



Money Penny

Money Penny, Wrexham

Transport Assessment

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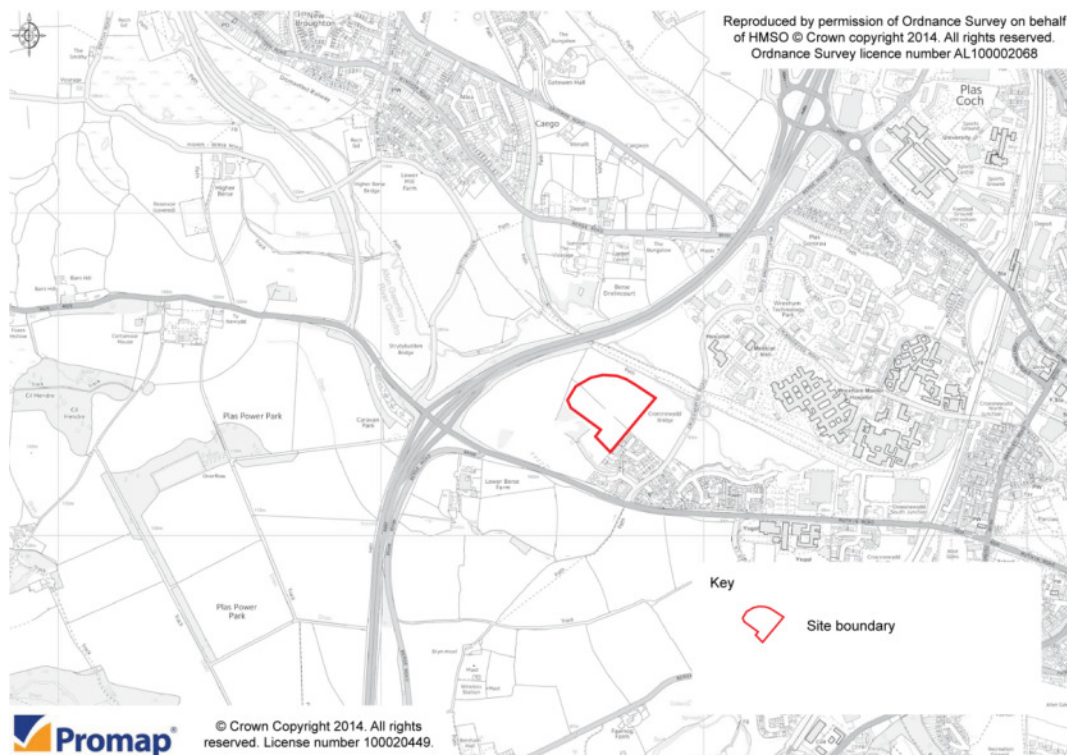
1. Introduction

This Transport Assessment (TA) has been prepared by Cundall Transportation, on behalf of Moneypenny, to accompany the planning application for a proposed new headquarters (HQ) office building in the Brynyffynnon ward of Wrexham. The site falls within the area identified by Wrexham County Borough Council (WCBC) for the Western Gateway Project, a long term development plan which seeks to build on the success of the Wrexham Technology Park situated in close proximity.

The proposed development would provide a new HQ building for Moneypenny who provide telephone answering and switchboard services for external clients. Moneypenny are currently situated on four sites in the nearby Wrexham Technology Park with all personnel moving to the new site. The development would therefore provide a single building accommodating all staff, including staff answering the external calls (referred to as PAs) as well as management and support staff.

The location of the proposed development can be seen in Figure 1 below and a proposed site layout, as supplied by the landscape architect, is presented within Appendix A.

Figure 1 Site location plan



This TA sets out the results of the applicant's assessment of the traffic and transportation impacts of the development proposals. The TA extent and methodology of assessment has been discussed with officers

from WCBC and Welsh Government (WG) in a meeting on 29 July 2014 with a copy of the Scoping Report contained within Appendix B.

2. Policy

This section reviews the relevant transportation policy and examines whether the proposed development is in accordance with national, regional and local policy.

2.1 National Policy

2.1.1 National Planning Policy Framework

In March 2012, the National Policy Framework (NPPF) was published by the coalition government with its overarching principle being a 'presumption in favour of sustainable development.' The policies contained within the NPPF applied with immediate effect and thereby replaced, amongst other PPS's and PPG's, PPG 13 'Transport'. Section 4 of the NPPF 'Promoting sustainable transport' covers the transport policy, detailed below are the policies that are of relevance.

In paragraph 29, the NPPF acknowledges that 'transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives' and goes on to say 'the transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel'.

Paragraph 36 states that 'All developments which generates significant amounts of movement should be required to provide a Travel Plan'. An Outline Travel Plan accompanies this planning application, thereby according with the NPPF.

2.1.2 Planning Policy Wales (PPW), Edition 6, February 2014

Chapter 8 of the PPW concentrates on transport and how it supports the WG's aims and commitments including extending choice in transport and secure accessibility in a way which supports sustainable development.

PPW states that the WG supports a transport hierarchy in relation to new development that establishes priorities in such a way that, wherever possible, that they are accessible in the first instance by walking and cycling, then by public transport and then finally by private motor vehicles. Sections 3 and 4 of this TA set out the sustainable transport linkages to the site with the accompanying Outline Travel Plan also highlighting proposed measures to encourage the uptake of sustainable travel. It is also expected that a Full Travel Plan will be conditioned as part of this application.

PPW also states that land use planning can help to achieve the WG's objectives for transport through:

- Reducing the need to travel, especially by private car, by locating development where this is good access by public transport, walking and cycling;
- Improving accessibility by walking, cycling and public transport;
- Ensuring that transport is accessible to all, taking into account the needs of disabled and other less mobile people; and
- Promoting walking and cycling.

2.1.3 Planning Policy Wales Technical Advice Note 18: Transport (TAN18)

TAN 18, published in March 2007, is a supplementary document to PPW and provides national policy guidance relating to a number of transport related issues.

Promoting the integration between transport and land use planning is a focus within TAN 18 in order to contribute to the delivery of the key objective of sustainability. TAN 18 details the importance of managing car parking provision and ensuring that new development appropriately provide for pedestrians and cyclists. Section 4 of the TA details internal and external access to the proposed site by sustainable modes of transport.

Section 6 of TAN 18 details the importance that local authorities must give to considering the needs of pedestrians and cyclists in all development planning decisions. Section 4 of this TA details access to the proposed site by sustainable modes of transport.

Section 9 of the TAN 18 advises that developers should be required to submit a TA for developments that are likely to result in significant trip generation.

2.2 Regional Policy

2.2.1 North Wales Regional Transport Plan, Walking & Cycling Strategy 2010 – 2015

The North Wales Regional Transport Plan includes a walking and cycling strategy which aims to 'encourage more people to walk or cycle for journeys, such as the commute to work and school, trips to local shops, leisure and health facilities and for leisure activities'. The strategy talks about 'smarter choices' for travel in the region to 'reduce congestion, enhance accessibility and increase travel choices', these include 'imaginative ways of encouraging efficient and sustainable ways of travel other than by car. Section 3 of this TA provides an assessment of the walking and cycling facilities in the area and considers the accessibility of the site by these modes.

2.3 Local Policy

2.3.1 Wrexham Unitary Development Plan (UDP)

The UDP was adopted by WCBC on 14th February 2005 and is due to be replaced by the Local Development Plan 2 (LDP2) in 2016.

The UDP provides a framework for local decision making and the reconciliation of development and conservation interests in order that land use changes proceed coherently and with maximum community benefits.

The proposed site is allocated in the UDP for employment development which the proposed development is considered to be in accordance with. The site also forms part of the WCBC Western Gateway and part of the Council's overall aim is to 'bring forward the development of land, focussing primarily upon sites for high quality employment and new housing, together with appropriate community facilities.'

2.4 Policy Summary

The TA has been prepared in line with the above mentioned policy documents and subsequent sections of the TA demonstrate how the proposed development is in accordance with and supports these policies.

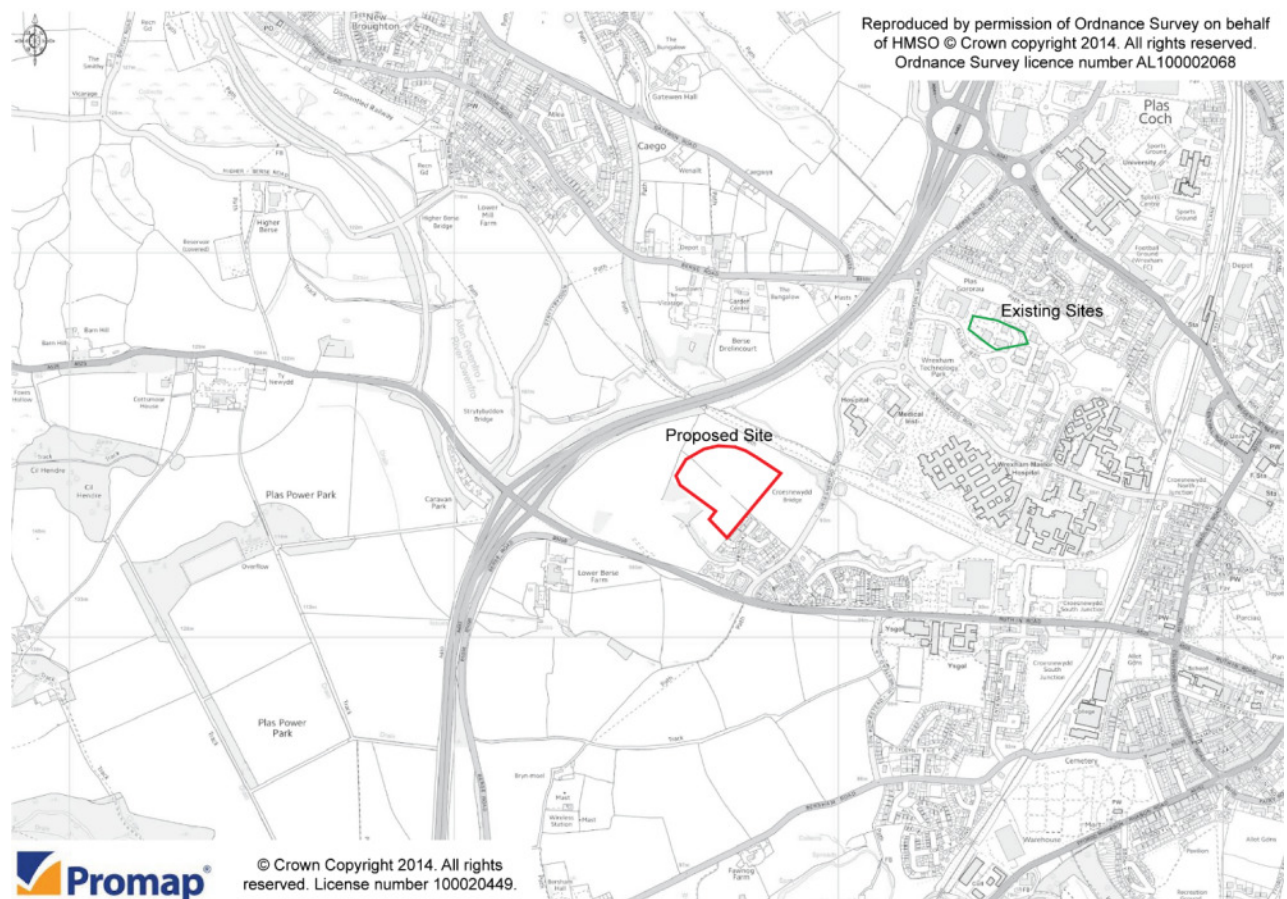
3. Existing Conditions

3.1 Existing Moneypenny Site

Moneypenny provides telephone answering and switchboard services to external clients (i.e. typically an initial phone call to a client would be routed in the first instance to Moneypenny which is then either dealt with, forwarded to the relevant department of the client, etc).

Moneypenny are currently based in four sites on Wrexham Technology Park, approximately 900m to the north east of the proposed site. The existing and proposed locations can be seen in Figure 2.

Figure 2 Existing and Proposed Site Locations



Moneypenny currently employ a total of 366 members of staff across the four sites. The company has experienced rapid growth in recent times and presently staff numbers are increasing by around five members of staff per week and there are expected to be around 400 members of staff by the end of 2014.

3.2 Existing Money Penny Staff Travel

The majority of trips generated by the Money Penny site relate to staff travelling to and from work. The majority of staff numbers are made up of PAs answering phone calls with staff usually remaining on site. The site also has relatively few visitors. The majority of trips generated by the site therefore coincide with staff shift patterns with the first shift starting at 08:30 and the final shift ending at 20:00. It should be noted that operations on site cease after 20:00 with any calls after this time answered by a call centre abroad. Money Penny do operate on a weekend but staff numbers are significantly less with 10-20% of staff typically at work on a Saturday or Sunday.

In order to determine staff travel to the current site, a travel mode survey was conducted during the week commencing 11th August 2014. Of the 366 members of staff currently employed at the existing site, 262 responses were received, equating to a 72% response rate, which is considered to be representative. Table 1 shows how staff travel to the existing site.

Table 1 Total number of staff travelling by each mode

Mode	No. of staff (from survey)	% modal split
Walk	19	7.3%
Cycle	1	0.4%
Bus	11	4.2%
Train	3	1.2%
Car, on your own	190	72.4%
Car, with others	28	10.7%
Other	10	3.8%
Total	262	100.0%

Table 1 shows that the majority of staff, 72.4%, travel by car alone and a further 10.7% car share with other members of staff. 13.1% of staff travel by sustainable modes of transport and 3.8% travel by other means. The full results of the survey are provided in Appendix C.

Table 2 below provides a breakdown of the number of people per car who car share to the site. The results show that an average of 2.5 members of staff travel per car when car sharing.

Table 2 Breakdown of staff who car share

	Two in car (travel with one other)	Three in car (travel with two others)	Four in car (travel with three others)	Five in car (travel with four others)
Percentage (%)	58%	38%	0%	4%

3.3 Proposed Development Site

The location of the proposed development site is identified previously in Figure 2 of this TA and is situated in the Brynyffynnon ward of Wrexham near Junction 4 of the A483. The site falls within the area identified by WCBC for the Western Gateway Project, a long term development project which seeks to provide employment opportunities and expand on the nearby Wrexham Technology Park. The site is currently undeveloped and is situated to the south of the A483 trunk road. To the south east of the site is Wrexham Maelor Hospital with residential properties on Pendinas and Croesnewydd Road to the east, the B5098 to the south and the A483 to the west and north.

The site is not currently accessible by road. As part of recent highway works on Croesnewydd Road, an access junction was constructed with a stub from which the site will be access via an access road. The present layout of the 'stub' is shown in Photograph 1 and further detail of the access arrangements for the site are set out in Section 4.2.



Photograph 1 Junction stub which will provide site access

3.4 Surrounding Highway Network

Whilst Government guidance has moved away from road classifications, it acknowledges in Manual for Streets (DfT, 2007) that the movement and the status of a street must be recognised.

The site would be accessed via a new access road linking into Croesnewydd Road at the present 'stub' shown in Photograph 1 above. Croesnewydd Road is a single carriageway road and is subject to a maximum speed limit of 30mph. To the east, Croesnewydd Road links to Wrexham Technology Park and Wrexham Maelor Hospital with access to Wrexham town centre via Watery Road. The A483, which forms part of the strategic road network and is maintained on behalf of WG, can be accessed via Junction 5 to the east, approximately 1.5km from the site access road.

To the east, Croesnewydd Road provides access to the A525 Ruthin Road, which is subject to a speed limit of 30mph. The A525 provides access to Junction 4 of the A483, approximately 800m from the site access road and provides traffic with a further route to Wrexham town centre and southern parts of Wrexham.

3.5 Pedestrian Facilities

Shared surface footways are present along the southern side of Croesnewydd Road which provide access to Wrexham Maelor Hospital to the east and Ruthin Road to the west, both of which provide access to the bus stops described in Section 3.7.1 below and to Wrexham town centre. A shared surface footway is also present on the northern side of Croesnewydd Road to the west of the junction stub, although to the east the footway is not present, although it is understood that a footway would be provided as part of the development of the former Brother site. At the proposed junction access, dropped kerbs, tactile paving and a splitter island have been provided which would allow pedestrians to cross Croesnewydd Road from the site access.

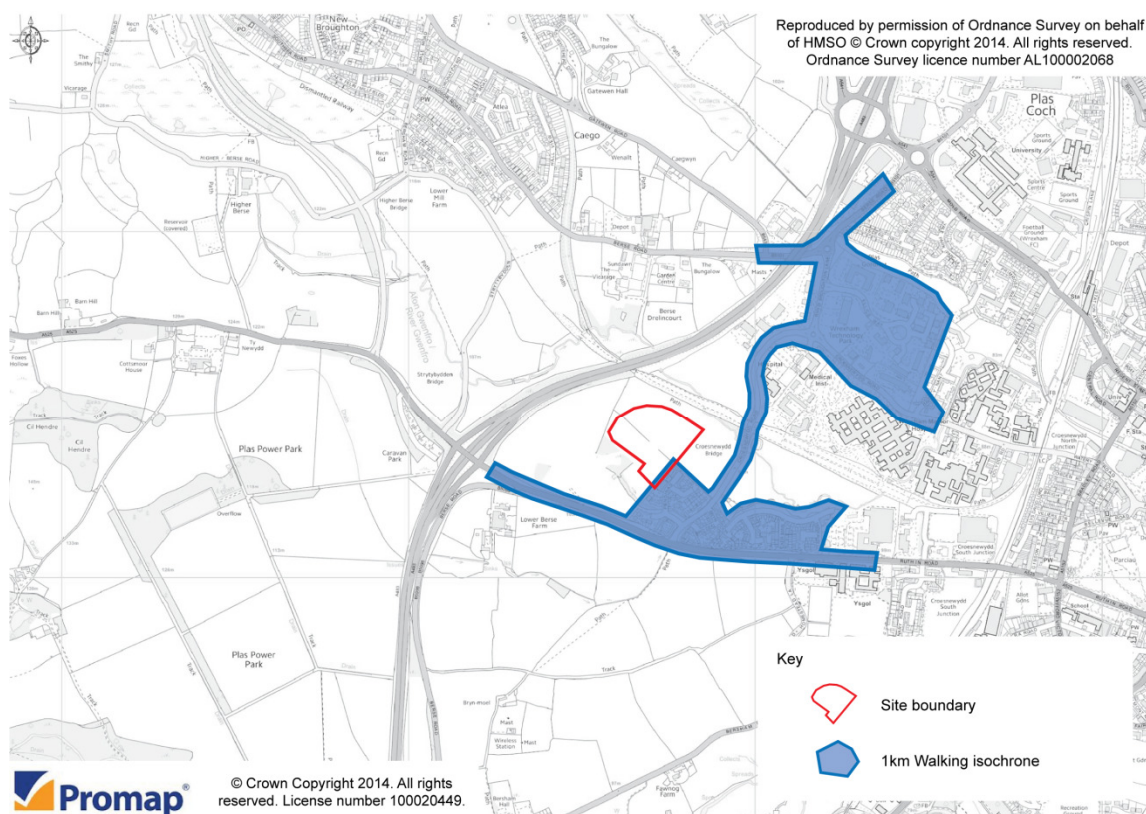
The footways along Croesnewydd Road are shared with cyclists, as seen on Photograph 2 below. Dropped kerbs and tactile paving is present at crossing points on Croesnewydd Road and street lighting is also present.



Photograph 2 Pedestrian and cycle facilities on Croesnewydd Road

The IHT publication 'Providing for Journeys on Foot' (IHT 2000) suggest acceptable walking distances for various land uses. The suggested acceptable walking distance for commuting is considered to be up to 1km. Figure 3 below shows the 1km walking isochrone from the site.

Figure 3 1km isochrone form the site



A right of way formerly crossed the proposed development site however this was stopped up in early 2014 prior to the submission of this planning application.

3.6 Cyclist facilities

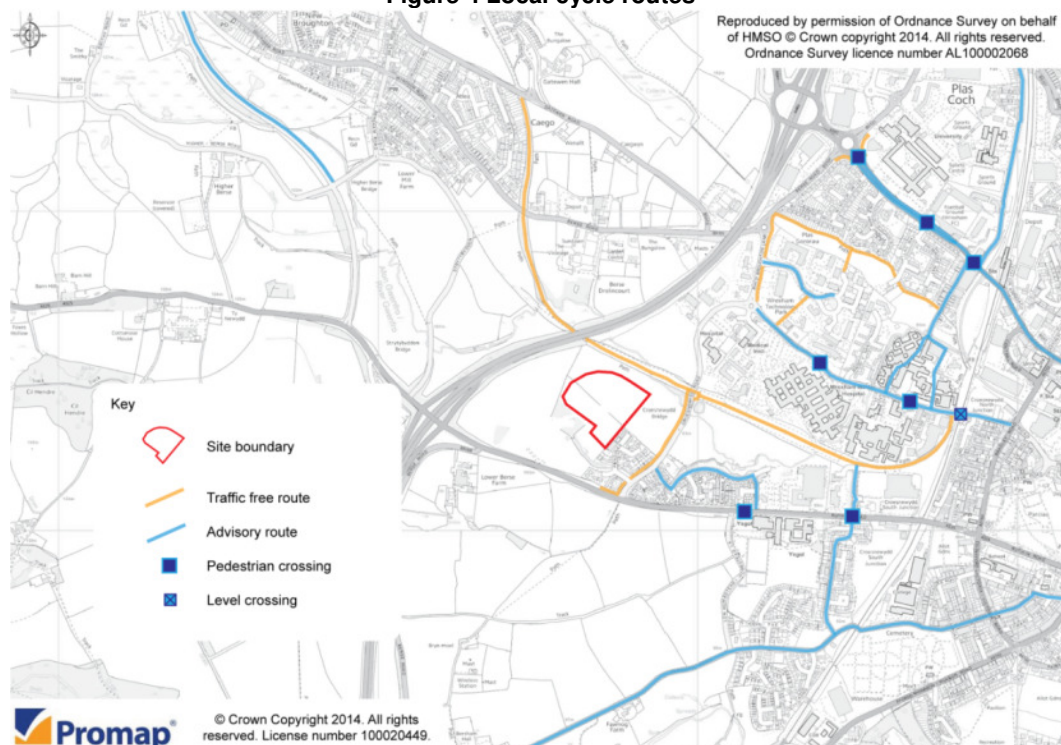
There are a number of on and off road cycle routes in the area, the closest off-road route being adjacent to the site on Croesnewydd Road which is shared with pedestrians, as seen in Photograph 3 below.



Photograph 3 Shared pedestrian and cycleway on Croesnewydd Road

This route gives access to Wrexham Maelor Hospital to the north and Ruthin Road to the south, both of which provide access to Wrexham town centre where there are additional on and off road routes. Figure 4 shows the cycle routes in the surrounding area.

Figure 4 Local cycle routes



3.7 Public transport

3.7.1 Bus

The site has access to public transport in the form of bus services, the closest being on Croesnewydd Road to the west, approximately 300m from the site access. Further bus services are also available at Wrexham Maelor Hospital (approx. 700m from the site entrance) to the east of the site which benefit from shelters.



Photograph 4 Bus stop on Croesnewydd Road

The location of the bus stops closest to the site are indicated on Figure 5 below.

Figure 5 Bus stop and railway station location map

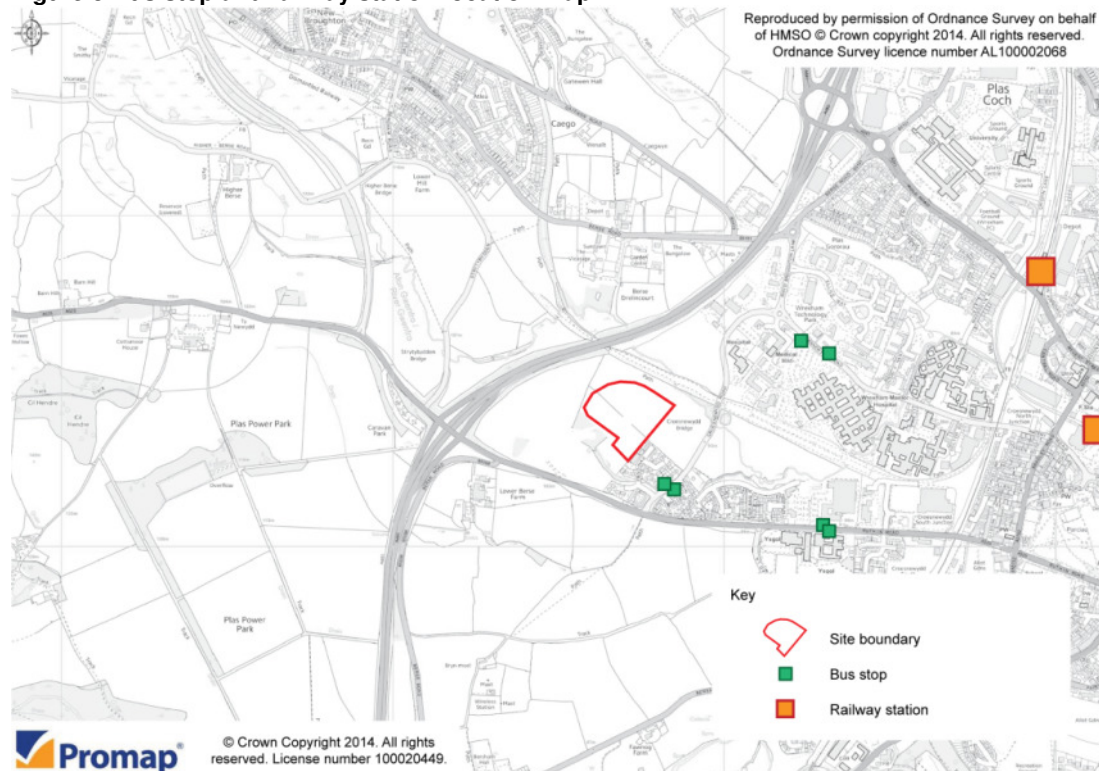


Table 3 below summarises the bus services available from the bus stops shown on Figure 5 above. These services are accessible for staff and visitors of the site.

Table 3 Local bus services

Service Number	Route	Maximum Frequency			Operator	Serves
		Monday to Friday	Saturday	Sunday		
16	Wrexham - Tanyfron - Wrexham	One bus per hour	One bus per hour	No Service	D Jones & Son	Pentre Bach Estate / Ruthin Road
95	Melin y Wig - Corwen - Llandegla - Wrexham	Monday & Wednesday - one AM and PM service only	One AM and one PM only	No Service	GHA	Hospital
11	Wrexham - Coedpoeth High Street - Minera	One bus per hour	One bus per hour	No Service	Arriva	Hospital
15	Wrexham - Coed Efa - Brymbo	Two buses per hour	Two buses per hour	No Service	GHA	Hospital
21A	Wrexham - Summerhill - Wrexham	One bus per hour	One bus per hour	One bus every two hours	Arriva	Hospital
10	Wrexham - Bwlchgwyn - Gwynfryn	One bus per hour	One bus per hour	No Service	D Jones & Son	Hospital
14	Wrexham - Tanyforn - Brymbo	One bus per hour	One bus per hour	No Service	Arriva	Hospital
15	Wrexham - Coed Efa - Brymbo	Two buses per hour	Two buses per hour	No Service	GHA	Hospital
12	Wrexham - New Broughton - Brymbo	Two buses per hour	Two buses per hour	One bus per hour	Arriva	Hospital
9	Wrexham - New Broughton - Minera	One bus per hour	One bus per hour	No Service	D Jones & Son	Hospital
26	Wrexham - Mold	One bus per hour	One bus per hour	No Service	Arriva	Hospital
X50	Denbigh – Ruthin – Wrexham	One bus per hour	One bus per hour	One bus every two hours	GHA	Hospital
X94	Barmouth – Dolgellau – Bala – Llangollen –	One bus every two hours	One bus every two hours	No service	GHA / G-L	Hospital

	Wrexham					
27	Mold – Leeswood – Sydallt – Wrexham	Services at 07:51, 08:36, 09:21, 18:21 and 19:21 only	Services at 07:51, 08:36, 09:21, 18:21 and 19:21 only	No service	Arriva	Hospital
It should be noted that the above information is correct at the time of writing and up to date information on the bus services can be found on WCBC's website www.wrexham.gov.uk and on the individual operators websites.						

3.7.2 Rail

Wrexham General and Wrexham Central railway stations are both located approximately 1.5km from the site, Wrexham General to the north east and Wrexham Central to the east. The location of both stations can be seen on Figure 5 above.

Wrexham General is operated by Arriva Trains Wales, however, services are also provided by Virgin Trains. Wrexham General is a major hub for inter-city services in North Wales.

Wrexham Central is a smaller station and is only served by the Borderlands Line, which links Wrexham and north-east Wales to Bidston in Merseyside.

Table 4 below shows the services available from both stations.

Table 4 Rail services

Operator	Route	Services		
		Monday - Friday	Saturday	Sunday
Arriva Trains Wales	Shrewsbury - Gobowen - Chirk - Ruabon - Wrexham General - Bidson - Chester - Liverpool Lime Street	Two trains per hour in AM peak and then hourly	One train per hour	No services
Virgin Trains	Wrexham General - Chester	Train at 07:00 and 20:38	No services	No services
Virgin Trains	London Euston - Crewe - Chester - Wrexham General - Rhyl - Bangor - Holyhead	Hourly services	Hourly services	Every two hours
Arriva Trains Wales	Cardiff Central - Hereford - Shrewsbury - Wrexham General - Chester - Llandudno	Every two hours	Every two hours	No services
Arriva Trains Wales	Wrexham Central – Wrexham General – Caergwrle – Buckley – Shotton – Heswall – Bidston	Hourly services	Hourly services	Every two hours

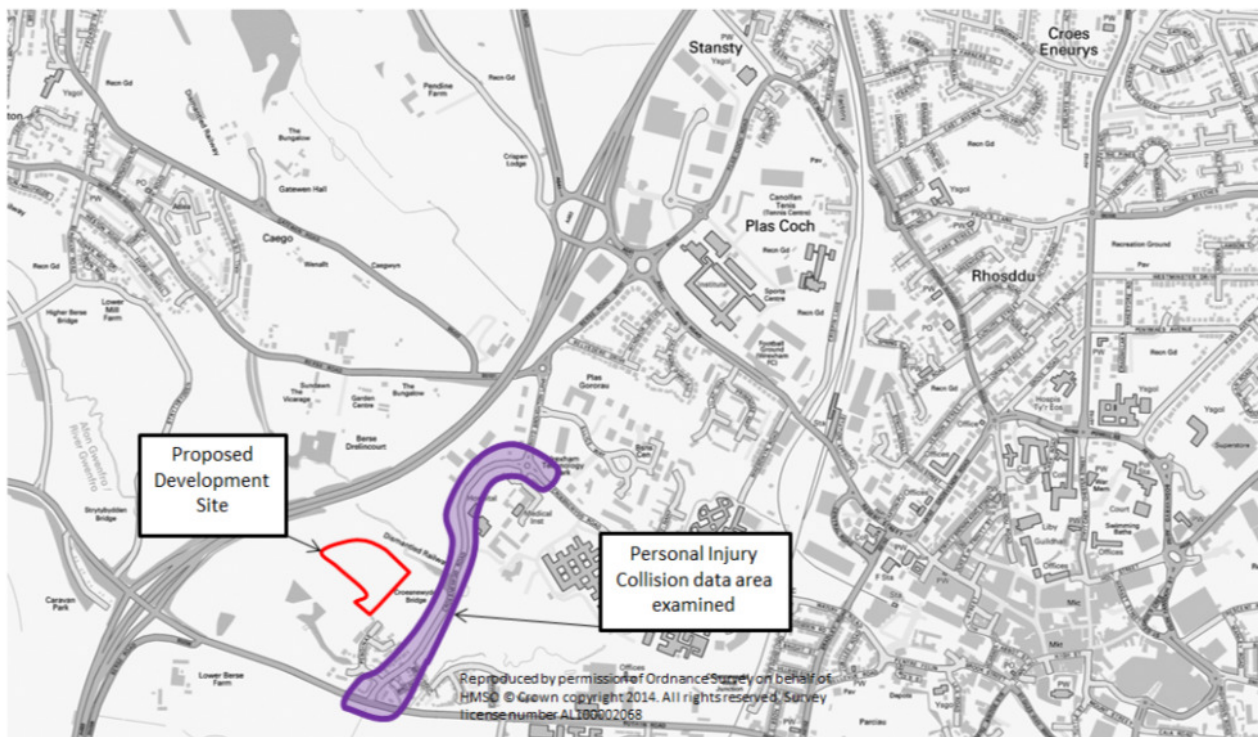
Table 5 shows that there are a number of destinations in North East Wales and Merseyside

which have rail connections to Wrexham. Frequent bus services also link the station with the bus stops outside Wrexham Maelor Hospital (for access to the site) with approximately 15 bus services an hour during peak times.

3.8 Personal Injury Collision Data

As part of this TA, Personal Injury Collision records were obtained from WCBC for the area shown in Figure 6. It has however been confirmed by WCBC that no personal injury collisions have been recorded in this area during the latest five year period.

Figure 6 Area examined for Personal Injury Collisions

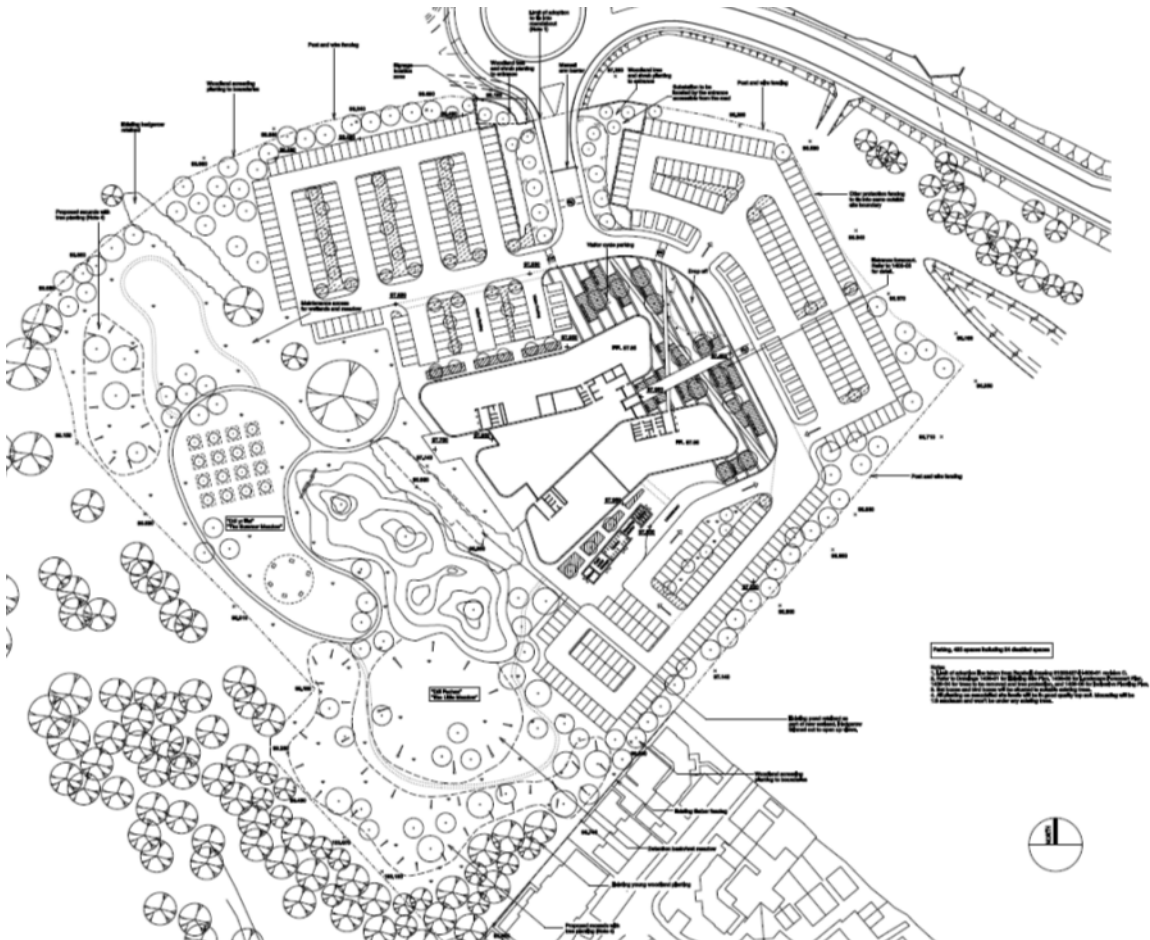


4. Proposed Development

4.1 Details of proposed development

The proposed development would provide a new HQ for Moneypenny, who provide telephone answering and switchboard services. The proposal would include a three storey A2 Professional Services HQ building of 8,467 sq.m. with associated landscaping, cycle parking and car parking. The proposed development would be phased and would ultimately accommodate up to 1,000 PA staff and approximately 60 support staff. The proposed site layout plan is included in Appendix A with an extract provided in Figure 7.

Figure 7 Proposed Site Layout



Moneypenny currently employ a total of 366 staff at four sites in the neighbouring Wrexham Technology Park, the location of which was shown in Figure 2 previously. The company has experienced rapid growth in recent times and it is expected that there will be approximately 400 members of staff by the end of 2014 with further growth likely. The target date for the opening of the proposed development is Spring 2016 and upon opening all staff will transfer from the existing Moneypenny sites to the new site.

The opening of the development would be phased. During the construction phase the entire building, car parking and landscaping would be constructed. However, during the 'fitting out' stage of construction, only the lower two storeys of the building (total 5,870 sq.m.) would be fitted out and suitable when the site is operational during phase 1. When opening for phase 1, the fitted out part of the building would provide capacity for 550 PA staff and 60 support staff with the third storey of the building not 'fitted out' and therefore unused. It is expected that a few years after opening when the Moneypenny staff numbers will be approaching 550 PA staff, the fit out of the third storey would be undertaken. Following the completion of the fit out of the third storey, the full gross floor area of 8,467 sq.m. would be useable, providing capacity for 1,000 PA staff with the 60 support staff remaining as per phase 1.

It should be noted that the staff numbers above (i.e. 366 at present and 1,060 total capacity) refer to the total number of employees and it is unlikely that all 1,060 members of staff would be on site at any one point owing to shift patterns, annual leave, maternity leave, etc. The proposed development has been designed on the principal that only a maximum of 80% of staff will be on site at any one time (i.e. 848 of the 1,060 proposed number of staff). This is based following review of existing timesheet records, with Table 5 showing a typical example of staff numbers working in a typical week. It has been confirmed by Moneypenny that a proportion of staff are expected to be on longer term leave (e.g. maternity leave) and this proportion of staff is included in the proposed staffing numbers with no maternity leave covering staff usually employed. The staffing levels at Moneypenny are also relatively consistent throughout the year, with strict policies on the number of staff able to take time off work at any one time, as shown in the June and August timesheet records in Table 5.

Table 5 Moneypenny timesheet records

Date	Day	No. Staff	Maternity	Off Sick	On Holiday	Rota'd day off	Total Off	Total In	% of staff in work
09/06/2014	Mon	338	24	8	40	11	83	255	75.4%
10/06/2014	Tues	338	24	5	40	14	83	255	75.4%
11/06/2014	Wed	338	24	6	41	24	95	243	71.8%
12/06/2014	Thur	338	24	4	39	17	84	254	75.1%
13/06/2014	Fri	338	24	6	48	7	85	253	74.9%
06/08/2014	Wed	366	24	9	40	23	96	270	73.8%
07/08/2014	Thurs	366	24	8	34	22	88	278	76.0%
08/08/2014	Fri	366	24	9	48	11	92	274	74.9%
09/08/2014	Sat	366	24	1	7	277	309	57	15.6%

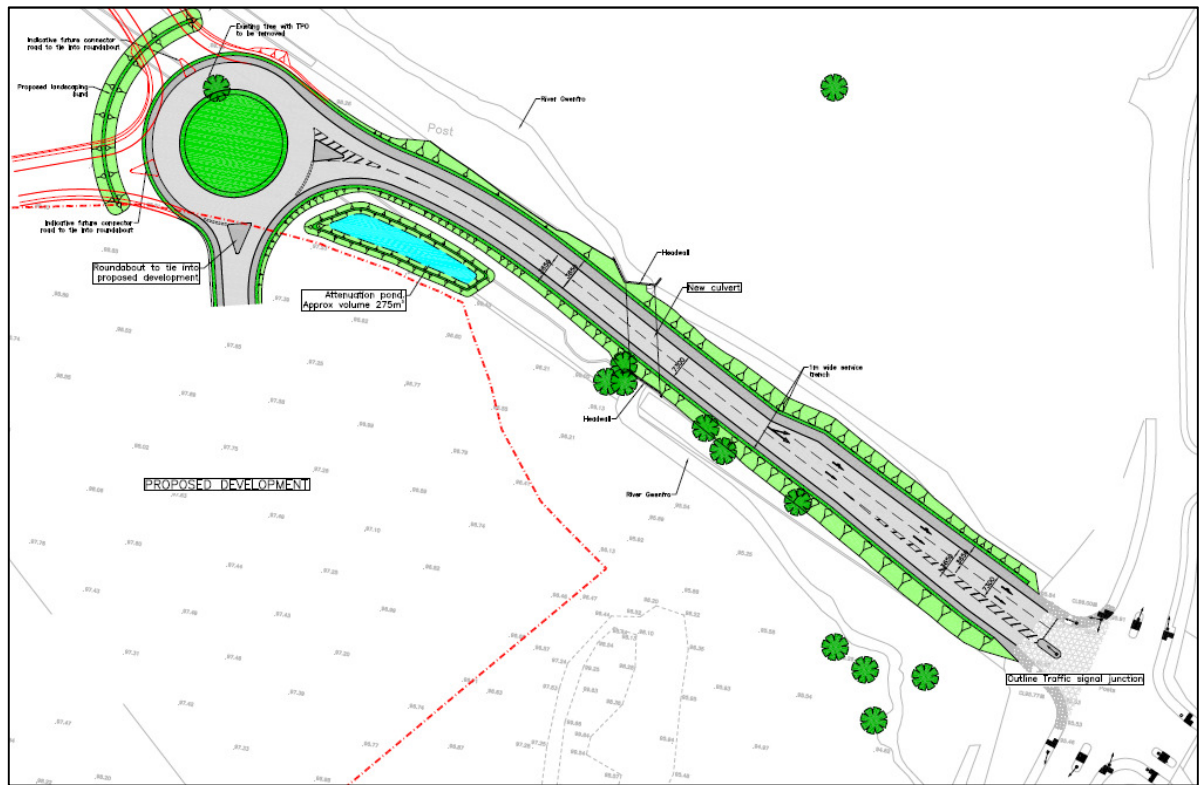
10/08/2014	Sun	366	24	1	4	303	332	34	9.3%
11/08/2014	Mon	366	24	9	46	10	89	277	75.7%
12/08/2014	Tue	366	24	10	42	21	97	269	73.5%

4.2 Access to the proposed development site

Access to the proposed development would be via a new access road of approximately 250m in length which at the southern extent would link to Croesnewydd Road. The design and construction of the access road is being undertaken by WCBC with a planning application for the road submitted in August 2014 and being determined at the time of writing. The southern extent of the access road would join Croesnewydd Road at a junction recently constructed as part of the works to replace a weak bridge over the River Gwenfro on Croesnewydd Road (referred to as the site access junction). The access road would connect into the existing northern 'stub' arm of the junction (previously shown in Photograph 1) with a further 'stub' arm to the south to provide access to the proposed WAST development and part of the existing parking at Wrexham Maelor Hospital. As part of the access road proposals, it is understood that the site access junction at the southern extent would be signalised. As seen in Figure 8, a roundabout will be provided at the northern extent of the access road, from which the proposed development would be accessed. A 3m wide footway/cycleway would also be provided for pedestrians and cyclists which would tie into existing facilities on Croesnewydd Road.

The layout of the access junction and access road can be seen in the extract in Figure 8 with the full layout provided in Appendix D.

Figure 8 Proposed Access Road Layout



The access road and site access junction have been designed to a high capacity standard and were formerly part of wider plans to form a 'spine road' which would link to A525 Ruthin Road near the junction with A483 Junction 4 (effectively bypassing the Croesnewydd Road - A525 Ruthin Road junction). Capacity issues with the proposed link road design means that this plan is no longer being considered at present but the design of the access road and roundabout at the northern extent do allow for the possibility of the spine road being completed in the future. The roundabout could also provide access to neighbouring development sites adjoining the Moneypenny site.

4.3 Proposed parking strategy

4.3.1 Cycle parking

Cycling as a mode of transport is one of the most sustainable methods of travel and cost reductions as well as health and fitness benefits, to the user compared with car travel.

The site will have good permeability for cyclists which will connect to the existing cycle facilities on Croesnewydd Road, on the eastern boundary of the site. The proposals provide for a total of 19 cycle stands which can accommodate 38 cycles, a level agreed with WCBC. The location of the cycle parking can be seen in the site layout in Appendix A.

A total of eight cycle parking spaces will be situated at the front of the building and will provide convenient cycle parking facilities for visitors arriving by bicycle as well as providing a visual

reminder to members of staff of the opportunities of travelling to the site by bicycle. A further 30 cycle parking spaces will be situated on the southern side of the main building.

All cycle parking provided on site benefit from 'natural surveillance' from being overlooked by the main building.

Cycle access to the site would be via the new access road from Croesnewydd Road which features 3m wide shared surfaces which would also tie into the shared on Croesnewydd Road.

4.3.2 Car parking

A total of 425 car parking spaces are proposed for the site, of which 24 (5.6%) will be designated as accessible spaces for use by the disabled, a level agreed with WCBC. The location of the parking can be seen in the proposed site layout within Appendix A. The total number of parking spaces conforms with WCBC parking standards.

To promote car sharing amongst members of staff, 10% of parking spaces will also be designated for car sharers. This provision is sufficient to meet current demands and would encourage the uptake of car sharing amongst members of staff as part of the Travel Plan. The location of these spaces will be set out in the Full Travel Plan which is expected to be conditioned as part of this application. The spaces are however likely to be preferable spaces for users in terms of proximity to the main entrance.

4.4 Pedestrian facilities

Walking forms part of every journey and can be the complete journey modes. Meeting the needs of pedestrians is therefore very important. The aim of the scheme through design is to ensure that pedestrian access to and from bus stops, local shops and facilities etc. is direct, safe and attractive. All accesses into the buildings will be DDA compliant and suitable for use by employees and visitors with varying disability impairments.

Pedestrians will be able to walk to the site via the newly constructed 3m wide shared surface along the site access road from Croesnewydd Road. It is unclear if signalised pedestrian crossings will be incorporated into the junction of the access road and Croesnewydd Road being provided by WCBC.

4.5 Public transport

Public transport is available in the vicinity of the site by way of buses, as described in Section 3.7 above. These services will be available for staff and visitors to the site and information on public transport in the area will be made available within the building.

4.6 Servicing arrangements

It is expected that service vehicle arrangements will be similar in terms of the type of vehicle used. It is therefore expected that the largest vehicle used to service will be a large refuse vehicle or 3-axle catering light goods vehicle. Service vehicles would park in the dedicated servicing bay identified on the site layout plan in Appendix A with items delivered to the building via the dedicated servicing access. Swept path analysis of a service vehicle accessing the servicing bay is providing in Appendix E.

4.7 Drop off facilities

The proposed site layout in Appendix A also provides a pick-up/drop off point at the front of the building. It is envisaged that this area will be used by visitors or members of staff being dropped off at the site by taxi or members of staff being dropped off at work by another family member.

4.8 Construction Period

As set out in section 4.2, the planning application for the proposed access road has been submitted by WCBC and is currently being considered. During the construction period of the proposed development, ground protection works will be undertaken as set out indicatively in Appendix F.

4.9 Travel Plan

As part of this planning application an Outline Travel Plan has been prepared and it is expected that a Full Travel Plan will be conditioned. The Outline Travel Plan is included separately within this planning submission but includes a number of key measures to reduce the number of trips to the site by single occupancy car including:

- Appointment of a Travel Plan Co-ordinator for the site and setting up of a Travel Plan Working Group;
- Providing information to members of staff on the sustainable travel options to the site including the provision of relevant information on notice boards, leaflets and internal intranet pages with links to appropriate websites (e.g. Traveledine Cymru journey planner);
- New members of staff starting on site will be provided with information setting out the means and benefits of travelling to the site sustainably;
- The opportunity for personalised journey plans will be explored for existing staff when transferred to the new site;

- Training will be provided to key members of staff on how to find sustainable travel information and the options for travelling to the site sustainably. This information can be disseminated to colleagues looking to access this information;
- Events will be held to encourage the uptake of sustainable travel and national events (e.g. Liftshare Week, Cycle to Work week) will be marked;
- Secure, sheltered on-site cycle parking will be provided prior to opening;
- On site drying, showering and changing facilities will be provided for members of staff walking and cycling to work;
- 10% of on-site parking spaces will be designated for use only by members of staff car sharing to work;
- Staff will be directed to the Sharecymru website in order to identify other potential car sharing partners; and
- The possibility for obtaining subsidised travel by public transport will be investigated.

It is expected that these measures will be supplemented further in the Full Travel Plan. The Full Travel Plan will also set out details on the parking management and which spaces will be designated for use by car sharers.

5. Trip Generations and Distributions

This section sets out the trip generations and distributions to the proposed Moneypenny site. It has been agreed with WCBC and WG that **trips made by staff to the existing Moneypenny site can be accounted for and subtracted from the existing background traffic movements**. The methodology for determining the existing traffic generations is as per the proposed traffic generations and is set out in the sections below, as agreed with WCBC and WG in the scoping meeting on 29 July 2014.

5.1 Trip Generations

Similar to the present Moneypenny operations, it is expected that the proposed development will generate minimal operational and visitor trips with the majority of trips generated by staff travelling to and from work.

As agreed with WCBC and WG, a first principles methodology has been used to determine the trip generations of the proposed development. The methodology used to establish the trip generations is set out in the following sections and has been used to determine both the existing and proposed trip generations. **To provide a robust assessment for the proposed trip generations, a worst case scenario has been considered and it has been assumed that the development will open with a total of 1,060 employees** (i.e. 1,000 PA staff and 60 support staff). As set out in section 4.1, it is intended that the opening of the development will be phased with capacity for 550 staff and 60 support staff upon opening however the above represents a worst case scenario for a robust assessment.

5.1.1 Total Trip Generations

As set out in section 4.1, a total 1,060 staff will be employed at the site but it is expected that only up to 80% of staff on a typical day will travel to the site because of shift patterns, on annual leave, sick leave, maternity leave, etc, as set out in Table 5 previously.

To provide a robust assessment, it has thus been assumed that 80% of the total number of staff will travel to and from work on a typical day. In summary it is therefore expected that 293 of the existing 366 staff and 848 of the 1,060 proposed staff will travel to and from work on a typical day.

5.1.2 Peak Hour Trip Generations

Peak hour trip generations to the site have been based on the existing shift patterns at Moneypenny which are expected to remain similar following the completion of the proposed development. The existing shift patterns are set out in Table 6.

Table 6 Moneypenny staff shift patterns

Shift	Proportion of staff
08:30 - 17:00	48%
09:00 - 17:30	24%
09:30 - 18:00	24%
11:30 - 20:00	4%

It was agreed with WCBC and WG that an AM peak hour of between 08:15-09:15 will be assessed and a PM peak hour of 17:00-18:00. During the AM peak hour it has been assumed that 84% of staff working on an typical day will travel to the site. This figure comprises the 48% of staff starting at 08:30, the 24% of staff starting at 09:00 and half of the 24% of staff starting at 09:30 (to represent staff arriving early for their shift). The 84% is thus made up of 48% + 24% + (0.5x24%). It is thus assumed that 246 staff travel to the present site and 712 staff will travel to the proposed site in the AM peak hour.

For the PM peak it has been assumed that 72% of staff will leave the site between 17:00-18:00. This would consist of the 48% of staff leaving at 17:00 and 24% of staff leaving at 17:30. The 72% is thus made up of 48% + 24%. As staff are required to remain on site until the end of their shift, no staff on the 09:30-18:00 shift would leave between 17:00-18:00. It is thus assumed that 211 staff travel to the present site in the AM peak hour and 611 staff will travel to the proposed site in the AM peak hour.

Whilst staff will travel to the site in the AM peak and from the site in the PM peak, there are also likely to be some trips departing the site in the AM peak and arriving at the site in the PM peak (e.g. staff getting dropped off at work). To present a robust assessment it has thus been assumed that an additional 5% of the vehicle trip generations will depart from the site in the AM Peak and arrive at the site in the PM peak.

5.1.3 Vehicle Trip Generations

Vehicle trip generations for the site have been based on the current modal split of Moneypenny staff as presented in section 3.2. As set out in the survey results, 72.4% of staff travel to work by single occupancy car, with a further 10.7% car sharing (with an average of 2.5 occupants per shared car). These figures have thus been applied to the peak hour trip generations to determine the vehicular trip generations of the site. It is expected that this methodology represents a 'worst-case' assessment prior to the application of the Outline Travel Plan which is included in this application and would be expected to reduce single occupancy car levels.

Applying these proportions to the peak hour trip generations set out in section 5.1.2 results in the following trip generations:

- Existing site AM Peak – 178 single occupancy vehicles, 11 vehicles for car sharers arriving at the site (plus 5% of these vehicle movements leaving the site)
- Existing site PM Peak – 153 single occupancy vehicles, 9 vehicles for car sharers departing from the site (plus 5% of these vehicle movements arriving at the site)
- Proposed site AM Peak – 516 single occupancy vehicles, 30 vehicles for car sharers arriving at the site (plus 5% of these vehicle movements leaving the site)
- Proposed site PM Peak – 442 single occupancy vehicles, 26 vehicles for car sharers departing from the site (plus 5% of these vehicle movements arriving at the site)

5.1.4 Summary

The methodology used to establish the trip generations is summarised in Table 7 and shows how the trip generations have been calculated.

Table 7 Moneypenny Peak Hour Trip Generation Summary

	Existing		Proposed		Data source
	AM Peak	PM Peak	AM Peak	PM Peak	
Number of staff employed	366		1060		Moneypenny records
Total Trip Generations - The proportion of staff that are in work at Moneypenny on a typical day (excluding sick, annual leave, etc)	80%		80%		Moneypenny records
Total Trip Generation	293		848		
Peak Hour Trip Generations - Proportion of staff working on shifts travelling in peak hour	84%	72%	84%	72%	Moneypenny shift patterns
Number of staff travelling to/from work in peak hour period	246	211	712	611	
Staff Modal Split Proportion of staff travelling by car alone	72.4%				Survey of Moneypenny staff
Number of vehicles generated by staff travelling alone by car	178	153	516	442	
Proportion of staff travelling by car share	10.7%				

Surveyed number of employees per shared car	2.5				
Number of vehicles generated by staff travelling alone by car	11	9	30	26	
Number of vehicle arrivals during peak hour	189	8	546	23	
Number of vehicle departures during peak hour	9	162	27	468	

As set out above, it is again emphasised that the above trip generations account for a 'worst case' scenario whereby the development becomes operational with 1,060 staff employed at the site.

5.2 Trip Distributions

As set out in Section 5.1, the main traffic generations of the proposed development are related to staff travelling to and from work at the start and end of their shift. Vehicle trip generations have thus been distributed according to where staff live and the routes they would take to travel to and from work.

Analysis of the home postcodes of members of staff has been undertaken and the subsequent quickest routes that staff would take to work has been determined using Google maps and directions. It was identified that staff living in similar areas would use similar routes to travel to work and therefore for simplicity staff living in similar areas and taking similar routes to work have been grouped into zones. A plan showing the locations of boundaries of each zone is set out in Figure 9. Any member of staff living north of the area shown within Figure 9 (e.g. staff living in Merseyside, North Wales coast) have been assumed to live in Zone C. Any member of staff living south of the area shown within Figure 9 (e.g. staff living in Mid Wales, Oswestry) have been assumed to live in Zone G. A plot showing the home postcodes of members of staff is provided in Appendix G.

Figure 9 Zones of staff home locations

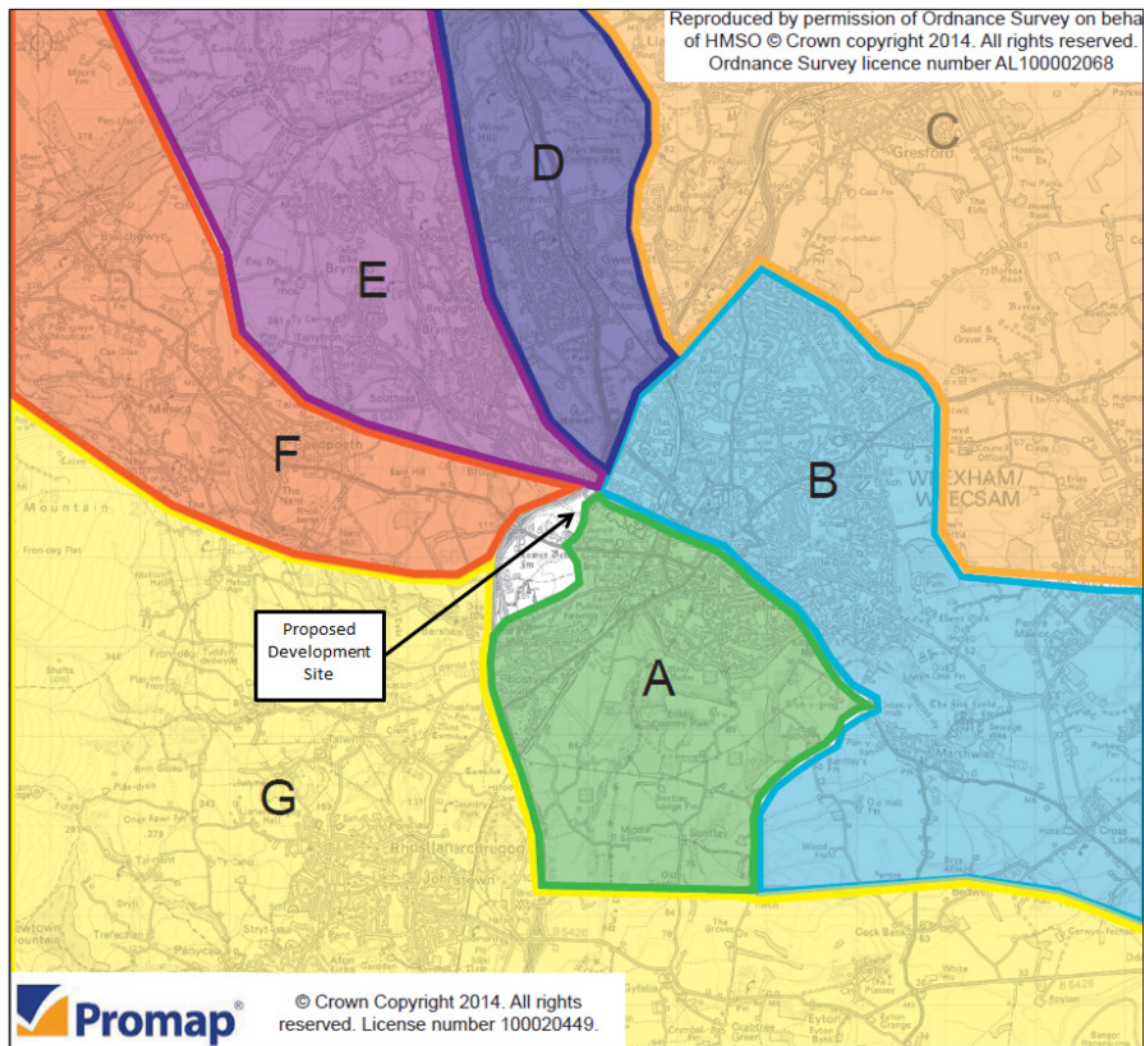


Table 8 Proportions of staff living in each zone

Zone	Proportion of staff living in zone	Zone	Proportion of staff living in zone
A – South Wrexham	10.7%	E – Broughton via Berse Road	11.2%
B – North Wrexham	22.4%	F – Coedpoeth via A525	5.7%
C – North via A483	17.5%	G – South via A483	17.2%
D – A541 Mold Road	15.3%		

The routes that staff have been assumed to travel to work from each zone are set out in

Table 9 Assumed routes to existing and proposed Moneypenny sites. The distributions can also be found in schematic form in Appendix H1 – H4 and applied to the existing and proposed Moneypenny trip generation (identified in section 5.1) in Appendix H5 – H10.

Table 9 Assumed routes to existing and proposed Moneypenny sites

Zone	Assumed Route to Current Site	Assumed Route to Proposed Site
A – South Wrexham	All traffic approaches via Watery Road and turns right into Wrexham Technology Park (WTP)	All traffic approaches via A525 Ruthin Road from direction of Wrexham, turns right onto Croesnewydd Road and left into the site
B – North Wrexham	All traffic approaches from Plas Coch Road, Berse Road and turns left into WTP	All traffic approaches from Watery Road, turns left onto Croesnewydd Road and right into the site
C – North via A483	All traffic approaches via A483 Junction 5, turns left onto Mold Road, right onto Berse Road and left into WTP	All traffic approaches via A483 Junction 5, turns left onto Mold Road, right onto Berse Road, onto Croesnewydd Road and right into the site
D – A541 Mold Road	All traffic approaches via A541 Mold Road, crosses A483 Junction 5, turns right onto Berse Road and left into WTP	All traffic approaches via A541 Mold Road, crosses A483 Junction 5, turns right onto Berse Road, onto Croesnewydd Road and right into the site
E – Broughton via Berse Road	All traffic approaches via Berse Road, turns right at the roundabout and left into WTP	All traffic approaches via Berse Road, turns right at the roundabout, carries onto Croesnewydd Road and turns right into the site
F – Coedpoeth via A525	All traffic approaches A483 Junction 4 via A525 from the Coedpoeth direction, passes over Junction 4, turns left into Croesnewydd Road, continues and turns right into WTP.	All traffic approaches A483 Junction 4 via A525 from the Coedpoeth direction, passes over Junction 4, turns left into Croesnewydd Road and left into the site
G – South via A483	All traffic approaches A483 Junction 4 via A483 from the south, turns right at Junction 4, turns left into Croesnewydd Road, continues and turns right into WTP.	All traffic approaches A483 Junction 4 via A483 from the south, turns right at Junction 4, turns left into Croesnewydd Road and left into the site.

6. Existing Traffic Conditions

6.1 Baseline Traffic Data

It was agreed with WCBC and WG that the junction turning counts set out in Table 10 would be required for this TA. Fully classified turning counts and queue length surveys were undertaken for these junctions between the hours of 07:00 and 10:00 and 15:00 and 19:00 on 1st July 2014. A copy of the survey data can be found in Appendix I of this TA and a schematic diagram of the 2014 surveyed traffic flows can be seen in Appendix H 11-12. For the purpose of this assessment, the proposed site access junction on Croesnewydd Road utilises the data for the Croesnewydd Road – A525 Ruthin Road junction.

Table 10 Baseline Turing Count Surveys

Reference Number	Junction
TC1	A483 Junction 4 onslips/offslips – A525 (6 arms)
TC2	A525 Ruthin Road – Croesnewydd Road (3 arms)
TC3	A541 Mold Road - Berse Road – B5101 Plas Coch Road (4 arms)
TC4	A483 Junction 5 onslips/offslips – A541 Mold Road – Summerhill Road (7 arms)

It was subsequently agreed that two further junctions would also require analysis – the Croesnewydd Road – Watery Road - Rhyd Broughton Lane roundabout junction and the Berse Road - Rhyd Broughton Lane roundabout junction. Traffic data for these junctions was provided by Wrexham CBC from surveys carried out in 2012.

6.2 Traffic Factors

In order to assess junction capacity in future assessment scenarios, it is necessary to factor the existing background (2012 and 2014) traffic flows. The existing traffic flows have been factored using National Transport Model (NTM) growth factors for Wrexham obtained from TEMPRO v6.2. In accordance with WebTAG unit 3.15. TEMPRO software has been used to derive the local adjustment factors to modify NTM growth.

A future year assessment of ten years after opening (2016) has been undertaken as part of this TA. Future assessment years of 2016 and 2026 have therefore been used with the factors used shown in Table 11.

Table 11 Traffic Growth Factors

Year	NTM Growth factor	
	Weekday AM	Weekday PM
2012 - 2016	1.0100	1.0121
2012 - 2026	1.1366	1.1388
2014 - 2016	1.0112	1.0122
2014 - 2026	1.1352	1.1389

Schematics of the 2016 and 2026 factored future year traffic flows can be seen in Appendix H 13-16.

6.3 Committed Developments

As agreed with WCBC and WG, the following sites have been considered as committed development:

- The former Brother manufacturing site (located to the east of the proposed development); and
- The proposed WAST development (located opposite the proposed development site and accessed off the same junction) including changes to the Wrexham Maelor Hospital car park access.

The methodology used for the trip generations and distributions for each of the above changes is set out in Appendix J, with a summary of the resultant trip generations and redistributions provided in Appendix H17-24.

6.3.1 Committed Highway Developments

Following discussions with WCBC and WG, the following highway changes have also been identified:

- Capacity improvements to Croesnewydd Road – Rhyd Broughton Lane roundabout junction; and
- Capacity improvements to Rhyd Broughton Lane – Berse Road roundabout junction.

It is understood that these highway improvements will be implemented in the 2014/15 financial year and will thus be implemented prior to the Moneypenny development becoming operational. The highway layouts of the proposed changes at these junctions has been provided by WCBC and are set out in Appendix K.

7. Impact Assessment

This section sets out the traffic impact assessment of the proposed Money Penny development.

7.1 Modelling Requirements

The proposed traffic impact of the development has been considered for the junctions set out in Table 12 below.

Table 12 Junction Assessments

Junction No.	Junction Name	Method of Analysis	Traffic Data
J1	Croesnewydd Road – site access- WAST facility	LinSig v3	Data for Croesnewydd Road gathered from TC2 in Table 1. Data from WAST facility Transport Note produced by Arup dated 11/11/13.
J2	A483 Junction 4	LinSig v3	TC1 from Table 10
J3	Croesnewydd Road – A525 Ruthin Road	LinSig v3	TC2 from Table 10
J4	A483 Junction 5, Berse Road Roundabout	LinSig v3	TC3 and TC4 from Table 10
J5	Croesnewydd Road – Watery Road – Rhyd Broughton Lane	ARCADY	Data provided by WCBC
J6	Rhyd Broughton Lane – Berse Road	ARCADY	Data provided by WCBC

As set out in Table 12, LinSig v3 (for signalised junctions) and ARCADY (for roundabouts) modelling software has been used to model the effects of the development on the assessed junctions. These are industry standard modelling packages which provide a value to reflect the overall capacity of the junction from the traffic flows modelled.

LinSig produces two main result outputs for each lane of the junction, the Degree of Saturation and the Mean Max Queue length. Definitions of these two results is set out below:

- The Degree of Saturation is a ratio of demand to capacity on each approach lane, with a value of 100% meaning that demand and capacity are equal. It is usually considered that when values above 90% are experienced the junction is reaching capacity and queues may start to form.
- The Mean Max Queue represents the maximum queue within a typical cycle averaged over all the cycles within the modelled time period. This value is measured in Passenger Car Units (PCUs) with one PCU equal to one standard car length (5.75m).

For ARCADY, the outputs of the model include a Ratio of Flow to Capacity (RFC) value and queue lengths for each arm of the roundabout. An RFC value of between 0.00 and 0.85 is generally considered to indicate that the junction is working within capacity. When the RFC value is greater than 0.85 the junction is considered to be operating over capacity with potential for queuing.

7.2 Modelling Scenarios

The phasing of the proposed development is set out in section 4.1 and it is expected that upon opening, capacity for 550 PA staff and 60 support staff will be available. To provide a robust worst case scenario, as set out in section 5.1, it has been assumed that the development will open with the potential 1,060 employees (although as set out previously, only 80% of total staff numbers will be on site at any one time). Trips made by existing members of staff have also been deducted from existing traffic flows, as set out in sections 5.1 and 5.2, with the net traffic effect of the development shown in Appendix H 9 and 10.

To provide a robust assessment it was been agreed with WCBC and WG that the following modelling scenario will be tested for each of the junctions identified in Table 12 as a worst case scenario:

- **Scenario 1** - 2026 Future Year + committed development + proposed development – existing Money Penny site for AM and PM peaks

If the junction capacity exceed a 90% degree of saturation or and RFC of 0.85 for this scenario then the following scenarios will also be modelled as applicable:

- **Scenario 2** – 2026 Future Year + committed development for AM and PM peaks;
- **Scenario 3** – 2016 Opening year + committed development for AM and PM peaks; and
- **Scenario 4** – 2016 Opening year + committed development + proposed development – existing Money Penny site for AM and PM peaks.

The methodology used to establish the individual traffic flows of the above scenarios is set out in this TA with the following providing a summary of the locations where the methodology can be found:

- 2016 Opening Year / 2026 Future Year – Background traffic surveys (section 6.1) using growth factor (section 6.2)
- Committed Development – methodology set out in section 6.3 and Appendix J.
- Moneypenny proposed development – trip generation methodology set out in section 5.1, distribution methodology set out in section 5.2.
- Moneypenny existing site trip – generation methodology set out in section 5.1, distribution methodology set out in section 5.2.

Schematic diagrams of the above scenarios can be found in Appendix H 25-32.

7.3 Percentage impact of the development

Table 13 sets out the net percentage impact of the development on total traffic movements at each of the assessed junctions during the AM and PM peak periods.

Table 13 Percentage impact of development on each junction

Junction No.	Junction Name	% net impact of development	
		AM Peak	PM Peak
J1	Croesnewydd Road – site access- WAST facility	50.9%	55.0%
J2	A483 Junction 4	3.0%	2.5%
J3	Croesnewydd Road – A525 Ruthin Road	7.4%	6.8%
J4	A483 Junction 5	3.1%	2.3%
J4a	Berse Road Roundabout	2.0%	1.5%
J5	Croesnewydd Road – Watery Road – Rhyd Broughton Lane	17.1%	16.3%
J6	Rhyd Broughton Lane – Berse Road	5.5%	4.9%

As can be seen from Table 13, the impact of the junction is less than 10% for the majority of junctions assessed, with an increase of 50.9% and 55.0% in the AM and Pm peaks respectively on the site

access junction, and an increase of 17.1% and 16.3% on the Croesnewydd Road – Watery Road – Rhyd Broughton Lane roundabout.

7.4 Junction Modelling Assessment

This section interprets the analysis results of all junctions that were tested to determine the impact of the proposed development on the local highway network.

7.4.1 Junction 1 - Croesnewydd Road – Site access

The site access junction presently comprises of a through road with two stubs to provide access to the proposed development (northern stub) and the proposed WAST development (southern stub) and it is understood the junction would be signalised as part of the access road works being carried out by WCBC. The junction was therefore modelled in LinSig with the following key assumptions:

- The layout of the WAST facility will be as per the approved plans; and
- An all red phase of 7 seconds was applied to each cycle to represent the incorporation of pedestrian crossing facilities although it is unclear if these will be included in the final WCBC design.

The basic summary of the results of the modelling for Scenario 1 (2026 with development) is set out in Table 14. The LinSig modelling output files are provided in Appendix L.

Table 14 Junction 1 Assessment Results for Scenario 1

Item	Lane Description	AM Peak (08:15-09:15)		PM Peak (17:00-18:00)	
		Degree of Saturation	Mean Max Queue (pcu)	Degree of Saturation	Mean Max Queue (pcu)
Network	-	89.4%	-	50.9%	-
Site Access	-	89.4%	-	50.9%	-
1/2+1/1	Site Access Left Ahead Right	13.9 : 13.9%	0.6	50.4 : 50.4%	4.2
2/1	Site Access (Exit)	0.0%	0.0	0.0%	0.0
3/1	Croesnewydd Road (Exit)	0.0%	0.0	0.0%	0.0
4/2+4/1	Croesnewydd Road (Entry) Right Left Ahead	89.4 : 89.4%	19.6	46.2 : 46.2%	3.8
5/1	Wast (Exit)	0.0%	0.0	0.0%	0.0
6/1+6/2	Wast (Entry) Ahead Right Left	14.5 : 14.5%	0.6	22.0 : 22.0%	1.6
7/1	Croesnewydd Road South (Exit)	0.0%	0.0	0.0%	0.0
8/2+8/1	Croesnewydd Road South (Entry) Left Ahead Right	49.6 : 49.6%	5.5	50.9 : 50.9%	4.6

The results show that the junction operates within capacity in the modelled AM and PM peak periods. The AM peak period features a large proportion of right turn movements into both the proposed Moneypenny development and WAST development and the lack of right turning lanes subsequently affects the capacity of the junction in the AM peak. Table 14 does however show that the junction is still operating within capacity in the 2026 Future Design Year and further modelling analysis is therefore considered unnecessary.

7.4.2 Junction 2 - A483 Junction 4

The A483 Junction 4 has been modelled in LinSig v3. The TR2500 for this junction was requested from WCBC and WG but was not available. Geometries for the junction are as set out in Appendix O of the approved Transport Assessment for the Morrisons development on Ruthin Road (application no: P/2010/0981) prepared by TTHC Ltd (report no 07087-09 TA).

The results of the LINSIG model for the A483 Junction 4 for Scenario 1 (2026 with development) are set out in Table 15, with the modelling output files provided in Appendix M.

Table 15 Junction 2 Assessment Results for Scenario 1

Item	Lane Description	AM Peak (08:15 - 09:15)		PM Peak (17:00-18:00)	
		Deg Sat (%)	Mean Max Queue (pcu)	Deg Sat (%)	Mean Max Queue (pcu)
Network	-	85.1%	-	87.6%	-
J1: A483 West	-	74.1%	-	84.2%	-
1/2+1/1	A525 North (Entry) Left Ahead	53.7 : 53.7%	4.2	43.9 : 43.9%	5.8
1/3	A525 North (Entry) Ahead	44.3%	5.2	29.2%	5.8
2/1	A525 North (Exit)	0.0%	0.0	0.0%	0.0
3/1	A483 North On Slip	0.0%	0.0	0.0%	0.0
3/2	A483 North On Slip	0.0%	0.0	0.0%	0.0
4/1	A483 North Off Slip Left	41.8%	3.7	81.0%	13.9
4/2	A483 North Off Slip Right	74.1%	9.0	33.8%	4.9
5/1	A525 North (Exit Bridge) Ahead	0.0%	0.0	0.0%	0.0
5/2	A525 North (Exit Bridge) Ahead	0.0%	0.0	0.0%	0.0
6/1	A525 North (Entry Bridge) Ahead	64.0%	7.5	84.2%	22.0
6/2	A525 North (Entry Bridge) Right	24.3%	2.1	16.5%	2.9
J2: A483 East	-	85.1%	-	87.6%	-
1/1	A525 South (Bridge Entry) Ahead	85.1%	18.7	48.1%	7.3
1/2	A525 South (Bridge Entry) Right	22.7%	1.5	23.8%	3.4
2/1	A525 South (Bridge Exit) Ahead	0.0%	0.0	0.0%	0.0
2/2	A525 South (Bridge Exit) Ahead	0.0%	0.0	0.0%	0.0
3/1	A483 Southbound Off Slip Left	81.8%	7.2	44.7%	7.6

3/2	A483 Southbound Off Slip Right	80.5%	7.5	87.6%	22.4
4/1	A525 South (Exit)	0.0%	0.0	0.0%	0.0
5/1	Ruthin Road East Ahead Left	44.9%	4.7	87.5%	28.5
5/2	Ruthin Road East Ahead	9.9%	0.9	9.2%	1.7
6/1	A483 South On Slip	0.0%	0.0	0.0%	0.0
6/2	A483 South On Slip	0.0%	0.0	0.0%	0.0

The results show that the junction would operate within capacity in the modelled scenarios, with peak degrees of saturation of 85.1% and 87.6% in the AM and PM peaks respectively. Given that the junction is shown to operate within capacity in the future year scenario with development traffic, it is considered that further junction analysis of other scenarios is not required.

7.4.3 Junction 3 - Croesnewydd Road – A525 Ruthin Road

The Croesnewydd Road – A525 Ruthin Road junction has been modelled in LinSig v3. The TR2500 for this junction was also unavailable and the junction has therefore been optimised within the LinSig software, with modelling output files provided in Appendix N.

The results of the LINSIG model for Scenario 1 (2026 with development) are set out in Table 16.

Table 16 Junction 3 Assessment Results for Scenario 1

Item	Lane Description	AM Peak (08:15- 09:15)		PM Peak (17:00-18:00)	
		Deg Sat (%)	Mean Max Queue (pcu)	Deg Sat (%)	Mean Max Queue (pcu)
Network: Croesnewydd Road - A525 Ruthin Road	-	86.8%	-	80.9%	-
Unnamed Junction	-	86.8%	-	80.9%	-
1/1	Croesnewydd Road SB Left Right	82.8%	7.2	80.9%	14.8
2/1+2/2	Ruthin Road E Right Ahead	58.7 : 83.8%	4.5	74.0 : 76.2%	13.8
3/2+3/1	Ruthin Road W Left Ahead	86.8 : 86.8%	11.2	71.0 : 71.0%	13.4
4/1	Croesnewydd Road NB	0.0%	0.0	0.0%	0.0
5/1	Ruthin Road E rec	0.0%	0.0	0.0%	0.0
6/1	Ruthin road W rec	0.0%	0.0	0.0%	0.0

The results show a maximum degree of saturation of 86.8% and 80.9% in the AM and PM peaks respectively in the modelled 2026 scenario with development traffic, showing the junction to be operating within capacity in this scenario. Given that the junction is shown to operate within capacity, it is considered that further junction analysis of other scenarios, with lower traffic impacts, is not required.

7.4.4 Junction 4 - A483 Junction 5, Berse Road Roundabout

The combined junction of the A483 Junction 5 and Berse Road junction (Junction 4) has also been modelled in LinSig v3. TR2500s for the Junction 5 circulatory were provided by WG with the junction further optimised within LinSig. The results of the LINSIG model for Scenario 1 (2026 with development) are set out in Table 17 with the full modelling outputs provided in Appendix O.

Table 17 Junction 4 Assessment Results for Scenario 1

		AM Peak (08:15- 09:15)		PM Peak (17:00-18:00)	
Item	Lane Description	Deg Sat (%)	Mean Max Queue (pcu)	Deg Sat (%)	Mean Max Queue (pcu)
Network	-	87.6%	-	89.2%	-
J1: Mold Road (West)	-	82.6%	-	89.2%	-
1/1	Mold Road (West) (Entry Left Ahead) Left	81.3%	11.9	87.4%	11.2
1/2	Mold Road (West) (Entry Left Ahead) Left	55.3%	6.8	49.4%	4.6
2/1	Mold Road (West) (Exit)	0.0%	0.0	0.0%	0.0
2/2	Mold Road (West) (Exit)	0.0%	0.0	0.0%	0.0
3/1	Mold Road (Dummy Circulatory Exit) Left Ahead	72.0%	13.3	79.0%	14.8
3/2	Mold Road (Dummy Circulatory Exit) Ahead	40.1%	0.3	26.0%	0.2
4/1	Mold Road (Circulatory Entry) Right	82.6%	14.4	89.2%	16.0
4/2	Mold Road (Circulatory Entry) Right	39.2%	3.6	20.8%	3.3
5/1	A483 (North On Slip)	0.0%	0.0	0.0%	0.0
5/2	A483 (North On Slip)	0.0%	0.0	0.0%	0.0
J2: A483 North Off Slip	-	87.6%	-	79.0%	-
1/1	A483 Circulatory Entry Right	86.0%	11.7	79.0%	9.6
1/2	A483 Circulatory Entry Right	73.0%	9.1	60.0%	6.6
2/1	A483 North Off Slip (Entry) (Left Ahead) Ahead	75.0%	8.2	47.0%	5.0
2/2	A483 North Off Slip (Entry) (Left Ahead) Ahead	87.6%	12.1	68.8%	9.3
3/1	A483 Exit Circulatory Ahead	0.0%	0.0	0.0%	0.0
3/2	A483 Exit Circulatory Ahead	0.0%	0.0	0.0%	0.0
J3: Mold Road (East)	-	71.7%	-	75.3%	-
1/1	Mold Road East (Circulatory Entry) Ahead	71.1%	10.8	54.4%	8.5
1/2	Mold Road East (Circulatory Entry) Ahead Right	71.7%	10.3	60.1%	9.1

2/1	Mold Road (East) (Exit) Ahead	0.0%	0.0	0.0%	0.0
2/2	Mold Road (East) (Exit) Ahead	0.0%	0.0	0.0%	0.0
3/1	Mold Road (East) (Entry) Left	28.2%	1.4	68.2%	3.7
3/2	Mold Road (East) (Entry) Left	28.2%	0.6	72.8%	6.2
3/3	Mold Road (East) (Entry) Left	33.7%	0.3	75.3%	5.5
4/1	Mold Road (East) (Circulatory Exit) (Dummy) Ahead	0.0%	0.0	0.0%	0.0
4/2	Mold Road (East) (Circulatory Exit) (Dummy) Right	0.0%	0.0	0.0%	0.0
4/3	Mold Road (East) (Circulatory Exit) (Dummy) Right	0.0%	0.0	0.0%	0.0
5/1	A483 South (On Slip)	0.0%	0.0	0.0%	0.0
5/2	A483 South (On Slip)	0.0%	0.0	0.0%	0.0
J4: A483 (South) (Off Slip)	-	69.5%	-	84.4%	-
1/1	A483 (South) (Off Slip Gyratory Entry) Ahead	61.9%	6.1	81.7%	15.1
1/2	A483 (South) (Off Slip Gyratory Entry) Ahead	60.1%	6.4	83.3%	16.1
2/1	A483 (South Off Slip) (Entry) Left	41.0%	4.1	55.1%	4.8
2/2	A483 (South Off Slip) (Entry) Left	69.5%	9.6	84.4%	10.5
3/1	A483 South Circulatory Dummy Left Ahead	0.0%	0.0	0.0%	0.0
3/2	A483 South Circulatory Dummy Ahead	0.0%	0.0	0.0%	0.0
J5: Summerhill Road	-	63.9%	-	67.2%	-
1/1	Summerhill Road	0.0%	0.0	0.0%	0.0
2/1	Summerhill Road (Entry) Left	63.9%	2.9	67.2%	3.5
3/1	Summerhill Road (Gyratory) Ahead	0.0%	0.0	0.0%	0.0
3/2	Summerhill Road (Gyratory) Ahead	0.0%	0.0	0.0%	0.0
4/1	Summerhill Road Circulatory Ahead	40.7%	5.0	61.5%	14.4
4/2	Summerhill Road Circulatory Ahead	50.4%	0.5	61.0%	0.8

J6: Mold road (West) (Berse Road Junction)	-	67.1%	-	58.8%	-
1/1	Mold Road (West) (Entry) Left	45.9%	3.8	35.1%	3.0
1/2	Mold Road (West) (Entry) Left	65.9%	7.1	50.6%	2.3
1/3	Mold Road (West) (Entry) Left	67.1%	6.5	39.5%	3.5
2/1	Mold Road (West Exit) Ahead	0.0%	0.0	0.0%	0.0
2/2	Mold Road (West Exit) Ahead	0.0%	0.0	0.0%	0.0
2/3	Mold Road (West Exit) Ahead	0.0%	0.0	0.0%	0.0
3/1	Mold Road Circulatory Entry Ahead	63.2%	4.3	54.4%	4.7
3/2	Mold Road Circulatory Entry Ahead	60.6%	5.0	58.8%	5.5
3/3	Mold Road Circulatory Entry Ahead	0.0%	0.0	-	-
4/1	Mold road Circulatory Ahead	0.0%	0.0	0.0%	0.0
4/2	Mold road Circulatory Ahead Ahead2	0.0%	0.0	0.0%	0.0
4/3	Mold road Circulatory Ahead	0.0%	0.0	0.0%	0.0
J7: Plas Coch	-	83.2%	-	70.8%	-
1/1	Plas Coch Circulatory Entry Right	83.2%	16.6	54.3%	3.8
1/2	Plas Coch Circulatory Entry Right	59.3%	0.7	50.0%	2.0
2/1	Plas coch Exit	0.0%	0.0	0.0%	0.0
2/2	Plas coch Exit	0.0%	0.0	0.0%	0.0
3/1	Plas Coch (Entry) Ahead	30.3%	1.9	24.3%	2.2
3/2	Plas Coch (Entry) Ahead	71.2%	5.8	70.8%	9.6
3/3	Plas Coch (Entry) Ahead	51.1%	3.7	63.1%	8.0
4/1	Plas Coch Exit Left	0.0%	0.0	0.0%	0.0
4/2	Plas Coch Exit Ahead	0.0%	0.0	0.0%	0.0
4/3	Plas Coch Exit Ahead	0.0%	0.0	0.0%	0.0
J8: Mold Road East	-	80.0%	-	86.0%	-
1/1	Mold road East (Circulatory Entry) Right	80.0%	9.1	86.0%	14.7
1/2	Mold road East (Circulatory Entry) Right	9.7%	0.1	30.3%	1.1
1/3	Mold road East (Circulatory Entry) Right	14.8%	0.1	52.6%	2.1

2/1	Mold Road East (Exit)	0.0%	0.0	0.0%	0.0
2/2	Mold Road East (Exit)	0.0%	0.0	0.0%	0.0
3/1	Mold Road (East) (Entry) Left	17.3%	1.2	19.0%	1.8
3/2	Mold Road (East) (Entry) Left	15.3%	1.1	23.2%	2.3
3/3	Mold Road (East) (Entry) Left	67.3%	6.3	82.2%	13.0
4/1	Mold Road East (Circulatory Exit) Ahead	0.0%	0.0	0.0%	0.0
4/2	Mold Road East (Circulatory Exit) Right	0.0%	0.0	0.0%	0.0
4/3	Mold Road East (Circulatory Exit) Right	0.0%	0.0	0.0%	0.0
J9: Berse Road	-	46.8%	-	71.3%	-
1/1	Berse Road Exit	0.0%	0.0	0.0%	0.0
1/2	Berse Road Exit	0.0%	0.0	0.0%	0.0
2/1	Berse Road Circulatory Right	0.0%	0.0	0.0%	0.0
2/2	Berse Road Circulatory Right	0.0%	0.0	0.0%	0.0
3/1	Berse Road (entry) Ahead	4.4%	0.1	12.9%	0.4
3/2	Berse Road (entry) Ahead	46.8%	4.1	71.3%	5.8
4/1	Berse Road (Circulatory) Left	0.0%	0.0	0.0%	0.0
4/2	Berse Road (Circulatory) Left Ahead	0.0%	0.0	0.0%	0.0
J10: Berse Road Left Turn	-	0.0%	-	0.0%	-
1/1	Berse Road Left Turn Left	0.0%	0.0	0.0%	0.0
1/2	Berse Road Left Turn Left	0.0%	0.0	0.0%	0.0

The results show peak degrees of saturation of 85.1% and 87.6% in the AM and PM peak periods. Given that the junction is shown to operate within capacity in the future year of 2026 with the proposed development in place, it is considered that further junction analysis of other scenarios with lower traffic flows, is not required.

7.4.5 Junction 5 - Croesnewydd Road – Watery Road – Rhyd Broughton Lane

The junction of Croesnewydd Road – Watery Road – Rhyd Broughton Lane (Junction 5) has been modelled in ARCADY 8. It is understood that the present junction arrangement is to be

modified with the Rhyd Broughton Lane arm widened, with the revised layout provided by WCBC, set out in Appendix K. As part of this TA, a Junction Appraisal Report dated November 2012 setting out the proposed changes was provided by WCBC with traffic data. The results of the junction modelling are presented in Table 18 for future year 2026, opening year 2016, with and without development traffic scenarios (i.e. Scenarios 1,2, 3 and 4 identified in section 7.2). The ARCADY output files are provided in Appendix P.

Table 18 Junction 5 Assessment Results

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2026 + Development					
Croesnewydd Road East	0.7	5.24	0.41	2.1	8.2	0.68
University of Wales	0.02	4.71	0.02	0.15	6.3	0.13
Croesnewydd Road West	0.83	4.31	0.45	1.95	9.37	0.66
Rhyd Broughton Lane	15.23	40.94	0.96	0.51	3.34	0.34
2026 without Development						
Croesnewydd Road East	0.39	3.78	0.28	2.14	8.39	0.68
University of Wales	0.01	3.7	0.01	0.16	6.46	0.14
Croesnewydd Road West	0.91	4.54	0.48	0.58	4.96	0.37
Rhyd Broughton Lane	3.48	11.05	0.78	0.54	3.24	0.35
2016 + Development						
Croesnewydd Road East	0.6	4.87	0.38	1.4	6.24	0.59
University of Wales	0.01	4.54	0.01	0.12	5.45	0.11
Croesnewydd Road West	0.63	3.8	0.39	1.47	7.41	0.6
Rhyd Broughton Lane	5.3	15.33	0.85	0.42	3.13	0.3
2016 without Development						
Croesnewydd Road East	0.33	3.58	0.25	2.14	8.39	0.68
University of Wales	0.01	3.59	0.01	0.16	6.46	0.14
Croesnewydd Road West	0.69	3.98	0.41	0.58	4.96	0.37
Rhyd Broughton Lane	2.06	7.28	0.68	0.54	3.24	0.35

As can be seen from Table 18, an RFC of 0.96 is recorded on Rhyd Broughton Lane in the Future Year 2026 with development scenario which the model indicates would result in a queue of around 15 vehicles. Upon opening in 2016 with development traffic, an RFC of 0.85 is recorded on the Rhyd Broughton Lane arm. It should however be noted that these scenarios assume that all 1,060 staff would be employed whereas in reality, the phasing of the development means that the actual impact upon opening would be less as part of the building would not be 'fitted out.' These figures also represent a worst case scenario and do not make any allowances for a reduction in trips as a result of the Travel Plan.

The Junction Appraisal Report provided by WCBC also provides the modelling results from the the existing (2012) model when the report was produced. These modelling results indicate that,

without the capacity enhancements in place, the Rhyd Broughton Lane arm would show an RFC of 1.01 during the AM peak with a max queue of around 26 vehicles. This therefore indicates that with the proposed capacity improvements in place, capacity at the roundabout in 2026 with the Moneypenny development in place will be an improvement on the present (2012) modelled scenario in the Junction Appraisal Report.

7.4.6 Junction 6 - Rhyd Broughton Lane – Berse Road

The junction of Rhyd Broughton Lane and Berse Road (Junction 6) has been modelled in ARCADY 8. As with Junction 5, it is understood that the present junction arrangement is to be modified with the western Berse Road arm widened, as shown in the layout provided by WCBC in Appendix K. The results of the modelling with the junction modifications in place is presented in Table 19 for a future year 2026, opening year 2016, with and without development traffic scenarios (i.e. Scenarios 1,2, 3 and 4 identified in section 7.2). The ARCADY output files are provided in Appendix Q.

Table 19 Junction 6 Assessment Results

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2026 + Development					
Rhyd Broughton Lane	0.26	2.53	0.21	10.44	28.81	0.93
Berse Road West	3.49	9.94	0.78	0.49	4.41	0.33
Berse Road North	8.03	26.63	0.9	1.49	5.9	0.6
2026 without Development						
Rhyd Broughton Lane	0.26	2.52	0.21	5.54	16.19	0.85
Berse Road West	3	8.81	0.75	0.46	4.17	0.32
Berse Road North	4.37	15.2	0.82	1.47	5.85	0.6
2016 + Development						
Rhyd Broughton Lane	0.23	2.45	0.19	4.09	12.1	0.81
Berse Road West	2.19	6.92	0.69	0.39	3.9	0.28
Berse Road North	3.62	12.93	0.79	1.13	5	0.53
2016 without Development						
Rhyd Broughton Lane	0.22	2.44	0.18	2.78	8.91	0.74
Berse Road West	1.94	6.37	0.66	0.37	3.7	0.27
Berse Road North	2.44	9.34	0.71	1.12	4.97	0.53

The results from Table 19 show that in the 2026 future scenario, the Berse Road North arm would result in an RFC of 0.9 in the AM peak, with the Rhyd Broughton Lane arm recording an RFC of 0.93 in the PM peak. The modelling indicates that this would lead to queues of around 8 and 10 vehicles respectively. As for junction 5, it should be noted that these RFCs are the

future year assessments and assume that all 1,060 are employed at the site. As for junction 5, it should be noted that these 'with development' scenarios assume that all 1,060 staff would be employed whereas in reality, the phasing of the development means that the actual impact upon opening would be less as part of the building would not be 'fitted out.' These figures also represent a worst case scenario and do not make any allowances for a reduction in trips as a result of the Travel Plan.

7.5 Junction Assessment Summary

Section 7.4 models the impact of the proposed development on a total of seven junctions agreed with WCBC and WG. The results show that all of the five signalised junctions, including the A483 Junctions 4 and 5 and key junctions on A525 Ruthin Road and A541 Mold Road, are shown to be within capacity in a future year 2026 scenario with additional traffic from the development included. These signalised junctions include all the trunk road junctions modelled as part of this assessment (junctions 4 and 5 of the A483).

The two roundabout junctions modelled (Croesnewydd Road – Watery Road – Rhyd Broughton Lane and Rhyd Broughton Lane – Berse Road) were shown to operate slightly overcapacity in a future year 2026 scenario with development traffic added. The modelling predicts that this would result in a moderate increase in vehicle queuing at these junctions as a result of the development.

8. Summary and Conclusion

This TA has been prepared to accompany the planning application for the proposed Moneypenny development. The proposed development would provide a new HQ facility for Moneypenny in the Brynyffynnon ward of Wrexham with the site falling within the area identified by WCBC for the Western Gateway Project. The scope of this TA has been discussed with officers from WCBC and WG.

The proposed development would eventually accommodate a total of 1,060 staff at the site although upon opening the initial phase 1 is expected to accommodate up to 610 staff. Moneypenny currently employ 366 staff at four sites in the nearby Wrexham Technology Park who would transfer to the new facility upon opening. Trips from the existing members of staff have been accounted for in the traffic modelling work undertaken for this TA.

The proposed development is situated on the edge of the town centre and approximately 750m from the Wrexham Maelor Hospital bus stops which are served by around 15 bus services an hour. The proposed development is fully accessible by foot and bicycle with a 3m wide shared surface to be provided along the site access and along part of Croesnewydd Road. A crossing point is also in place for pedestrians crossing Croesnewydd Road from the site.

An Outline Travel Plan has also been prepared as part of this application and is included as part of this planning submission. The Outline Travel Plan sets out a series of proposed measures to increase the uptake of sustainable travel to the site including measures for both existing staff transferring to the new site and new staff. It is expected that a Full Travel Plan will be conditioned as part of the consents process.

The traffic modelling of the impact of the proposed development shows that in a future year 2026 scenario with traffic from the development included, the A483 Junctions 4 and 5 and other key junctions on the A525 Ruthin Road and A541 Mold Road would continue to operate within capacity. Two roundabouts (Rhyd Broughton Lane – Berse Road and Croesnewydd Road – Rhyd Broughton Lane – Watery Road) situated near the site were modelled to be slightly over-capacity in a 2026 future assessment year with development traffic added. The assessed junctions would also operate within capacity upon the development opening in 2016. These assessments are considered to represent a worst case scenario assuming all 1,060 staff are employed at the site from the outset and do not account for any reduction in vehicle trips as a result of the Travel Plan.

Whilst these junctions were shown to be slightly overcapacity in a future year scenario, the modelling of the key strategic junctions shows that these would continue to operate within capacity in a future year 2026 with development traffic included. It is therefore concluded that there are no traffic or transportation reasons that should prevent the granting of planning permission for the proposed development.