



Swansea Bay Technology Centre

Transport Assessment

For Morgan Sindall

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1. INTRODUCTION

1.1 Overview

- 1.1.1 Hydrock Consultants Ltd has prepared this Transport Assessment (TA) and a Travel Plan (TP) on behalf of Morgan Sindall in support of a planning application for a proposed development of a new office building at Baglan Energy Park, Port Talbot.
- 1.1.2 The planning application seeks permission for the redevelopment of the site which will involve a new building to the west of the existing Technium to accommodate a new building comprising of approximately 2,634.4m² of office space.
- 1.1.3 This TA provides an assessment which sets out details of the proposed internal layout, parking and access arrangements and reviews the transport impacts of the proposed development. It serves to demonstrate that the above development is acceptable in terms of transportation, highway safety and access, and that it is compliant with relevant national and local planning policies.

1.2 Scope of Transport Assessment

- 1.2.1 A Transport Assessment (TA) Scoping Report was submitted to NPTC on XX. Correspondence emails in response to the Scoping Report are attached as Appendix A.
- 1.2.2 This TA has been set out following the structure of the transport scoping report and has been compiled to reflect guidance set out in the National Planning Practice Guidance 'Travel Plans, transport assessments and statements in decision-taking' (2014), supplementary planning guidance adopted by the LHA and based on our previous experience of other similar sites. The TA also includes reference to the Active Travel Act (Wales) with regards to walking and cycling movements.
- 1.2.3 The TA includes the following:
- Description of the location of the site;
 - A review of the existing conditions of the surrounding local highway network including access and highway safety;
 - A review of walking and cycling routes in accordance with the Active Travel Act and a review of public transport provision and the proximity of the site to public transport networks;
 - Description of the development proposals including access, site layout, pedestrian and cycle accessibility and servicing arrangements;
 - Review of the vehicle trip generation and distribution, and the impact on the local roads; and
 - Summary and conclusions.

2. EXISTING CONDITIONS

2.1 Site Location and Use

- 2.1.1 The site is located in on the northern edge of Baglan Bay in Baglan, Port Talbot, approximately 1.4km north-west of Baglan Train Station. Pedestrian access to the site is currently possible via Central Avenue, with direct vehicular access to the site enabled via a gated access to the south-east bound of the site which serves a car park.
- 2.1.2 The site lies adjacent to the M4 to the east and is largely surrounded by businesses to the south and west across Central Avenue. The site is also bounded by rail lines to the north.
- 2.1.3 To the east the existing proposal is bound by the existing Baglan Bay Innovation Centre. The TRICS database will be used to estimate the potential trip attraction characteristics of the site with the proposed new development.
- 2.1.4 The location of the site in its context is shown in Figure 2-1.

Figure 2-1: Site Location Plan



2.2 Site allocation

- 2.2.1 The proposed development lies within Port Talbot Waterfront Enterprise Zone (2016) which the Baglan Energy Park Development Framework (2016) is concerned with. This Supplementary Planning Guidance (SPG) and the adopted NPTCBC Local Development Plan (2011) incorporate aspirations for Baglan Bay to promote the "knowledge-economy", which this proposed development would support. Additionally, the SPG locates the site within Zone 1 which "is considered to be an appropriate location for high value business development and knowledge and innovation-based industries", reiterating the adequacy of the proposal.

2.3 Existing Parking Conditions

- 2.3.1 The current Baglan Bay Innovation Centre car parking provision is of 127 on-site car parking spaces (including 6 blue badge spaces) which the proposal plans to accommodate the trips to the proposed building.

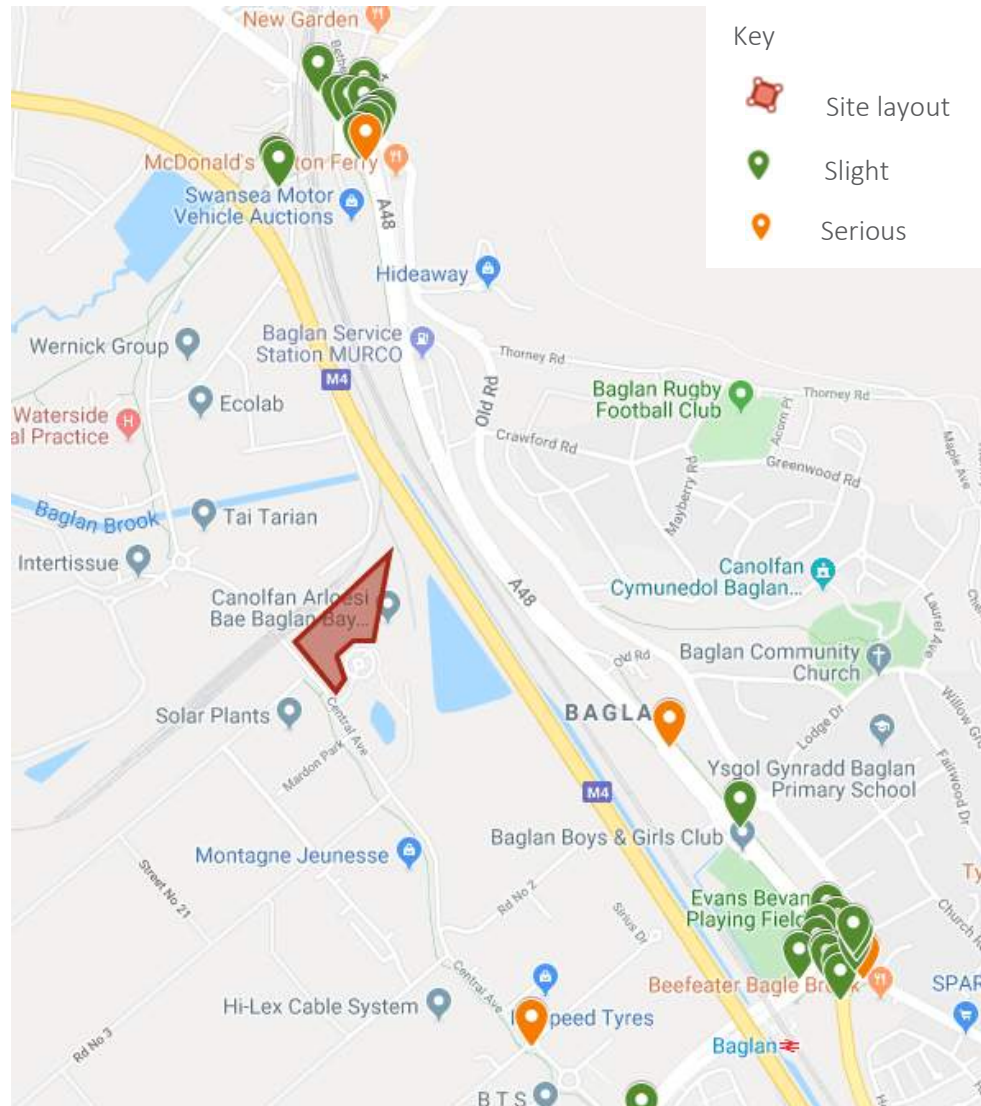
2.4 Local Highway Network

- 2.4.1 Central Avenue is a two-way single carriageway that lies directly west of the site. The road is subject to a 30mph speed limit and provides the singular point of vehicular access into the site. Footways and street lighting are provided on both sides for the majority of Central Avenue; within the vicinity of the site, the footway on the eastern side terminates approximately 10m north of the site access. There is a pedestrian refuge present with tactile paving and dropped kerbs accommodating crossing movements to and from the western footway. To the south of the access, footways are provided on both sides.
- 2.4.2 Central Avenue connects to Brunel Way/ Central Avenue roundabout junction at its northern extent which provides access to office buildings, and Sirius Drive/ Central Avenue roundabout at its southern extent which routes to the A4241 roundabout junction.
- 2.4.3 The A4241 northbound connects to A48 roundabout junction in which the southern arm of the junction provides a southbound on slip and northbound off slip to the M4. To the south, the A4241/ A48 roundabout junction provides a northbound on slip and a southbound off slip to the M4.
- 2.4.4 The M4 is a motorway that provides a strategic route through south Wales and routes to London. The M4 is extremely accessible from the site connecting the site to areas such as Swansea and Cardiff.

2.5 Highway Safety

- 2.5.1 Personal Injury Accident (PIA) data has been obtained from recorded road safety data published annually by the Department for Transport (DfT). The statistics provide recorded PIA data reported in each local authority recorded using the STATS19 accident reporting form.
- 2.5.2 The most recent five-year dataset covers between January 1st 2014 and 31st December 2018. Figure 2-2 contains a plot of the accidents within the study area over the recorded five-year period (between 2014 and 2018).

Figure 2-2: 5-year PIAs within the study



- 2.5.3 The collision classification has been categorised into three types; Slight, Serious and Fatal. Within the study area across the five years covered by the data, a total of 34 PIA's were recorded, the majority of which occurred on the junctions and approaches on the A48.
- 2.5.4 Of the 34 PIAs, 5 were classified as serious in nature. The remaining 29 were all classified as slight.
- 2.5.5 The five accidents recorded as serious are summarised as follows:
- Sirius Drive/ Central Avenue Roundabout - vehicle moving off from junction collides with vehicle proceeding normally around roundabout
 - A4241/ A48 Roundabout - vehicle collided with pedestrian in carriageway
 - A4241/ A48 Roundabout - vehicle changing lane to the right and vehicle changing lane to the left collided in the process
 - A48 Southbound on slip - collisions involved 6 vehicles; vehicle was waiting to proceed which was then held up and resulted in the collisions. Vehicles collided with the rear of the vehicles in front.

- Brunel Way/ A48 Roundabout - motorcyclist lost control when attempting to slow down

2.5.6 There were two locations where clusters of four or more PIAs occurred, and these locations have been reviewed in more detail as follows.

A4241/ A48 Roundabout (north of site)

2.5.7 A total of 12 PIAs occurred at this roundabout, 11 of which were classified as slight in nature. The majority of these accidents were a result of drivers pulling off at the roundabout junction and colliding with a vehicle proceeding around the roundabout.

A4241/ A48 Roundabout (south of site)

2.5.8 A total of 15 PIAs occurred at this roundabout, 13 of which were slight in nature. The majority of these accidents were a result of vehicles changing lanes on the roundabout resulting in collisions.

Summary

2.5.9 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.

3. SITE ACCESSIBILITY

3.1 Overall Site Accessibility

- 3.1.1 The importance of the location of the site in relation to encouraging sustainable travel is set out within TAN18 Transport (March 2007). Paragraph 3.8 states “Locations that are highly accessible by a variety of travel modes offer significant opportunities to make travel patterns more sustainable.” As such it is recognised by TAN18 that the sustainable location of a site can assist in facilitating sustainable travel habits.
- 3.1.2 This chapter sets out the connectivity of the site to the surrounding area by sustainable modes of travel and demonstrates its proximity to public transport, services and residential areas. The site location is considered consistent with the aims of TAN18.
- 3.1.3 This section sets out details of the sustainable connectivity of the site in the context of the local and national guidance.

3.2 Walking and Cycling Introduction

- 3.2.1 The importance of walking and cycling in contributing towards sustainable travel patterns is detailed in TAN18. 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. Paragraph 6.2 of TAN18 states that Local Authorities should promote walking as the main mode of transport for shorter trips.
- 3.2.2 This section of the TA sets out both the walking and cycling infrastructure and key routes to and from the site to key facilities/services and residential areas in the locality. The routes to the surrounding facilities and services have been considered in the context of the Welsh Government Active Travel Act Design Guidance (ATADG) (2013).

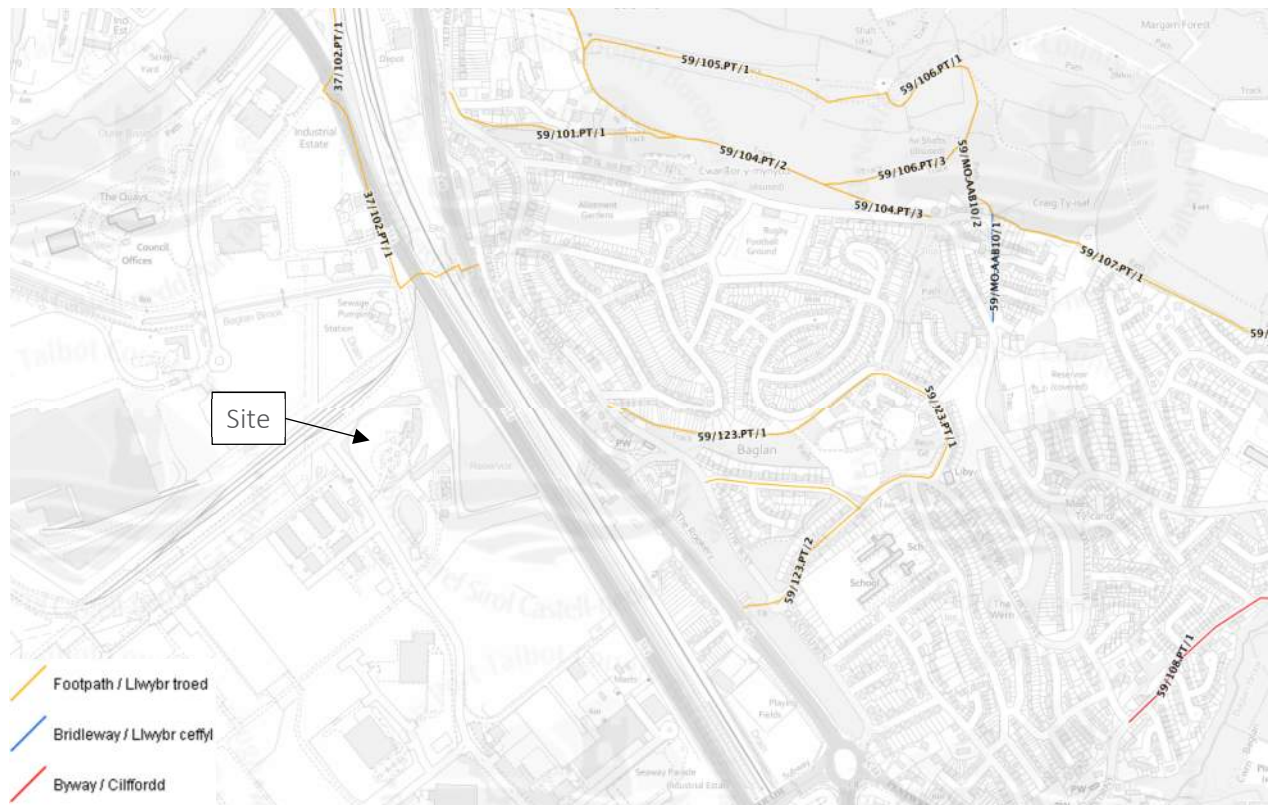
3.3 Walking and Cycling Infrastructure and Routes

- 3.3.1 The site benefits from good links to the surrounding area via existing pedestrian infrastructure as would be expected for a site adjacent to the existing Technium building.
- 3.3.2 The routes to key facilities are mainly flat and well-lit and benefit from good quality footways. There are numerous crossing opportunities, the majority in the form of a pedestrian refuge island which are located at the roundabout junctions to the south of the site. Routing south from the site provides access to bus stops, Baglan train station, and the residential areas in Port Talbot.
- 3.3.3 The site, located on the eastern side of Central Avenue, connects to a footway of approximately 2m wide. On the western side of the carriageway a shared footway/ cycleway is present; this is present along Central Avenue up until the A4241 roundabout junction where it continues along Village Road running adjacent to the A4241. At the A4241/ Southdown Road roundabout junction, the shared cycleway connects to the A4241 providing a safe off-road route into the centre of Port Talbot and providing access to the residential areas.
- 3.3.4 The footway on the eastern side of Central Avenue connects to the footway along the A4241 northbound. A footway is present on both sides of the A4241; the footway on the southern side of the carriageway can be accessed via a pedestrian refuge island with tactile paving and dropped kerbs. This crossing point is located on the A4241 northern arm of the roundabout. The footways along the A4241 accommodate pedestrian movement into the large village of Baglan. A footbridge is present over the

A48 northbound connecting Baglan to the footway on the northern side of the A4241. In addition, there is a footbridge over the M4 on/off slip which provides safe pedestrian crossing and provides access into Baglan via Sunny Mount road from the footway on the southern side of the A4241.

- 3.3.5 The site is located within close proximity to the Public Right of Way (PRoW) network, shown in Figure 3-1.

Figure 3-1: PRowS within Close Proximity to Site



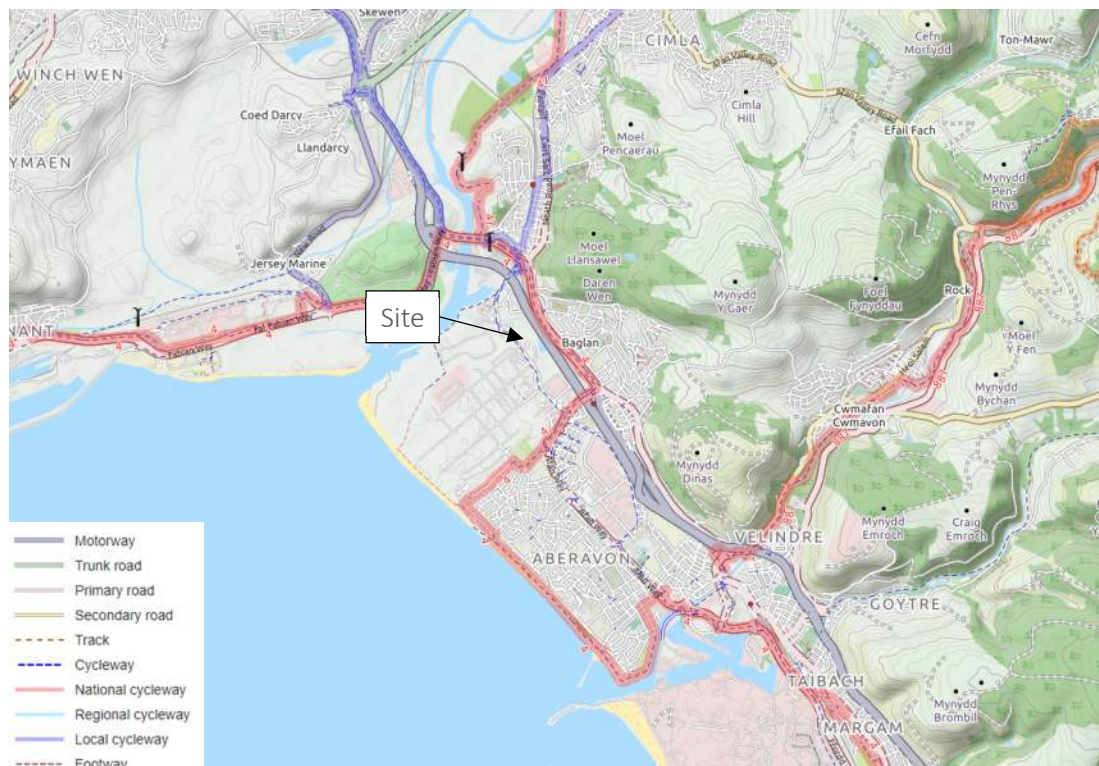
Neath Port Talbot Council Map

- 3.3.6 The PROWs shown in Figure 3-1 are located within Baglan. These PROWs can be accessed by suitable walking routes from the site via the footways along Central Avenue and the A4241.
- 3.3.7 The National Cycle Network (NCN) Routes are shown in Figure 3-2 and Figure 3-3.

Figure 3-2: NCN Routes



Figure 3-3: NCN Routes within Close Proximity to Site



3.3.8 NCN Route 4 is within close proximity to the site. This route can be accessed via the existing cycleway along Central Avenue which connects to the route at the A4241 roundabout. The route continues north

west towards Swansea via a mainly off-road route. To the south, route 4 connects the site to the centre of Port Talbot.

- 3.3.9 NCN Route 4 can be described as a long-distance route between London and Fishguard via areas including Swansea and Carmarthen.

3.4 Walking and Cycling Distances

- 3.4.1 There are a number of publications which suggest guidance for appropriate walking and cycling distances to facilities. For reference, these have been summarised as follows.

- Welsh Government - Active Travel (Wales) Act 2013: Within the Active Travel Act Design Guidance (ATADG) it is stated within paragraph 4.1.4 that “walking as a mode of travel predominates for journeys of less than two miles whilst cycling is more convenient for longer journeys, typically of up to five miles for regular journeys”. This equates to walking distances of up to 3.2km and cycling distances of up to 8km.
- DfT - TA91/05 Provision for Non-Motorised Users - Paragraph 2.2 states that 2 miles is ‘a distance that could easily be walked by the majority of people’. Paragraph 2.3 also continues by stating that ‘Walking is used to access a wide variety of destinations including educational facilities, shops, and places of work, normally within a range of up to 2 miles’ (3.2km). This is consistent with the Welsh Government ATADG guidance.
- Department for Transport (DfT) – Manual for Streets (2007): The ATADG references MfS guidance. MfS states that ‘walkable neighbourhoods’ are typically characterised by having a range of facilities within 10 minutes walking distance (c. 800 metres).
- 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’.
- DfT - Local Transport Note (LTN) 2/08: Further guidance set out in LTN2/08, suggests that the average distance that cyclists will generally travel is approximately 5km (16 minutes based on a cycling speed of 19.2km/h as set out in LTN2/08).

- 3.4.2 As such, it is considered that suitable walking distances could be up to 3.2km. This equates to around a 40-minute walk travelling at 3mph (4.8kph). In addition, a site with a variety of facilities within 800 metres is considered to be situated within a ‘walkable neighbourhood’.

- 3.4.3 It has been assumed that journeys of up to 8km are within an acceptable cycling distance. A cycling journey of 8km would equate to approximately a 25-minute trip.

- 3.4.4 Facilities which are within the vicinity of the site and the acceptable walking and cycling distances accessed via established routes, have been summarised in Table 3-1.

Table 3-1: Proximity of the site to local facilities and amenities

Facility/ Amenity	Walking and Cycling Distance (metres)	Average Travel Time (minutes)	
		Walking	Cycling
Public Transport			
Central Avenue (bus)	234	3	<1
Briton Ferry Health Centre (bus)	580	8	2
Railway Station (bus)	1200	16	4
Roundabout & Neath (bus and coach - on Swan Road A48 roundabout with Brunel Way and A474)	1340	17	4
Baglan Rail Station	1400	18	4
Commercial			
Spar Baglan	1850	24	6
Education			
Miles of Smiles Day Nursery	1800	23	6
Baglan Education & Training Centre	1940	25	6
Ysgol Gynradd Baglan Primary School	1980	26	6
Leisure/ Religious			
Saint Catherine's Church	1930	25	6
Baglan Community Church	2100	28	7
Residential			
Baglan	2414	30	8
Baglan Moor	2735	34	9
Sandfields	3700	46	12
Aberavon	3700	46	12

* Based on walking speeds of 80 metres per minute and Cycling Speeds of 320 metres per minute

3.4.5 Table 3-1 demonstrates that there are a number of services and residential areas within acceptable walking and cycling distance of the proposed site such as bus stops, Baglan train station, a convenience store, and residential areas to the east and south.

3.4.6 All facilities/ services and majority of residential areas in Table 3-1 are within the ATADG upper walking distance threshold and can be accessed via suitable walking routes in accordance with the ATADG.

3.5 Accessibility by Public Transport

Bus

3.5.1 There are a number of bus stops within 800m of the centre of the site. The closest bus stops are located on Central Avenue which are situated within 300 metres of the site.

3.5.2 The bus stops are serviced by bus services 87, 84, 86, 900, 901, X1 and X3. These combined routes provide a frequent service to Port Talbot, Neath and Swansea, summarised in Table 3-2.

Table 3-2: Bus Service Timetable

No.	Bus Stop	Route	First / Last	Number of Services			
				Mon – Fri		Sat	Sun
				AM	PM		
87	Central Avenue, Briton Ferry Health Centre and Railway Station	Neath Bus Station to Port Talbot Bus Station and Margam via Baglan Energy Park and General Hospital	06:20/ 23:17	7	21	28	6
84	Railway Station and Roundabout	Port Talbot Bus Station to Swansea City Bus Station via Sandfields Estate and Elba Crescent	06:35/ 18:36	11	9	12	0
86	Railway Station	Neath Bus Station to Port Talbot Bus Station via Briton Ferry, Baglan Estate and General Hospital	07:15/ 17:35	6	6	10	0
900	Roundabout	Port Talbot Bus Station to Neath Port Talbot College (Neath Campus)	07:50/-	1	0	0	0
901	Roundabout	Margam to Neath Port Talbot College (Neath Campus) via Port Talbot Bus Station, Sandfields Estate and, Baglan Estate	07:50/ 08:10	2	0	0	0
X1	Roundabout	CYMRU CLIPPER - Swansea City Bus Station to Bridgend Bus Station via Port Talbot Bus Station, Margam Park and Pyle.	06:25/ 21:25	6	6	10	0
X3	Roundabout	CYMRU CLIPPER - Swansea City Bus Station to Maesteg Bus Station via Port Talbot Bus Station, Ynysygwas and Bryn.	07:05/ 17:10	7	5	12	0
TOTAL NUMBER OF DAILY SERVICES				40	47	72	6

- 3.5.3 Table 3-2 demonstrates that the site is served by local bus services providing access to the surrounding areas such as Swansea and Port Talbot.
- 3.5.4 In addition, the bus stops benefit from bus stop flags, bus shelters, seating and timetable information.
- 3.5.5 As such, travelling by bus would offer a realistic choice of transport for potential future employees of the site.

Rail

- 3.5.6 Baglan Rail Station is located approximately 1400m to the south-east of the site. This provides direct access to regional destinations such as Llanelli, Swansea, Cardiff Central and Manchester Piccadilly.

- 3.5.7 Swansea services arrive at Baglan every two hours and depart on an hourly basis, taking a duration of approximately 22 minutes. In addition, an hourly service is provided to and from Cardiff Central taking approximately 45 minutes.
- 3.5.8 The station offers parking, drop-off and pick-up facilities and a bus stop next to it (Railway Station).
- 3.5.9 The presence of this transport hub within close proximity of the site significantly enhances the sustainable accessibility of the development providing a realistic and attractive alternative for journeys to and from the site by sustainable modes.
- 3.5.10 The proximity of the rail station and ability to access the station by a linked trip via walking or cycle to local and regional destinations offers an attractive option for trips to and from the site to be made via rail.

3.6 Summary

- 3.6.1 In summary, the site is situated in a moderately sustainable location accessible by a range of sustainable modes of transport including by train, bus, cycling and walking.
- 3.6.2 A number of services and residential areas are situated within acceptable walking and cycling distances. A review of the key walking routes demonstrates that pedestrians benefit from a good standard of infrastructure provision which offers a realistic and attractive option for travel to and from the local area.
- 3.6.3 This provides future employees of the site with a realistic choice of travel, which will assist in constraining the level of vehicle generation to and from the site and will encourage and promote sustainable travel behaviour which is fully in accordance with the aims of TAN18 and the Active Travel Act.

4. DEVELOPMENT PROPOSALS

4.1 Overview and Site Layout

4.1.1 The current indicative proposals for the technology centre are for an office building of approximately 2600m². The building would comprise of a number of 'labs', individual units within the building aimed at emerging companies. This would be supplemented by communal breakout spaces to foster collaboration between the occupants, as well as an atrium/exhibition area.

4.1.2 More details are provided on the indicative floor plans which are included as Appendix B.

4.2 Proposed Vehicular Access

4.2.1 It is proposed to retain the existing gated vehicular access currently serving the Innovation Centre which forms a ghost-island priority junction with Central Avenue.

4.3 Pedestrian Access

4.3.1 It is proposed that the site will continue to be served by pedestrians from Central Avenue using the existing footways provided.

4.3.2 Two metre footways are provided along the eastern side of Central Avenue which continues through to the site via the existing access to the Baglan Innovation Centre.

4.4 Parking

Car Parking

4.4.1 Current car parking standards for the site are set out in *NPTCBC Parking Standards Supplementary Planning Guidance (SPG), October 2016*. The SPG identifies the site within Parking Zone 4 - Town Centre or City Centre Fringe.

4.4.2 The parking provision with reference these standards, which have been summarised in Table 4-1.

Table 4-1: NPTCBC Parking Standards applicable to current proposals

Car Parking Requirements for Zone 4			
Development	Parking use as identified within SPG	Standards	
		Operational	Non-operational
Office	Offices (>1000m ²)	1 space per 20m ²	

4.4.3 It is proposed that approximately 100 car parking spaces are to be provided, six of which will be allocated for disabled users. The parking standards in Table 4-1 indicate that 132 spaces would be required for the proposed development. The Parking Standards include a 'sustainability tool', which allows the application of a reduction to the parking standards based on a sites accessibility by non-car modes. This exercise has been completed, with the calculations included at **Error! Reference source not found**. The calculations show that the site gains 5 points, which equate to a 10% reduction, and the appropriate parking standard is therefore 119 spaces.

4.4.4 While it is noted that this required level of provision exceeds the proposed level of parking, it is considered that the strict application of the standards would not be appropriate for this development. While the standards are based on the GFA of the office building, the proposals include a large amount

of floor area which is not traditional office space and should therefore not be included. As such, the proposed parking provision is considered to be appropriate.

- 4.4.5 Additionally, the existing car park (126 spaces) serving the Technium is underutilised. A parking survey undertaken in December 2019, which demonstrated that the average occupancy was 88 vehicles, with 38 spaces available for parking. As these spaces will be available for use by the occupiers of the proposed building, the overall car park capacity is considered appropriate.
- 4.4.6 As required by PPW10, 10% of the new car parking spaces will provide electric vehicle charging points.
- 4.4.7 The nature of the surrounding highway network, along with the presence of Traffic Regulation Orders, means that the risk of overspill parking is unlikely to occur. As such, it is considered that the parking provision is appropriate.

Cycle Parking

- 4.4.8 Cycle parking standards are set out in the NPTCBC Parking Standards Supplementary Planning Guidance (SPG), October 2016, which have been summarised in Table 4-2.

Table 4-2: NPTCBC Cycle Parking Standards

Cycle Parking Requirements for Zone 4			
Development	Parking use as identified within SPG	Standards	
		Long Stay	Short Stay
Office	Offices	1 stand per 200m ²	1 stand per 1000m ²

- 4.4.9 Table 4-2 demonstrates that the development proposals should provide a minimum of 16 cycle spaces (13 long stay and 3 short stay). The development proposes 20 cycle spaces; therefore, this complies with the minimum cycle parking requirements stated in the NPTCB SPG.

4.5 Construction Traffic Management

- 4.5.1 The details of the construction of the site are yet to be finalised, however, the impacts of construction would be short term and temporary in nature. It is proposed that routes to the site are agreed with Neath Port Talbot Council prior to construction commencing.
- 4.5.2 Measures would also be adopted during the construction of the site to minimise the impact of construction traffic movements with potential measures set out as follows:
- Techniques and measures will be implemented, where practical, to assist in minimising construction freight trips on the local highway network, particularly during peak times (such as a vehicle booking system)
 - All construction worker vehicles would be accommodated on the site to reduce the impact of overspill parking on the local highway network, where feasible
 - Measures will be set out to encourage construction staff to reduce car use to the site, particularly through car sharing and also where feasible by public transport, walking and cycling
 - Wheel washing and dust sheeting will be undertaken to reduce the impact of mud, dust and dirt on the local highway network.

5. TRIP GENERATION AND DISTRIBUTION

5.1 Introduction

5.1.1 This section sets out the forecast trip generation of the proposed development. It also provides details of the proposed methodology for distributing and assigning vehicle trips onto the local highway network.

5.2 Proposed Development Vehicle Trip Generation

5.2.1 In order to determine the trip generation of the proposed development, the Trip Rate Information Computer System (TRICS) online database has been used to derive trip rates for the proposed use. The TRICS database has been analysed to determine the vehicle trips associated with the proposed development of approximately 2,634.4m² of office space. This has involved selecting sites within TRICS which have similar characteristics to the proposed development site in terms of use, scale, location, accessibility and surrounding population numbers.

5.2.2 The following search criteria has been applied in the TRICS database:

- 02 – Employment; A –Office category within the TRICS database
- Surveys carried out since 2000
- Located in England and Wales only (excluding London)
- Sites with between 1500 - 3000 sqm GFA
- Edge of Town Centre, Edge of Town and Suburban Area locations

5.2.3 The above search criteria resulted in the identification of six similar sites. The vehicle trip rates and trip generation for the proposed development are set out in Table 5-1.

Table 5-1: Proposed Development Vehicle Trip Generation

Time Period	Trip Rates (per 100 sqm)			Trip Generation (2,634.4 sqm)		
	ARR	DEP	TOT	ARR	DEP	TOT
Weekday AM Peak (0800-0900)	2.363	0.242	2.605	26	3	29
Weekday PM Peak (1700-1800)	0.3	2.429	2.729	5	46	51
Daily	8.327	8.196	16.523	219	216	435

5.2.4 Table 5-1 demonstrates that the proposed development is forecast to generate a total of 29 two-way vehicle trips in the AM peak (0800-0900) and 51 two-way vehicles in the PM peak (1700-1800).

5.3 Vehicle Distribution and Assignment

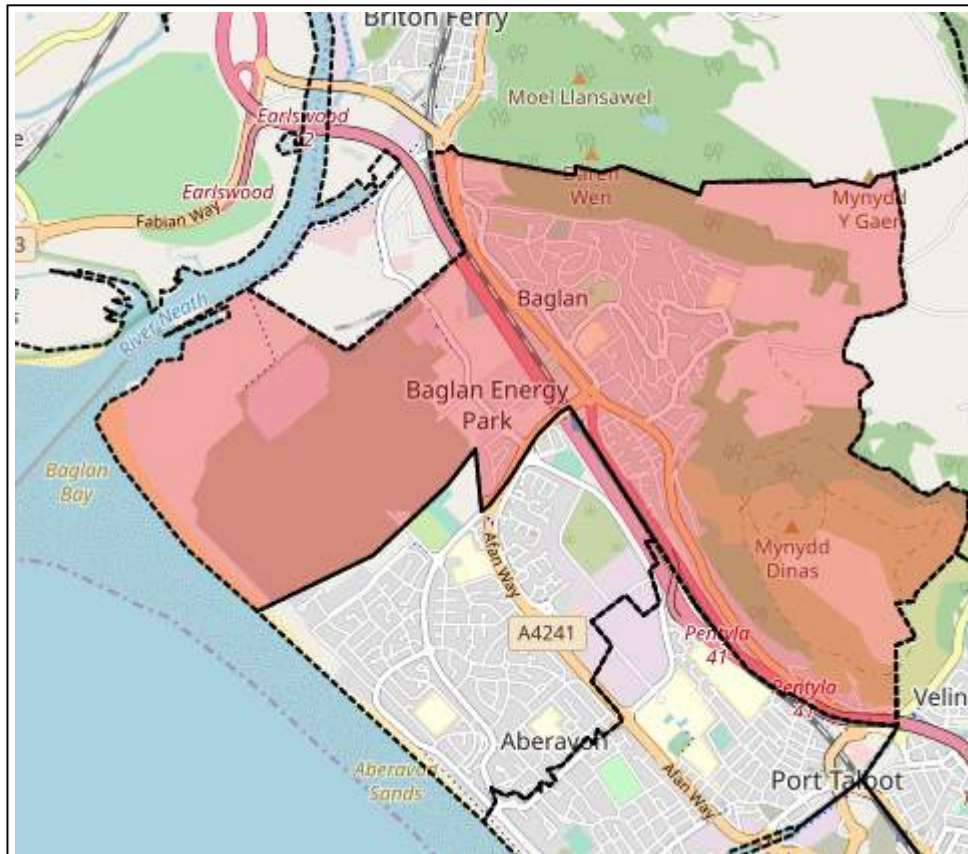
5.3.1 The percentage distribution of vehicles across the wider network has been based on 2011 Census data contained in Table WU03EW - Location of usual residence and place of work by method of travel to work (Middle Layer Super Output Area (MSOA) level) as presented on the Nomis website¹. This method is considered appropriate for use in distributing traffic associated with the development during peak

¹ <https://www.nomisweb.co.uk/>

hours as a large proportion of trips are likely to be for commuting purposes, rather than operation of visitor trips.

- 5.3.2 MSOA in which the site is situated - Neath Port Talbot 015, has been used as the place of work, with car journeys to this MSOA from a usual residence being used to estimate the vehicle distribution. The location and extent of this output area is shown in Figure 5-1.

Figure 5-1: MSOA NPT 015



- 5.3.3 The most appropriate routes have been identified from the site based on distances and times between the site and destination, with the same distribution percentages used in the AM and PM peaks. The percentages turning movements will be summarised in traffic flow diagrams attached in the TA.
- 5.3.4 The trip distribution for the site is shown in Table 5-2 and in the Traffic Flow Diagrams at Appendix D.

Table 5-2: Vehicle Distribution

Route	Distribution %	Two-Way Development Trips	
		AM Peak	PM Peak
A483	24.0%	7	12
M4 (south)	22.5%	7	11
M4 (north)	19.1%	6	10
A474	14.2%	4	7
A4241	12.8%	4	7
Old Road	7.5%	2	4

5.3.5 Table 5-2 demonstrates that 64.7% (A483, M4 north, A474 and Old Road) of traffic associated with the site will turn right out of the site onto Central Avenue and route north. The remaining 35.3% (M4 south and A4241) of traffic will turn left out of the site onto Central Avenue and route south.

6. TRAFFIC IMPACT AND OPERATIONAL ASSESSMENTS

6.1 Overview

- 6.1.1 This section considers the likely change in traffic generation throughout the day and assesses the impact on the operation of the local highway network.
- 6.1.2 Given the low level of trips associated with the development and minimal impact at junctions on the local highway network as shown in Table 5-1 and Table 5-2, the extent of the network to be considered is the site access. The distribution demonstrates that 65% of traffic associated with the proposed site will be turning left into the site with a right turn out and 35% turning right into the site with a left turn out.
- 6.1.3 As such, the proposed development is forecast to generate 19 two-way trips in the AM peak and 33 two-way trips in the PM peak on the local highway network routing to and from the north of the site and 10 two-way trips in the AM peak hour and 18 two-way vehicle movements in the PM peak hour routing to and from the south of the site.

6.2 Extent of Assessment

- 6.2.1 In order to assess the change in traffic as a result of the development, traffic surveys undertaken on Central Avenue were obtained from NPTBC. The surveyed flows were growthed to the assessment year of 2025 (5 years post-planning) using NTM adjusted Temprow growth factors, as contained at Appendix E.
- 6.2.2 These flows have been combined with the proposed development flows to illustrate the impact, as shown in Table 6-1.

Table 6-1: Change in Central Avenue Flows

	2017 Base		2025 Base		Development		% Change	
	AM	PM	AM	PM	AM	PM	AM	PM
Central Avenue								
North of Site	637	552	685	593	31	33	4.5%	5.6%
South of Site	637	552	685	593	23	25	3.4%	4.2%

- 6.2.3 As such, it is considered that the small increase in additional traffic, which equates to approximately 1 additional vehicle every two minutes on a link will be below the threshold of daily variation and will not have a noticeable impact on the operation of the local highway network.
- 6.2.4 In the context of the roundabout junctions with the A48, the maximum increase in traffic on a single arm of the junction is forecast to be 29 vehicles (Central Avenue Northbound, PM Peak). This equates to less than one additional vehicle arriving at the junction every two minutes, and it is therefore considered that no detailed assessment is required, as the increase in traffic will not result in a measurable change in junction performance.
- 6.2.5 As such, it is considered that the proposed site access junction is the only junction which requires detailed assessment.

6.3 Operational Assessments

Capacity Analysis – Site Access (Central Avenue)

- 6.3.1 The proposed site access, forming a junction at Central Avenue, was assessed by constructing a capacity model and testing it using PICADY software. This model takes the form of a standard priority junction with a ghost island turning lane.
- 6.3.2 A summary of the PICADY capacity model results of the priority junction for the 2035 baseline plus development scenarios is set out in Table 6-2. The full PICADY outputs can be found in Appendix F.

Table 6-2: PICADY Results - Site Access (Central Avenue)

2035 Baseline + Development:						
Movement / Approach	AM Peak			PM Peak		
	RFC	Queue (Veh)	Delay (secs)	RFC	Queue (Veh)	Delay (secs)
Site Access (left / right)	0.24	0.3	11.02	0.04	0.0	9.28
Central Avenue (right / straight-ahead)	0.01	0.0	6.51	0.10	0.1	7.90

- 6.3.3 Table 6-2 demonstrates that the junction is expected to operate well within capacity for the proposed development.
- 6.3.4 It is concluded that the existing highway network would accommodate the additional traffic arising from the proposed development without resulting in any 'severe' impacts. As such, the traffic impact of the scheme is therefore considered to be acceptable.

7. SUMMARY AND CONCLUSIONS

7.1 Summary

- 7.1.1 Hydrock Consultants Ltd has prepared this Transport Assessment (TA) and a Travel Plan (TP) on behalf of Morgan Sindall in support of a planning application for a proposed development of a new office building at Baglan Energy Park, Port Talbot.
- 7.1.2 The planning application seeks permission for the redevelopment of the site which will involve a new building to the west of the existing Technium to accommodate a new building comprising of approximately 2,634.4m² of office space.
- 7.1.3 There is existing pedestrian infrastructure around the site, providing opportunities for future employees to access the site from surrounding residential areas and to access key services and facilities by foot.
- 7.1.4 NCN Route 4 is within close proximity to the site. This route can be accessed via the existing cycleway along Central Avenue which connects to the route at the A4241 roundabout. The route continues north west towards Swansea via a mainly off-road route. To the south, route 4 connects the site to the centre of Port Talbot.
- 7.1.5 The site is also well positioned with respect to existing bus stops, where services run on a regular basis. Additionally, Baglan Rail Station provides frequent services to destinations such as Swansea and Cardiff.
- 7.1.6 The site is in an accessible location, replicating that of other long-established residential areas in the immediate vicinity, and that there would be good opportunities for journeys from the site to be made by sustainable modes of travel as required by the NPPF.
- 7.1.7 A Travel Plan has been provided in line with local and national guidance. That document sets out a package of measures aimed at promoting the use of sustainable modes of travel from the site, together with an implementation strategy setting out the timescales over which the Travel Plan would be implemented.
- 7.1.8 It is considered that an appropriate number of car parking and cycle parking for the development will be provided onsite.
- 7.1.9 The traffic impact assessment completed for the proposed site access junction demonstrates that the junction is expected to operate within capacity in the future scenario modelled, including with the addition of development traffic.
- 7.1.10 It has therefore been demonstrated that the existing highway network would satisfactorily accommodate the additional traffic arising from the proposed development without resulting in any 'severe' impacts. The traffic impact of the scheme is acceptable in light of the requirements of the NPPF.

7.2 Conclusions

- 7.2.1 The development site is accessible to public transport opportunities and local residential areas, and therefore provides good opportunities for travel to/from the site to be undertaken by sustainable modes. The proposed development is therefore sustainable in transport terms, as required by the NPPF.
- 7.2.2 The worst-case impact of residual car borne trips has been robustly assessed, and has been demonstrated to be accommodated within the local road network satisfactorily.

- 7.2.3 The development proposals are therefore acceptable in transport terms and there should be no highway related reasons to prevent planning permission being granted.

Appendix A Scoping Report Response

From: David.Humphrey@morgansindall.com <David.Humphrey@morgansindall.com>
Sent: 17 December 2019 10:19
To: Neil Buckman <NeilBuckman@hydrock.com>
Cc: Matthew Ace <MatthewAce@hydrock.com>; Andrew Haines <AndrewHaines@hydrock.com>;
David.James@morgansindall.com; Byron.Manka@morgansindall.com
Subject: FW: swansea bay Innovation centre

Neil,

Please see below information from Clive which may be discussed in our meeting on Thursday Morning at 10am with the Planners and Highways Team. Have you any comment on this at the moment?

Regards,

David Humphrey MCIOS

Bid Manager
Construction Central : Cardiff/Bristol
DD: 029 2054 4676 M: 07970 896819 david.humphrey@morgansindall.com

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Morgan Sindall Construction & Infrastructure Ltd
Ground Floor, 5 Cae Gwyrdd, Greenmeadow Springs Business Park
Tongwynlais, Cardiff. CF15 7AB
T 029 2081 1398
morgansindall.com

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From: Clive P. Barnard <c.barnard@npt.gov.uk>
Sent: 17 December 2019 09:01
To: Humphrey, David (MS) <David.Humphrey@morgansindall.com>; Ridout, Steven (MS) <Steven.Ridout@morgansindall.com>
Cc: Paul J. Dorrell <p.dorrell@npt.gov.uk>
Subject: FW: swansea bay Innovation centre

Dave,

Not sure if this e-mail was sent on to you so I'm sending it again just in case.

Terry is a highway development engineer and is the highway consultee for the planning application on this project.

Can you ask your team whether his suggestion is possible/reasonable?

Clive

From: Terry J. Davies <t.davies2@npt.gov.uk>
Sent: 02 December 2019 16:46
To: Clive P. Barnard <c.barnard@npt.gov.uk>
Subject: RE: swansea bay Innovation centre

Clive,

I have spoken to Dave and suggest that they provide a % impact of the development on the existing network peak to show that it is negligible. In terms of the scoping opinion I draw your attention to item 3.3.2 Talbot Road?Eagle Street? Item 5.2.3 figures do not seem to tally i.e 2.605 per 100 square metres =59 arrivals, departures = 6 perhaps this will be clearer when the full TA is submitted

Regards

Terry Davies

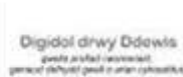
Senior Highway Development Management Engineer / peiriannydd datblygu uwch-briffordd
Neath Port Talbot County Borough Council/ Cyngor Bwrdeistref Sirol Castell-nedd Port Talbot Tel/ Ffôn: 01639 686392

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From: Clive P. Barnard

Sent: 02 December 2019 15:52

To: Terry J. Davies <t.davies2@npt.gov.uk>

Cc: Paul J. Dorrell <p.dorrell@npt.gov.uk>

Subject: RE: swansea bay Innovation centre

Terry,

We can achieve circa 100No so not too bad and we will use the sustainability angle to explain we are discouraging car use due to the site being closely located next to a bus route, railway station, cycling and walking routes.

Can you speak to dave about the highway network and roundabouts?

I don't see the point in paying for surveys which will may show a problem that we can't easily resolve and we haven't got a budget that could pay for significant improvements.

Clive

From: Terry J. Davies <t.davies2@npt.gov.uk>

Sent: 02 December 2019 15:44

To: Clive P. Barnard <c.barnard@npt.gov.uk>
Cc: Paul J. Dorrell <p.dorrell@npt.gov.uk>
Subject: swansea bay Innovation centre

Clive,

Further to our discussion I have checked the parking standards and based on zone 4 the building requires approximately 125 spaces.

Regards

Terry Davies

Senior Highway Development Management Engineer / peiriannydd datblygu uwch-briffordd
Neath Port Talbot County Borough Council/ Cyngor Bwrdeistref Sirol Castell-nedd Port Talbot Tel/ Ffôn: 01639 686392

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+++++

From: Neil Buckman
Sent: 27 November 2019 09:12
To: t.davies2@npt.gov.uk
Subject: Swansea Bay Technology Centre

Good morning Terry

We are working alongside Morgan Sindall and NPT in the preparation of a forthcoming planning application for a new office/incubation building known as Swansea Bay Energy Centre, adjacent to the Technium building at Baglan Energy Park.

We have prepared the attached scoping document to outline the proposed assessment, and would be grateful if you could review it at your earliest convenience and let me know your thoughts.

Kind regards,

Neil Buckman
Associate | Transportation

Hydrock
First Floor, Castlebridge 5, 5-19 Cowbridge Road East, Cardiff CF11 9AB
Tel: 02920 023 665 | Mob: 07824 346 644 | Ext: 4030
hydrock.com



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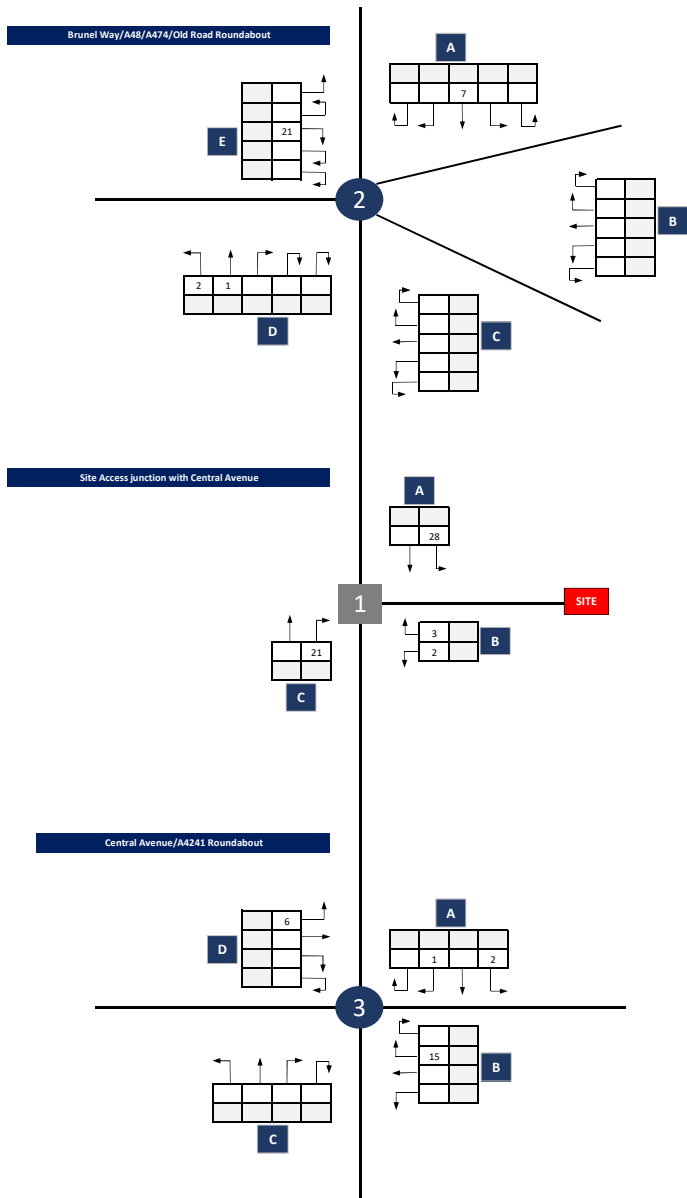
Appendix B Indicative Site Layout

Appendix C Sustainability Calculation

	Notes	Points
Local Facilities	None	0
Bus Stops	Within 300m	3
Cycle Route	Adjacent	1
PT Frequency	30 miutes	1
	Total	5

Appendix D Traffic Flow Diagrams

KEY	
12	Total Vehicles
12	HGVs



NOTES:

PROJECT:

Swansea Bay Energy Centre

TIME PERIOD:

AM Peak Hour (08:00 - 09:00)

DATE:

March 2020

JOB NUMBER:

C-11852

PLAN TITLE:

Traffic Figure Diagrams

Proposed Development Flows

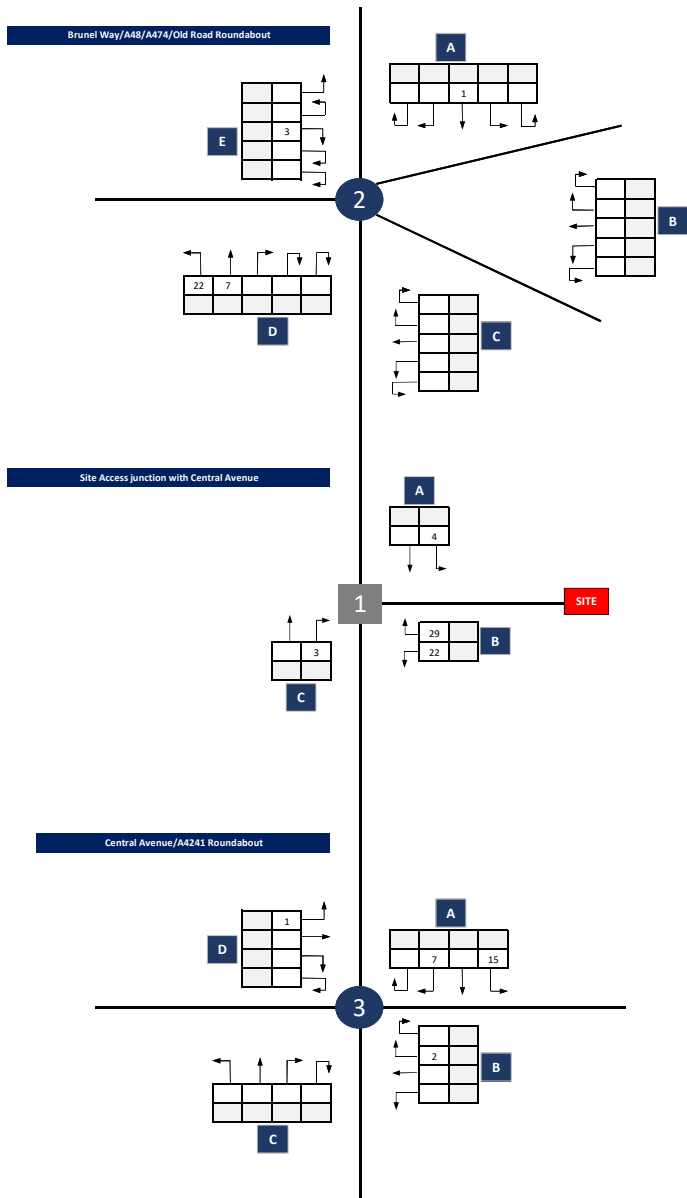
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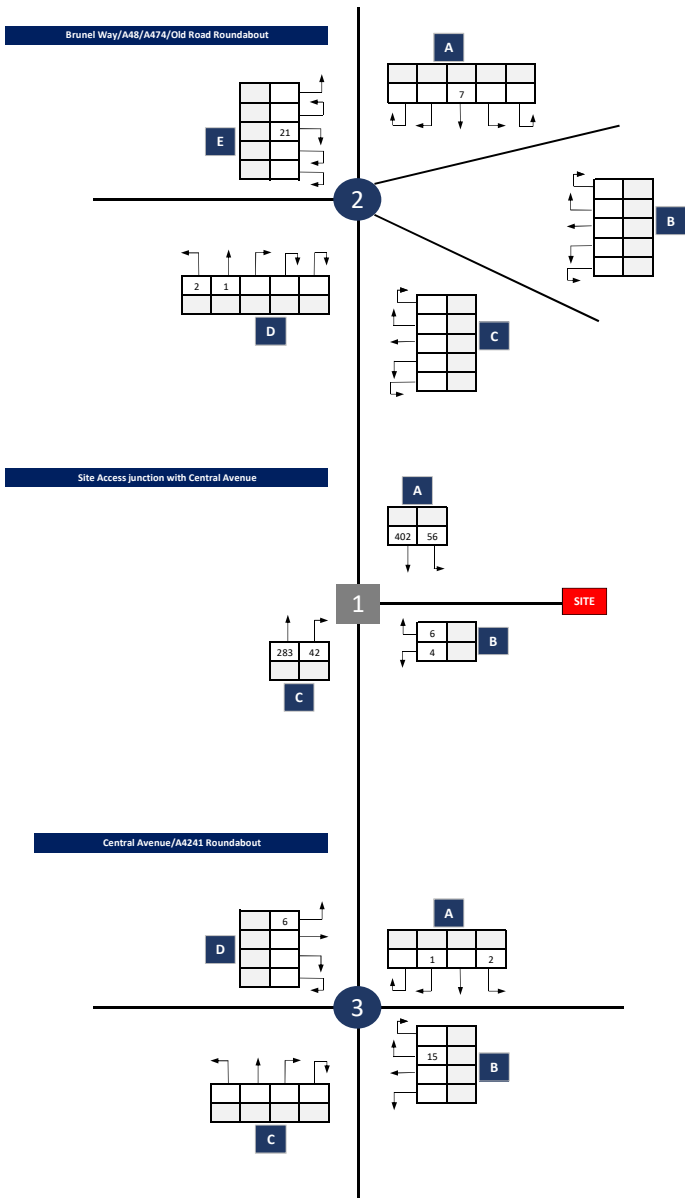
FIGURE:

001

KEY	
12	Total Vehicles
12	HGVs



KEY	
12	Total Vehicles
12	HGVs



NOTES:

PROJECT:

Swansea Bay Energy Centre

TIME PERIOD:

AM Peak Hour (08:00 - 09:00)

DATE:

March 2020

JOB NUMBER:

C-11852

PLAN TITLE:

Traffic Figure Diagrams

2025 Base + Development Flows

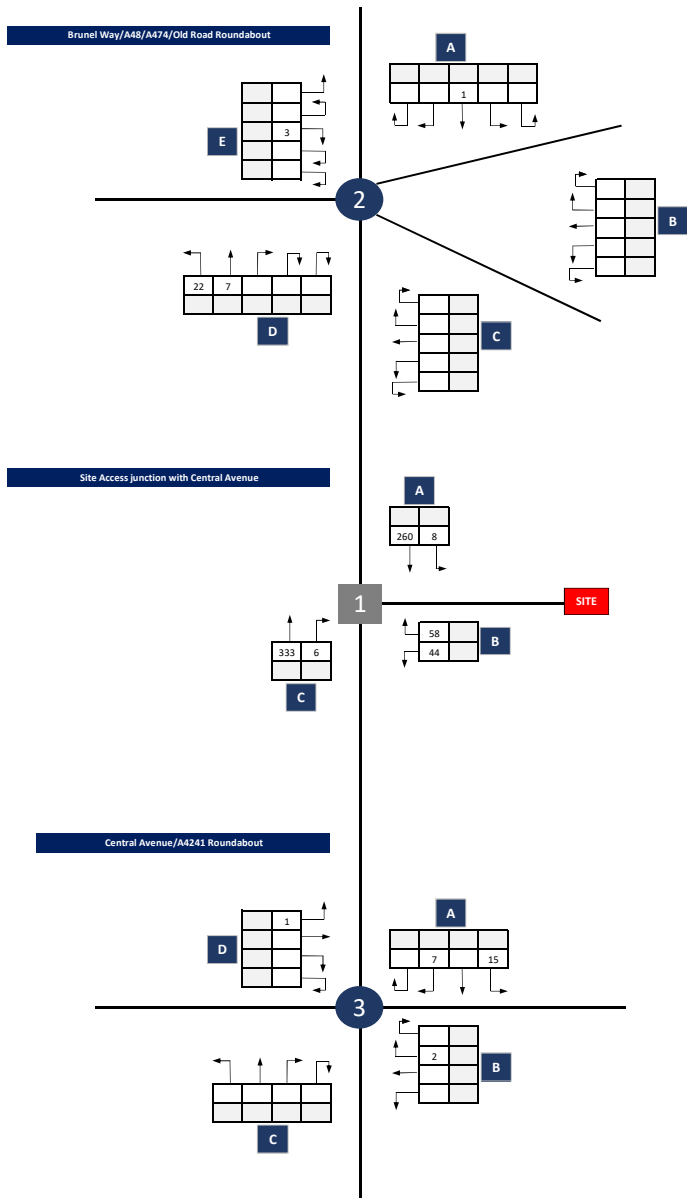
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AC

FIGURE:

003

KEY	
12	Total Vehicles
12	HGVs



Appendix E Tempro Factors

Dataset Version:	72
Result Type:	Trip ends by time period
Base Year:	2020
Future Year:	2025
Trip Purpose Group:	All purposes
Time Period:	Average Weekday
Trip End Type:	Origin/Destination
Alternative Assumptions Applied:	No

Growth Factor

Area Description		All purposes	
Level	Name	Origin	Destination
W02000213	Neath Port Talbot 015	1.0294	1.0296

Future Year - Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
W02000213	Neath Port Talbot 015	174	174

Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
W02000213	Neath Port Talbot 015	5,931	5,885

Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
W02000213	Neath Port Talbot 015	6,105	6,059

Growth Factor

Area Description		All purposes	
Level	Name	Origin	Destination
W02000213	Neath Port Talbot 015	1.0294	1.0296

Future Year - Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
W02000213	Neath Port Talbot 015	174	174

Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
W02000213	Neath Port Talbot 015	5,931	5,885

Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
W02000213	Neath Port Talbot 015	6,105	6,059

Level	Area	Local Growth Figure
W0200021	Neath Port	1.039878

Appendix F PICADY Output

Junctions 9										
PICADY 9 - Priority Intersection Module										
Version: 9.5.0.6896 © Copyright TRL Limited, 2018										
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk										
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Filename: Swansea Bay TC - Site Access model.j9

Path: F:\01 Contracts\C-0000-C\C-11852 - Swansea Bay Energy Centre\01_WIP\CA_Calculation\TP\Modelling

Report generation date: 30/03/2020 15:18:19

»2025 + Dev, AM

»2025 + Dev, PM

»2035 + Dev, AM

»2035 + Dev, PM

Summary of junction performance

	AM					PM				
	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Network Residual Capacity
2025 + Dev										
Stream B-AC	0.3	10.35	0.24	B	65 %	0.0	8.83	0.04	A	90 %
Stream C-B	0.0	6.38	0.01	A	[Stream B-AC]	0.1	7.61	0.09	A	[Stream B-AC]
2035 + Dev										
Stream B-AC	0.3	11.02	0.25	B	56 %	0.0	9.28	0.04	A	79 %
Stream C-B	0.0	6.51	0.01	A	[Stream B-AC]	0.1	7.90	0.10	A	[Stream B-AC]

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	05/03/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	HYDROCK\GrantPrice
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 + Dev	AM	ONE HOUR	07:45	09:15	15
D2	2025 + Dev	PM	ONE HOUR	16:45	18:15	15
D3	2035 + Dev	AM	ONE HOUR	07:45	09:15	15
D4	2035 + Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2025 + Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Site Access	T-Junction	Two-way		0.97	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	65	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Central Av.		Major
B	Site Access		Minor
C	Central Av.		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.50		✓	3.40	150.0		-

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.50	215	160

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	665	0.119	0.300	0.189	0.428
1	B-C	761	0.114	0.288	-	-
1	C-B	747	0.283	0.283	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 + Dev	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	289	100.000
B		✓	98	100.000
C		✓	406	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A	B	C
	A	0	6	283
	B	56	0	42
	C	402	4	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	100
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.24	10.35	0.3	B
C-A				
C-B	0.01	6.38	0.0	A
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	74	536	0.138	73	0.2	7.768	A
C-A	303			303			
C-B	3	625	0.005	3	0.0	5.785	A
A-B	5			5			
A-C	213			213			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	88	503	0.175	88	0.2	8.675	A
C-A	361			361			
C-B	4	602	0.006	4	0.0	6.020	A
A-B	5			5			
A-C	254			254			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	108	456	0.237	108	0.3	10.326	B
C-A	443			443			
C-B	4	569	0.008	4	0.0	6.377	A
A-B	7			7			
A-C	312			312			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	108	456	0.237	108	0.3	10.348	B
C-A	443			443			
C-B	4	569	0.008	4	0.0	6.377	A
A-B	7			7			
A-C	312			312			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	88	503	0.175	88	0.2	8.700	A
C-A	361			361			
C-B	4	602	0.006	4	0.0	6.020	A
A-B	5			5			
A-C	254			254			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	74	536	0.138	74	0.2	7.795	A
C-A	303			303			
C-B	3	625	0.005	3	0.0	5.787	A
A-B	5			5			
A-C	213			213			

2025 + Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Site Access	T-Junction	Two-way		0.44	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	90	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2025 + Dev	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	391	100.000
B		✓	14	100.000
C		✓	304	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	58	333
	B	8	0	6
	C	260	44	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	100
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.04	8.83	0.0	A
C-A				
C-B	0.09	7.61	0.1	A
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	11	514	0.021	10	0.0	7.152	A
C-A	196			196			
C-B	33	593	0.056	33	0.1	6.426	A
A-B	44			44			
A-C	251			251			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	13	476	0.026	13	0.0	7.767	A
C-A	234			234			
C-B	40	563	0.070	39	0.1	6.879	A
A-B	52			52			
A-C	299			299			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	15	423	0.036	15	0.0	8.828	A
C-A	286			286			
C-B	48	521	0.093	48	0.1	7.607	A
A-B	64			64			
A-C	367			367			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	15	423	0.036	15	0.0	8.831	A
C-A	286			286			
C-B	48	521	0.093	48	0.1	7.610	A
A-B	64			64			
A-C	367			367			

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	13	476	0.026	13	0.0	7.771	A
C-A	234			234			
C-B	40	563	0.070	40	0.1	6.884	A
A-B	52			52			
A-C	299			299			

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	11	514	0.021	11	0.0	7.157	A
C-A	196			196			
C-B	33	593	0.056	33	0.1	6.435	A
A-B	44			44			
A-C	251			251			

2035 + Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Site Access	T-Junction	Two-way		0.99	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	56	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2035 + Dev	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	308	100.000
B		✓	101	100.000
C		✓	434	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	6	302
	B	58	0	43
	C	430	4	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	100
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.25	11.02	0.3	B
C-A				
C-B	0.01	6.51	0.0	A
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	76	524	0.145	75	0.2	8.011	A
C-A	324			324			
C-B	3	617	0.005	3	0.0	5.861	A
A-B	5			5			
A-C	227			227			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	91	488	0.186	91	0.2	9.045	A
C-A	387			387			
C-B	4	592	0.006	4	0.0	6.119	A
A-B	5			5			
A-C	271			271			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	111	438	0.254	111	0.3	10.991	B
C-A	473			473			
C-B	4	557	0.008	4	0.0	6.514	A
A-B	7			7			
A-C	333			333			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	111	438	0.254	111	0.3	11.019	B
C-A	473			473			
C-B	4	557	0.008	4	0.0	6.514	A
A-B	7			7			
A-C	333			333			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	91	488	0.186	91	0.2	9.078	A
C-A	387			387			
C-B	4	592	0.006	4	0.0	6.119	A
A-B	5			5			
A-C	271			271			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	76	524	0.145	76	0.2	8.043	A
C-A	324			324			
C-B	3	617	0.005	3	0.0	5.864	A
A-B	5			5			
A-C	227			227			

2035 + Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Site Access	T-Junction	Two-way		0.44	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	79	Stream B-AC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2035 + Dev	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	416	100.000
B		✓	14	100.000
C		✓	324	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	60	356
	B	8	0	6
	C	278	46	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	100
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.04	9.28	0.0	A
C-A				
C-B	0.10	7.90	0.1	A
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	11	501	0.021	10	0.0	7.341	A
C-A	209			209			
C-B	35	583	0.059	34	0.1	6.564	A
A-B	45			45			
A-C	268			268			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	13	460	0.027	13	0.0	8.039	A
C-A	250			250			
C-B	41	551	0.075	41	0.1	7.068	A
A-B	54			54			
A-C	320			320			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	15	404	0.038	15	0.0	9.273	A
C-A	306			306			
C-B	51	506	0.100	51	0.1	7.895	A
A-B	66			66			
A-C	392			392			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	15	403	0.038	15	0.0	9.276	A
C-A	306			306			
C-B	51	506	0.100	51	0.1	7.898	A
A-B	66			66			
A-C	392			392			

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	13	460	0.027	13	0.0	8.043	A
C-A	250			250			
C-B	41	551	0.075	41	0.1	7.074	A
A-B	54			54			
A-C	320			320			

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	11	501	0.021	11	0.0	7.343	A
C-A	209			209			
C-B	35	583	0.059	35	0.1	6.571	A
A-B	45			45			
A-C	268			268			