Cardiff Peninsula - Plot 1

Transport Statement

Client: **Orion Land and Leisure Ltd**

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REPORT DETAILS

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1. INTRODUCTION

1.1 Background

1.1.1 Apex Transport Planning Ltd has been commissioned to produce a Transport Statement (TS) to support a planning application for a proposed senior living accommodation development at Empire Way, Cardiff, situated within the larger Cardiff Bay peninsula masterplan.

1.1.2 The site is currently serving as a car park between the white-water rafting centre and the existing Cardiff Pointe development, which serves the uses within the surrounding area.

1.1.3 The proposals are for senior living accommodation with associated car parking, cycle parking, and landscaping consisting of 77 apartments with associated communal uses in a mix of one and two bedroom apartments. Access would be obtained from the northern boundary of the site via a new priority junction onto Empire Way.

1.1.4 As the site has an existing car park use it currently accommodates vehicle movements travelling to and from the surrounding highway network. As such, the vehicles generated by the proposals into and out of the site access would be unlikely to have a material impact on the operation of the highway or an unacceptable impact on road safety in terms of movements in and out of the access along the frontage.

1.1.5 The TS considers the impacts of the proposals in relation to transport including the site connectivity, parking provision and access arrangements, road safety and vehicle trip generation. It has been produced to inform Cardiff Council (CC) of the highways and transport implications of the proposals.

1.2 Scope of Report

1.2.1 The scope of work has considered policies and advice set out in Future Wales, Planning Policy Wales 12 (PPW12), Technical Advice Note 18: Transport (TAN18), the Active Travel Act (Wales – 2013), the CC Local Development Plan (LDP) and Managing Transportation Impacts Supplementary Planning Guidance (SPG), as well as considering our previous experience of other similar sites.

1.2.2 The TS has been structured to include the following:

- A description of the existing conditions including, site location, highway network, road safety analysis and existing travel behaviour in the surrounding area
- Consideration of planning context
- Overview of highway network and vehicular connections to the site as well as on-street parking restrictions
- Review of relevant planning policies, in particular in relation to sustainable travel and parking
- Review of the connectivity of the site by sustainable modes including walking, cycling and public transport
- Description of the development proposals, demonstrating safe and appropriate access by all modes, car and cycle parking and servicing and delivery arrangements
- Forecast vehicle trip generation in the peak hours
- Forecast modal split likely to be associated with the proposals
- Consideration of the impact of the proposals on the local highway network

2. EXISTING CONDITIONS

2.1 Site Location, Use and Access

2.1.1 The site is located south of Empire Way between the white-water rafting centre and the existing Cardiff Pointe development. It lies within the southern area of Cardiff, c.150m north of Penarth and c.600m northeast of Cogan Rail Station.

2.1.2 The surrounding uses are leisure and residential. It is bounded to the west by Cardiff International white-water rafting centre, and to the north by Cardiff International Pool and beyond that the Ice Arena. To the east is a residential area (Cardiff Pointe) and the southern boundary is with the River Ely. There are also some small retail units located within the Bayscape development to the west, and also a Morrisons supermarket within the wider peninsula area. The site is currently used as a car park, with the spaces being relocated as part of an overall parking strategy within the wider area as part of a masterplan being delivered by Cardiff Council.

2.1.3 The site has an existing junction onto Empire Way from its northeastern extent.

2.1.4 Figure 2-1 shows the indicative location of the site.

Figure 2-1: Indicative Site Location

Source: Google Maps

2.2 Planning Context

2.2.1 The site was granted planning consent on 5th April 2013 for the development of 79no. residential dwellings, vehicular and pedestrian access, parking and servicing, landscaping, remedial works to revetments, and erection of new cantilever walkway (12/00934/DCI). The development was to form part of the larger mainly residential Cardiff Pointe development.

2.2.2 The application was linked to three other residential applications: Cardiff Pointe (12/937DCI) for 561 market dwellings on the adjacent peninsula site; ISV Offices Site (12/932DCI) on Watkiss Way for 95

mixed tenure dwellings, and the Morrisons site (12/935DCI) located on vacant land between Morrisons and Prospect Place for 63 mixed tenure apartments. The applications are linked by means of two legal agreements.

2.2.3 The approved scheme comprised 43 apartments (17 x 1 bed apartments and 26 x 2 bed), and 36 houses (26 x 3 bed and 10 x 4 bed).

2.2.4 The application was accompanied by a Transport Assessment (TA) produced by Aecom (April 2012), which considered the entire Cardiff Pointe area, comprising 198 houses, 372 apartments and 982sqm of convenience food retail, bar and cafe use. The site and the application for 79no. units formed a part of this TA. A separate TA Addendum was then produced by Arup, which summarised some minor changes to the scheme (of which the site formed one part), and some minor changes to trip generation.

2.2.5 The AECOM TA provided a full review of the site and surrounding area and significant sections of that report, particularly in relation to sustainable connectivity would be applicable to this application site.

2.2.6 The proposals were to provide a priority junction access onto Empire Way and visibility splays were shown at 43m in each direction from an x distance of 2.4m, relating to the 30mph speed limit at that time.

2.2.7 The TA also included detailed consideration of junction capacity within the vicinity of the site (considering the wider scheme proposals), as well as the setting out the forecast trip generation. Table 2-1 and Table 2-2 reproduce the vehicular trip rates shown with the AECOM TA for flats and houses, which has been applied to the approved scheme to show the accepted person trip generation relating to the site for the previously consented scheme.

Table 2-1: Previously Consented Scheme Vehicle Trip Rates and Generation - Apartments (43 apartments)

Time Period	Trip Rates (per unit)			Trip Generation (43 apartments)		
	Arrivals	Departures	Two-way	Arrivals	Departures	Two-way
AM Peak (08:00-09:00)	0.152	0.553	0.705	7	24	31
PM Peak (17:00-18:00)	0.401	0.246	0.647	17	11	28

Source: Aecom TA March 2012

Table 2-2: Previously Consented Scheme Vehicle Trip Rates and Generation - Houses (36 dwellings)

Time Period	Trip Rates (per unit)			Trip Generation (36 Houses)		
	Arrivals	Departures	Two-way	Arrivals	Departures	Two-way
AM Peak (08:00-09:00)	0.067	0.292	0.359	3	13	16
PM Peak (17:00-18:00)	0.258	0.125	0.383	11	5	16

Source: Aecom TA March 2012

Table 2-3: Previously Consented Scheme Vehicle Trip Generation – Total (79 units)

Time Period	Trip Generation (79 units)		
	Arrivals	Departures	Two-way
AM Peak (08:00-09:00)	10	37	47
PM Peak (17:00-18:00)	28	16	44

2.2.8 As such, the site has a historic permission for a similar use to that now proposed on the site, and 44 to 47 vehicle movements in the peak hours to and from the site have been accepted on the network in relation to this use.

2.3 Local Highway Network

2.3.1 The site is accessed from Empire Way. This is a single carriageway road which connects to Watkiss Way and Olympian Drive at its western extent and Cardiff Bay Yacht Club at its eastern extent. Adjacent to

the site, Empire Way is subject to a 20mph speed limit, has a width of c.7.3 metres, and double yellow markings on both sides of the carriageway. It has footways and streetlighting along its length.

2.3.2 Olympian Drive is a dual carriageway road with central island. It routes in a north-south alignment from the Empire Way / Watkiss Way / Olympian Drive roundabout at its southern extent to the International Drive / Morrisons signal controlled junction at its northern extent. Olympian Drive serves Cardiff International Pool and Ice Arena Wales. A shared footway / cycleway is provided on the west side of the carriageway and a footway is provided on the east side of the carriageway and street lighting is provided along its length.

2.3.3 Also within the vicinity of the site are the A4055 and the A4232. The A4055 is a key route between Cardiff Bay and Barry which is situated c.300m west of the site, accessed via Olympian Drive. The A4055 routes through the Cogan Spur where it connects to the A4160, which provides the route into Penarth and Llandough.

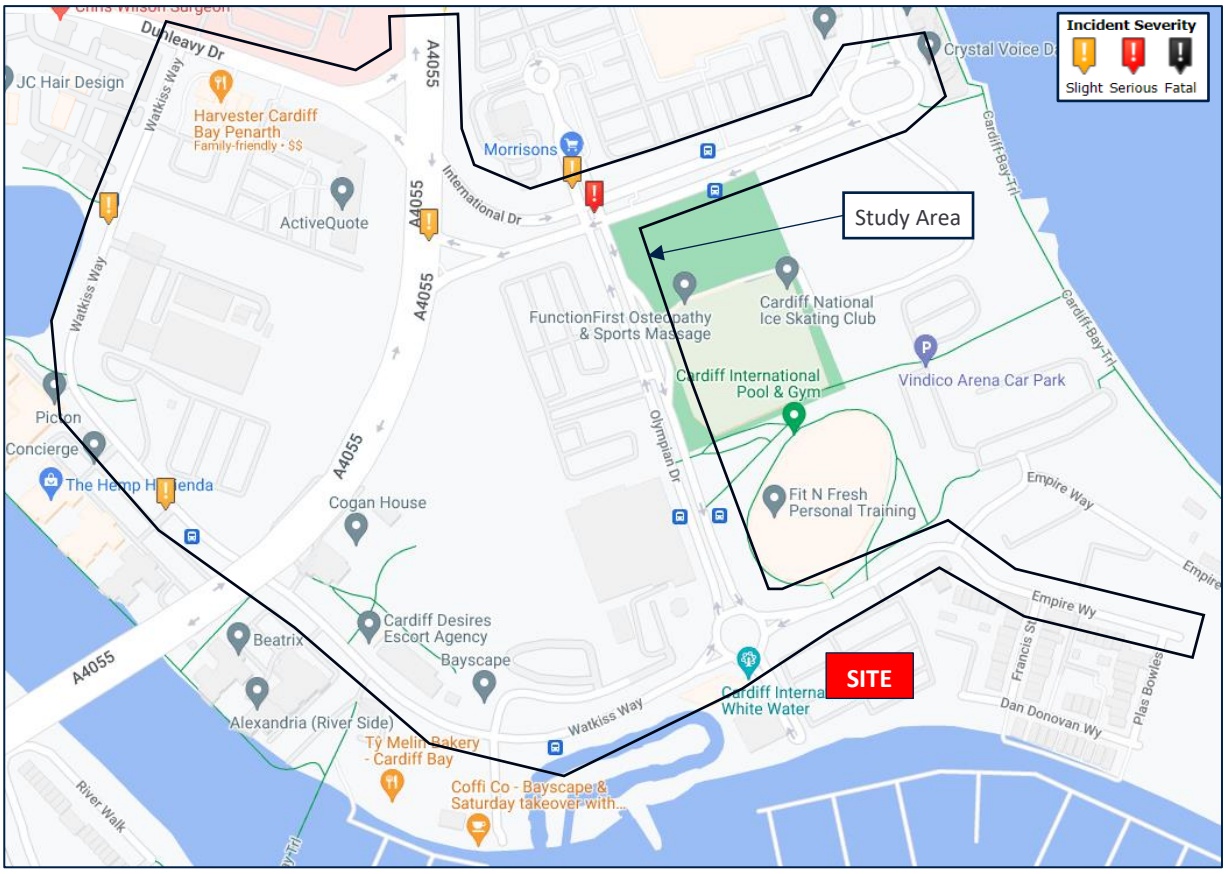
2.3.4 The A4232 provides a key route in the vicinity and is accessed c.550m north of the site via the A4055. It is a distributor road that routes through Cardiff Bay, around the periphery of west Cardiff and through Culverhouse Cross. It routes in an east – west then north alignment from Ocean Way at its eastern extent to the M4 at its northern extent. To the north of the site, it forms part of the Strategic Road Network managed by Welsh Government.

2.4 Road Safety

2.4.1 Personal Injury Accident (PIA) data has been obtained from road safety data published annually by the Department for Transport (DfT). The statistics provide PIA data which has been recorded using the STATS19 accident reporting form. This review covers the four-year period prior to the pandemic between 1st January 2016 and 31st December 2019, data from the two years during the pandemic between 1st January 2020 and 31st December 2021, as well as the most recent publicly available data which covers up to 31 December 2022. The most recent seven years of data has therefore been reviewed, which includes the most recent five full years of data outside of the pandemic.

2.4.2 The study area considered within the analysis covers the local highway network within the vicinity of the site, including the key routes connecting to the A4055. The entire study area and PIAs are shown in Figure 2-2.

Figure 2-2: Location of Recorded PIA's



Source: Crashmap

2.4.3 Over the seven year period, there was a total of five PIAs, of which one was classified as a serious injury accident and four were classified as slight injury accidents. There were no fatal incidents during this period within the study area.

2.4.4 One of the PIAs involved a pedestrian and one involved a cyclist. The incident involving a cyclist occurred at the International Drive / Olympian Drive signal controlled junction. This involved a collision between a car and the cyclist. The pedestrian PIA occurred on Watkiss Way and involved a collision between a vehicle and a pedestrian. A total of two PIAs over a large study area, occurring in different locations, does not suggest there is a specific safety issue related to active travel, particularly given the active travel movements already occur in this area.

2.4.5 There were no PIAs adjacent to the existing or proposed site access, adjacent to the site boundary, or within the visibility splays. As such, there is no evidence to suggest a road safety issue within the immediate vicinity of the site or with vehicles turning to and from Watkiss Way.

2.4.6 There were no clusters of four or more PIAs occurring in the same location and as such there is no evidence to suggest a re-occurring road safety issue within the study area.

2.4.7 As such, although all incidents are regrettable, the PIAs that occurred do not indicate a specific pattern or issue with the geometry of the highway that would be exacerbated by the proposals, particularly when considering that the area already accommodates pedestrian, cycle and vehicular activity, including movements to and from the car park use on the site.

2.5 Existing Travel Behaviour and Car Ownership

Modal Share

2.5.1 The site is located within output area W00010145 in Cardiff. Table 2-4 shows how the existing residents of this output area currently travel to work, as well as providing a comparison with the entire of Cardiff Council as obtained from 2011 Census data. Although this data is available from the 2021 census, this is not considered as appropriate due to restrictions in place at that time reducing the level of movements to and from work, particularly by public transport.

2.5.2 Although the proposals are for senior living accommodation, therefore residents are less likely to be commuting to work, the census data is considered to provide some indication of the travel behaviour of potential future residents in this area.

Table 2-4: Journey to Work Mode Split (Census 2011)

Mode	OA W00010145	Cardiff
Public Transport	4%	14%
Car Driver	79%	59%
Motorcycle	0%	0%
Car Passenger	3%	5%
Bicycle	1%	4%
On Foot	12%	16%
Other	2%	1%
Total	**100%**	**100%**

2.5.3 The census data shows that 79% of residents living in the surrounding area and commuting to work travel as a car driver, with 12% walking, 4% travelling by public transport, 3% as a car passenger and 2% cycling.

2.5.4 This is at a higher level than the overall of Cardiff, but this could reflect the reduced facilities within the immediate vicinity of the site in 2011, and is prior to potential further development coming forwards in the future which will change the context of the location and of sustainable transport options.

2.5.5 Given the proposals are for a senior living accommodation use, a significant proportion of journeys will also be for leisure and retail purposes and these are likely to even more attractive for sustainable travel, given these opportunities are situated within suitable walking distances via appropriate routes (as shown in Section 4). In addition, journeys by public transport are also likely to be attractive.

2.5.6 The 2011 Census data is also 13 years old, and the percentage of journeys made by cycling within Cardiff have increased since this time. Cardiff Council's Transport White Paper (2020) suggests that cycling has increased from 7% of journeys to work in 2010 to 13% in 2020, together with increases in public transport use. The percentage of car journeys has fallen from 57% to 49% over the same 10-year period. As such, the level of cycle and public transport journeys is also likely to have increased from the levels shown.

2.5.7 On this basis, Table 2-4 confirms that there is potential for walking, cycling and public transport trips to be made to and from the site and a significant number of these movements already occur in this area (and without evidence of a specific safety issue).

Car Ownership

2.5.8 The 2011 Census data has been reviewed for the average car ownership in the area in output area W00010145, within which the site is situated. This has been analysed due to the modal share data also

being taken from 2011. This shows an average of 1.12 cars per household in the output area and that 12% of households do not own a car and of those that do own a car 83% of households own one car or less. This compares within an average of 1.07 cars per household across Cardiff and 29% not owning a car.

2.5.9 The 2021 data has also been reviewed and compared to the 2011 data. This shows an average of 1.27 cars per household across the output areas and that 17% of households do not own a car and 75% own one car or less. The average ownership across Cardiff is 1.13 cars per household and 26% not owning a car. These figures are broadly comparable with the 2011 data and it is likely that for senior living accommodation residence, the car ownership would be significantly lower than for 'typical' houses or private apartments within this area.

2.5.10 Based on this data, it is considered that potential future residents would be likely to own one car or less (particularly given the parking provision on the site and the senior living accommodation use) and the site would attract those that choose not to own a car or do not drive.

3. PLANNING POLICY

3.1 Future Wales: The National Plan 2040

3.1.1 This is the national development framework, setting the direction for development in Wales to 2040. It provides an overarching development plan with a strategy for addressing key national priorities through the planning system. Planning decisions at every level of the planning system in Wales must be taken in accordance with the development plan as a whole.

3.1.2 In relation to transport, it is states on page 51 that *"Growth should be shaped around sustainable forms of transport and places that make us and the environment healthier".* Page 55 continues on to state that *"Development will focus on active travel and public transport, allied with a reduced reliance on private vehicles".*

3.1.3 In the supporting text for Policy 2 - Shaping Urban Growth and Regeneration – Strategic Placemaking, it is stated that *"To enable active and healthy lives, people should be able to easily walk to local facilities and public transport."*

3.1.4 Policy 11 sets out National Connectivity, this states that *"Our priorities are to encourage longer distance trips to be made by public transport, while also making longer journeys possible by electric vehicles."*

3.1.5 Policy 12 sets out Regional Connectivity. This states that *"in urban areas our priorities are improving and integrating active travel and public transport."*

3.1.6 In relation to Active Travel and developments it is stated that *"Active travel must be an essential and integral component of all new developments, large and small."*

3.1.7 In relation to travelling in Wales, on page 84 it is stated that *"The Welsh Government's aim is to reduce the need to travel, particularly by private vehicles, and support a modal shift to walking, cycling and public transport."*

3.1.8 On page 174, supporting Policy 36, it is stated that *"Welsh Government wishes to see development built in sustainable locations that are supported by the active travel and public transport infrastructure and services needed to enable people to live active and healthy lives."*

3.1.9 As such, the key themes are that development should be sited where it can benefit from active travel and public transport connections and reduce the need to travel by car. Facilities should be within easy walking distance.

3.1.10 The site is situated within a short walking distance to public transport links and key facilities. Existing active travel connections connect to the site which encourages walking and cycling for local journeys. The site is also excellently situated to benefit from public transport services.

3.1.11 The site location is consistent with the policies and aims of Future Wales and is fully in accordance with the Welsh Government aspirations for where development should be focused. Full details of the sustainable connectivity are set out within Section 4.

3.2 Planning Policy Wales 12th Edition (PPW12)

3.2.1 PPW12 provides overarching Welsh Government policies with transport policies set out in Section 4.1. This states in paragraph 4.1.10 *"The planning system has a key role to play in reducing the need to travel and supporting sustainable transport, by facilitating developments which:*

** are sited in the right locations, where they can be easily accessed by sustainable modes of travel and without the need for a car*

** make it possible for all short journeys within and beyond the development to be easily made by walking and cycling."*

3.2.2 PPW12 sets out a "*Sustainable Transport Hierarchy for Planning*" in Figure 9. This states in paragraph 4.1.12 "*It is Welsh Government policy to require the use of a sustainable transport hierarchy in relation to new development, which prioritises walking, cycling and public transport ahead of the private motor vehicles. The transport hierarchy recognises that Ultra Low Emission Vehicles also have an important role to play in the decarbonisation of transport."*

3.2.3 It continues to state that "*The sustainable transport hierarchy should be used to reduce the need to travel [and] prevent car-dependent developments in unsustainable locations*".

3.2.4 The site is situated in a location which is accessible by walking, cycling and public transport, with active travel links to numerous key facilities and services, which is fully compliant with PPW12, as demonstrated in Section 4 of this TS.

3.3 Technical Advice Note 18: Transport (TAN18)

3.3.1 The importance of walking and cycling in contributing towards sustainable travel patterns is detailed in the guidance contained within TAN18: Transport (March 2007). The guidance emphasises not only the role walking and cycling can have as main modes of transport for local journeys but also the considerable contribution they play in forming parts of longer journeys by public transport.

3.3.2 The importance of the location of a site in relation to encouraging sustainable travel is set out within paragraph 3.3 which states *"The location of new residential development has a significant influence on travel patterns as the majority of trips start or finish at home… It should be a key aim of development plans to identify residential sites that are accessible to jobs, shops and services by modes other than the car"*.

3.3.3 Paragraph 3.8 continues on to state that *"Locations that are highly accessible by a variety of travel modes offer significant opportunities to make travel patterns more sustainable."*

3.3.4 As such it is recognised by TAN18 that the sustainable location of a site, such as the application site, has a significant influence in engraining sustainable travel habits.

3.4 Cardiff Local Development Plan (LDP) (2006-2026)

3.4.1 Section 4 of the LDP relates to Transport. Policy T1 specifically refers to walking and cycling. This states that to enable people to access employment, 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, jobs 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 faculties; and

3.4.2 Policy T6 states that Development will not be permitted which would cause unacceptable harm to the safe and efficient operation of the highway, public transport and other movement networks including pedestrian and cycle routes, public rights of way and bridle routes. This TS demonstrates that the proposals would not have an unacceptable impact on transport.

3.4.3 One of the keys of the LDP is the Transport Strategy which seeks to achieve a 50% modal split of cars for all trips on the network (and 50% other modes). The proposed development is in line with this policy by offering realistic choice of travel modes.

4. CONNECTIVITY BY SUSTAINABLE MODES OF TRAVEL

4.1 Introduction

4.1.1 This section describes the opportunities to make everyday trips by non-car modes. It considers the likelihood of trips being made on foot, by cycle, mobility scooter, bus, and rail. The site location is demonstrated to be consistent with the aims of TAN18 and in accordance with sustainable transport policies in Future Wales, PPW12 and the LDP.

4.2 Walking and Cycling

Overview

4.2.1 Walking and cycling (collectively known as active travel) are the most important modes of travel at a local level and generally offer the greatest potential to replace short car journeys. Given the use of the site for senior living accommodation, the use of a mobility scooter is also considered a viable option and there will be pool mobility scooters situated on the site for residents to utilise.

4.2.2 The site is well situated to benefit from existing walking and cycling routes. Suitable footways and crossings are provided throughout the local area, as would be expected within an existing and established urban area. The majority of roads within the vicinity of the site have footways on one or both sides of the carriageway, providing links between the site and the surrounding facilities. The routes were also considered appropriate to accommodate the adjacent site to the eastern boundary (Cardiff Pointe), as well as for the previously consented scheme.

Infrastructure

4.2.3 Empire Way has footways on both sides of the carriageway that connect to the site. On the southern side of the carriageway is a segregated footway / cycleway which provides a direct connection into the site. The footway is c. 2-3m in width and the cycleway c. 2m in width. This connects to the west, continuing along Watkiss Way before becoming a shared footway / cycleway route. To the east of the site, along Empire Way, this also becomes a shared footway / cycleway connecting to the existing residential development.

4.2.4 A segregated and shared footway / cycleway also continues along the western side of Olympian Drive, which is connected to the Watkiss Way / Empire Way route via a signal controlled crossing c. 55m to the west of Olympian Drive.

4.2.5 Adjacent to the site on Empire Way there is a further signal controlled crossing which connects to the footways on the northern side of Empire Way and the eastern side of Olympian Drive.

4.2.6 The Watkiss Way route also connects to the Pont y Werin Bridge, which crosses the River Ely and connects to River View and Marconi Avenue in Penarth to the south forming part of the Cardiff Bay Trail. This in turn provides a route through to Cogan Rail Station (for pedestrians) via continuous footways and a dropped kerb crossing at Cogan Hill.

4.2.7 As such, this infrastructure provide continuous cycle / pedestrian / mobility scooter infrastructure connecting to the closest bus stops, leisure facilities, food store and rail station.

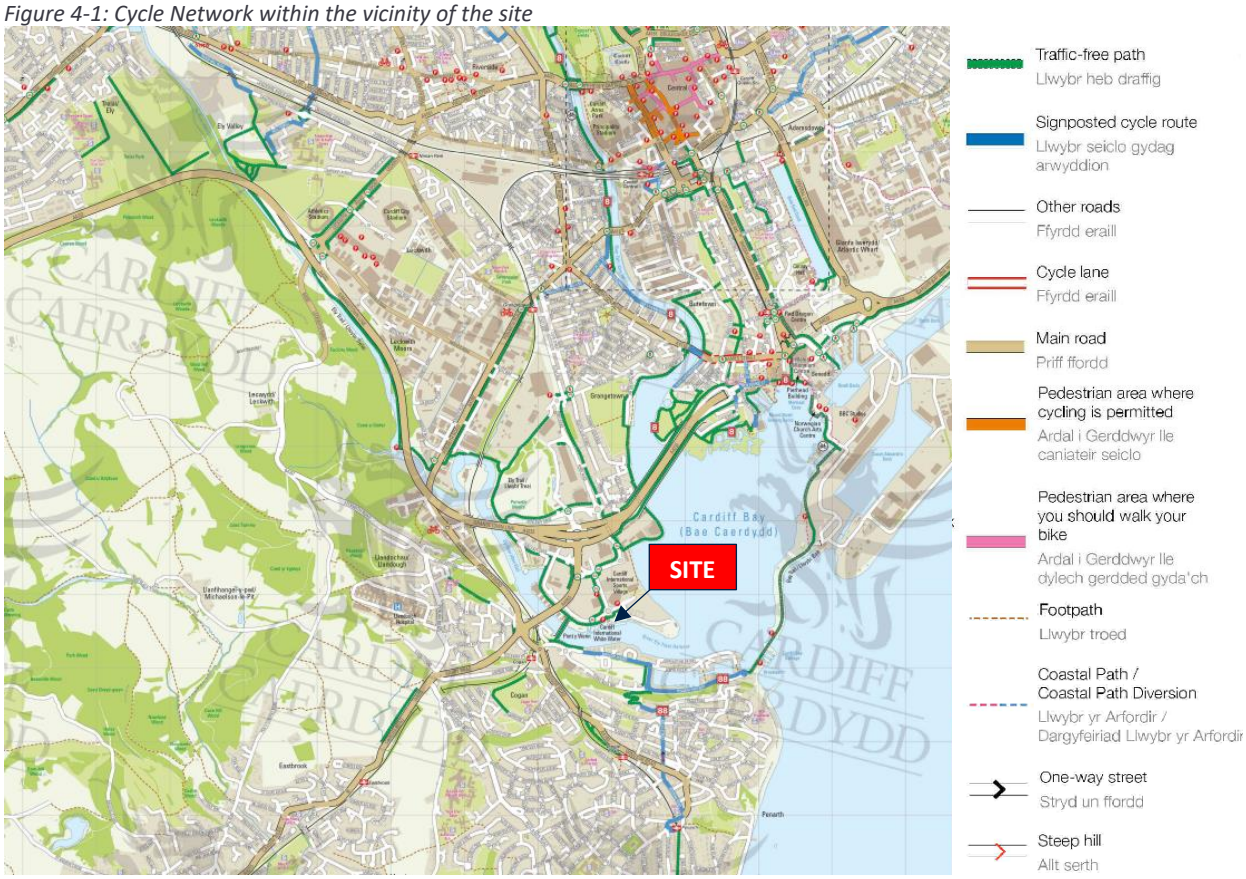
4.2.8 All surrounding streets on the key routes have street lighting along their length and the routes and crossings surrounding the site are considered to be of good quality. The local area appropriately accommodates existing pedestrian and cycling movements and the infrastructure would be attractive to potential future residents who wish to walk or use a mobility scooter (or cycle) to and from the site.

Cycle Routes

4.2.9 The site is located in close proximity to several cycling routes as indicated on the Cardiff Cycling and Walking map. An extract of this map showing cycle routes in the vicinity of the site is shown in Figure 4-1.

4.2.10 As set out previously, a traffic free cycle route runs along Empire Way adjacent to the north boundary of the site. This allows future residents and staff to access this route directly from the site. The cycle route then continues along Watkiss Way and Pont Y Werin Bridge connecting into Penarth. It also routes north along Olympian Drive and along the Cardiff Bay Link Road (A4232) into Cardiff Bay. From here, the traffic free cycle route on Lloyd George Avenue can be accessed which provides continuous cycle infrastructure to the city centre.

Figure 4-1: Cycle Network within the vicinity of the site



Source: Cardiff Council

4.2.11 Cardiff Council has an overarching proposal for six permanent cycleways to support and promote cycling. Most of these have been completed and others will be completed over the coming years. The routes will connect communities to major destinations across the city, including the City Centre and Cardiff Bay. The routes are as follows:

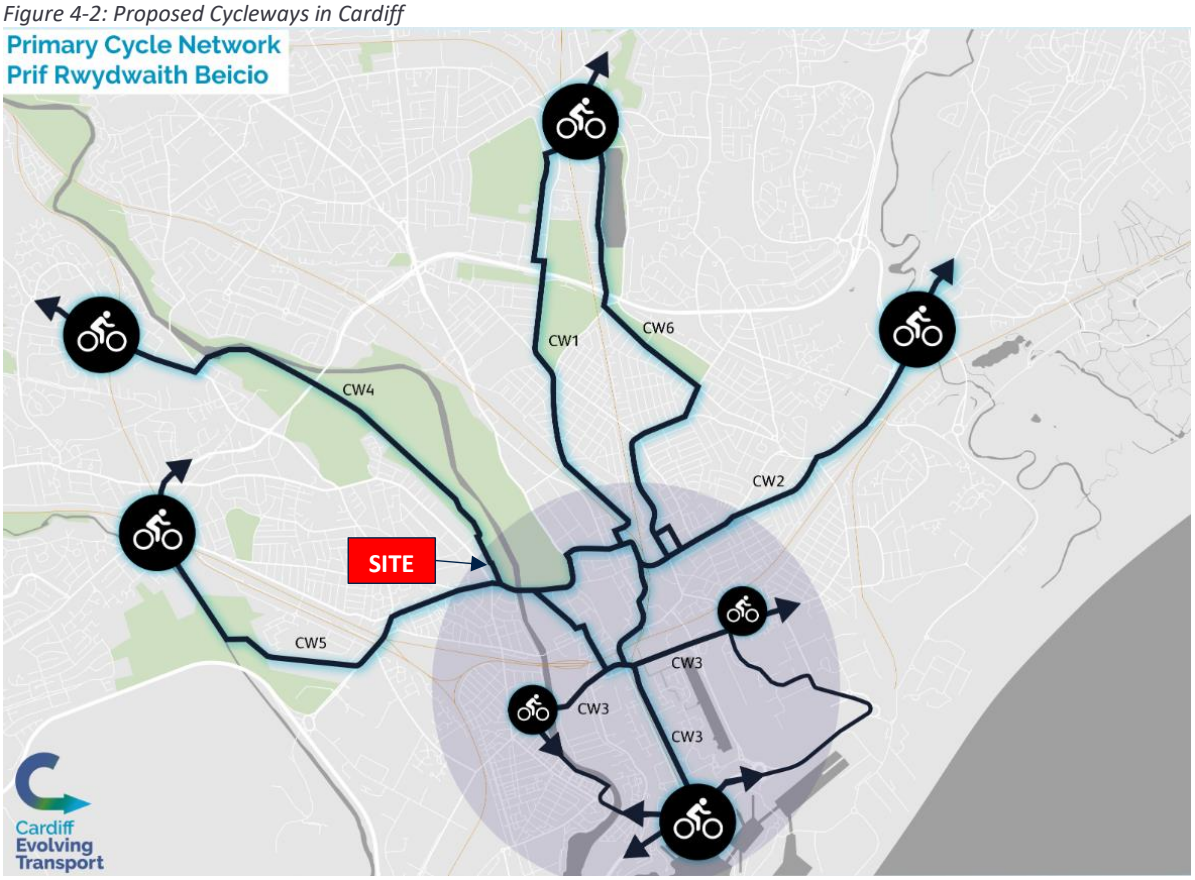
- Cycleway 1: City Centre to Cathays, University Hospital Wales, Heath High Level and Heath Low Level Rail Stations and North East Cardiff Strategic Development Site
- Cycleway 2: City Centre to Adamsdown, Newport Road retail parks, Rumney, Llanrumney and St Mellons Business Park
- Cycleway 3: City Centre to Cardiff Bay
- Cycleway 4: City Centre to Llandaff, Danescourt and North West Strategic Development Site
- Cycleway 5: City Centre to Riverside, Ely and Caerau

- Cycleway 6: Roath Cycleway - City Centre to Plasnewydd, Penylan, Cyncoed and Roath Park.

4.2.12 Cycleway 3 has already been completed, which routes along Lloyd George Avenue to the west of the site. This route connects the City Centre to Cardiff Bay as well as linking to other existing and planned routes. From the site, cyclists could access this route via Olympian Drive and the Cardiff Bay Link Road (A4232) as a traffic free cycle route.

4.2.13 A plan of the six cycleways is shown on Figure 4-2.

Figure 4-2: Proposed Cycleways in Cardiff



Source: Cardiff Council website

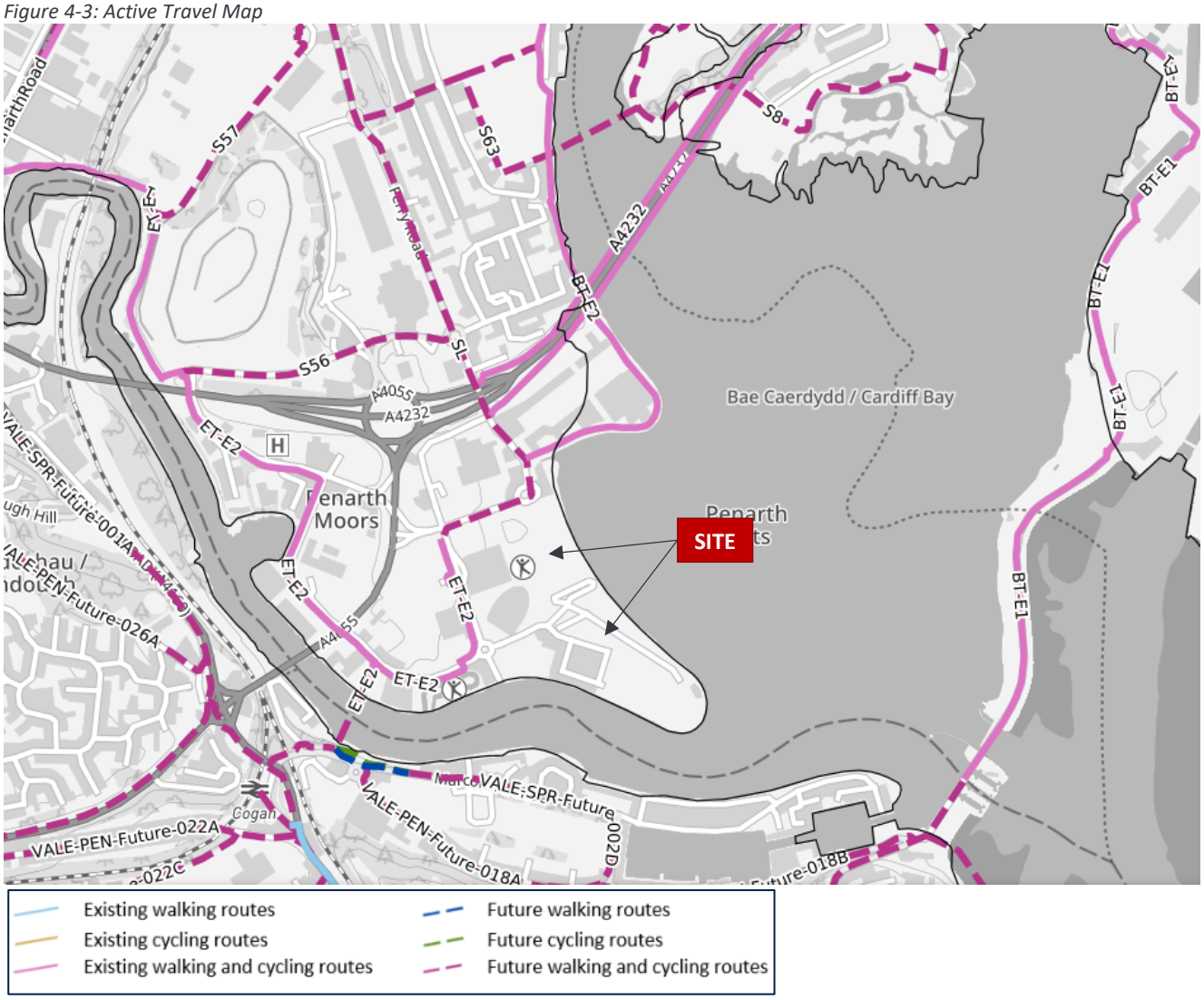
4.2.14 As such, the site has excellent connections by dedicated cycle routes to key facilities and areas, which will be attractive for some residents of and visitors to the site.

4.3 Future Active Travel Improvements

4.3.1 The Welsh Government DataMap Wales shows the Active Travel Network Maps (ATNM) across all authorities, including Cardiff Council. This shows existing walking routes and where upgrades or new routes are anticipated to be provided for the next 15 years. This is shown within Figure 4-3.

4.3.2 This shows a proposed improvement to a route that runs along International Drive and Ferry Road. This route (Route SL) is a future walking and cycling route which runs eastbound from Route ET-E2 on Olympian Drive, along International Drive and then north on Ferry Road. Future residents and visitors will benefit from the delivery of this route, albeit there is already shared and segregated walking and cycling routes running along both of these roads which provides continuous routes for active travel connecting to the north, including the Cardiff Link Road bridge.

Figure 4-3: Active Travel Map



Source: Datamap.gov.wales

4.4 Distances to Facilities

4.4.1 There are a number of publications which suggest guidance for appropriate and acceptable walking and cycling distances to facilities. By extension, these could be applied to suitable distances for travelling by mobility scooter. For reference, these have been summarised as follows.

- Welsh Government - Active Travel (Wales) Act 2021: It is stated within paragraph 4.1.5 that *"Walking is most suitable for journeys of less than two miles whilst cycling is also convenient for longer journeys, typically up to five miles for regular utility journeys"*. This equates to distances for walking of up to 3.2km and cycling of up to 8km.
- This also states in paragraph 9.5.3 that *"Walkable neighbourhoods also referred to as 'low-traffic neighbourhoods', or 'active neighbourhoods', (see figure 9.6) are characterised by having a range of facilities within 20 minutes' walking distance which people may access comfortably on foot."* This would equate to c. 1.6km.
- Department for Transport (DfT) – Manual for Streets (2007): MfS states that *'walkable neighbourhoods'* are typically characterised by having a range of facilities within 10 minutes walking distance (c. 800 metres). MfS also acknowledges that this is not an upper limit and references previous planning policy guidance in that it is generally acknowledged that walking offers the greatest potential to replace short car trips, particularly under 2km.

- CIHT (2015) – Planning for Walking: In relation to shorter trips in particular, (section 2.1) states that across Britain about '*80% of journeys shorter than 1 mile (1.6km) are made wholly on foot*'.
- CIHT - Guidelines for Providing for Journeys on Foot (2000): suggests preferred maximum distances for commuting journeys are up to 2km.
- DfT – LTN1/20 Cycle Infrastructure Design (paragraph 2.2.2) – states that *"Two out of every three personal trips are less than five miles in length, an achievable distance to cycle for most people"* (c.8km).

4.4.2 As such, based on guidance, it is considered that suitable walking distances are up to 3.2km, but journeys within 2km have a greater potential to be made on foot. A 2km distance equates to around a 25-minute walk travelling at 3mph (4.8kph). A 3.2km distance equates to around a 40 minute walk. Sites with a range of facilities within 1.6km are considered to be within a 'walkable neighbourhood'.

4.4.3 It is considered that journeys of up to 8km are within a suitable cycling distance. A cycling journey of 8km would equate to approximately a 25-minute travel time.

4.4.4 It is noted that the distances and journey times is likely to be lower for those living in senior living accommodation residences and as such, the proximity of facilities and the routes to these has been considered in this context. It is noted that the residents will also benefit from mobility scooters which will be able to benefit from the high quality footway network surrounding the site, to gain access to the facilities within suitable distances.

4.4.5 To demonstrate the site's connectivity, facilities within appropriate distances which are accessed via suitable and established routes have been summarised in Table 4-1.The location of the facilities in the context of the site are shown in Figure 4-4. These facilities have been summarised based on approximate travel distances from the site access via appropriate routes, not straight-line distances.

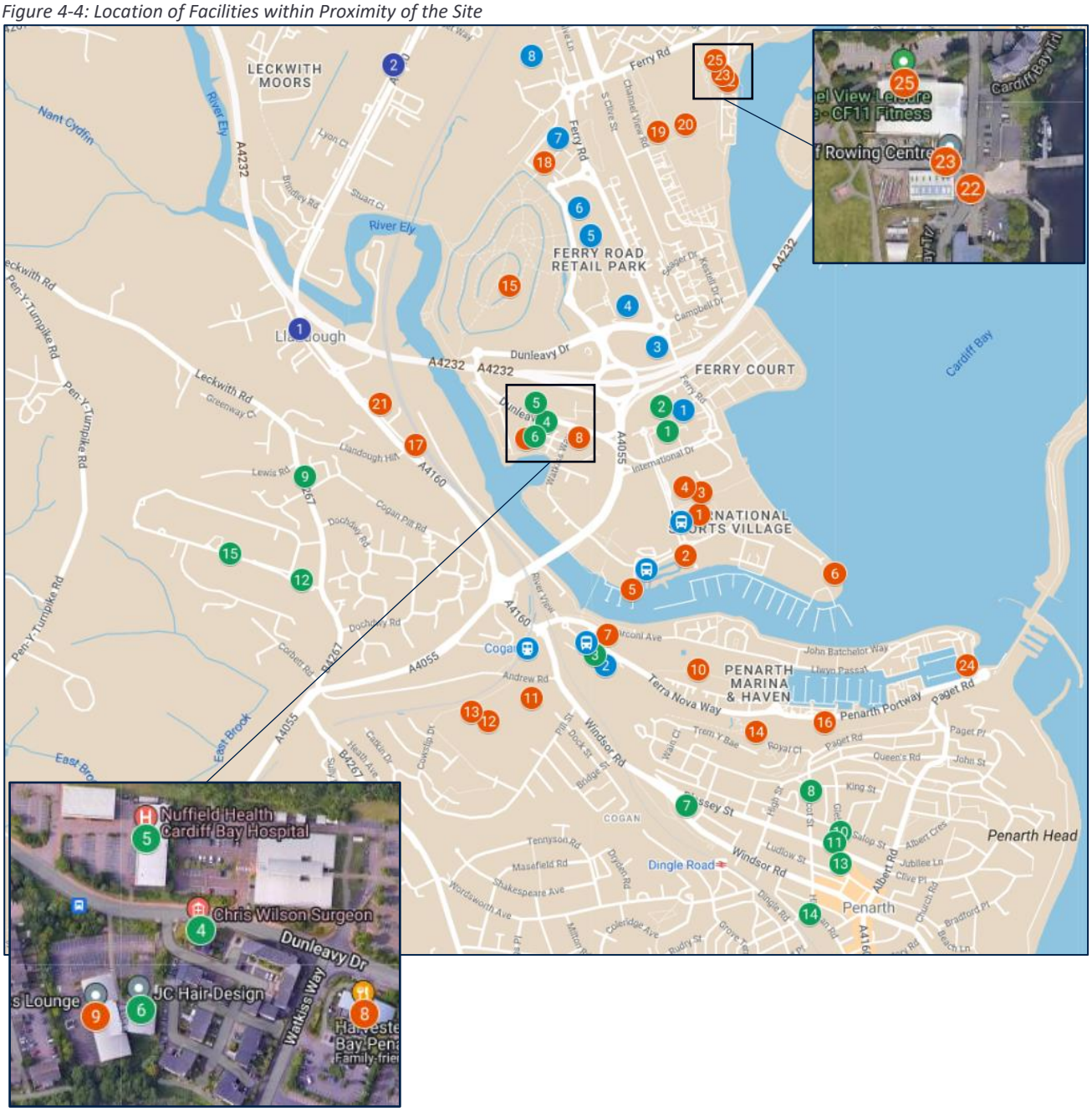
Table 4-1: Proximity of the Site to Local Facilities and Services

Facility / Amenity		Distance from site access (metres)	Walking Travel Time (minutes) *	Cycling Travel Time (minutes) *
Community Facilities				
1	Cash Point	490	6	2
2	InPost Locker	530	7	2
3	Tesco Pharmacy	700	9	2
4	Chris Wilson Surgeon	730	9	2
5	Nuffield Health Cardiff Bay Hospital	770	10	2
6	JC Hair Design Ltd	810	10	3
7	Holy Nativity Church	1440	18	5
8	St Paul's Community Centre	1650	21	5
9	Llandough War Memorial Hall	1800	23	6
10	Lazarou Hair Salon & Barbers (Penarth)	1840	23	6
11	Cult Salon	1870	23	6
12	Archie Cochrane Library	1900	24	6
13	Penarth Post Office	1930	24	6
14	Bupa Dental Care Penarth	2000	25	6
Public Transport				
	Cardiff Ice Rink	120	2	0
	Watkiss Way	210	3	1
	Penarth Tesco	650	8	2
	Cogan Rail Station	800	10	3
Retail				
1	Morrisons	500	6	2
2	Tesco Superstore	700	9	2
3	ALDI	930	12	3
4	Asda Cardiff Bay Superstore	940	12	3

Facility / Amenity		Distance from site access (metres)	Walking Travel Time (minutes) *	Cycling Travel Time (minutes) *
5	Cardiff Bay Retail Park	1220	15	4
6	The Food Warehouse by Iceland	1330	17	4
7	Lidl	1580	20	5
8	IKEA Cardiff	1800	23	6
Leisure				
1	Cardiff International Pool & Gym	50	1	0
2	Cardiff International White Water	70	1	0
3	Fun HQ Cardiff	220	3	1
4	Ice Arena Wales	220	3	1
5	Coffi Co - Bayscape	300	4	1
6	Cardiff Bay Yacht Club: Yacht Club & Sailing School	470	6	1
7	Oystercatcher public house	650	8	2
8	Harvester Cardiff Bay Penarth	800	10	3
9	The Wellness Lounge	980	12	3
10	Plymouth Park	980	12	3
11	Penarth Leisure Centre	1000	13	3
12	Cogan Coronation AFC	1120	14	4
13	Penarth Skatepark	1160	15	4
14	St Joseph's Park	1270	16	4
15	Grangemoor Park	1300	16	4
16	Bay Island Voyages Marina Office	1430	18	4
17	Penarth Road Snooker Club	1500	19	5
18	Pure Gym Cardiff Bay	1560	20	5
19	3G Football Pitch, The Marl	1580	20	5
20	The Marl	1660	21	5
21	Vale Sports Arena Ltd	1670	21	5
22	Cardiff Bay Kayaking	1820	23	6
23	Cardiff Rowing Centre	1840	23	6
24	Penarth Marina	1860	23	6
25	Channel View Leisure Centre	1900	24	6
Employment				
1	Llandough Trading Estate	2000	25	6
2	Penarth Road Industrial Estate	2400	30	8

** Based on walking speeds of 80 metres per minute and Cycling Speeds of 320 metres per minute – albeit noting that senior living accommodation residents are likely to have lower speeds and reduced distances*

Figure 4-4: Location of Facilities within Proximity of the Site



Source: Google Maps
Note: Numbers and colours correlate to Table 4-1.

4.4.6 Within an 800m walk (or mobility scooter / cycle) via continuous routes, residents and staff would be able to access two supermarkets (Morrisons and Tesco), a hospital, leisure facilities, cash point, in post locker, café, public house, and a pharmacy as well as the closest bus stops and Cogan Rail Station.

4.4.7 This is a significant number of facilities within less than a 10 minute walk, which could be utilised for everyday needs purposes. As such, the site is situated in a 'walkable neighbourhood' consistent with the guidance in MfS and is therefore considered to be situated in a highly sustainable location.

4.4.8 There are also numerous other facilities within appropriate walking or cycling distance. This includes a dentist, hairdressers, sporting facilities, post office, Yacht Club, a marina, and the Cardiff Bay Retail Park (which includes Iceland).

4.4.9 The site is situated in a sustainable location for active travel and access to facilities, as would be expected for a site in an existing and established urban area. This will encourage walking (or mobility scooter / cycling) and reduce the reliance on the private car, consistent with relevant policies and guidance, including sustainable transport policies in Future Wales, PPW12 and TAN18.

4.5 Public Transport

Bus

4.5.1 The closest bus stops to the site are located on Olympian Drive within a 120m walk (two minutes). The southbound stop is served by bus service 7 and 9. The southbound bus stop benefits from shelter, seating, bus cage markings, electronic timetable information, and raised kerb for accessible boarding, which is a potential benefit for future residents of the site. The northbound bus stop is served by bus service 7 and benefits from bus flag, bus cage markings, and raised kerb. To gain access to the stops, there are continuous footways and dropped kerbs at signal crossings provided.

4.5.2 The next closest bus stop is located on Watkiss Way c.210m (3 minute) walk from the site. This provides the northbound services for bus service 9. Both services are operated by Cardiff Bus.

4.5.3 There are additional services provided from the bus stop adjacent to the Penarth Tesco Superstore, located a 650m walk (eight minutes) from the site. This bus stop is served by bus service 305 operated by Adventure Travel Wales.

4.5.4 These combined services provide a high frequency of buses connecting to Cardiff City Centre and outer areas of Cardiff. A summary of the services is set out in Table 4-2.

Table 4-2: Local Bus Services

Route No.	Stop	Operator and Route	Frequency				
			Mon-Fri Peaks	Mon-Fri Daytime	Mon-Fri Evening	Sat	Sun
7	Olympian Drive (Northbound)	Penarth - Cardiff City Centre (Cardiff bus)	No service	Hourly 09:35 – 16:47	No service	No service	No service
	Olympian Drive (Southbound)	Cardiff City Centre – Penarth (Cardiff bus)	Hourly in PM	Hourly (09:26 – 17:45)	Hourly until 17:45	No service	No service
9	Olympian Drive (Southbound)	Heath Hospital - Cardiff Sports Village via Grangetown, Whitchurch Road (Cardiff bus)	4-5 per hour	4-5 per hour (06:55 - 23:40)	4-5 per hour until 23:40	3 per hour (07:50 – 23:40)	3 per hour (07:51 – 21:51)
	Watkiss Way (northbound)	Cardiff Sports Village - Heath Hospital via Grangetown, Whitchurch Road (Cardiff bus)	4-5 per hour	five per hour (04:59 – 22:52	3 per hour until 22:52	3 per hour (06:01 – 22:45)	3 per hour (06:04 – 21:01)
305	Penarth Tesco	Dinas Powys – Cardiff via Penarth (Adventure Travel)	Every 1.5 hours	Every 1.5 hours (08:43 – 20:19)	Every 1.5 hours until 20:19	Every 1.5 hours (08:43 – 20:19)	No service
305	Penarth Tesco	Cardiff – Dinas Powys via Penarth (Adventure Travel)	Every 1.5 hours	Every 1.5 hours (09:41 – 18:41)	Every 1.5 hours	Every 1.5 hours (09:41 – 18:41)	No service

4.5.5 During the peaks there are around 11-12 services per hour, or one service every 5 minutes, on average. The key number 9 service also extends across the weekend, enabling access to buses seven days a week ensuring these are a viable and realistic alternative to the car.

4.5.6 Potential future residents of the site can access numerous frequent bus services, linking to a variety of destinations including local and more regional destinations. The bus services from closest to the site provide a feasible and attractive option for work related journeys. They can also be used to access destinations for leisure and retail purposes.

Public Transport Improvements

4.5.7 Cardiff Council's Bus Priority Infrastructure Plan (2024) is proposing improvements to six key corridors within Cardiff. Within the vicinity of the site, Route 2 (south) will see increased connectivity between University Hospital for Wales and the International Sports Village (ISV). In enhancing this route, a series of interventions are being considered to improve journey times and reliability. Some interventions include kerbside controls, junction improvements, use of technology to give priority to buses, and consideration of bus lanes within the ISV vicinity.

4.5.8 Figure 4-5 displays the six key routes within the Bus Priority Infrastructure Plan.

Figure 4-5: Proposed network of key corridors.

Source: Cardiff Council's Bus Priority Infrastructure Plan (2024)

4.5.9 Given the extent and proximity of numerous bus routes and proposed future infrastructure improvements, the site has excellent accessibility by bus which offers a realistic and attractive travel option for potential future residents of the site, particularly given this will be for a senior living accommodation use. This will assist in minimising the vehicle trip generation from the site and reduce the need for residents to own a car.

Rail

4.5.10 Cogan Rail Station is located approximately an 800m walk (or cycle / mobility scooter) to the southwest of the site. This can be accessed within a 10 minute walk via continuous pedestrian infrastructure, including a ramped access to the station, suitable for mobility scooter access.

4.5.11 Cogan Rail Station has six secure cycle parking spaces, which also facilities journeys to be made from the site by cycle and then rail, with a cycle parked at the station.

4.5.12 Trains from Cogan Rail Station depart four times per hour in each direction with northbound services to Cardiff, Merthyr Tydfil, Pontypridd and Aberdare and westbound services to Barry Island and Bridgend.

4.5.13 There is a journey time of c. 11 minutes for journeys to Cardiff Central and c.50 minutes to Bridgend. From Cardiff Central it is possible to access frequent services to numerous other destinations, including regional locations such as Bristol or Swansea.

4.5.14 As such, it is feasible and attractive to use rail services, particularly for travel to Cardiff City Centre and rail is likely to be attractive for leisure and retail journey purposes. A combined walk/cycle or mobility scooter and rail journey has excellent potential for replacing car journeys and further reducing the requirement for owning or travelling by car.

4.6 Summary

4.6.1 The site is situated in a highly sustainable location. Potential future residents can walk or cycle to a number and range of facilities and services within appropriate distances via good quality routes, reducing the need to own a car. Some residents can also be able to access these facilities using mobility scooters. In this regard, the site location is consistent with the sustainable transport policies in PPW12 (in particular paras 4.1.10 – 4.1.17).

4.6.2 The site also has excellent public transport links, which provide a suitable, attractive and realistic alternative to travelling by car. This will assist in constraining vehicle generation and reduce the need to travel by or own a car. It will also benefit and attract residents that would prefer to travel by public transport.

4.6.3 The site location will encourage and promote sustainable travel behaviour, be attractive to residents who do not own a car or have low car ownership and is fully in accordance with transport policies in TAN18, PPW12 and Future Wales.

5. DEVELOPMENT PROPOSALS

5.1 Overview

5.1.1 The proposals are for a senior living accommodation with associated car parking, cycle parking, and landscaping. This will consist of 77 apartments with associated communal uses. The 77 units will be delivered in the form of 47no. one-bedroom units and 30no. two-bedroom units. The proposals would also include 40 surface car parking spaces, ambulance / service bays, cycle parking and electric car charging facilities. The communal uses would consist of:

- Kitchen
- Residents lounge
- Residents Bistro
- Outdoor amenity space

5.1.2 In addition, a new boardwalk will be added to the southern boundary of the site which connects to the existing one towards the east.

5.1.3 The proposed site layout is provided in Appendix A.

5.2 Access and Layout

Vehicle Access

5.2.1 Vehicular access will be obtained from a new priority junction onto Empire Way. The priority junction is proposed to have radii of 6m on the west side and 4m on the east side and a carriageway width of 5.5m. The radii enables refuse vehicles to turn into and out of the site appropriately. Internally within the site the access road increases to between 6m and 6.5m adjacent to the on-site parking, allowing vehicles to enter and exit parking spaces within the site appropriately.

5.2.2 A footway is provided on the eastern side of the carriageway which connects to the existing provision on Empire Way, and this links to the internal provision within the site adjacent to the building. A crossing has also been incorporated at the access for the existing footway / cycleway on Empire Way, which is proposed as a shared space arrangement to the east of the junction (as occurs with the existing arrangements to the east of the toucan crossing), with the segregated route starting to the west of the junction.

5.2.3 Visibility of 2.4m x 25m has been provided from the junction, which is in accordance with the visibility requirements in TAN18 for 20mph speeds. Visibility is entirely within the adopted highway with sightlines available from a 2m height from the junction to a height of 0.6m at the nearside kerb.

5.2.4 The junction has a spacing of at least 25m from the roundabout to the west, which ensures the junction is appropriately situated to enable movements to be made safely and allows for forward visibility in excess of 25m for any vehicles turning right into the junction. It also allows suitable separation for vehicles turning right into the site to do so safely without resulting in a queue blocking back to the roundabout. This is also assisted by the provision of keep clear road markings at the access to stop vehicles queuing at the roundabout from blocking vehicles turning into the site.

5.2.5 The access design and visibility splays are shown in Appendix B. Swept path analysis showing vehicles entering and exiting the site access appropriately are provided within Appendix C.

5.2.6 The access arrangements would require some minor changes to the line markings on Empire Way in relation to the pedestrian crossing, as well as the relocation of a lighting column and control box for

the traffic signals. These will be discussed and agreed as part of the detailed design of the access during the technical approval stage (via a S278 agreement).

5.2.7 The internal layout will be fully restricted for parking with double yellow lines (if needed), so parking would only occur within the formal bays. This will be managed by the operator of the site, to ensure external vehicles do not park on the site access road during event days (i.e. ice hockey matches).

5.2.8 Within the site, the access road splits to the south and to the east, to route around the western and eastern sides of the building. The western route provides a turning area at its southern end which is suitable for an ambulance or delivery vehicle to turn appropriately. This western route also provides access to the ambulance and delivery layby.

5.2.9 The eastern route provides a turning head which can facilitate turning by a fire tender vehicle, if needed, but can accommodate large cars at all other times. Both access routes can accommodate two-way movements by large cars without conflict. To minimise the potential for conflict between internal vehicle movements, and ensure that vehicles do not block back to the highway when entering the site, an internal give-way arrangement has been shown which provides vehicles entering the site with priority over those leaving the eastern access arm.

5.2.10 The site has an existing access at its northeastern corner and retaining this was considered as part of the development. However, it was considered that this would result in more conflicts internally at the access, as the distance would be reduced between Empire Way and the internal junction. It would also be less suitable for refuse vehicles which would have to turn into the site and travel along the access road adjacent to the northern side of the building. It would also result in more service / delivery vehicles travelling along the access road adjacent to the northern side of the building, rather than using the direct route into the site along the western boundary.

5.2.11 The proposed access arrangements are considered suitable and safe, and in accordance with technical standards providing suitable visibility and geometry, as well as appropriate separation from the adjacent roundabout and toucan crossing. They would be appropriate for accommodating the low level of vehicle movements likely to be generated by the site and would not result in blocking back to the roundabout (as considered in Section 6).

Pedestrian access

5.2.12 A footway with a width of 1.8m is provided into the site from Empire Way, connecting to the existing pedestrian infrastructure routing along the site frontage on Empire Way. This links to the internal footways which connect to the building entrance and to the amenity space located on the east side of the site. The internal roads are designed to have low speeds and will have low flows which will ensure these are suitable for shared use by pedestrians and vehicles.

5.2.13 Separately, the proposals would provide a new footway route within the western part of the site which connects to the proposed boardwalk along the southern boundary. This provides improved permeability for pedestrians travelling through the site, including for existing pedestrians not associated with the site.

5.2.14 As such, the site would be well connected with the surrounding area and encourage walking movements for residents and for existing users.

5.3 Parking

Car Parking Provision

5.3.1 Maximum car parking standards are set out in Cardiff Council Supplementary Planning Guidance (SPG) *Managing Transportation Impacts (Incorporating Parking Standards)* as adopted in July 2018.

5.3.2 In accordance with the SPG in Figure 6.1, the site is situated within the Central Area.

5.3.3 For elderly person dwellings, considered to be the most comparable use type in the standards, the SPG states a maximum provision of one car parking space per unit in the central area. This would equate to a total of 77 spaces on the site.

5.3.4 A total of 40 car parking spaces are proposed which is within these maximum levels and therefore in line with the SPG maximum standards. The provision equates to a ratio of 0.52 spaces per unit, which is considered appropriate in this area and for this type of use.

5.3.5 The car ownership analysis in Section 2 demonstrates that a high proportion (75%) of households in the surrounding area own one or less cars. As such, it would be reasonable to assume that senior living accommodation residents would be likely to own one car or less. Residents would also be in an informed position prior to moving in and would be aware of the car parking provision and sustainable travel options available.

5.3.6 Given that residents would be aware of the parking restrictions prior to moving in, the proposed parking provision is considered appropriate and would not lead to overspill onto the surrounding highway network.

5.3.7 Based on the sustainable location of the site, senior living accommodation use, and to encourage sustainable travel in accordance with PPW12 and Cardiff Council policies, the residential parking provision is considered appropriate, within the maximum parking standards and would not have a material impact on parking stress.

5.3.8 The parking is also considered to be in accordance with the Welsh Government overarching planning policy *Future Wales: The National Plan 2040* which states on page 86 that *"Planning authorities should promote car-free and low car developments in accessible locations."*

5.3.9 The proposed parking provision, given the sustainable location, is fully in accordance with the aspirations and policies of the Welsh Government for encouraging active travel and public transport use. The provision provides a less car dominated environment, improving the quality of the scheme.

Car Parking Layout

5.3.10 The parking spaces are all perpendicular to the internal access roads within the site. All parking spaces within the site have dimensions of 2.5m x 5m and the access roads provide an aisle width of at least 6m adjacent to the spaces. This is in accordance with the geometric requirements in the Managing Transportation Impacts SPG.

5.3.11 Two disabled parking bays will also be provided at the southern end of the western access road. These spaces are in close proximity of the building entrance and these are provided with 1.2m hatching to the side and rear of the spaces.

5.3.12 Vehicles can manoeuvre into and out of all spaces appropriately, as shown within the swept path analysis in Appendix C.

Electric Vehicle Charging

5.3.13 The proposals are to provide 7 parking spaces with electric vehicle charging, which equates to approximately 18% of the overall parking provision. This demonstrates the operators commitment to encourage more sustainable modes of travel and is in accordance with the policies in Future Wales for increasing electric vehicle use (Policy 11 and 12).

Cycle Parking

5.3.14 The Managing Transportation Impacts SPG requires a minimum of one cycle parking space per 10 bedrooms (10%) for elderly person dwellings. Applying this to the 107 bedrooms across the site would equate to 11 spaces. The proposals would provide 11 spaces within a secure and covered cycle store location within close proximity to the western access road. The spaces use Sheffield stands with suitable spacing between these and manoeuvring space to enable cycles to be accessed appropriately. These are also accessed via a double door, with appropriate width to enable bikes to enter and exit safely.

5.3.15 As such, the provision is appropriate and in line with the Cardiff Council standards. This will assist in encouraging travel by sustainable modes, and reduce the demand for parking.

Mobility Scooter Parking

5.3.16 The site will provide 8no. mobility scooter parking bays internally within a mobility scooter store, with direct access to the external footway network.

5.4 Servicing and Emergency Access

5.4.1 Servicing would mainly relate to refuse collection which would be undertaken on the internal access road. The refuse store is located adjacent to the western access road and a refuse vehicle is able to turn using the entrance to the eastern access road, before reversing and parking adjacent to the ambulance and deliveries bay. This arrangement is considered appropriate as this would only occur once or twice per week and vehicles would be stopped for a short period.

5.4.2 Swept path analysis has been undertaken using a refuse vehicle of the dimensions shown within the Cardiff Council guidance on Waste Collection and Storage Facilities. This shows refuse vehicles are able to safely manoeuvre within the site to access the refuse store. A refuse vehicle would not be required to reverse more than 12m to access the bin store and the arrangements are therefore considered safe and suitable. The swept path analysis is provided in Appendix C and shows refuse vehicles turning appropriately and entering and exiting the site in forward gear.

5.4.3 MfS states Building Regulations on refuse collection distances in that waste collection vehicles should be able to get within 25 metres of the storage points. As collection can take place within 25m of the refuse store, the arrangements are in line with Building Regulations (and MfS) and considered safe and appropriate.

5.4.4 A fire tender will also be able to get within 45 metres of all buildings and units and turn within the site, on both the eastern and western arms, as needed. As such, the site would be able to accommodate fire appliances (and all other smaller service vehicles) appropriately, enabling access to all entrances and exits within 45m, in accordance with The Building Regulations 2010 ‘Approved Document B Volume 2 – Buildings other than dwellinghouses’ (Incorporating 2020 updates).

5.4.5 An ambulance can also access the two layby spaces and turn within the turning area on the western arm. This is shown in the swept paths in Appendix C. These bays will also be utilised for any deliveries

to the site by panel vans / box vans, with the use of the bays overseen by the site management team as needed.

5.4.6 As such, the layout is appropriate for access by all emergency vehicles.

6. TRIP GENERATION AND IMPACTS

6.1 Introduction

6.1.1 This section sets out the forecast trip generation of the proposed development.

6.1.2 Although the existing car park use would accommodate vehicle trips onto the network to and from the site, for robustness these have not been considered in the analysis, and therefore no offsetting has been applied against the proposed development trips.

6.1.3 As outlined in Section 2.3, the site also has a previous consent for a residential use, whereby movements have been accepted on the network in relation to this site for an approved scheme. These have been considered against the proposed development vehicle generation, for context, within this section.

6.2 Proposed Vehicle Trip Generation

6.2.1 The forecast of the proposed vehicle trip generation has been undertaken using the Trip Rate Information Computer System (TRICS). The TRICS database predicts the likely numbers of arrivals and departures by utilising surveys of existing sites. The database has been analysed for sites with similar characteristics in terms of use, scale, location and accessibility. Trip rates have been obtained and applied to forecast the vehicle trip generation for the proposed use.

6.2.2 The site has a proposed senior living accommodation use and as such the most appropriate comparable use within TRICS has been considered as a retirement flat. The TRICS category '02 – Residential/N – Retirement Flat' has therefore been selected to derive trip rates for the existing residential unit. The following parameters have been applied to the search criteria to obtain sites of a similar nature:

- Located in Wales and England (excluding London)
- Surveys from Monday to Friday
- Sites with between 40 and 120 units
- Edge of Town and Suburban Area locations
- Vehicle surveys carried out since 2010

6.2.3 The above search criteria resulted in the identification of four similar sites. The forecast vehicle trip rates per unit and trip generation for the proposed 77 unit senior living accommodation use are set out in Table 6-1. The full TRICS reports are included within Appendix D.

Table 6-1: Proposed Senior Living Accommodation Use – Vehicle Trip Generation

Time Period	Trip Rates (per unit)			Trip Generation (77 units)		
	Arrivals	Departures	Two-way	Arrivals	Departures	Two-way
AM Peak (08:00-09:00)	0.060	0.084	0.144	5	6	11
PM Peak (16:00-17:00)	0.080	0.060	0.140	6	5	11
PM Peak (17:00-18:00)	0.056	0.024	0.080	4	2	6
Daily	0.772	0.764	1.536	59	59	118

6.2.4 Based on the average trip rates for the four comparable sites, the proposed site use is forecast to generate 11 two-way vehicle trips in the AM and PM network peak hours. Over a daily period, the site is forecast to generate 118 two-way movements.

6.3 Impacts

6.3.1 The peak forecast generation equates to approximately one vehicle on the local highway network every five to six minutes, on average, during the busiest hour. This is a minimal level of vehicle movements and would not lead to queuing for right turning vehicles into the site or an impact on blocking back to the Olympian Drive roundabout.

6.3.2 The forecast level of trip generation is also substantially lower than the previously approved scheme which was estimated to generate 44-47 two-way vehicle movements during the peak hours. As such, the proposals would significantly reduce the generation from that previously accepted for the site.

6.3.3 In addition, the movements into and out of the access are likely to be lower than the existing movements to and from the car park use. Given there is no evidence of a safety issue with the existing arrangements, it is considered unlikely that there would be a safety issue relating to the proposed access arrangements, with a lower level of vehicle movements.

6.3.4 A Travel Plan has also been produced to encourage travel by sustainable travel for residents, employees and visitors, further minimising the impact of the scheme on the highway network.

6.3.5 Based on the minimal level of vehicle movements within the peak periods, as well as this significant reduction with the previous consent, the proposals would not have a material impact on the operation of the highway or an unacceptable impact on road safety. No mitigation is therefore considered to be required to safely accommodate the scheme.

7. SUMMARY AND CONCLUSIONS

7.1 Summary

7.1.1 This Transport Statement (TS) has been produced to support a planning application for a proposed senior living accommodation development at Empire Way, Cardiff, situated within situated within the larger Cardiff Bay peninsula masterplan.

7.1.2 The site is currently serving as a car park between the white-water rafting centre and the existing Cardiff Pointe development, which serves the uses within the surrounding area. This has an existing access onto Empire Way.

7.1.3 This report has been prepared to provide the necessary information for Cardiff Council to consider the merits of the proposals in terms of location, connectivity, highway safety, parking, access and the impact on the local highway network.

7.1.4 The proposals are for senior living accommodation with associated car parking, cycle parking, and landscaping consisting of 77 apartments with associated communal uses in a mix of one and two bedroom apartments. Access would be obtained from the northern boundary of the site via a new priority junction onto Empire Way, which has appropriate geometry, visibility, and separation from the adjacent roundabout.

7.1.5 The site is providing 40 car parking spaces which equates to a ratio of 0.52 spaces per unit, which is within the maximum parking standards. Movements to and from all spaces can be accommodated appropriately. Cycle parking is also provided in accordance with the standards, and the site will also have secure mobility scooter storage.

7.1.6 Servicing will be accommodated within the site, with refuse vehicles able to turn and access the bin storage location appropriately. Delivery and other servicing vehicles can utilise the on-site servicing bay, which will also accommodate ambulances. Fire tenders can access the site appropriately and in accordance with the relevant building regulations. All vehicles are able to enter and exit the site in forward gear, using the turning areas provided.

7.1.7 The site is situated in a sustainable location. Potential future residents can walk, cycle or use a mobility scooter to access a number and range of facilities and services within appropriate distances via good quality routes, reducing the need to travel by car.

7.1.8 The site also has excellent public transport links, which provide a suitable, attractive and realistic alternative to travelling by car. These will be further improved once the infrastructure is delivered in relation to the Cardiff Council Bus Priority Infrastructure Plan, delivering improvements to key routes serving the surrounding area. This will benefit and attract residents and staff that would prefer to travel by public transport.

7.1.9 Obtained road safety data does not indicate an existing safety issue which would be exacerbated by the proposals and no evidence of a safety issue on key pedestrian / cyclist routes surrounding the site.

7.1.10 Consent was granted in 2013 for a residential development of 79 units. As such, the site has a historic permission for a similar use to that now proposed on the site, with up to 47 hourly vehicle movements accepted on the network in relation to this use.

7.1.11 The peak forecast generation equates to approximately one vehicle on the local highway network every five to six minutes, on average, during the busiest hour. This is a minimal level of vehicle

movements and would not lead to queuing for right turning vehicles into the site or an impact on blocking back to the Olympian Drive roundabout.

7.1.12 The forecast level of trip generation is also substantially lower than the previously approved scheme, and there would be a lower level of vehicle movements turning into and out of the site in comparison to the existing car park use. The proposals would not have a material impact on the operation of the highway or an unacceptable impact on road safety.

7.1.13 A Travel Plan has also been produced to further encourage travel by sustainable travel for residents, employees and visitors.

7.2 Conclusions

7.2.1 The site location will encourage and promote sustainable travel behaviour. It is therefore fully in accordance with transport policies in Future Wales, PPW12, TAN18 and the Cardiff Council Managing Transportation Impacts SPG.

7.2.2 The development would not have an unacceptable impact on road safety and the proposed access arrangements would be safe and suitable.

7.2.3 The proposed parking provision is within the maximum standards and fully in accordance with the objectives for encouraging sustainable travel and reducing car use as set out in PPW12 and Future Wales.

7.2.4 The proposals would not have a material impact on the operation of the highway network and no mitigation is required.

7.2.5 The analysis presented within this TS allows the highway authority to provide a positive recommendation on the planning application.

Appendix A Proposed Site Layout

0 1 2 3 4 5m 10 15 20
Scale 1:200

NORTH

68 to 102

114

116 to 130

2

ESS

FRANCIS STREET

11

15

18

19

20

Sewage Ppg Sta

2.4m x 25m VISIBILITY

2.4m x 25m VISIBILITY

2.4m x 25m VISIBILITY

Utility Substation

Water Tank Room

AMENITY SPACE

Hardstanding for fire service appliance access

AMENITY SPACE

AMBULANCE & DELIVERIES

Turning Area No Parking

1 2 3 6 10 13 14 20 21 25 29 33 37 40

Cardiff International White Water / Dwr Gwyn Rhyngwladol Caerdydd

Rev.	Date	Detail
D	21.05.24	TREE PLANTING UPDATED
C	02.05.24	REDLINE BOUNDARY AMENDED
B	22.04.24	PROJECT TEAM W.I.P ISSUE
A	15.04.24	PROJECT TEAM W.I.P ISSUE

Status
STAGE 3 W.I.P ISSUE

ASCOT DESIGN
Timeless architecture

Ascot Design Ltd, Ashurst Manor, Ashurst Park, Ascot, Berkshire, SL5 7DD
Tel: 01344 299330 Fax: 01344 299331 Email: info@ascotdesign.com
www.ascotdesign.com

Client
Orion Land and Leisure Ltd

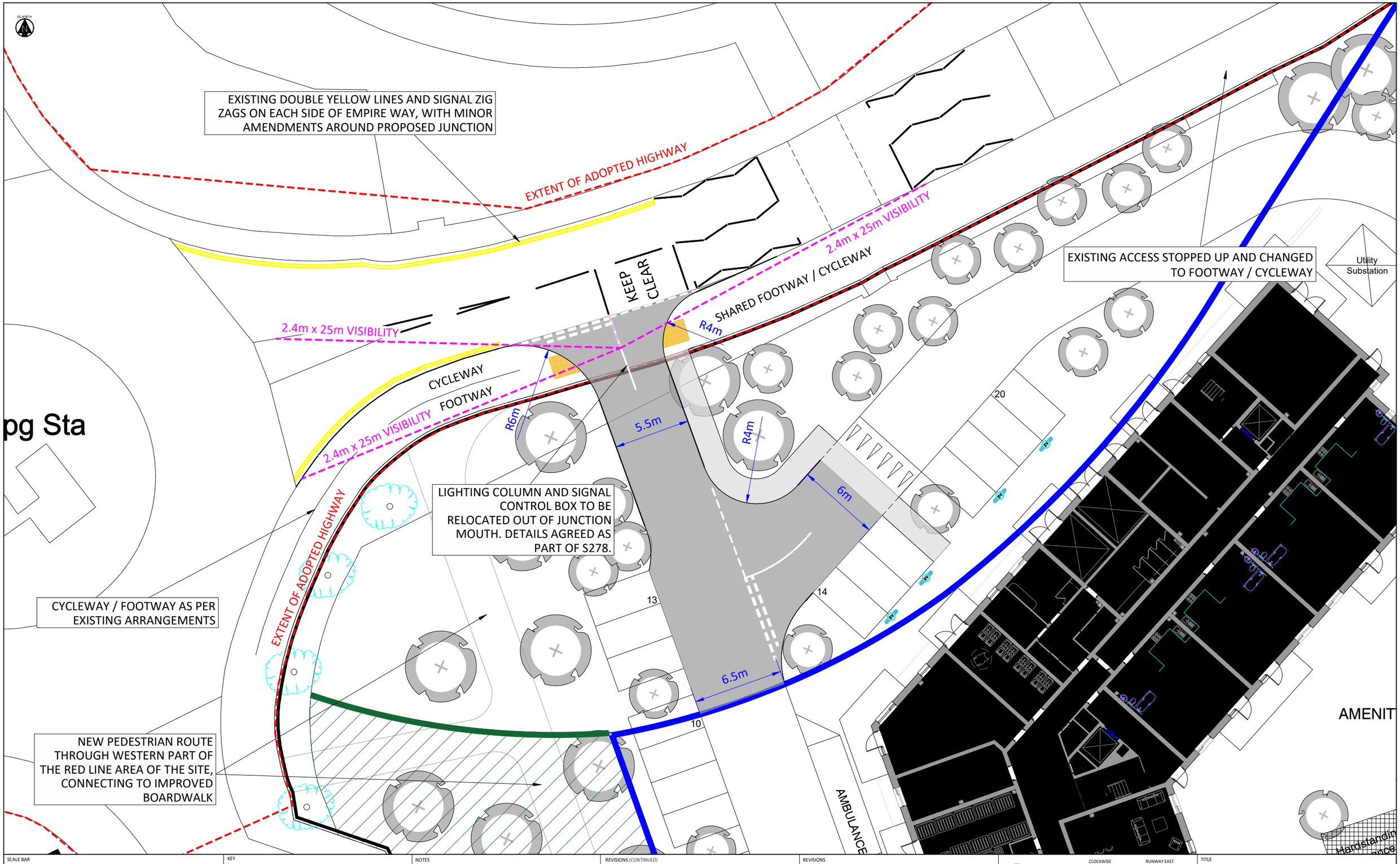
Project Title
CARDIFF PENINSULA - PLOT 1

DRAWING Title
GROUND FLOOR PLAN
SITE LAYOUT

Scale	Rev.	Date	Drawn
1:200 @ A0	D	FEB '24	CT

DRAWING No.
CPM-ASC-10-0000-DR-A-PL-0002

Appendix B Proposed Access Arrangements



SCALE BAR

0m 5m 10m

SCALE BAR (1:250)

KEY

NOTES

1. General arrangement drawing suitable for planning purposes only. This drawing is not suitable for construction.
2. The content of this drawing is subject to detailed design considerations such as ground conditions, utilities, drainage and signage.
3. Drawing is based on OS mapping data. Ordnance Survey, (c) Crown Copyright 2024. All rights reserved. Licence number 100022432
4. Extent of adopted highway has been based on online mapping at Cardiff Council.
5. Please do not scale from this drawing.

REVISIONS *(CONTINUED)*

REVISIONS

Rev	Date	Description	By	App
P03	29/05/24	Third Issue	DC	DC
P02	06/05/24	Second Issue	DC	DC
P01	20/02/24	First Issue	DC	DC

Apex TRANSPORT PLANNING

CLOCKWISE
BRUNEL HOUSE
CARDIFF
CF24 0HA
t: 02920 619 361
e: cardiff@apextp.co.uk

RUNWAY EAST
101 VICTORIA STREET
BRISTOL
BS1 6PU
t: 0117 427 0414
e: bristol@apextp.co.uk

CLIENT
ORION LAND AND LEISURE LTD

PROJECT
CARDIFF PENINSULA - PLOT 1

TITLE
GENERAL ARRANGEMENT OF PROPOSED SITE ACCESS

PROJECT NO.
C23-135

SCALE @ A3
1:250

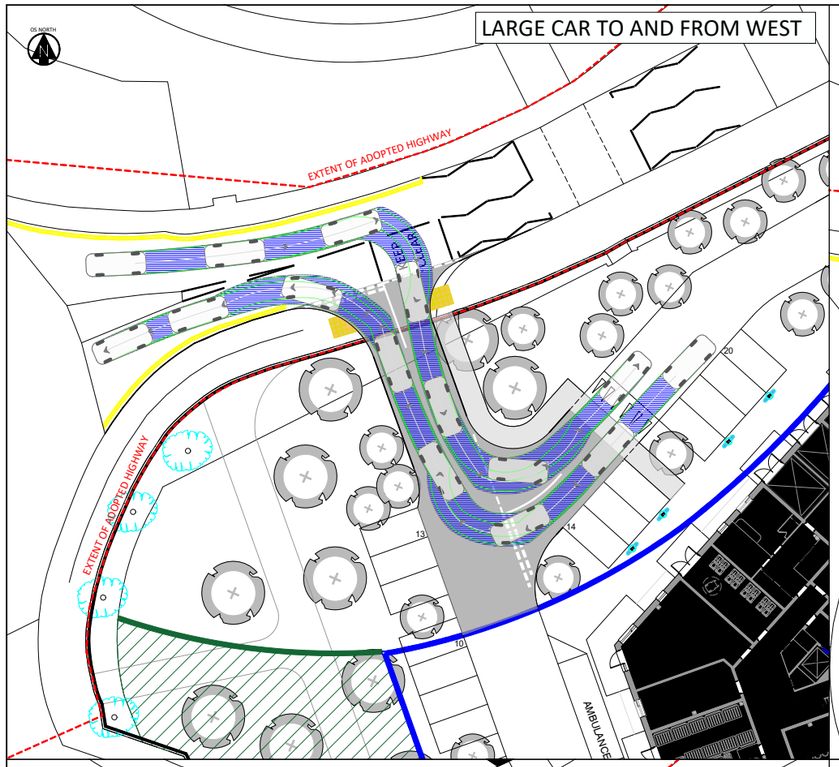
STATUS DESCRIPTION
INFORMATION

STATUS
S2

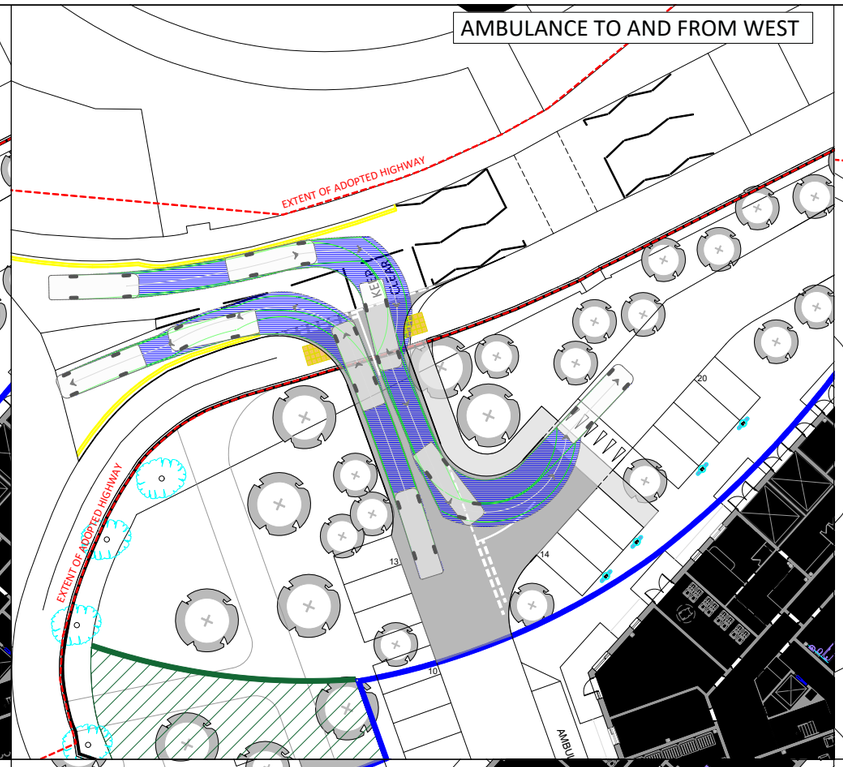
DRAWING NO.
C23135-ATP-DR-TP-203

Appendix C Swept Path Analysis

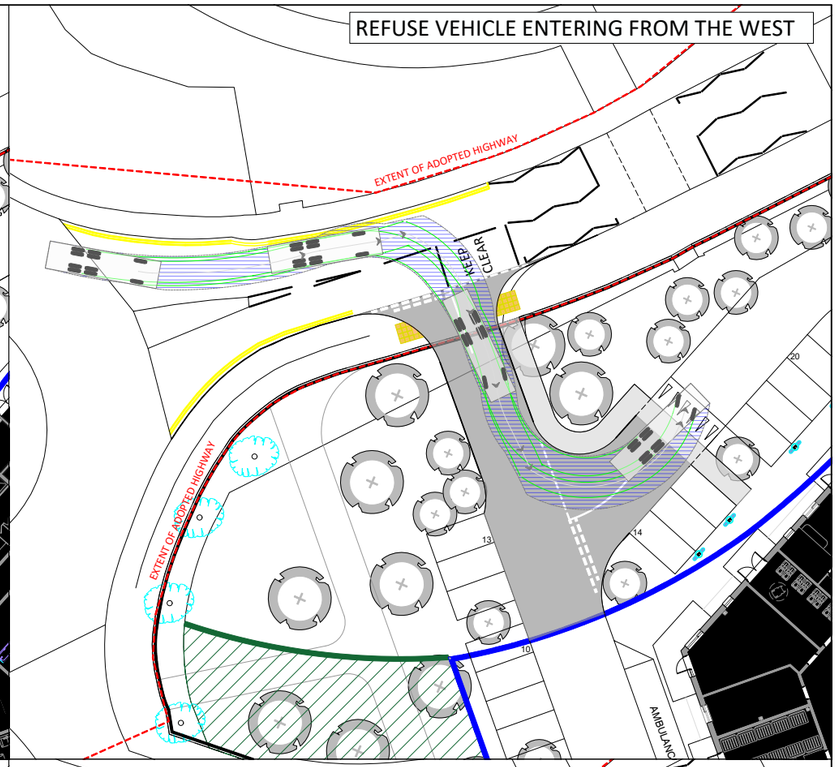
LARGE CAR TO AND FROM WEST



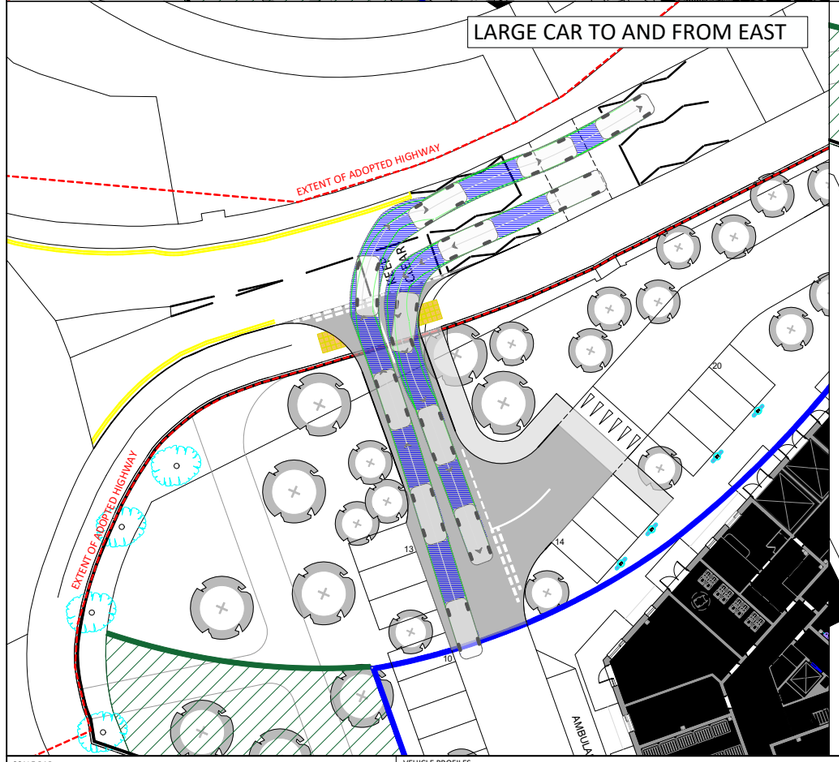
AMBULANCE TO AND FROM WEST



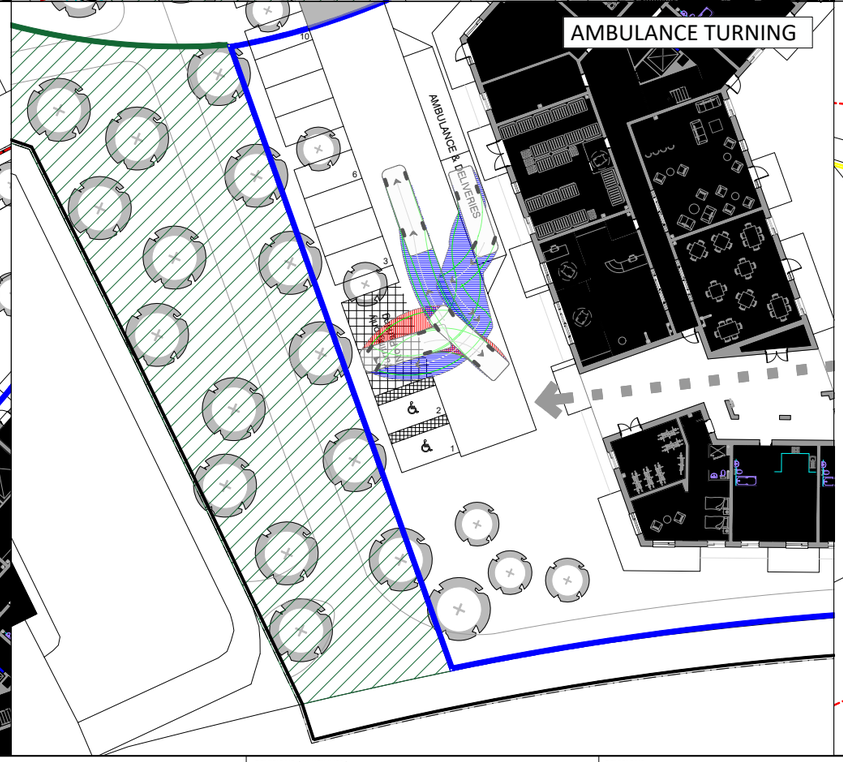
REFUSE VEHICLE ENTERING FROM THE WEST



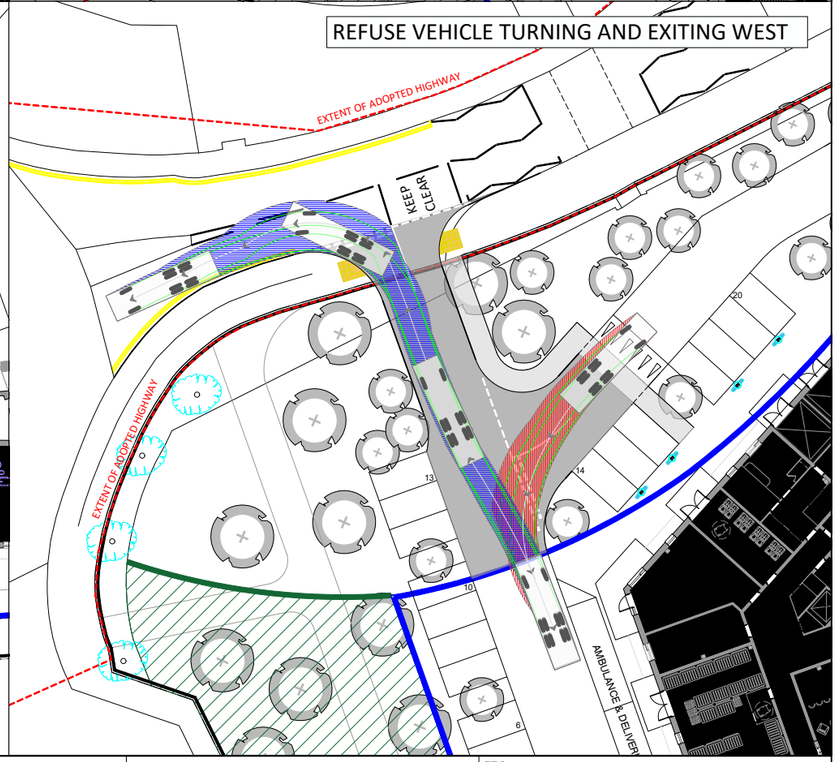
LARGE CAR TO AND FROM EAST



AMBULANCE TURNING



REFUSE VEHICLE TURNING AND EXITING WEST



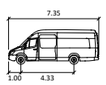
SCALE BAR

SCALE BAR (1:500)

VEHICLE PROFILES

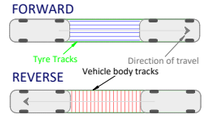
LARGE CAR: 2010 BMW 5-Series

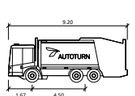
	metres
Width	: 1.86
Track	: 1.85
Lock to Lock Time	: 6.0
Steering Angle	: 36.9



AMBULANCE: Mercedes Sprinter

	meters
Width	: 1.99
Track	: 1.95
Lock to Lock Time	: 6.0
Steering Angle	: 41.0





REFUSE: Cardiff Spec Vehicle

	metres
Width	: 2.25
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 32.9

REVISIONS *(CONTINUED)*

REVISIONS

Rev	Date	Description	By	App
P03	29/05/24	Third Issue	DC	DC
P02	21/02/24	Second Issue	DC	DC
P01	20/02/24	First Issue	DC	DC

Apex TRANSPORT PLANNING

CLOCKWISE
BRUNEL HOUSE
CARDIFF
CF24 0HA
t: 02920 619 361
e: cardiff@apextp.co.uk

RUNWAY EAST
101 VICTORIA STREET
BRISTOL
BS1 6PU
t: 0117 427 0414
e: bristol@apextp.co.uk

CLIENT
ORION LAND AND LEISURE LTD

PROJECT
CARDIFF PENINSULA - PLOT 1

TITLE
SWEPT PATH ANALYSIS

PROJECT NO.
C23-135

SCALE @ A3
1:500

STATUS DESCRIPTION
INFORMATION

STATUS
S2

DRAWING NO.
C23135-ATP-DR-TP-204

SCALE BAR

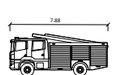
0m 10m 20m

SCALE BAR (1:500)

VEHICLE PROFILES

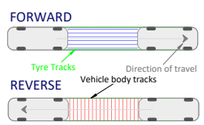
LARGE CAR: 2010 BMW 5-Series

	metres
Width	: 1.86
Track	: 1.85
Lock to Lock Time	: 6.0
Steering Angle	: 36.9



FIRE TENDER: Scania One

	metres
Width	: 2.45
Track	: 2.45
Lock to Lock Time	: 6.0
Steering Angle	: 33.7



REVISIONS *(CONTINUED)*

REVISIONS

Rev	Date	Description	By	App
P04	29/05/24	Fourth Issue	DC	DC
P03	06/05/24	Third Issue	DC	DC
P02	21/02/24	Second Issue	DC	DC
P01	20/02/24	First Issue	DC	DC

Apex TRANSPORT PLANNING
CLOCKWISE, BRUNEL HOUSE, CARDIFF, CF24 0HA
t: 02920 619 361 e: cardiff@apextp.co.uk
RUNWAY EAST, 101 VICTORIA STREET, BRISTOL, BS1 6PU
t: 0117 427 0414 e: bristol@apextp.co.uk

CLIENT
ORION LAND AND LEISURE LTD

PROJECT
CARDIFF PENINSULA - PLOT 1

TITLE
SWEPT PATH ANALYSIS - INTERNAL LAYOUT

PROJECT NO. C23-135

SCALE @ A3 1:500

STATUS DESCRIPTION INFORMATION

STATUS S2

DRAWING NO. C23135-ATP-DR-TP-205

Appendix D TRICS Outputs – Proposed Use

Apex Transport Planning Ltd 11-13 Penhill Road Cardiff Licence No: 502501

Filtering Summary

Land Use	03/N	RESIDENTIAL/RETIREMENT FLATS
Selected Trip Rate Calculation Parameter Range	40-120 DWELLS	
Actual Trip Rate Calculation Parameter Range	40-88 DWELLS	
Date Range	Minimum: 01/01/10	Maximum: 20/06/23
Parking Spaces Range	All Surveys Included	
Parking Spaces Per Dwelling Range:	All Surveys Included	
Bedrooms Per Dwelling Range:	All Surveys Included	
Percentage of dwellings privately owned:	All Surveys Included	
Days of the week selected	Monday	1
	Tuesday	2
	Thursday	1
Main Location Types selected	Suburban Area (PPS6 Out of Centre)	3
	Edge of Town	1
Inclusion of Servicing Vehicles Counts	Servicing vehicles Included	2 - Selected
	Servicing vehicles Excluded	2 - Selected
Population within 500m	All Surveys Included	
Population <1 Mile ranges selected	1,001 to 5,000	1
	15,001 to 20,000	1
	20,001 to 25,000	2
Population <5 Mile ranges selected	25,001 to 50,000	1
	50,001 to 75,000	1
	75,001 to 100,000	1
	125,001 to 250,000	1
Car Ownership <5 Mile ranges selected	0.6 to 1.0	1
	1.1 to 1.5	3
PTAL Rating	No PTAL Present	4

Calculation Reference: AUDIT-502501-240506-0534

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : N - RETIREMENT FLATS
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	IW	ISLE OF WIGHT	1 days
	KC	KENT	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
10	WALES		
	VG	VALE OF GLAMORGAN	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: No of Dwellings
Actual Range: 40 to 88 (units:)
Range Selected by User: 40 to 120 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 20/06/23

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	2 days
Thursday	1 days

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

Selected survey types:

Manual count	4 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 undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	3
Edge 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:

Residential Zone	4

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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	2 days - Selected
Servicing vehicles Excluded	2 days - Selected

Secondary Filtering selection:

Use Class:

C3	4 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
15,001 to 20,000	1 days
20,001 to 25,000	2 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	1 days
75,001 to 100,000	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	3 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	4 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	4 days

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

LIST OF SITES relevant to selection parameters

1 IW-03-N-01 RETIREMENT FLATS ISLE OF WIGHT
CHURCH ROAD
BEMBRIDGE

Edge of Town
Residential Zone
Total No of Dwellings: 40
Survey date: THURSDAY *27/06/19* *Survey Type: MANUAL*

2 KC-03-N-08 RETIREMENT FLATS KENT
CANTERBURY ROAD
HERNE BAY
EDDINGTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 88
Survey date: TUESDAY *26/09/17* *Survey Type: MANUAL*

3 SH-03-N-02 RETIREMENT FLATS SHROPSHIRE
ABBEY FOREGATE
SHREWSBURY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 76
Survey date: TUESDAY *20/06/23* *Survey Type: MANUAL*

4 VG-03-N-01 RETIREMENT FLATS VALE OF GLAMORGAN
BRADFORD PLACE
PENARTH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 46
Survey date: MONDAY *16/07/12* *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 03 - RESIDENTIAL/N - RETIREMENT FLATS
TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	63	0.008	4	63	0.024	4	63	0.032
08:00 - 09:00	4	63	0.060	4	63	0.084	4	63	0.144
09:00 - 10:00	4	63	0.068	4	63	0.084	4	63	0.152
10:00 - 11:00	4	63	0.088	4	63	0.120	4	63	0.208
11:00 - 12:00	4	63	0.096	4	63	0.076	4	63	0.172
12:00 - 13:00	4	63	0.064	4	63	0.052	4	63	0.116
13:00 - 14:00	4	63	0.052	4	63	0.048	4	63	0.100
14:00 - 15:00	4	63	0.100	4	63	0.108	4	63	0.208
15:00 - 16:00	4	63	0.072	4	63	0.060	4	63	0.132
16:00 - 17:00	4	63	0.080	4	63	0.060	4	63	0.140
17:00 - 18:00	4	63	0.056	4	63	0.024	4	63	0.080
18:00 - 19:00	4	63	0.028	4	63	0.024	4	63	0.052
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.772			0.764			1.536

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.*

Parameter summary

Trip rate parameter range selected:	40 - 88 (units:)
Survey date date range:	01/01/10 - 20/06/23
Number of weekdays (Monday-Friday):	4
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.

TRIP RATE for Land Use 03 - RESIDENTIAL/N - RETIREMENT FLATS
TAXIS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	63	0.000	4	63	0.000	4	63	0.000
08:00 - 09:00	4	63	0.004	4	63	0.004	4	63	0.008
09:00 - 10:00	4	63	0.004	4	63	0.004	4	63	0.008
10:00 - 11:00	4	63	0.004	4	63	0.004	4	63	0.008
11:00 - 12:00	4	63	0.008	4	63	0.008	4	63	0.016
12:00 - 13:00	4	63	0.000	4	63	0.000	4	63	0.000
13:00 - 14:00	4	63	0.000	4	63	0.000	4	63	0.000
14:00 - 15:00	4	63	0.004	4	63	0.004	4	63	0.008
15:00 - 16:00	4	63	0.000	4	63	0.000	4	63	0.000
16:00 - 17:00	4	63	0.008	4	63	0.008	4	63	0.016
17:00 - 18:00	4	63	0.004	4	63	0.004	4	63	0.008
18:00 - 19:00	4	63	0.000	4	63	0.000	4	63	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.036			0.036			0.072

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/N - RETIREMENT FLATS
OGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	63	0.000	4	63	0.000	4	63	0.000
08:00 - 09:00	4	63	0.000	4	63	0.000	4	63	0.000
09:00 - 10:00	4	63	0.000	4	63	0.000	4	63	0.000
10:00 - 11:00	4	63	0.004	4	63	0.004	4	63	0.008
11:00 - 12:00	4	63	0.000	4	63	0.000	4	63	0.000
12:00 - 13:00	4	63	0.000	4	63	0.000	4	63	0.000
13:00 - 14:00	4	63	0.000	4	63	0.000	4	63	0.000
14:00 - 15:00	4	63	0.000	4	63	0.000	4	63	0.000
15:00 - 16:00	4	63	0.000	4	63	0.000	4	63	0.000
16:00 - 17:00	4	63	0.000	4	63	0.000	4	63	0.000
17:00 - 18:00	4	63	0.000	4	63	0.000	4	63	0.000
18:00 - 19:00	4	63	0.000	4	63	0.000	4	63	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.004			0.004			0.008

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/N - RETIREMENT FLATS
CYCLISTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	63	0.004	4	63	0.000	4	63	0.004
08:00 - 09:00	4	63	0.000	4	63	0.004	4	63	0.004
09:00 - 10:00	4	63	0.000	4	63	0.004	4	63	0.004
10:00 - 11:00	4	63	0.004	4	63	0.000	4	63	0.004
11:00 - 12:00	4	63	0.000	4	63	0.004	4	63	0.004
12:00 - 13:00	4	63	0.004	4	63	0.000	4	63	0.004
13:00 - 14:00	4	63	0.000	4	63	0.000	4	63	0.000
14:00 - 15:00	4	63	0.000	4	63	0.000	4	63	0.000
15:00 - 16:00	4	63	0.000	4	63	0.000	4	63	0.000
16:00 - 17:00	4	63	0.000	4	63	0.000	4	63	0.000
17:00 - 18:00	4	63	0.000	4	63	0.000	4	63	0.000
18:00 - 19:00	4	63	0.000	4	63	0.000	4	63	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.012			0.012			0.024

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.*