

**PROPOSED OFFICE/LABORATORIES AND HUB UNIT
CARDIFF EDGE LIFE SCIENCES PARK, CARDIFF**

Trinity Investment Management
Transport Statement

September 2022

Proposed Office/Laboratories and Hub Unit

Cardiff Edge Life Sciences Park, Cardiff

TRANSPORT STATEMENT

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1.0 INTRODUCTION

1.1 Appointment of Connect Consultants

1.1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants that have been instructed in relation to a proposed office/lab block and Hub unit at the Cardiff Edge Life Sciences Park in Cardiff.

1.2 Site Location

1.2.1 The proposal site is located in the Cardiff Edge Life Sciences Park on the northwest periphery of Cardiff.

1.2.2 Cardiff Edge is bound to the north and west and by Longwood Drive, to the east by the Long Wood Nature Reserve, and to the south by warehousing and offices.

1.2.3 There are a number of residential areas located in the wider area surrounding the proposal site, as well as an Asda supermarket situated east of the site on Longwood Drive.

1.2.4 The site is located within close proximity to Coryton Roundabout, a key interchange between the M4 and the A470 into Cardiff to the south and the Brecon Beacons to the north.

1.2.5 Figure 1.1 below identifies the context of the site in relation to the local area.

Figure 1.1 – Site in its Local Context



Source: Google. The Cardiff Edge boundary is denoted by the red line.

1.3 Development Proposals

- 1.3.1 The development proposals are shown on the plan provided at Appendix 1. The proposals include the removal of Unit 19 and Unit 20 and the construction of a new two storey office/laboratory building and a new two storey multi-use Hub building (café / gym / workspace) with associated parking and landscaping.
- 1.3.2 The proposed development will continue to be accessed from Longwood Drive via the existing access junction on the northern boundary of the Cardiff Edge complex. The proposals include reopening the alternative access at the southwest corner of the site, which is currently not in use.
- 1.3.3 To facilitate early delivery and enable the science park to be more attractive for future/current tenants, an early, Full Application for an office/laboratory building and a Hub are being progressed. A subsequent Outline Application to include further additional floorspace within the park, the whole park and associated improvements will be submitted at a later date.
- 1.3.4 This Transport Statement concerns the initial Full Application.

1.4 Pre-application

- 1.4.1 Pre-application highways advice was received from Cardiff Council (CC), acting as the Local Highway Authority, dated 7th July 2022 in which CC had no adverse comments in relation to the type and form of the development with the salient matters relating to parking. This TS has considered the advice received from CC.
- 1.4.2 Pre-application discussions also took place with representatives of the Welsh Government (WG) in relation to the potential traffic impact on Coryton Roundabout, which is managed by the South Wales Trunk Road Agent (SWTRA). A video meeting was held between Connect and WG on 16th May 2022 in which the potential development effect at the Coryton Roundabout was discussed.
- 1.4.3 On 25th July 2022, Richard Jones of WG issued an email stating the following:

"Agreed that on the basis of 30 trips (in and out) in the peak, that a TS is appropriate without further modelling of the roundabout [Coryton Roundabout]. This equates to 1 additional vehicle every 2 minutes in the peak. Should the wider phases come forward this may require a different approach."

1.5 National Planning Policy

- 1.5.1 This report section provides a brief overview of the national planning policy context and objectives.
- Planning Policy Wales, Edition 11, February 2021
- 1.5.2 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy for Wales. PPW, the TANs, MTANs and policy clarification letters comprise national planning policy.
- 1.5.3 The primary objective of PPW is 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, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation and resultant duties such as the Socio-economic Duty.

1.5.4 Chapter 4 *Active and Social Plans* sets out at paragraph 4.1.9 that,

"The Welsh Government is committed to reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport. Delivering this objective will make an important contribution to decarbonisation, improving air quality, increasing physical activity, improving the health of the nation and realising the goals of the Well-being of Future Generations Act."

1.5.5 Paragraph 4.1.52 states: -

"Local authorities will need to ensure that their parking standards reflect local transport provision, are adopted by individual authorities as supplementary planning guidance, and are kept under review. Parking standards should be applied flexibly and allow for the provision of lower levels of parking and the creation of high-quality places."

1.5.6 Paragraph 4.1.55 relates to the production of Transport Assessments: -

"Transport Assessments are an important mechanism for setting out the scale of anticipated impacts a proposed development, or redevelopment, is likely to have. They assist in helping to anticipate the impacts of development so that they can be understood and catered for appropriately."

Planning applications for developments, including changes of use, falling into the categories identified in TAN 18: Transport must be accompanied by a Transport Assessment. In addition, in areas where the transport network is particularly sensitive, planning authorities should consider requiring Transport Assessments for developments which fall outside of the thresholds set out in TAN 18. Transport Assessments can be required for any proposed development if the planning authority considers that there is a justification or specific need. Transport Assessments provide the basis for negotiation on scheme details, including the level of parking, and measures to improve walking, cycling, and public transport access, as well as measures to limit or reduce levels of air and noise pollution. They should cover the transport impacts during the construction phase of the development, as well as when built and in use. Transport Assessments also provide an important basis for the preparation of Travel Plans. Further guidance on Transport Assessments and Travel Plans is contained in TAN 18."

Cardiff Local Development Plan (2006-2026)

1.5.7 The Cardiff Local Development Plan (LDP) was adopted in January 2016 by CC and provides a framework for which to guide sustainable development in Cardiff up to 2026.

1.5.8 Policy T5: Managing Transport Impacts of the LDP ensures that all new development are required to address the following transport requirements:

- "i. Properly address the demand for travel and its impacts;*
- ii. Contribute to reducing reliance on the private car, in line with national planning policies and the strategic transport objectives and policies of the LDP;*

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

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

Managing Transportation Impacts (Incorporating Parking Standards) SPD (July 2018)

1.5.9 The parking standards pertinent to the proposed development are set out in the CC Supplementary Planning Document 'Managing Transportation Impacts (Incorporating Parking Standards)', adopted in July 2018.

1.5.10 The proposed parking provision and relevant parking standards are set out in Section 3.4.1 of this report.

1.6 Report Overview

1.6.1 The remainder of this report is divided into four further sections, which are as follows:-

Section 2.0 Site Transport Context

1.6.2 This section of the report provides details of the site context, including its accessibility by all relevant transport modes.

Section 3.0 Proposed Development

1.6.3 The various components of the development proposal, including the site access arrangements and parking provision, are described within this section of the report.

Section 4.0 Traffic Assessment

1.6.4 This report section provides an assessment of the vehicular attraction of the proposed development and its traffic effects.

Section 5.0 Summary & Conclusions

1.6.5 A summary and the conclusions of the report are provided in this section.

2.0 SITE TRANSPORT CONTEXT

2.1 Introduction

2.1.1 This section of the report considers the accessibility of the site in terms of a range of transport modes.

2.2 Pedestrian Access

2.2.1 The Department for Transport's (DfT) document titled 'Manual for Streets' dated 2007 provides guidance in relation to walk distances. Section 4.4 gives the following advice:-

"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800 m) walking distance of residential areas which residents may access comfortably on foot".

2.2.2 The CIHT document 'Planning for Walking' (April 2015) has reiterated the advice presented in 'Manual for Streets', Section 6.4 of 'Planning for Walking' states the following:

"Walking neighbourhoods are typically characterised as having a range of facilities within 10 minutes' walking distance (around 800 metres). However, the propensity to walk or cycle is not only influenced by distance but also the quality of the experience; people may be willing to walk or cycle further where their surroundings are more attractive, safe and stimulating. Developers should consider the safety of the routes (adequacy of surveillance, sight lines and appropriate lighting) as well as landscaping factors (indigenous planting, habitat creation) in their design."

2.2.3 Furthermore, 'Planning for Walking' indicates that approximately 80% of journeys shorter than 1 mile (1.6km) are made wholly on foot.

2.2.4 Table 3.2 of The Institute of Highways and Transportation (IHT) guidance document titled 'Providing for Journeys on Foot' identifies a maximum walk distance of 2.0km for commuter, school and sightseeing walk trips, 800m for town centre walk trips and 1.2km for trips elsewhere.

2.2.5 The actual distance that people will be prepared to walk will vary depending on the trip purpose and other factors such as the presence of road crossings, terrain, and the attractiveness of the environment.

2.2.6 Based on a maximum walk distance of 2km for employees, the approximate walk catchment is shown at Figure 2.1 below.

Figure 2.1 – 2km Walk Catchment



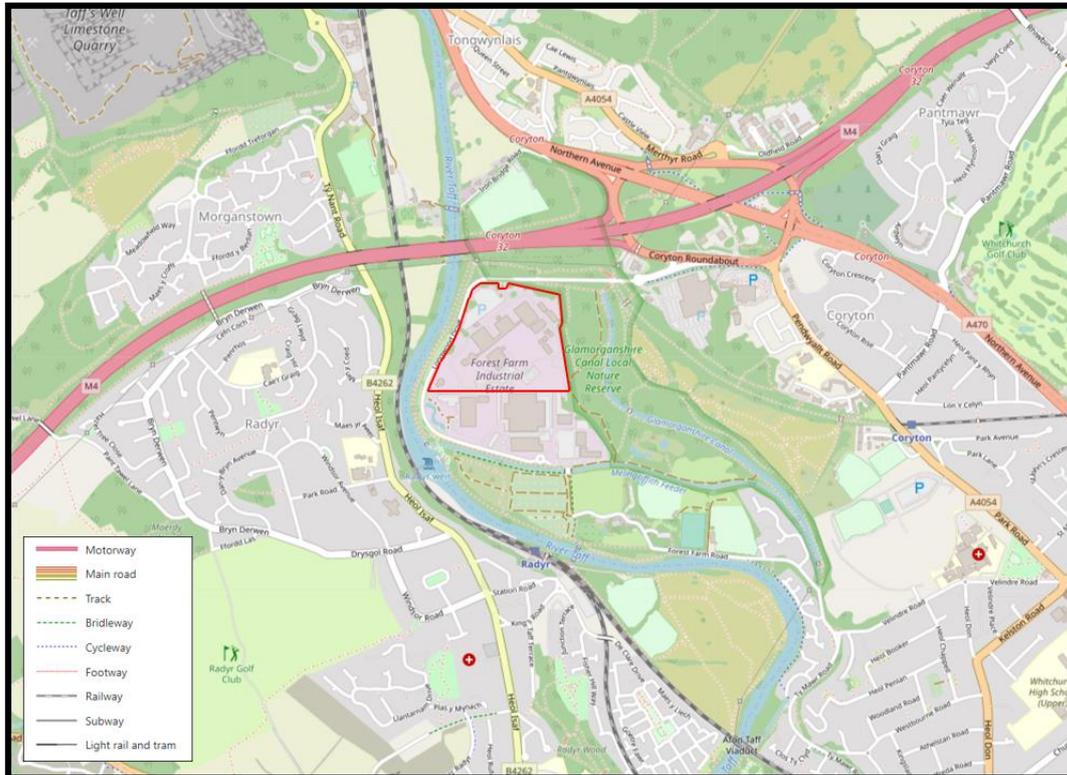
Source: Google. N.B. the proposal site is denoted by a blue star.

- 2.2.7 The walk catchments above indicate that there is a substantial potential staff pool residing within the 2km walk catchment, albeit that the specialised nature of the life sciences industry means that only a very small percentage of employees would be likely to live within walking distance of the site.
- 2.2.8 The Cardiff Edge complex will continue to be accessed by pedestrians from Longwood Drive via the main access junction on the site's northern boundary. The proposals include reopening the alternative access at the southwest corner of the site, which pedestrians can utilise, and will be convenient for those travelling from Radyr, including the station. Access to the new buildings will be facilitated by on-site pedestrian facilities.
- 2.2.9 Longwood Drive features a continuous footway on its south side, which extends eastwards into the wider pedestrian network of north Cardiff and westwards around the western boundary of the Cardiff Edge site. Moreover, the site is surrounded by a network of footpaths that comprise the Long Wood Nature Reserve and beyond. These footpaths facilitate access to areas such as Tongwynlais to the north, Pantmawr and Melingriffith to the east, and Radyr via a footbridge over the River Taff south of the site.
- 2.2.10 Radyr Station is located adjacent to this footbridge approximately 1.5km walking distance from the Cardiff Edge north access and c.950m from the southwest access.

2.2.11 Coryton Roundabout east of the site can be negotiated by pedestrians via a network of shared foot and cycleways.

2.2.12 A map taken from OpenStreetMap showing the network of pedestrian routes surrounding the site is shown at Figure 2.2 below.

Figure 2.2 – Cardiff Edge Local Pedestrian Network



Source: OpenStreetMap.org. N.B. the boundary of Cardiff Edge is denoted by the red line.

2.2.13 In light of the local pedestrian facilities, the site is well connected to the local pedestrian network with opportunities for staff and visitors to make trips to the site by foot.

2.3 Cycling

2.3.1 The CIHT document titled 'Planning for Cycling' (October 2014) indicates that 80% of cycling trips are less than five miles (8km) and 40% are less than two miles (3.2km). This suggests that cycling can offer an alternative to car travel particularly for trips of less than 8km.

2.3.2 Based on a maximum cycle distance of 8km, the approximate cycle catchment is shown at Figure 2.3 below.

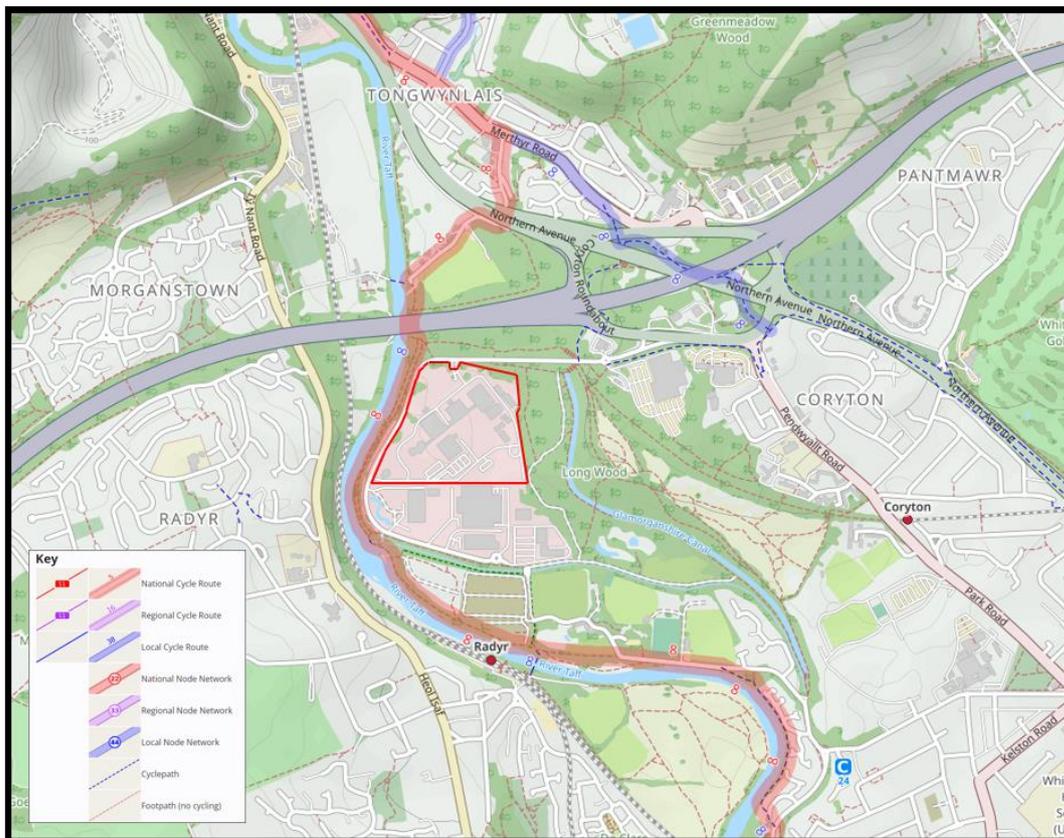
Figure 2.3 – Cycle Catchment Area



Source: Google. N.B. the proposal site is denoted by a blue star.

- 2.3.3 The 8km cycle catchment includes much of Cardiff, as well as parts of Caerphilly and Pontypridd to the north. This provides a significant local population within cycle distance of the site.
- 2.3.4 Figure 2.4 below, shows a cycle map of the site's surrounding areas taken from OpenStreetMap, showing local and national cycle ways in the area.

Figure 2.4 – Cardiff Cycle Map



Source: OpenStreetMap. N.B. The boundary of Cardiff Edge is denoted by the red line.

- 2.3.5 The map above shows that National Cycle Route (NCR) 8 runs along the site's western boundary and is accessible from Longwood Drive via several access points. NCR 8 forms part of the Taff Trail and provides a route into Tongwynlais and north beyond Cardiff to destinations such as Nantgarw and Caerphilly, and south near Radyr Station and directly into central Cardiff via areas including Llandaff North, Gabalfa, and Pontcanna.
- 2.3.6 Cyclists can readily cycle to the site via Longwood Drive from Coryton Roundabout to the east. Coryton Roundabout features a small network of shared pedestrian / cycleways, including Local Cycle Route (LCR) 8, which connects to NCR 8 in Tongwynlais in the north. From Coryton Roundabout, the A470 Northern Avenue includes shared pedestrian and cycleways along both its flanks, which offers a direct route into the centre of Cardiff.
- 2.3.7 Considering that the roads local to the site are urban in character, that a substantial residential area is within cycle distance of the site, and the presence of local cycle infrastructure, cycling provides an opportunity to access the site by a sustainable mode of transport for staff and visitors.

2.4 Bus Access

- 2.4.1 The publication 'Planning for Public Transport in Developments' produced by the Institution of Highways and Transportation (IHT) specifies that new developments should be located within 400m of the nearest bus stop.

- 2.4.2 The nearest bus stop to the site is situated adjacent to the Asda store approximately 600m walking distance east of the Cardiff Edge north access. The bus stop features a bus shelter and serves the G1 route, which provides hourly weekday and Saturday services to destinations including Methyr, Whitchurch, and Gabalfa.
- 2.4.3 The route between the site access and Asda bus stop is facilitated via a continuous footway on the south side of Longwood Drive, from which pedestrians can cross the Asda access road via dropped kerbs and walk to the bus stop along the footway flanking the east side of the Asda access road. The route is considered suitable for pedestrians and based on an average walking speed of 1.2 m/s, the journey between the access and the bus stop should only take around eight and a half minutes, which should be considered not unreasonable.
- 2.4.4 The location of the bus stop within the context of the Cardiff Edge site boundary is shown at Figure 2.5 below.

Figure 2.5 – Bus Stop Location



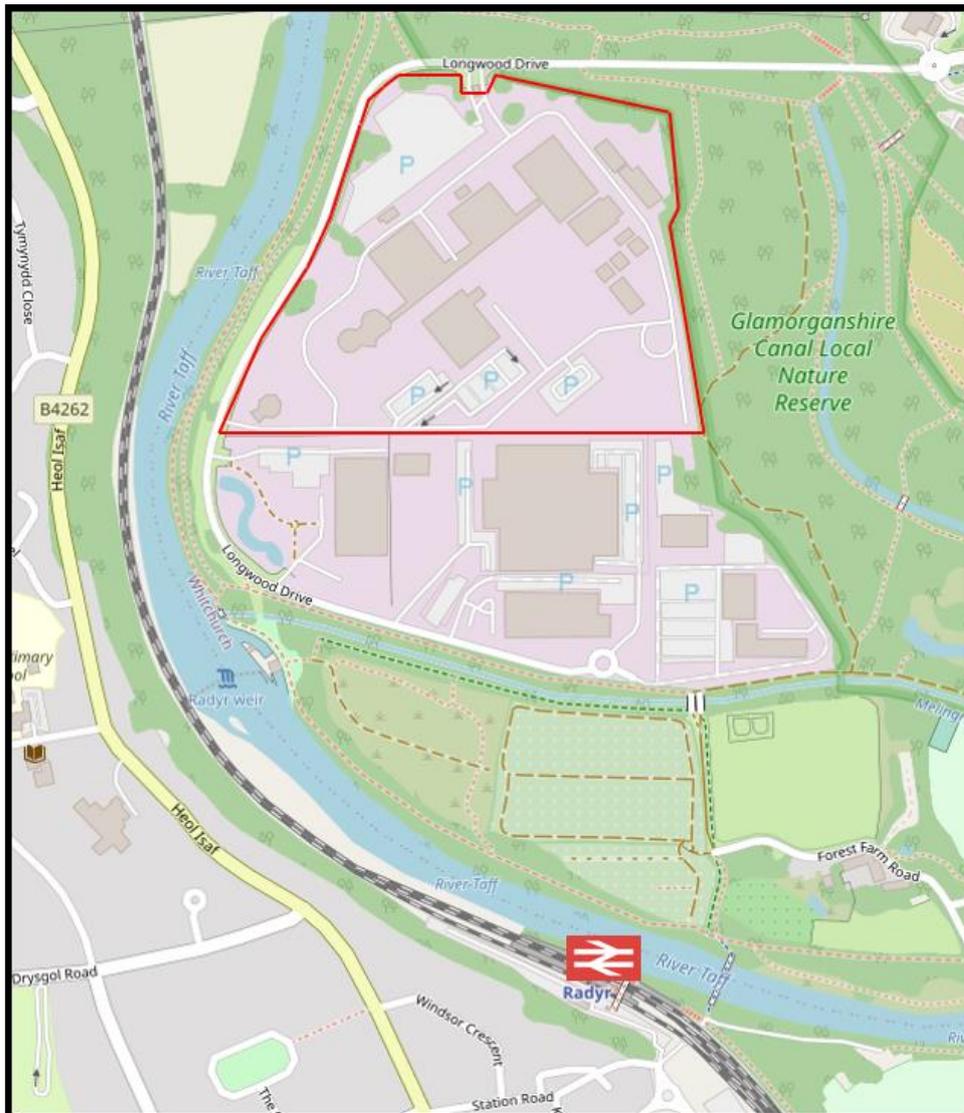
Source: Google. N.B The boundary of Cardiff Edge is denoted by the red line.

- 2.4.5 The bus stop adjacent to Asda will continue to be an option for sustainable travel to and from the site for future staff and visitors.

2.5 Rail Access

- 2.5.1 The advice in the Institution of Highways and Transportation's (IHT) publication titled 'Planning for Public Transport in Developments' suggests that railway stations have a walk catchment of 800m.
- 2.5.2 The nearest station to the proposal site is Radyr Station located approximately 1.5km south of the Cardiff Edge north access junction and c.950m from the alternatively southwest access, and is identified on the map at Figure 2.6 below.
- 2.5.3 Radyr Station services routes for Transport for Wales and provides frequent and regular services to destinations including Cardiff Central, Barry Island, Bridgend, Merthyr Tydfil, and Pontypridd.

Figure 2.6 – Radyr Station Location



Source: OpenStreetMap.org. N.B. The boundary of Cardiff Edge is denoted by the red line.

2.5.4 Although outside the IHT walk distance, Radyr Station is accessible for pedestrians and cyclists via the existing network of footways and cycleways with the distance between the site and the station not unfeasible. Therefore, Radyr Station will continue to be a viable option for sustainable travel to and from the site for future staff and visitors.

2.6 Existing Use of Non-Car Travel Modes

2.6.1 As part of the Connect pre-app report 'TN03 – Survey Data and Trip Assessment' (15th June 2022), provided at Appendix 3, a traffic survey was undertaken at the Cardiff Edge north access which recorded vehicular, pedestrian, and cycle arrivals and departures from 06:00 to 20:00 on Thursday 19th May 2022.

2.6.2 The total number of vehicle, pedestrian, and cycle trips recorded by the survey are shown at Table 2.1 below, as well as the percentage proportions of each mode of transport calculated from the total trips.

Table 2.1 – Multi-Modal Split

Mode	06:00-20:00			
	Arr	Dep	Tot	%
Vehicles	402	401	803	71%
Pedestrians	144	155	299	26%
Cycles	12	15	27	2%

2.6.3 The survey data shows that 71% of trips were undertaken by vehicle, 26% by pedestrian and 2% by cycle. The pedestrian trips are likely to be a combination of whole trips undertaken on foot and trips via the Asda bus stop and Radyr Station.

2.7 Highways Access

2.7.1 The proposal site will continue to be accessed from Longwood Drive via the priority-controlled main access junction located at the northern boundary of Cardiff Edge, as existing. The access is secured with gates and includes a gatehouse. As part of proposals, the alternative priority-controlled access at the southwest corner of the site will be reopened.

2.7.2 Access onto Longwood Drive east of the site is facilitated via Coryton Roundabout, a large-scale signal and priority-controlled grade separated roundabout, that functions as an important interchange (Junction 32) between the M4 and the A470 into Cardiff to the south and the Brecon Beacons to the north.

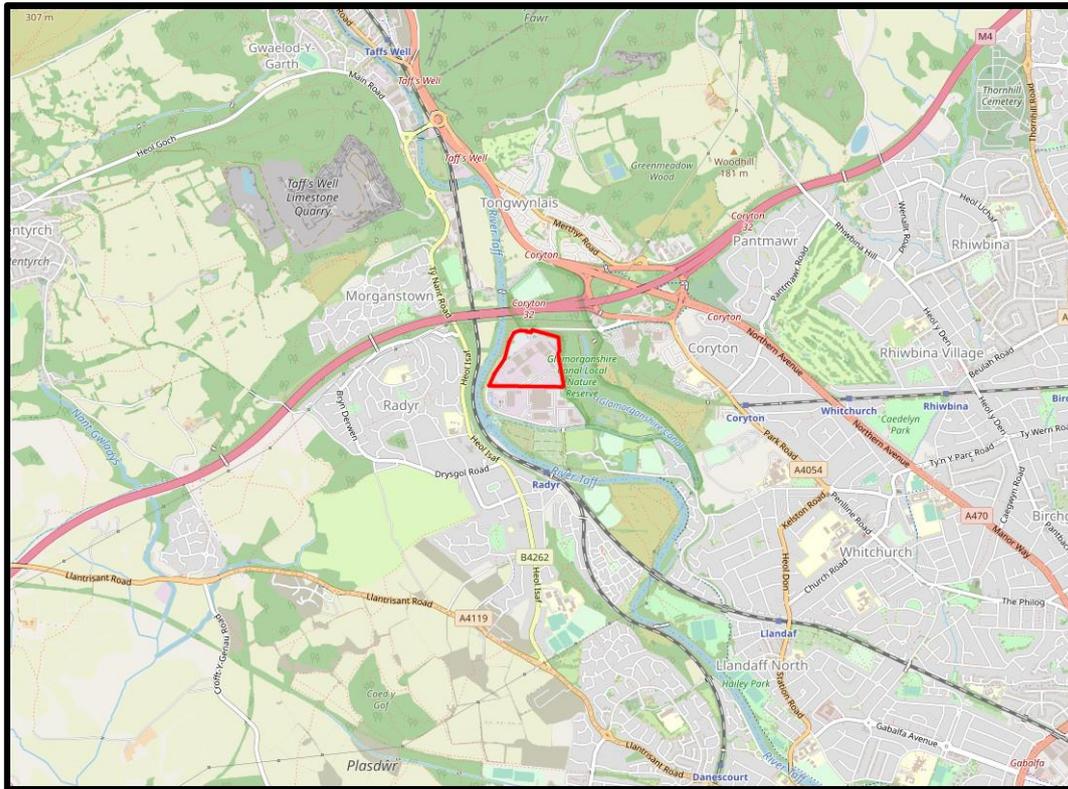
2.7.3 Access onto Longwood Drive from Coryton Roundabout is facilitated via a single-lane slip road and access onto the roundabout from Longwood Drive is via a three-lane signal-controlled exit.

2.7.4 The M4 eastbound and westbound is accessible from Coryton Roundabout via slip roads and provides vital routes along the south of Wales to destinations including Swansea, Port Talbot and Bridgend to the west, and Newport to the east, as well as into England via the Prince of Wales Bridge.

2.7.5 The A470 northbound and southbound is accessible from Coryton Roundabout via slip roads. North on the A470 is a route into the Brecon Beacons, which includes destinations such as Merthyr Tydfil and Pontypridd. South on the A470 is a direct route into Cardiff, from which the centre of the city is accessible, as well as key traffic corridors including the A48, which provides east and west routes through the city.

2.7.6 Figure 2.7 below shows the site in its local highway context.

Figure 2.7 – Highway Network



Source: OpenStreetMap.org. N.B. The boundary of Cardiff Edge is denoted by the red line.

2.7.7 Overall, the site has a prominent location in relation to the local road network from which it is readily accessible.

2.8 Section Conclusion

2.8.1 Cardiff Edge is surrounded by a network of footpaths and cycleways that connect the site to the wider pedestrian and cycle network. There is a bus stop east of the site and Radyr Station that will continue to provide options for sustainable travel to/from the site. The site has a prominent location relative to the local highway network and its proximity to the M4 and A470 means the site is well-connected to the national highway network. Overall, the site is accessible by all relevant transport modes.

3.0 PROPOSED DEVELOPMENT

3.1 Introduction

3.1.1 This report is based on a scheme comprising the removal of Unit 19 and Unit 20 with a combined GIA of 1,872 sq.m., and the construction of an office/lab block and Hub unit comprising the following GIA:

- Unit 1 Office/Lab – 5,055 sq.m.
- The Hub – 918 sq.m.

3.1.2 Unit 1 is proposed to be constructed at the location of Units 19 and 20, and The Hub will be constructed on a vacant plot. The proposals will involve a net increase in floor area of 4,101 sq.m. GIA (proposed total floor area, 5,973 sq.m., minus the existing Units 19/20 floor area, 1,872 sq.m.).

3.1.3 The proposals include the provision of 145 additional spaces on top of the 618 existing spaces, which will give an overall site parking provision of 763 spaces.

3.1.4 A proposed secure cycle store adjacent to Unit 1 will be capable of securing up to 20 cycles and a secure cycle store adjacent to The Hub will be capable of securing up to 12 cycles. Welfare facilities in the form of lockers, changing rooms, showers, etc. will also be provided.

3.1.5 The proposed site layouts are identified on plans provided at Appendix 1.

3.2 Proposed Site Access Arrangements

3.2.1 The site will continue to be accessed by pedestrians, cyclists, and vehicles from Longwood Drive via the existing access junction on the northern boundary of the Cardiff Edge complex. The alternative access junction at the southwest corner of the site will be reopened as part of proposals.

3.2.2 Pedestrian access to the individual proposed units will be facilitated via the on-site pedestrian facilities, including footways and crossings, and vehicular access will be via the site's access roads.

3.2.3 The site access arrangements are also shown at Appendix 1.

3.3 Servicing

3.3.1 Access for service vehicles into the wider Cardiff Edge site will be via the existing main access on the northern boundary of the site, as well as the alternative access at the southwest corner of the site.

3.3.2 Servicing of Unit 1 is proposed via loading areas on the south and west sides of the building. Access into these loading areas is facilitated via a single lane service road running along the western frontage of Unit 1, which in turn is accessed from the spine road via a priority-controlled junction.

3.3.3 It is expected that the majority of servicing of Unit 1 will be facilitated by vehicles no greater in size than a 7.5 tonne rigid vehicle. The service route into the south and west loading areas has been assessed for vehicle manoeuvres based on a 7.17m FTA Design 7.5 Tonne Rigid Vehicle and details of the swept path analysis are provided at Appendix 2. The track plots show that the service vehicle is able to drive forwards into the loading area via the service road, manoeuvre within the turning head, and depart the area in forward gear.

- 3.3.4 There is a possibility that Unit may also be serviced by the existing loading area on the east side of the building; however, this is dependent on the presence of the existing NHS generator, of which discussions are ongoing. This area is accessed from the spine road and the servicing route has been assessed for vehicle manoeuvres based on a 7.17m FTA Design 7.5 Tonne Rigid Vehicle with details of the swept path analysis provided at Appendix 2. The track plots show that a 7.5t rigid vehicle is able to drive forwards into the service yard, reverse into the loading area, and depart the yard in forward gear.
- 3.3.5 The Hub will be serviced via a loading area situated on the southwest frontage of the building. The Hub will likely be serviced from vehicles no greater in size than a 7.17m FTA Design 7.5 Tonne Rigid Vehicle and this servicing arrangement is demonstrated on the swept path analysis at Appendix 2. The track plots show that a 7.5t rigid vehicle is able to reverse into the loading area from the adjacent access road and then depart the area in forward gear.
- 3.3.6 In the unlikely event that the units may have to be serviced by larger service vehicles, servicing can take place from the existing spine roads fronting the units.

3.4 Parking

- 3.4.1 The parking standards pertinent to the proposed development are set out in the CC Supplementary Planning Document 'Managing Transportation Impacts (Incorporating Parking Standards)', adopted in July 2018.
- 3.4.2 The standards are based on the location of the proposal site within either Cardiff's 'Central' or 'Non central' areas. A map demarcating the two areas is shown at Figure 6.1 in the CC document, of which the proposal site is located within the 'Non central' area.
- 3.4.3 The land use classification for The Hub is proposed as sui generis. The CC document does not provide quantitative parking standards for sui generis developments within the non central area and so the following advice presented in the CC document has been referenced:

"...any proposed land use or development not specifically mentioned will be considered on a site specific basis and on its individual merits. The absence of parking standards for a specific use does not mean that no parking provision will be required or that there is no restriction on provision."

- 3.4.4 For the proposed Unit 1, the car, cycle, powered two-wheeler (PTW), and disabled parking standards for 'Offices. Highly technical and light industry. Offices for research and development processes' have been referenced and are set out at Table P.4 in the CC document and shown at Figure 3.1 below.

Figure 3.1 – Cardiff Parking Standards

Table P.4: B1 Business							
Area	Development Type	Maximum car parking spaces	Minimum staff cycle parking – undercover, secure and suitable for long term use	Minimum visitor stay cycle parking	Maximum Powered two-wheeler parking	Disabled parking provision	
						Where car parking provision is up to 200 car parking spaces	Where car parking provision is over 200 car parking spaces
Central	Offices. Highly technical and light industry. Offices for research and development processes.	1 per 250sqm	2 per 100sqm	4 plus 1 per 1000 sqm	1% - 5% of total parking spaces	5 % of total parking spaces, and a further 5% of spaces should be enlarged standard spaces	6 spaces plus 2% of total parking spaces, and a further 2% of spaces should be enlarged standard spaces
Non central	Offices. Highly technical and light industry. Offices for research and development processes.	1 per 50sqm	2 per 100sqm				

Source: Cardiff Council. *Managing Transportation Impacts (Incorporating Parking Standards)* (July 2018).

- 3.4.5 The maximum car parking standards indicate one space per 50 sq.m. GFA for non-central developments, which equates to a maximum of 101 spaces ($5,055 \div 50 = 101.1$). The proposals include 145 additional spaces, which although above the maximum standards the level of parking has been proposed to attract future occupiers associated with the life sciences. As life sciences is a specialised industry, it is likely that many of the future staff will not reside within the immediate locality and so the extra spaces cater to the needs of the end user and provide a degree of flexibility.
- 3.4.6 The minimum cycle parking standards for staff indicate two spaces per 100 sq.m. GFA, which equates to a minimum of 101 spaces for Unit 1 ($[5,055 \div 100] \times 2 = 101.1$). The minimum cycle parking standards for visitors indicates four spaces plus one space per 1,000 sq.m. GFA, which equates to a minimum of nine visitor spaces for Unit 1 ($[5,055 \div 1,000] + 4 = 9.1$).
- 3.4.7 The proposed cycle parking provision for Unit 1 includes a secure cycle store capable of securing up to 20 cycles. The proposed cycle parking provision is considered appropriate for the expected demand of the development, which has been informed by the May 2022 survey undertaken at the main access where only 12 arrivals and 15 departures by cycle were recorded across the day. The cycle demand will be monitored via the Travel Plan monitoring process and if the demand warrants it the scope for providing additional cycle spaces can be explored.
- 3.4.8 The Hub will feature an on-site cycle store capable of securing up to 12 cycles. This is expected to accommodate the likely cycle demand of The Hub, but similarly with Unit 1, The Hub's cycle demand will be monitored via the Travel Plan monitoring process and the scope for providing additional spaces can be explored if demand warrants it.
- 3.4.9 The maximum PTW parking standards indicate 1% - 5% of the total parking spaces should be dedicated for PTW parking, which equates to between one ($145 \times 1\% = 1.45$) and seven spaces ($145 \times 5\% = 7.25$). The proposals do not include a provision of PTW parking as motorcyclists will be able to park in regular spaces when available.

- 3.4.10 The minimum disabled parking standards indicate that for a proposed provision of up to 200 spaces, a minimum of 5% of total parking should be dedicated for disabled users, plus a further 5% of spaces should be enlarged spaces, which the CC document advises is 3.6m x 6.0m. These spaces are proposed for flexibility as they can be adapted to be used by disabled users if necessary. This equates to seven disabled spaces and seven enlarged spaces for the proposed total provision ($145 \times 5\% = 7.25$).
- 3.4.11 The disabled parking provision includes seven disabled spaces, five of which are located west of Unit 1 and two are situated within the car park adjacent to The Hub building. This accords with the standards for disabled spaces but falls short of the standard for enlarged spaces. This disabled parking provision, however, is likely to accommodate the expected disabled demand of the development, but should demand warrant it then additional disabled spaces can be provided.

3.5 Section Conclusion

- 3.5.1 Swept path analysis has shown that access arrangements of the proposed development are suitable for their intended use.
- 3.5.2 The proposed car parking provision is above the maximum standards; however, it has been proposed in order to function as an attractive and flexible element to the site for future end users associated with the specialised industry of life sciences, where many future staff are unlikely to reside within the immediate locality.
- 3.5.3 The proposed car, cycle and disabled parking provision has been proposed based on the likely demand anticipated for the site. This demand will be monitored via the Travel Plan monitoring process and the scope for providing additional spaces can be explored if demand warrants it.

4.0 TRAFFIC ASSESSMENT

4.1 Introduction

4.1.1 This section of the report provides details of the potential traffic effect of the proposed development.

4.2 Existing Traffic Flows

4.2.1 Details of the existing traffic flows through the main access at the northern boundary of Cardiff Edge are set out in the Connect pre-app report 'TN03 – Survey Data and Trip Assessment' (15th June 2022), which is provided at Appendix 3.

4.2.2 As a brief summary, a traffic survey was undertaken at the Cardiff Edge north access which recorded vehicular, pedestrian, and cycle arrivals and departures from 06:00 to 20:00 on Thursday 16th December 2021. During a pre-app meeting held between Connect and representatives of the Welsh Government on 16th May 2022, it was agreed that an additional traffic survey of the north access would be undertaken during a "neutral" period and outside of Covid-19 restrictions.

4.2.3 Therefore, an additional vehicular, pedestrian, and cycle count survey was undertaken at the Cardiff Edge north access between 06:00 and 20:00 on Thursday 19th May 2022. Two Automatic Traffic Counter (ATC) surveys were also undertaken on Longwood Drive either side of the Cardiff Edge access in order to validate the count surveys. The ATC surveys recorded continuous two-way flows from Saturday 14th May 2022 to Saturday 28th May 2022.

4.2.4 TN03 shows that the ATC flows recorded during the site access survey day of Thursday 19th May 2022 are broadly representative of average traffic conditions, which suggests that no abnormal events occurred on this day to result in atypical traffic flows. Therefore, use of the May 2022 site access count data is valid for use in this assessment.

4.2.5 The total number of vehicles, pedestrians and cycle trips recorded during the survey period are shown at Table 4.1 below.

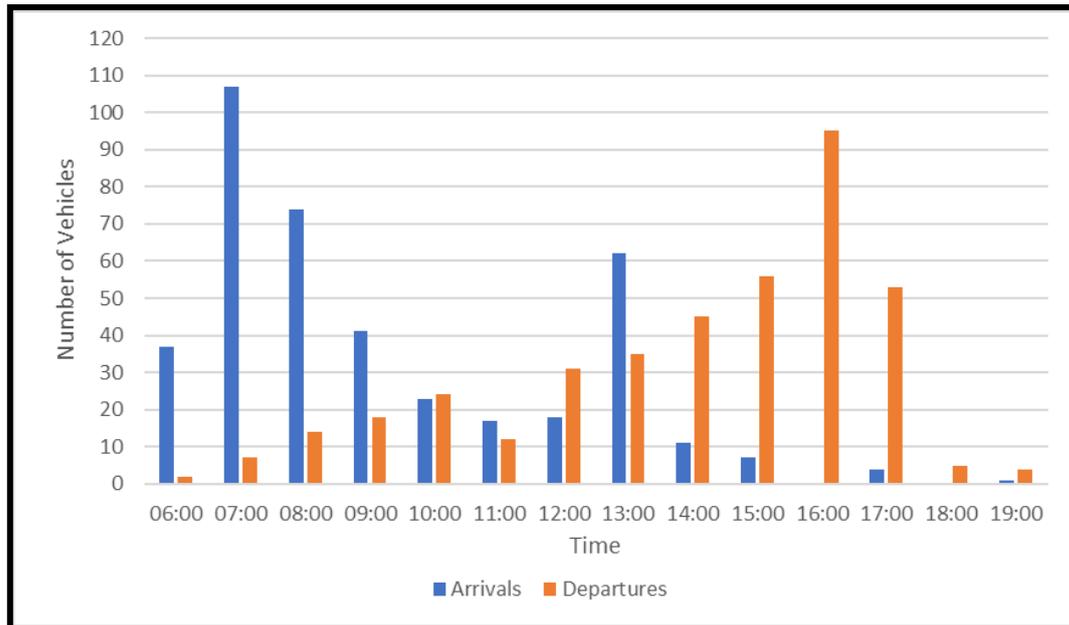
Table 4.1 – Total Surveyed Trips

Mode	06:00-20:00			
	Arr	Dep	Tot	%
Vehicles	402	401	803	71%
Pedestrian	144	155	299	26%
Cycle	12	15	27	2%

4.2.6 It is likely that a significant proportion of the pedestrian trips are from those using the public transport options at the Asda bus stop and Radyr Station.

4.2.7 The number of hourly vehicular arrivals and departures recorded by the survey are set out at Figure 4.1 below.

Figure 4.1 – Hourly Recorded Vehicular Trips



4.2.8 The May 2022 survey data indicates 74 arrivals and 14 departures during the assumed network AM peak hour of 08:00-09:00 and 4 arrivals and 53 departures during the assumed network PM peak hour of 17:00-18:00. The development peaks are shown to occur outside of these assumed network peak hours.

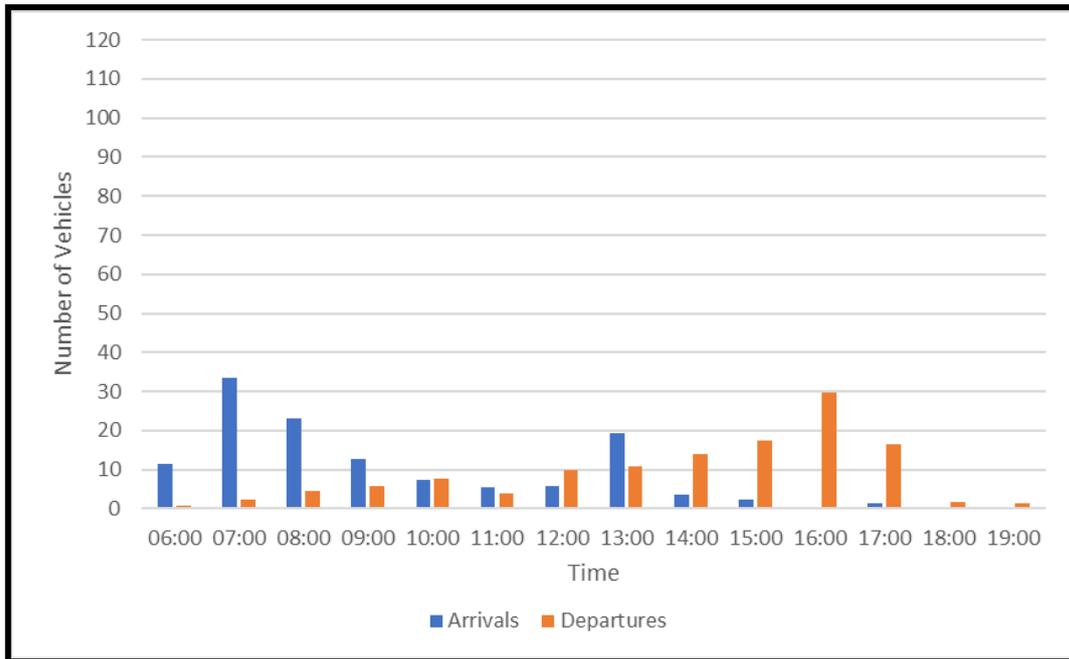
4.3 Proposed Trip Generation

4.3.1 The methodology proposed for assessing the potential trip generation of the proposed development is set out in the Connect report TN03.

4.3.2 This entails converting the hourly surveyed trips at Figure 4.1 into trip rates per 100 sq.m. by dividing each of the arrivals and departures by the existing Cytiva floor area of 13,058 sq.m. (Units RP2, CD2 and ED2) and multiplying by 100 sq.m. The resultant trip rates have then been multiplied by the proposed net increase in floor area of the proposed development, being 4,101 sq.m., and divided by 100 sq.m. to give the expected hourly trips of a development similar to that of the existing Cytiva site, but with a floor area of the proposed.

4.3.3 The resultant proposed increase in hourly arrivals and departures are illustrated on the graph at Figure 4.2 below.

Figure 4.2 – Proposed Hourly Vehicular Trips



4.3.4 Table 4.2 shows a summary of the assumed network AM/PM peak net trip increase.

Table 4.2 – Net Trip Increase

Peak Hours	Net Trip Increase		
	Arr	Dep	Tot
Assumed Network AM Peak (08:00-09:00)	23	4	28
Assumed Network PM Peak (17:00-18:00)	1	17	18

4.3.5 The net increase in trips as a result of the proposed development indicate 28 additional trips during the network AM peak hour and 18 trips during the PM peak hour. This is unlikely to result in an unacceptable harm to the safe and efficient operation of the local highway network in accordance with Policy T6 of the Cardiff Local Development Plan 2006-2026.

4.4 Road Safety

4.4.1 Considering the expected negligible change in traffic, no further assessment has been undertaken of road safety.

4.5 Junction Capacity

4.5.1 During pre-app discussions, WG confirmed that modelling of Coryton Roundabout need not be undertaken should the net increase in peak hour traffic as a result of the proposed development not exceed 30 two-way trips. As the net increase is below this threshold, no further assessment of junction capacity has been undertaken.

5.0 SUMMARY AND CONCLUSIONS

5.1 Summary

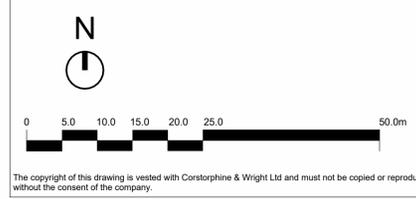
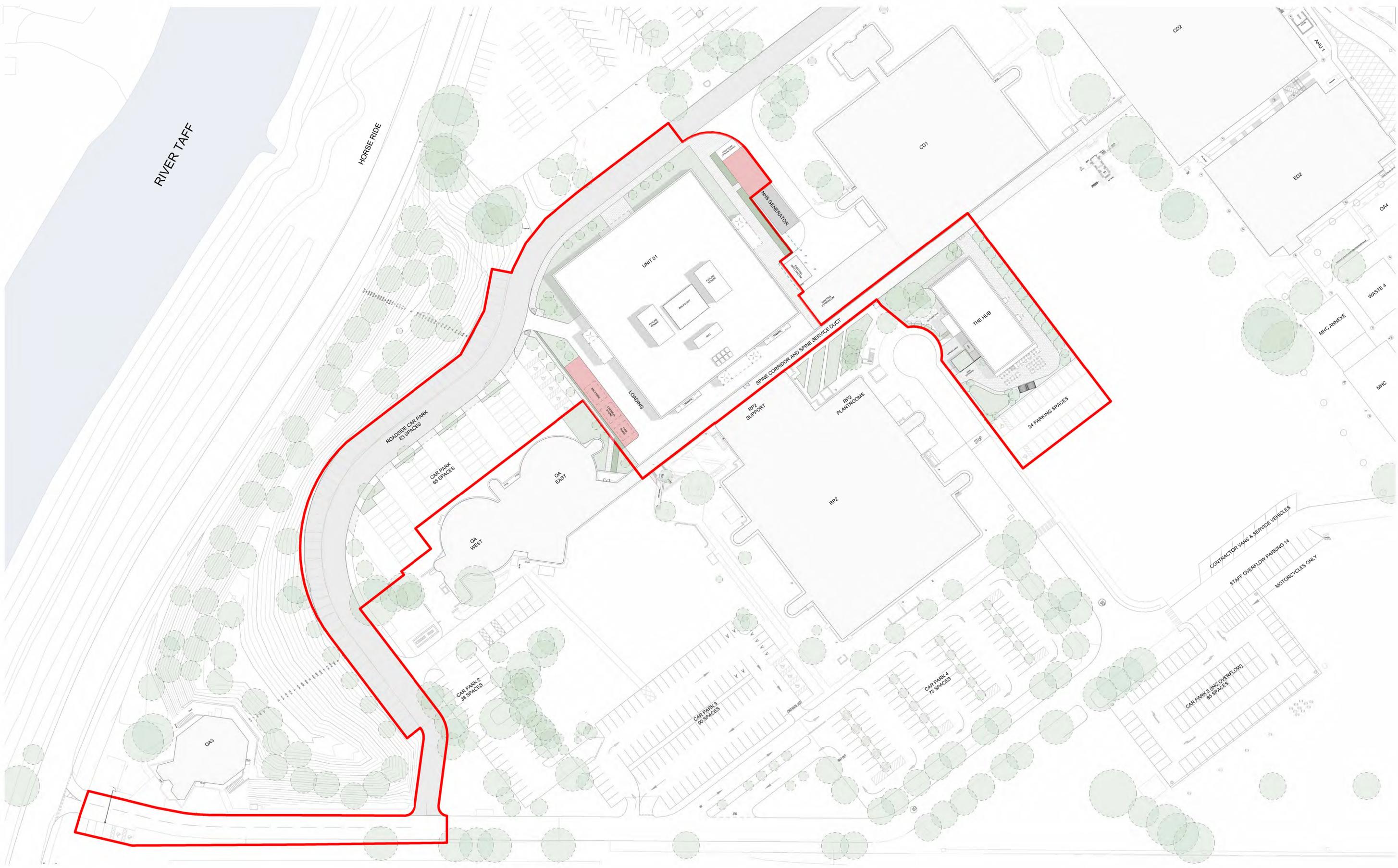
5.1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants that have been instructed in relation to a proposed office/lab block and Hub unit at the Cardiff Edge Life Sciences Park in Cardiff. The report is summarised as follows:-

- The site is accessible by a choice of travel modes and will reduce reliance on the private car consistent with national and local planning policy.
- May 2022 survey data indicates that 26% of trips to the site were pedestrians and 2% were cyclists.
- The proposed development is well conceived in terms of its access arrangements, composition and layout.
- The proposed car parking provision is above the maximum standards; however, it has been proposed in order to function as an attractive and flexible element to the site for future end users associated with the specialised industry of life sciences, where many future staff are unlikely to reside within the immediate locality.
- The car, cycle and disabled parking provision has been proposed based on the likely demand anticipated for the site. This demand will be monitored and the scope for providing additional spaces will be explored should demand warrant it.
- It has been demonstrated that the service arrangements will be able to accommodate delivery traffic.
- The traffic assessment included in this report is based on a realistic traffic impact scenario and demonstrates the development traffic effect is unlikely to result in an unacceptable harm to the safe and efficient operation of the local highway network in accordance with Policy T6 of the Cardiff Local Development Plan 2006-2026.
- As the proposed traffic impact is anticipated to be below 30 two-way trips, no further assessment of junction capacity and collision analysis has been undertaken.

5.2 Conclusions

5.2.1 The results of this assessment highlight that the proposed development is acceptable from a transport perspective.

APPENDIX 1 – PROPOSED SITE LAYOUT



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Rev.	Description	Date	Drawn	Chk.

Client:
Trinity Investment Management

Project:
Cardiff Edge Life Sciences Park

Drawing Title:
Unit 01-Proposed Site Plan

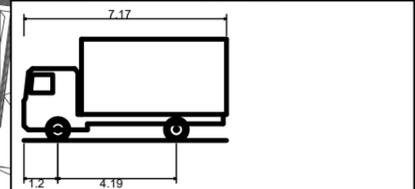
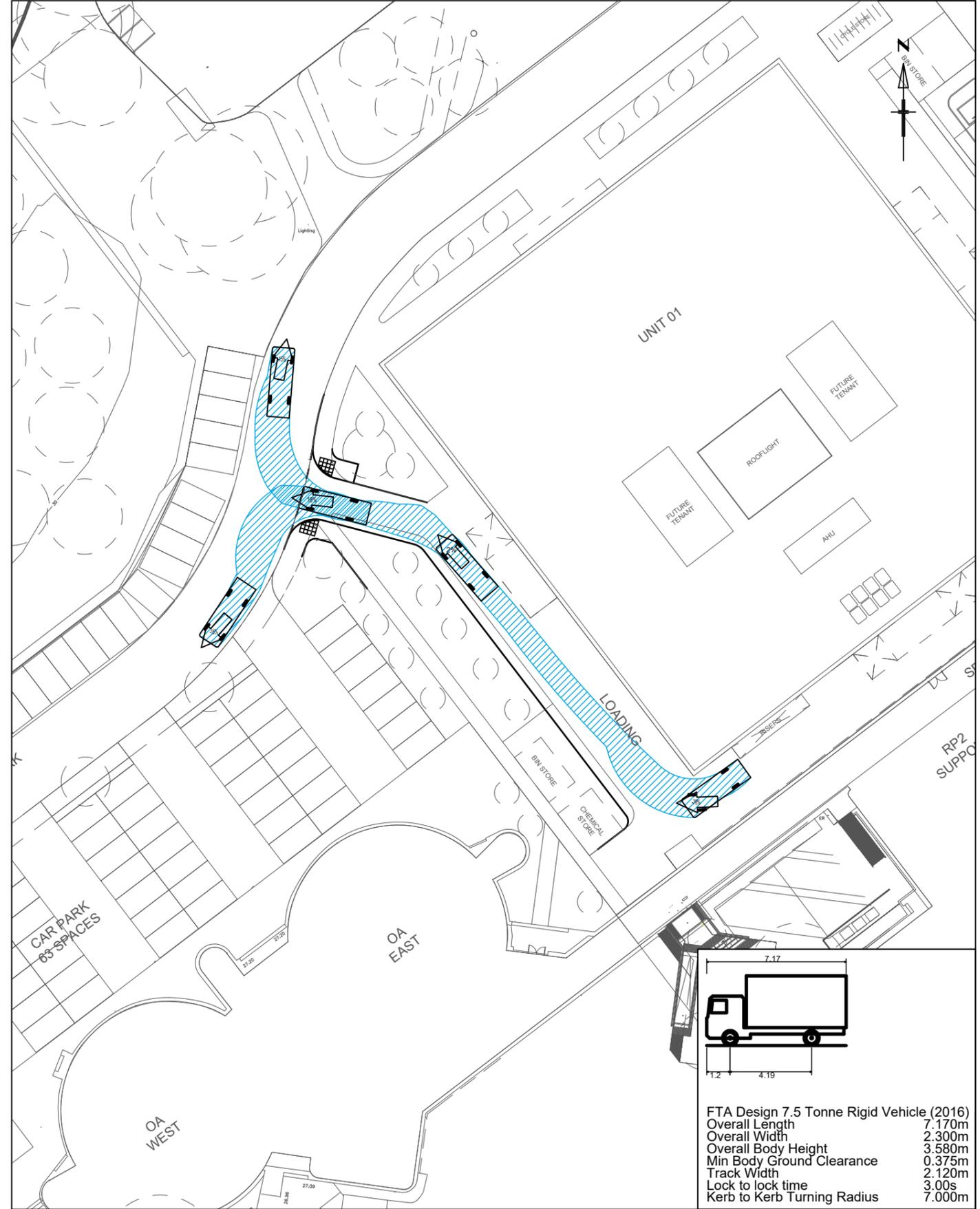
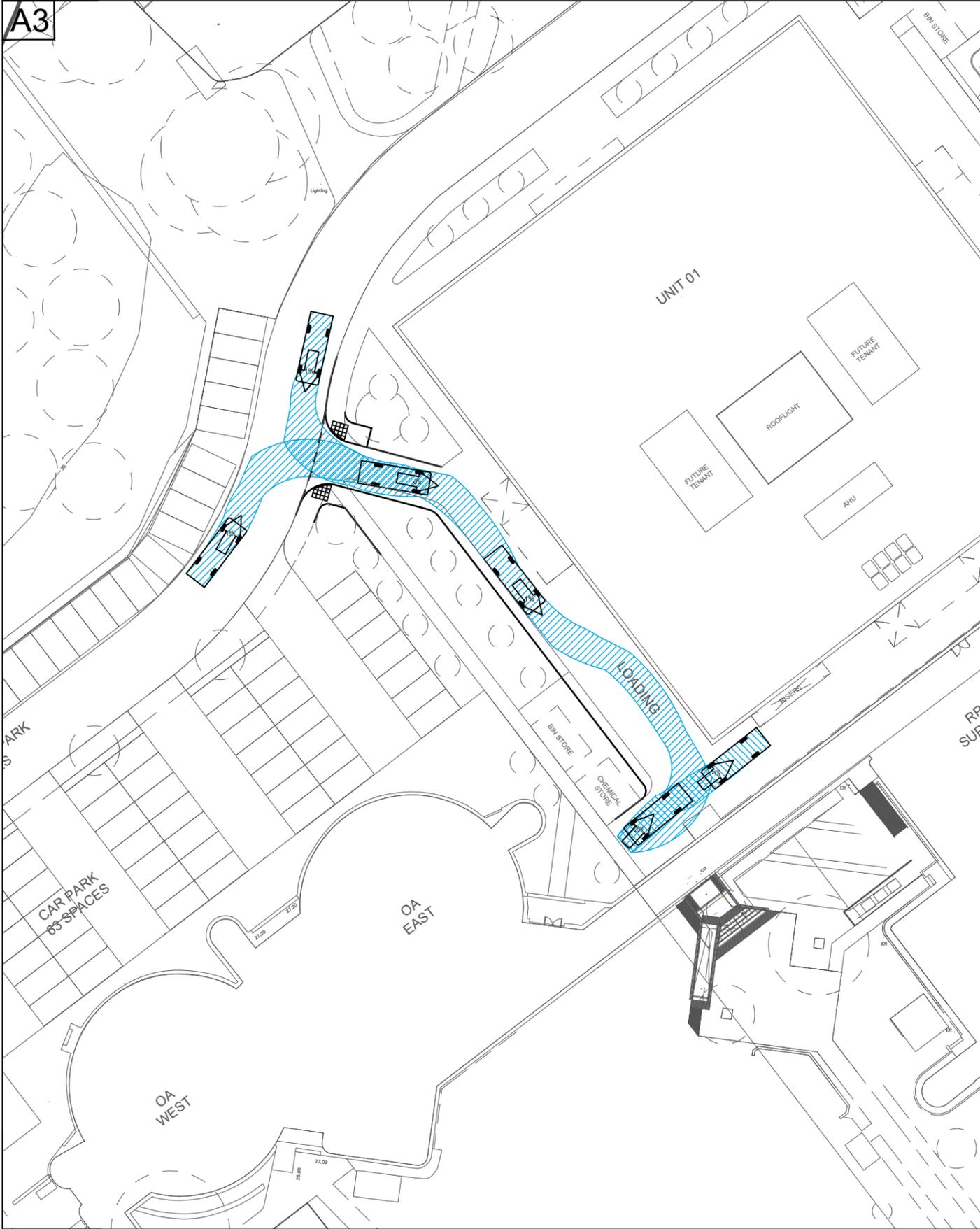
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AL	SF	A1	1 : 500	30/08/22	P-00

APPENDIX 2 – SWEPT PATH ANALYSIS

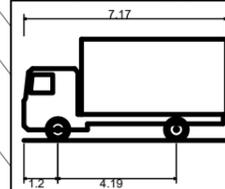
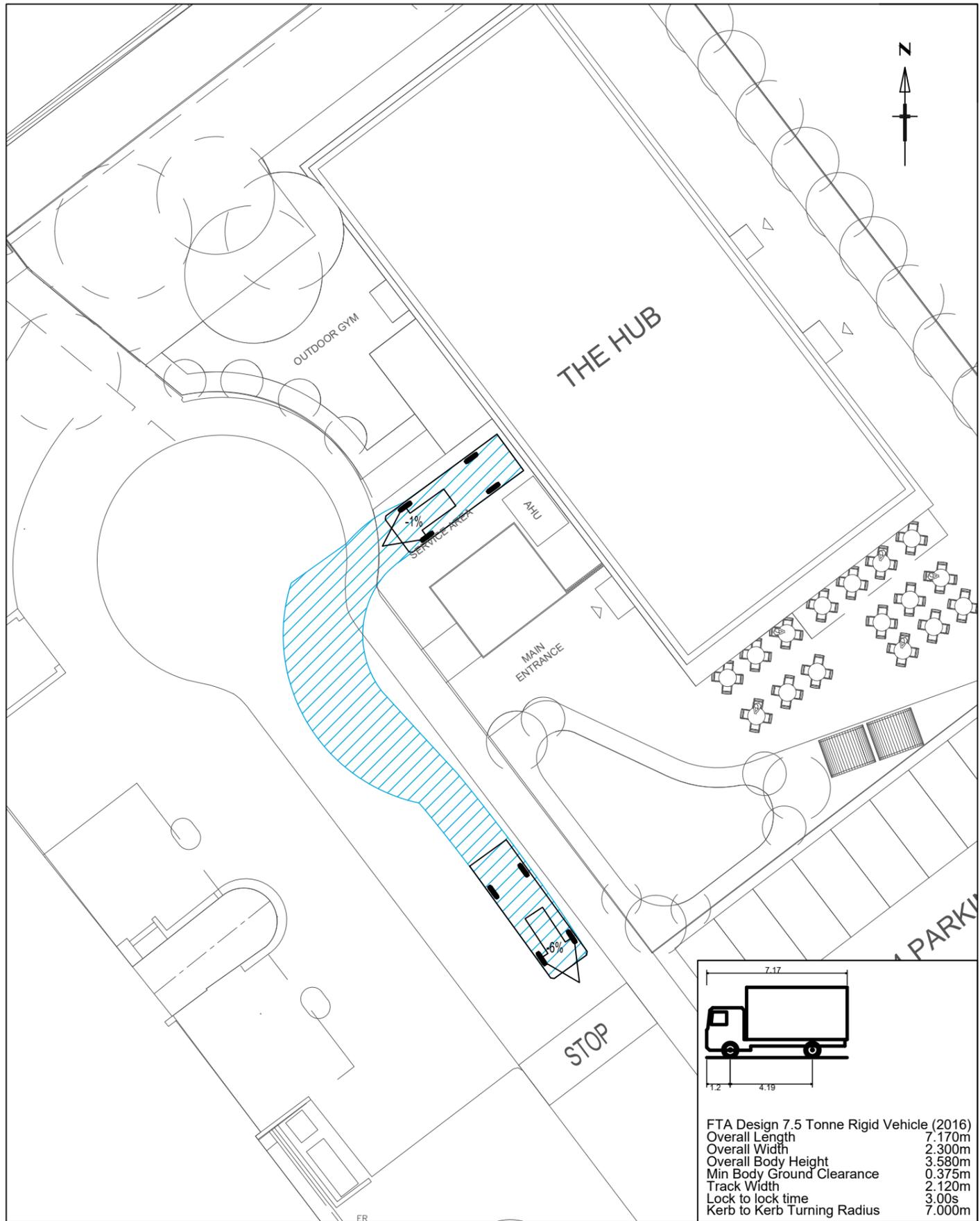
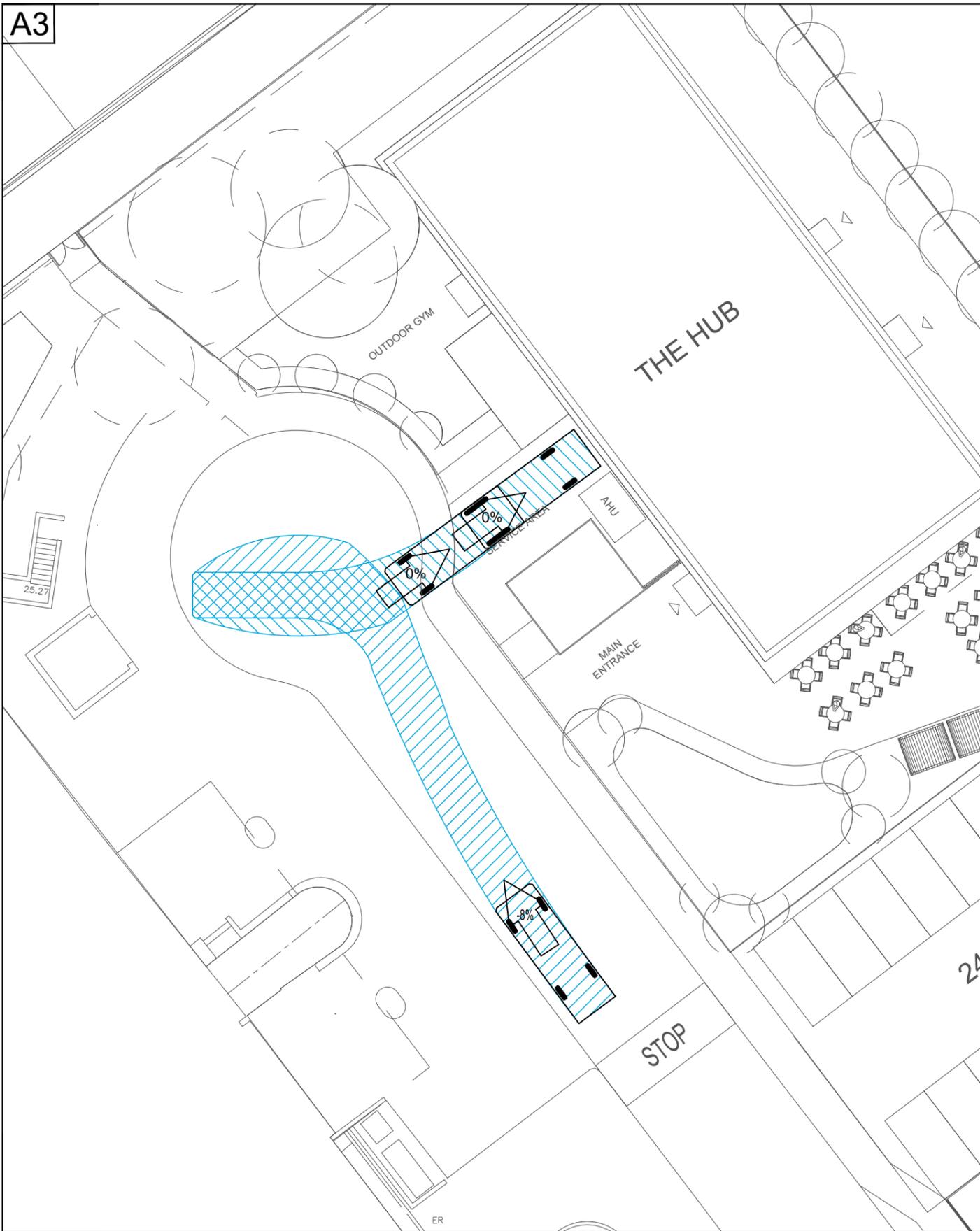


FTA Design 7.5 Tonne Rigid Vehicle (2016)
 Overall Length 7.170m
 Overall Width 2.300m
 Overall Body Height 3.580m
 Min Body Ground Clearance 0.375m
 Track Width 2.120m
 Lock to lock time 3.00s
 Kerb to Kerb Turning Radius 7.000m

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			C & W	SWEPT PATH ANALYSIS	SEPTEMBER 2022	T.A.S	S.J.J
			project	7.5 TONNE RIGID VEHICLE	scale	status	
			PROPOSED DEVELOPMENT CARDIFF EDGE	1:500	PLANNING		
					drawing number	rev.	
					21161 - tr002		

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FTA Design 7.5 Tonne Rigid Vehicle (2016)
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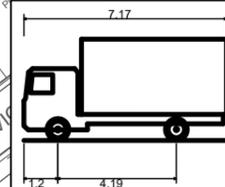
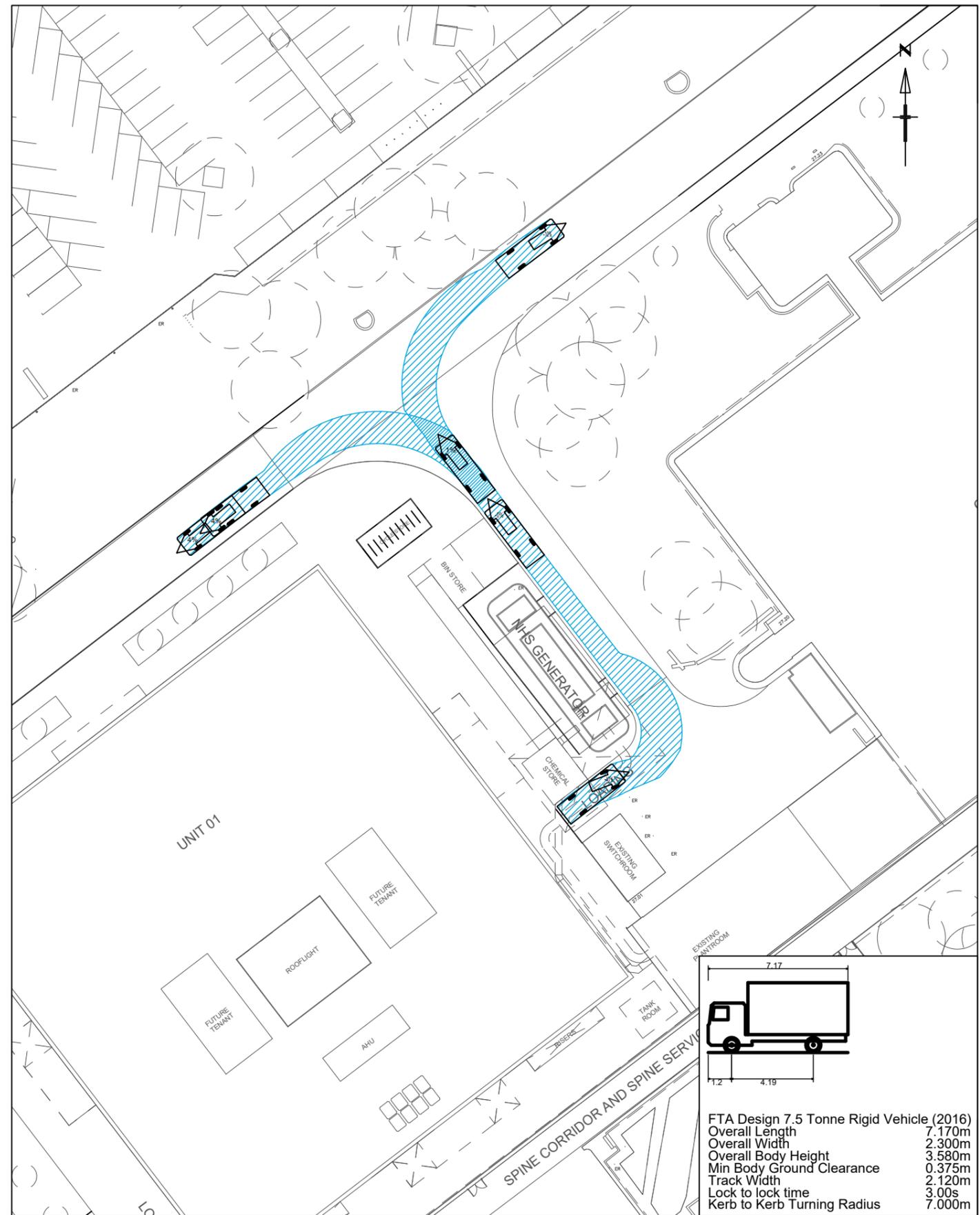
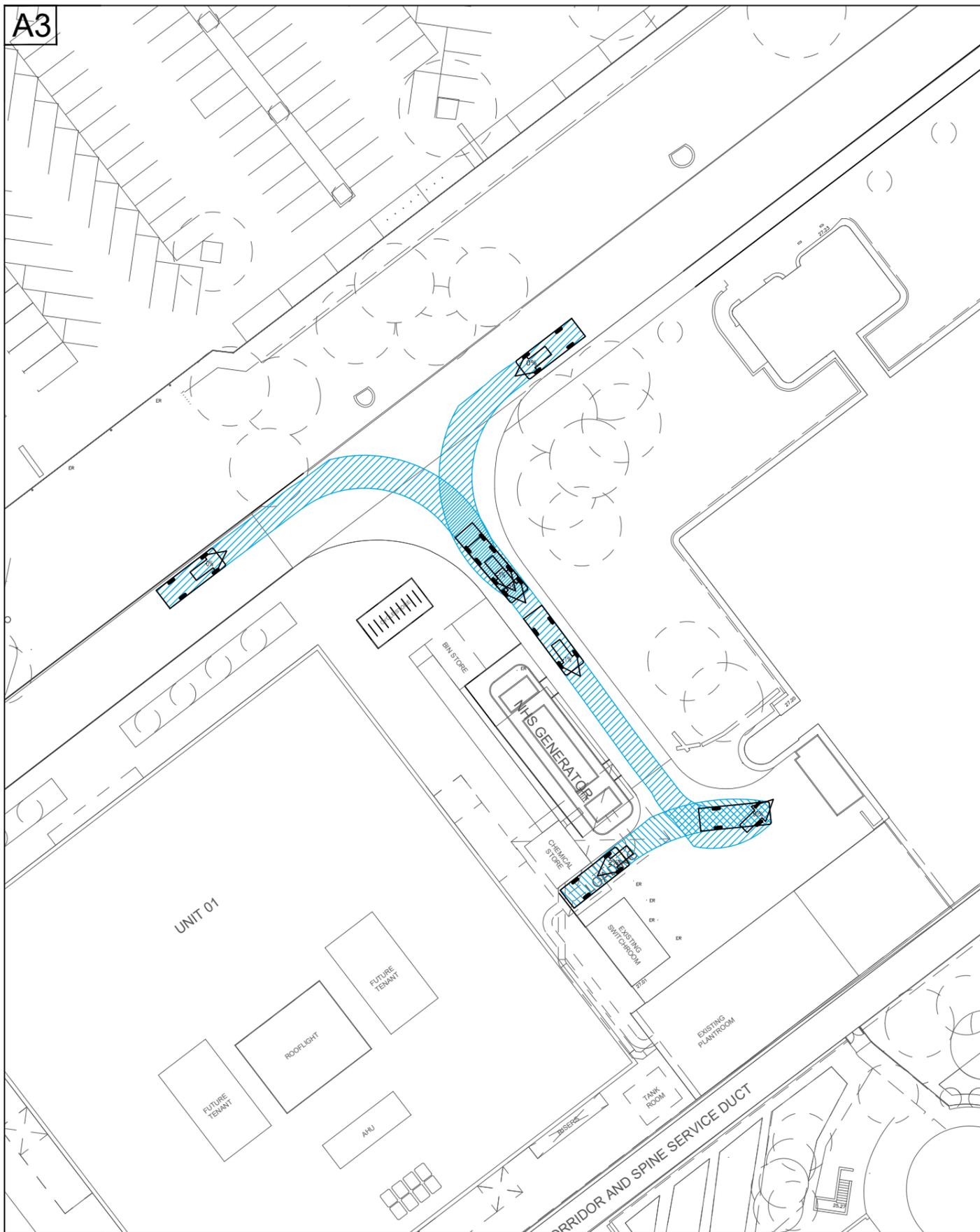
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client C & W	title SWEPT PATH ANALYSIS 7.5 TONNE RIGID VEHICLE
project PROPOSED DEVELOPMENT CARDIFF EDGE	

date SEPTEMBER 2022	drawn by T.A.S	checked by S.J.J
scale 1:250	status PLANNING	
drawing number 21161 - TR001	rev.	

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		project PROPOSED DEVELOPMENT CARDIFF EDGE	scale 1:500	status PLANNING	drawing number SK20220729.2	rev.

APPENDIX 3 – TN03 – SURVEY DATA AND TRIP ASSESSMENT

CARDIFF EDGE

CARDIFF EDGE LIFE SCIENCES PARK, CARDIFF

PROPOSED OFFICE/LABS AND HUB UNIT

TN03 – SURVEY DATA AND TRIP ASSESSMENT

15TH JUNE 2022

1.0 Introduction

- 1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants who have been instructed in relation to the proposed office/lab block and Hub unit at the Cardiff Edge Life Sciences Park in Cardiff.
- 1.2 A pre-app meeting was held between Connect and representatives of the Welsh Government on 16th May 2022, in which the potential traffic impacts of the proposed development on the Strategic Road Network were discussed, in particular the nearby Coryton Roundabout.
- 1.3 It was agreed during the pre-app meeting that additional traffic survey data of the Cardiff Edge north site access would be collected in May 2022. This data would then be assessed for its validity using ATC data recorded on Longwood Drive and data extracted from the TRICS database. This assessment will then compare the May 2022 data with the December 2021 data, as shown in the Connect pre-app scoping report 'TN02 – Pre-application Transport Review' (15th March 2022), and a revised trip generation assessment will be undertaken.

2.0 Traffic Surveys

- 2.1 In order to assess the initial indicative trip generation of the site for pre-app discussions, a traffic survey was undertaken at the Cardiff Edge north access which recorded vehicular, pedestrian, and cycle arrivals and departures from 06:00 to 20:00 on Thursday 16th December 2021. The results of the survey are set out in the Connect report TN02.
- 2.2 During the May 2022 pre-app meeting, it was agreed that because the survey was undertaken during a "non-neutral" period and during a period when the Welsh Government had implemented a Covid-19 work-from-home directive, additional survey data should be collected under more "normal" traffic conditions.
- 2.3 In response, a vehicular, pedestrian, and cycle count survey was undertaken at the Cardiff Edge north access between 06:00 and 20:00 on Thursday 19th May 2022. The results of the survey are set out in the following section.
- 2.4 Two Automatic Traffic Counter (ATC) surveys were also undertaken on Longwood Drive either side of the Cardiff Edge access. The surveys recorded continuous two-way flows from Saturday 14th May 2022 to Saturday 28th May 2022.

3.0 Traffic Data Validation – ATC

- 3.1 The ATC data has been used to assess the validity of the recent site access surveys. Unfortunately, due to equipment failure the ATC east of the site access failed to record data from 18:15 on Thursday 19th May 2022 to 12:00 on Saturday 21st May 2022; and the ATC west of the site access failed to record data from 17:00 on Wednesday 18th May 2022 to 04:15 on Thursday 19th May 2022 and from 12:45 on Friday 20th May 2022 to 11:30 on Saturday 21st May 2022.
- 3.2 As these equipment failures occurred partially during the site access survey day of Thursday 19th May 2022, only specific time frames where flows were recorded will be analysed. For the ATC east of the site access, only flows recorded between 00:00-18:15 will be analysed and for the ATC west of the site access, only flows recorded between 04:15-00:00 will be analysed. Data recorded on Friday 20th May 2022 has been discounted for analyses of both ATCs.
- 3.3 Table 3.1 below shows the absolute flows recorded by the ATC east of the site access on Thursday 19th May 2022 between 00:00-18:15, compared against the average flows calculated from the remaining weekdays between 00:00-18:15. The table also shows the percentage differences between the datasets.

Table 3.1 – ATC Summary – East of Site Access

Period	00:00-18:15		
	Westbound	Eastbound	Two-way
Week Average	1335	1274	2609
19 th May 2022	1399	1288	2687
% Difference	5%	1%	3%

- 3.4 For the ATC east of the site, the absolute flows recorded during the site access count survey day of 19th May 2022 are similar to the average weekday flows, with a difference of only 3%. This shows that the flows recorded during the site access count survey day at the ATC east of the site access are broadly representative of average recorded traffic conditions.
- 3.5 Table 3.2 below shows the absolute flows recorded by the ATC west of the site access on Thursday 19th May 2022 between 04:15-00:00, compared against the average flows calculated from the remaining weekdays between 04:15-00:00. The table also shows the percentage differences between the datasets.

Table 3.2 – ATC Summary – West of Site Access

Period	00:00-18:15		
	Westbound	Eastbound	Two-way
Week Average	856	810	1666
19 th May 2022	923	897	1820
% Difference	8%	11%	9%

- 3.6 For the ATC west of the site access, the absolute flows recorded on 19th May 2022 are broadly similar to the average weekday flows, with a difference of 9%. Again, this suggests that the flows recorded on 19th May 2022 are broadly representative of average recorded traffic conditions.
- 3.7 Overall, the ATC flows recorded during the site access count survey day of Thursday 19th May 2022 are broadly representative of average recorded traffic conditions, which suggests that no abnormal events occurred on this day to result in atypical traffic flows. Therefore, use of the May 2022 site access count data is valid for use in future assessments, including this one.

4.0 Traffic Survey Results

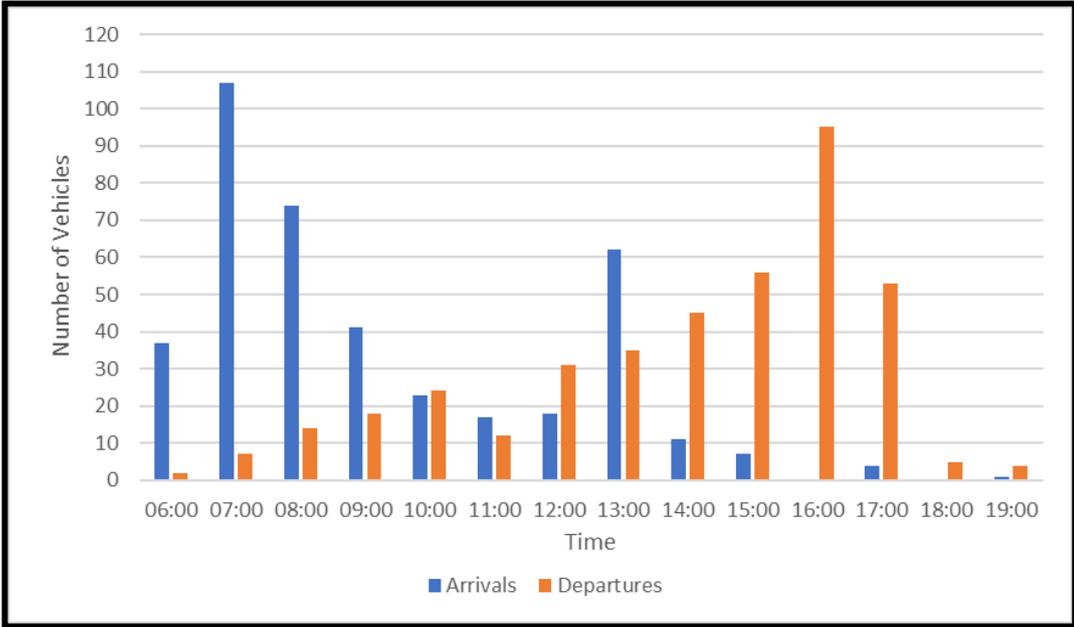
- 4.1 The total number of vehicle, pedestrian, and cycle trips recorded by the May 2022 site access survey (06:00-20:00) are shown at Table 4.1 below, as well as the percentage proportions of each mode of transport calculated from the total trips. Table 4.1 also shows the results of the December 2021 survey, as presented in TN02.

Table 4.1 – Total Surveyed Trips

Mode	16 th December 2021				19 th May 2022			
	Arr	Dep	Tot	%	Arr	Dep	Tot	%
Vehicles	309	316	625	78%	402	401	803	71%
Pedestrians	87	73	160	20%	144	155	299	26%
Cycles	6	7	13	2%	12	15	27	2%

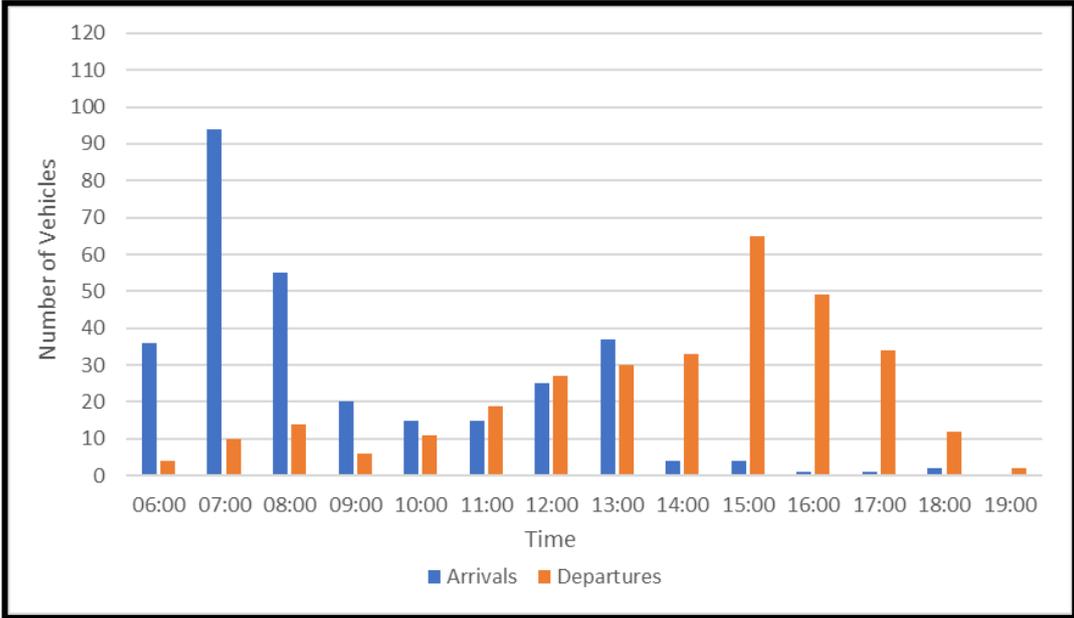
- 4.2 Table 4.1 indicates a marked increase in vehicular, pedestrian, and cycle trips recorded in May 2022 than December 2021, which is reasonable following the end of the Welsh Government’s work-from-home directive and the fact that May is a “neutral” month. This means that use of the May 2022 data in future traffic assessments is the robust option.
- 4.3 It is reasonable to speculate that the increase in the proportion of pedestrian journeys from December to May could be because more people are willing to walk to work when it is warmer and lighter. However, the fact that the proportion of cycle journeys has stayed the same challenges this notion and suggests that the actual number of staff who undertake their entire commute on foot is low, instead likely utilising local public transport links, including the bus stop at the nearby Asda, Radyr Station, and Coryton Station.
- 4.4 The number of hourly vehicular arrivals and departures recorded by the May 2022 survey are set out at Figure 4.1 below.

Figure 4.1 – May 2022 – Hourly Recorded Vehicular Trips



4.5 For comparison, Figure 4.2 below shows the hourly trips recorded by the December 2021 surveys.

Figure 4.2 – December 2021 – Hourly Recorded Vehicular Trips



4.6 The May 2022 and December 2021 datasets exhibit similar arrival and departure profiles, except that the development PM peak occurred between 16:00-17:00 during the May 2022 period and 15:00-16:00 during the December 2021. An earlier PM peak in December may be as a result of more staff wishing to leave work earlier to avoid travelling in the dark. These comparable trip profiles also add credence to the validity of the traffic surveys.

4.7 Despite the different development PM peak hours, the May 2022 development peaks remain outside of the assumed network peak hours of 08:00-09:00 and 17:00-18:00.

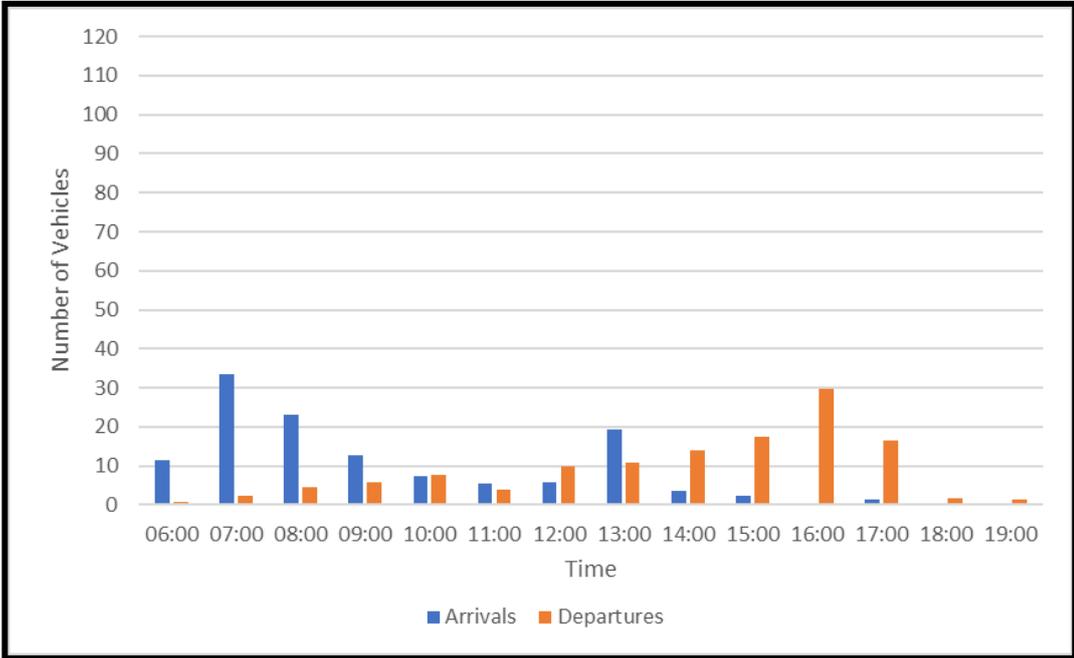
5.0 Potential Trip Generation

5.1 The potential trip generation of the proposed development has been assessed using the same methodology used in the TN02 pre-app report, but using the more recent May 2022 data.

5.2 This entails converting the hourly surveyed trips into trip rates per 100 sq.m. by dividing each of the arrivals and departures by the existing Cytiva floor area of 13,058 sq.m. (Units RP2, CD2, and ED2) and multiplying by 100 sq.m. The resultant trip rates have then been multiplied by the proposed net increase in floor area of the proposed development, being 4,101 sq.m., and dividing by 100 sq.m. to give the expected hourly trips of a development similar to that of the existing Cytiva site, but with a floor area of the proposed.

5.3 The resultant proposed increase in hourly arrivals and departures are illustrated on the graph at Figure 5.1.

Figure 5.1 – Proposed Hourly Vehicular Trips



5.4 Table 5.1 shows a summary of the development AM/PM peak and the assumed network AM/PM peak net trip increases.

Table 5.1 – Net Trip Increase

Peak Hours	Net Trip Increase		
	Arr	Dep	Tot
Development AM Peak (07:00-08:00)	34	2	36
Development PM Peak (16:00-17:00)	0	30	30
Assumed Network AM Peak (08:00-09:00)	23	4	28
Assumed Network PM Peak (17:00-18:00)	1	17	18

5.5 The net increase in traffic set out above is unlikely to result in unacceptable harm to the safe and efficient operation of the local highway network.

6.0 Traffic Data Validation – TRICS

- 6.1 In order to contextualise the May 2022 data, the trips have been compared with data extracted from the TRICS database (version 7.9.1) based on the land uses of 'A – OFFICE' and 'C – INDUSTRIAL UNIT'.
- 6.2 Although the Cytiva site comprises a mix of offices, laboratories, and manufacturing, and therefore differing employment densities to conventional office and industrial unit land uses, the TRICS data associated with office and industrial unit uses provide useful benchmarks from which to compare the existing Cardiff Edge trips.
- 6.3 The TRICS key selection criteria used to obtain the traffic data is set out at Table 6.1 below. The TRICS outputs are provided at Appendix 1.

Table 6.1 – TRICS Key Selection Criteria

Land use and trip rate selection		
Select Land Use By:	Full list Of Active Main/Sub Land Uses	Full list Of Active Main/Sub Land Uses
Main Land Use:	02 – EMPLOYMENT	02 – EMPLOYMENT
Sub Land Use:	A – OFFICE	C – INDUSTRIAL UNIT
Calculation Options:	Vehicle Trip Rates	Vehicle Trip Rates
Regions:	England and Wales excluding Greater London	England and Wales excluding Greater London
Primary filtering		
Trip Rate Parameters:	Gross Floor Area*	Gross Floor Area*
Range:	2,000 to 20,000 sq.m.	2,000 to 20,000 sq.m.
Selected Dates:	01/01/14 to 04/05/21	01/01/14 to 10/11/21
Week days to include:	Weekdays	Weekdays
Location Types to include:	Edge of Town, Neighbourhood Centre	Edge of Town, Neighbourhood Centre, Free Standing
Secondary filtering		
Population < 1 Mile:	All available*	All available*
Population < 5 Miles:	All available*	All available*

*Default

- 6.4 The resultant TRICS daily trip rates, which TRICS covers between 07:00-19:00, and trip numbers, based on the total occupied floor area of 13,058 sq.m., are set out at Table 6.2 below. The table also shows the total number of trips recorded between 07:00-19:00 by the May 2022 survey.

Table 6.2 – TRICS Summary – Existing Daily Trip Numbers

Data Source	Trip Rates			Trip Numbers (based on 13,058 sq.m.)		
	Arr	Dep	Tot	Arr	Dep	Tot
TRICS Office	3.653	3.609	7.262	477	471	948
TRICS Industrial Unit	2.128	2.097	4.225	278	274	552
May 2022 Survey				364	395	759

- 6.5 Table 6.2 shows that the May 2022 surveyed trips are lower than the trips associated with the TRICS office use, but higher than the trips associated with the TRICS industrial unit. This to be expected due to the nature of the Cytiva site as a medical facility; it comprises a mix of offices (administration and research & development), laboratories and cleanrooms, and manufacturing. Therefore, the Cytiva site is likely to have a lower employment density than a conventional office, but a higher employment density than a typical industrial unit, whose space is primarily consumed by warehousing with ancillary office space.
- 6.6 Therefore, the May 2022 survey data is consistent with the TRICS data and is thus valid for use in future traffic assessments.

7.0 Conclusions

- 7.1 Updated traffic survey data has been collected in the form of a vehicle, cycle and pedestrian count survey undertaken at the Cardiff Edge north site access on Thursday 19th May 2022. Two ATC surveys were also undertaken either side of the site access from Saturday 14th May 2022 to Saturday 28th May 2022.
- 7.2 The absolute flows recorded by both ATCs during the site access survey day have been compared against the ATCs' average weekday flows, which indicates that the site access survey was undertaken during a period of average recorded traffic conditions.
- 7.3 The daily trips recorded by the May 2022 traffic survey lie within the range of TRICS data associated with office and industrial unit land uses, which is to be expected as the existing Cytiva site comprises a mix of office and industrial elements. The survey data is therefore consistent with the TRICS data.
- 7.4 The May 2022 site access survey data indicates a markedly higher number of daily vehicular and pedestrian trips than the December 2021 data, with the number of cycle journeys remaining low for both datasets. Both the May 2022 and December 2021 traffic profiles are similar, with the exception of an earlier development PM peak during the December period (15:00-16:00 as opposed to 16:00-17:00). Nonetheless, the development peaks remain outside of the assumed network peak hours.
- 7.5 The results of the potential trip generation, using the same methodology as TN02 but utilising the May 2022 data, indicates that the low net increase in traffic will unlikely result in an unacceptable harm to the safe and efficient operation of the local highway network.

Appendix 1 – TRICS Outputs

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : A - OFFICE
 TOTAL VEHICLES

Selected regions and areas:

03	SOUTH WEST	
	WL WILTSHIRE	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	NR NORTHAMPTONSHIRE	1 days
06	WEST MIDLANDS	
	WO WORCESTERSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	1 days
09	NORTH	
	DH DURHAM	1 days
	TV TEES VALLEY	1 days
10	WALES	
	CO CONWY	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
 Actual Range: 2500 to 9225 (units: sqm)
 Range Selected by User: 2000 to 20000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/14 to 04/05/21

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	3 days
Wednesday	2 days
Thursday	3 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town	8
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	2
Commercial Zone	4
Development Zone	1
Village	1
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

Not Known 9 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS@.

Filter by Site Operations Breakdown:

All Surveys Included

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	3 days
5,001 to 10,000	2 days
10,001 to 15,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
50,001 to 75,000	2 days
100,001 to 125,000	2 days
125,001 to 250,000	4 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	2 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No 9 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present 9 days

This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions
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LIST OF SITES relevant to selection parameters

1	CA-02-A-06 LYNCH WOOD PETERBOROUGH	OFFICES		CAMBRI DGESHI RE
	Edge of Town Commercial Zone Total Gross floor area:		4040 sqm	
	<i>Survey date: WEDNESDAY</i>		<i>19/10/16</i>	<i>Survey Type: MANUAL</i>
2	CH-02-A-04 WINTERTON WAY MACCLESFIELD LYME GREEN BUSINESS PK	OFFICES		CHESHIRE
	Edge of Town Commercial Zone Total Gross floor area:		3000 sqm	
	<i>Survey date: TUESDAY</i>		<i>04/05/21</i>	<i>Survey Type: MANUAL</i>
3	CO-02-A-01 NARROW LANE LLANDUDNO JUNCTION	GOVERNMENT OFFICES		CONWY
	Edge of Town Commercial Zone Total Gross floor area:		6186 sqm	
	<i>Survey date: WEDNESDAY</i>		<i>28/03/18</i>	<i>Survey Type: MANUAL</i>
4	DH-02-A-03 ALDERMAN BEST WAY DARLINGTON	ENGINEERING COMPANY		DURHAM
	Edge of Town No Sub Category Total Gross floor area:		3530 sqm	
	<i>Survey date: THURSDAY</i>		<i>18/10/18</i>	<i>Survey Type: MANUAL</i>
5	NR-02-A-01 THE LAKES NORTHAMPTON	OFFICES		NORTHAMPTONSHIRE
	Edge of Town Commercial Zone Total Gross floor area:		9225 sqm	
	<i>Survey date: THURSDAY</i>		<i>22/10/20</i>	<i>Survey Type: MANUAL</i>
6	SF-02-A-03 WHITE HOUSE ROAD IPSWICH	OFFICES		SUFFOLK
	Edge of Town Industrial Zone Total Gross floor area:		2800 sqm	
	<i>Survey date: THURSDAY</i>		<i>24/09/20</i>	<i>Survey Type: MANUAL</i>
7	TV-02-A-05 HANZARD DRIVE NEAR BILLINGHAM WYNYARD Neighbourhood Centre (PPS6 Local Centre) Village	CHEMICAL COMPANY		TEES VALLEY
	Total Gross floor area:		5110 sqm	
	<i>Survey date: FRIDAY</i>		<i>04/09/20</i>	<i>Survey Type: MANUAL</i>
8	WL-02-A-01 THE CRESCENT AMESBURY SUNRISE WAY	PET INSURANCE COMPANY		WILTSHIRE
	Edge of Town Development Zone Total Gross floor area:		2500 sqm	
	<i>Survey date: TUESDAY</i>		<i>18/09/18</i>	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

9	WO-02-A-03	IT SERVICES	WORCESTERSHIRE
	STOURPORT ROAD		
	KIDDERMINSTER		
	Edge of Town		
	Industrial Zone		
	Total Gross floor area:	5945 sqm	
	Survey date: TUESDAY	13/10/20	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	8	4549	0.091	8	4549	0.014	8	4549	0.105
07:30 - 08:00	8	4549	0.357	8	4549	0.047	8	4549	0.404
08:00 - 08:30	8	4549	0.495	8	4549	0.038	8	4549	0.533
08:30 - 09:00	9	4704	0.687	9	4704	0.040	9	4704	0.727
09:00 - 09:30	9	4704	0.553	9	4704	0.038	9	4704	0.591
09:30 - 10:00	9	4704	0.239	9	4704	0.043	9	4704	0.282
10:00 - 10:30	9	4704	0.142	9	4704	0.031	9	4704	0.173
10:30 - 11:00	9	4704	0.094	9	4704	0.045	9	4704	0.139
11:00 - 11:30	9	4704	0.068	9	4704	0.033	9	4704	0.101
11:30 - 12:00	9	4704	0.064	9	4704	0.040	9	4704	0.104
12:00 - 12:30	9	4704	0.064	9	4704	0.165	9	4704	0.229
12:30 - 13:00	9	4704	0.104	9	4704	0.130	9	4704	0.234
13:00 - 13:30	9	4704	0.132	9	4704	0.156	9	4704	0.288
13:30 - 14:00	9	4704	0.132	9	4704	0.064	9	4704	0.196
14:00 - 14:30	9	4704	0.083	9	4704	0.090	9	4704	0.173
14:30 - 15:00	9	4704	0.066	9	4704	0.116	9	4704	0.182
15:00 - 15:30	9	4704	0.059	9	4704	0.109	9	4704	0.168
15:30 - 16:00	9	4704	0.026	9	4704	0.135	9	4704	0.161
16:00 - 16:30	9	4704	0.059	9	4704	0.267	9	4704	0.326
16:30 - 17:00	9	4704	0.057	9	4704	0.298	9	4704	0.355
17:00 - 17:30	9	4704	0.024	9	4704	0.751	9	4704	0.775
17:30 - 18:00	9	4704	0.031	9	4704	0.475	9	4704	0.506
18:00 - 18:30	9	4704	0.012	9	4704	0.406	9	4704	0.418
18:30 - 19:00	9	4704	0.014	9	4704	0.078	9	4704	0.092
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			3.653			3.609			7.262

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	2500 - 9225 (units: sqm)
Survey date range:	01/01/14 - 04/05/21
Number of weekdays (Monday-Friday):	9
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : C - INDUSTRIAL UNIT
 TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	HC HAMPSHIRE	2 days
	WS WEST SUSSEX	1 days
06	WEST MIDLANDS	
	WK WARWICKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	3 days
09	NORTH	
	CB CUMBRIA	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
 Actual Range: 2950 to 11375 (units: sqm)
 Range Selected by User: 2000 to 20000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/14 to 10/11/21

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	3 days
Thursday	2 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town	6
Neighbourhood Centre (PPS6 Local Centre)	1
Free Standing (PPS6 Out of Town)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	5
Development Zone	1
Village	1
Out of Town	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

Not Known 8 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:

All Surveys Included

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,000 or Less	2 days
5,001 to 10,000	3 days
10,001 to 15,000	2 days
20,001 to 25,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	5 days
1.6 to 2.0	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	8 days
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This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions
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LIST OF SITES relevant to selection parameters

1	CB-02-C-01	DOMINO'S PIZZA	CUMBRIA
	COWPER ROAD PENRITH GILWILLY IND. ESTATE Edge of Town Industrial Zone Total Gross floor area: 2950 sqm <i>Survey date: TUESDAY 10/06/14</i>		
2	CH-02-C-02	INDUSTRIAL MATERIALS	CHESHIRE
	JUPITER DRIVE CHESTER CHESTER W. EMP. PARK Edge of Town Industrial Zone Total Gross floor area: 8100 sqm <i>Survey date: WEDNESDAY 19/11/14</i>		
3	CH-02-C-03	OFFICE FURNITURE	CHESHIRE
	BRUNEL ROAD MACCLESFIELD LYME GREEN BUS. PARK Edge of Town Development Zone Total Gross floor area: 6658 sqm <i>Survey date: MONDAY 19/09/16</i>		
4	CH-02-C-04	FABRICS MANUFACTURE	CHESHIRE
	CHARTER WAY MACCLESFIELD HURDSFIELD Edge of Town Industrial Zone Total Gross floor area: 3200 sqm <i>Survey date: FRIDAY 07/05/21</i>		
5	HC-02-C-01	ENGINEERING COMPANY	HAMPSHIRE
	JAYS CLOSE BASINGSTOKE Edge of Town Industrial Zone Total Gross floor area: 3000 sqm <i>Survey date: THURSDAY 16/06/16</i>		
6	HC-02-C-02	GIN DISTILLERY	HAMPSHIRE
	LONDON ROAD LAVERSTOKE Neighbourhood Centre (PPS6 Local Centre) Village Total Gross floor area: 8000 sqm <i>Survey date: WEDNESDAY 09/05/18</i>		
7	WK-02-C-01	MACHINE ENGINEERING	WARWICKSHIRE
	CASTLE MOUND WAY RUGBY Edge of Town Industrial Zone Total Gross floor area: 9216 sqm <i>Survey date: WEDNESDAY 10/11/21</i>		

LIST OF SITES relevant to selection parameters (Cont.)

8	WS-02-C-02	AVIATION COMPANY	WEST SUSSEX
	MAYDWELL AVENUE		
	NEAR HORSHAM		
	SLINFOLD		
	Free Standing (PPS6 Out of Town)		
	Out of Town		
	Total Gross floor area:	11375 sqm	
	Survey date: THURSDAY	23/01/14	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	3	5122	0.007	3	5122	0.000	3	5122	0.007
05:30 - 06:00	3	5122	0.078	3	5122	0.000	3	5122	0.078
06:00 - 06:30	4	6685	0.015	4	6685	0.000	4	6685	0.015
06:30 - 07:00	4	6685	0.067	4	6685	0.022	4	6685	0.089
07:00 - 07:30	8	6562	0.168	8	6562	0.019	8	6562	0.187
07:30 - 08:00	8	6562	0.150	8	6562	0.023	8	6562	0.173
08:00 - 08:30	8	6562	0.390	8	6562	0.029	8	6562	0.419
08:30 - 09:00	8	6562	0.208	8	6562	0.017	8	6562	0.225
09:00 - 09:30	8	6562	0.107	8	6562	0.038	8	6562	0.145
09:30 - 10:00	8	6562	0.088	8	6562	0.044	8	6562	0.132
10:00 - 10:30	8	6562	0.080	8	6562	0.055	8	6562	0.135
10:30 - 11:00	8	6562	0.091	8	6562	0.050	8	6562	0.141
11:00 - 11:30	8	6562	0.050	8	6562	0.059	8	6562	0.109
11:30 - 12:00	8	6562	0.015	8	6562	0.025	8	6562	0.040
12:00 - 12:30	8	6562	0.046	8	6562	0.078	8	6562	0.124
12:30 - 13:00	8	6562	0.072	8	6562	0.091	8	6562	0.163
13:00 - 13:30	8	6562	0.090	8	6562	0.135	8	6562	0.225
13:30 - 14:00	8	6562	0.055	8	6562	0.076	8	6562	0.131
14:00 - 14:30	8	6562	0.046	8	6562	0.053	8	6562	0.099
14:30 - 15:00	8	6562	0.046	8	6562	0.057	8	6562	0.103
15:00 - 15:30	8	6562	0.029	8	6562	0.070	8	6562	0.099
15:30 - 16:00	8	6562	0.017	8	6562	0.046	8	6562	0.063
16:00 - 16:30	8	6562	0.030	8	6562	0.126	8	6562	0.156
16:30 - 17:00	8	6562	0.021	8	6562	0.141	8	6562	0.162
17:00 - 17:30	8	6562	0.021	8	6562	0.143	8	6562	0.164
17:30 - 18:00	8	6562	0.029	8	6562	0.318	8	6562	0.347
18:00 - 18:30	8	6562	0.036	8	6562	0.168	8	6562	0.204
18:30 - 19:00	8	6562	0.017	8	6562	0.059	8	6562	0.076
19:00 - 19:30	5	6948	0.029	5	6948	0.029	5	6948	0.058
19:30 - 20:00	5	6948	0.012	5	6948	0.040	5	6948	0.052
20:00 - 20:30	4	5842	0.009	4	5842	0.060	4	5842	0.069
20:30 - 21:00	4	5842	0.009	4	5842	0.026	4	5842	0.035
21:00 - 21:30	1	8000	0.000	1	8000	0.000	1	8000	0.000
21:30 - 22:00	1	8000	0.000	1	8000	0.000	1	8000	0.000
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			2.128			2.097			4.225

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	2950 - 11375 (units: sqm)
Survey date date range:	01/01/14 - 10/11/21
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.