Cardiff East Park and Ride, Llanrumney
Environmental Statement
Chapter 8: Transport

SLR Consulting Ltd. on behalf
of Curtis Hall Limited

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8. TRANSPORT

Introduction

8.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme in relation to Highways.

8.2 The Chapter describes the consultation that has been undertaken during the EIA, the scope of the assessment and assessment methodology, and a summary of the baseline information that has informed the assessment.

8.3 The assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce, or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered significant.

8.4 This Chapter, and its associated figures and appendices, is intended to be read as part of the wider ES with particular reference to the introductory chapters of this ES (Chapters 1 – 3). The Transport Assessment, its appendices and Travel Plan prepared to support the planning application are appended to the ES in Appendix A8.1.

8.5 This chapter of the ES has been prepared by SLR Consulting Ltd. and presents an assessment of the likely significant effects of the Proposed Development with respect to Transport. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. Taking into account the mitigation measures, the nature and significance of the likely residual effects are reported

Competence

8.6 For a summary of the competency of the author of this chapter, please refer to **Appendix 1.4.**

Legislation and Policy Context

National Planning Policy

Planning Policy Wales (Edition 12, February 2024)

8.7 Planning Policy Wales Edition 12 (PPW) sets out the land use planning policies of the Welsh Government.

8.8 With regards to sustainable transport, PPW advises that, in the context of active and social places, which also relates to employment, all developments should encourage modal shift and be easily accessible by walking, cycling and public transport, by virtue of their location, design and provision of on and off site sustainable transport infrastructure.

8.9 Furthermore, the 'active and social' theme within PPW aims to ensure new development is located and designed in a way which minimises the need to travel, reduces dependency on the private car and enables sustainable access to employment, local services, and community facilities.

8.10 A key theme throughout PPW is the aim of reducing reliance on travel by private car, and the adverse impacts of motorised transport on the environment and people's health, by prioritising and increasing active travel and public transport. Additionally, it states that development proposals must seek to maximise accessibility by walking, cycling and public transport, by prioritising the provision of appropriate on-site infrastructure and, where necessary, mitigating transport impacts through the provision of off-site measures, such as the development of active travel routes, bus priority infrastructure and financial support for public transport services.

8.11 These themes of emphasis on sustainable transport and active travel are supported by the 'Sustainable Transport Hierarchy for Planning' included within PPW.

Technical Advice Note 18 (Transport)

8.12 The Advice Note (TAN 18) elaborates on the relationship between land use planning and transport infrastructure by outlining a range of key accessibility principles that should inform future patterns of development.

8.13 In the case of new residential development, sites that are accessible to jobs, shops and services by modes other than the car and are afforded sufficient capacity on public transport services are favoured.

8.14 TAN 18 advises that development plans should afford priority to the following:

8.15 Require layouts and densities, which maximise the opportunity for residents to walk and cycle to local facilities and public transport stops.

Future Wales – The National Plan 2040

8.16 'Future Wales – the National Plan 2040' (Future Wales) is the national development framework, setting the direction for development in Wales to 2040.

8.17 Future Wales strongly considers the Well-Being of Future Generations (Wales) Act 2015, which gives a legally-binding common purpose – the seven well-being goals – for national government, local government, local health boards and other specified public bodies. It details the ways in which these bodies must work, and work together, to improve the well-being of Wales.

8.18 Policy Two of Future Wales is titled Shaping Urban Growth and Regeneration – Strategic Placemaking. It states that Urban growth and regeneration should be based on the following strategic placemaking principles:

- creating a rich mix of uses;
- building places at a walkable scale, with homes, local facilities and public transport within walking distance of each other;
- establishing a permeable network of streets, with a hierarchy that informs the nature of development;
- promoting a plot-based approach to development, which provides opportunities for the development of small plots, including for custom and self-builders; and
- integrating green infrastructure, informed by the planning authority's Green Infrastructure Assessment.

Llwybr Newydd – The Wales Transport Strategy 2021

8.19 The Transport Strategy for Wales sets out the 'new path' that will shape the transport system over the next 20 years. It is a "*new way of thinking that places people and climate change at the front and centre of our transport system"*. This document crucially defines the climate emergency as one of the biggest defining issues of our time, and the need to achieve net zero by 2050.

8.20 This seeks to improve the social, economic, environmental and cultural well-being of Wales. It contains seven well-being goals which local authorities as well as other public bodies must seek to achieve in order to improve well-being both now and in the future several of which support this strategy's promotion of sustainable travel.

8.21 The strategy sets out three urgent priorities:

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

8.22 Priority 1 seeks to reduce the need for people to use their cars on a daily basis by:

- Design new developments to be walk and cycle friendly from the outset;
- Maximise the use of land close to transport hubs;
- Improve access to fast and reliable broadband; and
- Set aside land for multi-modal hubs to transfer freight to smaller vans or e-cargo bikes for last mile deliveries.

8.23 Priority 2 aims to achieve a shift away from private car use to more sustainable transport modes, enabling more people to walk, cycle, and use public transport, as well as low-emissions vehicles.

8.24 Infrastructure will be future-proofed to adapt to climate change and facilitate more sustainable transport choices. Where new transport infrastructure is needed, the Sustainable Transport Hierarchy will guide decisions. Infrastructure will be adapted to support modal shift, and new infrastructure will give priority to interventions that support walking and cycling, public transport and ultra-low emissions vehicles over other private motor vehicles.

8.25 Priority 3 seeks to encourage people to change their travel behaviour to use low carbon, sustainable transport. This will be done through (but not limited to):

- Developing a range of behaviour-change projects;
- Move from individual vehicle ownership to shared solutions;
- Reduce the cost of sustainable travel; and
- Support digital innovation.

8.26 Through the development design, on site mobility hub and promotion of active travel, the development will meet these priorities with the overall aim being to encourage an accessible, sustainable and efficient transport system.

Active Travel (Wales) Act 2013

8.27 This Act aims to make it easier for people to walk and cycle in Wales and makes it a legal requirement for local authorities in Wales to map and plan for suitable routes for active travel, and to build and improve their infrastructure for walking and cycling every year. It creates new duties for highways authorities to consider the needs of walkers and cyclists and make better provision for them. It also requires both the Welsh Government and local authorities to promote walking and cycling as a mode of transport.

8.28 By connecting key sites such as workplaces, hospitals, schools and shopping areas with active travel routes, the Act will encourage people to rely less on their cars when making short journeys and make implementing successful Travel Plans easier.

Active Travel Act Guidance 2021

8.29 The Active Travel Act Guidance was first published on July 16th, 2021, and is issued using the powers of the Welsh Ministers to give guidance under sections 2(6), 2(9), 3(4), 4(5), 5(2) and 7(2) of the Active Travel Act.

8.30 The act requires local authorities in Wales to produce maps of walking and cycling networks, and to deliver year on year active travel improvements along the mapped routes and their related facilities. These routes should be coherent, direct, safe, comfortable and attractive. The maps shall now be known as Active Travel Network Maps (ATNM) – showing existing routes and future routes which shall combine the Existing Routes Map and the Integrated Network Map required by the act.

8.31 As well as creating the infrastructure, the act includes provision for making people aware of the existing and future routes through the publication of the maps and for the promotion of active travel as a means of transport.

8.32 The active travel network is designed to serve everyday journeys. These are also known as utility journeys – trips with a purpose rather than purely for leisure. Examples of destinations which can be considered to form an everyday or utility journey include; school or other educational establishments, local shops, employment sites, healthcare facilities, and other destinations people travel to for a purpose.

8.33 **Figure 8.1** is an extract of Table 4.1 within the guidance which provides a guide for network development in relation to reasonable distances that would be travelled by each respective mode.

Figure 8.1 – Table 4.1 Taken from Active Travel Act Guidance

Mode	Less than 1 mile	Up to 2 miles	Up to 3 miles	Up to 4 miles	Up to 5 miles	Up to 7.5 miles	Up to 15 miles
	●	●	●	●	●	●	●
	●	●	●	●	●	●	●
e-	●	●	●	●	●	●	●

Colour	Average active user likelihood
●	Many users likely to travel this distance for utility journeys
●	Some users likely to travel this distance for utility journeys
●	Few or no users likely to travel this distance for utility journeys

8.34 Two out of every three journeys are less than five miles in length – an achievable distance to cycle for most people, with many shorter journeys also suitable for walking. For school children the opportunities are even greater: three quarters of children live within a 15-minute cycle ride of a secondary school, while more than 90% live within a 15-minute walk of a primary school.

8.35 The guidance further states that developments that do not adequately make provision for walking and cycling should not be approved. This may include adequate off-site improvements for pedestrians and cyclists using existing highways that are affected by the development. The site has the potential to provide excellent pedestrian links allowing for residents of the site to connect with the local area, as well as providing active travel benefits for the existing community.

Local Planning Policy

Cardiff Local Development Plan 2006 – 2026

8.36 The adopted Cardiff Local Development Plan (LDP) provides the statutory framework for the development and use of land within Cardiff during the plan period (2006 – 2026), in conjunction with Supplementary Planning Guidances (SPGs).

8.37 It states the visions and objectives of the city over the plan period and details the strategy and key policies that will be used in order to deliver for Cardiff.

8.38 This would be achieved by following a number of principles during development. These principles include the following:

8.39 Minimise car travel, maximise sustainable transport use and decrease air pollution by creating accessible, permeable and legible places, preventing predominantly car-based developments and focusing new development in accessible locations which are linked to the strategic cycle network and can be served mainly by effective networks of sustainable transport - walking and cycling and fast and frequent public transport around and beyond the city;

8.40 Maximise the principles of good design - to create places that look good, are of an appropriate and efficient density, fully respect their local context and are successfully integrated with adjoining areas. To design buildings that are resilient and can easily adapt to changing future needs. To design clean and attractive areas where people feel safe and have a sense of ownership.

8.41 A number of policies are followed when considering development to ensure that these principles are upheld. Below detail some of the most pertinent to the site.

8.42 Policy TC1 – Walking and Cycling, states to enable people to access employment, essential services and community facilities by walking and cycling the council will support developments which incorporate;

- High quality, sustainable design which makes a positive contribution to the distinctiveness of communities and places;
- Permeable and legible networks of safe, convenient and attractive walking and cycling routes;
- Measures to minimise vehicle speed and give priority to pedestrians and cyclists;
- Safe, convenient and attractive walking and cycling connections to existing developments, neighbourhoods and services;
- Infrastructure designed in accordance with standards of good practice including the Council's Cycling Design Guide;
- Supporting facilities including signing, secure cycle parking and, where necessary, shower and changing facilities.

8.43 Policy T5 which relates to 'Managing Transport Impacts' sets out the needs for new development to provide facilities for all potential users. The purpose of this policy is to ensure that all new developments for which planning permission is required;

- Properly address the demand for travel and its impacts;

- Contribute to reducing reliance on the private car, in line with national planning policies and the strategic transport objectives and policies of the LDP;

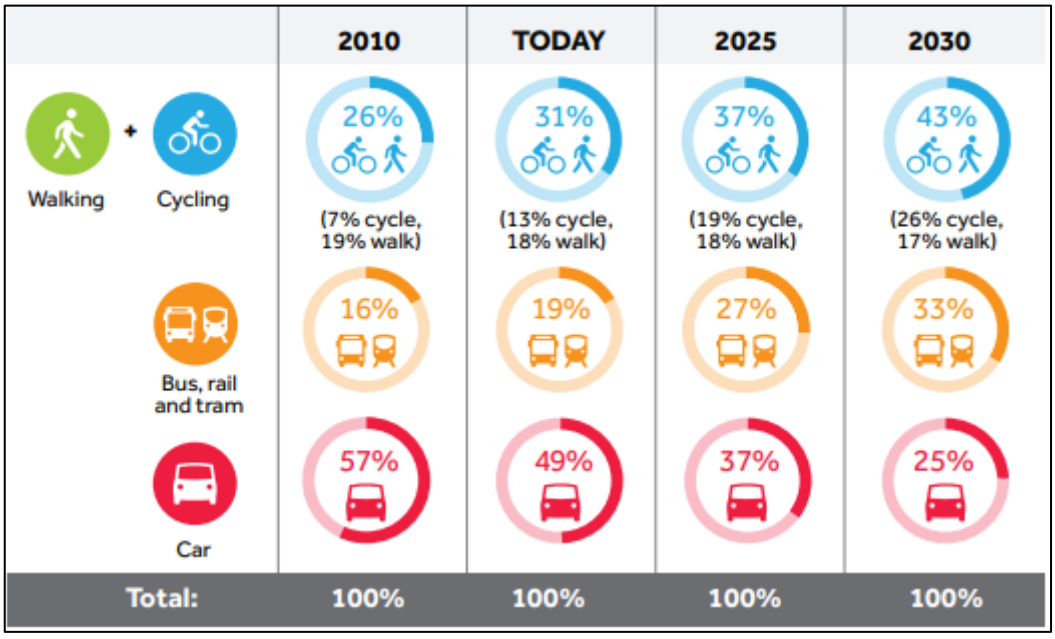
- Make satisfactory provision for access, parking and circulation, practically by pedestrians, cyclists, public transport users and disabled people with mobility impairments and particular access needs; and

- Avoid unacceptable harm to safe and efficient use and operation of the road, public transport and other movement networks and routes.

8.44 Policy KP8 relates to sustainable transport. The policy states that any new developments in Cardiff will be integrated with transport infrastructure and services in order to achieve a wide range of outcomes. This includes reducing travel demand and dependence on the car, maintaining and improving the efficiency and reliability of the transport network and managing freight movements by road and minimise their impacts.

8.45 The policy also notes the intention of the council to achieve a 50:50 modal split between journeys by car and journeys by walking, cycling and public transport. **Figure 8.2**, as shown within the Cardiff Transport White Paper, published in 2020, shows the great progress Cardiff has already achieved in meeting this policy. It also indicates the ambition of the council to go further in reducing car usage through a mixture of public transport and active travel.

Figure 8.2 – Current and Future Ambitions for Cardiff Modal Split



8.46 The development, in acknowledgement of these aspirations, will ensure that continued compliance with policy.

Assessment Methodology and Significance Criteria

8.47 The following guidance has informed the assessment of effects within this Chapter.

- Institute of Environmental Management and Assessment Guidelines for the Environmental Assessment of Road Traffic, 1993; and
- Planning Policy Wales (2024).

8.48 This section presents the methodology used to assess the potential effects of the Proposed Development in relation to Transport.

Consultation

8.49 The scope of this assessment is closely aligned with the previous ES Chapter that was submitted to support the previous scheme at the site to Cardiff Council (CC) who is the highway authority for public highways within the study area. The planning reference for the previous scheme is 22/02673/FUL.

8.50 The previous ES Chapter which was submitted in November 2022 formed part of the planning permission, which received consent on the 25th June 2024.

Study Area and Scope

8.51 In accordance with the Institute of Sustainability and Environment Professionals (ISEP), (formerly IEMA) guidelines, the study area has been defined by identifying any link or location where significant environmental impacts may occur as a result of the proposed. The following links were considered as part of the study area as part of the November 2022 ES Chapter, and have been reassessed within this ES:

- Link 1: Eastern Avenue Slip Roads (N);
- Link 2: Pentwyn Road;
- Link 3: Bryn Celyn Road;
- Link 4: Eastern Avenue Slip Roads (S);
- Link 5: Existing P&R Access;
- Link 6: New Link Road;
- Link 7: Ball Road (N); and
- Link 8: Ball Road (S).

8.52 Beyond these junctions and links, once traffic generated by the Proposed Development is distributed it has been concluded that the change in traffic flows attributable to the Proposed Development is unlikely to be significant enough to warrant assessment given the level of background traffic i.e. the change will be less than 10% and will therefore be negligible according to Rule 1 and Rule 2 of the ISEP Guidance, which seeks to appropriately limit the scale and extent of assessments.

8.53 These rules are listed as follows:

- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and
- Rule 2: include any other specifically sensitive areas where traffic flows have increased by 10% or more.

8.54 The extent of the study area was defined within the EIA Scoping Report issued to CC in December 2021 and within the updated TA f Note which was issued to CC on 7th January 2022.

Background Studies to Inform the ES

8.55 The following background studies have informed this Chapter:

- Collision Data (up to 2024) included at Appendix A8.1;
- Manual Classified Turning Count survey (15/02/22) included at Appendix A8.1; and
- Automatic Traffic Count survey (10/02/2022 – 16/02/2022) included at Appendix A8.1.

8.56 It should be noted that the baseline surveys were undertaken at the A48 Eastern Avenue / P&R Access roundabout when the Park & Ride site was in use, therefore any traffic associated with this facility is being treated as existing traffic.

8.57 The assessment scenarios will consider the impact of the Proposed Development against the following baseline:

- Future Baseline (Observed + TEMPro growth to 2035)

8.58 A future base of year of 2035 has been assessed for the future baseline and future baseline plus development scenarios for the purposes of this assessment. The year 2035 has been used to reflect 10 years post submission of the planning application.

8.59 The following developments were considered as committed developments:

- 18/02594/MJR – Llanrumney High School – 98 residential units;

- 21/01165/MJR – BMX; and
- 20/02690/MJR – University Development (sports facilities).

8.60 The committed developments listed above are likely to generate little traffic within the study area and there is no detailed information available for the BMX development and the University Development. However, but applying a TEMPro growth factor to the observed traffic flows, the impacts from these committed developments have been taken into account.

8.61 The redevelopment of Eastern High School on Newport Road, Rhymney has also been identified (8/02519/MJR). However, further inspection of the transport impact of the redevelopment shows a very marginal change in the AM and PM peaks of the scheme, as the net change is trips is very small, and unlikely to have any impact upon this scheme.

Assessment Methodology

Significance Criteria

8.62 The sensitivity of affected receptors has been considered on a scale of high, medium or low. The sensitivity of a road can be defined by the vulnerability of the user groups who may use it e.g. elderly people or children. A sensitive area may be where pedestrian activity is high, for example in the vicinity of a school, or where there is already an existing accident issue. It also takes account of the existing nature of the road e.g. an existing 'A' road is likely to have a lower sensitivity than a minor residential road as it is already used by a larger volume of traffic therefore a small increase would have a smaller change in the nature of the road.

8.63 The sensitivity of affected receptors has been based on the criteria set out in **Table 8.1.**

Table 8.1 Definitions of Receptor Sensitivity

Sensitivity	Definition
High	The receptor has little ability to absorb change without fundamentally altering its present character or is of international or national importance. Receptors of greatest sensitivity to traffic flow: schools, colleges, playgrounds, accident clusters, retirement homes, roads without footways that are used by pedestrians
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character or is of high importance. Medium traffic flow sensitive receptors: congested junctions, doctors' surgeries, hospitals, shopping areas with narrow roadside frontage, roads with narrow footways, recreation facilities
Low	The receptor is tolerant of change without detriment to its character or is of low or local importance. Receptors with low sensitivity to traffic flow: places of worship, public open space, tourist attractions and residential areas with adequate footway provision

8.64 The sensitivity of each of the receptors in the study area within this assessment has been identified based on the assessor's judgement of their sensitivity. The results are summarised in **Table 8.2.**

Table 8.2 Definitions of Receptor Sensitivity

Link Ref.	Road Link	Receptor Sensitivity
1	Eastern Avenue Slip Roads (N)	Low
2	Pentwyn Road	Low
3	Bryn Celyn Road	Low
4	Eastern Avenue Slip Roads (S)	Low
5	P&R Access (existing)	Low
6	New Link Road	Low
7	Ball Road (N)	Low
8	Ball Road (S)	Low

8.65 The ISEP 'Guidelines for the Environmental Assessment of Road Traffic' has been used to ensure that the environmental effects arising due to predicted changes in traffic levels are properly and comprehensively addressed.

8.66 The future baseline traffic conditions are compared with future 'with-development' traffic conditions to assess the effect of the Proposed Development on the transport networks using the ISEP criteria. A future year of 2035 has been assessed. This has been chosen as the future year as it is 10 years post application which is consistent with the approach taken in the previous ES. It should be noted that the future year goes beyond the end of the Local Plan period (2026).

8.67 Following this core assessment, additional transport mitigation measures will be considered, if required, and will further mitigate the potential impacts of the Proposed Development. An assessment of residual effects following implementation of these mitigation measures will then be provided.

8.68 The primary assessment will be undertaken on a daily basis (24-hour Annual Average Daily Traffic) since this reflects the impacts on severance, pedestrian amenity and safety. However, the peak network periods will also be assessed since these are relevant to pedestrian delay.

8.69 In relation to accidents and safety, a full analysis has been undertaken within the Transport Assessment and a summary is included within this Chapter along with the raw data included at Appendix A8.1.

Reporting of the Environmental Effect and Significance Criteria

8.70 The assessment of likely significant environmental effects as a result of the Proposed Development has taken into account the construction and operational phases.

8.71 The duration of the effect has been assessed as either ‘short-term’, ‘medium-term’ or ‘long-term’. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.

Determining the Magnitude of Change

8.72 The following paragraphs cover each of the impacts that are considered in this Chapter and how magnitude of change has been derived.

Severance

8.73 Severance is defined as the perceived division that can occur within a community when it becomes separated by a major traffic artery and describes a series of factors that separate people from places and other people. Such division may result from the difficulty of crossing a heavily trafficked road and a physical barrier created by the road itself.

8.74 The measurement and prediction of severance is difficult, but relevant factors include road width, traffic flow, speed, the presence of crossing facilities and the number of movements across the affected route.

8.75 ISEP guidelines refer to the DfT's 'Manual of Environmental Appraisal', which states that “changes in traffic flow of 30%, 60% and 90% are regarded as producing slight, moderate and substantial changes in severance respectively.” It is advised that these broad indicators should be used with care and regard paid to specific local conditions.

Pedestrian Delay

8.76 ISEP guidelines note that changes in the volume, composition and/or speed of traffic may affect the ability and time required for people to cross roads. Typically, increases in traffic levels result in increased pedestrian delay, although increased pedestrian activity itself also contributes. The guidelines do not set any thresholds, recommending instead that assessors use their judgement to determine the significance of the effect.

8.77 The ISEP guidelines refer to a report published by the Transport Research Laboratory as providing a useful approximation for determining pedestrian delay. The TRL research concluded that mean pedestrian delay was found to be 8 seconds at flows of 1,000 vehicles per hour and just below 20 seconds at 2,000 vehicles per hour for various types of crossing condition.

8.78 A two-way flow of 1,400 vehicles per hour has been adopted as a lower threshold for assessment (equating to a mean 10 second delay for a link with no pedestrian facilities) in the TRL report. Below this flow pedestrian delay is unlikely to be a significant factor and therefore can be discounted from further assessment. This is a robust starting point for narrowing down the modelled routes within the Study Area.

Pedestrian Amenity

8.79 ISEP guidelines define pedestrian amenity as the relative pleasantness of a journey and can include fear and intimidation if they are relevant. As with pedestrian delay, amenity is affected by traffic volumes and composition along with pavement width and pedestrian activity. The guidelines suggest a tentative threshold for judging the significance of change in pedestrian amenity where traffic flow / HGV flow is halved or doubled, which would be considered a high change in magnitude. A change of less than half or double would be low and can therefore be discounted from further assessment.

Driver Delay

8.80 ISEP guidelines note that driver delay can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at or close to the capacity of the system.

8.81 An assessment has been undertaken in the Transport Assessment and is summarised in this Chapter.

Accidents and Safety

8.82 The ISEP guidelines do not include any definition in relation to accidents and safety, necessitating professional judgement to assess the implications of local circumstance, or factors which may increase or decrease the risk of accidents. Professional judgement has therefore been applied when assessing existing accident records and whether the Proposed Development will have any effect which may increase or decrease the risk of accidents.

Summary of Magnitude of Change Derivation

8.83 Based on the definitions of each impact above, a summary of the criteria that have been used to determine magnitude of change from the baseline conditions as a result of the Proposed Development are set out in **Table 8.3** below.

8.84 It should also be noted however, that the absolute effect is also important e.g. the total flow of traffic or HGVs on a link. This is because an increase of 100% in the traffic flow on a road is likely to lead to an insignificant impact if the existing flows are low. Where this is applicable, professional judgement is applied and commentary provided.

Table 8.3 Definitions of Magnitude of Change

	Negligible	Small	Medium	Large
Severance	Change in total traffic or HGV flows of less than 30%	Change in total traffic or HGV flows of 30 – 60%	Change in total traffic of HGV flows of 60 – 90%	Change in total traffic or HGV flows of over 90%
Pedestrian Delay	Two-way traffic flow < 1400 vehicles per hour	A judgement based on the road links with two-way traffic flows exceeding 1400 vehicles per hour, in the context of individual characteristics		
Pedestrian Amenity	Change in total traffic or HGV flows <100%	A judgement based on the routes with >100% change in traffic flows, in the context of individual characteristics		
Driver Delay	A judgement based on the results of junction capacity assessment and microsimulation modelling combined with the Transport Assessment and summarised within this Chapter Low			
Accidents and Safety	A judgement based on quantitative analysis as set out in the Transport Assessment and summarised in this Chapter Low			

Determining the Level of Effect

8.85 The level of effect has been assessed based on the magnitude of change due to the Proposed Development and the sensitivity of the affected receptor.

8.86 This level of effect has been based on professional judgement and the definitions provided in **Table 8.4** below.

Table 8.4 Effect Significance

Sensitivity Receptor	Magnitude of Impact			
	High	Medium	Low	Very Low
High	Major Adverse / Beneficial	Major Adverse / Beneficial	Moderate Adverse / Beneficial	Minor Adverse / Beneficial
Medium	Major Adverse / Beneficial	Moderate Adverse / Beneficial	Minor Adverse / Beneficial	Negligible

Low	Moderate Adverse / Beneficial	Minor Adverse / Beneficial	Negligible	Negligible
Very Low	Minor Adverse / Beneficial / Negligible	Negligible	Negligible	Negligible

8.87 Whilst **Table 8.4** provides ranges, the level of effect is confirmed as a single level and not a range, informed by professional judgement. For each effect, it has been concluded whether the effect is 'beneficial' or 'adverse'. A statement is also made as to whether the level of effect is 'Significant' or 'Insignificant', again based on professional judgement.

8.88 The following terms have been used to define the significance of the effects identified and these can be 'beneficial' or 'adverse':

- **Major effect**: total loss of major/substantial alteration to key elements/features of the baseline (pre-development) conditions such that the post-development character/composition/attributes will be fundamentally changed;
- **Moderate effect**: Loss or alteration to one or more key elements/features of the baseline conditions such that post-development character/composition/attributes of baseline will be materially changed;
- **Minor effect**: A minor shift away from baseline conditions. Change arising from loss/alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation; and
- **Negligible**: Very little change from baseline conditions. Change barely distinguishable, approximating to a "no change" situation.

Limitations and Assumptions

8.89 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

- Collision data was only available up to January 2024;
- Traffic counts are recorded over peak periods in the case of MCCs, or a week in the case of ATCs, and are subject to an accuracy of + or -10%;
- Distribution of trips is based on 2011 Census Origin-Destination Data and an assumption regarding the distribution of HGVs onto the highway network; and

- Completed development traffic generation has been based on trip rates derived from the industry standard TRICS database.

Baseline Conditions

Establishing Baseline Conditions

8.90 Baseline conditions have been established as part of the Transport Assessment, which provides further details. This section provides a summary of the existing conditions within and around the site, including an assessment of the local transport networks. More detailed information is included within the Transport Assessment at Appendix A8.1.

Baseline Conditions

Site Location

The site is located in east Cardiff, approximately 1.6km north west of the suburb of Llanrumney. It is bound to the west by the A48, to the east by the Rhymney River and residential properties at Ball Road, and Public Rights of Way (PRoW) routes and open fields to the south. **Figure 8.3** indicates the location of the proposed development in a local context.

Figure 8.3 – Site Location

Walking

8.91 There are no footways present on the A48 Eastern Avenue/Bryn Celyn Road junction or on the access road to the P&R. However, a number of leisure walking routes are located within the immediate vicinity of the site, which provides opportunity for travel in all directions.

8.92 These leisure routes primarily take the form of PRoW routes, as illustrated in **Figure 8.4**. Within the immediate proximity of the site, several PRoW routes are present, providing connectivity to the north, east, west and south of the site. To the east of the site, PRoW routes connect with Ball Lane via a footbridge over the Rhymney River. Ball Lane includes footways on either side of the carriageway and connects with the wider walking network along Ball Road.

8.93 To the north of the site, PRoW routes connect with a footbridge over the A48. This provides connectivity to Pentwyn Road which also includes footways, and a number of local facilities. This can be seen in **Photograph 8.1.**

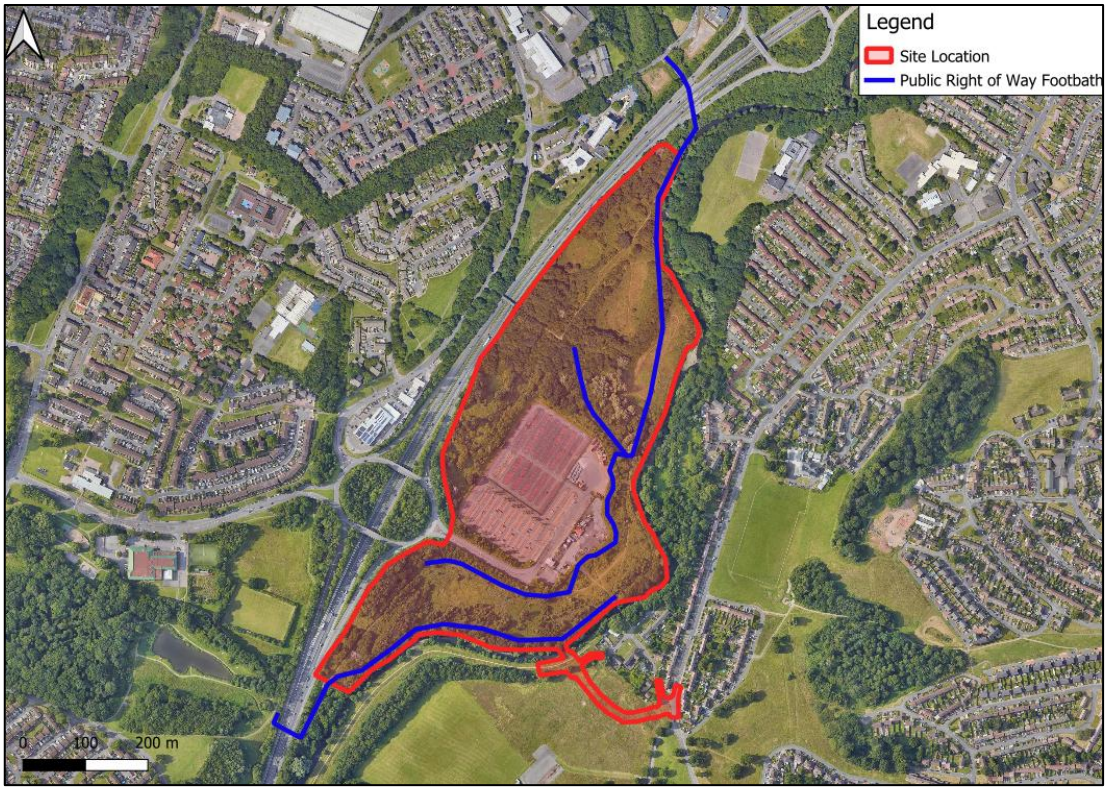
Photograph 8.1 – Public Right of Way across the A48

8.94 A further footbridge across the A48 is also located to the south of the site. This link provides connectivity to Circle Way East where footways and local facilities are also located.

8.95 These PRoW routes also provide a connection to the 'Rhymney Trail', a leisure walking and cycling route around Llanrumney Fields to the south of the site.

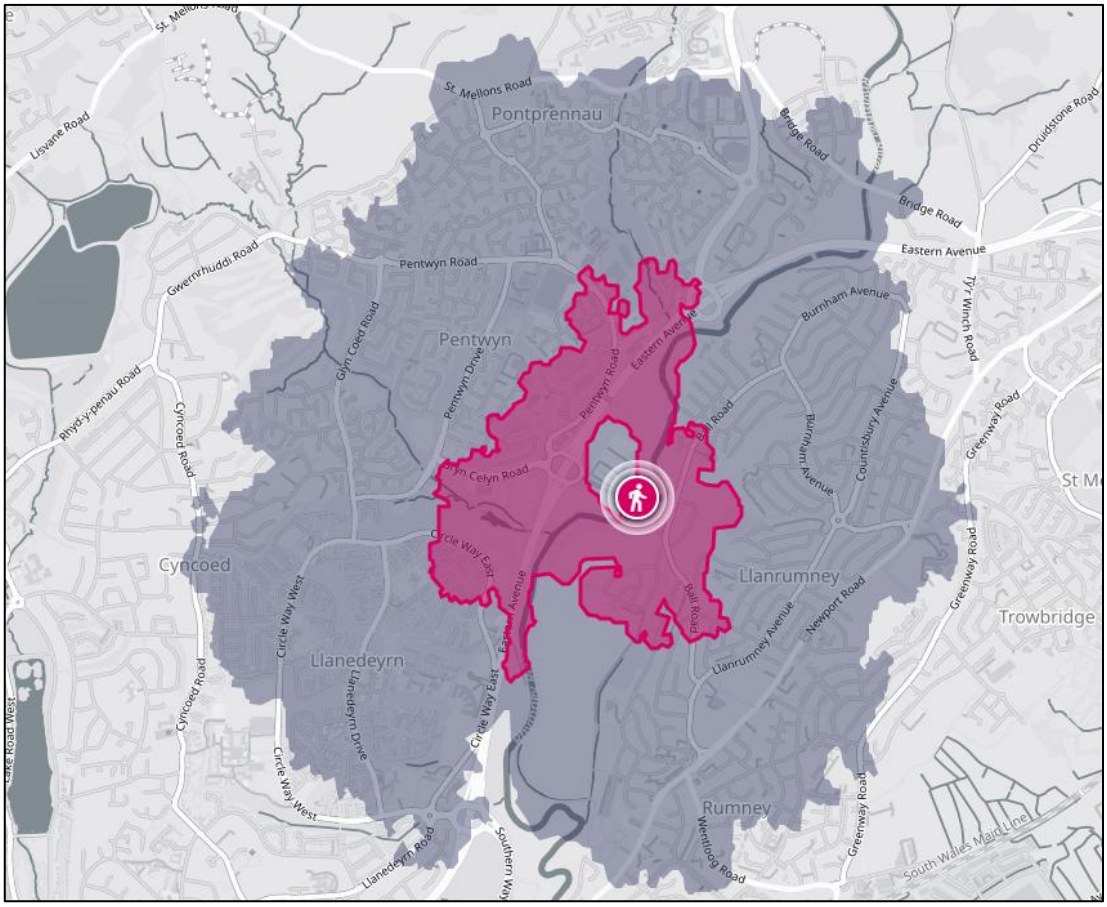
8.96 As described, whilst no footways are provided at the existing site access road and the Eastern Avenue / Bryn Celyn Road junction, the site benefits from a number of leisure active travel routes within the immediate vicinity of the site. These routes provide opportunity to connect with local facilities, services and key areas in all directions.

Figure 8.4 – Existing Public Rights of Way



8.97 **Figure 8.5** shows the current 15 and 30 minute walking isochrones from the site. It shows that through the PRoWs, a large proportion of Eastern Cardiff, including much of Llanrumney and Pentwyn can access the development within a 30 minute walk.

Figure 8.5 – 15 and 30 Minute Walking Isochrones



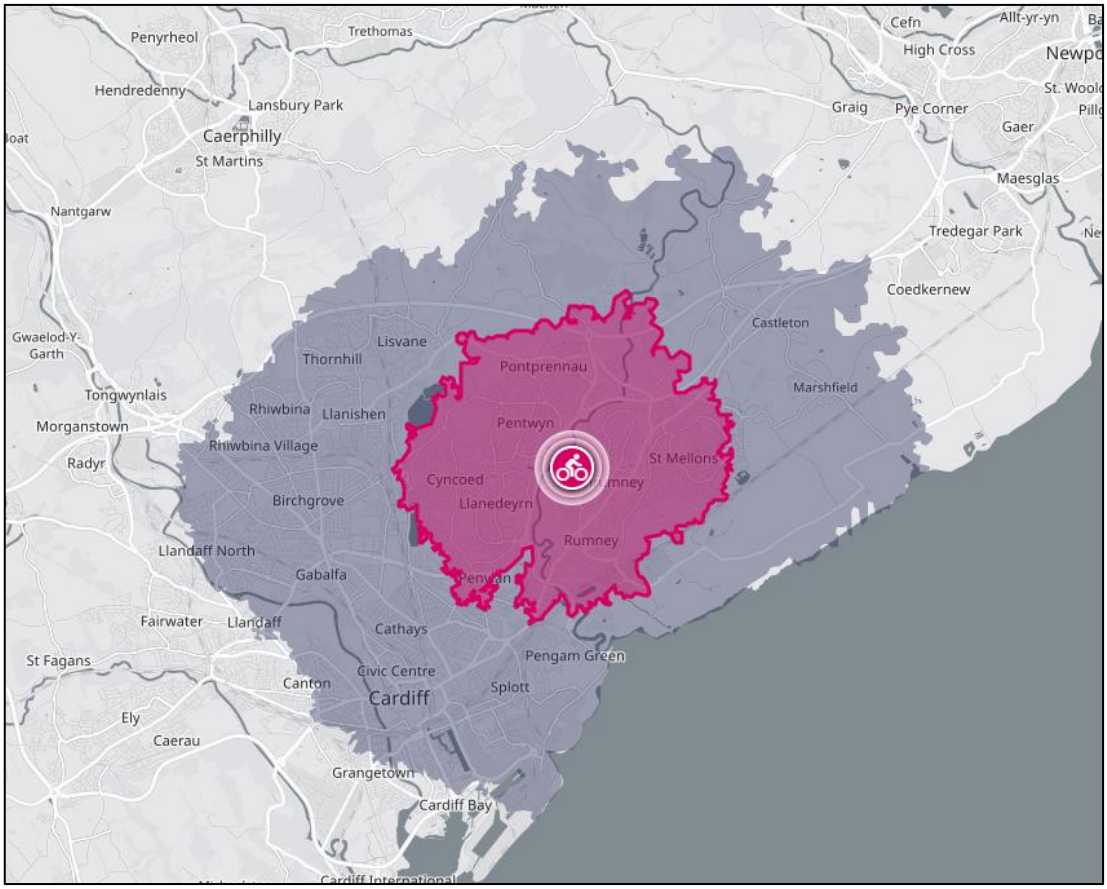
Cycling

8.98 Immediately to the east of the site, the Rhymney Trail runs in a north-south direction, providing a good leisure route accessible from the site than can be used to access the development. The Rhymney Trail runs along the Rhymney River, and to the south connects to Newport Road. Newport Road runs to the city centre and features a shared pedestrian/cycleway for much of its length.

8.99 To the north, the Rhymney Trail runs under the A48 Eastern Avenue to provide a route to Pentwyn Road. It also continues north to the suburb of Pontprennau and St Mellons Road, allowing communities within Pontprennau to access the development.

8.100 **Figure 8.6** shows the current 15 and 30 minute cycling isochrones from the site. It shows that a large proportion of

Figure 8.6 – 15 and 30 Minute Cycling Isochrones



Bus Services

8.101 The site currently acts as Cardiff East Park and Ride, and there is frequent bus services located on Ball Road to the east of the site and Pentwyn Road to the west, accessible via PRoWs.

8.102 A summary of bus services within the vicinity are displayed in **Figure 8.7**. A bus stop is located within the existing site which serves 'Cardiff East Park and Ride'. At present, this bus stop is served by a single bus route, the H59. The H59 provides connectivity with Heath Hospital and runs on a 20-minute frequency.

Figure 8.7 – Existing Bus Services

8.103 There are also bus stops located along Bryn Celyn Road to the west of the site, accessible via existing PRoW routes and footbridges over the A48. These stops are served by bus services 58. The 58 service provides a return service every 20 minutes to the city centre.

8.104 To the east of the site, bus stops are located along Ball Road, which can be accessed via a footbridge over the Rhymney River. These stops are served by bus services 49, 50, 101 and 102.

8.105 The nearest rail station to the site is Heath High Level Station, which is located approximately 4km from the site, which is accessible within an 18 minute cycle from the site, or from using the H59 Bus Service from the Heath Hospital, approximately an 18 minute walk from the station.

8.106 Heath High Level Station is located on the Rhymney Line, and benefits from services to the south towards Cardiff Queen Street, Cardiff Central and Penarth every 15 minutes, and services to the north to Caerphilly, Ystrad Mynach and Bargoed. These provide good travel opportunities to use the station to access the site.

Local Highway Network

8.107 The existing Cardiff East P&R site is directly accessed from the eastern arm of the A48 Eastern Avenue/Bryn Celyn Road junction and provides good access to local roads via Bryn Celyn Road and the A48. The A48 directly links with the M4 and as such, the site is considered to be well connected to the strategic road network.

8.108 The A48 forms one of Cardiff's arterial routes linking the M4 in the west to the A4232 in the east. The A48 passes north of Cardiff City Centre. In the vicinity of the site, it is a dual-carriageway, with a 50mph speed limit travelling to the southwest to the north east. Further along towards the north-west, the National Speed Limit then applies until reaching the M4. Towards the city centre, the National Speed Limit also applies in part until reaching the city centre.

8.109 The A48 also benefits from Bus Lanes from the A48 junction to the junction with the A4232 to the southwest, one on each side of the dual carriageway. This allows buses from the Park and Ride site to travel towards the city centre without being held up by congestion that may be present along the A48. This creates favourable journey times for bus users when heading to or from the city centre.

8.110 The A48 Junction also connects the site to Pentwyn Road and Bryn Celyn Road.

8.111 Pentwyn Road is located to the northwest of the A48 junction and is a single-carriageway road subject to a 30mph speed limit. It leads from the site towards Pontprennau and has streetlighting and footways on both sides of the road from a short distance after the junction. There are bus stops present along the road with bus shelters available.

8.112 Bryn Celyn Road is located to the west of the A48 junction, and is a dual-carriageway near the junction subject to a 30mph speed limit. It is subject to traffic-calming along its length, with road narrowings creating uncontrolled pedestrian crossings. There are footways present along its length, although not connecting to the A48 junction.

8.113 Ball Road is located to the southeast of the site, across the Rhymney River. It is a single-carriageway road subject to a 30mph speed limit. It runs from Burnham Avenue in the north east, before continuing south towards Llanrumney Avenue. The road is subject to traffic calming in the forms on humps along the carriageway and road narrowings. There are footways present along each side of the carriageway in addition to streetlighting.

Personal Injury Collision Analysis

8.114 A Personal Injury Collision (PIC) analysis has been undertaken to review whether there may be an existing highway issues or collision clusters in the vicinity of the site which may be exacerbated by the proposed development.

8.115 The review has included any collisions that have happened on the Park and Ride Site, or the A48 roundabout junction, as these are the only locations where the development would have any significant impact on traffic levels.

8.116 Collision data was used to review the site and A48 junction, and data was reviewed was the last 5 years data is available (2020 – 2024). No collisions occurred within the site area, and there were three collisions that occurred on the A48 junction.

8.117 There is a total of three collisions within the study area, with one located on Pentwyn Road and two located on the A48 off slip where it meets the roundabout junction. All collision were of a slight severity. There had been no collisions on Ball Road over the survey period.

8.118 Due to there being a limited number of accidents that can be attributed to driver error, it can be presumed that there is no issue with the design of the nearby roads or junctions, or within the site, at present.

Baseline Traffic Flows

8.119 MCC surveys were undertaken on Tuesday 15th February 2022 at the A48/P&R access junction (Pentwyn Interchange) and at the Ball Road/Hartland Road junction and an ATC survey was undertaken on Ball Road between Thursday 10th to Wednesday 16th February 2022.

8.120 The MCC survey recorded all turning movements at the Pentwyn Interchange junction by vehicle type between the hours of 08:00 – 09:00 and 16:30 – 17:30.

8.121 Traffic growth from TEMPro has been applied to the 2022 traffic flows to derive a 2028 and 2035 future year. The TEMPro growth factors are shown in **Table 8.5.**

Table 8.5 TEMPro Growth Factors

From	To	AM	PM
2022	2028	1.0624	1.0624
	2035	1.1444	1.1426

8.122 The baseline 2022 24hr AADT flows are provided in **Table 8.6.** The traffic flows for the Weekday AM peak hour (08:00-09:00) and Weekday PM peak hour (17:00-18:00) are provided in **Table 8.7** and **8.8** respectively.

Table 8.6 2022 Baseline Traffic Flows (24hr AADT)

Link Ref.	Direction	Total Vehicles	HGV	Percentage HGV
1	NB	5162	123	2%
	SB	5496	174	3%
2	NB	6563	251	4%
	SB	6151	220	4%
3	EB	6363	101	2%
	WB	5682	139	2%
4	NB	5661	216	4%
	SB	6140	184	3%
5	EB	1052	115	11%
	WB	927	102	11%
6	EB	237	8	4%
	WB	237	8	4%
7	NB	1891	44	2%
	SB	1976	69	3%
8	NB	1891	44	2%
	SB	1976	69	3%

Table 8.7 2022 Baseline Traffic Flows (AM Peak 08:00 – 09:00)

Link Ref.	Direction	Total Vehicles	HGV	Percentage HGV
1	NB	458	13	3%
	SB	441	24	5%
2	NB	537	31	6%

	SB	580	25	4%
3	EB	710	10	1%
	WB	461	17	4%
4	NB	473	25	5%
	SB	630	22	3%
5	EB	129	9	7%
	WB	11	8	73%
6	EB	0	0	0%
	WB	0	0	0%
7	NB	180	4	2%
	SB	220	7	3%
8	NB	180	4	2%
	SB	220	7	3%

Table 8.8 2022 Baseline Traffic Flows (PM Peak 17:00 – 18:00)

Link Ref.	Direction	Total Vehicles	HGV	Percentage HGV
1	NB	432	6	1%
	SB	507	3	1%
2	NB	618	9	1%
	SB	504	10	2%
3	EB	411	6	1%
	WB	538	5	1%
4	NB	514	9	2%
	SB	444	7	2%
5	EB	15	8	53%
	WB	111	7	6%
6	EB	0	0	0%
	WB	0	0	0%
7	NB	154	3	2%
	SB	129	4	3%
8	NB	154	3	2%
	SB	129	4	3%

8.123 As shown within the preceding tables, flows are highest on Links 1 to 4 (Pentwyn Interchange), reflecting its character as a strategic route and are lowest on Link 5 which is the existing access to the Cardiff East Park and Ride. Link 6 does not exist in the Baseline as it reflects the new Link Road which is proposed as part of the scheme.

Future Baseline

8.124 The 2035 Future Baseline traffic flows are summarised in **Table 8.9** (24hr AADT), **Table 8.10** (Weekday AM peak) and **Table 8.11** (Weekday PM peak).

8.125 The future baseline data contains background traffic growth derived from TEMPro.

Table 8.9 2035 Future Baseline Traffic Flows (24hr AADT)

Link Ref.	Direction	Total Vehicles	HGV	Percentage HGV
1	NB	6576	141	2%
	SB	7509	199	3%
2	NB	7543	288	4%
	SB	7036	251	4%
3	EB	7841	115	1%
	WB	6805	159	2%
4	NB	7104	247	3%
	SB	7367	210	3%
5	EB	1247	131	11%
	WB	2424	117	5%
6	EB	314	10	3%
	WB	314	10	3%
7	NB	2401	47	2%
	SB	2454	83	3%
8	NB	2401	47	2%
	SB	2454	83	3%

Table 8.10 Future Baseline Traffic Flows (AM Peak 08:00 – 09:00)

Link Ref.	Direction	Total Vehicles	HGV	Percentage HGV
1	NB	524	15	3%
	SB	505	27	5%
2	NB	615	35	6%

	SB	664	29	4%
3	EB	813	11	1%
	WB	528	19	4%
4	NB	541	29	5%
	SB	721	25	3%
5	EB	148	10	7%
	WB	13	9	73%
6	EB	0	0	0%
	WB	0	0	0%
7	NB	206	5	2%
	SB	252	8	3%
8	NB	206	5	2%
	SB	252	8	3%

Table 8.11 Future Baseline Traffic Flows (PM Peak 17:00 – 18:00)

Link Ref.	Direction	Total Vehicles	HGV	Percentage HGV
1	NB	609	7	1%
	SB	792	3	0%
2	NB	712	10	1%
	SB	576	11	2%
3	EB	568	7	1%
	WB	668	6	1%
4	NB	696	10	1%
	SB	566	8	1%
5	EB	17	9	53%
	WB	360	8	2%
6	EB	0	0	0%
	WB	0	0	0%
7	NB	218	3	1%
	SB	182	5	3%
8	NB	218	3	1%
	SB	182	5	3%

Assessment of Effects (Construction and Operational)

8.126 The assessment of potential effects should be carried out using the terminology, methodology and criteria discussed in the Methodology & Assessment Criteria section above. The assessment should clearly cover both construction and operational effects, unless agreed with Cardiff Council highways.

8.127 Where generic assumptions result in major or moderate adverse effects, please consider whether the magnitude of the effect could be lessened with the provision of additional information and advise Iceni as soon as possible.

Effects During Construction

8.128 Construction vehicle movements will be managed to minimise the impact on the local road network, with a robust CEMP in place for mitigation.

8.129 The construction vehicle movements would be dispersed across the working day between the hours of 07:00 – 18:00. Most of the construction traffic will be outside of the AM and PM peaks, minimising the impact on the surrounding highway network.

8.130 The site will utilise 'just-in-time' deliveries to reduce waste during construction.

8.131 It is anticipated that the peak construction phase of the Proposed Development would result in fewer two-way movements per day that during the operation of the site upon completion. Therefore, for the purpose of calculating the impact of the development during construction, the vehicle movements once the Proposed Development is operational has been used.

Severance

8.132 Based on the thresholds for magnitude of effect of severance, as set out in **Table 8.3** the change in total traffic flows on Link 1 is negligible, being less than 30% in each assessment scenario. However, the change in HGV flows on Link 1 is between 60% and 90% during the weekday AM peak period, resulting in a medium magnitude of impact, as per **Table 8.3**. Link 1 is a low sensitivity link, therefore, there is likely to be a **short-term, minor adverse effect on** this link during construction, based on the guidelines in **Table 8.4.**

8.133 The change in total traffic flows and HGV flows on Link 5 is over 90% during the weekday AM and PM peak periods, resulting in a large magnitude of impact. Link 5 is a low sensitivity link, therefore there is likely to be a **short-term, moderate adverse effect** on this link during construction, based on the guidelines in **Table 8.4.**

8.134 However, it is important to recognise the existing low number of vehicles on the links (resulting in a high percentage change, but not a significant change in terms of actual total traffic or HGV numbers).

Links 1 and 5 do not provide any pedestrian facilities and no pedestrians would be expected along these links.

8.135 As a result, the actual effect on the links identified above during construction is considered to be **short-term, minor adverse.**

Pedestrian Delay

8.136 As per **Table 8.3,** a judgement has been made based on the road links with two-way traffic flows exceeding 1,400 vehicles per hour, in the context of individual characteristics. Out of the links identified for further assessment, Link 1 experiences peak hour flows of more than 1,400 vehicles per hour.

8.137 The percentage change in total traffic flows is minimal and is significantly less than 30% on this link. The percentage change in HGV traffic is between 60% and 90%, however this percentage change is based on a low number of existing HGV trips. Therefore, the change in HGVs is low in actual numbers. In addition, there are no pedestrian facilities provided along Link 1 and little to no pedestrian is expected along this link.

8.138 The sensitivity of pedestrian delay on Link 1 (as identified in the Section above) is low. The magnitude of impact is considered to be medium based on a professional judgement. Based on the low existing HGV numbers and the lack of pedestrian activity, there is likely to be a **short-term, minor adverse effect** during construction based on the guidelines in **Table 8.6.**

Pedestrian Amenity

8.139 As per the criteria set out in **Table 8.3**, a judgement has been made based on routes with >100% change in traffic flows or HGV flows, in the context of individual characteristics.

8.140 Link 1 is anticipated to experience a negligible increase in total traffic flows in all scenarios i.e. less than 30%.

8.141 The sensitivity of pedestrian amenity on the identified links is low. The magnitude of impact is considered to be medium based on a professional judgement. Therefore, there is likely to be a **short-term, minor adverse effect** during construction based on the guidelines in **Table 8.4.**

Driver Delay

8.142 As stated in **Table 8.3,** there are no specific thresholds for whether the magnitude of change is classed as Large, Medium, Small or Negligible. Therefore, a judgement based on professional opinion and analysis has been undertaken, as described below.

8.143 A detailed review of junction capacity had been undertaken as part of the Transport Assessment submitted for the previous application in 2022. Junction modelling assessments have been undertaken at the following junctions:

- Internal Site Roundabout;
- A48 / Cardiff East P&R roundabout;
- New Link Road / Ball Road; and
- Hartland Road / Ball Road.

8.144 The results indicate that the previous would not have an adverse impact on the operation of the local highway network in the vicinity of the site. The junctions were shown to be able to accommodate the additional trips from the previous scheme without significant increases in queuing or delay.

8.145 As the Proposed Development will generate less vehicular trips during all peak hours and throughout the day, the junctions will be able to accommodate the fewer trips produced by this revised scheme. This will also be true during the construction of the site.

8.146 The sensitivity of driver delay on each of the links (as identified above) is low. The magnitude of change in relation to driver delay is considered to be small, based on a professional judgement regarding the increase in two-way vehicle movements expected in the peak hours and the results of the junction modelling assessments undertaken as part of the previous Transport Assessment. Therefore, there is likely to be a **short-term, negligible effect** during the construction of the site.

Accidents and Safety

8.147 As stated in **Table 8.3**, there is no specific definition regarding the magnitude of change in relation to accidents and safety, and instead it is stated that a judgement will be needed to assess the implications of local circumstances or factors which may increase or decrease the risk of accidents.

8.148 A detailed PIC data analysis has been undertaken as part of the updated Transport Assessment, this analysis determined that there are no trends that demonstrate that there is an existing issue on the local highway network at present.

8.149 There are therefore no significant trends to suggest that the highway is operating unsafely.

8.150 The increase in total vehicle movements on each of the links during construction of the Proposed Development is not considered to be material in the context of existing traffic flows. When taking into account the PIC data analysis, it is considered unlikely that there would be any material increase in collisions due to the Proposed Development.

8.151 The sensitivity of accidents and safety on each of the links (as identified in the Section above) is considered to be low. The magnitude of impact in relation to accidents and safety is considered to be low, based on a professional judgement regarding the increase in vehicle movements and the existing accident record within the study area. Therefore, there is likely to be a **short-term, negligible effect.**

Effects Once the Proposed Development is Operational

8.152 The number of trips generated by the Proposed Development on a 24-hour (AADT) basis and during the identified Weekday AM peak and Weekday PM peak hours have been calculated. The trip generation and trip distribution methodology is described in detail within the Transport Assessment at Appendix A8.1.

8.153 A summary of the traffic generated by the Proposed Development is presented in **Table 8.12.**

Table 8.12 Proposed Scheme Vehicle Trip Generation

	Arrivals	Departures	Total
06:00 – 07:00	67	38	105
07:00 – 08:00	87	15	102
08:00 – 09:00	67	20	87
16:00 – 17:00	7	54	61
17:00 – 18:00	11	42	53
18:00 – 19:00	20	40	60

The changes in trips on each link as a result of the Proposed Development are summarised in **Table 8.13** (24-hr AADT), **Table 8.14** (Weekday AM peak) and **Table 8.15** (Weekday PM peak).

Table 8.13 2035 Future Baseline vs Future Baseline + Development (24-Hour AADT)

Link Ref.	Direction	2035 Future Baseline			2035 Future Baseline + Dev			Net Change %	
		Total Vehicles	HGV	HGV %	Total Vehicles	HGV	HGV %	Total Vehicles	HGV
1	NB	7999	140	2%	6745	145	2%	3%	3%
	SB	7839	197	3%	7681	203	3%	2%	2%
2	NB	7543	285	4%	7559	288	4%	0%	0%
	SB	7047	249	4%	7053	252	4%	0%	0%
3	EB	7955	114	1%	7875	116	1%	0%	1%
	WB	7437	157	2%	6838	160	2%	0%	0%
4	NB	7240	244	3%	7230	250	3%	2%	1%
	SB	8058	208	3%	7492	213	3%	2%	1%
5	EB	4470	130	3%	1595	140	9%	28%	6%
	WB	5426	116	2%	2768	125	5%	14%	7%
6	EB	3548	10	0%	344	10	3%	10%	7%
	WB	4643	10	0%	344	10	3%	10%	8%
7	NB	3780	50	1%	2417	47	2%	1%	1%
	SB	4423	78	2%	2469	83	3%	1%	0%
8	NB	4328	50	1%	2417	47	2%	1%	1%
	SB	3876	78	2%	2469	83	3%	1%	0%

Table 8.14 2035 Future Baseline vs Future Baseline + Development (Weekday AM Peak)

Link Ref.	Direction	2035 Future Baseline			2035 Future Baseline + Dev			Net Change %	
		Total Vehicles	HGV	HGV %	Total Vehicles	HGV	HGV %	Total Vehicles	HGV
1	NB	524	15	3%	533	16	3%	2%	8%
	SB	505	27	5%	535	29	5%	6%	4%
2	NB	615	35	6%	615	36	6%	0%	0%
	SB	664	29	4%	667	29	4%	0%	0%
3	EB	813	11	1%	819	12	1%	1%	2%
	WB	528	19	4%	529	20	4%	0%	1%
4	NB	541	29	5%	564	30	5%	4%	3%
	SB	721	25	3%	727	26	4%	1%	4%
5	EB	148	10	7%	209	13	6%	42%	24%
	WB	13	9	73%	31	12	38%	143%	27%

6	EB	0	0	0%	0	0	0%	0%	0%
	WB	0	0	0%	0	0	0%	0%	0%
7	NB	206	5	2%	207	5	2%	0%	2%
	SB	252	8	3%	255	8	3%	1%	2%
8	NB	206	5	2%	208	5	2%	1%	2%
	SB	252	8	3%	253	8	3%	0%	2%

Table 8.15 2035 Future Baseline vs Future Baseline + Development (Weekday PM Peak)

Link Ref.	Direction	2035 Future Baseline			2035 Future Baseline + Dev			Net Change %	
		Total Vehicles	HGV	HGV %	Total Vehicles	HGV	HGV %	Total Vehicles	HGV
1	NB	609	7	1%	628	7	1%	3%	0%
	SB	792	3	0%	796	3	0%	1%	0%
2	NB	712	10	1%	714	10	1%	0%	0%
	SB	576	11	2%	576	11	2%	0%	0%
3	EB	568	7	1%	569	7	1%	0%	0%
	WB	668	6	1%	672	6	1%	1%	0%
4	NB	696	10	1%	700	10	1%	1%	0%
	SB	566	8	1%	581	8	1%	3%	0%
5	EB	17	9	53%	27	9	34%	58%	0%
	WB	360	8	2%	399	8	2%	11%	0%
6	EB	0	0	0%	0	0	0%	0%	0%
	WB	0	0	0%	0	0	0%	0%	0%
7	NB	218	3	1%	220	3	1%	1%	0%
	SB	182	5	3%	182	5	3%	0%	0%
8	NB	218	3	1%	219	3	1%	0%	0%
	SB	182	5	3%	183	5	3%	1%	0%

8.154 Each of the links included within the study area has been classed as low sensitivity, based on the ISEP criteria included at **Table 8.1**. As a result, only links experiencing an increase in traffic flows (or HGV flows) of over 30% have been considered for further assessment, as per Rule 1 of the ISEP Guidelines.

8.155 The following links experience an increase in traffic flows or HGV flows of over 30% over a 24-hour period or during the weekday AM or PM peak hours:

- Link 5: Existing P&R Access

Severance

8.156 The change in total traffic flows and HGV flows on Link 5 is less than 30% during the weekday AM and PM peak periods, resulting in a large magnitude of impact. Link 5 is a low sensitivity link, therefore there is likely to be a **long-term, minor adverse effect** on this link, based on the guidelines in **Table 8.3.**

8.157 However, it is important to recognise the existing low number of vehicles on the links (resulting in a high percentage change, but not a significant change in terms of actual total traffic or HGV numbers). Links 5 does not provide any pedestrian facilities and no pedestrians would be expected along these links.

8.158 As a result, the actual effect on the links identified above is considered to be **long-term, minor adverse.**

Pedestrian Delay

8.159 As per **Table 8.3,** a judgement has been made based on the road links with two-way traffic flows exceeding 1,400 vehicles per hour, in the context of individual characteristics. Out of the links identified for further assessment, none of the links experience two-way traffic flows, although Link 1 equals

8.160 The percentage change in total traffic flows is minimal and is significantly less than 30% on this link. The percentage change in HGV traffic is also significantly less than 30%.

8.161 The sensitivity of pedestrian delay on Link 1 (as identified in the Section above) is low. The magnitude of impact is considered to be medium based on a professional judgement. Based on the low existing HGV numbers and the lack of pedestrian activity, there is likely to be a **long-term, minor adverse effect** based on the guidelines in **Table 8.4.**

Pedestrian Amenity

8.162 As per the criteria set out in **Table 8.3**, a judgement has been made based on routes with >100% change in traffic flows or HGV flows, in the context of individual characteristics.

8.163 None of the links identified are expected to have an increase of >100%. Therefore, there is likely to be **long-term, negligible effect** based on the guidelines in **Table 8.4.**

Driver Delay

8.164 As stated in **Table 8.3,** there are no specific thresholds for whether the magnitude of change is classed as Large, Medium, Small or Negligible. Therefore, a judgement based on professional opinion and analysis has been undertaken, as described below.

8.165 A detailed review of junction capacity has been undertaken as part of the Transport Assessment. Junction modelling assessments have been undertaken at the following junctions:

- Internal Site Roundabout;
- A48 / Cardiff East P&R roundabout;
- New Link Road / Ball Road; and
- Hartland Road / Ball Road.

8.166 The results indicate that the Proposed Development would not have an adverse impact on the operation of the local highway network in the vicinity of the site. The junctions have shown to be able to accommodate the additional trips from the Proposed Development without significant increases in queuing or delay.

8.167 The sensitivity of driver delay on each of the links (as identified above) is low. The magnitude of change in relation to driver delay is considered to be small, based on a professional judgement regarding the increase in two-way vehicle movements expected in the peak hours and the results of the junction modelling assessments undertaken as part of the Transport Assessment. Therefore, there is likely to be a **long-term, negligible effect.**

Accidents and Safety

8.168 As stated in **Table 8.3**, there is no specific definition regarding the magnitude of change in relation to accidents and safety, and instead it is stated that a judgement will be needed to assess the implications of local circumstances or factors which may increase or decrease the risk of accidents.

8.169 A detailed PIC data analysis has been undertaken as part of the Transport Assessment, this analysis determined that there are no trends that demonstrate that there is an existing issue on the local highway network at present.

8.170 There are therefore no significant trends to suggest that the highway is operating unsafely.

8.171 The increase in total vehicle movements on each of the links is not considered to be material in the context of existing traffic flows. When taking into account the PIC data analysis, it is considered unlikely that there would be any material increase in collisions due to the Proposed Development.

8.172 The sensitivity of accidents and safety on each of the links (as identified in the Section above) is considered to be low. The magnitude of impact in relation to accidents and safety is considered to be low, based on a professional judgement regarding the increase in vehicle movements and the existing accident record within the study area. Therefore, there is likely to be a **long-term, negligible effect.**

Mitigation Measures

Mitigation During Construction

8.173 A commitment will be made to a number of management practices during the construction phase of the Proposed Development. These will be secured by a Construction Environmental Management Plan (CEMP). A full list of the commitments which are integral to the Proposed Development is included in Chapter 4. The CEMP will include details on vehicle routing.

Mitigation Once the Proposed Development is Operational

Severance

8.174 No secondary mitigation or enhancement is proposed.

Pedestrian Delay

8.175 No secondary mitigation or enhancement is proposed.

Pedestrian Amenity

8.176 No secondary mitigation or enhancement is proposed.

Driver Delay

8.177 No secondary mitigation or enhancement is proposed.

Accidents and Safety

8.178 No secondary mitigation or enhancement is proposed.

Residual Impacts and Monitoring

Construction

8.179 With the introduction of secondary mitigation in the form of a robust CEMP, the residual effects on each of the links is considered to be medium-term, negligible.

8.180 This effect is considered to be **not significant**.

The Completed and Operational Development

Severance

8.181 In the absence of secondary mitigation, the residual effects for each of the links is the same as that reported in the pre-mitigation scenario.

8.182 This effect is considered to be **not significant**, given the low sensitivity of the links and the low existing HGV numbers, which results in a higher percentage change in traffic.

Pedestrian Delay

8.183 In the absence of secondary mitigation, the residual effects for Links 6 and 9 is the same as that reported in the pre-mitigation scenario.

8.184 This effect is considered to be **not significant**.

Pedestrian Amenity

8.185 In the absence of secondary mitigation, the residual effect for the identified links is the same as that reported in the pre-mitigation scenario.

8.186 This effect is considered to be **not significant**.

Driver Delay

8.187 In the absence of secondary mitigation, the residual effect for the identified links is the same as that reported in the pre-mitigation scenario.

8.188 This effect is considered to be **not significant**.

Accidents & Safety

8.189 In the absence of secondary mitigation, the residual effects on each of the links is the same as that reported in the pre-mitigation scenario.

8.190 This effect is considered to be **not significant**.

8.191 The residual impacts arising from the Proposed Development are summarised in **Table 8.16** below.

Table 8.16 Summary of Residual Effects

Description of Effect	Receptor (Sensitivity)	Nature of Effect and Geographic Scale	Magnitude of Change*	Classification of Effect (Statement of Significance)	Mitigation and Monitoring	Residual Effect
Construction Effects						
Severance	Low	Local	Minor	Adverse	CEMP	Short term, Minor Adverse
Pedestrian Delay	Low	Local	Minor	Adverse	CEMP	Short term, Minor Adverse
Pedestrian Amenity	Low	Local	Minor	Adverse	CEMP	Short term, Minor Adverse
Driver Delay	Low	Local	Negligible	Negligible	CEMP	Negligible
Accidents and Safety	Low	Local	Negligible	Negligible	CEMP	Negligible
Operational Effects						
Severance	Low	Local	Minor	Adverse	Implementation of Travel Plan	Long term, Minor Adverse
Pedestrian Delay	Low	Local	Minor	Adverse	Implementation of Travel Plan	Long term, Minor Adverse
Pedestrian Amenity	Low	Local	Minor	Adverse	Implementation of Travel Plan	Long term, Minor Adverse
Driver Delay	Low	Local	Negligible	Negligible	Implementation of Travel Plan	Negligible
Accidents and Safety	Low	Local	Negligible	Negligible	Implementation of Travel Plan	Negligible

Notes: * incorporating environmental design and management, ** incorporating mitigation and monitoring measures

Summary and Conclusions

8.192 The potential transport impacts have been assessed using established methodologies set out in the ISEP Guidelines.

8.193 In summary, the assessment demonstrates that during the both the construction period and for the operation of the Proposed Development, the residual impact will be **long term, negligible** in relation accidents and safety and driver delay, and **long term, minor adverse** in relation to severance, pedestrian delay, and pedestrian amenity.