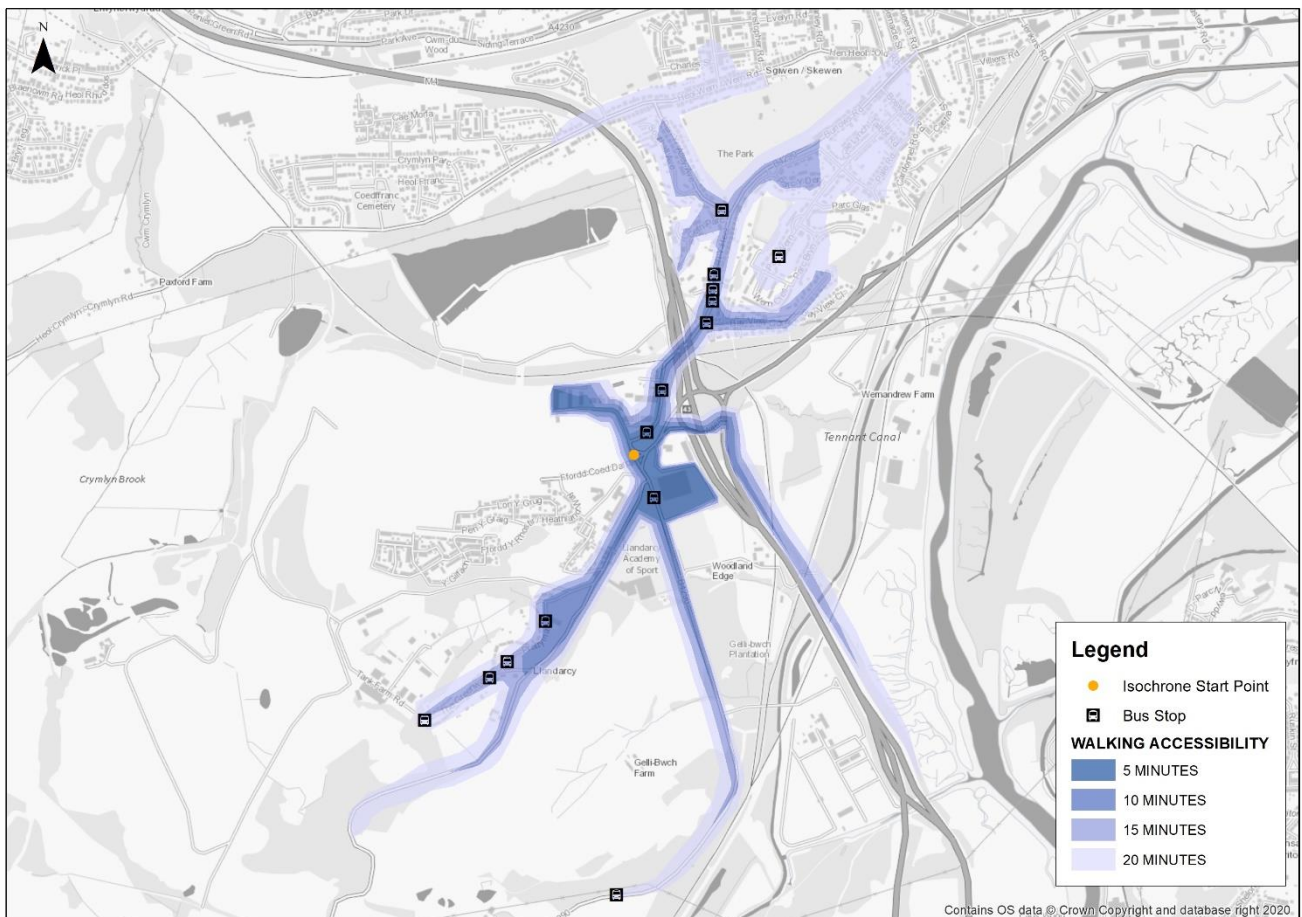
This section summarises the existing sustainable transport provision in the vicinity of the site.

3.6.1. Pedestrian Access

Figure 3-2 demonstrates that within a 10-minute walk of the B4290/ Ffordd Coed Darcy access junction to Coed Darcy, based on a walking speed of 1.4m/s^1 , pedestrians can reach the Coed Darcy bus stop, BP Llandarcy bus stop, and BP Sports Club bus stop. Within a 20-minute walk, pedestrians can reach the outskirts of Skewen located to the north east of Coed Darcy.

In terms of footway provision in the vicinity of Coed Darcy, there is footway and shared use pedestrian and cyclist path provision along the B4290 Pen-Y-Heol towards Skewen, and B4290 towards M4 Junction 43 which provides access to the shared use pedestrian and cyclist path which runs parallel with the M4 between Junction 43 and Junction 42 providing access to Briton Ferry. To the south of the B4290 / Ffordd Coed Darcy junction, there is a footway on the southbound carriageway to the Llandarcy Industrial Area located between the B4290 and M4. On Llandarcy Road there is a footway on the northbound carriageway which provides access between Llandarcy Village Park and the B4290.

Figure 3-2 - Walking Accessibility



3.6.2. Cycle Access

Figure 3-3 shows that based on a cycling speed of 4.4m/s^2 , a cyclist would be able to reach the village of Skewen within a 10-minute cycle of the site, and the towns of Neath and Briton Ferry are within a 20-minute cycle of the

¹ Providing for Journeys on Foot (CIHT)

² Sustrans, Cycle Friendly Employers' Information Sheet

Swansea Bay Cycle Routes provide high quality cycle routes serving both leisure and commuting purposes within Swansea and Neath Port Talbot area which cater for different cyclists proficiency whilst connecting local towns and villages together³. The existing access and B4290 Pen-Y-Heol form sections of two of the Swansea Bay Cycle Routes – Cross Valley and Skewen Link. Skewen Link provides access between Neath and the A483 south of Jersey Marine. This route provides a connection to other Swansea Bay Cycle Routes including the Central Line at the junction of the B4290/ A483, and Neath Valley route in Neath. All five of the different Swansea Bay Cycle Routes can be reached within a 20-minute cycle of the B4290/ Ffordd Coed Darcy access junction to Coed Darcy.

The map displays the Swansea Bay area, highlighting cycling accessibility and routes. A legend in the bottom right corner provides the following information:

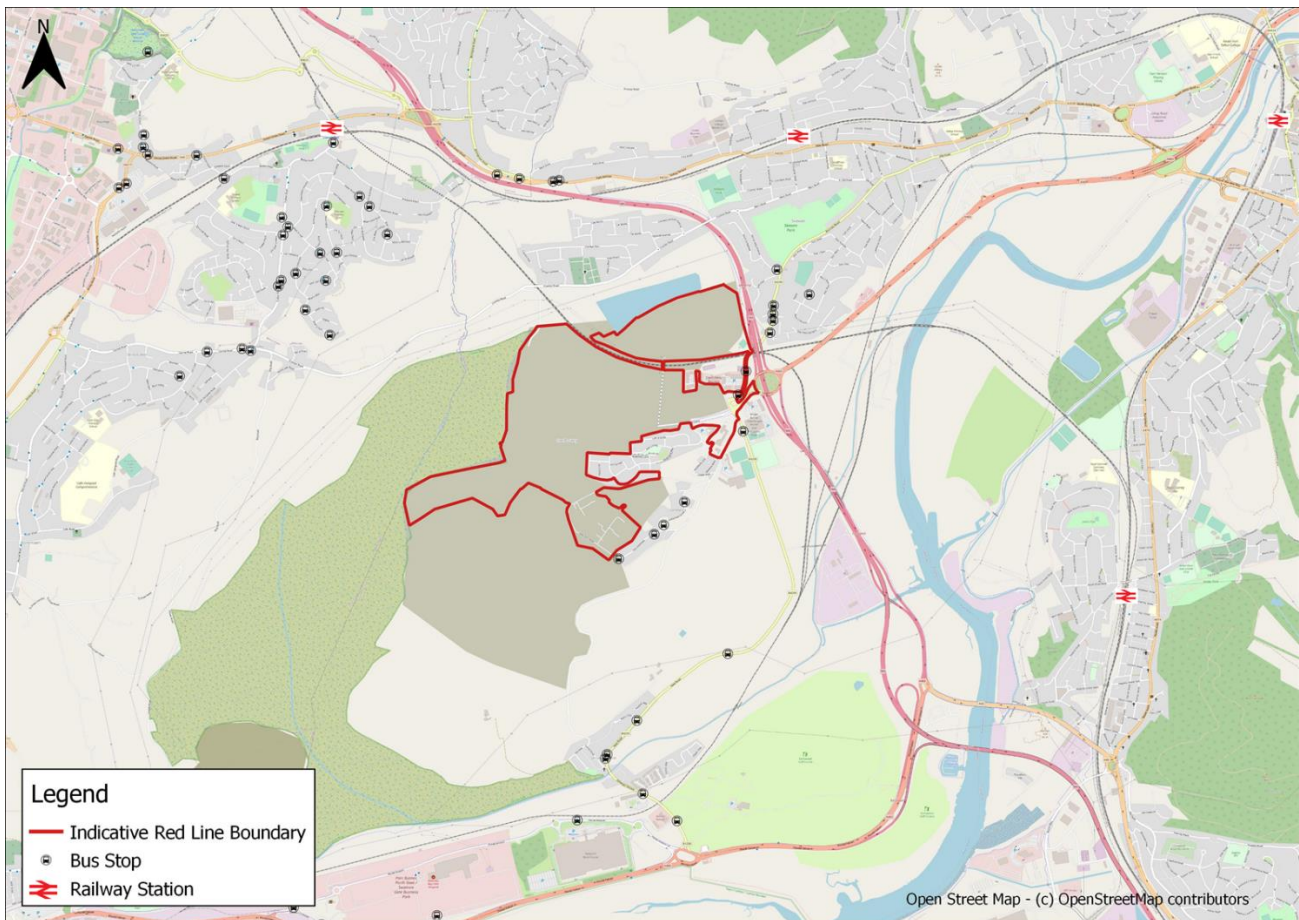
- Legend**
 - Isochrone Start Point
 - ⚡ Railway Station
- Cycling Accessibility**
 - 5 MINUTES
 - 10 MINUTES
 - 15 MINUTES
 - 20 MINUTES
- Cycle Swansea Bay Routes**
 - Bryncoch Connection
 - Central Line
 - Cross Valley
 - Neath Valley
 - Skewen Link

The map shows the city of Swansea and surrounding areas, with various roads and landmarks labeled. The isochrone start point is located near the city center. The cycling accessibility is shown in shades of blue, with the 5-minute area being the darkest blue. The cycle routes are shown in different colors: green for Bryncoch Connection, red for Central Line, orange for Cross Valley, teal for Neath Valley, and brown for Skewen Link.

This section summarises public transport provision in the vicinity of the site, including bus and rail services. A summary of the existing public transport provision is outlined in Figure 3-4.

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Figure 3-4 - Public Transport Provision



3.6.3.1. Bus

There are a range of bus services operating within the vicinity of the development site providing access to nearby towns and cities. The nearest bus stops to the proposed development are located on the B4290 (Coed Darcy bus stop, BP Llandarcy bus stop, and BP Sports Club bus stop) and are within a 10-minute walk of the B4290 / Ffordd Coed Darcy site access. There are bus shelters and timetable information at these stops. BP Sports Club has the greatest number of services providing frequent journeys towards Swansea and Neath. Further service information about the bus services within the vicinity of the development site are provided in Table 3-3.

Table 3-3 – Bus Services

Service Number	Bus Stop	Direction	Average Weekday Frequency	First/Last Weekday Service	First/Last Saturday Service	First/Last Sunday Service
155 – Neath – Neath Abbey – Skewen – Llandarcy – Coedffranc						
155	Coed Darcy	Towards Neath	Every 2 hours	09:51/17:51	09:51/17:51	No service
	BP Llandarcy	Towards Coedffranc		09:43/17:43	09:43/17:43	
X7 Cymru Clipper – Swansea – Jersey Marine – Llandarcy – Neath – Tonna – Resolven – Cwmgwrach – Glynneath						
X7 Cymru Clipper	BP Sports Club	Towards Swansea	1 service per hour	07:17/18:08	07:17/18:08	No service
	Coed Darcy	Towards Glynneath		07:58/19:00	07:58/19:00	
X75 – Merthyr Tydfil – Hirwaun – Glynneath – Resolven – Pencynor – Neath – Jersey Marine – Swansea						
X75	BP Sports Club	Towards Swansea	3 per day	09:31/17:01	09:31/17:01	No Service
	BP Sports Club	Towards Resolven		10:15/17:45	10:15/17:45	
38 – Neath – Skewen – Llandarcy – Jersey Marine – Swansea						
38	BP Sports Club	Towards Swansea	1 service per hour	07:51/18:25	07:51/18:25	09:04/18:24
	BP Sports Club	Towards Neath		08:45/18:15	08:45/18:15	09:50/19:50

Source: South Wales Transport (No. 155), First South & West Wales (No. X7, 38), Stagecoach South Wales (X75) (data obtained 07/09/2021)

3.6.3.2. Rail

The nearest Railway Station to Coed Darcy is Skewen Railway Station as shown in Figure 3-4. The Railway Station is located within a 10-minute cycle of the B4290/ Ffordd Coed Darcy access junction to Coed Darcy. The number 155 bus serves Dynevor Road, and the number 38 bus serves the A4230 New Road, both of these roads are located adjacent to Skewen Railway Station which is located on Station Road.

Skewen Railway Station is located on the South Wales Main Line and is served by Transport for Wales Swanline regional trains. Skewen Railway Station provides train services between Swansea and Cardiff which typically run every two hours with extra services provided during peak periods. Some services for Swansea continue to Llanelli, Carmarthen and Milford Haven. There is no Sunday service from Skewen Railway Station. Further service information is provided in Table 3-4.

Skewen Railway Station car park has 29 parking spaces, and the car park is free of charge. There are two uncovered bicycle storage stands at the station.

Table 3-4 - Rail Services from Skewen Railway Station

Destination	Day	Average Journey Time	Average Service Frequency	First Service	Last Service
Neath	Monday - Friday	4 minutes	1 service every 2 hours	06:49	22:04
	Saturday		1 service every 2 hours	07:21	22:03
	Sunday	No service			
Swansea	Monday - Friday	15 minutes	1 service every 2 hours	06:36	00:20
	Saturday		1 service every 2 hours	06:38	23:26
	Sunday	No service			
Cardiff Central	Monday - Friday	55 minutes	1 service every 2 hours	06:49	22:04
	Saturday		1 service every 2 hours	07:21	22:03
	Sunday	No service			

Source: National Rail (data obtained 26/08/2021)

Neath Railway Station is located within a 20-minute cycle of the B4290/ Ffordd Coed Darcy access junction to Coed Darcy. Neath Railway Station is managed by Transport for Wales and is served by Transport for Wales and Great Western Railway trains. Train service destinations from this station include Swansea, Cardiff Central, Newport, London Paddington, Skewen, and Shrewsbury. Further service information is provided in Table 3-5.

There are 64 car parking spaces and 5 accessible spaces at Neath Railway Station. There are 8 bicycle storage spaces which are not covered.

Table 3-5 - Rail Services from Neath Railway Station

Destination	Day	Average Journey Time	Average Service Frequency	First Service	Last Service
Skewen	Monday - Friday	4 minutes	1 service every 2 hours	06:33	00:16
	Saturday		1 service every 2 hours	06:34	23:22
	Sunday	No service			
Swansea	Monday - Friday	15 minutes	2 services per hour	06:33	02:05
	Saturday		2 services per hour	06:34	23:31
	Sunday		2 services per hour	08:48	00:20
Cardiff Central	Monday - Friday	45 minutes	2 services per hour	03:58	22:08
	Saturday		2 services per hour	04:08	22:08
	Sunday		2 services per hour	08:05	23:41

Source: National Rail (data obtained 26/08/2021)

3.7. Personal Injury Accident (PIA) Analysis

Personal Injury Accident (PIA) data for the latest five-year period available (2016-2020) has been obtained from Welsh Government. The PIA study area is presented in Figure 3-5 and covers the immediate highway network to the proposed development, and the A465, B4290, A483, and A48.

Figure 3-5 - PIA Study Area

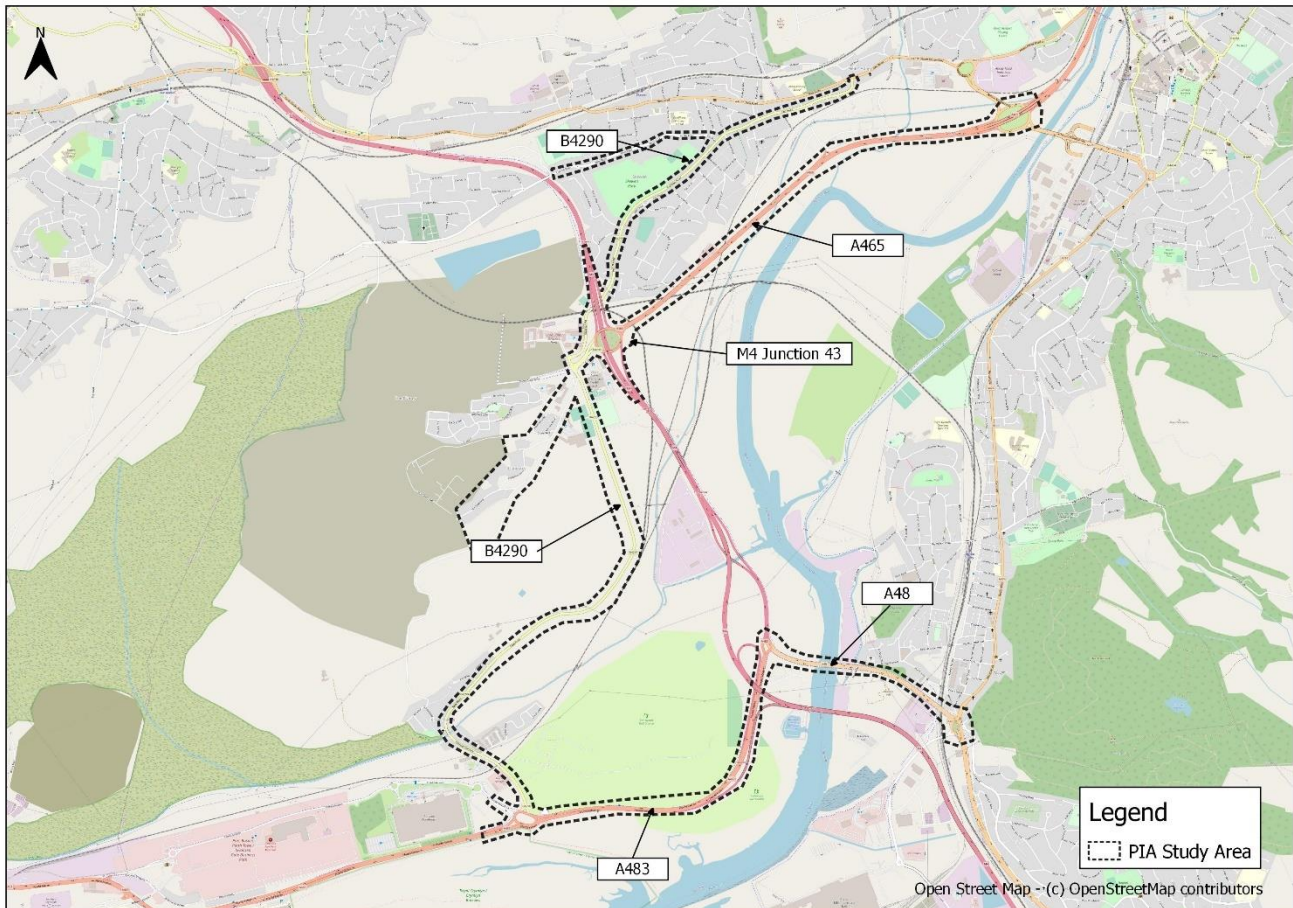
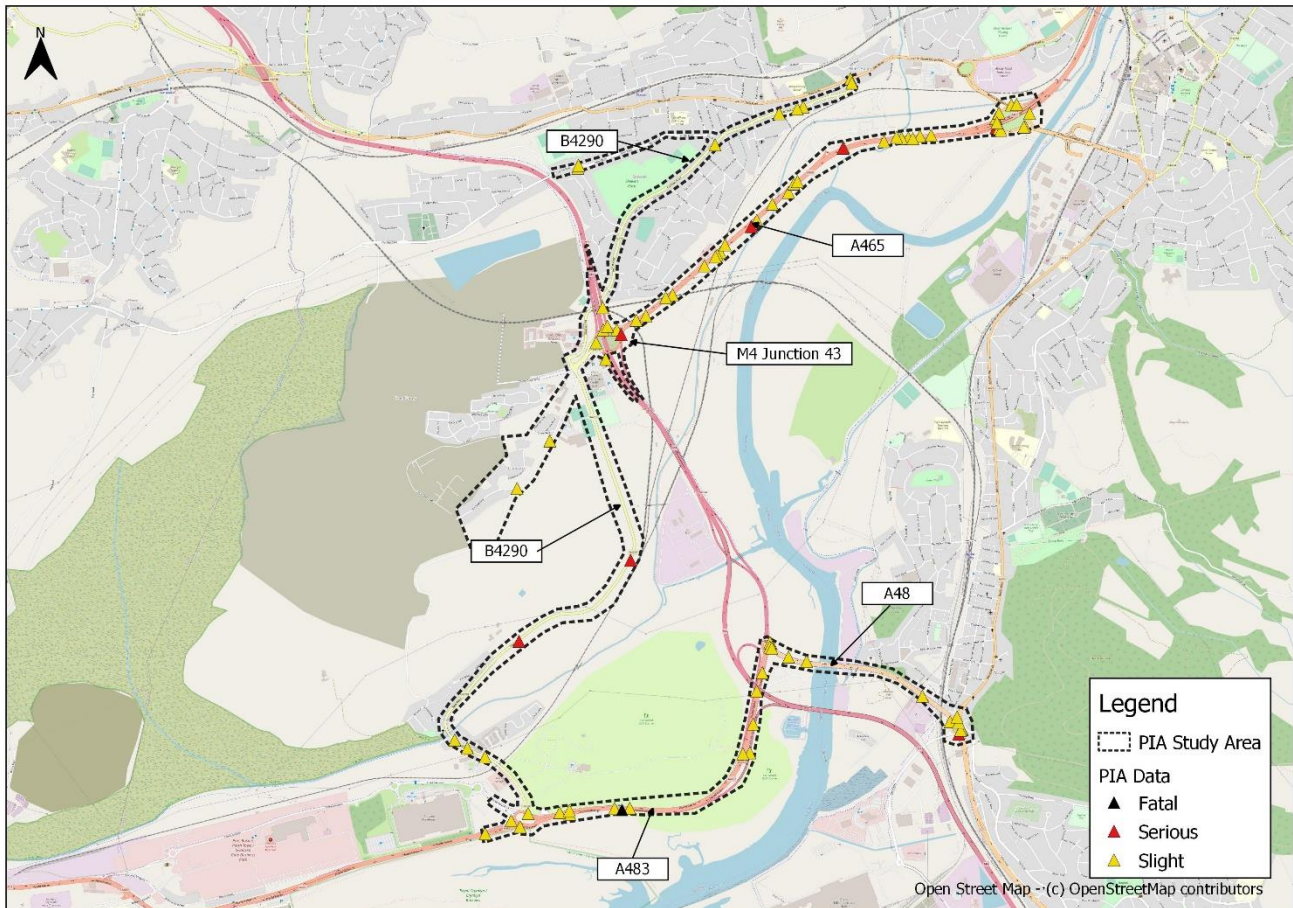


Figure 3-6 shows the location and severity of the recorded PIAs within the study area during the five-year analysis period.

Figure 3-6 - Recorded PIAs - Study Area



3.7.1. PIA Severity

The severity of a PIA is categorised as slight, serious, or fatal:

- **Slight** – one in which at least one person is slightly injured. This includes minor injuries such as sprains, bruises, slight cuts, or shock, requiring only roadside attention.
- **Serious** – one in which a person is detained in hospital as an ‘in-patient’, or any of the following injuries whether or not they are detained in hospital: fractures, concussion, internal injuries, crushing, burns (excluding friction burns), severe cuts, severe general shock requiring medical treatment and injuries causing death 30 or more days after the accidents. An injured casualty is recorded as seriously or slightly injured by the police based on information available within a short time of the accident. This generally will not reflect the results of a medical examination but may be influenced according to whether the casualty is hospitalised or not. Hospitalisation procedures will vary regionally.
- **Fatal** – one in which at least one person is killed, either immediately or at any time within 30 days after the accident.

3.7.2. PIA Severity by Year

The total number of slight, serious, and fatal accidents within the study area are shown in Table 3-6.

Table 3-6 - Severity of Accidents - Study Area (2016-2020)

Severity	2016	2017	2018	2019	2020	Total
Fatal	0	0	0	0	1	1
Serious	2	4	1	1	0	8
Slight	27	15	14	15	8	79
Total	29	19	15	16	9	88

Table 3-6 indicates that there has been one recorded fatality across the study area in the last five years, with eight serious accidents and 79 slight accidents.

3.7.3. PIA Severity by Location

Table 3-7 presents a summary of PIAs recorded by severity at the following links within the study area:

- Link 1 – A465 between M4 J43 and slip road to Neath Abbey Business Park;
- Link 2 – A465 between Neath Abbey Business Park and A465 / A474 Junction;
- Link 3 – Slip road from the M4 southbound off-slip to M4 J43;
- Link 4 – Slip road from M4 northbound off-slip to M4 J43;
- Link 5 – B4290 between M4 J43 and B4290/Ffordd Coed Darcy Signalised Junction;
- Link 6 – B4290 (North) between B4290/Ffordd Coed Darcy Signalised Junction and B4290/ B4290 Pen-Y-Heol;
- Link 7 – B4290 (North) between B4290/ B4290 Pen-Y-Heol Junction and B4290/Old Road Junction;
- Link 8 – B4290 between B4290/ Old Road Junction and A4230 New Road Junction;
- Link 9 – Old Road / Wern Road;
- Link 10 – B4290 between Ffordd Coed Darcy/ B4290 Junction and B4290/ Llandarcy Junction;
- Link 11 – Llandarcy;
- Link 12 – B4290 (South) between B4290 / Llandarcy Junction and B4290 New Road / School Road Junction in Jersey Marine;
- Link 13 – B4290 Ashleigh Terrace between B4290 New Road/ School Road Junction and B4290/ A483 (Amazon Roundabout);
- Link 14 – A483 east of B4290/ A483 (Amazon Roundabout)
- Link 15 – Ffordd Amazon;
- Link 16 – A483 between B4290 / A483 (Amazon Roundabout) and A483 / A48 Junction; and
- Link 17 – A48 between A483 / A48 Junction and A48/ Neath Road / Brunel Way Junction.

Table 3-8 presents a summary of PIAs by severity at the following junctions within the study area:

- Junction 1 – M4 J43;
- Junction 2 – B4290/A4230;
- Junction 3 – B4290 / Old Road;
- Junction 4 – Crymlyn Road / Pen-yr-alley Avenue;
- Junction 5 – B4290/Darcy Business Park Signalised Junction;
- Junction 6 – B4290/Ffordd Coed Darcy Signalised Junction;
- Junction 7 – B4290 / Llandarcy;
- Junction 8 – A465 / Neath Abbey Business Park;

- Junction 9 – A465/ A474;
- Junction 10 – B4290 New Road / B4290 Ashleigh Terrace / School Road;
- Junction 11 – B4290/A483/Ffordd Amazon (Amazon Roundabout);
- Junction 12 – M4 Junction 42/ A483; and
- Junction 13 – A48/ A474/ Brunel Way/ Old Road.

Table 3-7 - Severity of Accidents - Per Link (2016-2020)

Severity	Link 1	Link 2	Link 3	Link 4	Link 5	Link 6	Link 7	Link 8	Link 9	Link 10	Link 11	Link 12	Link 13	Link 14	Link 15	Link 16	Link 17	Total
Fatal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Serious	1	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	4
Slight	14	8	1	1	0	0	1	4	0	0	2	0	3	1	0	10	3	48
Total	15	9	1	1	0	0	0	4	0	0	2	2	3	1	0	11	3	53

Table 3-8 - Severity of Accidents - Per Junction (2016-2020)

Severity	Junction 1	Junction 2	Junction 3	Junction 4	Junction 5	Junction 6	Junction 7	Junction 8	Junction 9	Junction 10	Junction 11	Junction 12	Junction 13	Total
Fatal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Serious	1	0	0	0	0	0	0	0	2	0	0	0	1	4
Slight	4	1	0	2	0	0	0	0	11	0	3	4	6	31
Total	5	1	0	2	0	0	0	0	13	0	3	4	7	35

Table 3-7 demonstrates that one 'fatal' PIA occurred on a link within the study area between 2016 and 2020. The 'fatal' PIA was on Link 16 (A483 between B4290 / A483 (Amazon Roundabout) and A483 / A48 Junction). The analysis demonstrates that four 'serious' PIAs occurred on three different links within the study area and 48 'slight' PIAs within the study area on eleven different links within the analysis period. From the data available there is no evidence to suggest any specific pre-existing safety concerns along any of the links within the study area with no particular locations experiencing greater than expected accident rates or severities.

Table 3-8 demonstrates that no 'fatal' PIAs occurred at any of the junctions within the study area between 2016 and 2020. Four 'serious' PIAs occurred at three different junctions within the analysis period and 31 'slight' PIAs occurred across seven of the junctions within the analysis period, these were mainly concentrated at around the A465/A474 roundabout with 11 'slight' PIAs, and A48/A474/Brunel Way/ Old Road roundabout with six 'slight' PIAs. No particular locations experiencing greater than expected accident rates or severities.

4. Development Proposals

4.1. Introduction

This section of the Transport Assessment provides details of the development proposals in relation to Coed Darcy, a mixed use development located on the site of the former BP Oil Refinery, to the west of M4 Junction 43.

4.2. Development Description

Outline planning application, with all matters reserved except for strategic access, for residential uses (C2 & C3 use class), including land for education (D1 use class) with associated public open space, commercial uses (A1, A2, A3, B1, D1 & D2), commercial / employment (B2 & B8) uses, public open space, highway works, sustainable drainage, ecological mitigation and enhancement, landscaping, ground remediation, and associated engineering and infrastructure works. A masterplan for the proposed development is provided in Appendix C.

The following key design principles (and inherent mitigation) have been considered in this Transport Assessment:

- Up to 2,000 new homes⁴, comprising a mixture of market and affordable housing (Use Class C3) and extra care provision (Use Class C2);
- Land for education (either a through-school or primary school only), with associated public open space (Use Class D1);
- Circa 1.2ha of land for commercial uses (retail, employment, community, assembly and leisure uses facilities comprising a neighbourhood centre (A1, A2, A3, B1, D1 and D2 uses);
- Approximately 1.2ha of land to be used for employment uses as an extension to the existing Llandarcy Business Park (B2 and B8 Uses), in addition to retaining the existing Contractors Yard commercial uses;
- An extensive scheme for ecological mitigation;
- Open space, sports pitches, formal areas of play and informal amenity space including, a mix of informal 'greenways', landscaping, green infrastructure, walking and cycling routes and sustainable drainage systems; and
- Associated highway works, including a new pedestrian footbridge across the railway line; new and improvements to active travel links, drainage works, ecology mitigation, landscaping, ground remediation and other engineering works.

4.3. Site Access Arrangements

4.3.1. Vehicular Access

Ffordd Coed Darcy

Ffordd Coed Darcy will be the primary access to the main site of the development. Ffordd Coed Darcy is an existing access road into the site and forms a signalised junction with the B4290. This signalised junction, and existing layout of Ffordd Coed Darcy is to be retained.

Darcy Business Park

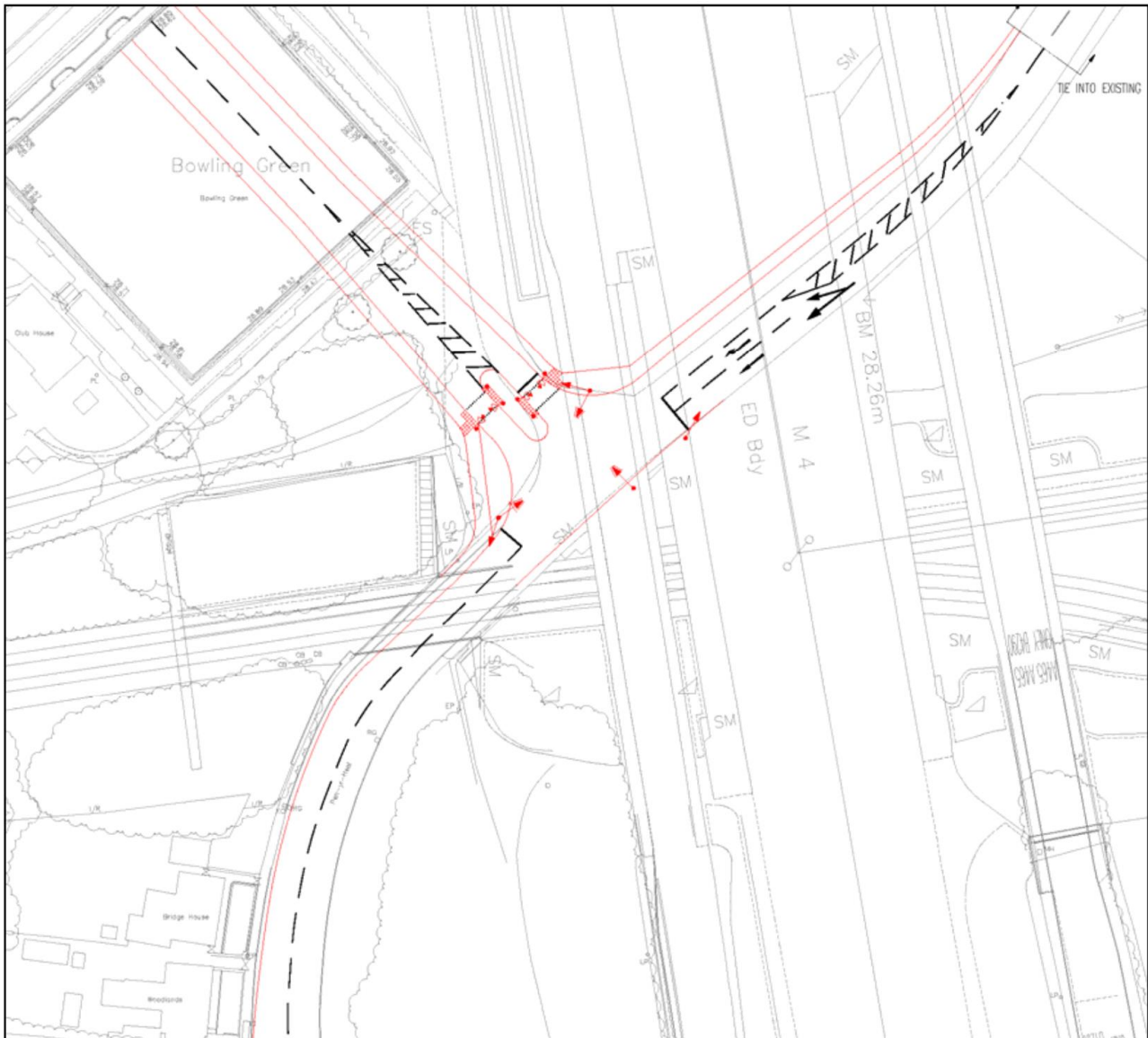
A secondary access point into the main site is provided via Darcy Business Park. Darcy Business Park road currently provides access to Darcy Business Park and the existing Contractors Yard commercial uses. It is proposed that this road will be continued further into the development site to provide through road access to residential, commercial, retail, and education land uses.

⁴ This is likely to be a maximum quantum of new dwellings. However, for the purposes of this Transport Assessment, it is anticipated that the evolving masterplanning process retain as much flexibility as possible at this stage to allow for increased housing numbers (for example, should a primary school option only be required). It should be noted that this capacity may also include a care home or sheltered accommodation.

Northern Site Access – B4290

It is proposed to provide a new access into the site from the B4290 Pen-Y-Heol, to provide vehicular access to the development site located to the north of the railway line. This section of the site is referred to as the northern site, and has been allocated for residential use. It is proposed to provide a 3-arm signal controlled junction with associated pedestrian crossing facilities as illustrated in Figure 4-1. It is also proposed to provide a right turn bay from B4290 (North) into the site. Drawing No. 5104234/M4J43/209/200 presents a scaled A3 plan provided in Appendix D.

Figure 4-1 - Signal Controlled Junction



The signal controlled junction provides inter junction visibility to the requirements set out in DMRB TD50/04.

The following swept path assessments of the junction have been undertaken to demonstrate that the proposed junction alignment will facilitate the manoeuvring of the largest design vehicles likely to use the junction:

- Drawing No. 5104234/M4J43/209/203 – Illustrates a 15.95m articulated HGV travelling along the B4290 in the vicinity of the junction;
- Drawing No. 5104234/M4J43/209/204 – Illustrates a 10.70m articulated HGV travelling into and out of the proposed junction; and

- Drawing No. 5104234/M4J43/209/205 – Illustrates a 10.47m Large Refuse Vehicle (3 axle) travelling into and out of the proposed junction.

Swept path analysis drawing are presented in Appendix D.

4.3.2. Pedestrian and Cycle Access

All the vehicular access points into the site, B4290/ Ffordd Coed Darcy, B4290/ Darcy Business Park, and the proposed junction with the B4290 all have pedestrian infrastructure. In addition, the B4290/ Ffordd Coed Darcy access is located on a shared pedestrian cyclist path, providing off-road provision for cyclists into the site from the B4290.

The two areas of land which comprise the proposed development which are dissected by the railway line will be connected for pedestrians and cyclists via an over-rail bridge. This bridge will provide pedestrian and cycle connectivity between the north and main site, without needing to use the existing pedestrian and cyclist infrastructure on the B4290.

Pedestrian and cyclist connection points will be created from the site to enable a route between Coed Darcy and Jersey Marine.

4.3.3. Servicing and Emergency Vehicles

It is proposed to provide access for servicing and emergency vehicles to the proposed development via each of the three vehicular access points.

4.4. Parking

The amount and location of parking will be determined at the detailed design stage and will comply with parking standards. Consideration has been given to the level of residential parking which should be provided based upon the CSS Wales' Wales Parking Standards 2014 document.

The car parking standards for residential land uses are noted in Table 4-1.

Table 4-1 - Residential land use car parking standards

Type of Development	Residents	Visitors
Houses	1 space per bedroom (maximum requirement 3 spaces)	1 space per 5 units
Apartments	1 space per bedroom (maximum requirement 3 spaces per apartment)	1 space per 5 units

Visitor parking should be designed as an integral part of the development where it is required and must take into account the needs of the disabled.

In terms of cycle parking, it is intended that provision will be made on-plot for houses. For apartments, a secure communal cycle parking space will be provided.

4.5. Summary

This section of the TA has outlined the development proposals for Coed Darcy. Vehicular access will be provided via the existing B4290/ Ffordd Coed Darcy, B4290/ Darcy Business Park junctions and a new junction located off the B4290 to provide vehicular access to the area of the site located to the north of the railway line. There will a designated pedestrian/cycle access within the site to connect the north and main areas which are presently segregated via the railway line. The existing pedestrian and cyclist infrastructure on the B4290 is to be retained and pedestrian provision will be incorporated into the proposed signalised junction design.

5. Trip Generation and Distribution

5.1. Introduction

This chapter provides details of the forecast trip generation of the site and it also sets out the distribution and assignment of this forecast traffic.

5.2. Trip Generation

5.2.1. Introduction

It should be noted that for the purpose of the trip generation and subsequent analysis it is considered necessary to analyse the residential trips and commercial trips generated by the site as the education land use and retail local centre would serve the proposed development site and not generate any external peak hour vehicle trips.

5.2.2. Education

The land allocated for education at Coed Darcy is still to be determined whether a primary school or a 1,000 place through-school will be built. At this stage of the project it has been assumed that trips generated by the education land use would serve the proposed development and not generate any external peak hour vehicle trips. It is acknowledged that a 1,000 place through-school at Coed Darcy would not solely serve children who live within Coed Darcy but would also serve the wider area. It is anticipated that half of the secondary school aged pupils within the through-school would be located off-site and therefore generate some external trips. However, it is likely that the majority of the external school trips would be via sustainable transport modes, primarily through school bus services, but also walking and cycling. Therefore, at this stage of the project it is not foreseen that the additional trips generated by a through-school would exceed the peak hour trips generated by 84 dwellings, the number of dwelling which would be lost on-site to accommodate a through-school.

5.2.3. Residential

TRICS version 7.8.2 was used to calculate a residential vehicular trip rate for Coed Darcy to provide an estimation of the traffic which would be generated by this site.

Trip rates have been extracted from the 03-Residential, A-Houses Privately Owned category. Although a proportion of housing will be affordable, this category has been used to provide a robust assessment of the likely trip generation. To obtain a trip rate which is representative of the size of residential development at Coed Darcy, a minimum 300 dwelling development size was applied so that small residential developments were not included in the trip rate calculation.

The three sites included in the TRICS trip rate calculation for 03/A Residential Houses, Privately owned are considered appropriate and comparable to Coed Darcy. They were surveyed in either 2018 or 2019, are out of town, close to a main road, have unrestricted on-street parking, and have comparable access to public transport facilities to the Coed Darcy development.

The forecast trip generation of the site has been based on providing up to 2,000 additional dwellings. Table 5-1 and Table 5-2 show the average trip rates per dwelling, and the resultant trips generated for 2,000 dwellings, respectively. The full TRICS outputs are provided in Appendix E.

Table 5-1 – Residential Vehicular Trip Rate (per dwelling)

Land Use	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
03/A Residential Houses Privately Owned	0.137	0.358	0.495	0.341	0.15	0.491

Table 5-2 – Residential Vehicular Trip Generation (2,000 dwellings)

	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Coed Darcy (2,000 dwellings)	274	716	990	682	300	982

Table 5-2 shows that a total of 990, and 982 vehicle trips are forecast to be generated by the residential land use in the AM and PM peak, respectively.

5.2.4. Commercial

TRICS version 7.8.2 was used to calculate a commercial vehicular trip rate for Coed Darcy to provide an estimation of the traffic which would be generated by this site. Trip rates have been extracted from the 02-Employment, D-Industrial Estate category to obtain trip rates for land use B1(c) and B2.

The peak hour vehicular trip rates extracted from the TRICS database are outlined in Table 5-3. The full TRICS outputs are provided in Appendix E.

Table 5-3 – Commercial Vehicular Trip Rate (per 100m²)

Land Use	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
02/D Employment Industrial Estate	0.783	0.498	1.272	0.263	0.630	0.893

The vehicular trip rates extracted from the TRICS database have been used to calculate the forecast peak hour trip generation for the proposed site. Table 5-4 presents the peak hour trip generation of the proposed commercial land use at the site using the trip rates in Table 5-3.

Table 5-4 – Commercial Vehicular Trip Generation (3,600m²)

	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Coed Darcy (3,600m ² commercial land)	28	18	46	9	23	32

Table 5-4 shows that a total of 46, and 32 vehicle trips are forecast to be generated by the commercial land use in the AM and PM peak hours, respectively.

5.3. Trip Distribution

5.3.1. Revised Site Access Points

The revised masterplan scheme proposes to provide two access points into the main Coed Darcy site from the existing highway network, the B4290 immediately to the west of M4 Junction 43. In addition, there will be one vehicular access point to the northern site off the B4290 Pen-Y-Heol.

5.3.2. Internal Trips

It is not considered that the proposed development would generate a substantial number of peak hour internal trips between residential and commercial land uses. Hence, to ensure a robust assessment of the impact of the development on the local highway network all residential and commercial vehicular trips generated by the site are considered to be external trips.

5.3.3. External Trips

5.3.3.1. Residential

The residential vehicle trips forecast in Table 5-2 have been distributed on the local highway using Census 2011 Journey to Work data for journeys from Middle Super Output Area (MSOA) Neath Port Talbot 010 to workplace. As the majority of development at Coed Darcy is residential it is assumed that the distribution routes will be the same in the AM and PM peak periods. The trip distribution was calculated using an online journey planning website to determine which road a vehicle would take from the proposed development site to each MSOA.

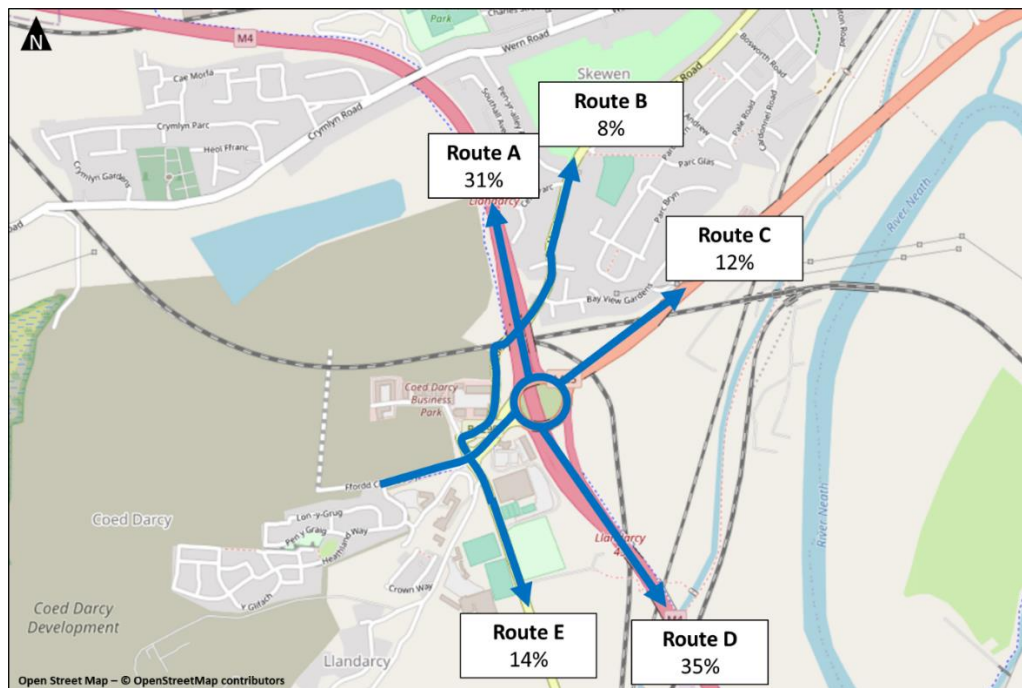
The resultant distribution and associated calculations are presented in Appendix F and summarised in Table 5-5 and Figure 5-1.

Table 5-5 – Coed Darcy Estimated Residential Vehicle Trip Distribution

Route	Distribution
A - M4 (North)	31%
B - B4290 (North)	8%
C - A465 (East)	12%
D - M4 (South)	35%
E – B4290 (South)	14%
Total	100%

Values in table rounded

Figure 5-1 - Coed Darcy Estimated Residential Vehicle Trip Distribution Routes



5.3.3.2. Commercial

The residential vehicle trips forecast in Table 5-4 have been distributed on the local highway using Census 2011 Journey to Work data for journeys from workplace Middle Super Output Area (MSOA) Neath Port Talbot 010 to usual residence. As the majority of commercial trips generated by Coed Darcy will be between workplace and home it is assumed that the distribution routes will be the same in the AM and PM peak periods. The trip

distribution was calculated using an online journey planning website to determine which road a vehicle would take from the proposed development site to each MSOA.

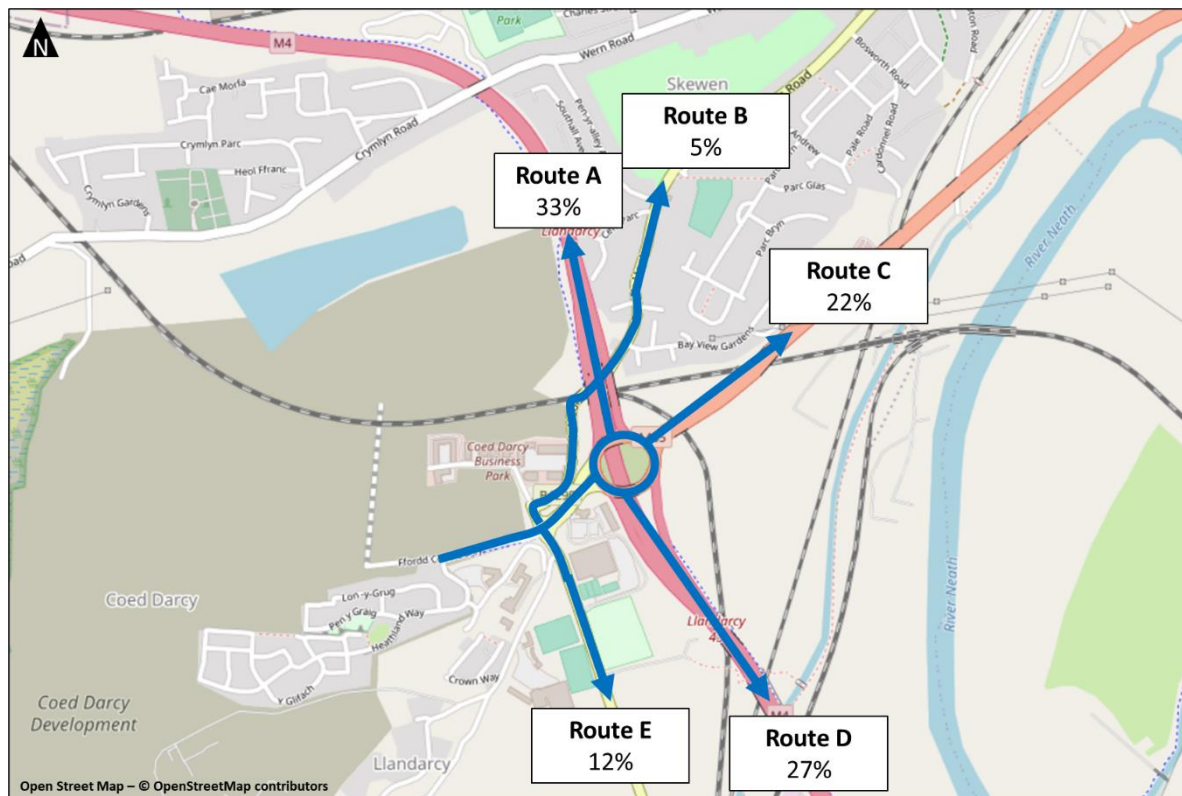
The resultant distribution and associated calculations are presented in Appendix F and summarised in Table 5-6 and Figure 5-2.

Table 5-6 – Coed Darcy Estimated Commercial Vehicle Trip Distribution

Route	Distribution
A - M4 (North)	33%
B - B4290 (North)	5%
C - A465 (East)	22%
D - M4 (South)	27%
E – B4290 (South)	12%
Total	100%

Values in table rounded

Figure 5-2 - Coed Darcy Estimated Commercial Vehicle Trip Distribution Routes



5.4. Proposed Trip Assignment

5.4.1. Residential

When the trip distribution in Figure 5-1 is applied to the trip generation presented in Table 5-2, it results in the two-way vehicle movements shown in Table 5-7.

Table 5-7 – Residential Trip Distribution Summary (Car - Neath Port Talbot 010)

Route	Distribution	AM Peak Vehicle Trips (Two-Way)	PM Peak Vehicle Trips (Two-Way)
A - M4 (North)	31%	307	304
B - B4290 (North)	8%	79	79
C - A465 (East)	12%	119	118
D - M4 (South)	35%	347	344
E - B4290 (South)	14%	139	137

Values in table rounded

The largest proportion of development traffic would travel to/from M4 (South), equating to 347 and 344 movements (two-way) during the AM and PM peak hours, respectively.

5.4.2. Commercial

When the trip distribution in Figure 5-2 is applied to the trip generation presented in Table 5-4, it results in the two-way vehicle movements shown in Table 5-8.

Table 5-8 –Commercial Trip Distribution Summary (Car - Neath Port Talbot 010)

Route	Distribution	AM Peak Vehicle Trips (Two-Way)	PM Peak Vehicle Trips (Two-Way)
A - M4 (North)	33%	15	11
B - B4290 (North)	5%	3	2
C - A465 (East)	22%	10	7
D - M4 (South)	27%	13	9
E - B4290 (South)	12%	6	4

Values in table rounded

The largest proportion of development traffic would travel to/from M4 (North), equating to 15 and 11 movements (two-way) during the AM and PM peak hours, respectively.

5.5. Conclusion

It is forecast that the proposed development would generate up to 990 and 982 two-way residential vehicle trips during the development AM and PM peak hours, respectively. In addition, it is forecast up to 46 and 32 two-way commercial vehicle trips during the development AM and PM peak hours, respectively. The vehicle trips have been determined using TRICS data for comparable developments, so reflect the current options for journeys undertaken by sustainable transport at this location. These trips have been distributed using Census 2011 Journey to Work data for journeys from MSOA Neath Port Talbot 010 to work for the residential distribution and vice versa to determine commercial trip distribution. Trip distribution has been undertaken to determine the likely routes these residential and commercial trips will take on the local highway network.

The retail and education land uses of the development are assumed to not generate any external peak hour trips as their purpose is to serve the proposed development.

6. Development Impact Assessment

6.1. Introduction

This section of the TA considers the impact of the proposed development on the existing transport network, including the off-site highway impact.

6.2. Highway Assessment Methodology

6.2.1. Traffic Data

Traffic surveys were undertaken at the locations outlined in Figure 6-1 and detailed below to inform the assessment. Classified Turning Counts (CTCs) and Queue Surveys were undertaken during the AM Peak (07:00-10:00) and PM Peak (16:00-19:00) periods on Thursday 16th September 2021. The CTCs and Queue Surveys were undertaken at the following locations:

- M4 Junction 43 – M4 (North) / A465 / M4 (South) / B4290;
- M4 Junction 44 gyratory;
- M4 Junction 45 gyratory;
- Gyratory of A465/ A474;
- B4290 (East) / B4290 (South) / Ffordd Coed Darcy / B4290 Pen-Y-Heol (North);
- B4290 Pen-Y-Heol (North) / Darcy Business Park / B4290 (South);
- B4290 / Llandarcy Academy of Sport; and
- A483 / B4290 / Ffordd Amazon.

In addition, automatic traffic counts (ATC) were undertaken at the following locations for a one-week period starting Wednesday 15th September 2021:

- M4 Junction 42 West facing slip;
- B4290 (South);
- B4290 (North); and
- Crymlyn Road.

The survey data for these sites are presented in Appendix G.

Figure 6-1 - 2021 Traffic Survey Locations



6.2.2. Traffic Growth Factors

Background traffic growth factors have been derived using TEMPro v7.2 and the NTM AF15 dataset for Neath Port Talbot 010. The traffic growth factors for AM and PM peak periods which have informed the assessment scenario traffic flows are outlined in Table 6-1. 2026 has been used to establish a future baseline year.

Table 6-1 - TEMPro Growth Factors

Year From	Year To	AM Peak				PM Peak			
		Rural Motorway	Rural Trunk	Rural Principal	Rural Minor	Rural Motorway	Rural Trunk	Rural Principal	Rural Minor
2021	2026	1.0669	1.0333	1.0446	1.0281	1.0675	1.0339	1.0452	1.0287

6.2.3. Committed Development

Phase I of Heritage Gate was granted planning permission in May 2008 for 52 dwellings (P2007/1762). This has subsequently been constructed. Trips generated by these dwellings have been accounted for within the surveys conducted in September 2021.

It is proposed for Phase II of this development to accommodate 140 dwellings. A planning application for this site was submitted in January 2019 (P2019/0021) and was granted permission in December 2019. The trip generation for this site, provided within the submitted Transport Statement is presented in Table 6-2.

Table 6-2 - Heritage Gate Phase II Trip Generation

Land Use	AM Peak Hour		PM Peak Hour	
	Arrivals	Departures	Arrivals	Departures
Residential	17	64	57	27

6.2.4. Assessment Locations

The following locations have been subject to junction capacity modelling:

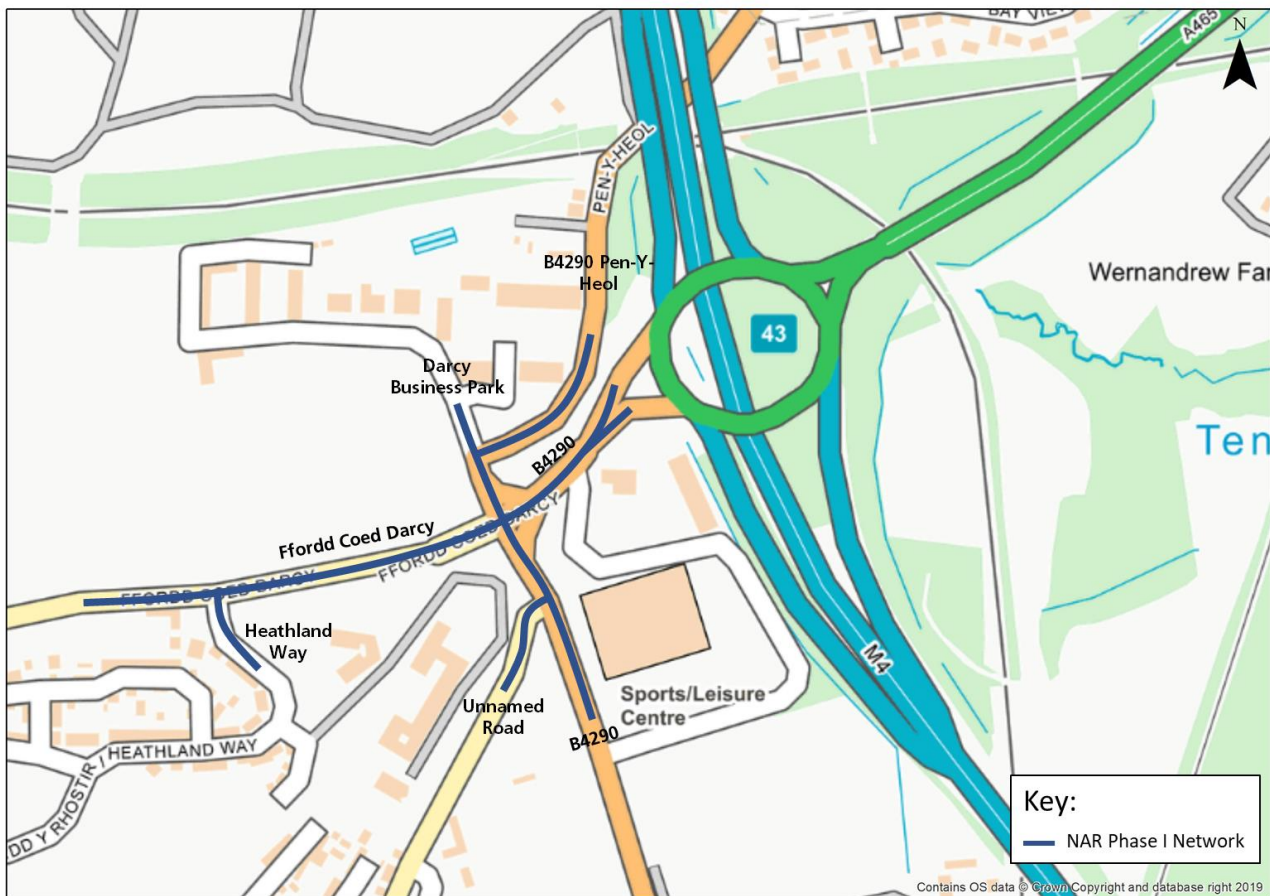
- Northern Access Road (NAR) Phase I Network;
- M4 Junction 43; and
- Proposed Northern Site Access – B4290.

The Northern Access Road (NAR) existing Phase I Network is shown in Figure 6-2, and consists of the following highway infrastructure:

- B4290 Pen-y-Heol/Darcy Business Park with a signal-controlled junction;
- B4290/ Ffordd Coed Darcy 4-arm signal controlled crossroad;
- Major/minor priority intersection of Llandarcy/ B4290 south of Ffordd Coed Darcy; and
- Major/minor priority intersection of Ffordd Coed Darcy/ Heathland Way.

The majority of traffic generated by the proposed development will travel through the NAR Phase I network, and approximately 80% of development traffic will travel through M4 Junction 43.

Figure 6-2 - NAR Phase I



6.2.5. Assessment Scenarios

The following scenarios have been used to assess the impact of the proposed development during the highway network AM Peak (07:45-08:45) and PM Peak (16:30-17:30).

- **2021 Baseline**
 - Traffic Count Data from September 2021.
- **2026 Future Assessment Year without Development**
 - Traffic Count Data Factored to 2026.
 - Heritage Gate Phase II Committed Development Traffic Added.
- **2026 Future Assessment Year with Development**
 - Traffic Count Data Factored to 2026.
 - Heritage Gate Phase II Committed Development Traffic Added.
 - Proposed Coed Darcy Development Traffic Added.

6.3. Junction Capacity Assessment

The NAR Phase I network, and M4 Junction 43 have been modelled in TRANSYT, and the proposed Northern Site Access/ B4290 signalised junction has been modelled in LinSig.

6.3.1. Assessment Software

TRANSYT

The assessment of the impact Coed Darcy development has on the local highway network has been modelled using TRANSYT 16.

In TRANSYT, results are provided in terms of Degree of Saturation (DoS) and Mean Maximum Queue (MMQ). The DoS is a measure of how much demand a junction experiences compared to its total capacity. A junction is typically considered to be operating within acceptable thresholds of capacity with a DoS of below 90% (shown in green) and over acceptable thresholds of capacity between 90% and 100% (shown in amber). A DoS of over 100% would indicate an approach operates over capacity (shown in red). The Mean Maximum Queue length on the links represents the average queue over the model period to provide a relative assessment of where queues occur and their length.

LinSig

LinSig has been used to undertake standalone junction capacity assessments for the signalised junctions. In LinSig, a Degree of Saturation (DoS) below 90% indicates that a junction operates within acceptable capacity thresholds for the assessed flows. LinSig also provides a value for Practical Reserve Capacity (PRC), with positive values indicating reserve capacity at the junction (arms with a DoS of less than 90%) and a negative value indicating no reserve capacity (arms with a DoS above 90%). It also provides queue lengths in different scenarios.

6.3.2. Junction Geometries

The geometries used to inform the TRANSYT junction modelling have been derived from OS Base Mapping using AutoCAD.

6.3.3. Northern Access Road (NAR)

The NAR network shown in Figure 6-2 has been modelled based on the existing road layout, this is referred to as NAR Phase I layout. Table 6-3 presents the TRANSYT model results of NAR Phase I network for the Coed Darcy Development.

Full TRANSYT model outputs are provided in Appendix H, including a comparison of the modelled queue lengths compared to the queue length surveys captured in September 2021.

Table 6-3 - Phase 1 NAR Road Network TRANSYT Results

Link	Jct.	Road	AM Peak			PM Peak		
			DoS (%)	MMQ (PCUs)	Storage Capacity (PCUs)	DoS (%)	MMQ (PCUs)	Storage Capacity (PCUs)
2021 Baseline								
200	2	NE Junction - Darcy Business Park	27	1.28	36.83	46	2.81	36.83
210	2	NE Junction - B4290 Pen-y-Heol - Lane 1	34	3.22	8.21	25	2.34	8.21
211	2	NE Junction - B4290 Pen-y-Heol - Lane 2 (Flare)	13	0.58	9.41	4	0.17	9.41
212	2	NE Junction - B4290 Pen-y-Heol - Approach	25	0.17	32.98	18	0.11	32.98
220	2	NE Junction - B4290 (south)	31	2.76	8.00	38	3.92	8.00
300	3	Ffordd Coed Darcy (east) - Lane 1	4	0.02	16.52	5	0.03	16.52
310	3	Heathland Way	31	0.22	34.78	18	0.11	34.78
320	3	Ffordd Coed Darcy (west) - Lane 1	0	0.00	34.78	0	0.00	34.78
391	3	Ffordd Coed Darcy (west) - Lane 1	0	0.00	33.84	0	0.00	33.84
392	3	Ffordd Coed Darcy (west) - Lane 2	4	0.02	25.27	3	0.01	25.27
500	5	SE Junction - B4290 (north) - Segregated Left	19	0.12	14.89	15	0.09	14.89
501	5	SE Junction - B4290 (north)	44	3.05	14.49	50	3.60	14.49
510	5	SE Junction - B4290 (east) - Lane 1 (Flare)	50	5.48	6.23	38	4.26	6.23
511	5	SE Junction - B4290 (east) - Lane 2	4	0.44	6.83	7	1.84	6.83
512	5	SE Junction - B4290 (east) - Lane 3	4	0.44	16.05	7	1.83	16.05
513	5	SE Junction - B4290 (east) - Lane 4 (Flare)	39	4.55	15.58	51	6.37	15.58
514	5	SE Junction - B4290 (east) - Approach - Lane 1	14	0.55	33.22	10	0.06	33.22
515	5	SE Junction - B4290 (east) - Approach - Lane 2	11	0.06	26.66	13	0.07	26.66
520	5	SE Junction - B4290 (south) - Lane 1 (Flare)	14	1.70	5.76	20	2.08	5.76

521	5	SE Junction - B4290 (south) - Lane 2	47	5.08	5.47	50	5.13	5.47
522	5	SE Junction - B4290 (south) - Approach	21	1.09	33.90	35	4.29	33.90
530	5	SE Junction – Ffordd Coed Darcy (west) - Lane 1	38	2.24	30.68	27	1.57	30.68
531	5	SE Junction – Ffordd Coed Darcy (west) - Lane 2	27	1.97	6.09	18	1.89	6.09
532	5	SE Junction – Ffordd Coed Darcy (west) - Lane 3 (Flare)	15	1.71	5.54	7	0.36	5.54
533	5	SE Junction – Ffordd Coed Darcy (west) - Approach	5	0.03	15.35	3	0.01	15.35
2026 Future Assessment Year without Development								
200	2	NE Junction - Darcy Business Park	27	1.28	36.83	52	2.93	36.83
210	2	NE Junction - B4290 Pen-y-Heol - Lane 1	35	3.32	8.21	26	2.35	8.21
211	2	NE Junction - B4290 Pen-y-Heol - Lane 2 (Flare)	13	0.58	9.41	4	0.17	9.41
212	2	NE Junction - B4290 Pen-y-Heol - Approach	26	0.18	32.98	19	0.12	32.98
220	2	NE Junction - B4290 (south)	33	2.91	8.00	39	4.36	8.00
300	3	Ffordd Coed Darcy (east) - Lane 1	4	0.02	16.52	5	0.03	16.52
310	3	Heathland Way	31	0.22	34.78	18	0.11	34.78
320	3	Ffordd Coed Darcy (west) - Lane 1	0	0.00	34.78	0	0.00	34.78
391	3	Ffordd Coed Darcy (west) - Lane 1	0	0.00	33.84	0	0.00	33.84
392	3	Ffordd Coed Darcy (west) - Lane 2	4	0.02	25.27	3	0.01	25.27
500	5	SE Junction - B4290 (north) - Segregated Left	20	0.12	14.89	15	0.09	14.89
501	5	SE Junction - B4290 (north)	50	3.31	14.49	53	3.80	14.49
510	5	SE Junction - B4290 (east) - Lane 1 (Flare)	57	5.64	6.23	52	5.51	6.23
511	5	SE Junction - B4290 (east) - Lane 2	4	0.43	6.83	7	1.84	6.83
512	5	SE Junction - B4290 (east) - Lane 3	4	0.45	16.05	7	1.83	16.05
513	5	SE Junction - B4290 (east) - Lane 4 (Flare)	42	4.77	15.58	55	6.69	15.58

514	5	SE Junction - B4290 (east) - Approach - Lane 1	17	1.35	33.22	13	0.65	33.22
515	5	SE Junction - B4290 (east) - Approach - Lane 2	11	0.06	26.66	13	0.08	26.66
520	5	SE Junction - B4290 (south) - Lane 1 (Flare)	14	1.70	5.76	20	1.99	5.76
521	5	SE Junction - B4290 (south) - Lane 2	54	5.21	5.47	53	5.19	5.47
522	5	SE Junction - B4290 (south) - Approach	28	2.70	33.90	39	5.38	33.90
530	5	SE Junction – Ffordd Coed Darcy (west) - Lane 1	38	2.24	30.68	27	1.57	30.68
531	5	SE Junction – Ffordd Coed Darcy (west) - Lane 2	27	1.97	6.09	18	1.89	6.09
532	5	SE Junction – Ffordd Coed Darcy (west) - Lane 3 (Flare)	15	1.71	5.54	7	0.36	5.54
533	5	SE Junction – Ffordd Coed Darcy (west) - Approach	5	0.03	15.35	3	0.01	15.35
2026 Future Assessment Year with Development								
200	2	NE Junction - Darcy Business Park	57	3.82	36.83	76	5.51	36.83
210	2	NE Junction - B4290 Pen-y- Heol - Lane 1	52	6.37	8.21	34	3.53	8.21
211	2	NE Junction - B4290 Pen-y- Heol - Lane 2 (Flare)	16	1.66	9.41	8	0.35	9.41
212	2	NE Junction - B4290 Pen-y- Heol - Approach	37	0.30	32.98	25	0.17	32.98
220	2	NE Junction - B4290 (south)	52	5.63	8.00	64	16.57	8.00
300	3	Ffordd Coed Darcy (east) - Lane 1	13	0.07	16.52	28	8.45	16.52
310	3	Heathland Way	35	0.27	34.78	22	0.14	34.78
320	3	Ffordd Coed Darcy (west) - Lane 1	64	2.41	34.78	31	1.18	34.78
391	3	Ffordd Coed Darcy (west) - Lane 1	10	0.05	33.84	24	0.16	33.84
392	3	Ffordd Coed Darcy (west) - Lane 2	16	0.09	25.27	7	0.04	25.27
500	5	SE Junction - B4290 (north) - Segregated Left	32	0.23	14.89	21	0.13	14.89
501	5	SE Junction - B4290 (north)	65	4.81	14.49	75	6.32	14.49
510	5	SE Junction - B4290 (east) - Lane 1 (Flare)	63	5.81	6.23	42	5.17	6.23

511	5	SE Junction - B4290 (east) - Lane 2	19	1.92	6.83	35	4.59	6.83
512	5	SE Junction - B4290 (east) - Lane 3	19	1.94	16.05	36	4.60	16.05
513	5	SE Junction - B4290 (east) - Lane 4 (Flare)	68	7.83	15.58	81	13.32	15.58
514	5	SE Junction - B4290 (east) - Approach - Lane 1	21	1.87	33.22	21	0.25	33.22
515	5	SE Junction - B4290 (east) - Approach - Lane 2	19	0.11	26.66	30	0.22	26.66
520	5	SE Junction - B4290 (south) - Lane 1 (Flare)	28	2.11	5.76	39	3.40	5.76
521	5	SE Junction - B4290 (south) - Lane 2	71	5.81	5.47	61	5.41	5.47
522	5	SE Junction - B4290 (south) - Approach	34	4.27	33.90	49	8.21	33.90
530	5	SE Junction – Ffordd Coed Darcy (west) - Lane 1	75	8.47	30.68	73	5.18	30.68
531	5	SE Junction – Ffordd Coed Darcy (west) - Lane 2	56	5.73	6.09	53	3.42	6.09
532	5	SE Junction – Ffordd Coed Darcy (west) - Lane 3 (Flare)	25	2.16	5.54	21	1.75	5.54
533	5	SE Junction – Ffordd Coed Darcy (west) - Approach	17	0.10	15.35	8	0.04	15.35

The modelled queues for the NAR Phase I Baseline scenario are comparable with the queue surveys undertaken in September 2021 and therefore demonstrate that the model reflects the existing conditions well.

The results presented in Table 6-3 show that the NAR Phase I network is forecast to operate within capacity in the AM and PM peak in all of the assessment scenarios. Though the Mean Maximum Queue of Link 521 exceeds the Storage Capacity of the link in 2026 with Development scenario, the upstream links have the capacity to accommodate the queue.

6.3.4. M4 Junction 43

The M4 Junction 43 network has been modelled based on the existing road layout. Table 6-4 presents the TRANSYT model results of M4 Junction 43 network for the Coed Darcy Development.

Full TRANSYT model outputs are provided in Appendix H, including a comparison of the modelled queue lengths compared to the queue length surveys captured in September 2021.

Table 6-4 – M4 Junction 43 TRANSYT Results

Link	Road	AM Peak			PM Peak		
		DoS (%)	MMQ (PCUs)	Storage Capacity (PCUs)	DoS (%)	MMQ (PCUs)	Storage Capacity (PCUs)
2021 Baseline							
700	M4 J43 SB Off-Slip - Lane 1	78	10.04	36.74	88	13.45	36.74
701	M4 J43 SB Off-Slip - Lane 2	78	10.66	39.43	88	14.20	39.43
710	M4 J43 NB Gyratory - Lane 1	49	4.77	12.50	54	5.40	12.50
720	M4 J43 NB Gyratory - Lane 2	47	1.12	13.00	65	2.96	13.00
730	M4 J43 NB Gyratory - Lane 3	26	6.42	13.00	17	4.02	13.00
800	A465 approach to M4 J43 - Lane 1	96	32.18	37.62	74	13.73	37.62
801	A465 approach to M4 J43 - Lane 2	73	14.33	39.67	57	8.64	39.67
810	A465 Gyratory - Lane 1	85	5.13	5.50	53	0.83	5.50
820	A465 Gyratory - Lane 2	45	3.76	7.50	42	3.43	7.50
900	M4 NB Off-Slip - Lane 1	91	13.80	40.57	89	15.94	40.57
901	M4 NB Off-Slip - Lane 2	91	14.38	43.00	89	16.65	43.00
910	M4 J43 SB Gyratory - Lane 1	59	9.63	18.50	60	9.14	18.5
920	M4 J43 SB Gyratory - Lane 2	57	10.77	19.00	51	7.15	19.00
990	B4290 exit from M4 J43	27	0.18	40.10	31	0.23	40.10
1000	B4290 approach to M4 J43 - Lane 1	90	10.68	40.22	80	7.79	40.22
1001	B4290 approach to M4 J43 - Lane 2	90	11.20	43.56	80	8.30	43.56
1010	B4290 Gyratory - Lane 1	23	1.69	9.00	17	1.92	9.00
1020	B4290 Gyratory - Lane 2	71	8.32	10.00	63	7.40	10.00
1030	B4290 Gyratory - Lane 3	35	1.53	11.00	46	4.85	11.00
2026 Future Assessment Year without Development							
700	M4 J43 SB Off-Slip - Lane 1	65	8.89	36.74	91	15.53	36.74
701	M4 J43 SB Off-Slip - Lane 2	65	9.48	39.43	91	16.42	39.43

710	M4 J43 NB Gyratory - Lane 1	59	6.77	12.50	58	5.64	12.50
720	M4 J43 NB Gyratory - Lane 2	59	4.28	13.00	72	3.33	13.00
730	M4 J43 NB Gyratory - Lane 3	32	6.63	13.00	19	4.33	13.00
800	A465 approach to M4 J43 - Lane 1	106	69.55	37.62	77	15.05	37.62
801	A465 approach to M4 J43 - Lane 2	81	17.60	39.67	59	9.19	39.67
810	A465 Gyratory - Lane 1	70	2.41	5.50	57	0.97	5.50
820	A465 Gyratory - Lane 2	39	3.93	7.50	49	4.11	7.50
900	M4 NB Off-Slip - Lane 1	93	15.27	40.57	93	18.69	40.57
901	M4 NB Off-Slip - Lane 2	93	15.99	43.00	93	19.55	43.00
910	M4 J43 SB Gyratory - Lane 1	67	10.92	18.50	67	11.11	18.50
920	M4 J43 SB Gyratory - Lane 2	56	7.60	19.00	55	8.64	19.00
990	B4290 exit from M4 J43	28	0.20	40.10	35	0.27	40.10
1000	B4290 approach to M4 J43 - Lane 1	107	25.50	40.22	79	8.01	40.22
1001	B4290 approach to M4 J43 - Lane 2	107	26.99	43.56	79	8.56	43.56
1010	B4290 Gyratory - Lane 1	26	3.42	9.00	18	1.71	9.00
1020	B4290 Gyratory - Lane 2	69	9.49	10.00	66	7.93	10.00
1030	B4290 Gyratory - Lane 3	37	2.82	11.00	51	6.22	11.00

2026 Future Assessment Year with Development

700	M4 J43 SB Off-Slip - Lane 1	71	10.2	36.74	98	24.42	36.74
701	M4 J43 SB Off-Slip - Lane 2	71	10.86	39.43	98	25.89	39.43
710	M4 J43 NB Gyratory - Lane 1	48	5.44	12.50	50	5.59	12.50
720	M4 J43 NB Gyratory - Lane 2	64	5.22	13.00	88	7.38	13.00
730	M4 J43 NB Gyratory - Lane 3	32	6.70	13.00	28	6.17	13.00
800	A465 approach to M4 J43 - Lane 1	109	87.08	37.62	105	54.60	37.62
801	A465 approach to M4 J43 - Lane 2	81	17.60	39.67	74	13.90	39.67
810	A465 Gyratory - Lane 1	71	2.55	5.50	44	4.47	5.50
820	A465 Gyratory - Lane 2	58	6.15	7.50	57	7.33	7.50

900	M4 NB Off-Slip - Lane 1	101	25.35	40.57	100	30.54	40.57
901	M4 NB Off-Slip - Lane 2	101	26.37	43.00	100	31.98	43.00
910	M4 J43 SB Gyratory - Lane 1	77	14.08	18.50	89	18.35	18.50
920	M4 J43 SB Gyratory - Lane 2	56	7.60	19.00	70	10.05	19.00
990	B4290 exit from M4 J43	39	0.32	40.10	60	0.76	40.10
1000	B4290 approach to M4 J43 - Lane 1	182	158.79	40.22	108	30.48	40.22
1001	B4290 approach to M4 J43 - Lane 2	182	171.62	43.56	108	32.48	43.56
1010	B4290 Gyratory - Lane 1	26	3.43	9.00	9	0.84	9.00
1020	B4290 Gyratory - Lane 2	65	9.08	10.00	66	9.74	10.00
1030	B4290 Gyratory - Lane 3	40	4.12	11.00	60	9.60	11.00

The modelled queues for the M4 Junction 43 Baseline scenario are comparable with the September 2021 queue surveys undertaken and therefore demonstrate that the model reflects the existing conditions well.

The results presented in Table 6-4 show that M4 Junction 43 already operates over acceptable thresholds of capacity in the 2021 Base during the AM Peak. In the 2021 Base AM Peak the junction operates over acceptable thresholds of capacity on A465 Lane 1 approach (DoS 96%), and both M4 Junction 43 northbound off-slip lanes (DoS 91%). The performance of the junction is forecast to reduce in 2026 without Development scenario, and further still in the 2026 with Development scenario, with the DoS exceeding 100% on the A465 approach, B4290 approach, and M4 Junction 43 northbound off-slip.

It is therefore considered that the proposed development could further exacerbate the performance M4 Junction 43 and mitigation is therefore proposed. Section 7 of this report provides more detail regarding the mitigation proposals.

6.3.5. Proposed Northern Site Access – B4290

The proposed northern site access signalised junction with the B4290 has been modelled based on the design in Appendix D. Table 6-5 presents the LinSig model results of proposed northern site access – B4290 signalised junction.

Full LinSig model outputs are provided in Appendix I.

Table 6-5 - Proposed Northern Site Access - B4290 Junction - LinSig Results

Approach Arm	AM Peak			PM Peak		
	DoS (%)	MMQ (PCU)	Delay (s)	DoS(%)	MMQ (PCU)	Delay (s)
2026 Future Assessment Year with Development						
B4290 (South)	28.4	2.7	8.0	44.8	4.6	5.9
B4290 (North)	42.8	4.7	9.2	27.9	2.4	4.9
Proposed Site Access	41.6	3.0	25.7	32.8	1.4	34.7
PRC (%) / Cycle Time (s)	110.2% / 60(s)			101.0% / 60(s)		

The results from the standalone junction capacity modelling indicate that the Proposed Northern Site Access/ B4290 signalised junction is forecast to operate within acceptable thresholds of capacity in all the assessed scenarios.

6.4. Traffic Impact on Other Junctions and Links

The impact of Coed Darcy traffic on other adjacent major road junctions and local links has been undertaken. The background flow information is derived from the CTCs and ATCs undertaken in September 2021, additional details of the 2021 survey data is provided in Section 6.2.1.

The number of Coed Darcy trips at each of the junctions and links presented in Table 6-7 is derived from the trip distribution outlined in Section 5.3. To ensure a robust assessment, and given the variety of route options on offer to road users, the trip distribution values presented in Section 5.3 have been extended to these additional junctions and links (see Table 6-6). For example, the trip distribution values which have been applied to M4 Junction 44 and M4 Junction 45 assumes all traffic generated by Coed Darcy which travels north on the M4 will use each of these junctions. In practical terms this will not be the case as a proportion of the trips generated by Coed Darcy will bypass the motorway junctions and continue on the mainline carriageway, and Coed Darcy traffic will use one of the motorway junctions but not both.

Table 6-6 - Coed Darcy Traffic Assumptions at Other Junctions and Links

	Residential	Commercial
A465 / A474	12% (Route C)	22% (Route C)
A483 / B4290 / Ffordd Amazon	14% (Route E) plus assumed 6% of traffic which uses Route A travels through this junction towards Swansea	12% (Route E) plus assumed 6% of traffic which uses Route A travels through this junction towards Swansea
M4 Junction 44	31% (Route A)	33% (Route A)
M4 Junction 45	31% (Route A)	33% (Route A)
M4 Junction 42 (southbound slip to A483)	0% - No Coed Darcy trips have been distributed to use this route	0% - No Coed Darcy trips have been distributed to use this route
B4290 South	14% (Route E)	12% (Route E)
B4290 North	8% (Route B)	5% (Route B)
Crymlyn Road	0% - No Coed Darcy trips have been distributed to use this route	0% - No Coed Darcy trips have been distributed to use this route

Table 6-7 - Traffic Impact on Other Junctions with Coed Darcy Development

Junction / Link	Peak Period	Background Flows (Total Vehicles at Junction)		No. Coed Darcy Trips at Junction	% Increase
		2021 Flow	2026 Flow		
A465 / A474 (gyratory)	AM	3,411	3,547	124	3.5%
	PM	3,738	3,888	123	3.2%
A483 / B4290 / Ffordd Amazon	AM	2,735	2,863	206	7.2%
	PM	3,418	3,576	204	5.7%
M4 Junction 44	AM	3,231	3,387	317	9.4%
	PM	3,349	3,521	314	8.9%
M4 Junction 45	AM	5,240	5,507	317	5.8%
	PM	5,335	5,604	314	5.6%
	AM	740	789	0	0.0%

Junction / Link	Peak Period	Background Flows (Total Vehicles at Junction)		No. Coed Darcy Trips at Junction	% Increase
		2021 Flow	2026 Flow		
M4 Junction 42 (southbound slip to A483)	PM	612	653	0	0.0%
B4290 South Link	AM	440	452	138	30.5%
	PM	444	457	137	30.0%
B4290 North Link	AM	613	630	92	14.6%
	PM	695	714	91	12.7%
Crymlyn Road	AM	166	171	0	0.0%
	PM	228	235	0	0.0%

Table 6-7 shows that the impact of traffic from Coed Darcy on other motorway junctions (M4 Junction 42, 44, and 45) as well as 'A' Road junctions (A483/B4290/Ffordd Amazon, and A465/A474) is less than 10% and as such is determined to be insignificant to cause a material impact.

7. Mitigation

7.1. Proposed Highway Mitigation – M4 Junction 43

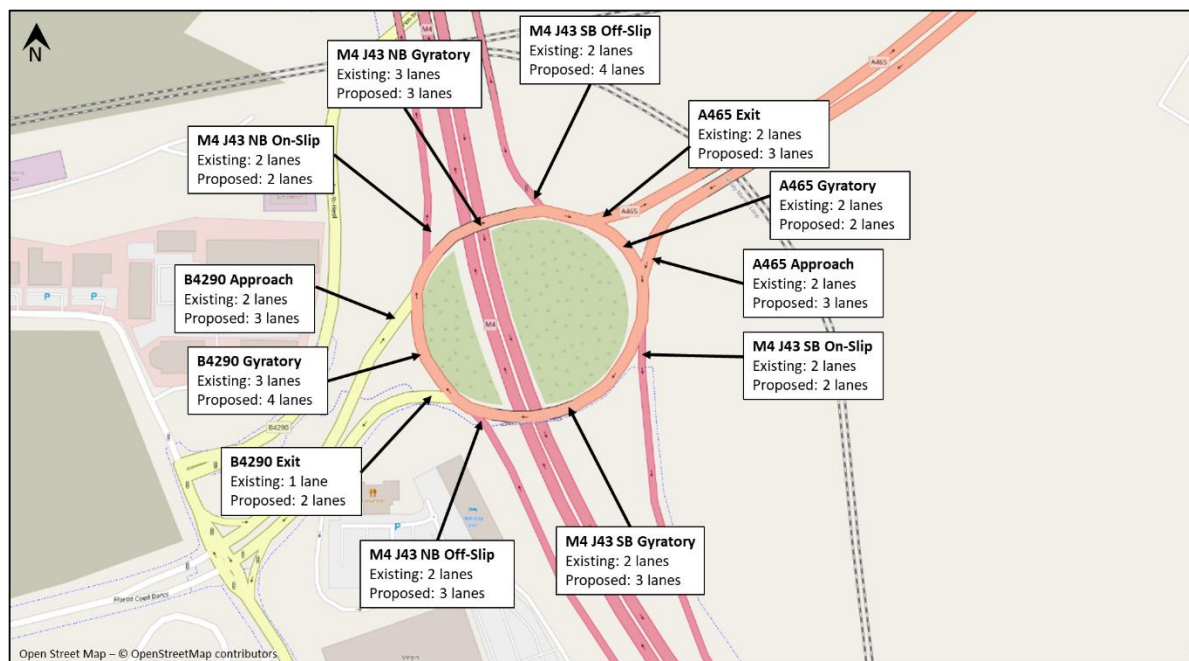
7.1.1. Introduction

The results of the TRANSYT modelling demonstrate that M4 Junction 43 already operates over acceptable capacity thresholds of capacity in the 2021 Base AM Peak. However, the operational performance of the junction is further reduced during the ‘2026 without Development’ and ‘2026 with Development’ scenario. It is therefore considered that the proposed development could further exacerbate the performance of M4 Junction 43 and mitigation is therefore proposed.

7.1.2. Junction Layout

The proposed highway mitigation scheme at M4 Junction 43 comprises increasing the number of lanes on some of the gyratory sections, approach arms, and exits, and amendments to existing lane markings. Figure 7-1 outlines the differences between the existing M4 Junction 43 layout and the proposed layout from the highway mitigation scheme in terms of number of lane changes. A detailed drawing of the proposed highway mitigation scheme at M4 Junction 43 is presented in Appendix J.

Figure 7-1 - M4 Junction 43 Existing Layout vs Proposed Highway Mitigation Layout



7.1.3. Junction Assessment

Table 7-1 presents the results of the TRANSYT modelling for the proposed highway mitigation improvement scheme at M4 Junction 43. The full outputs are provided in Appendix H.

Table 7-1 - M4 Junction 43 TRANSYT Results (Proposed Highway Mitigation)

Link	Road	AM Peak			PM Peak		
		DoS (%)	MMQ (PCUs)	Storage Capacity (PCUs)	DoS (%)	MMQ (PCUs)	Storage Capacity (PCUs)
2026 Future Assessment Year with Development							
700	M4 J43 SB Off-Slip - Lane 1	73	6.24	6.77	52	5.66	6.77
701	M4 J43 SB Off-Slip - Lane 2	73	6.45	7.35	52	6.01	7.35
702	M4 J43 SB Off-Slip – Lane 3	73	6.82	7.89	52	6.25	7.89
703	M4 J43 SB Off-Slip – Lane 4	67	5.81	6.77	56	6.46	6.77
704	M4 J43 SB Off-Slip – Lane 1	29	0.21	29.39	36	0.28	29.39
705	M4 J43 SB Off-Slip – Lane 2	28	0.19	31.54	38	0.96	31.54
710	M4 J43 NB Gyratory - Lane 1	33	0.86	12.50	38	6.79	12.50
720	M4 J43 NB Gyratory - Lane 2	40	5.43	12.50	53	5.03	12.50
730	M4 J43 NB Gyratory - Lane 3	56	11.76	13.00	69	6.56	13.00
800	A465 approach to M4 J43 - Lane 1	85	18.58	37.62	75	13.49	37.62
801	A465 approach to M4 J43 - Lane 2	85	19.45	7.93	75	14.13	7.93
802	A465 approach to M4 J43 - Lane 3	36	4.37	6.77	31	3.78	6.77
803	A465 approach to M4 J43 - Lane 2	71	1.22	31.74	56	0.64	31.74
810	A465 Gyratory - Lane 1	82	5.35	7.00	27	3.25	7.00
820	A465 Gyratory - Lane 2	66	7.99	9.00	72	6.56	9.00
900	M4 NB Off-Slip - Lane 1	39	4.45	16.92	57	8.43	16.92
901	M4 NB Off-Slip - Lane 2	58	7.62	20.29	39	5.31	20.29
902	M4 NB Off-Slip - Lane 3	58	8.02	43.00	69	12.23	43.00
903	M4 NB Off-Slip - Lane 1	35	0.27	20.29	45	0.41	20.29
910	M4 J43 SB Gyratory - Lane 1	43	6.70	17.50	73	10.85	17.50
920	M4 J43 SB Gyratory - Lane 2	70	11.42	18.00	78	12.84	18.00

930	M4 J43 SB Gyratory – Lane 3	41	4.27	18.00	41	4.66	18.00
990	B4290 exit from M4 J43	35	0.26	40.10	53	0.57	40.10
1000	B4290 approach to M4 J43 - Lane 1	64	7.88	40.22	55	5.41	40.22
1001	B4290 approach to M4 J43 - Lane 2	48	5.91	43.56	37	3.63	43.56
1002	B4290 approach to M4 J43 – Lane 3	84	13.62	43.56	84	11.07	43.56
1010	B4290 Gyratory - Lane 1	58	7.26	9.00	39	8.44	9.00
1020	B4290 Gyratory - Lane 2	39	5.18	9.00	26	5.39	9.00
1030	B4290 Gyratory - Lane 3	38	7.49	9.50	30	2.04	9.50
1040	B4290 Gyratory – Lane 4	39	8.04	10.00	54	4.01	10.00

The results of the M4 Junction 43 TRANSYT modelling indicates that the proposed highway mitigation improvement scheme at M4 Junction 43 would reduce the impact of the development proposal and the junction would operate within acceptable thresholds of capacity.

7.2. Sustainable Travel Improvements

Based on the findings from the site visit and desktop research, the WCHAR and the walking and cycling audits have identified a series of opportunities for improvement. Table 7-2 presents the improvement opportunities identified in the WCHAR that have been recommended for consideration as part of the Coed Darcy scheme design. Full details of the WCHAR opportunities can be found in Appendix A.

Table 7-3 summarises the suggested amendments to the walking and cycling routes audited. Full details of the improvement opportunities suggested in the walking and cycling audit can be found in Appendix B.

The delivery of the opportunities are subject to agreement with NPTCBC, and S106 funding.

Table 7-2 – WCHAR Sustainable Travel Improvement Opportunities

Opportunity	Description
Vegetation Management	- Baseline condition review found existing available widths on walking and cycling network reduced due to overgrown vegetation and verge creep. - Implement a vegetation management plan across the walking and cycling facilities around M4 Junction 43 and Coed Darcy.
Drain Covers	- Replace any utility cover within scheme extents to one that is more suitable for cyclists. - Existing utility covers within scheme extent found to potentially lead to a cyclist losing grip if ice were to build up on cover.
Signage	- Improve signage for pedestrians/ cyclists around the site and study area. - Site visit discovered issues with signage including walking/cycling signage being blocked by other types of signage, the wrong status being displayed on signage, and lack of direction signage for pedestrians/cyclists at some decision points.
Street Furniture Layout	- Improve street furniture layout - Site visit discovered a lighting column located in the middle of the pedestrian side of the segregated provision at M4 Junction 43, and signage creating pinch points at Ffordd Coed Darcy/ B4290 junction and the shared/segregated provision on the B4290.

Opportunity	Description
Ffordd Coed Darcy / B4290 Junction	Redesign existing staggered island on Ffordd Coed Darcy arm as current provision is narrow at approximately 1.5m wide, and existing staggered island is difficult for cyclists to negotiate due to tight corners and closeness to pedestrians.
Drainage Investigations	- Evidence of minor ponding on tactile paving of Ffordd Coed Darcy/ B4290 junction observed on site visit - Therefore opportunity to investigate whether any drainage improvement can be made to stop water ponding at this location
Improvements to existing walking/ cycling provisions between Coed Darcy and M4 Junction 43	- The existing walking/cycling provisions that connect Coed Darcy to M4 Junction 43 has been described as being very poor. - Improvements along this route could include: - Providing an improved transition point at the connection where the existing shared/segregated provisions meet as currently these two different provisions are not aligned with each other - Widen segregated provision towards M4 Junction 43 and across the junction - Improve crossing point and shared path across refuge on the B4290 leading to Darcy Business Park by providing a controlled and wider arrangement and tactile units for those who have impeded sight
Pen-Y-Heol (B4290)/ Crymlyn Road Link	Feasibility study to establish what improvements can be made to the link to make it a more appealing route as baseline assessment found the link to have no street lighting provision, suffer verge creep, and a closed gate at the Pen-Y-Heol (B4290) end of the link.
B4290/ Harvester Access Junction	Opportunity to improve the uncontrolled crossing point across the Harvester access junction which currently has poor visibility for crossing users, due to vegetation and signage located in the verge.
Pen-Y-Heol (B4290) uncontrolled crossing and footway	- Site visit found issues at this location – no tactile paving, northern side of the crossing point existing visibility between motorists and pedestrians poor when the parking bay is being used, poor footway width due to overgrown vegetation - Installing a suitable crossing point which has good visibility splays between pedestrians and motorists, cutting back vegetation and widening the footway. - Parking bay could also be relocated to accommodate a widened footway
Pen-Y-Heol (B4290) shared provision	Opportunity to see if the existing provision can be extended so that it connects to the Heol Crymlyn link as a minimum.

Table 7-3 - Walking and Cycling Audit - Improvement Opportunities

Mode	Suggested Improvements
Walking	• Install lighting • Ensure walking routes have open access • Update pedestrian provisions to at least a minimum standard in terms of condition, footway width, width of staggered crossings/ pedestrian islands/ refuges • Amend crossing points to ensure visibility is achieved between pedestrians/ motorists and include appropriate tactile paving, kerb and drainage provision • Update signage and include signage at all decision points • Cut back vegetation • Upgrade uncontrolled crossing points to be controlled crossing points – particularly at M4 Junction 43
Cycling	• Provide continuous routes • Provide continuous off-road provision designed to the latest standards with an appropriate buffer (when the route is parallel to the highway), including a smooth high grip surface • Provide segregated/ shared provision • Connect routes into other cycle routes in the area • Ensure recommended widths are maintained throughout whole route • Update signage and include signage at all decision points • Ensure routes are lit to highway standards • Provide secure cycle parking sufficient to meet demand

8. Summary and Conclusion

8.1. Summary

Atkins has been commissioned to prepare a TA, and FTP to support the OPA for the proposed mixed use development at Coed Darcy, Llandarcy.

The OPA at Coed Darcy is for up to 2,000 dwellings, the associated access, ecological mitigation, local employment, local retail, leisure and community facilities, land for education facilities and supporting amenity space, landscaping, green infrastructure, remediation and sustainable drainage systems.

Pre-Application scoping discussions have been undertaken with NPTCBC. As the project has developed, we have sought to engage in further discussions with NPTCBC prior to the submission of the OPA.

The purpose of this TA is to evaluate the transportation aspects of the proposed development proposals and consider the existing highway network and sustainable transport provision within the vicinity of the proposed development. The TA has been prepared in accordance with Welsh Government Technical Advice Notes (TAN) 18 and the Wales Transport Strategy.

This TA has provided a summary of the relevant national, regional, and local transport policy context. A review of the existing transport conditions within the vicinity of the proposed development has shown that the site benefits from good access to existing sustainable travel provision, with good public transport links located within acceptable walking and cycling distances. The PIA analysis undertaken does not provide any evidence to suggest that there is an existing highway safety issue which would be influenced by the proposed development.

The TA has outlined the development proposals, including details of vehicular access points, pedestrian and cycle access.

It is forecast that the proposed development would generate up to 990 and 982 two-way residential vehicle trips during the development AM and PM peak hours, respectively. In addition, it is forecast up to 46 and 32 two-way commercial vehicle trips during the development AM and PM peak hours, respectively. The retail and education land uses of the development are assumed to not generate any external peak hour trips as their purpose is to serve the proposed development, so would only generate internal vehicular trips within the Coed Darcy site.

LinSig has been used to undertake standalone junction capacity assessment of Proposed Northern Site Access/ B4290 signalised junction. The LinSig model indicates that the proposed signalised junction is forecast to operate within capacity in the AM and PM peak in the 2026 Future Assessment Year with Coed Darcy development.

TRANSYT has been used to undertake junction capacity assessment of the NAR Phase I network. The NAR Phase I network includes the B4290, Darcy Business Park and Ffordd Coed Darcy. The results from the TRANSYT modelling indicates that the NAR Phase I network is forecast to operate within capacity in the AM and PM peak in the 2026 Assessment Year with Coed Darcy Development. Though the Mean Maximum Queue of one link in the AM peak exceed the Storage Capacity of the link, the upstream links have the capacity to accommodate the queue.

The results of the TRANSYT modelling of M4 Junction 43 demonstrate that M4 Junction 43 already operates over acceptable thresholds of capacity in the 2021 Base AM peak. However, the operational performance of the junction is further reduced during the '2026 Assessment Year with Coed Darcy Development' scenario. It is therefore considered that the proposed development could further exacerbate the performance of M4 Junction 43 and mitigation is therefore proposed.

The proposed highway mitigation scheme at M4 Junction 43 comprises increasing the number of lanes on some of the gyratory sections, approach arms, and exits, and amendments to existing lane markings. It is considered that the proposed highway mitigation improvement scheme would help improve the operational capacity of M4 Junction 43 and that junction would operate within acceptable thresholds of capacity.

8.2. Conclusion

This TA has assessed the impact of the proposed development on the local transport network and has demonstrated that the site is located in a sustainable location. The TA has demonstrated that safe and suitable access to the site can be achieved for all users, and that the predicted impacts from the development on the transport network have been cost effectively mitigated to an acceptable degree. It is concluded that the proposed development would not have a material detrimental effect on the existing highway network.

Appendices



Appendix A. Walking, Cycling and Horse-riding Assessment Report

Coed Darcy

Walking, Cycling and Horse-riding Assessment Report

St. Modwen Developments Ltd.

October 2021



Notice

This document and its contents have been prepared and are intended solely as information for St. Modwen Developments Ltd. and use in relation to Coed Darcy Walking, Cycling and Horse-riding Assessment Report.

Atkins Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 62 pages including the cover.

Document history

Document title: Walking, Cycling and Horse-riding Assessment Report

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	WCHAR Report for Submission	KO	STM	KH	TC	October 2021

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1. Introduction

1.1. Background

This report has been produced in accordance with the requirements set out in Design Manual for Roads and Bridges (DMRB) GG 142 Walking, cycling and horse-riding assessment and review (WCHAR) as part of the Coed Darcy scheme.

The purpose of this report is to provide an assessment of the existing facilities and provision for pedestrians, cyclists and equestrians that will help inform decision making throughout the design process. Where appropriate, opportunities for improvements have been identified with the intention that these should be considered through the design process and re-visited through the production of review reports at appropriate stages.

The details of the design have not been considered as part of this assessment (as per GG 142 requirements) but will be considered in the subsequent review phase.

It is intended that the information within this assessment report will help inform the wider design team as to the needs of and issues faced by pedestrians, cyclists and equestrians as improvement options for the scheme are progressed.

1.2. Process

The Designer appointed to provide improvements for this scheme is Atkins Ltd. Tim Colles is the design team leader for the scheme and has appointed the following Lead Assessor to undertake the walking, cycling and horse-riding assessment and review process.

Lead Assessor: **Stuart Minton** *BSC (Hons), MSc, MCIHT, MTPS*
Senior Active Travel Consultant, Atkins Transportation

In accordance with Table 2.2.1 of GG 142, Stuart has determined the scheme to be 'large', as a part of the proposed highway scheme a section of it involves the *"Creation of footway, shared use path or cycle track alongside or crossing an existing all-purpose trunk road"*¹.

To aid him with the assessment, Stuart has appointed Karlo Olalla as an additional Assessor. Stuart has judged that Karlo has the appropriate previous experience to undertake the delegated tasks.

1.3. Scheme Background

Coed Darcy is a regeneration project consisting of new residential, educational and commercial properties in Neath, South Wales.

Atkins have recently been commissioned to undertake a Transport Assessment for the revised development at Coed Darcy for 2000 dwellings, as well as preliminary designs for the access to the site. Alongside this, they have also been commissioned to undertake a Walking, Cycling and Horse-riding Assessment Report for M4 Junction 43 which is the main access to the site.

1.4. WCHAR Study Area

As the Lead Assessor has classified the scheme as a 'large scheme', the overall study area has been chosen to cover an approximate distance of 5km around the scheme (Figure 1-1). However, proportionality is applied on the level of detail that is required for each aspect within the study area such that only information relevant to the scheme is collated and examined. Therefore, for some aspects of the Assessment Report, such as Personal Injury Collision Data, the scheme area will be focused to a narrower study area of approximately 1km which will be subject to more detail analysis that is relevant to the scheme (Figure 1-2). This will be noted where it takes place in this Assessment Report.

¹ <https://www.standardsforhighways.co.uk/prod/attachments/5f33456d-32f9-4822-abf6-e12510f5c8dc?inline=true>

Figure 1-1 and Figure 1-2 sets out the 5km and 1km boundaries respectively for this assessment, which include the following areas:

- Birchgrove;
- Briton Ferry;
- Caewern;
- Morriston;
- Neath;
- Pentre-dwr; and
- Swansea.

Figure 1-1 - Study Area (5km boundary)

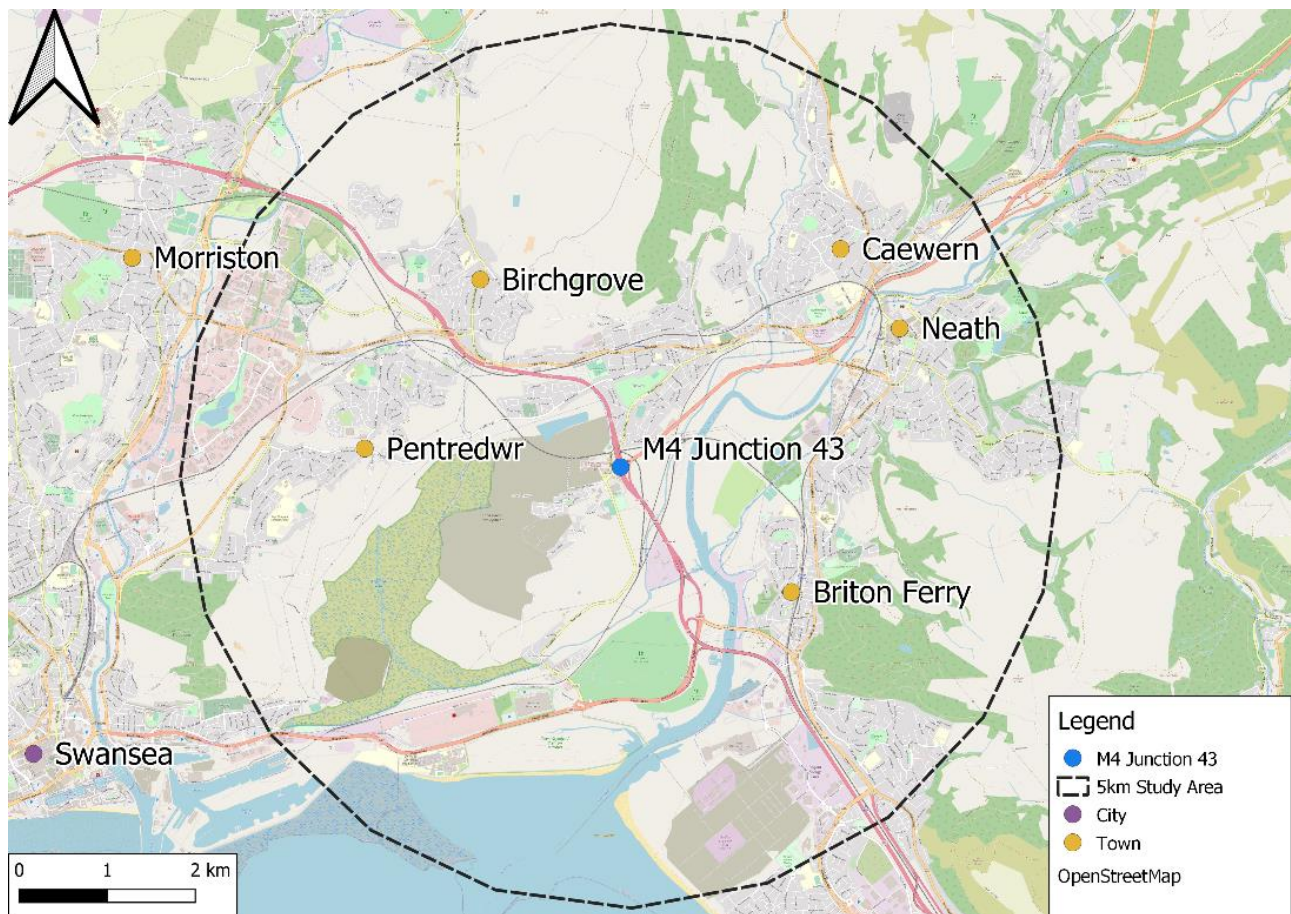
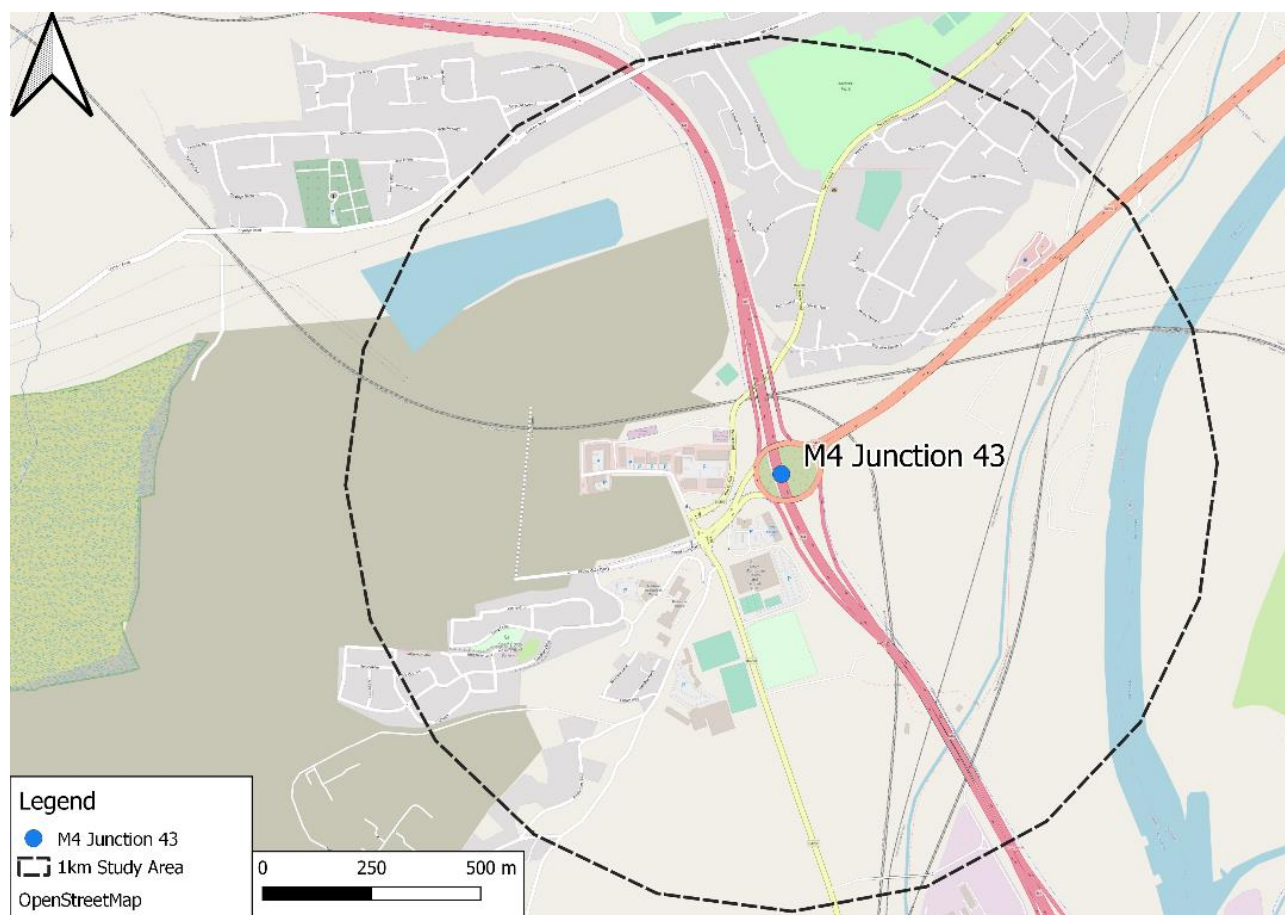


Figure 1-2 - Study Area (1km Boundary)



2. WCHAR Assessment

This section presents the findings of the WCHAR assessment. It is structured to reflect the assessment requirements set out in Section 4 of GG 142.

2.1. Policies and Strategies

This section provides a review of relevant policies and strategies as part of this assessment. The key points from each document relating to walking, cycling and horse-riding are provided.

2.1.1. National policies and strategies

National policies and strategies relevant to the proposed scheme are outlined in Table 2-1 below.

Table 2-1 - National policies and strategies

Document	Key Points	Relevance to scheme
Llwybr Newydd The Wales Transport Strategy 2021, Welsh Government (2021)	Within the Strategy, Welsh Government has a vision of having 'An accessible, sustainable and efficient transport system'. To achieve this, they have set out three headline priorities (set out below with some of the measures) for the next five years, which will be reviewed as circumstances and technologies change: 1. Bring services to people in order to reduce the need to travel: a. Support remote working. b. Locate new public services close to where people live. c. Build new workplaces and homes to be walking/cycling friendly, close to public transport hubs. d. Maximise the land use close to transport hubs. 2. All people and goods to move easily from door to door by accessible, sustainable and efficient transport services and infrastructure: a. Improve the reliability, safety, and frequency of public transport services. b. Make it easier to switch between different types of transport including public transport, active travel, taxis and options such as community transport so people can be more confident about leaving the car behind. c. Continue to make best use of existing transport infrastructure by maintaining it and managing it effectively and efficiently. d. Adapt our infrastructure to support modal shift. e. Use inclusive design principles in infrastructure projects to improve accessibility and safety for everyone. 3. Encourage people to make the change to more sustainable transport:	The proposed scheme can provide infrastructure to help achieve the three headline priorities that are set out in the Strategy.

Document	Key Points	Relevance to scheme
	a. develop a range of behaviour-change projects to encourage people to make smarter travel choices to reduce congestion and increase use of sustainable modes of transport. b. reduce the cost of sustainable travel through initiatives such as scrappage schemes for older vehicles, grants towards the cost of electric bikes, and by extending concessionary travel schemes to those who most need it. c. Use education, campaigning, marketing and other tools to transform the image of walking, cycling and public transport.	
Active Travel Act Guidance, Welsh Government (July 2021)	The new Active Travel Act Guidance came out in July 2021 which replaced the previous version of the document that was released in December 2014. Welsh Government recognises that active travel is a key priority for helping achieve goals that are set out in acts such as the Well-being of Future Generations Act which aims to embed sustainable development principles in the development of Wales. The guidance's vision is for walking and cycling to be the natural mode of choice for short everyday journeys, or as part of a longer journey in combination with other sustainable modes. The 15-year ambition for guidance is to have a series of comprehensive walking and cycling networks that are safe, direct, cohesive, comfortable and attractive connecting key settlements across Wales. The guidance also shares the same five-year priorities that are set out in Llwybr Newydd that include: • Continuously develop a network of local routes for walking and cycling to connect people with the places they travel to for everyday journeys. • Refresh the plans for Active Travel Network Plans (ATNMs) every three years, based on extensive consultation with a particular emphasis on people who do not currently walk or cycle for local trips. • Encourage all schools to have an active travel plan and adopt actions to slow traffic and widen pavements around schools. • Change the default speed limit from 30mph to 20mph in built-up areas to reduce traffic related injuries and fatalities and make walking and cycling safer and more attractive. • Support safer, better cycle paths and more space for walking and cycling through closing roads for vehicle traffic, more facilities for pedestrians, and support for	The proposed scheme can provide infrastructure to encourage active travel that meets the specified requirements set out in the guidance which overall will help achieve the priorities and ambitions of Welsh Government.