



Transport Assessment

## 29 Broadwater Road, Welwyn Garden City

**Prepared for Hightown Housing Association**

**By YES Engineering Group Limited**

October 2019



## Revision History

Revision N°	Prepared By	Description	Date

## Document Acceptance

Action	Name	Signed	Date
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Reviewed by	P Willis		October 2019
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on behalf of	YES Engineering Group Ltd		

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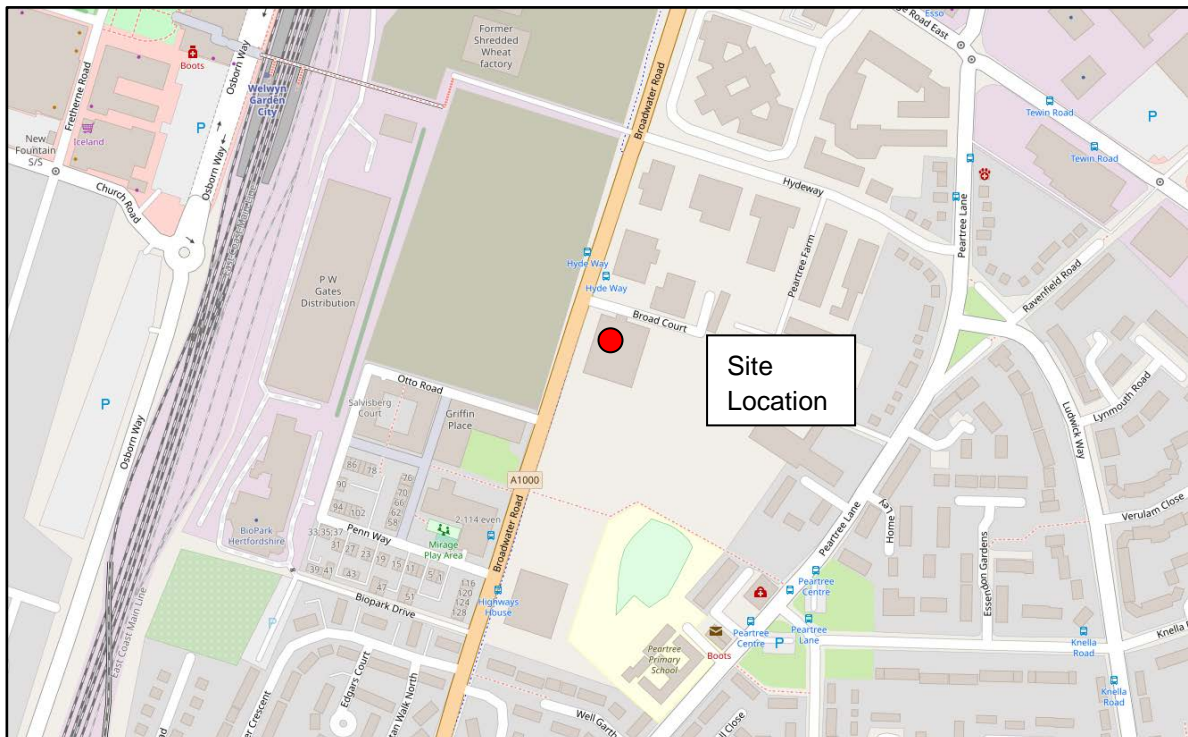
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## 1 Introduction

YES Engineering Group Ltd was appointed by Hightown Housing Association to produce a Transport Assessment (TA) in support of a planning application for the redevelopment of a site containing an existing office block (B1 use) to provide 128 residential units at 29 Broadwater Road, Welwyn Garden City (the 'Site'),

As shown in **Figure 1.1**, the Site is located on the eastern side of Broadwater Road and southern side of Broad Court around 500m (a 6-minute walk) south east of Welwyn Garden City Centre.

**Figure 1.1 – Location Plan**



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The Site lies within the Welwyn Hatfield Borough Council (WHBC) who are the Planning Authority, and Hertfordshire County Council (HCC) who are the Local Highways Authority.

### 1.1 Development Proposals

The development proposals are for the redevelopment of a Site containing an existing office block (B1 use), which has a floor space of 6,508m<sup>2</sup> to provide 128 residential units comprising of 30 no. one-bedroom flats and 98 no. two-bedroom flats.

The proposed development layout is shown on the Architects plan attached as **Appendix A**.

#### Access

As shown in **Figure 1.1** above, the proposed development has direct frontage to Broadwater Road and to Broad Court. The main pedestrian access to the Site is directly from Broadwater Road as shown on the architect's plan attached at **Appendix A**. It is proposed a new vehicular access will be provided from Broadwater Road (**Figure 1.2**), which leads into the basement parking area at a central

position on the Site frontage. The vehicular access has been designed taking into consideration the proposed road improvements associated with the former Shredded Wheat factory development site located on the opposite side of Broadwater Road. The visibility splays associated with the 30mph speed limited are shown on the plan.

There are also three pedestrian entrances on the western side of the building with access from Broadwater Court and another pedestrian entrance on the eastern side of the building with access from Broadwater Road.

There is a pedestrian crossing located east of the development Site on Broadwater Road providing safe passage for pedestrians crossing the road to access the Site if arriving from the bus stop on the opposite side of the road or from the City Centre.

Cyclists will access the 3 bike stores located on the basement level of the building with access from Broadwater Road.

### **Parking**

The proposed development will provide a total of 136 car parking spaces on-site located on the basement level, which comprises 126 general spaces and 10 Blue Badge spaces as shown on the Architect's plans. The Blue Badge spaces are located close to the lift cores. This provision accords with Census Data associated with car ownership levels in the vicinity and with WHBC parking standards.

It is proposed that a total of 128 cycle parking spaces will be provided on-site, these being located in three separate storage areas located on the basement level. Two of the cycle store areas are located on the western side of the building and one of the cycle store areas is located on the eastern side of the building. The 3 cycle stores have direct access from Broadwater Road. All cycle parking spaces will be sheltered, secure and easily accessible. This accords with WHBC cycle parking standards.

### **Servicing**

It is anticipated that there will be on average 3 vehicles per hour visiting the Site for deliveries (**Section 4.4** of this Transport Assessment) and the vast majority of vehicles, such as post office van, Amazon and supermarket deliveries, etc. will be able to access the basement car park to deliver to their customers. The remainder of the larger service vehicles (those who cannot access the basement as there is a 2.1m restriction in height) and refuse vehicles will be able to access the Site from Broad Court by using the turning head being provided at the eastern end of the Site frontage as shown in **Figure 1.2**. The swept path of a refuse vehicle is shown on this plan, which is the largest vehicle anticipated to visit the Site.

It is proposed to provide 3 refuse storage areas located at ground floor level. Two of the refuse storage areas are located on the northern side of the building with access from Broad Court. The third refuse storage area is located on the southern side of the building at the western corner, which means the collection vehicle will be able to stop on-street on Broadwater Road within 25m of the storage area. All refuse storage areas will provide adequate space to accommodate waste storage for all the waste streams and within the required collection distance for waste management operatives.

## **1.2 Previous Planning Applications**

The planning application database at Welwyn Hatfield Council portal was interrogated to establish whether there had been any applications at the Site and the surrounding area which are relevant to this development within the last five years. A summary of the relevant planning applications for the Site is provided below.

Planning Application No. 6/2019/1405/EIA (29 Broadwater Road Welwyn Garden City AL7 3BQ) for a request for a screening opinion for proposed residential re-development for (6/2019/0108/PN11). The planning application was granted approval on 25/06/2019.

Planning Application No. 6/2019/0108/PN11 (29 Broadwater Road Welwyn Garden City AL7 3BQ) was for prior approval for change of use from Offices (B1) to residential (C3) 72 Self Contained Flats. The planning application was granted approval on 29/04/2019.

Planning Application No. 6/2018/3292/MAJ (Land adjacent to 45 Broadwater Road Welwyn Garden City AL7 3AX) was for the erection of four storey development comprising 91 x bed care home with 13 x care suites. The consultation for this planning application expired on 11/03/2019 and the decision has been delegated.

Planning Application No. 6/2018/2387/MAJ (37 Broadwater Road Welwyn Garden City AL7 3AX) was for the construction of new build of 22 x 2 Bedroom and 2 x 3 Bedroom residential apartments with balconies and a roof garden. Layout of 26 car parking spaces, cycle parking, refuse store, internal access routes, landscaping and supporting infrastructure. The consultation for this planning application expired on 25/10/2018 and the decision has been delegated.

Planning Application No. 6/2018/0825/MAJ (37 Broadwater Road Welwyn Garden City AL7 3AX) was for the construction of new build of 22 x 2 bedroom and 2 x 3 bedroom residential apartments with balconies and roof garden, layout of 26 car parking spaces, cycle parking, refuse store, internal access routes, landscaping and supporting infrastructure. The planning permission was refused on 17/07/2018 due to the lack of affordable housing provision. The development was considered acceptable on transport grounds.

Planning Application No. 6/2018/0171/MAJ (Former Shredded Wheat Factory, Broadwater Road, Welwyn Garden City) for the creation of a mixed-use quarter comprising the erection of up to 1,340 residential dwellings including 414 (31%) affordable dwellings (Use Class C3); 114 extra care homes (Use Class C2); the erection of a civic building comprising 494 sq.m of health (Use Class D1), 494 sq.m of community use (Use Class D1), 1,232 sq.m of office (Use Class B1) and 646 sq.m of retail (Class A1/A2/A3/A4/A5); alterations, additions and change of use of Grade II Listed Building and retained Silos to provide 5,096 sq.m of flexible business floorspace (Use Class B1), 265 sq.m Combined Heat and Power (Sui Generis), 2,494 sq.m International Art Centre (Use Class D1), 1,226 sq.m Gymnasium (Use Class D2), 1,576 sq.m of restaurant/ coffee shop/bar (Use Class A1/A3/A4/A5), Creche/Day Nursery of 644 sq.m as well as a Network Rail TOC Building of 364 sq.m; plus associated car parking, access, landscaping, public art and other supporting infrastructure.. The application includes highway improvements, including improvements on Broadwater Road. Planning permission was granted for the site subject to a S106 Agreement. These road improvements are taken into consideration within this Transport Assessment.

Planning Application No. 6/2016/2624/FULL (Mercury House 1 Broadwater Road Welwyn Garden City AL7 3BQ) for the change of use from B1(a) office to C3 residential, construction of roof and side extensions, creation of 43 residential apartments and cycle storage compound. The planning application was granted approval on 14/09/2017.

Planning Application No. 6/2016/2497/MAJ (37 Broadwater Road Welwyn Garden City AL7 3AX) was for the change of use of an office building to form 24 x 2 bedroom residential apartments with balconies, the construction of an additional two storeys and a four storey side and rear extension with roof garden, layout of 26 car parking spaces and cycle parking, internal access routes, landscaping and supporting infrastructure. The planning application was granted approval on 27/04/2017.



Planning Application No. 6/2016/2160/PN11 (Mercury House 1 Broadwater Road Welwyn Garden City AL7 3BQ) was for the prior approval for a proposed change of use from Office (Class B1(a)) to Residential (Class C3). The planning application was granted approval on 05/12/2016.

Planning Application No. 6/2016/1882/FULL (Former Roche Products Site, 40 Broadwater Road, Welwyn Garden City, AL7 3AY) was for the change of use of former Roche Products Factory (Class B offices, research and manufacturing) to provide 34 residential units (Class C3) across basement, ground and first to third floors, with associated external alterations including excavation to the rear lightwell of southern elevation, additional and altered fenestration to the northern and southern elevations, creation of additional car parking and associated landscaping, together with internal alterations including the subdivision and reconfiguration of floorspace, the introduction of 5 new spiral staircases and provision of servicing within the building. The planning application was granted approval on 18/10/2018.

Planning Application No. 6/2016/1883/LB (Former Roche Products Site, 40 Broadwater Road, AL7 3AY) was for the change of use of former Roche Products Factory (Class B offices, research and manufacturing) to provide 34 residential units (Class C3) across basement, ground and first to third floors, with associated external alterations including excavation to the rear lightwell of southern elevation, additional and altered fenestration to the northern and southern elevations, creation of additional car parking and associated landscaping, together with internal alterations including the subdivision and reconfiguration of floorspace, the introduction of 5 new spiral staircases and provision of servicing within the building. The planning application was granted approval on 09/11/2017.

Planning Application No. 6/2016/1324/PN11 (Mercury House, 1 Broadwater Road, Welwyn Garden City, AL7 3BQ) was for the prior approval for the proposed change of use of from office (class B1) to residential (class C3) to provide 31 dwellings. The planning permission was refused on 09/09/2016 due to the site being located in a safety hazard area. The development was considered acceptable on transport grounds.

Planning Application No. 6/2016/1318/PN11 (Studio Four, 37 Broadwater Road, Welwyn Garden City, AL7 3AX) was for the prior approval for the proposed change of use from office (class B1) to residential (class C3). The planning application was granted approval on 05/09/2016.

Planning Application No. N6/2015/0615/OR (Saunders Partnership, Studio Four, 37 Broadwater Road, Welwyn Garden City, AL7 3AX) was for the prior approval for the change of use from use class B1(a) (offices) to use class C3 (dwelling houses) creating no.3 three bedroom flats, no.5 two bedroom flats, and no.4 one bedroom flats. The planning application was granted approval on 14/05/2015.

Planning Application No. 6/2015/0294/MAJ Former Shredded Wheat Factory, Broadwater Road, Welwyn Garden City) to provide 850 C3 residential units (to include up to 80 C2 assisted living units), Class A1 retail, Classes A3/A4 restaurants/cafes/bars/pubs, Class D1 community use and healthcare, and Class D2 dance/gym exercise studio floor space. The application includes highway improvements, including improvements on Broadwater Road. Planning permission was granted for the site subject to a S106 Agreement. These road improvements are taken into consideration within this Transport Assessment.

### **1.3 Scope of the Transport Assessment**

Following this introduction, the report is structured in accordance with the following:

**Section 2.0, Policy:** Sets out national, regional and local transport policy for the area relevant to the development.

**Section 3.0, Baseline Conditions:** Describes the existing land use, local area, existing road network, public transport, walking and cycling infrastructure, and other features pertinent to the development.

**Section 4.0, Trip Generation:** Considers the level of traffic to be attracted by the proposed development once occupied on the local highway network. This section will also set out estimated trips for all modes.

**Section 5.0, Impacts:** Considers the level of traffic and movements associated with all modes to be generated and attracted by the proposed development once occupied on the local highway network.

**Section 6.0, Mitigation:** Draws together the impacts and presents mitigation measures to ensure there is a nil detriment as a consequence of development.

**Section 7.0, Summary and Conclusions:** Provides a summary of the report and draws together its conclusions.



## 2 Policy

### 2.1 National Policy

#### National Planning Policy Framework (2019)

The National Planning Policy Framework (NPPF) sets out the Government's economic, environmental and social planning policies for England. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

Section 9 – Promoting Sustainable Transport, paragraph 102 of the framework details *'the need for transport issues to be considered at the early stages of plan making and development proposals, so that:*

- a) *the potential impacts of development on transport networks can be addressed*
- b) *opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated*
- c) *opportunities to promote walking, cycling and public transport use are identified and pursued*
- d) *the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains*
- e) *patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.'*

Considering development proposals, paragraph 108 states *'In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*

- a) *appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location*
- b) *safe and suitable access to the site can be achieved for all users*
- c) *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.'*

NPPF paragraph 109 states that *'development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.'*

In the context of this guidance, applications for development should:

- a) *give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use*
- b) *address the needs of people with disabilities and reduced mobility in relation to all modes of transport*

- c) *create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards*
- d) *allow for the efficient delivery of goods, and access by service and emergency vehicles*
- e) *be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.'*

NPPF paragraph 111 states all 'developments which generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement of transport assessment so that the likely impacts of the proposal can be assessed.'

## **2.2 Regional Policy**

### **Hertfordshire's Local Transport Plan (May 2018)**

The Local Transport Plan 2018-2031 sets out how transport can help deliver a positive future vision for Hertfordshire by having a major input into wider policies such as economic growth, meeting housing needs, improving public health and reducing environmental damage whilst also providing for safe and efficient travel.

The plan also considers how future planning decisions and emerging technology might affect the way that transport needs to be provided in the longer term.

Section 6 covers the policies and activities and the relevant policies are presented below.

#### **Policy 1: Transport User Hierarchy**

To support the creation of built environments that encourage greater and safer use of sustainable transport modes, the county council will in the design of any scheme and development of any transport strategy consider in the following order:

- Opportunities to reduce travel demand and the need to travel
- Vulnerable road user needs (such as pedestrians and cyclists)
- Passenger transport user needs
- Powered two-wheeler (mopeds and motorbikes) user needs
- Other motor vehicle user needs

#### **Policy 2: Influencing land use planning**

The county council will encourage the location of new development in areas served by, or with the potential to be served by, high quality passenger transport facilities so they can form a real alternative to the car, and where key services can be accessed by walking and cycling.

#### **Policy 3: Travel Plans and Behaviour Change**

The county council will encourage the widespread adoption of travel plans through:

- a) Working in partnership with large employers, businesses and other organisations to develop travel plans and implement Smarter Choices measures.
- b) Seeking the development, implementation and monitoring of travel plans as part of the planning process for new developments.

c) Supporting school travel plans, and working closely with parents, pupils, teachers and local residents to deliver a network of more sustainable transport links to school.

The application of personalised travel planning techniques, marketing and other behavioural change initiatives will be considered when delivering physical transport improvements to maximise the potential to achieve modal shift.

#### **Policy 4: Demand Management**

The county council considers greater traffic demand management to be essential in the county's urban areas in the next five years to achieve modal shift and improve sustainable travel provision. This can only currently be achieved efficiently and effectively through parking restrictions and charging applied to on-street, off-street and potentially at workplace parking. The county council will work with the district and borough councils and other key stakeholders to develop locally appropriate strategies.

#### **Policy 5: Development Management**

The county council will work with development promoters and the district and borough councils to:

- a) Ensure the location and design of proposals reflect the LTP Transport User Hierarchy and encourage movement by sustainable transport modes and reduced travel demand.
- b) Ensure access arrangements are safe, suitable for all people, built to an adequate standard and adhere to the county council's Highway Design Standards.
- c) Consider the adoption of access roads and internal road layouts where they comply with the appropriate adoption requirements and will offer demonstrable utility to the wider public. Where internal roads are not adopted the county council will expect suitable private management arrangements to be in place.
- d) Secure developer mitigation measures to limit the impacts of development on the transport network, and resist development where the residual cumulative impact of development is considered to be severe.
- e) Require a travel plan for developments according to the requirements of 'Hertfordshire's Travel Plan Guidance'.
- f) Only consider new accesses onto primary and main distributor roads where special circumstances can be demonstrated in favour of the proposals.
- g) Resist development that would either severely affect the rural or residential character of a road or other right of way, or which would severely affect safety on rural roads, local roads and rights of way especially for vulnerable road users. This should include other routes which are important for sustainable transport or leisure.
- h) Ensure that any new parking provision in new developments provides facilities for electric charging of vehicles, as well as shared mobility solutions such as car clubs and thought should be made for autonomous vehicles in the future.

#### **Policy 6: Accessibility**

The county council will seek to increase the ease with which people, particularly disadvantaged groups, can access key services, by:

- a) Working in partnership with key stakeholders such as bus and rail operators, community transport operators, the voluntary sector and public service providers.
- b) Supporting transport services which could include providing resource for bus and other transport services.

- c) Addressing the barriers to accessibility particularly regarding active modes and for people with impaired mobility.
- d) Promoting travel options and facilitating accessible travel information provision, including open data initiatives.
- e) Improving travel choices and options, including support for the provision of shared mobility initiatives.

#### **Policy 7: Active Travel - Walking**

The county council will seek to encourage and promote walking by:

- a) Implementing measures to increase the priority of pedestrians relative to motor vehicles, especially in town centres, and creating walking friendly town and neighbourhood centres.
- b) Delivering infrastructure to provide safer access to key services, and pedestrian facilities to enable and encourage walking.
- c) Identifying and promoting networks of pedestrian priority routes.
- d) Promoting walking as a mode of travel and for recreational enjoyment.
- e) Supporting the implementation of the Rights of Way Improvement Plan.

#### **Policy 8. Active Travel - Cycling**

The county council aims to deliver a step change in cycling, through:

- a) Infrastructure improvements, especially within major urban areas to enable and encourage more cycling.
- b) Implementing measures to increase the priority of cyclists relative to motor vehicles.
- c) Improved safety for users including delivery of formal and informal cycle training schemes.
- d) Supporting promotion campaigns to inform, educate, reassure and encourage cycling provision and education, such as Bikeability.
- e) Facilitating provision of secure cycle parking.

#### **Policy 9: Buses**

The county council will promote and support bus services to encourage reduced car use by:

- a) Supporting the delivery of infrastructure including bus priority measures, focussed on a core bus network, and by minimising bus service disruption from road congestion and the effects of road works.
- b) Providing and maintaining all bus stops, and other bus related highway infrastructure, to a consistent quality and standard across the county.
- c) Utilising new powers afforded to local authorities through the Bus Services Act 2017 as appropriate.
- d) Reviewing, procuring and supporting cost effective and efficient bus services to improve accessibility and respond to existing and potential passenger needs. Review existing services and take account of enhanced security provision.
- e) Working with a wide range of partners through the Intalink Quality Partnership to achieve improvements in facilities and services to improve the end to end journey by multi-modal interchange, accessibility, security and the journey experience.
- f) Working with partners to develop appropriate passenger fares, encourage the development of smart ticketing and to improve the provision and accuracy of passenger information.

g) Working with partners to promote bus services as an option for work and school journeys, and promote and publicise the passenger transport network through a variety of media.

#### **Policy 10: Rail**

The county council will support and promote rail use in the county, especially in order to reduce car use. To do this it will:

- a) Work with the rail industry and other partners to seek improvements to train services in regards to capacity, journey times, frequency and range of destinations served.
- b) Work with the rail industry and other stakeholders to make rail travel more attractive through improved fares and ticketing, upgraded station facilities and better access and interchange by sustainable modes of transport.
- c) Support Community Rail Partnerships in the county.
- d) Publish a Rail Strategy setting out how the county council's objectives can be achieved.

#### **Policy 12: Network Management**

As part of its Network Management Duty the county council will seek to manage, and where feasible reduce traffic congestion, prioritising strategic routes. Activity will focus on making more efficient use of highway network capacity via:

- a) Use of Intelligent Transport Systems and small scale traffic management interventions.
- b) Maintaining a Network Management Strategy which will include the county council's road network hierarchy and associated policies.
- c) Reducing levels of single occupancy car use and encouraging travel by walking, cycling and passenger transport.
- d) Sharing data (open data) and supporting the use of technology to provide up to date and accessible information for all network users.
- e) Control of on-street vehicle parking in line with the Network Management Strategy.
- f) Managing street works and minimising network disruption.

#### **Policy 13: New Roads and Junctions**

The county council will work closely with partners including Highways England, districts and major scheme developers to design new transport infrastructure, following application of the Transport User Hierarchy, to manage existing demand and that of planned development. Future capacity that may be required beyond this could be safeguarded but should not be released until necessary to avoid inducing demand.

#### **Policy 16: Freight and Logistics**

The county council will seek to manage freight and logistics traffic, by:

- a) Encouraging HGV's to use the primary route network.
- b) Providing clear advice to local planning authorities in respect of highways and freight implications of new development proposals.
- c) Encouraging a shift from road-borne freight to less environmentally damaging modes, including rail, water and pipelines.
- d) Supporting the formation of Quality Partnerships between interested parties.
- e) Monitoring changes in HGV and LGV activity to inform possible solutions which reconcile the need of access for goods and services with local environment and social concerns.

- f) Supporting improvements in HGV provision in the county, including overnight parking, in appropriate locations.
- g) Utilising traffic management powers, where appropriate to do so, to manage access and egress from specific locations.

#### **Policy 17: Road Safety**

The county council will seek to continually improve safety on the county's roads, working towards an ultimate vision of zero fatalities and serious injuries, by:

- a) Working with partners, in particular through the Hertfordshire Road Safety Partnership to deliver targeted, effective and appropriate road safety measures.
- b) The development of a 'Safe Systems' approach that seeks to co-ordinate a mix of safer roads, safer speeds, safer vehicles, safer road users and post-collision response with a focus on casualty reduction.
- c) Using latest data analysis and intelligence led techniques to target and evaluate measures.

#### **Policy 18: Transport Safety and Security**

The county council will seek to improve the perception of safety and security on Hertfordshire's transport system where this could deter people from travelling, particularly by active modes and passenger transport. This includes ensuring the county's transport system is resilient and prepared for instances of major alert.

### **2.3 Local Policy**

#### **Welwyn Hatfield Borough Council Draft Local Plan (August 2016)**

The role of the Local Plan is to layout the Council's planning framework for the borough, identifying how much and what types of developments are required and the locations. The Local Plan is currently under examination following various rounds of consultations.

Section 7 covers Movement and the relevant policies are presented below:

#### **Policy SP 4**

##### **Transport and Travel**

Consistent with the vision and objectives of this Local Plan, the Council will seek to support both planned growth and existing development with appropriate transport infrastructure, with the emphasis on promoting the use of sustainable modes of travel and on improving safety for all highway users. The Council will work together with the County Council as the local highway authority, Highways England, public transport operators, developers and other relevant bodies to design and fund improvements to transport infrastructure where these are necessary to support growth or to improve accessibility to existing centres, employment areas and community facilities.

#### **Policy SADM 2**

##### **Highway Network and Safety**

Development proposals will be permitted provided:

- i. There would be no unacceptable impacts on the local and /or strategic transport network. Development proposals which generate a significant amount of traffic movements must be accompanied by either a Transport Assessment or Transport Statement as appropriate in accordance with the criteria in the Hertfordshire County Council Highway Design Guidance (26);
- ii. There would be no negative impacts on highway safety;



- iii. They are designed to allow safe and suitable means of access and site operation; and
- iv. They provide satisfactory and suitable levels of parking.

### **Policy SADM 3**

#### **Sustainable Travel for All**

i. All developments at or above the thresholds set out in Hertfordshire County Council's Hertfordshire Travel Plan Guidance will be required to submit a Travel Plan as part of a planning application.

Development proposals should make provision where appropriate for:

- ii. Cyclists, through safe design and layout of routes integrated into new development and the wider cycle network and provision of secure cycle parking and where appropriate changing facilities.
- iii. Pedestrians (including disabled persons and those with impaired mobility), through safe, accessible, direct and convenient design and layout of routes within the new development and wider pedestrian network.
- iv. Safeguarding existing Public Rights of Way and promoting enhancements to the network, where appropriate, to offer walking and cycling opportunities.
- v. Public transport, through measures that will improve and support public transport and provide new public transport routes.
- vi. Community transport, through the implementation of Travel Plans where appropriate (for example including measures that will promote car pools, car sharing and voluntary community buses, community services and cycle schemes).
- vii. Servicing and emergency vehicles.
- viii. Facilities for charging plug-in and other ultra-low emission vehicle

#### **Planning Practice Guidance**

The Department for Transport withdrew the document, 'Guidance on Transport Assessment' on 22<sup>nd</sup> October 2014. Emphasis is now placed on Planning Practice Guidance, 'Transport evidence bases in plan making and decision taking' where it is important for local planning authorities to undertake an assessment of the transport implications in developing or reviewing their Local Plan so that a robust transport evidence base may be developed to support the preparation and/or review of that Plan. This document says a robust transport evidence base can facilitate approval of the Local Plan and reduce costs and delays to the delivery of new development, thus reducing the burden on the public purse and private sector.

The Planning Practice Guidance states that Local planning authorities should also refer to the Department for Transport's Circular 02/2013 'The Strategic Road Network and the Delivery of Sustainable Development'.

## 3 Baseline Conditions

### 3.1 Existing Land Use

The Site is currently in use as a Class B1 office block (6,508m<sup>2</sup> floor space) which will be demolished.

### 3.2 Local Highway Network

Broadwater Road known as A1000 runs along the western boundary of the development Site running north to south linking to Bridge Road East and a roundabout linking to Broadwater Crescent and Chequers (A1000). Broadwater Road is a single lane distributor road with joint cycleways/footways on either side of the road. The road measures approximately 8.30m in width and is subject to 30mph speed limit. There are waiting restrictions in the form of single yellow lines to prevent on-street parking and a speed camera is present adjacent to the Site to prevent speeding.

Broad Court is located on the northern boundary of the Site which joins Broadwater Road at a priority junction. There is a footway on the southern side of the road (Site side) and double yellow lines applied to both sides of the carriageway. A vehicular access is located to the rear of the office building (29 Broadwater Road), which is the exit for the car park.

Bus stops are located on both side of Broadwater Road just to the north of Broad Court, which serve bus routes 201 and 601.

To the south of the development Site, there is a pelican crossing containing dropped kerbs and tactile paving to aid the visually impaired, which provides pedestrians with safe crossing the road to access the Site. The associated zig-zag road markings extend approximately 15m to the north of the vehicular access located immediately to the south of the development Site. The development Site currently has use of this access to the south.

North of the development Site is Hydeway, which leads to the pedestrian footbridge to Welwyn Garden City Railway Station and town centre. Further to the north, Bridgewater Road forms a traffic signalled controlled crossroads with Bridge Road East and Bessemer Road. The dedicated pedestrian crossing facilities within the signalised controlled crossroads contain dropped kerbs and tactile paving to aid the visually impaired, which provides pedestrians with safe crossing.

Bridge Road East known as B195 is a distributor road in nature containing sufficient footways on both sides of the road. There are waiting restrictions in the form of single yellow lines to prevent on-street parking. The road is subjected to a 30mph speed limit and is lit accordingly.

To the south of the development Site, a roundabout provides links to Broadwater Crescent and Chequers.

### 3.3 Existing Parking and Servicing Provision

The Site currently contains a car park accommodating 11 vehicles with access and egress from Broadwater Road. The main car parking area, containing 150 car parking spaces, is to the rear of the building with vehicular access from Broadwater Court through a barrier and exit onto Broad Court also through a barrier. There are arrows marked on the surface of the rear car park guiding drivers to the exit. Of the 161 car parking spaces two are for disabled drivers.

Broadwater Road contains waiting restrictions in the form of single yellow lines to prevent on-street parking between 8am to 6pm Monday to Saturday, however, loading and unloading is permitted at all times apart from 8am to 9am and from 5pm to 6pm Monday to Friday.

In addition, servicing and refuse vehicles can access the Site from Broadwater Road in forward gear and exit onto Broad Court in forward gear.

### 3.4 Rail

Welwyn Garden City station is located approximately 500m (a 6-minute walk) to the north-west of the Site if using the footbridge over the railway from Hydeway and is operated by Great Northern Rail. Regular commuter services from Welwyn Garden City station run to Cambridge, Cambridge North, Moorgate and London Kings Cross. Details of the rail services available from Welwyn Garden City station, including the route and the general frequency of the service provision is outlined in **Table 3.1**.

**Table 3.1 – General Daytime Frequency of Train Services (frequency per hour)**

Destination	Frequency (Trains per hour)
Cambridge	1
Cambridge North	1
Moorgate	4
London Kings Cross	2

Based on a distance of just 500m from the Site, Welwyn Garden City Station is considered to be clearly accessible for residents commuting for work and travelling for other reasons, such as leisure activities.

### 3.5 Buses

There are some 18 bus routes within a distance of 500m (6-minute walk) of the Site.

The nearest bus stop is located on Broadwater Road just 70m to the north of the Site (1-minute walk) providing access to bus route number 601. There are further bus stops located on Bridge Road approximately 500m distant (a 6-minute walk) providing access to bus route nos. 6, 201, 203, 204, 206, 230, 242, 301, 315, 366, 388, 401, 403, 404, 601, 653, and 724. Bus services 403 and 404 also stop on Pear Tree Lane, which is also approximately 500m away.

Details of the 8 more frequent bus services with regards to the route and the general frequency of the service provision is outlined in **Table 3.2** and the remaining 10 less frequent bus services in **Table 3.3**. A copy of the map of the routes in Welwyn Garden City is attached as **Appendix B**.

**Table 3.2 – General Daytime Frequency of Higher Frequency Bus Services (frequency per hour)**

Number	Route	Monday - Friday	Saturday	Sunday
6	Welwyn Garden City – Shire Park (Circular Route)	4	-	-
301	Stevenage – Hemel Hempstead	2	2	1
366	Luton – Hatfield	1	1	-
401	Welwyn Garden City – Panshanger (Circular)	2	2	-
403	Great Ganett – Haldens (Circular)	2	2	-
601	Welwyn Garden City – Borehamwood	2†	1	-
653	St Albans (New Greens Est) – Welwyn Garden City	3	2	-
724	Harlow – Heathrow Airport	2	1	1 every 2 hours

† There is an extra service on school days.

**Table 3.3 – Daytime Frequency of Lower Frequency Bus Services (frequency per day)**

Number	Route	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
201	Welham Green – Welwyn Garden City	-	1	-	-	1	-	-
203	Watton at Stone – Welwyn Garden City	-	-	-	1	-	-	-
204	Welwyn North, Tewin & Welwyn Garden City Circular	-	2	-	2	2	-	-
206	Welwyn Garden City – Panshanger (Circular)	-	12	-	2	2	-	-
230	Welwyn Garden City – St Albans	-	-	1	-	-		-
242	Welwyn Garden City – Waltham Cross	-	-	-	-	-	5	-
314	Welwyn Garden City - Hitchin	4	4	4	4	4	4	-
315	Welwyn Garden City - Kimpton	3	3	3	3	3		-
388	Stevenage – Ware†	1	1	1	1	1	-	-
404	Welwyn Garden City – Hatfield (Circular)	-	-	-	-	-	-	5

† School days only

It is clear that 29 Broadwater Road is in a very sustainable location.

### 3.6 Walking & Cycling

#### Walking

The Site is located within an area that benefits from good pedestrian connectivity with facilities such as joint footway/cycleways on both sides of the roads on the local road network, dropped kerbs and street lighting in place. The permitted development for the former Shredded Wheat Factory includes road improvements whereby Broadwater Road will be narrowed in the vicinity of the Site to provide a 4m wide footway/cycleway on the opposite side of the road. Raised tables will be provided at the vehicular access points into the development opposite to ensure pedestrian movement is given a higher priority. This development has been designed taking these improvements into consideration.

As mentioned in **Section 3.2** above, there is a pelican crossing located to the south of the development Site, which provides a convenient crossing point for passengers of the bus services operating along Broadwater Road and Bridge Road. This also provides a convenient crossing point for pedestrians wanting to access Welwyn Garden City Railway Station and town centre, located just 500m distant (6-minute walk) using the pedestrian footbridge accessed from Hydeway.

Guidance from the Institution of Highways and Transportation (IHT) 'Providing Journeys on Foot' suggests 'desirable', 'acceptable' and 'preferred maximum' walking distances for different types of journeys as shown in **Table 3.4** below.

**Table 3.4 - Maximum Walking Distance**

Criteria	Commuting/School	Elsewhere (other than town centre)
Desirable	500m	400m
Acceptable	1000m	800m
Preferred Maximum	2000m	1200m

The Site is located within a short walk distance (maximum of 6-minutes) for access to local bus routes on Broadwater Road, Pear Tree Lane and Bridge Road.

The town centre with the Howard Centre, numerous other shops, banks, restaurants, cafes, supermarkets (Aldi, Waitrose, and Sainsburys), etc are accessible over the railway bridge within 800m away (10-minute walk) or within a 1,200m (15-minute) distance if walking via Bridge Street.

Peartree surgery is a 400m (5-minute walk) from the Site. Within a 500m (6-minute walk) Peartree sub-post office, pharmacy, convenience store and Peartree Primary School can be reached. Welwyn Hatfield Council office is located approximately 1km away (12-minute walk), Oaklands College is 1.1km (14-minute walk) distant, and Central Library and The New Maynard Gallery and Cinema are 1.2km away (15-minute walk).

For those who do not commute by train, there are extensive employment opportunities on the eastern side of the railway line as the area is generally industrial area and extends from the Site to the north and east. All within the 1.2km preferred maximum walking distance.

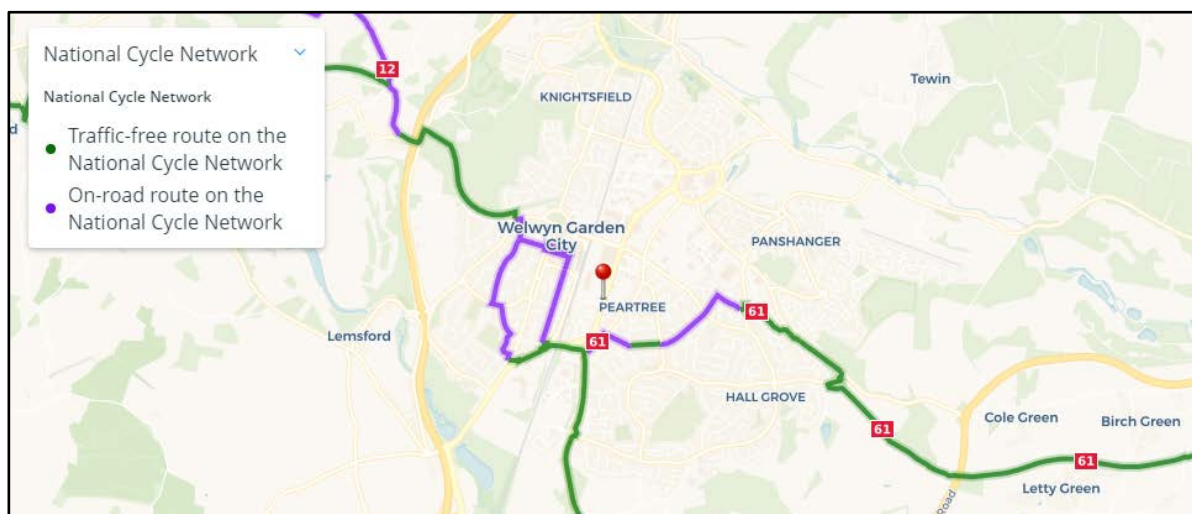
The Site is clearly in a highly sustainable location conveniently located to a vast variety of facilities thereby reducing the need to travel by car.

### **Cycling**

A series of cycle routes are located throughout the Welwyn Hatfield Council (WHC). The relevant extract of the WHC Cycle route map shown in **Figure 3.1** below shows the cycle links between the Site and local areas including Welwyn Garden city centre and station. These routes include routes recommended by other cyclists, routes free from traffic and cycle links on the local, regional and national cycle network.

The cycle infrastructure is clearly in place to facilitate cycling as a mode of transport for residents and their visitors to the proposed Site. It should be noted that a joint pedestrian/cycleway passes the Site frontage.

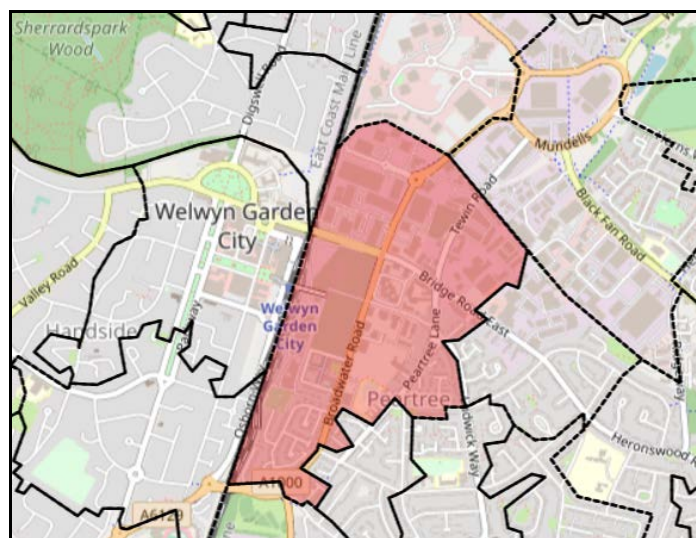
**Figure 3.1 – Local Cycle Routes**



### 3.7 2011 Census Data

The 2011 Census data for car or van availability in the Welwyn Hatfield Lower Output Area 007A (shaded in pink in **Figure 3.2**) is set out in **Table 3.5** below and attached at **Appendix C**.

**Figure 3.2 – 2011 Census Welwyn Hatfield Lower Output Area 007A**



**Table 3.5 – Car or van availability – 2011 Census – Welwyn Hatfield Lower Output Area 007A**

Number of Cars in Household	Number of Households	Percentage
No cars or vans	216	30.4%
1 car or van	352	49.5%
2 cars or vans	121	17.0%
3 cars of vans	17	2.4%
4 or more cars or vans	5	0.7%
<b>Total Number of Households</b>	<b>711</b>	<b>100%</b>



**Table 3.5** confirms that 30.4% of residents living in the Welwyn Hatfield Lower Output Area 007A do not own a vehicle. Application of the above, which equates to an average of 0.94 cars per household from this Census Data suggests that 121 cars will be owned by 128 residential units.

The Welwyn Hatfield Lower Output Area 007A was also examined to establish the profile of residents' method of travel to work. It can be seen in **Table 3.6** below that only 32% of the working population in locality of the Site use the car as a means to drive to work.

**Table 3.6 –Mode of Travel to Work – 2011 Census – Welwyn Hatfield Lower Output Area 007A**

Travel Mode	Percentage	No. People
Work Mainly at or from Home	2%	30
Underground, Metro, Light Train	1%	14
Bus, Minibus or Coach	5%	65
Taxi	3%	35
Motorcycle, Scooter or Moped	1%	7
Driving a Car or Van	1%	10
Passenger in a Car or Van	32%	409
Bicycle	2%	31
On Foot	3%	41
Other Method of Travel	12%	146
Not in employment	0%	3
<b>Total</b>	<b>100%</b>	<b>1,264</b>

The Census data for the Welwyn Hatfield Lower Output Area 007A is taken into consideration for the car parking provision at the development Site.

## 4 Trip Generation)

To consider the suitability of the potential impact that the proposed development may have on the local highway network, it is necessary to determine the level of trip generation expected during weekday AM (from 08:00 to 09:00) and PM (from 17:00 to 18:00) peak periods.

### 4.1 Existing B1 Office Use

As discussed in **Section 3**, the Site currently has a Class B1 use office block measuring 6,508m<sup>2</sup>.

The trip rates for the existing office use were calculated within the Transport Statement submitted with the consented change of use application to convert the offices into 72 flats (Planning Application No. 6/2019/0108/PN11). The trip rates were derived from TRICS data for offices located in South East England and application of the Census Data for method of travel to work for Welwyn Hatfield Lower Output Area 007A was used (with adjustment to remove those working at home and not in employment). The information revealed that there would be 84 car driver trips in the morning peak hour and 72 peak hour trips in the evening peak hour from the existing office development.

The Transport Assessment submitted for the Former Shredded Wheat Factory development on the opposite side of Broadwater Road was also examined (Planning Application No. 6/2018/0171/MAJ). This uses a similar approach to the trip rates (using TRICS data and Census Data) and the resultant trip rates assumed for the B1 use are generally consistent with that assumed for planning application 6/2019/0108/PN11 considered above. It is therefore appropriate to use the same trip rates for the purpose of this assessment.

The predicted number of peak hour and daily trips for all modes (from Table 4.1 of Planning Application No. 6/2019/0108/PN11 Transport Statement) for the existing permitted use is set out in **Table 4.1** below.

**Table 4.1** –Predicted Peak Hour and Daily Trips – Existing Office Use (6,508m<sup>2</sup>)

Mode	AM Peak Hour	PM Peak Hour	Daily
Public Transport	23	20	173
Car Driver	84	72	625
Car Passenger	7	5	48
Motorcycle	2	2	15
Bicycle	9	7	63
On Foot	30	26	223
Other	2	2	16

### 4.2 Proposed C3 Residential Use

It is considered appropriate that the same source of data is used to derive the predicted number of peak hour and daily trips associated with the 128 residential units, which comprises of 30 no. one-bedroom flats and 98 no. two-bedroom flats.

The predicted peak hour and daily trips (using TRICS data and the Census Data as set out in Table 4.2 of Planning Application No. 6/2019/0108/PN11 Transport Statement) has been used to determine the trip rate per residential unit (**Table 4.2** below). The trip rates are then applied to the proposed 128 flats at the Site and set out in **Table 4.3**.

**Table 4.2 –Predicted Peak Hour and Daily Trip Rates – Residential Use (per unit)**

Mode	AM Peak Hour	PM Peak Hour	Daily
Public Transport	0.083	0.125	1.014
Car Driver	0.306	0.444	3.667
Car Passenger	0.028	0.028	0.278
Motorcycle	0.014	0.014	0.083
Bicycle	0.028	0.042	0.375
On Foot	0.111	0.167	1.306
Other	0.000	0.014	0.097

**Table 4.3 –Predicted Peak Hour and Daily Trips – Residential Use (128 flats)**

Mode	AM Peak Hour	PM Peak Hour	Daily
Public Transport	11	16	130
Car Driver	39	57	469
Car Passenger	4	4	36
Motorcycle	2	2	11
Bicycle	4	5	48
On Foot	14	21	167
Other	0	2	12

As shown from **Table 4.3** above, the proposed residential development is predicted to generate 39 vehicle trips in the morning peak hour and 57 vehicle trips in the evening peak hour. This is significantly less than the existing office use.

### 4.3 Change in Trips

For convenience **Table 4.4** shows the net change in trips by taking the predicted trips in **Table 4.1** from **Table 4.3** above.

**Table 4.4 – Net Change in Peak Hour and Daily Trips – (Residential Use minus Office Use)**

Mode	AM Peak Hour	PM Peak Hour	Daily
Public Transport	-12	+4	-43
Car Driver	-45	-15	-156
Car Passenger	-3	-1	-12
Motorcycle	0	0	-4
Bicycle	-5	-2	-15
On Foot	-16	-5	-56
Other	-2	0	-4

It is clear from **Table 4.4** that the proposed development of 128 flats will have a positive impact on the highway network with some 45 fewer vehicular movements in the morning peak hour and 15 less movements in the evening peak hour. There will be 156 fewer daily traffic movements too, which is extremely positive.

### 4.4 Service Vehicle Movements

The Transport Statement for 29 Broadwater Road (Planning Application No. 6/2019/0108/PN11) and the Former Shredded Wheat Factory Transport Assessment (Planning Application No. 6/2018/0171/MAJ) do not include a prediction on the number of delivery/service vehicle movements.

It is therefore appropriate that TRICS is examined to be able to quantify the number of service vehicle movements that would occur for a development of 128 residential units.

The TRICS database was interrogated to obtain trip rates for mixed private/affordable housing in South East England and this information is attached as **Appendix D**. The trip rates per residential unit for OGVs and LGVs is set out in **Table 4.5** and the associated number of OGV and LGV trips for a development of 128 residential units is set out in **Table 4.6**.

**Table 4.5** –Predicted Peak Hour and Daily Service Vehicle Trip Rates – Residential Use (per unit)

Mode	AM Peak Hour	PM Peak Hour	Daily
OGVs	0.002	0.000	0.042
LGVs	0.030	0.028	0.439

**Table 4.6** –Predicted Peak Hour and Daily Service Vehicle Trips – Residential Use (128 flats)

Mode	AM Peak Hour	PM Peak Hour	Daily
OGVs	0	0	5
LGVs	4	4	56

The information contained in **Table 4.6** above shows that there is expected to be between 2 and 3 OGVs visiting the Site per day (5 movements) and around 28 LGVs per day (56 movements). This amounts to around 3 vehicles per hour throughout a typical 10-hour day (8am to 6pm). No OGVs movement are expected to visit the Site during the peak hours.

The Delivery and Servicing strategy is discussed in **Section 1.2** of this Transport Assessment can clearly accommodate the predicted delivery and servicing movements to the Site.

## 5 Impacts

### 5.1 Road Network

The morning peak and evening peak hour generation assessments detailed in **Section 4** above demonstrate the number of vehicular movements are to reduce by some 45 in the morning peak and 15 in the evening peak. This is significantly less than the existing office use. It is reasonable to assume that there is a clear positive benefit on the local road network.

The information contained in **Table 4.6** above shows that there is expected to be between 2 and 3 OGVs visiting the Site per day (5 movements) and around 28 LGVs per day (56 movements). This amounts to around 3 vehicles per hour throughout a typical 10-hour day (8am to 6pm). No OGVs movement are expected to visit the Site during the peak hours.

The delivery/servicing arrangements set out in **Section 1.2** of this Transport Assessment can clearly accommodate the predicted delivery and servicing movements to the Site. It is anticipated that there will be on average 3 vehicles per hour visiting the Site for deliveries (**Section 4.4** of this Transport Assessment) and the vast majority of vehicles, such as post office van, Amazon and supermarket deliveries, etc. will be able to access the basement car park to deliver to their customers. The remainder of the larger service vehicles (those who cannot access the basement as there is a restriction of 2.1m in height) and refuse vehicles will be able to access the Site from Broad Court by using the turning head being provided at the eastern end of the Site frontage as shown in **Figure 1.2**.

### 5.2 Parking Standards

Hertfordshire County Council states within the Highway Design Guide that parking within each development are set by each Local Planning Authority. Welwyn Hatfield Borough Council's residential car and cycle parking standards are set out within Appendix A of the 2004 Supplementary planning Guidance Parking Standards and reproduced in **Table 5.1** below.

**Table 5.1 – Welwyn Hatfield Borough Council Parking Standards**

Land Use		Car Parking Standard		Cycle Parking Standard
		Zones 1 and 2	Elsewhere	
C3 Residential	a) General needs	0.75 spaces per bedsit	1.25 spaces per bedsit	1 long term space per unit if no garage or shed provided
	i) bedsits			
	ii) 1 bedroom dwellings	0.75 spaces per dwelling	1.25 spaces per dwelling	
	iii) 2 bedroom dwellings	1 space per dwelling	1.5 spaces per dwelling	
	iv) 3 bedroom dwellings	1.5 spaces per dwelling	2.25 spaces per dwelling	
	v) 4 bedroom dwellings	2 spaces per dwelling	3 spaces per dwelling	

The car parking standards are based upon a zonal approach with the method of assigning parking restraint set out in **Table 5.2**.

**Table 5.2 – Welwyn Hatfield Borough Council Parking Restraint Method for Zones**

Zone Type	Car Parking Provision in Urban Areas
Zone 1	0% - 25% of maximum demand-based standard
Zone 2	25% - 50% of maximum demand-based standard
Zone 3	50% - 75% of maximum demand-based standard
Zone 4	75% - 100% of maximum demand-based standard

The Zonal Maps contained at Appendix C of the 2004 Supplementary planning Guidance Parking Standards show the development Site falling within Zone 2.

It should be noted that Interim Guidance for Car Parking Standards and Garage Sizes was adopted by Welwyn Hatfield Borough Council on 21<sup>st</sup> August 2014. This states the following,

*“The Council will treat all car parking standards set out in the Welwyn Hatfield Parking Standards Supplementary Planning Guidance as guidelines rather than maximums.*

*Planning applications will be determined on a case-by-case basis to achieve a sensible level of provision taking account of existing SPG standards, NPPF guidance, the relevant circumstances of the proposal, its site context and its wider surroundings.”*

### 5.3 Car Parking

The development Site falls within Zone 2 and the application of the Zone 1 and 2 standards presented in **Table 5.1** leads to a provision of up to 121 car parking spaces will be acceptable.

The 2011 Census Data for the Welwyn Hatfield Lower Output Area 007A shows that there is on average 0.94 cars per household. Application of this Census Data information suggests that 121 cars will be owned by the residents of the 128 residential units at 29 Broadwater Road (**Table 3.5**).

The proposed new development is to provide 128 residential units comprising of 30 no. one-bedroom flats and 98 no. two-bedroom flats will provide a total of 136 car parking spaces on-site located on the basement level, which will comprise of 126 general spaces and 10 Blue Badge spaces.

The proposed car parking provision is in line with the Welwyn Hatfield Borough Council standards and as the development should provide sufficient space for the number of vehicles anticipated to be owned by the householders with surplus space for visitors to park thereby ensuring that no impact is made on the surrounding highway network.

In addition to the above 14 motorcycle space will be provided.

### 5.4 Cycle Parking

Applications of the standards present in **Table 4.1** states 1 long stay cycle space per unit should be provided if no garage or shed is being provided.

It is the intention to provide 128 cycle spaces distributed within the 3 separate storage areas located on the basement level of the building. (**Appendix A**).

It is considered that the proposed cycle parking provisions comply with the standards set by Welwyn Hatfield Borough Council.



## **5.5 Public Transport**

It is considered that the proposed residential development will not impact on the capacity of the public transport network, particularly as travel will be 12 less during the morning peak hour, only 4 more movements during the evening peak hour, and 43 fewer public transport movements overall (**Table 4.4**).

## **5.6 Walking and Cycling**

It is considered that the proposed residential development will not have an impact on the capacity of the walking or cycle networks as the number of pedestrian and cycle movements are anticipated to decrease as a consequence of development (**Table 4.4**).

It should be noted that the vehicular access being created onto Broadwater Road will not conflict with the raised table being installed nearby for the Shredded Wheat factory development so pedestrians and cyclists using the joint cycleway/footway on the eastern side of the carriageway are not adversely affected.

## **5.7 Cumulative Impacts**

There are no cumulative impacts which need to be considered in the vicinity of the Site.

## 6 Mitigation

### 6.1 Travel Plan

A Travel Plan has been requested by WHBC in support of the planning application and this has been submitted with the planning documents.

### 6.2 Planning Obligations/S278 Discussions

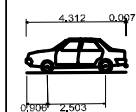
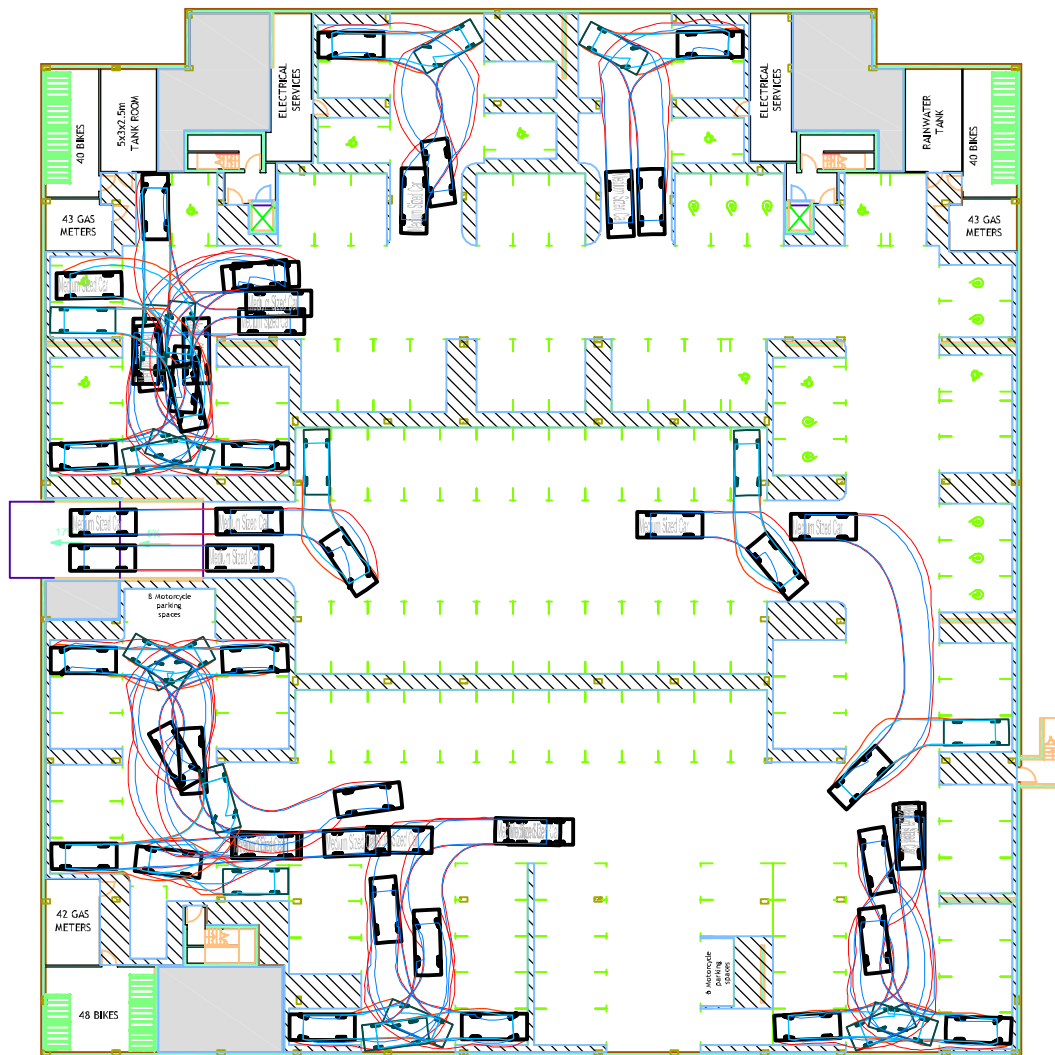
There will be a need for a S278 Highway Works Agreement to modify the kerbs to provide the new junction on Broadwater Road to provide access to the basement car park and to provide the turning head from Broad Court as shown on **Figure 1.2**.

## 7 Summary and Conclusions

- a. YES Engineering Group Ltd was appointed by Hightown Housing Association to produce a Transport Assessment (TA) in support of a planning application for the redevelopment of a site containing an existing office block (B1 use) to provide 128 residential units at 29 Broadwater Road, Welwyn Garden City (the 'Site').
- b. The development proposals are to provide 128 residential units comprising of 30 no. one-bedroom flats and 98 no. two-bedroom flats.
- c. The Site is in a sustainable location being within a short walk distance of 500m (maximum of 6-minute walk) for access to local bus routes on Broadwater Road, Pear Tree Lane and Bridge Road. The town centre with the Howard Centre, numerous other shops, banks, restaurants, cafes, supermarkets (Aldi, Waitrose, and Sainsburys), etc are accessible over the railway bridge within 800m away (10-minute walk). Or within a 1,200m (15-minute) distance if walking via Bridge Street.
- d. Forecast trip generation for the Site indicates that the residential units will generate 45 fewer vehicular movements in the morning peak hour and 15 in the evening peak. This is significantly less than the existing office use. It is reasonable to assume that there is a clear positive benefit on the local road network.
- e. It is considered that there will be no impact on public transport, walking and cycling networks as there is anticipated to be a reduction in each of these trips compared with the existing lawful use.
- f. A total of 136 car parking spaces comprising of 126 general spaces and 10 Blue Badge spaces will be provided on-site located on the basement level. This is wholly in line with car ownership levels in the local area (Census Data) and WHBC car parking standards.
- g. A total of 128 cycle parking spaces will be provided on-site in 3 separate storage areas for residents. The cycle parking is contained at various locations within the new building and wholly in accordance with policy.
- h. The delivery/servicing arrangements set out in **Section 1.2** of this Transport Assessment can clearly accommodate the predicted delivery and servicing movements to the Site. Most of the delivery vehicle will access the basement and the larger vehicles will use the new turning head being provided from Broad Court.
- i. NPPF paragraph 109 states that *'development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.'* As demonstrated within this report the impacts are not severe.
- j. Overall, it is concluded that there is no highway or transportation reasons to object to the proposed development.

## Figures and Appendices

**Figure 1.2 – Proposed Junction and Turning Head**



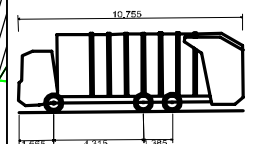
Medium Sized Car	4.319m
Overall Length	1.686m
Overall Width	1.466m
Overall Body Height	0.228m
Min Body Ground Clearance	1.591m
Max Track Width	4.00 sec
Lock to Lock Time	5.042m
Kerb to Kerb Turning Radius	

Proposed access and raised table to the former Shreaded Wheat Factory site.

BROADWATER ROAD

BROAD COURT

Existing trees



Phoenix 2 Duo Recycler (P2-12W with Elite 6x2 MS chassis)	11.450m
Overall Length	10.753m
Overall Width	2.530m
Overall Body Height	3.756m
Min Body Ground Clearance	0.309m
Track Width	2.530m
Lock to Lock Time	4.00 sec
Kerb to Kerb Turning Radius	



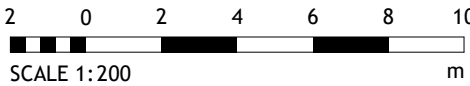
## **Appendix A – Proposed Ground Floor Layout and Basement Plans**

BROADWATER ROAD

BROAD COURT



Ground Floor Plan  
1 : 200



P1	XXX	05.8.2019
Revision	Amendment	Date
JP	JD	JD
Drawn by	Reviewed by	Approved by
60193	07/04/19	1 : 200 @ A1
MCB Number	Date Created	Scale @ A1

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Client  
Hightown Housing Association

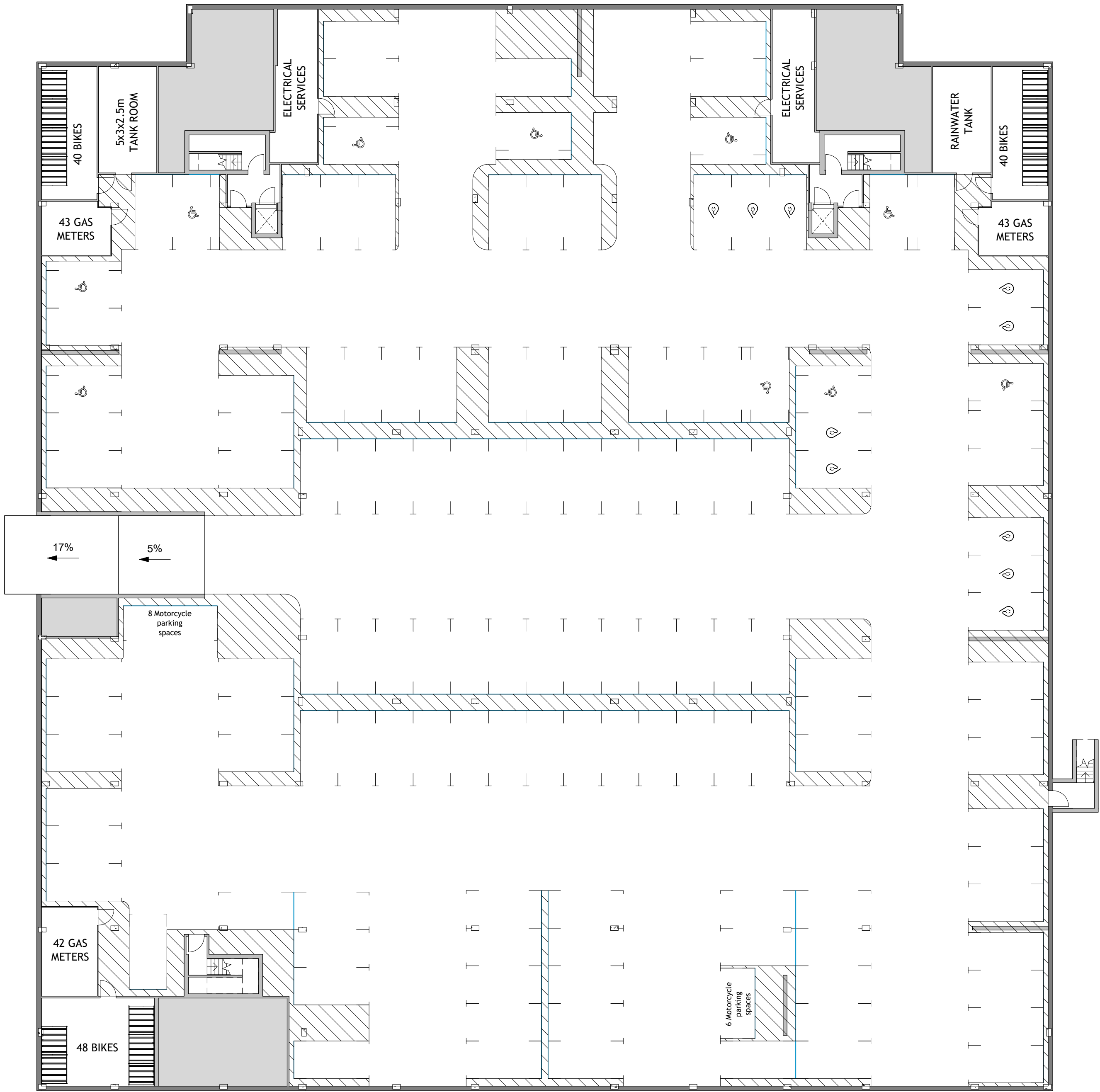
Project  
29 Broadwater Road  
Welwyn Garden City

Drawing Title  
Ground Floor Plan

**ARCHITECTURE**

Drawing / Document Reference							Status	
BRW01	MCB	XX	00	DR	A	0006	S2	P1
Project Idn	Originator	Zone	Level	Type	Discipline	Number	Suitability	Revision

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**BASEMENT PLAN KEY**

- DISEABLE PARKING SPACE
- ELECTRIC CAR CHARGING POINT

- 136 CAR PARKING SPACES**
- 126 STANDARD PARKING SPACES 2.4m x 4.8m
  - 10 DISEABLE PARKING SPACES 3.0m x 4.8m
- 14 MOTORCYCLE PARKING SPACES**

**Basement Floor Plan**  
1 : 200

P1	XXX	21.8.2019
Revision	Amendment	Date
JP	JD	JD
Drawn by	Reviewed by	Approved by
60193	07/05/19	1 : 200 @ A1
MCB Number	Date Created	Scale @ A1

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Client  
Hightown Housing Association

Project  
29 Broadwater Road  
Welwyn Garden City

Drawing Title  
Basement Floor Plan

**ARCHITECTURE**

Drawing / Document Reference										Status	
BRW01 - MCB - XX - B1 - DR - A - 0005										S2 - P1	
Project Iden	Originator	Zone	Level	Type	Discipline	Number	Suitability	Revision			

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## Appendix B – Bus Map





**Welwyn Garden City Town Centre**  
terminating: 6.201.203.204.206.215  
230.242.314.315.401.404.405.601  
653.W4.W14  
calling: 300.301.366.388.403.724

**Queen Elizabeth II Hospital**  
calling: 230.242.301.366  
403.404.653.724

### Welwyn Garden City

- 300** Buses run generally at least hourly between 0800 and 1800, Mondays to Fridays
- 215** Buses run less often than above
- 301** \* Bus route terminus
- ←** Direction of travel
- NR** National Rail station
- ePIP** Electronic Passenger Information Point



**PLEASE NOTE:**  
Express and commuter coach services and bus services/journeys that operate solely on schooldays are not shown. Where known, forthcoming changes to bus services are included. For subsequent changes please visit [www.intalink.org.uk](http://www.intalink.org.uk) or telephone traveline 0871 200 2233 (Calls cost 12p per minute plus your phone company's access charge.)

Digital Cartography by Pindar Creative  
[www.pindarcreative.co.uk](http://www.pindarcreative.co.uk)



## Appendix C – 2011 Census Data

## QS416EW - Car or van availability

ONS Crown Copyright Reserved [from Nomis on 25 July 2019]

population	All households; All cars or vans
units	Households
area type	2011 super output areas - lower layer
area name	E01023954 : Welwyn Hatfield 007A
rural urban	Total

<b>Cars</b>	<b>2011</b>
All categories: Car or van availability	711
No cars or vans in household	216
1 car or van in household	352
2 cars or vans in household	121
3 cars or vans in household	17
4 or more cars or vans in household	5

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.



## QS701EW - Method of travel to work

ONS Crown Copyright Reserved [from Nomis on 24 July 2019]

population	All usual residents aged 16 to 74
units	Persons
area type	2011 super output areas - lower layer
area name	E01023954 : Welwyn Hatfield 007A
rural urban	Total

Method of Travel to Work	2011
All categories: Method of travel to work	1,264
Work mainly at or from home	30
Underground, metro, light rail, tram	14
Train	65
Bus, minibus or coach	35
Taxi	7
Motorcycle, scooter or moped	10
Driving a car or van	409
Passenger in a car or van	31
Bicycle	41
On foot	146
Other method of travel to work	3
Not in employment	473

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

## Appendix D – C3 Residential TRICS Data

Calculation Reference: AUDIT-460201-190723-0705

# TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL  
Category : K - MIXED PRIV HOUS (FLATS AND HOUSES)  
VEHICLES

## Selected regions and areas:

02	SOUTH EAST	
ES	EAST SUSSEX	1 days
HC	HAMPSHIRE	1 days
WS	WEST SUSSEX	2 days

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

## Secondary Filtering selection:

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

Parameter: Number of dwellings  
Actual Range: 64 to 371 (units: )  
Range Selected by User: 31 to 448 (units: )

Parking Spaces Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

## Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 28/06/18

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

## Selected survey days:

Thursday 4 days

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

## Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

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

## Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	3

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

## Selected Location Sub Categories:

Residential Zone	4
------------------	---

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

## Secondary Filtering selection:

## Use Class:

C3	4 days
----	--------

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

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days

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

Population within 5 miles:

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

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

Car ownership within 5 miles:

1.1 to 1.5	3 days
1.6 to 2.0	1 days

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

Travel Plan:

Yes	2 days
No	2 days

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

PTAL Rating:

No PTAL Present	4 days
-----------------	--------

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

LIST OF SITES relevant to selection parameters

1	ES-03-K-01 LEWES ROAD UCKFIELD RIDGEWOOD Edge of Town Residential Zone Total Number of dwellings: 64 <i>Survey date: THURSDAY 14/07/16</i>	MIXED HOUSES & FLATS	EAST SUSSEX	<i>Survey Type: MANUAL</i>
2	HC-03-K-06 ROMSEY ROAD SOUTHAMPTON MAYBUSH Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 91 <i>Survey date: THURSDAY 02/10/14</i>	HOUSES & FLATS	HAMPSHIRE	<i>Survey Type: MANUAL</i>
3	WS-03-K-03 LITTLEHAMPTON ROAD WORTHING WEST DURREINGTON Edge of Town Residential Zone Total Number of dwellings: 111 <i>Survey date: THURSDAY 12/05/16</i>	MIXED HOUSES & FLATS	WEST SUSSEX	<i>Survey Type: MANUAL</i>
4	WS-03-K-04 HILLS FARM LANE HORSHAM BROADBRIDGE HEATH Edge of Town Residential Zone Total Number of dwellings: 371 <i>Survey date: THURSDAY 28/06/18</i>	MIXED HOUSES & FLATS	WEST SUSSEX	<i>Survey Type: MANUAL</i>

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

TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIV HOUS (FLATS AND HOUSES)  
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	159	0.072	4	159	0.295	4	159	0.367
08:00 - 09:00	4	159	0.110	4	159	0.338	4	159	0.448
09:00 - 10:00	4	159	0.132	4	159	0.171	4	159	0.303
10:00 - 11:00	4	159	0.129	4	159	0.174	4	159	0.303
11:00 - 12:00	4	159	0.104	4	159	0.105	4	159	0.209
12:00 - 13:00	4	159	0.138	4	159	0.127	4	159	0.265
13:00 - 14:00	4	159	0.163	4	159	0.152	4	159	0.315
14:00 - 15:00	4	159	0.141	4	159	0.173	4	159	0.314
15:00 - 16:00	4	159	0.217	4	159	0.163	4	159	0.380
16:00 - 17:00	4	159	0.221	4	159	0.138	4	159	0.359
17:00 - 18:00	4	159	0.333	4	159	0.148	4	159	0.481
18:00 - 19:00	4	159	0.356	4	159	0.148	4	159	0.504
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:	2.116			2.132			4.248		

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

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

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#### Parameter summary

Trip rate parameter range selected:	64 - 371 (units: )
Survey date date range:	01/01/11 - 28/06/18
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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



TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIV HOUS (FLATS AND HOUSES)

TAXI S

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	159	0.000	4	159	0.000	4	159	0.000
08:00 - 09:00	4	159	0.002	4	159	0.002	4	159	0.004
09:00 - 10:00	4	159	0.002	4	159	0.003	4	159	0.005
10:00 - 11:00	4	159	0.002	4	159	0.000	4	159	0.002
11:00 - 12:00	4	159	0.002	4	159	0.005	4	159	0.007
12:00 - 13:00	4	159	0.003	4	159	0.003	4	159	0.006
13:00 - 14:00	4	159	0.002	4	159	0.002	4	159	0.004
14:00 - 15:00	4	159	0.005	4	159	0.003	4	159	0.008
15:00 - 16:00	4	159	0.000	4	159	0.000	4	159	0.000
16:00 - 17:00	4	159	0.003	4	159	0.003	4	159	0.006
17:00 - 18:00	4	159	0.002	4	159	0.000	4	159	0.002
18:00 - 19:00	4	159	0.005	4	159	0.005	4	159	0.010
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.028			0.026			0.054

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIV HOUS (FLATS AND HOUSES)

OGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	159	0.002	4	159	0.000	4	159	0.002
08:00 - 09:00	4	159	0.002	4	159	0.000	4	159	0.002
09:00 - 10:00	4	159	0.002	4	159	0.003	4	159	0.005
10:00 - 11:00	4	159	0.005	4	159	0.005	4	159	0.010
11:00 - 12:00	4	159	0.000	4	159	0.002	4	159	0.002
12:00 - 13:00	4	159	0.002	4	159	0.002	4	159	0.004
13:00 - 14:00	4	159	0.003	4	159	0.002	4	159	0.005
14:00 - 15:00	4	159	0.005	4	159	0.005	4	159	0.010
15:00 - 16:00	4	159	0.000	4	159	0.002	4	159	0.002
16:00 - 17:00	4	159	0.000	4	159	0.000	4	159	0.000
17:00 - 18:00	4	159	0.000	4	159	0.000	4	159	0.000
18:00 - 19:00	4	159	0.000	4	159	0.000	4	159	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.021			0.021			0.042

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIV HOUS (FLATS AND HOUSES)  
CYCLISTS  
Calculation factor: 1 DWELLS  
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	159	0.016	4	159	0.030	4	159	0.046
08:00 - 09:00	4	159	0.020	4	159	0.038	4	159	0.058
09:00 - 10:00	4	159	0.008	4	159	0.009	4	159	0.017
10:00 - 11:00	4	159	0.009	4	159	0.005	4	159	0.014
11:00 - 12:00	4	159	0.002	4	159	0.003	4	159	0.005
12:00 - 13:00	4	159	0.009	4	159	0.002	4	159	0.011
13:00 - 14:00	4	159	0.002	4	159	0.002	4	159	0.004
14:00 - 15:00	4	159	0.003	4	159	0.002	4	159	0.005
15:00 - 16:00	4	159	0.014	4	159	0.017	4	159	0.031
16:00 - 17:00	4	159	0.013	4	159	0.003	4	159	0.016
17:00 - 18:00	4	159	0.013	4	159	0.011	4	159	0.024
18:00 - 19:00	4	159	0.019	4	159	0.003	4	159	0.022
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.128			0.125			0.253

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIV HOUS (FLATS AND HOUSES)  
CARS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	159	0.058	4	159	0.278	4	159	0.336
08:00 - 09:00	4	159	0.094	4	159	0.319	4	159	0.413
09:00 - 10:00	4	159	0.105	4	159	0.157	4	159	0.262
10:00 - 11:00	4	159	0.102	4	159	0.140	4	159	0.242
11:00 - 12:00	4	159	0.091	4	159	0.085	4	159	0.176
12:00 - 13:00	4	159	0.118	4	159	0.111	4	159	0.229
13:00 - 14:00	4	159	0.124	4	159	0.118	4	159	0.242
14:00 - 15:00	4	159	0.113	4	159	0.151	4	159	0.264
15:00 - 16:00	4	159	0.196	4	159	0.127	4	159	0.323
16:00 - 17:00	4	159	0.199	4	159	0.104	4	159	0.303
17:00 - 18:00	4	159	0.308	4	159	0.138	4	159	0.446
18:00 - 19:00	4	159	0.333	4	159	0.135	4	159	0.468
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.841			1.863			3.704

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIV HOUS (FLATS AND HOUSES)

LGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	159	0.013	4	159	0.017	4	159	0.030
08:00 - 09:00	4	159	0.013	4	159	0.017	4	159	0.030
09:00 - 10:00	4	159	0.024	4	159	0.008	4	159	0.032
10:00 - 11:00	4	159	0.020	4	159	0.027	4	159	0.047
11:00 - 12:00	4	159	0.009	4	159	0.013	4	159	0.022
12:00 - 13:00	4	159	0.016	4	159	0.011	4	159	0.027
13:00 - 14:00	4	159	0.033	4	159	0.028	4	159	0.061
14:00 - 15:00	4	159	0.019	4	159	0.014	4	159	0.033
15:00 - 16:00	4	159	0.020	4	159	0.035	4	159	0.055
16:00 - 17:00	4	159	0.019	4	159	0.031	4	159	0.050
17:00 - 18:00	4	159	0.019	4	159	0.009	4	159	0.028
18:00 - 19:00	4	159	0.016	4	159	0.008	4	159	0.024
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.221			0.218			0.439

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

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

TRIP RATE for Land Use 03 - RESIDENTIAL/K - MIXED PRIV HOUS (FLATS AND HOUSES)  
 MOTOR CYCLES  
 Calculation factor: 1 DWELLS  
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	159	0.000	4	159	0.000	4	159	0.000
08:00 - 09:00	4	159	0.000	4	159	0.000	4	159	0.000
09:00 - 10:00	4	159	0.000	4	159	0.000	4	159	0.000
10:00 - 11:00	4	159	0.000	4	159	0.003	4	159	0.003
11:00 - 12:00	4	159	0.002	4	159	0.002	4	159	0.004
12:00 - 13:00	4	159	0.000	4	159	0.000	4	159	0.000
13:00 - 14:00	4	159	0.002	4	159	0.003	4	159	0.005
14:00 - 15:00	4	159	0.000	4	159	0.000	4	159	0.000
15:00 - 16:00	4	159	0.000	4	159	0.000	4	159	0.000
16:00 - 17:00	4	159	0.000	4	159	0.000	4	159	0.000
17:00 - 18:00	4	159	0.005	4	159	0.000	4	159	0.005
18:00 - 19:00	4	159	0.003	4	159	0.000	4	159	0.003
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.012			0.008			0.020

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

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