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LAND AT CAMPUS EAST, WELWYN GARDEN CITY

TRANSPORT ASSESSMENT

REPORT REF. 2007511-11

November 2022

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Page

Contents

1.	Introduction	1
2.	Policy Context	4
3.	Existing Conditions	11
4.	Accessibility by Sustainable Modes of Travel	18
5.	Development Proposals	29
6.	Change in Traffic Conditions	39
7.	Highway Impacts	44
8.	Conclusions	47

Drawings

2007511-005 – Highway Layout Plan

Appended Figures

- **Figure 1 Proposed Development Percentage Traffic Distribution**
- **Figure 2 Assigned Development Traffic Flows**
- Figure 3 Base 2019
- Figure 4 Future Year 2027 Traffic Flows
- Figure 5 No Development 2027 Traffic Flows
- Figure 6 With Development 2027 Traffic Flows

Appendices

- **Appendix A HCC Pre-Application Response**
- **Appendix B Accident Data**
- **Appendix C Development Layout**
- **Appendix D TRICS Details**
- **Appendix E ARUP Traffic Flows**
- **Appendix F TEMPRO**
- **Appendix G PICADY Output**

Document Control Sheet

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1. Introduction

- 1.1. Ardent Consulting Engineers (ACE) have been instructed by Bellway Homes Ltd (North London) to prepare a Transport Assessment to support a full planning application for a residential development consisting of 313 residential dwellings. The site is located on land to the east of College Way, to the north of Welwyn Garden City.
- 1.2. The site, which is known as the 'Campus East Car Park', forms part of Welwyn Hatfield 'WGC 2120', which is a framework set out by the Borough Council to develop the town centre over the next 100 years. WGC 2120 will aim to deliver new homes, retail, leisure space and supporting infrastructure in several phases to the west of the East Coast Mainline railway.
- 1.3. This Transport Assessment (TA) has been prepared to support a full planning application to the local planning authority, Welwyn Hatfield Borough Council (WHBC) with Hertfordshire County Council (HCC) being the local highway authority.
- 1.4. A Planning Application has been submitted for the 'Campus West Car Park' (6/2021/2207/MAJ) and was granted planning on the 17th December 2021 for the expansion and adaptation of the existing car park to provide an additional 156 car parking spaces. It is understood that the car park is now under construction. The redevelopment of Campus West therefore allows for the Campus East Car Park to be redeveloped by offsetting number of spaces.
- 1.5. Prior to the submission of a planning application, a Transport Scoping Note (TSN) was produced and submitted to the local highway authority (HCC) to define the scope of highways and transportation assessment required as part of the planning application.
- 1.6. A formal pre-application response was received from HCC Highways (dated September 2022) and is included at **Appendix A.** The pre-application response included highway related comments that have been addressed within this Transport Assessment. The response included the following key highway related comments that should be addressed within this Transport Assessment.
 - HCC Highways DM would also request that the final TA review; HCC Local Transport Plan (LTP 4), HCCs South Central Growth and Transport Plan and WHBC Draft Proposed Submission Local Plan.

- Full PIA Analysis has been requested;
- Vehicle Tracking with the current WHBC 11.4m x 2.55m Refuse Vehicle, 7.5t Delivery Vehicle and a Fire Tender; and
- Junction Capacity Analysis of the site access.

Scope of Report

- 1.7. This TA takes into account current Government policy contained within the National Planning Policy Framework. It also considers current best practice advice contained in the following documents
 - 'Manual for Streets' (DfT, 2007);
 - 'Manual for Streets 2 Wider Application of the Principles' (CIHT, September 2010);
 - HCC's 'Roads in Hertfordshire: Highway Design Guide' (January 2011);
 - Welwyn Hatfield District Plan (2005)
 - HCCs Local Transport Plan 4
 - South Central Hertfordshire Growth and Transport Plan; and
 - WHBC Draft Local Plan Proposed Submission (2016)
- 1.8. This report also refers to the requirements set out in the Planning Practice Guidance (PPG) documents 'Transport evidence bases in plan making and decision taking' (updated March 2015) and 'Travel Plans, transport assessments and statements in decision-taking' (updated March 2014).
- 1.9. These documents provide details on the general approach to assessing traffic impacts; however, they do not replace the more specific guidance that was included within the former (now archived) Guidance on Transport Assessment (GoTA). Therefore, in lieu of any detailed replacement guidance being published, where relevant this TA adopts the approaches set out in the former GoTA document, particularly in respect of where significant traffic impacts could occur.
- 1.10. In light of the above current policy guidance, the approach taken in any assessment should take a rounded view on impact that considers traffic increases in the context of existing conditions at particular junctions and links, such as whether there are any

current capacity or highway safety issues. This all-encompassing approach to assessment helps to address the specific question of whether or not an impact could be defined as severe. To assist with this process, this report makes reference to the previous advice on indicative thresholds for determining where a significant impact could occur that was included in GoTA.

- 1.11. Further to the above, HCC's 'Roads in Hertfordshire: Highway Design Guide (January 2011) confirms that a TA is required for a residential scheme exceeding 80 dwellings.
- 1.12. The following assessment takes into consideration current Government planning policy contained within the NPPF. It places a key emphasis on the presumption in favour of sustainable development.
- 1.13. A Residential Travel Plan (RTP report reference 2007511-06) Car Parking Management Plan (CPMP – report reference 2007511-13) Waste Management Plan (report reference 2007511-14) and Construction Traffic Management Plan (CTMP – report reference 2007511-10) have also been prepared by ACE to accompany the planning application for the proposed development.

1.14. Following this introductory section, the layout of the report is as follows: -

- Section 2.0 reviews current relevant national and local planning policies;
- Section 3.0 provides a description of the existing site conditions;
- **Section 4.0** provides a description on the site accessibility by sustainable modes of travel;
- **Section 5.0** outlines the proposed development and the associated improvements to transport infrastructure to be implemented;
- **Section 6.0** sets out the predicted weekday peak hour trip attraction/generation by mode for both the consented and proposed uses and considers impact;
- **Section 7.0** reviews the potential highway impacts of the proposals including detailed modelling of junctions;
- Section 8.0 provides a summary and sets out the conclusions

2. Policy Context

- 2.1. Relevant policy guidance on transport and land use planning relating to new development is set out in the following key documents:
 - National Planning Policy Framework (NPPF, July 2021)
 - HCC's Local Transport Plan 4
 - South Central Hertfordshire Growth and Transport Plan;
 - Welwyn Hatfield District Plan 2005; and
 - Welwyn Hatfield Draft Local Plan

National Planning Policy Framework (July 2021)

- 2.2. Para 104 states that: Transport issues should be considered from the earliest 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 mitigation and for net gains in environmental quality; and
 - e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places.
- 2.3. Para 105 states that: ...opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.

- 2.4. Para 110 states that: 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; and
 - d) 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.
- 2.5. Para 111 confirms 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.

Hertfordshire Local Transport Plan 4

2.6. WHBC's new Local Plan will shape the future of development in their towns and villages between now and 2032. Until the new Local Plan has been adopted, the District Plan remains current.

The District Plan's main objectives in relation to movement are:

"To achieve the overall aim of a more sustainable pattern of movement, the policies in this chapter seek to fulfil the following objectives:

- (a) To reduce the overall need to travel by integrating land uses with transport;
- (b) To support the development of integrated transport policy;

(c) To reduce dependency on the car and encourage modes of travel which have less adverse environmental impact;

(*d*) To give priority to walking and cycling; (*e*) To encourage effective traffic management and the improvement of road safety for all sectors of the community;

(f) To encourage greater use of passenger transport and improvements to services and facilities; and

(g) To facilitate the accessibility needs of all in a safe and sustainable manner."

2.7. Policy M1 - Integrating Transport and Land Use states that....

"Through the development process the Council will take every opportunity to integrate different modes of travel. Development proposals, except for those which are necessary in rural areas, will be permitted only in locations with accessibility to pedestrian and cycle routes and passenger transport services, or where this can be created, and where the environment and infrastructure can accommodate the amount and type of transport movement likely to be generated. In considering development proposals, the Council will give priority to walking and more sustainable modes of travel.

Internal layouts in development schemes must demonstrate priority to non-car users. They must include safe and effective routes for pedestrians and cyclists, with appropriate facilities, as well as catering for people with mobility difficulties and making provision for passenger transport and where appropriate the needs of horseriders."

- 2.8. Policies M2 and M3 relate to Transport Assessments and Travel Plans and calls for such documents when developments are above certain thresholds. It is recognised that the proposed development is above these threshold and appropriate studies and documentation will be submitted as part of the planning application.
- 2.9. In relation to pedestrian facilities Policy M5 states: -

"Wherever possible and practical the Council will seek improvements in facilities for the safe and convenient movement of pedestrians. The Council will require proposals for new development to give priority to pedestrian access in their layouts through the inclusion of safe and direct routes linking to existing or proposed footpath networks and facilities. Developers may be required to provide or contribute towards off-site pedestrian facilities where this would be necessary to integrate it with surrounding areas. Development which would prejudice convenient and safe pedestrian movement will be refused."

2.10. In relation to cycling, Policy M6 states: -

"The Council will require proposals for new development to encourage cycling through the inclusion of safe cycle routes and parking for cycles, and where appropriate secure waterproof storage and changing and showering facilities for cyclists. New cycle routes should link with existing or proposed cycle paths. Developers may be required to provide or contribute towards off-site facilities and the overall planned cycle network.

The Council has reviewed the Welwyn Hatfield Cycling Strategy, to ensure that it continues to provide an adequate framework to guide investment in the infrastructure necessary to create a comprehensive network of routes and facilities in the district."

2.11. In relation to powered two wheelers Policy M8 states: -.

"The Council supports the use of powered two-wheeled vehicles as a more environmentally friendly mode of transport than the car. It will require that the internal layouts for development schemes are designed to make provision for powered two-wheeled vehicles and their users."

2.12. In relation to Public Transport and Taxi hire, Policy M9 states.

"The Council will support the improvement of passenger transport services throughout the district and will require priority to be given to this mode over the car in the design and layout of new developments.

For developments which are likely to place significant additional demands on existing infrastructure the Council will require developers to provide additional infrastructure as necessary. This may include the provision of bus lanes and parking bays, taxi ranks, bus stops with shelters and seating, either within the layout of the scheme or off-site.

Where appropriate developers may also be required to fund the provision of bus services, particularly at the early stages of a development before they become independently viable."

2.13. Parking Policy M14 states: -.

"The Council will require parking provision for new development to be made in accordance with the standards set out in the Council's supplementary planning guidance on parking. These standards represent the maximum allowable provision,

except for cycle parking and car parking for disabled people where the standards represent the minimum allowable.

In urban areas of the district which are accessible by non-car modes, the Council will require parking standards for non-residential development to be reduced below the maximum allowable provision, in line with the methodology set out in the supplementary planning guidance on parking, unless it can be clearly demonstrated that such a limitation to the development would be detrimental to the economic viability of the area. The zones where such reductions will be applied are identified in the supplementary planning guidance."

South Central Hertfordshire Growth and Transport Plan

- 2.14. The South Central Hertfordshire Growth and Transport Plan (SCGTP) has been developed as a supporting document to the fourth Local Transport Plan (LTP4) which is a strategic spatial Transport Plan for the purpose of applying the LTP Policies. The document takes into account the city of St. Albans and larger towns of Borehamwood, Potters Bar, Hatfield and Welwyn Garden city as well as other smaller settlements with South Central Hertfordshire.
- 2.15. Section 6 of the SCGTP outlines a series of packages comprising significant infrastructure schemes as well as a series of soft measures. The most relevant packages to the proposed development are outlined below:

Package 10 – Hatfield to Welwyn Garden City Connectivity. This package aims to strengthen connections between Hatfield and Welwyn Garden City by modes of active travel, encouraging modal shift and improving recreational facilities within the green spine running between the towns. It consists of the following:

- Improvement and promotion of the A1000 corridor cycleway between Hatfield and Welwyn Garden City.
- Development of a southern Welwyn Garden City cycle bypass linking Hatfield directly to the Cole Green Way cycleway.
- Implementation of a recreational Welwyn Hatfield Green Corridor between the towns.

Package 13 – Welwyn Garden City Active Travel Improvements. This package aims to transform Welwyn Garden City into a town that facilitates safe, attractive

and convenient journeys by active and sustainable transport modes. This package consists of

- Redevelopment of Welwyn Garden City town centre, improving conditions for pedestrians and cyclists.
- Improvement of the town cycleway network, including completing missing links, improved infrastructure, cycle parking at key locations, signage, wayfinding and promotion.
- Development of a town bus network.

Package 14 – Bridge Road Transformation – Welwyn Garden City Town Centre. This package is most relevant to the proposed development with the overarching aim is to transform Bridge Road into a sustainable spines that enhances connections on foot, by bike and by bus between the Welwyn Garden City town centre and the employment zone east of the rail line and reduce the dominance of motorised traffic. This package consists of:

- Reduction of vehicular traffic to one lane in each direction, facilitating the development of cycleways, widened footways and improved bus stops along Bridge Road, with reference to the Town Centre North SPD. It should be noted that this has been implemented at the time of writing this report.
- Improvements to the Bridge Road / Broadwater Road junction.

Package 15 – Welwyn Garden City – Stevenage and Hitchin Corridor. The overarching aim of this package is to improve connections between towns and facilitate development on the Welwyn Garden City to Stevenage and Hitchin corridor through formation of a sustainable transport corridor along the B197 (via Oaklands), B656 (via Codicote) and Digswell Road which aims to discourage longer distance trips from using the corridor in preference over the A1(M). This package consists of:

- Development of a sustainable transport corridor along the B197 and B656, including bus priority, speed reduction, and urban realm improvement interventions in towns including Oaklands, Woolmer Green, Codicote and Knebworth.
- Improved cycling and walking infrastructure between Welwyn Village and Welwyn Garden City.

• Improved pedestrian accessibility to Welwyn North train station at Digswell, including footways, cycleways, crossings, etc

Welwyn Hatfield Draft Local Plan (Proposed Submission)

- 2.16. The Draft Local Plan is currently in for examination to the inspector. While the document is not currently adopted, the following policies will be taken into consideration within this Transport Assessment:
 - Policy SP4 Transport and Travel
 - Policy SADM 2 Highway Network and Safety
 - Policy SADM 3 Sustainable Travel for All
 - Policy SP9 Place Making and High-Quality Design
 - Policy SADM 11 Amenity and Layout
 - Policy SADM 12 Parking, Servicing and Refuse
 - Policy SP12 Strategic Green Infrastructure
- 2.17. The following Welwyn Garden City specific policies will also be taken into consideration:
 - Policy SP 16 Welwyn Garden City Town Centre Strategy

3. Existing Conditions

Existing Site

- 3.1. The site is located on land to the east of College Way, to the north of Welwyn Garden City. The site currently comprises of a multi storey two level car park known as Campus East that consists of a 584 parking spaces, of which 325 spaces are public pay and display spaces, with two vehicular points of access onto College Way. The first of these is accessed from the eastern arm of an existing mini roundabout to the west of the site. A second access is provided approximately 25m along the northern arm of the mini roundabout.
- 3.2. A Network Rail depot is located adjacent to the site boundary at the south-eastern corner of the site and it is understood to have rights of access through the site on to College Way via the internal car park layout. The development will ensure that the access to the Network Rail depot is maintained and does not become restricted as a result of demolition/construction or by the completed development itself such as by parked vehicles. It is understood the following has been confirmed by Network Rail:

• The majority of vehicle movements to and from the depot are vans (both long and short wheelbase) and that the access is in use 24/7, frequently used outside of the traditional working hours.

• Occasionally, there is a requirement for larger vehicles (such as those for the delivery of cabins or larger operational equipment).

• Network Rail are amenable to the current route of the access being varied provided that there are no restrictions attached to the new access. However, they would welcome the opportunity to review the proposed new access route and comment on it in due course.

- 3.3. It should also be noted that an existing residential property (1 Junction Cottages) has historic rights for vehicular and pedestrian access via the site (northernmost existing site access) and this will be maintained as part of the proposals.
- 3.4. The site is bordered to the west by the East Coast Mainline Railway, to the west by College Way, to the south by a Waitrose Supermarket with associated car parking and servicing areas and to the north by the rear of existing residential dwellings served from Gresley Close.

3.5. An indicative site boundary in relation to the surrounding network is shown within **Figure 3.1** for reference.



Figure 3.1: General Site Location Plan (source: Google Earth)

College Way

- 3.6. College Way is a single two carriageway road which is subject to a 30mph speed limit. It forms a loop road connecting to The Campus via two priority-controlled junctions on its eastern side. The route provides access to the site, Welwyn Hatfield Borough Council offices and to the delivery area of a Waitrose Supermarket. The route is lit with generous footways to each side which connects with the wider pedestrian infrastructure network on The Campus. There is a ramped pedestrian access from the site on to College Way along its southern boundary.
- 3.7. College Way is approximately 6.5m in width along its entirety. Double yellow road markings are provided along the majority of the route, there are however disabled parking bays provided at intermittent areas for blue badge holders.

The Campus

- 3.8. The Campus forms part of a one way clockwise gyratory system comprising of two lanes. It links with Bridge Road to the south providing access to Digswell Road, Oaklands College Campus, Campus West Car Park and Campus East Car Park. The route is lit along its entirety and has generous footways on its northern side, there are also a series of footways on the grassed section in the central area of the gyratory.
- 3.9. The route is served by multiple bus routes and intermittent bus stops are present. The Campus has a road width of approximately 7m and has parking restrictions enforced by double yellow lines along its entirety. There are signal controlled pedestrian crossing points connecting the "central" footpath network with the Campus West Car Park and College Way. There are two existing electric car club bays located at the Cherry Tree car park to the west of the site though it should be noted that there are some restriction on the time of use as they are shared with WHBC Council.

Gresley Close

3.10. Gresley Close is a cul-de sac residential routing leading from Digswell Rise in the north to the most northern boundary of the proposed site. The route has a width of approximately 6m with generous footways to both sides separated by a grass verge. The route provides direct access to driveway with interspersed traffic calming features. At its southern end it provides an informal cycle pedestrian link through the current Campus East Car Park (noting this will be retained as part of the proposals). The route is street lit and subject to a 30mph speed limit.

Bridge Road

3.11. Bridge Road forms a section of the B195 in the proximity to the site and is a key east to west route connecting the site with the town centre and the employment area known as City Park to the east of the site. As the route crosses the East Coast Mainline, the route has recently been subject to the narrowing of the route to provide single running lanes in each direction and the inclusion of segregated cycle routes. It is street lit and subject to a 30mph speed limit.

Highway Safety

- 3.12. Paragraph 4.7 within 'Guidance on Transport Assessment' stated that "for the study area, establish the current personal injury accident records for the most recent threeyear period, or five years if this is considered to be more appropriate". Paragraph 015 within 'Travel plans, transport assessments and statements in decision-taking' reiterates this and advises that "an analysis of the injury records on the public highway in the vicinity of the site access for the most recent three-year period, or five-year period if the proposed site has been identified as within a high accident area".
- 3.13. Personal Injury Accident (PIA) data was obtained from HCC for the surrounding highway network for the most recently available five-year period. The study area includes the entirety of College Way, The Campus and a section of Bridge Road and Digswell Road.
- 3.14. **Figure 3.2** overleaf shows the extent of the study area and locations of recorded incidents available.



Figure 3.2: Extract of Incident Location Plan (source: Sussex Safer Roads)

3.15. The accident data revealed that a total of 12 accidents occurred across the study area during the most recent 5-year period. A total of 7 incidents (58%) were classified as `slight' in severity, whilst the remaining 5 incidents were classified as 'serious'. Of these incidents three occurred in 2017, one in 2018, three in 2019, three in 2020 and two in 2021. The full accident data is included at **Appendix B**.

- 3.16. **Figure 3.2** above shows that no incidents were recorded along the site frontage or along College Way. It does however demonstrate that a total of 5 accidents occurred at the junction of Digswell Road / College Way and can therefore be identified as a cluster site and will be investigated in further detail. The remaining serious injury accidents in the study area will also be investigated to provide a robust assessment
- 3.17. The first incident at the junction of Digswell Road / College Way gyratory resulted in serious injury and occurred in December 2020. This involved a vehicle and a motorcycle on the approach to the junctions. The details suggest that it was a shunt type collision with the car colliding with the rear of the motorcycle as it was stopping.
- 3.18. The second incident resulted in slight injury and occurred in December 2020. This involved a singular vehicle travelling west to east along the gyratory and collided with a singular pedestrian. The incident occurred in the hours of daylight where road conditions were dry.
- 3.19. A further serious injury incident occurred in June 2018. This involved two cars on the approach to the junction on Digswell Road with the details suggesting that a shunt type collision with a stationary and moving vehicle.
- 3.20. The fourth incident at this junction resulted in slight injury and occurred in June 2017. This incident involved a singular vehicle egressing the main carriageway and collided with pedestrian.
- 3.21. The final incident resulted in slight injury and occurred in May 2017. The involved a motorcycle and a singular car. The details suggest that the motorcycle overtook a car on the main carriageway resulting in a collision with the offside of the car.
- 3.22. Whilst it is noted that two shunt type collisions occurred at this junction, this equates to less than 1 per year and does not highlight any deficiencies in the geometry of the highway at this location. Further to this, two pedestrians incidents also occurred at this junction. As part of the Campus West Planning application, it has been proposed to provide pedestrian crossing improvements at the Digswell Road / The

Campus junction to comprise of amended tactile paving with new dropped kerbs which would provide a betterment for future development residents. This is secured by Condition 8 with the Campus West Decision Notice which states that "*no on-site works above slab level shall commence until a detailed scheme for the off-site highway improvement works as indicated on drawing numbers (1) SK-T-07-Rev B, (2) SK-T-03-Rev C, (3) SK-T-01-Rev C have been submitted to and approved in writing by the Local Planning Authority in consultation with the Highway Authority. Part B) Implementation / Construction Prior to the first use of the development hereby permitted, the improvement works referred to in Part A of this condition shall be completed in accordance with the approved details.".*

- 3.23. The first incident at The Parkway / Bridge Road junction resulted in serious injury and occurred in February 2021. The details suggest that it was a shunt type collision. Another incident resulting in serious injury occurred in October 2017 involving a car and a motorcycle. The details suggest that the car driver pulled from The Parkway colliding with the rider travelling along Bridge Road.
- 3.24. The final serious injury incident within the study area occurred in October 2019 involving a singular vehicle. The details suggest the car collided with a lamppost. This appears to be an isolated incident with no obvious deficiencies in highway geometry at this location also noting that the weather and road conditions were dry and fine.
- 3.25. Overall, it is not considered that these recorded incidents along a relatively busy highway network are indicative of any serious ongoing safety concerns that might exacerbated by the proposed development

Committed Development

- 3.26. Based on a review of Welwyn Hatfield Borough Council online planning database, this TA considers the following committed/potential developments. Details submitted within these applications have been reviewed and relevant data has been extracted to inform the findings of this TA:
- 3.27. Inspection of the Welwyn Hatfield Borough Council (WHBC) online planning database has determined that the following major planning applications that have been

submitted and approved in the previous 5 years. These will be taken into account with regards to the cumulative impact on the local highway network.

- Planning Application 6/2021/2207/MAJ Campus West: Campus West is located approximately 350m to the west of the Campus East site. It involves the expansion and adaption of an existing car park including the construction of a new single suspended level parking deck, reorganisation of road and pavement arrangement, introduction of additional cycle parking, junction improvements and associated landscaping improvements. A Transport Statement prepared by Arup dated July 2021 was submitted as part of the application. It is envisaged that an additional 156 spaces will be provided in the Campus West car park. The overall change in parking numbers will be discussed in further detail in **Section 6** of this Transport Assessment.
- Planning Application 6/2018/0171/MAJ Former Shredded Wheat Factory. The former Shredded Wheat Factory is located approximately 400m to the southeast of the Campus East Site on the eastern side of the East Coast Mainline. The proposals involve the creation of a mixed-use development comprising of 1,340 residential dwellings, 114 extra care homes, a new civic building (497m² health), 497m² of community use, 883m² of B1 office, 590m² of retail and flexible floor space including an arts centre and gymnasium.
- **Planning Application 6/2020/3420/MAJ Biopark.** The Biopark site is located approximately 700m to the southeast of the development site on the eastern side of the East Coast Mainline. The proposals demolition of existing building and construction of 289 residential units and community hub (Use Class E) with associated car parking, cycle parking and other ancillary uses.

4. Accessibility by Sustainable Modes of Travel-

Pedestrian Accessibility

4.1. The site is located to the north of Welwyn Garden City Centre and is located within an established commercial area within walking distance of educational facilities, local amenities and public bus services and therefore significant pedestrian infrastructure already exists in the surrounding area. The Chartered Institution for Highways and Transportation (CIHT) document entitled 'Providing for Journeys on Foot' suggests acceptable walking distances which are relevant to a variety of journey purposes. These are reproduced in **Table 3.1**.

CIHT Classification	Town Centres (m)	Commuting/School/ Sightseeing (m)	Elsewhere/Local Services (m)
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred Maximum	800	2,000	1,200

 Table 3.1 – CIHT Recommended Walking Distances

4.2. Further to the above, the 'GPJF' document provides guidance on how to encourage pedestrian travel. Paragraph 3.31 states that:

"'Acceptable' walking distances will obviously vary between individuals and circumstances. Acceptable walking distances will depend on various factors including:

- An individual's fitness and physical ability
- Encumbrances, e.g. shopping, pushchair
- Availability, cost and convenience of alternatives transport modes
- Time savings
- Journey purpose
- Personal motivation
- General deterrents to walking".
- 4.3. For commuting / school trips it suggests that 1000 metres is the acceptable walking distance, which equates to an approximate 12 minutes' walk based on a typical walking speed of 1.4 metres per second (circa 80 metres per minute). Figure 4.1 shows an extract from traveltimeplatform.com shown where residents of the site can travel to / from within a 12-minute walk (circa 1000 metres).



Figure 4.1 : Extract from traveltimeplatform.com (12 minute walk isochrone)

- 4.4. Within 1000m (12 minutes) walking distance of the site, the following amenities but not limited too can be reached;
 - Welwyn Garden City Business Park;
 - Welwyn Garden City Central Library;
 - Bus Stops on Bridge Road;
 - Welwyn Garden City Railway Station;
 - Templewood School;
 - St Francis of Assisi;
 - The Garden City Practice;
 - Waitrose & Partners;

- John Lewis & Partners;
- Nationwide Building Society;
- Boots;
- WHSmith;
- Sainsburys;
- Costa Coffee; and
- Playschool Nursery.
- 4.5. For commuting / school trips 2 kilometres is a preferred maximum walking distance, which equates to an approximate 25 minutes' walk based on a typical walking speed of 1.4 metres per second (circa 80 metres per minute). **Figure 4.2** shows an extract from traveltimeplatform.com showing where residents of the site can travel to / from within a 25-minute walk (circa 2 kilometres).



Figure 4.2: Extract from traveltimeplatform.com (25-minute walk isochrone)

- 4.6. Within 2000m (25 minutes) walking distance of the site, the following employment and educations facilities can be reached
 - Applecroft School;
 - Swallow Dell Primary School;
 - New Queen Elizabeth II Hospital;
 - All Saints C of E Primary School;
 - Tesco Corporate offices;
 - Sidley Local Centre employment area; and
 - Ridgeway Academy.
- 4.7. At present the site can be accessed on foot via circa 2-metre-wide footways along College Way, The Campus and Bridge Road. There are dropped kerbs and tactile crossings surrounding the site across side road junctions and vehicle crossovers. There is also a signalised crossing point from The Campus to Parkway to access the

south of Welwyn Garden City. There are extensive existing footways for residents to access local amenities particularly the business park to the east and the railway station and The Howard Centre to the south.

4.8. **Figure 4.3** below is an extract from HCC's online Public Rights of Way (PROW) mapping. This shows that there are no signed PROWs that run through the site but are reachable within the surrounding highway network. Most notably there are a series of PROWs to the west of the site through Herrardspark Wood which allows residents to enjoy vehicle-free routes. It should also be noted that there is the informal pedestrian / cycle route that extend through the site from Gresley Close adjacent to the Waitrose to the south.



Figure 4.3: Extract from HCC PRoW Map (HCC Website)

4.9. The site therefore has the potential to offer good non-car travel links to Welwyn Garden City centre within existing pedestrian infrastructure. There is a good network of PRoWs and footways in the surrounding area providing routes to key amenities such as schools, employment opportunities and medical facilities.

Accessibility by Cycle

4.10. It is generally recognised that a typical cycle speed of 12mph (19kph) would result in a 5-kilometre isochrone equating to a journey time of approximately 16 minutes.
Figure 4.4 shows an extract from traveltimeplatform.com showing where residents of the site can travel to / from within a 15-minute walk (circa 5-kilometre cycle).

2007511-11 November 2022



Figure 4.4 :Extract from traveltimeplatform.com (15 minute cycle isochrone)

- 4.11. The local area is conductive to cycling as the roads in the area are of sufficient width and topography to accommodate cyclists within the carriageway. It is noted that an existing cycle route is provided from Gresley Close through the existing car park layout that emerges adjacent to the northern most site access. From this point cyclists re-join the carriageway on the College Way.
- 4.12. An extract from the Hertfordshire Cycle Map is provided below in **Figure 4.5**. nearest recommended cycling route is accessed from Bridge Road to the west of the development which forms part of National Cycle Route 12 which locally connects Stevenage with Hatfield via Welwyn Garden City. NCN Route 57 is also accessible which locally forms a circular route within the Town Centre connecting with The Howard Centre including Welwyn Garden City Railway Station and NCN Route 12 and

67. NCN Route 12 to the south of the town centre provides a predominantly off street route to Hatfield.

4.13. NCN Route 67 is accessible to the east of the Town Centre and connecting with Hertford via mainly off-street sections.



Figure 4.5 – Extract from National Cycle Network Map

Accessibility by Public Bus

- 4.14. The ability to readily access wider major destinations by bus provides a key advantage in providing a real alternative to car travel (e.g. for journeys to work) and, as such, reinforces the aim of reducing car travel.
- 4.15. Guidance for the Chartered Institution of Highway and Transportation (CIHT) document 'Buses in Urban Development' indicated "*The planning of development sites should consider the walking distance to bus stops and the corresponding bus catchment areas. This affects the distance between adjacent bus route and hence the street layout as a whole*".
- 4.16. It also states that the maximum walking distance to bus services for areas with single high frequency routes should be 400m. it is also noted that in Manual for Streets (MfS) 'walkable neighbourhoods' are typically characterised by having a range of

facilities within 10 minutes (up to about 800m) walking distance of residential areas which residents may access comfortably on foot.

4.17. **Figure 4.6** shows an extract from traveltrimerplatform.com showing the locations of bus stops within 800 metres walking distance of the site (circa 10 minutes' walk).



Figure 4.6 : Extract from traveltimeplatform.com Showing Distance to Bus Stops

- 4.18. The closest serviced bus stops are located on The Campus to the west of the site, within approximately 180m (measured from the existing access to Campus East),. There are also numerous bus stops located along Bridge Road to the south of the site. Welwyn Garden City bus station located circa 500 metres south of the site providing access to the wider Hertfordshire bus network.
- 4.19. **Figure 4.7** below shows an extract from the Welwyn Garden City area bus map showing the location of bus stops and bus routes within the local area.

2007511-11 November 2022



Figure 4.7 : Extract from HCC Interactive Bus Map

4.20. A breakdown of each route is shown within **Table 3.2** below. It should be noted that bus services 201,203,204,206, 216, 230 and 301 have been disregarded from the below list as they do not operate on a daily basis.

		Average Frequency			
	Service and Route	Weekday Peaks	off-peak	Saturday	Sunday
242	Welwyn Garden City- Hatfield- Potters Bar- Waltham Cross	Every 30 - 60 minutes	Every 30 - 60 minutes	Every 30 - 60 minutes	Every 2 hours
301	Welwyn Garden City- Stevenage- Hatfield- St Albans- Hemel Hempstead	Every 30 Minutes	Every 30 Minutes	Every 30 Minutes	Every 60 minutes
302	Welwyn Garden City- Stevenage- Hatfield- St Albans- Hemel Hempstead	Every 30 minutes	Every 30 minutes	Every 30 minutes	Every 30 minutes
314 / 315	Welwyn Garden City- Digswell Hill- Codicote- St Ippolyts- Hitchin	School commute hours	No services	No services	No services
324 / 724	Welwyn Garden City – Panshanger – Hertford - Ware	Every 30 minutes	Every 30 minutes	Every 30 minutes	Every 30 minutes
366	Luton- Harpenden- Welwyn Garden City- Hatfield- South Hatfield	Every 60 minutes	Every 60 minutes	No Service	No Service
401	Welwyn Garden City – Panshanger (Circular)	Every 30 minutes	Every 30 minutes	Every 30 minutes	No Service
403	Welwyn Garden City – Haldens (Circular)	Every 30 minutes	Every 30 minutes	Every 30 minutes	No Service
404 /405	Welwyn Garden City – Hatfield (Circular)	No Service	No Service	No Service	Every 120 minutes
601	Welwyn Garden City- Hatfield- St Albans- Borehamwood	Every 30 minutes	Every 30 minutes	Every 60 minutes	No service

Table 3.2 – Bus Services

4.21. It is therefore considered that the site is served by an excellent level of bus provision combining to a total frequency of 15 buses per hour noting that the above list is not exhaustive and doesn't take into account services from Welwyn Garden City bus station. The above services will therefore provide future development residents to a mix of educational, recreational, retail, health and employment opportunities. Bus

stops are within acceptable pedestrian travel distances, with routes being direct, pleasant and within close proximity to the site.

Accessibility by Rail

- 4.22. Welwyn Garden City Railway Station is located approximately 600 metres south from the centre of the site providing frequent services to St Albans, London Kings Cross / St Pancras, Cambridge and intermediate stations. The station is managed by Great Northern Rail and the station provides a frequent service, particularly during commuting hours. The stations also accommodate step free access onto the trains. Trains to London depart at a frequency of up to three trains per hour with journey times taking less than 30 minutes to London Terminals.
- 4.23. The above stations therefore offer extensive opportunity for modal interchange possibilities, including access London and Cambridge and would therefore be a realistic option of travel for development residents for both commuting, medical and leisure purposes.

Accessibility Conclusion

- 4.24. The above section included a review of access to key amenities by sustainable modes, which has been undertaken within the context of the existing infrastructure provision.
- 4.25. In conclusion, the site is accessible by a variety of sustainable modes of transport and can be considered a suitable location with regards to sustainable travel. In later sections this TA shall review the sustainability of the site in further detail in the context of predicted increases in trips by walking, cycling and public transport.

5. Development Proposals

5.1. The proposals consist of the demolition of an existing car park known as Campus East and the redevelopment of a residential scheme comprising of 313 (C3) residential units with associated amenity areas, landscaping, car parking and all ancillary and enabling works. The proposed layout is provided in **Appendix C**.



5.2. The pedestrian / cycle route that runs from Gresley Close through the existing car park to College Way will be retained via the traffic free open space in the central

area, along the southern edge of the east to west spine road before emerging onto College Way approximately 60m to the south of the existing level surface car park access. It should be noted that the diverted route is more direct and significantly more overlooked than existing and would be therefore considered more attractive to future users.

- 5.3. The layout has been designed to prioritise non car users through a series of footpaths, open space, and a shared use foot cycleway running through the centre of the site. The main central area of greenspace comprises a series of footpaths as well as a main north to south cycle / pedestrian route connecting from Gresley Close to the north.
- 5.4. As highlighted above, the current schedule will provide 313 dwellings with the following breakdown in tenure:
 - 42 one-bed affordable units
 - 52 two-bed affordable units
 - Total affordable units: 94 units
 - 74 one-bed private units
 - 131 two-bed private units
 - 14 three-bed private units
 - Total private units: 219 units
 - Total: 313 units

Access

- 5.5. HCCs 'Roads in Hertfordshire: Highway Design Guide, Section 4 Design Standards and Advice' provide the most up to date guidance for the county. Guidance in this document has been considered when undertaking this review, as have standards set out in relevant parts of the Manual for Streets (MfS).
- 5.6. Point B of Policy 5 in LTP4 states that... "Ensure access arrangements are safe, suitable for all people, built to an adequate standard and adhere to the county council's Highway Design Standards".

- 5.7. Section 6.1 of HCC's 'Roads in Hertfordshire: A Design Guide' (January 2011) states that... "There will be a general presumption that not more than 300 dwellings (or equivalent size of development) should be served from a single point of access to the wider road network". HCC's Design Guide also confirms that a major access road is a residential road with footways that serves between 100 and 300 dwellings or equivalent development."
- 5.8. Section 4 Design Standards and Advice confirms that a major access road should include a 5.5m wide carriageway which will be incorporated at the site access.
- 5.9. Access to the site will be served as a continuation of the eastern arm of the College Way mini roundabout junction. The carriageway width will be 5.5m wide with a 3m shared use foot cycle way on its northern side and a 2m footway on the southern side. Tactile crossing points will be provided at the site access allowing pedestrians and cyclists to cross the carriageway in a safe manner.
- 5.10. A secondary access to the development will be provided at the location of the existing access to the level surface car park approximately 30m to the north of the College Way mini roundabout leading to a 26-space car parking area. The access will be reconfigured to provide a single priority junction with College Way measuring 6 metres in width with 2.5 metres junction radius.
- 5.11. Access to the Network Rail depot will be retained and the internal road network will be constructed to serve a large rigid vehicle. ACE Drawing 2007511-005 demonstrates how a large rigid vehicle could access / egress the Network Rail depot in a forward gear via the site access.
- 5.12. It should also be noted that an existing residential property (1 Junction Cottages) has historic rights for vehicular and pedestrian access via the site (northernmost existing site access. In accordance with the HCC Design Guide, a 4.1m wide access is to be provided to the property which will connect with the internal road network of the development.

Car Parking Provision

5.13. The Welwyn Hatfield "Supplementary Planning Guidance Parking Standards (Adopted 2004)" has been reviewed with regards to on-site parking. It should be noted that the above parking standards are now guidelines rather than minimum/maximum standards. Therefore, car ownership statistics have been obtained from the 2011

Census for the "Handside" ward in which the development is situated and is therefore considered representative. The results for "Flats, maisonette or apartments" for both "*Owned: Owned outright with a mortgage or loan"* and "Shared Ownership: rented and living rent free" are shown below in **Table 5.1**. It should be noted that for the purpose of the parking assessment below using information from the client team that one and two bed dwellings have 1-3 habitable rooms while three bed dwellings have 4 habitable rooms.

No. of Cars/Vans in Household	Handside		
1-3 habitable rooms (Flats, maisonette or apartment - <u>Owned</u>)			
No Cars/Vans	47%		
1 Car/Van	47%		
2 Cars/Vans	6%		
3+ Cars/Vans	0%		
Average no. of vehicles per flat	0.58		
4 habitable rooms (Flats, mais	onette or apartment - Owned)		
No Cars/Vans	40%		
1 Car/Van	54%		
2 Cars/Vans	6%		
3+ Cars/Vans	0%		
Average no. of vehicles per house	0.66		
1-3 habitable rooms (Flats, maisonette or apartment – Shared Ownership)			
No Cars/Vans	62%		
1 Car/Van	35%		
2 Cars/Vans	4%		
3+ Cars/Vans	0%		
Average no. of vehicles per flat	0.42		
4 habitable rooms (Flats, maisonette or apartment – Shared Ownership)			
No Cars/Vans	48%		
1 Car/Van	39%		
2 Cars/Vans	12%		
3+ Cars/Vans	1%		
Average no. of vehicles per flat	0.65		

Table 5.1 – 2011 Census Car Ownership
- 5.14. From the above table, it can be calculated car ownership for owned flats, maisonette or apartments within the surrounding area to be approximately 0.58 cars/vans per one and two-bed flat and 0.66 cars/vans per three bed flat.
- 5.15. The car ownership for shared flats, maisonette or apartments within the surrounding area to be approximately 0.42 cars/vans per one and two bed flat.
- 5.16. Applying this to the proposed 313 units development (consisting of the tenure from Section 4.7) equates to a potential maximum demand of 168 cars.
- 5.17. With regards to the above information, the proposals seek to provide 183 parking spaces for the 313 residential units which is within standards and above the local car ownership data and would provide a 0.58 parking to unit ratio. Considering the site is located in close proximity of existing bus stops on The Campus and Bridge Road, local amenities such as Waitrose and The Howard Centre, Welwyn Garden City Railway Station, educational and employment opportunities, it is considered that the below usual minimal standards is appropriate in this instance and will help to minimise demand for travel by private motor vehicle.
- 5.18. Active Electric Vehicle Charging Points will be provided for 92 spaces. A separate Car Parking Management Plan has also been prepared to support this application (CPMP – report reference 2007511-13).
- 5.19. Initial correspondence has also been made with Enterprise Car Club to provide initially one electric Car Club bay on site and subject to demand this could be increased to three spaces. A letter of support has been received from Enterprise. It is anticipated that the location of these bays would be within the car parking area to the west.
- 5.20. Further to the above, it should be noted that a Residential Travel Plan is to be produced and submitted alongside this Transport Assessment in support of a planning application at the site. This will be a 'live' document and shall highlight to residents the existing sustainable travel options that are available within close proximity of the site and provide incentives to discourage the use the of the private car for travel where possible.

Net Change in Car Parking

5.21. As described in Section 2 the existing car park comprises of consists of 584-parking spaces of which 325 spaces are understood to be public pay and display spaces and 110 are under a long lease by a third party. The car park will not be retained for public use however the site will provide a much more beneficial land use and will provide much needed housing for Welwyn Garden City in line the targets and goals set out in WGC 2120. Notwithstanding this, the Campus West approved planning application (6/2021/2207/MAJ) sets out to increase the number of spaces in the existing car park by 156. The overall change in car parking across Campus East and West is summarised in Table 5.2 below.

Car Parks	Existing	Proposed	Net Change
Campus West	334	490	+156
Campus East	584	0 (183 residential parking)	-584
Total	918	490	-428

 Table 5.2 – Change in Car Parking across Campus East / West.

- 5.22. **Table 5.2** shows that there will be a net decrease of 428 spaces across the Campus West and East car parks. As part of the WGC2120, WHBC have undertaken parking surveys and the evidence suggests that town centre car parks can absorb some of the spaces without impacting businesses, shoppers, or residents, but will need to provide a proportion of the spaces that will be lost, which will be provided in Campus West.
- 5.23. Paragraph 9.34 of the Campus West Committee report states that "Furthermore, the lower overall number of spaces in the town centre area would assist in meeting the aims of Policy SP4 of the Emerging local plan which seeks to encourage the shift towards more sustainable modes of transport. As such the proposed level of parking provision is considered to be acceptable in this instance."

Cycle Parking

5.24. The Welwyn Hatfield "Supplementary Planning Guidance Parking Standards (Adopted 2004)" has been reviewed with regards to on-site cycle parking. The standards require 1 space per unit, based on a 313-unit development, 313 cycle spaces are required. Based on the current proposed ground floor and level -1, the overall development includes 313 spaces and is therefore policy compliant. It is therefore considered that the provision of on-site cycle parking facilities should attract

residents to use cycling as their daily mode of transport rather than the use of private car. A total of 10 Sheffield Stands (20 spaces) will be provided for visitors in the central area adjacent to the concierge / lounge in Block B. Therefore, the development provides a surplus of cycle parking spaces further encouraging travel by sustainable modes of travel.

Servicing Arrangements

5.25. **Drawing Number 2007511-005** demonstrates that an 11.4m x 2.55m Welwyn Hatfield Refuse Vehicle would be able to access the site via College Way. An extract of the WHBC Refuse Collection Vehicle is showed in **Figure 5.2** below.



Figure 5.2 – WHBC Refuse Collection Vehicle

- 5.26. **Drawing Number 2007511-005** demonstrates that a Welwyn Hatfield Refuse Vehicle could manoeuvre the site and be accommodated within the extents of the carriageway. In accordance with Manual for Streets, the layout of the site will ensure that total refuse drag distances do not exceed 30m for residents and 10m for waste collection operatives (four wheeled bins). The Layout shows how Bin Collection Points (BCP) have been provided within the layout.
- 5.27. For details regarding the quantity of bins, location of bin stores, and the materials used, please see the Design and Access Statement prepared by Saunders as part of this application.
- 5.28. Dry risers are located in the stair core of each residential core. An inlet connection for the fire main will then be located alongside each residential entrance. **Drawing**

Number 2007511-005 demonstrates how the Fire Tender can manoeuvre within 18 metres of each dry riser inlet.

- 5.29. The site is likely to generate a small increase in deliveries across the day. As a general rule, residential development attracts a delivery demand of circa 0.05 vehicles per dwelling per day i.e one delivery made by vehicle every three weeks. This is equivalent to a maximum of 15 vehicles per day based on the 313-unit scheme. It is also considered that other day to day deliveries such as Royal Mail would not generate a significant amount of trips and have no impact on the surrounding highway network.
- 5.30. Two delivery bays are to be provided within the central area of the development and are located in proximity of the concierge area. It is expected that the concierge would be responsible for all deliveries and arrangements would be made for residents to collect parcels from the concierge. **Drawing Number 2007511-005** demonstrates how a 7.5t delivery vehicle would be able to enter the bay in a forward gear and reverse on to the development road before egressing the wider site in a forward gear.

Internal Roads

- 5.31. The internal road layout would comprise a main loop road, which would serve parking spaces directly with a spur road from its southern end leading to additional parking and the undercroft parking. The internal road network has been designed in accordance with the Manual for Street and the HCC Highway Design Guide.
- 5.32. For an internal design speed of 20mph, the Manual for Streets specifies a Stopping Site Distance of 25m. **Drawing Number 2007511-005** shows that junction visibility splays of 2.4m x 25m can be achieved can be achieved from side road junctions within the layout.
- 5.33. The layout comprises of speed control bend around 90-degree bends and is noted that these will act as a speed control feature reducing vehicle speeds therefore an 11m forward visibility splays for vehicle speeds of 10mph in accordance with the HCC Highway Design Guide have been shown in **Drawing Number 2007511-005**.

Travel Plan

5.34. A Travel Plan (ACE Ref: **2007511-011**) has been prepared in support of the application to identify initiatives to encourage sustainable and healthy ways of travelling to/from the development and so reduce private car use.

6. Change in Traffic Conditions

6.1. This section seeks to establish the potential level of weekday peak hour traffic movements generated by the existing site and proposed residential development with a view to establishing the overall net change in traffic conditions resulting from the proposals.

Existing Trip Generation

6.2. The is currently occupied by the "Campus East car park" which is a split public and private car park providing 584 spaces. In the Transport Statement prepared by Arup for the Campus West application, a parking survey was undertaken on Thursday 4th April 2019 and Saturday 6th April 2019. The results of the parking survey during the peak hours for the Thursday have been reproduced below in **Table 6.1** to show the arriving and departing trips to the car park. The full results of the survey are presented as **Appendix D**.

Site	Week (08	day AM :00-09:	Peak 00)	Week (17	day PM :00-18:0	Peak 10)
	Arr	Dep	Total	Arr	Dep	Total
Campus East Car Park	258	10	268	5	165	170

Table 6.1 – Campus East Car Park – Parking Survey (April 2019)

6.3. The above table shows that there are 268 two-way trips in the AM peak hour and 170 in the PM peak hour associated with the existing car park. A survey was also undertaken in December which is not considered a neutral month therefore has been excluded for the purpose of this report.

Proposed Trip Generation

- 6.4. The category 'Residential Flats Privately Owned' was searched within TRICS specifying all available weekday multi-modal surveys ranging between 6 175 units. The search excluded site in Greater London, Wales, Scotland, Ireland and Northern Ireland, with Town Centre and Edge of Town Centre sites selected only.
- 6.5. The search resulted in 10 surveys taken from 10 sites, following a review of available sites, it has been considered that sites undertaken during the COVID 19 pandemic are not considered representative and therefore have been removed from the sample. The resulting person trip rates (per dwelling) and commensurate person trip generation for the proposed 313-unit scheme are shown in Table 6.2 with the full output data contained within Appendix D.

2007511-11 November 2022

Site	Week 08)	day AM 8:00-09:0	Peak)0)	Week (17	day PM P :00-18:0	Peak 0)	Weel (07	day 12-l ':00-19:0	hour 10)
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Person Trip Rates (per unit)	0.100	0.512	-	0.429	0.211	-	2.667	2.740	-
Person Trip Generation (313 Flats)	31	160	191	134	66	200	835	858	1693

Table 6.2 – Proposed Residential Units Total Person Trip Generation

6.6. The mode of travel for the proposed development has been determined has been determined from the 'Method of Travel to Work' (residential population) dataset provided within the 2011 specification Census database for the Welwyn Hatfield 006 Middle Super Output Area. This was used to identify a suitable modal split for the proposed residential use, and **Table 6.3** shows this modal split along with the resulting peak hour person trips by each mode (any discrepancies in the figures are due to rounding).

Mode	Share	Week (08	day AM :00-09:	Peak :00)	Week (17	day PM :00-18	Peak :00)	Weel (07	(day 12 (:00-19	-hour :00)
		Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Underground	1.1%	0	2	2	1	1	2	9	9	19
Train	18.1%	6	29	35	24	12	36	151	155	306
Bus	2.8%	1	4	5	4	2	6	23	24	47
Taxi	0.4%	0	1	1	1	0	1	3	4	7
Motorcycle	0.6%	0	1	1	1	0	1	5	5	10
Driving in a Car/Van	57.0%	18	91	109	76	38	114	476	489	964
Car/Van Passenger	3.6%	1	6	7	5	2	7	30	31	60
Bicycle	2.7%	1	4	5	4	2	5	22	23	45
On Foot	13.3%	4	21	25	18	9	27	111	114	224
Other	0.6%	0	1	1	1	0	1	5	5	9
Total	100.0%	31	160	191	134	66	200	835	858	1693

 Table 6.3 – Proposed Development Predicted Modal Split

6.7. Based on the above calculations, **Table 6.3** confirms the vehicular trip movements for the proposed 313 dwelling development, during the peak periods and daily. These indicative vehicular movements shall be used as the basis for assessing off-site impacts. It should be noted that as part of the HCC Pre-App response that these rates are considered acceptable by HCC.

Net Change at Site Access

6.8. Based on the above calculation, Table 6.4 below confirms the net change in peak hour driver trip modes generated at the site access by subtracting Table 6.1 from Table 6.3.

Mode	Weekday AM (08:00-09:0		Peak 00)	Weekday PM Peak (17:00-18:00)		
	Arr	Dep	Total	Arr	Dep	Total
Car Driver	-240	+81	-159	+71	-127	-56

Table 6.4 - Net Change in Car Driver Trips at Site Access

6.9. The above calculations confirm the overall net change in movement associated with the proposed development at the site access, rather than the net change in movements at any particular junction or link on the surrounding highway network. At this site access it can be seen that there will be an overall reduction in traffic in both peak hours

Net Change on Surrounding Highway Network

6.10. To determine the net change in traffic on the surrounding highway network, this Transport Assessment will investigate the impact of the relocated 156 parking spaces to the Campus West Car Park which are reassigned trips from Campus East. The Campus West Transport Statement prepared by Arup shows the combined Campus West and Campus East car parking accumulation and states that the average percentage of spaces occupied is 89% and 36% in the AM and PM respectively. The table is shown in the extract below.

Times	Entry	Exit	CP accum.	% occupied
			31	at Start
06:00	26	1	56	9%
07:00	118	2	172	29%
08:00	378	15	535	89%
09:00	276	23	788	131%
10:00	132	81	839	140%
11:00	110	116	833	139%
12:00	88	116	805	134%
13:00	105	104	806	134%
14:00	73	125	754	126%
15:00	59	162	651	109%
16:00	30	226	455	76%
17:00	36	277	214	36%
18:00	13	118	109	18%
19:00	22	36	95	16%
20:00	50	42	103	17%
21:00	14	21	96	16%
Total	1530	1465	-	())

T 11 5	C 11 1	0	117 4 1	C	C D L	1 41
able 5	- Combined	Campus	west and	Campus Fast	Car Park /	Accumulation
THEFT	Comonico	Campas	ti cot minte	Campus Last	Cut I ut it i	recumuntation

- 6.11. Applying the above percentage of vehicles occupied in the table above to the 156 relocated spaces in Campus West, this presents the two-way peak hour trips that will be reassigned to the surrounding highway network but won't pass through site access or College Way. This results in the following two-way trips:
 - AM (08:00-09:00): 156 x 89% = 139 two-way trips.
 - PM (17:00-18:00): 156 x 36% = 56 two-way trips.
- 6.12. Applying the above two-way trips proportionally to the entry and exits from the Arup Table, this calculates the arrivals and departures in the AM and PM for the 156 relocated spaces at Campus West. It should be noted that these are reassigned trips to the network from Campus East and are not new trips. This is shown below in Table 6.5 below:

Mode	Weekday AM Peak (08:00-09:00)		Weekday PM Peak (17:00-18:00)			
	Arr	Dep	Total	Arr	Dep	Total
Car Driver	134	5	139	6	50	56

Table 6.5 – Campus West Car Park – Arrivals and Departures (Relocated 156 spaces)

6.13. By subtracting the above **Table 6.5** from **Table 6.4**, **Table 6.6** confirms the net change of two-way trips on the wider highway network away from the proposed site access at College Way.

Mode	Weekd (08:0		Peak 00)	Week (17	day PM :00-18:(Peak D0)
	Arr	Dep	Total	Arr	Dep	Total
Car Driver	-107	836	-20	78	-78	0

Table 6.6 - Net Change in Car Driver Trips Across Wider Highway Network

- 6.14. The above calculation confirms the overall net change in movements associated with the surrounding highway network, rather than the net change in movements at any particular junction or link.
- 6.15. It can be seen that overall, there would be a net decrease in trips across the network during the AM Peak noting an increase in departures and no change during the PM peak but noting an increase in arrivals.

Distribution and Highway Impacts

- 6.16. With respect to traffic distribution, it has been assumed that all traffic arriving and departing the site will utilise College Way as it is the most direct and attractive route for car drivers. The above was used to create an indicative traffic distribution model for the site, which is shown in **Appended Figure 1**.
- 6.17. The peak hour car driver trips shown in **Table 6.3** were assigned to the network based on this model, and the results are shown in **Appended Figure 2**. It should be noted that this is Figure shows the development generated traffic only and does not account for any offset from the existing Campus East traffic.
- 6.18. The existing (2019) peak hour car driver trips relating to the Campus East Car Park and Waitrose have been assigned to the network which have been obtained from Appendix F of the Arup TA relating to the Campus West Planning Application, and the results are shown in **Appended Figure 3** with the full extract showed in **Appendix E.**
- 6.19. It has been assumed that the site would be operational by 2027 and therefore is the future assessment year for the purpose of this TA.
- 6.20. Growth factors have therefore been calculated data set for the Welwyn Hatfield Borough. The resulting growth factors are 1.066 for the morning peak hour and 1.067 for the evening peak hour. Full details in respect of the TEMPro growth factor calculations are contained at **Appendix F** The observed 2019 (from Campus West Application) traffic flows in **Appended Figure 3** were adjusted to 2027 using the above growth factors and the resulting 2027 Design Year flows are shown in **Appended Figure 4**.
- 6.21. With respect to committed development traffic, a review of the Planning Applications determine that no committed traffic would utilise College Way and are therefore not considered further.

7. Highway Impacts

- 7.1. For further detailed assessment, increases of 30 two-way peak hour vehicular movements are a general starting point for determining where a significant impact could occur, however it is common that higher hourly increases of 45 to 60 vehicles (or higher) could be satisfactorily accommodated where capacity and highway safety issues do not exist. Paragraph 4.7 within the former GoTA document stated that "for the study area, establish the current personal injury accident records for the most recent three-year period, or five years if this is considered to be more appropriate".
- 7.2. **Table 6.3** demonstrates that the proposals would result in an overall net decrease of trips of -22 two-way vehicle movements during the morning peak hour and -2 two-way movements during the evening peak hour (cars) on the surrounding highway network.
- 7.3. The above highlights that the overall development is likely to operate below the general starting point for determining where a significant impact could occur (30 plus two-way peak hour vehicular movements). It is therefore considered that the increase in traffic as a result of the proposed development would not result in any detrimental impact on highway safety or cause any congestion issues. It should be noted that, the Campus West TS prepared by Arup modelled the Campus / Bridge Road priority junctions to the east and the west of the gyratory system. It was determined that both junctions operated well within capacity during the "proposed scenario" with a maximum RFC of 0.62, it is therefore considered for the purpose of this assessment that modelling of these junctions will not be required given there is sufficient reserve capacity notwithstanding the reduction in trips on the wider network.
- 7.4. Paragraph 109 of NPPF 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". Based on these findings, is it concluded that the development will not have any adverse impacts on the immediate highway network, surrounding cycling / pedestrian infrastructure or public transport capacity, and that no mitigating highway improvements are therefore required.
- 7.5. Notwithstanding the above, **Table 6.4** demonstrates that while the proposals would result in an over net reduction in two-way trips during both peak hours and would not usually warrant modelling. However, it is noted that there will be a change of

direction in arrivals and departures and therefore to present a robust assessment a capacity model for the site access is presented below. This is in line with the comments received from HCC as part of the Pre-Application process:

"HCC Highways DM agrees with the TA that the net impact of the development will be negligible on the wider highways network and therefore traffic impact analysis would only be requested for the development access."

J1: College Way / Site Access

- 7.6. The impact of the Site Access / College Way junction was modelled using PICADY. PICADY provides a measure of the capacity of a mini-roundabout junction. The Ratio of Flow to Capacity (RFC) is used to measure the predicted flow of vehicles against the junction's capacity (based on its geometry) at a mini-roundabout junction. Typically, a value of 0.85 or less is seen to represent a practical degree of reserve capacity. Arms at a junction with an RFC greater than 0.85 are likely to experience congestion and delay. Values that exceed a 1.0 RFC value indicate where an arm is at or over full capacity.
- 7.7. The existing junction has been assessed for its current situation with the "Observed 2019" (Appended Figure 3) flows, a "No Development 2027" scenario (Appended Figure 5) "Base" and a "With Development 2027" scenario (Appended Figure 6) vehicle movements. Table 7.1 below provide a summary of the results of the capacity analysis with each flow scenario, setting out the maximum Ratio of Flow to Capacity (RFC) value and queue length associated with each give way manoeuvre. The full PICADY results are included in Appendix G.

	AM		F	PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
			Base	2019		
A - Site Access	0.0	0.00	0.00	0.1	5.17	0.09
B - Waitrose	0.1	4.08	0.08	0.3	5.38	0.24
C - College Way West	0.2	4.05	0.17	0.2	4.03	0.15
D - College Way North	0.1	4.42	0.07	0.1	4.63	0.13
		ľ	lo De	v 2027		
A - Site Access	0.0	0.00	0.00	0.1	5.28	0.10
B - Waitrose	0.1	4.11	0.08	0.3	5.54	0.26
C - College Way West	0.2	4.11	0.18	0.2	4.08	0.16
D - College Way North	0.1	4.49	0.08	0.2	4.71	0.14
		W	ith De	ev 2027		
A - Site Access	0.1	4.97	0.12	0.1	4.65	0.05
B - Waitrose	0.1	4.39	0.09	0.3	4.93	0.23
C - College Way West	0.1	3.85	0.13	0.3	4.42	0.23
D - College Way North	0.1	4.23	0.06	0.0	4.43	0.03

Table 7.1 – College Way / Site Access PICADY Results

7.8. The above table indicates that the existing junction operates well below the desirable maximum threshold of 0.85 RFC in all situations, including with the proposed development flows in the future situation of 2027.

8. Conclusions

- 8.1. Ardent Consulting Engineers (ACE) has been appointed by Bellway Homes Ltd (North London) to support a full planning application for the proposed development of land at Campus East, Welwyn Garden City.
- 8.2. This Transport Assessment (TA) has been prepared to support a full planning application to the local planning authority, Welwyn Hatfield Borough Council (WHBC), with Hertfordshire County Council (HCC) being the local highway authority.
- 8.3. Access to the site will be served as a continuation of the eastern arm of the College Way mini roundabout junction. The carriageway width will be 5.5m wide with a 3m shared use foot cycle way on its northern side and a 2m footway on the southern side. Tactile crossing points will be provided at the site access allowing pedestrians and cyclists to cross the carriageway in a safe manner.
- 8.4. Based on suitable trip rates from the TRICS database and 2011 Census Modal Split data, the proposed development would generate 109 AM two-way movements and 114 PM two-way movements. However, owing to the fact that the site is an established car park, overall there is a net reduction in trip on the surrounding highway network.
- 8.5. Based on a 2027 Design Year, it has been established through junction modelling that there would be no severe impacts at the Site Access / College Way as a result of a change in direction of peak hour traffic.
- 8.6. The site is well placed to encourage access by non-car modes, noting that the site is adjacent to an established bus corridor with frequent services and that the north to south cycle link from Gresley Road to College Way will be maintained and upgraded. There should be no requirement for any physical improvements to the off-site infrastructure for non-car travel, however the development will be supported by a Travel Plan that seeks to encourage non-car travel and reduce reliance on single occupancy car trips.
- 8.7. In conclusion, this Transport Assessment demonstrates that safe and suitable access could be provided to serve the site from College Way. It is concluded that there would be no severe off-site highway impacts that would warrant a reason for refusal particularly in light of NPPF. Finally, the site is in a sustainable location in respect of access by non-car modes of travel. Based on these findings, it is considered that

the proposed development would meet the overarching policy requirements set out in the NPPF.

Drawings



Figures



FIGURE 1 PROPOSED DEVELOPMENT PERCENTAGE TRAFFIC DISTRIBUTION WELWYN GARDEN CITY, CAMPUS EAST JOB NUMBER: 2007511 DRAWN BY: RS

KEY		
INBOUND TRIPS	=	xx
OUTBOUND TRIPS	=	XX

FIGURE 2 PROPOSED DEVELOPMENT ASSIGNED TRAFFIC WELWYN GARDEN CITY, CAMPUS EAST JOB NUMBER: 2007511 DRAWN BY: RS

=	ХХ
=	XX
	= =

FIGURE 3 BASE 2019 WELWYN GARDEN CITY, CAMPUS EAST JOB NUMBER: 2007511 DRAWN BY: RS

FIGURE 4 FUTURE YEAR 2027 WELWYN GARDEN CITY, CAMPUS EAST JOB NUMBER: 2007511 DRAWN BY: RS

FIGURE 5 NO DEVELOPMENT 2027 WELWYN GARDEN CITY, CAMPUS EAST JOB NUMBER: 2007511 DRAWN BY: RS

FIGURE 6 WITH DEVELOPMENT 2027 WELWYN GARDEN CITY, CAMPUS EAST JOB NUMBER: 2007511 DRAWN BY: RS

Appendix A HCC Pre-Application Response

Campus East Car Park Pre Application Note (HCC Ref: WH/13429/2022)

The existing Campus East car park is located at the northern end of the Welwyn Garden City centre approximately 700m (8minutes) walk, via The Howard Shopping Centre, of the Welwyn Garden City train station. The train station being a 1.3km (5mins) cycle via the protected cycle lanes on Bridge Road and Hyde Way. The rails station footbridge from Hyde Way is currently undergoing upgrades which will make cycle train integration easier. It is proposed to redevelop the existing 584 space Campus East car park for 308 residential units (with 156 of the spaces being transferred to Campus West). The redevelopment of the Campus East car park site is promoted in principle by WGC 2021 website and is allocated in the Welwyn Hatfield Borough Council (WHBC) emerging draft local plan as site Han40a which has been found sound by the UK Governments Planning Inspector. Whilst both the web site and draft plan are yet to be formerly adopted HCC Development Management would support in principle the redevelopment of city centre parking for other uses. This note subsequently responds to the Transport Scoping Note (TSN) prepared by Ardent Consulting Engineers (ACE) in the advance of a formal application.

Policy

ACE indicate that TSN has been prepared with reference to:

- National Planning Policy Framework [NPPF] (MHCLG, July 2021);
- National Planning Practice Guidance [NPPG] (MHCLG, July 2021);
- Manual for Streets [MfS] (DfT, 2007);
- Manual for Streets 2 [MfS2] Wider Application of Principles (CIHT, 2010);
- Design Manual for Roads and Bridges [DMRB] (DfT, 1992); and,
- Roads in Hertfordshire: Highway Design Guide.
- Welwyn Hatfield District Plan Supplementary Planning Guidance (January,

2004)

HCC Highways DM would also request that the Final TA review:

- HCC's Local Transport Plan (LTP 4)
- HCC's South Central Growth and Transport Plan (a supporting document of LTP4); and
- WHDC Draft Proposed Submission Local Plan

Accessibility

ACE indicates that the: "nearest recommended cycling route is accessed from Digswell Road to the northwest of the development which forms part of National Cycle Route 12 which locally connects Stevenage with Hatfield via Welwyn Garden City. NCN Route 57 is also accessible which locally forms a circular route within the Town Centre connecting with The Howard Centre including Welwyn Garden City Railway Station and NCN

with The Howard Centre including Welwyn Garden City Railway Station and NCN Route 12 and 67".

However, it should be noted that this is an unsurfaced footpath accessed by stairs and as shown by the sustrans map NCN Route 12 does not start till circa 520m west and the path when it does become a cyclable path remains unlit and unsurfaced making it unsuitable for year-round commuting. There is a ramped access from Campus West however the footpath status remains.

The nearest cycle route is a signed route through the site to Gresley Close and whilst it appears that it will be retained on a diverted route its status must be made clear within the TA. There is also concern that what is believed to be the diverted cycle route is not directly off College Way west (the current route) and is partially blocked by a delivery bay in the proposed site.

Sustrans Map

Stepped access to Footpath

Unsurfaced Footpath (Campus West Ramped Access)

Signed Cycle Route to Gresley Close

Signed Route Map

Blocked Route

Road Access

The site is to be accessed via the existing fourth arm of the College Way mini roundabout which currently enables access to the upper deck of the Campus East car park with the access and egress junctions of the surface level car park. Whilst HCC Development Management considers the rationalisation of motor vehicle accesses appropriate as shown in the previous photograph a signed cycle path is adjacent to the car park surface level access.

<u>S278</u>

The Highway Authority will seek, wherever possible, to secure highway works via planning Condition and s278 agreement. This includes the site access junction on to College Way and other possible connections and off-site works.

Residential Travel Plan

Paragraph 4.17 of the TSN indicates that a Travel Plan will be provided. HCC's Active & Safer Travel Team have indicated that a full plan will be required for the site to be in place 5 years post full occupation. A £1,200 per annum Evaluation and Support Fee should be secured by section 106 agreement in accordance with Hertfordshire County Council's Travel Plan Guidance. This should incorporate measures to promote sustainable transport, an appointed travel plan co-ordinator and an appropriate monitoring programme. Residential developments are also required to provide Residential Travel Vouchers for each unit (£100 per 2-3 bed unit/£50 per 1 bed unit) to encourage the take up of sustainable modes

Full guidance is available at: <u>https://www.hertfordshire.gov.uk/media-</u> library/documents/highways/development-management/travel-plan-guidance.pdf

or for more guidance contact: <u>travelplan@hertfordshire.gov.uk</u>.

Personal Injury Accident (PIA) Analysis

Paragraph 2.12 of the TSN indicates that further to a preliminary analysis using 'Crashmap' full PIA data will be obtained and reviewed. PIA data can be obtained from Anthea.Nott@hertfordshire.gov.uk

Vehicle Tracking

HCC Records show that Welwyn Hatfield BC currently use a $11.4 \times 2.55m$ Olympus Twin Pack – Elite 2 refuse vehicle and not the $10.5 \times 2.55m$ vehicle indicated in the TA, however in the interest of future proofing the development a $12.205 \times 2.89m$ Mercedes Econic vehicle should be tracked. It must be demonstrated that refuse vehicles can manoeuvre within the site, turn around and egress in forward gear.

In addition, it should also be demonstrated that a 7.5t delivery vehicle and a fire tender can efficiently access the site and exit in forward gear.

Trip Generation

HCC Highways DM have reviewed the person trip based trip generation methodology and have found it to be appropriate. However, we do note a typo in Table 6.2 which indicates '64 flats' the trip generation having been done correctly using 308 flats.

Traffic Modelling

HCC Highways DM agrees with the TA that the net impact of the development will be negligible on the wider highways network and therefore traffic impact analysis would only be requested for the development access.

Electric Vehicle Charging Points

It is noted that ACE intends to use the 2004 The Welwyn Hatfield "Supplementary Planning Guidance Parking Standards as a guide for car parking and cycle parking. However, the latest evolvement of the UK building regulations require that each dwelling has access to an active Electric Vehicle (EV) charging point (2010 Building Regulations: 2021 Edition (Approved Version, 15 June 2022).

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file /1057375/AD_S.pdf

Developer Contributions

HCC Highways operate two levels of S106 agreements, with items directly mitigating the impact of a development agreed through Strand 1 S106 agreement and those items mitigating the wider cumulative impact of development on non-car networks being addressed in a Strand 2 S106 agreement.

In the first instance (Strand 1) HCC would envisage that the agreed improvements and travel plan support and monitoring fees (£1,200pa for 5 years, indexed via the RPI from May 2014) are delivered via a Strand 1 S106 agreement.

In the second instance (Strand 2) HCC calculate an appropriate headline figure based on the findings of HCC's adopted Developers Planning Obligation Toolkit (2021). The toolkit suggests that the 308 homes would attract a developer's strand 2 contribution of up to £2,102,408: which in accordance with the Toolkit would be index linked to SPONS Jan 2019.

This would be allocated to the identified packages within HCC's South Central Hertfordshire Growth and Transport Plan (SCGTP) and those identified in the recent Welwyn Hatfield LCWIP consultation. Package 15 of the SCGTP and the LCWIP promotes the establishment of a sustainable transport corridor along Digswell Road.

LTP 4 Supporting Strategies:

https://www.hertfordshire.gov.uk/services/recycling-waste-and-environment/planning-inhertfordshire/transport-planning/transport-policy-and-supporting-strategies.aspx

SCGTP:

https://www.hertfordshire.gov.uk/media-library/documents/highways/south-central-gtp/scgtpinterventions-paper-final-acc.-check.pdf

LCWIP Consultation Page:

https://storymaps.arcgis.com/stories/0907a24c478b4821b4eb2658d28e6019

Appendix B Accident Data

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Full Nor	n Confident	ial Accider	nt Report			Date	Produced: 15-	Sep-22	2						
			Set Name (if saved) :			:	25799			Set Total :			12		
Accident	Details:														
Acc Ref: 2	021-411025912	1st / 2nd	Rd: 0U523/4 E	3195/14	Jun Detai	1:	R/bout	W	eather:	Finewin	d	Num Ca	s:	1	
Day of Weel	k: Fri	Parish:			Jun Conti	rol:	Giveway	L	ight:	Darklit		Num Pee	ls:	0	
Date: 12/02	2/2021 20:59:00	District:	WelHat		Spec Con	ditions:	None	R	oad Surface:	Dry		Num Ve	hicles:	2	
Acc Severity	y: Serious	Speed L	imit: 30mph		C/way Ha	zard:	None	С	/way Type:	Dual		Ped Xing	g:	Nperpelx	
U523 Parkwa	ay Welwyn Garde	n City J/w B195	Campus Roundabo	ut								On Site:		Yes	
Easting:	523641	Northing:	213238	3											
Casualty	Details														
Acc Ref:	2021-411025912	Cas Clas	s: Driver		Car Passe	nger:	No	C	as Severity:	Ser	ious	Ped Mo	vement:	Notped	
Veh Ref:	2	Cas Age:	44		PSV Passe	enger:	No	R	oad User Clas	s: Ca	Users	Ped Loc	ation:	Notped	
Cas Ref:	1	Cas Gen	der: Female		Seat Belt:		Unknown	Sc	hool Pupil:			Ped Wo	rk on Rd:	Notped	
Vehicle 1	Details														
Acc Ref:	155721	Maneouvre:	Ahead	Skiding	g:	None	Impact	Point:	Front		Driver Bre	ath Test:	Notreq	Driver Age:	22
Veh Ref:	1	Location:	Carw	Object	in Cway:	None	From:		S		Hit and Ru	n:	Nothtru	n	
Veh Type:	Car	Junction:	Approach	Object	off Cway	None	To:		W		Driver Gen	der:	Male		
Foreign Ve	eh:	Towing;	None	velcwy	,	No	J Purpos	se:	Other		Driver Sev	erity:	None		
Acc Ref:		Maneouvre:	Waitahea	Skiding	g:	None	Impact	Point:	Back		Driver Bre	ath Test:	Notreq	Driver Age:	44
Veh Ref:	2	Location:	Carw	Object	in Cway:	None	From:		S		Hit and Ru	n:	Nothtru	n	
Veh Type:	Car	Junction:	Approach	Object	off Cway	None	To:		W		Driver Gen	der:	Female		
Foreign Ve	eh:	Towing;	None	velcwy	,	No	J Purpos	se:	Work		Driver Sev	erity:	Serious		

Accident	t Details:										
Acc Ref: 2	2021-411020658	1st / 2nd	Rd: B195/10	NONE Jun D	etail:	Notjunct	Weather:	Rain	Num Cas:	2	
Day of Wee	ek: Fri	Parish:		Jun C	ontrol:	Notjunct	Light:	Day	Num Peds:	0	
Date: 05/0	02/2021 16:15:00	District:	WelHat	Spec C	Conditions:	None	Road Surface:	Wet	Num Vehicles	: 2	
Acc Severit	y: Slight	Speed L	imit: 30mph	C/way	Hazard:	None	C/way Type:	Dual	Ped Xing:	Nperpelx	
B195 Bridg	e Road Welwyn G	arden City Appr	ox 75m East J/w B1	95 Stonehills Rb	t				On Site:	Yes	
Easting:	523936	Northing:	21315	1							
Casualty	y Details										
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Veh Ref:	1	Cas Age:	28	PSV P	assenger:	No	Road User Class	: Car Users	Ped Location	: Notped	
Cas Ref:	1	Cas Gen	der: Male	Seat B	elt:	Notworn	School Pupil:		Ped Work on	Rd: Notped	
Acc Ref:	2021-411020658	Cas Clas	s: Driver	Car Pa	ssenger:	No	Cas Severity:	Slight	Ped Movemer	at: Notped	
Veh Ref:	2	Cas Age:	25	PSV P	assenger:	No	Road User Class	: Car Users	Ped Location	: Notped	
Cas Ref:	2	Cas Gen	der: Female	Seat B	elt:	Notworn	School Pupil:		Ped Work on	Rd: Notped	
Vehicle	Details										
Acc Ref:	155569	Maneouvre:	Ahead	Skiding:	None	Impact Poi	int: Front	Driver Bre	eath Test: Not	req Driver Age:	28
Veh Ref:	1	Location:	Carw	Object in Cwa	y: None	From:	W	Hit and Ru	in: Not	htrun	
Veh Type:	Car	Junction:	Notjunct	Object off Cw	ay None	To:	E	Driver Ger	nder: Mal	le	
Foreign V	eh:	Towing;	None	velcwy	No	J Purpose:	Unknown	Driver Sev	erity: Slig	ht	
Acc Ref:		Maneouvre:	Waitahea	Skiding:	None	Impact Poi	int: Back	Driver Bre	eath Test: Not	req Driver Age:	: 25
Veh Ref:	2	Location:	Carw	Object in Cwa	y: None	From:	W	Hit and Ru	in: Not	htrun	
Veh Type:	Car	Junction:	Notjunct	Object off Cw	ay None	To:	Е	Driver Ger	ader: Fem	nale	
Foreign V	eh:	Towing;	None	velcwy	No	J Purpose:	Unknown	Driver Sev	erity: Slig	ht	

Accident	Details:														
Acc Ref: 2	2020-411005442	1st / 2nd	Rd: C147/10	B195/14 Ju	n Detail:	R/bout	W	eather:	Fine		Num Cas	s:	1		
Day of Wee	k: Sat	Parish:		Ju	n Control:	Giveway	Li	ight:	Day		Num Ped	ls:	0		
Date: 05/1	2/2020 14:20:00	District:	WelHat	Spe	ec Conditions:	None	R	oad Surface:	Dry		Num Vel	nicles:	2		
Acc Severit	y: Serious	Speed L	imit: 30mph	C/v	way Hazard:	None	C	/way Type:	Single		Ped Xing	t:	Npercntr		
C147 Digsw	vell Road Welwyn	Garden City J/w	B195 The Campus	Rbt							On Site:		Yes		
Easting:	523721	Northing:	21336	2											
Casualty	v Details														
Acc Ref:	2020-411005442	Cas Clas	s: Driver	Car	r Passenger:	No	Ca	as Severity:	Ser	ious	Ped Mov	vement:	Notped		
Veh Ref:	2	Cas Age:	50	PSV	V Passenger:	No	Ro	ad User Class	s: Mo	torcyclists	Ped Loc:	ation:	Notped		
Cas Ref:	1	Cas Gen	der: Male	Sea	t Belt:	Notapp	Sc	hool Pupil:			Ped Wor	rk on Rd:	Notped		
Vehicle	Details														
Acc Ref:	155392	Maneouvre:	Starting	Skiding:	None	Impact	Point:	Front		Driver Brea	ath Test:	Negati	Driver Age:	63	
Veh Ref:	1	Location:	Carw	Object in C	way: None	From:		Ν		Hit and Ru	n:	Nothtru	1		
Veh Type:	Car	Junction:	Approach	Object off	Cway None	To:		s		Driver Gen	der:	Female			
Foreign V	eh:	Towing;	None	velcwy	No	J Purpo	se:	Other		Driver Seve	erity:	None			
Acc Ref:		Maneouvre:	Stopping	Skiding:	None	Impact	Point:	Back		Driver Brea	ath Test:	Negati	Driver Age:	50	
Veh Ref:	2	Location:	Carw	Object in C	Cway: None	From:		Ν		Hit and Ru	n:	Nothtru	1		
Veh Type:	Mc<=125	Junction:	Approach	Object off	Cway None	To:		s		Driver Gen	der:	Male			
Foreign V	eh:	Towing;	None	velcwy	No	J Purpo	se:	Unknown		Driver Seve	erity:	Serious			
Accident	Details:														
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Acc Ref: 2	2020-411005205	1st / 2nd	Rd: B195/14	C147/10 J	Jun Detail:	:	R/bout	We	eather:	Fine		Num Ca	s:	1	
Day of Wee	k: Sat	Parish:		J	Jun Contro	ol:	Giveway	Lig	ght:	Day		Num Pee	ls:	1	
Date: 05/1	2/2020 09:30:00	District:	WelHat	5	Spec Cond	itions:	None	Ro	ad Surface:	Dry		Num Ve	hicles:	1	
Acc Severit	y: Slight	Speed L	imit: 30mph	(C/way Haz	ard:	None	C/n	way Type:	R/bout		Ped Xing	g:	Nperpelx	
B195 The C	ampus Rbt Welwy	m Garden City J	/w C147 Digswell	Road								On Site:		Yes	
Easting:	523709	Northing:	21336	2											
Casualty	v Details														
Acc Ref:	2020-411005205	Cas Clas	s: Pedestri	C	Car Passen	ger:	No	Cas	s Severity:	Slig	;ht	Ped Mo	vement:	Xnrside	
Veh Ref:	1	Cas Age:	. 17	I	PSV Passer	ıger:	No	Roa	ad User Class	: Ped	estrians	Ped Loc	ation:	Elsewher	
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Acc Ref:	155391	Maneouvre:	Chglnlef	Skiding:	:	None	Impact Po	oint:	Front		Driver Brea	th Test:	Notreq	Driver Age:	62
Veh Ref:	1	Location:	Carw	Object in	n Cway:	None	From:		W		Hit and Run	:	Nothtru	n	
Veh Type:	Car	Junction:	Middle	Object o	off Cway	None	To:		E		Driver Gend	ler:	Male		
Foreign V	eh:	Towing;	None	velcwy		No	J Purpose:	:	Other		Driver Seve	rity:	None		

Accident	Details:														
Acc Ref: 2	2020-410970628	1st / 2nd	Rd: B195	/14 B195/13	Jun Detai	1:	R/bout		Weather:	Rain		Num Ca	s:	1	
Day of Wee	k: Mon	Parish:			Jun Cont	rol:	Givewa	ay	Light:	Day		Num Pec	ls:	0	
Date: 27/0	7/2020 12:50:00	District	: WelH	at	Spec Con	ditions:	None		Road Surface:	Wet		Num Vel	hicles:	2	
Acc Severit	y: Slight	Speed L	imit: 30mp	h	C/way Ha	azard:	None		C/way Type:	R/bout		Ped Xing	g:	Nperfbrg	
B195 The C	ampus Roundabou	ıt Welwyn Gard	en City J/w B1	95 Bridge Roa	ad							On Site:		Yes	
Easting:	523760	Northing:	2	13203											
Casualty	, Details														
Acc Ref:	2020-410970628	Cas Clas	s: Driver		Car Passe	nger:	No		Cas Severity:	Slig	<u>g</u> ht	Ped Mov	vement:	Notped	
Veh Ref:	2	Cas Age	: 48		PSV Passe	enger:	No		Road User Clas	s: Car	Users	Ped Loc	ation:	Notped	
Cas Ref:	1	Cas Gen	der: Female		Seat Belt:		Worr	nnot	School Pupil:			Ped Wo	rk on Rd:	Notped	
Vehicle	Details														
Acc Ref:	154798	Maneouvre:	Ahead	Skidin	g:	None		Impact Poin	it: Front		Driver Brea	ath Test:	Notreq	Driver Age:	20
Veh Ref:	1	Location:	Carw	Object	in Cway:	None		From:	Se		Hit and Ru	n:	Nothtru	n	
Veh Type:	Car	Junction:	Er/about	Object	off Cway	None		To:	W		Driver Gen	der:	Male		
Foreign V	eh:	Towing;	None	velcwy	,	No		J Purpose:	Unknown		Driver Seve	erity:	None		
Acc Ref:		Maneouvre:	Ahead	Skidin	g:	None		Impact Poin	nt: Back		Driver Brea	ath Test:	Notreq	Driver Age:	48
Veh Ref:	2	Location:	Carw	Object	in Cway:	None		From:	Ν		Hit and Ru	n:	Nothtru	n	
Veh Type:	Car	Junction:	Middle	Object	off Cway	Wall		To:	W		Driver Gen	der:	Female		
Foreign V	eh:	Towing;	None	velcwy	,	Nearsi	de	J Purpose:	Other		Driver Seve	erity:	Slight		

Accident	Details:												
Acc Ref: 2	2019-410901413	1st / 2nd	I Rd: B195/13	NONE Jun Deta	il:	Notjunct	Weather:	Fine		Num Cas:		1	
Day of Wee	k: Thu	Parish:		Jun Con	trol:	Notjunct	Light:	Day		Num Peds	:	0	
Date: 07/1	1/2019 13:28:00	District	: WelHat	Spec Cor	uditions:	None	Road Surface	Dry		Num Vehi	cles:	2	
Acc Severit	y: Slight	Speed L	imit: 30mph	C/way H	azard:	None	C/way Type:	Dual		Ped Xing:		Npernox	
B195 Bridge	e Road Welwyn G	arden City Appr	ox 35m Se J/w B1	95 The Campus Rour	ıdabout					On Site:		Yes	
Easting:	523793	Northing:	2131	95									
Casualty	v Details												
Acc Ref:	2019-410901413	Cas Clas	s: Driver	Car Pass	enger:	No	Cas Severity:	Slig	;ht	Ped Move	ment:	Notped	
Veh Ref:	2	Cas Age	: 42	PSV Pass	enger:	No	Road User Cla	ss: Mo	torcyclists	Ped Locat	tion:	Notped	
Cas Ref:	1	Cas Gen	der: Male	Seat Belt	:	Notapp	School Pupil:			Ped Work	on Rd:	Notped	
Vehicle	Details												
Acc Ref:	153678	Maneouvre:	Otakemov	Skiding:	None	Impact Po	oint: None		Driver Brea	th Test:	Notcon	Driver Age:	
Veh Ref:	1	Location:	Carw	Object in Cway:	None	From:	Se		Hit and Ru	n:	Nonstop		
Veh Type:	Mc<=50	Junction:	Notjunct	Object off Cway	None	To:	Nw		Driver Gene	der:	Unknow	n	
Foreign V	eh:	Towing;	None	velcwy	No	J Purpose	: Unknown		Driver Seve	rity:	None		
Acc Ref:		Maneouvre:	Ahead	Skiding:	None	Impact Po	oint: None		Driver Brea	nth Test:	Notreq	Driver Age:	42
Veh Ref:	2	Location:	Carw	Object in Cway:	None	From:	Se		Hit and Ru	n:	Nothtrur	ı	
Veh Type:	Mc<=125	Junction:	Notjunct	Object off Cway	None	To:	Nw		Driver Gene	der:	Male		
Foreign V	eh:	Towing;	None	velcwy	Nearsi	de J Purpose	: Unknown		Driver Seve	rity:	Slight		

Accident	t Details:												
Acc Ref: 2	2019-410937934	1st / 2nd	Rd: B195/10	NONE Jun Det	ail: 1	Notjunct	Weather:	Fine		Num Ca	s:	1	
Day of Wee	ek: Mon	Parish:		Jun Co	ntrol: 1	Notjunct	Light:	Day		Num Pe	ds:	0	
Date: 21/1	0/2019 16:02:00	District:	WelHat	Spec Co	onditions: 1	None	Road Surfa	ce: Dry		Num Ve	hicles:	1	
Acc Severit	y: Serious	Speed Li	imit: 30mph	C/way]	Hazard: 1	None	C/way Type	: Dual		Ped Xin	g:	Npernox	
B195 Bridge	e Road Welwyn G	arden City Appro	ox 145m Se J/w B1	95 Osborn Way Rt	ot					On Site:		Yes	
Easting:	524014	Northing:	21312	3									
Casualty	y Details												
Acc Ref:	2019-410937934	Cas Class	s: Driver	Car Pas	senger:	No	Cas Severity	·: 5	Serious	Ped Mo	vement:	Notped	
Veh Ref:	1	Cas Age:	55	PSV Pa	ssenger:	No	Road User (Class: (Car Users	Ped Loc	ation:	Notped	
Cas Ref:	1	Cas Gend	ler: Male	Seat Be	lt:	Unknown	School Pupi	:		Ped Wo	rk on Rd:	Notped	
Vehicle 1	Details												
Acc Ref:	154219	Maneouvre:	Ahead	Skiding:	None	Impact P	nint: Front		Driver Bre	ath Test:	Ntprov	Driver Age:	55
Veh Ref:	1	Location:	Carw	Object in Cway	: None	From:	Nw		Hit and Ru	n:	Nothtrus	n	
Veh Type:	Car	Junction:	Notjunct	Object off Cwa	y Lamppo	ost To:	Se		Driver Gen	ıder:	Male		
Foreign V	eh:	Towing;	None	velcwy	Offside	J Purpose	: Work		Driver Sev	erity:	Serious		

Acciden	t Details:											
Acc Ref:	2019-410819134	1st / 2nd	Rd: B195/14	NONE Jun Deta	ul:	Notjunct	Weather:	Fine	Num Ca	s:	1	
Day of We	ek: Tue	Parish:		Jun Con	trol:	Notjunct	Light:	Day	Num Pee	ds:	0	
Date: 19/0	02/2019 17:30:00	District	: WelHat	Spec Co	nditions:	None	Road Surface:	Dry	Num Ve	hicles:	3	
Acc Severi	ty: Slight	Speed L	imit: 30mph	C/way H	azard:	None	C/way Type:	R/bout	Ped Xing	g: 1	Nperpelx	
B195 The C	Campus Rbt Welwy	n Garden City A	At Pelican Crossing	Approx 25m West J	/w U523	Parkway			On Site:]	No	
Easting:	523686	Northing:	21323	2								
Casualt	y Details											
Acc Ref:	2019-410819134	Cas Clas	s: Driver	Car Pass	enger:	No	Cas Severity:	Slight	Ped Mo	vement:	Notped	
Veh Ref:	3	Cas Age	16	PSV Pas	senger:	No	Road User Clas	s: Cyclists	Ped Loc	ation:	Notped	
Cas Ref:	1	Cas Gen	der: Male	Seat Belt	:	Notapp	School Pupil:		Ped Wo	r <mark>k on Rd</mark> :	Notped	
Vehicle	Details											
Acc Ref:	151880	Maneouvre:	Ahead	Skiding:	None	Impact Poi	at: None	Drive	r Breath Test:	Notcon	Driver Age:	
Veh Ref:	1	Location:	Carw	Object in Cway:	None	From:	Е	Hit ar	ıd Run:	Nonstop		
Veh Type	: Car	Junction:	Notjunct	Object off Cway	None	To:	W	Drive	r Gender:	Unknow	n	
Foreign V	/eh:	Towing;	None	velcwy	No	J Purpose:	Unknown	Drive	r Severity:	None		
Acc Ref:		Maneouvre:	Chglnrig	Skiding:	None	Impact Poin	nt: Front	Drive	r Breath Test:	Notcon	Driver Age:	24
Veh Ref:	2	Location:	Carw	Object in Cway:	None	From:	Е	Hit ar	ıd Run:	Nothtrun	L	
Veh Type	: Car	Junction:	Notjunct	Object off Cway	None	To:	W	Drive	r Gender:	Male		
Foreign V	/eh:	Towing;	None	velcwy	No	J Purpose:	Unknown	Drive	r Severity:	None		
Acc Ref:		Maneouvre:	Ahead	Skiding:	None	Impact Poir	nt: Back	Drive	r Breath Test:	Notap	Driver Age:	16
Veh Ref:	3	Location:	Carw	Object in Cway:	None	From:	Е	Hit ar	nd Run:	Nothtrun	L	
Veh Type	: Bicycle	Junction:	Notjunct	Object off Cway	None	To:	W	Drive	r Gender:	Male		
Foreign V	/eh:	Towing;	None	velcwy	No	J Purpose:	Unknown	Drive	r Severity:	Slight		

Accident	t Details:										
Acc Ref: 2	2018-410311946	1st / 2nd	Rd: C147/10	B195/14 Jun Det	ail:	R/bout	Weather:	Fine	Num Cas:	1	
Day of Wee	ek: Wed	Parish:		Jun Co	itrol:	Giveway	Light:	Day	Num Peds:	0	
Date: 27/0	6/2018 12:39:00	District:	WelHat	Spec Co	nditions:	Roadwork	Road Surface:	Dry	Num Vehicles	: 2	
Acc Severit	y: Serious	Speed L	imit: 30mph	C/way I	Hazard:	None	C/way Type:	Single	Ped Xing:	Npercntr	
C147 Digsv	well Road Welwyn	Garden City J/v	v B195 Campus Rb	t					On Site:	Yes	
Easting:	523725	Northing:	21336	3							
Casualty	v Details										
Acc Ref:	2018-410311946	Cas Clas	s: Driver	Car Pas	senger:	No	Cas Severity:	Serious	Ped Movemer	at: Notped	
Veh Ref:	2	Cas Age:	42	PSV Pas	senger:	No	Road User Clas	s: Car Users	Ped Location	: Notped	
Cas Ref:	1	Cas Gene	ler: Female	Seat Bel	t:	Wornnot	School Pupil:		Ped Work on	Rd: Notped	
Vehicle	Details										
Acc Ref:	151192	Maneouvre:	Ahead	Skiding:	None	Impact Po	int: Front	Driver Br	eath Test: Not	req Driver Age:	52
Veh Ref:	1	Location:	Carw	Object in Cway	: None	From:	Ne	Hit and R	un: Not	htrun	
Veh Type:	Car	Junction:	Approach	Object off Cwa	y None	To:	Sw	Driver Ge	ender: Fen	nale	
Foreign V	eh:	Towing;	None	velcwy	No	J Purpose:	Tofrowrk	Driver Se	verity: Nor	le	
Acc Ref:		Maneouvre:	Waitahea	Skiding:	None	Impact Po	int: Back	Driver Br	eath Test: Not	req Driver Age:	42
Veh Ref:	2	Location:	Carw	Object in Cway	: None	From:	Ne	Hit and R	un: Not	htrun	
Veh Type:	Car	Junction:	Approach	Object off Cwa	y None	To:	Sw	Driver Ge	ender: Fen	nale	
Foreign V	eh:	Towing;	None	velcwy	No	J Purpose:	Tofrowrk	Driver Se	verity: Seri	ous	

Accident	Details:														
Acc Ref: 2	2017-410229740	1st / 2nd	I Rd: B195/14	0U523/4	Jun Detai	l:	R/bout	t	Weather:	Fine		Num Cas	s:	1	
Day of Wee	k: Tue	Parish:			Jun Conti	rol:	Givew	ay	Light:	Day		Num Ped	ls:	0	
Date: 03/1	0/2017 08:19:00	District	: WelHat		Spec Con	ditions:	None		Road Surface:	Dry		Num Vel	hicles:	2	
Acc Severit	y: Serious	Speed L	imit: 30mph		C/way Ha	zard:	None		C/way Type:	R/bout		Ped Xing	ç:	Nperpelx	
B195 Bridge	e Road Welwyn Ga	arden City J/w U	J523 Parkway									On Site:		Yes	
Easting:	523631	Northing:	2132	46											
Casualty	Details														
Acc Ref:	2017-410229740	Cas Clas	s: Driver		Car Passe	nger:	No		Cas Severity:	Ser	ious	Ped Mov	vement:	Notped	
Veh Ref:	1	Cas Age	: 33		PSV Passe	nger:	No		Road User Clas	ss: Mo	torcyclists	Ped Loc	ation:	Notped	
Cas Ref:	1	Cas Gen	der: Female		Seat Belt:		Nota	pp	School Pupil:			Ped Wor	r <mark>k on Rd</mark> :	Notped	
Vehicle	Details														
Acc Ref:	149562	Maneouvre:	Ahead	Skiding	:	Skidde	d	Impact Poir	at: None		Driver Brea	ath Test:	Negati	Driver Age:	33
Veh Ref:	1	Location:	Carw	Object	in Cway:	None		From:	Se		Hit and Ru	n:	Nothtru	n	
Veh Type:	Mc<=500	Junction:	Middle	Object	off Cway	None		To:	Nw		Driver Gen	der:	Female		
Foreign V	eh:	Towing;	None	velcwy		No		J Purpose:	Tofrowrk		Driver Seve	erity:	Serious		
Acc Ref:		Maneouvre:	Tumleft	Skiding	:	None		Impact Poir	nt: None		Driver Brea	ath Test:	Notcon	Driver Age:	
Veh Ref:	2	Location:	Carw	Object i	in Cway:	None		From:	Sw		Hit and Ru	n:	Nonstop	•	
Veh Type:	Car	Junction:	Er/about	Object	off Cway	None		To:	Nw		Driver Gen	der:	Unknow	'n	
Foreign V	eh:	Towing;	None	velcwy		No		J Purpose:	Unknown		Driver Seve	erity:	None		

Accident	t Details:										
Acc Ref: 2	2017-410199692	1st / 2nd	Rd: C147/10 H	3195/14 Jun	Detail:	R/bout	Weather:	Fine	Num Cas:	1	
Day of Wee	ek: Fri	Parish:		Jun	Control:	Giveway	Light:	Day	Num Peds:	1	
Date: 16/0	06/2017 10:10:00	District:	WelHat	Spe	c Conditions:	None	Road Surface:	Dry	Num Vehicle	es: 1	
Acc Severit	y: Slight	Speed Li	mit: 30mph	C/w	ay Hazard:	None	C/way Type:	Single	Ped Xing:	Npercntr	
C147 Digsw	vell Road Welwyn	Garden City J/w	B195 The Campus	Rbt					On Site:	No	
Easting:	523705	Northing:	213371	l							
Casualty	y Details										
Acc Ref:	2017-410199692	Cas Class	: Pedestri	Car	Passenger:	No	Cas Severity:	Slight	Ped Movem	ent: Xoffside	
Veh Ref:	1	Cas Age:	72	PSV	Passenger:	No	Road User Clas	s: Pedestrians	Ped Locatio	n: Elsewher	
Cas Ref:	1	Cas Gend	er: Female	Sea	t Belt:	Notapp	School Pupil:		Ped Work o	on Rd: Notapp	
Vehicle	Details										
Acc Ref:	148910	Maneouvre:	Tumleft	Skiding:	None	Impact Po	int: Front	Driver Bre	ath Test: No	otap Driver Age	: 20
Veh Ref:	1	Location:	Carw	Object in C	way: None	From:	W	Hit and Ru	in: No	othtrun	
Veh Type:	Bicycle	Junction:	Lmain	Object off (Cway None	To:	Ne	Driver Ger	nder: M	lale	
Foreign V	eh:	Towing;	None	velcwy	No	J Purpose:	Other	Driver Sev	erity: No	one	

Accident	Details:													
Acc Ref: 2	2017-410184158	1st / 2nd	I Rd: C147/10	B195/14 Jun Det	ail:	R/bout	t	Weather:	Fine		Num Cas	:	1	
Day of Wee	k: Mon	Parish:		Jun Cor	trol:	Givew	ay	Light:	Day		Num Ped	s:	0	
Date: 15/0	5/2017 09:15:00	District	: WelHat	Spec Co	nditions:	None		Road Surface:	Dry		Num Veh	icles:	2	
Acc Severit	y: Slight	Speed L	imit: 30mph	C/way H	lazard:	None		C/way Type:	Single		Ped Xing	:	Npernox	
C147 Digsw	ell Road Welwyn	Garden City J/w	B195 The Campus								On Site:		No	
Easting:	523716	Northing:	21337	1										
Casualty	, Details													
Acc Ref:	2017-410184158	Cas Clas	s: Driver	Car Pas	senger:	No	(Cas Severity:	Slig	;ht	Ped Mov	ement:	Notped	
Veh Ref:	1	Cas Age	:	PSV Pas	senger:	No]	Road User Clas	s: Mo	torcyclists	Ped Loca	tion:	Notped	
Cas Ref:	1	Cas Gen	der: Male	Seat Bel	t:	Nota	ipp s	School Pupil:			Ped Wor	k on Rd:	Notped	
Vehicle 1	Details													
Acc Ref:	148282	Maneouvre:	Otakemov	Skiding:	None		Impact Poin	t: Offside		Driver Brea	ath Test:	Notcon	Driver Age:	
Veh Ref:	1	Location:	Carw	Object in Cway	: Bollre	fu	From:	Ν		Hit and Ru	n:	Nothtru	n	
Veh Type:	Mc>500	Junction:	Approach	Object off Cway	V None		To:	S		Driver Gen	der:	Male		
Foreign Vo	eh:	Towing;	None	velcwy	No		J Purpose:	Unknown		Driver Seve	erity:	Slight		
Acc Ref:		Maneouvre:	Waitahea	Skiding:	None		Impact Poin	t: None		Driver Brea	ath Test:	Notcon	Driver Age:	38
Veh Ref:	2	Location:	Carw	Object in Cway	None		From:	N		Hit and Ru	n:	Nothtru	n	
Veh Type:	Car	Junction:	Approach	Object off Cway	v None		To:	S		Driver Gen	der:	Female		
Foreign Vo	eh:	Towing;	None	velcwy	No		J Purpose:	Unknown		Driver Seve	erity:	None		

Appendix C Development Layout





Appendix D TRICS Data Ardent Consulting Engineers Suite 207, One Alie Street London E1 8DE

Calculation Reference: AUDIT-437201-220110-0151

TRIP RATE CALCULATION SELECTION PARAMETERS:

: 03 - RESIDENTIAL Land Use Category : C - FLATS PRIVATELY OWNED MUĽTÍ-MODAL TOTAL VEHICLES

Selected regions and areas: 02 SOUTH EAST BEDFORDSHIRE BD 3 days EΧ ESSEX 2 days HAMPSHIRE HC 1 days ΗF HERTFORDSHIRE 1 days 04 EAST ANGLIA NORFOLK NF 1 days SUFFOLK SF 1 days 09 NORTH СВ CUMBRIA 1 days

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

Primary Filtering selection:

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

Parameter: Actual Range: Range Selected by User:	No of Dwellings 6 to 175 (units:) 6 to 184 (units:)	
Parking Spaces Range:	All Surveys Include	ed
Parking Spaces per Dwell	ng Range: All Survey	ys Included
Bedrooms per Dwelling Ra	ange: All Survey	ys Included
Percentage of dwellings p	rivately owned:	All Surveys Included
Public Transport Provision Selection by:	<u>:</u>	Include all surveys
Date Range: 01/0	1/13 to 23/06/21	

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

Selected survey days:	
Tuesday	6 days
Thursday	4 days

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

<u>Selected survey types:</u>	
Manual count	10 days
Directional ATC Count	0 days

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

<u>Selected Locations:</u>	
Town Centre	1
Edge of Town Centre	9

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** Built-Up Zone No Sub Category

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.

4 5

1

TRICS 7.8	4 211221 B20.35	Database right of TRICS Co	onsortium Limited, 2022. All rights reserved	Monday 10/01/22 Page 2
Ardent Con	sulting Engineers	Suite 207, One Alie Street	London E1 8DE	Licence No: 437201
Sec	ondary Filtering	selection:		
Use	Class:			
C3		1	0 days	
Thi has	s data displays the been used for this	number of surveys per Use C purpose, which can be found	Slass classification within the selected set. The Use of within the Library module of TRICS®.	Classes Order 2005
<u> Pop</u>	ulation within 500i	m Range:		
All	Surveys Included	11-1		
<u>10</u>	001 to 15 000	<u>'le:</u>	1 days	
10,	201 to 15,000		1 days	
25,	001 to 50,000		8 days	
Thi	s data displays the	number of selected surveys v	vithin stated 1-mile radii of population.	
Pop	ulation within 5 mi	iles:		
50,	001 to 75,000		4 days	
75,	001 to 100,000		1 days	
125	,001 to 250,000		3 days	
250	,001 to 500,000		2 days	
Thi	s data displays the	number of selected surveys v	within stated 5-mile radii of population.	
Cal	ownership within :	5 miles:		

 Car ownership within 5 miles:

 0.6 to 1.0
 2 days

 1.1 to 1.5
 8 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:Yes2 daysNo8 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.

<u>PTAL Rating:</u> No PTAL Present

10 days

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

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Ardent Cons	ulting Engineers	Suite 207, One Alie Street	London E1 8DE		Licence No: 437201
<u></u>	OF SITES relevan	t to selection parameters			
1	BD-03-C-01 WING ROAD LEIGHTON BUZZ LINSLADE Edge of Town Ce Posidential Zapa	BLOCKS OF FLATS ARD ntre		BEDFORDSHI RE	
2	Total No of Dwell Survey de BD-03-C-02 STANBRIDGE RO LEIGHTON BUZZ	lings: <i>late: TUESDAY</i> BLOCKS OF FLATS NAD ARD	175 <i>15/05/18</i>	<i>Survey Type: MANUAL</i> BEDFORDSHIRE	
3	Edge of Town Ce Residential Zone Total No of Dwell <i>Survey d</i> BD-03-C-03 COURT DRIVE DUNSTABLE	ntre lings: <i>late: TUESDAY</i> BLOCKS OF FLATS	62 <i>15/05/18</i>	<i>Survey Type: MANUAL</i> BEDFORDSHI RE	
4	Edge of Town Ce No Sub Category Total No of Dwell <i>Survey d</i> CB-03-C-01 KING STREET CARLISLE	ntre / /a <i>te: TUESDAY</i> BLOCK OF FLATS	146 <i>15/05/18</i>	<i>Survey Type: MANUAL</i> CUMBRIA	
5	Town Centre Built-Up Zone Total No of Dwell <i>Survey da</i> EX-03-C-01 WESTCLIFF PARA SOUTHEND-ON-S WESTCLIFF	lings: <i>Fate: THURSDAY</i> FLATS ADE SEA	40 <i>12/06/14</i>	<i>Survey Type: MANUAL</i> ESSEX	
6	Edge of Town Ce Residential Zone Total No of Dwell <i>Survey da</i> EX-03-C-02 WESTCLIFF PARA SOUTHEND-ON-S WESTCLIFF	ntre lings: <i>fate: TUESDAY</i> BLOCK OF FLATS ADE SEA	6 <i>22/10/13</i>	<i>Survey Type: MANUAL</i> ESSEX	
7	Residential Zone Total No of Dwell <i>Survey du</i> HC-03-C-01 CROSS STREET PORTSMOUTH	lings: <i>ate: TUESDAY</i> BLOCKS OF FLATS	94 <i>22/10/13</i>	<i>Survey Type: MANUAL</i> HAMPSHIRE	
	Edge of Town Ce Built-Up Zone Total No of Dwell <i>Survey d</i> a	ntre lings: <i>late: TUESDAY</i>	90 <i>05/06/18</i>	Survey Type: MANUAL	

TRICS 7.8	3.4 211221 B20.35 E	Database right of TRICS Co	onsortium Limited, 2	2022. All rights reserved	Monday 10/01/22 Page 4
Ardent Cor	nsulting Engineers Si	uite 207, One Alie Street	London E1 8DE		Licence No: 437201
<u></u>	ST OF SITES relevant to	o selection parameters (Co	ont.)		
8	HF-03-C-03 SHENLEY ROAD BOREHAMWOOD	BLOCK OF FLATS		HERTFORDSHI RE	
9	Edge of Town Centr Built-Up Zone Total No of Dwelling <i>Survey date</i> NF-03-C-01 PAGE STAIR LANE KING'S LYNN	re gs: <i>:: THURSDAY</i> BLOCKS OF FLATS	91 <i>14/11/19</i>	<i>Survey Type: MANUAL</i> NORFOLK	
10	Edge of Town Centr Built-Up Zone Total No of Dwelling <i>Survey date</i> SF-03-C-01 STATION HILL BURY ST EDMUNDS	re gs: <i>: THURSDAY</i> BLOCKS OF FLATS	51 <i>11/12/14</i>	<i>Survey Type: MANUAL</i> SUFFOLK	
	Edge of Town Centr Built-Up Zone Total No of Dwelling <i>Survey date</i>	re gs: <i>e: THURSDAY</i>	85 <i>18/12/14</i>	Survey Type: MANUAL	

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
MS-03-C-04	covid
SF-03-C-05	covid

Ardent Consulting Engineers Suite 207, One Alie Street London E1 8DE

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED MULTI-MODAL TOTAL VEHICLES Calculation factor: 1 DWELLS BOLD print indicates peak (busiest) period Total People to Total Vehicles ratio (all time periods and directions): 2.27

		ARRIVALS		[DEPARTURES	;		TOTALS	
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	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	10	84	0.045	10	84	0.156	10	84	0.201
08:00 - 09:00	10	84	0.054	10	84	0.177	10	84	0.231
09:00 - 10:00	10	84	0.064	10	84	0.076	10	84	0.140
10:00 - 11:00	10	84	0.073	10	84	0.094	10	84	0.167
11:00 - 12:00	10	84	0.075	10	84	0.087	10	84	0.162
12:00 - 13:00	10	84	0.113	10	84	0.105	10	84	0.218
13:00 - 14:00	10	84	0.092	10	84	0.094	10	84	0.186
14:00 - 15:00	10	84	0.073	10	84	0.077	10	84	0.150
15:00 - 16:00	10	84	0.085	10	84	0.068	10	84	0.153
16:00 - 17:00	10	84	0.133	10	84	0.071	10	84	0.204
17:00 - 18:00	10	84	0.174	10	84	0.098	10	84	0.272
18:00 - 19:00	10	84	0.193	10	84	0.102	10	84	0.295
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.174			1.205			2.379

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:	6 - 175 (units:)
Survey date date range:	01/01/13 - 23/06/21
Number of weekdays (Monday-Friday):	10
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	2

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. Ardent Consulting Engineers Suite 207, One Alie Street London E1 8DE

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED MULTI - MODAL TOTAL PEOPLE Calculation factor: 1 DWELLS BOLD print indicates peak (busiest) period Total People to Total Vehicles ratio (all time periods and directions): 2.27

	ARRIVALS		DEPARTURES			TOTALS			
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	DWELLS	Rate	Days	DWELLS	Rate	Days	DWELLS	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	10	84	0.074	10	84	0.370	10	84	0.444
08:00 - 09:00	10	84	0.100	10	84	0.512	10	84	0.612
09:00 - 10:00	10	84	0.124	10	84	0.186	10	84	0.310
10:00 - 11:00	10	84	0.160	10	84	0.186	10	84	0.346
11:00 - 12:00	10	84	0.148	10	84	0.167	10	84	0.315
12:00 - 13:00	10	84	0.229	10	84	0.231	10	84	0.460
13:00 - 14:00	10	84	0.198	10	84	0.183	10	84	0.381
14:00 - 15:00	10	84	0.158	10	84	0.157	10	84	0.315
15:00 - 16:00	10	84	0.254	10	84	0.163	10	84	0.417
16:00 - 17:00	10	84	0.325	10	84	0.162	10	84	0.487
17:00 - 18:00	10	84	0.429	10	84	0.211	10	84	0.640
18:00 - 19:00	10	84	0.468	10	84	0.212	10	84	0.680
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.667			2.740			5.407

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.

Appendix E ARUP Traffic Flows

Welwyn Garden City - Town Centre North Existing 2019 AM Peak (08.00-09.00): Total Vehicles



Welwyn Garden City - Town Centre North Existing 2019 PM Peak (17.00-18.00): Total Vehicles



Appendix F TEMPRO

Dataset Version:	72
Result Type:	Trip ends by time period
Base Year:	2019
Future Year:	2027
Trip Purpose Group:	All purposes
Time Period:	Weekday AM peak period (0700 - 0959)
Trip End Type:	Origin/Destination
Alternative Assumptions Applied:	No

Growth Factor

Area	a Description	All	purposes
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	1.0709	1.0647

Future Year - Base Year

Area	a Description	All	purposes
Level	Name	Origin	Destination
Authority Welwyn Hatfield		2,157	2,282

Base Year

Area	a Description	All	purposes
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	30,437	35,253

Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	32,594	37,535

Growth Factor

Area Description		All purposes	
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	1.0709	1.0647

Future Year - Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	2,157	2,282

Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	30,437	35,253

Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	32,594	37,535

Level Area Local Growth Figure Authority Welwyn Ha 1.066

Dataset Version:	72
Result Type:	Trip ends by time period
Base Year:	2019
Future Year:	2027
Trip Purpose Group:	All purposes
Time Period:	Weekday PM peak period (1600 - 1859)
Trip End Type:	Origin/Destination
Alternative Assumptions Applied:	No

Growth Factor

Area Description		All purposes	
Level	Name	Origin Destina	
Authority	Welwyn Hatfield	1.0657	1.0715

Future Year - Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	2,369	2,237

Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	36,071	31,272

Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	38,440	33,508

Growth Factor

Area Description		All purposes	
Level	Name	Origin Destina	
Authority	Welwyn Hatfield	1.0657	1.0715

Future Year - Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
Authority	Welwyn Hatfield	2,369	2,237

Base Year

Area	a Description	All purposes		
Level Name		Origin	Destination	
Authority	Welwyn Hatfield	36,071	31,272	

Future Year

Area	a Description	All purposes		
Level Name		Origin	Destination	
Authority	Welwyn Hatfield	38,440	33,508	

LevelAreaLocal Growth FigureAuthorityWelwyn Ha1.066540028

Appendix G PICADY



Junctions 9 ARCADY 9 - Roundabout Module Version: 9.5.1.7462 © Copyright TRL Limited, 2019 For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk Www.trlsoftware co.uk

Filename: College Way - Site Access V2.j9 Path: Y:\ARDENT PROJECTS\2007511 - Welwyn Garden City Campus East - Stage 2\Transport\PICADY Report generation date: 26/10/2022 16:33:49

»Base 2019, AM
»Base 2019, PM
»No Dev 2027, AM
»No Dev 2027, PM
»With Dev 2027, AM
»With Dev 2027, PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
			Base	2019		
A - Site Access	0 0	0.00	0.00	0.1	5.17	0.09
B - Waitrose	0.1	4.08	0.08	0.3	5.38	0.24
C - College Way West	0 2	4.05	0.17	0.2	4.03	0.15
D - College Way North	0.1	4.42	0.07	0.1	4.63	0.13
	No Dev 2027					
A - Site Access	0 0	0.00	0.00	0.1	5.28	0.10
B - Waitrose	0.1	4.11	0.08	0.3	5.54	0.26
C - College Way West	02	4.11	0.18	0.2	4.08	0.16
D - College Way North	0.1	4.49	0.08	0.2	4.71	0.14
	With Dev 2027					
A - Site Access	0.1	4.97	0.12	0.1	4.65	0.05
B - Waitrose	0.1	4.39	0.09	0.3	4.93	0.23
C - College Way West	0.1	3.85	0.13	0.3	4.42	0.23
D - College Way North	0.1	4.23	0.06	0.0	4.43	0.03

There are warnings associated with one or more model runs - see the Data Errors and Warnings tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.



File summary

File Description

College Way - Site Access
WGC
1
16/09/2022
-
Existing / Proposed
J1
Bellway
2007511
ARDENTCE\ntransport

Units

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



Flows show original traffic demand (PCUIIv).

The junction diagram reflects the last run of Junctions.





Analysis Options

Mini-roundabout model	Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9			0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH mm)	Finish time (HH mm)	Time segment length (min)
D1	Base 2019	AM	ONE HOUR	08:00	09:30	15
D2	Base 2019	PM	ONE HOUR	17:00	18:30	15
D3	No Dev 2027	AM	ONE HOUR	08:00	09:30	15
D4	No Dev 2027	PM	ONE HOUR	17:00	18:30	15
D5	With Dev 2027	AM	ONE HOUR	08:00	09:30	15
D6	With Dev 2027	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID Network flow scaling factor (%)

A1 100.000


Base 2019, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms B and C have 80% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	College Way / Site Access	Mini-roundabout		A, B, C, D	4.13	A

Junction Network Options

Driving side	Driving side Lighting		In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Name	Description
Α	Site Access	
в	Waitrose	
С	College Way West	
D	College Way North	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A - Site Access	2.55	2.55	4.13	3.1	10.60	5.78	0.0	
B - Waitrose	3.43	3.43	3.82	2.3	10.15	7.28	0.0	
C - College Way West	3.24	3.24	3.90	1.8	9.70	7.00	0.0	
D - College Way North	3.43	3.43	4.65	1.6	5.00	10.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Site Access	0.596	925
B - Waitrose	0.616	984
C - College Way West	0.611	1076
D - College Way North	0.622	987

The slope and intercept shown above include any corrections and adjustments.



Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH mm)	Finish time (HH mm)	Time segment length (min)
D1	Base 2019	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Site Access		~	2	100.000
B - Waitrose		~	67	100.000
C - College Way West		✓	168	100.000
D - College Way North		✓	56	100.000

Origin-Destination Data

Demand (PCU/hr)

	То							
		A - Site Access	B - Waitrose	C - College Way West	D - College Way North			
From	A - Site Access	0	0	2	0			
	B - Waitrose	0	0	63	4			
	C - College Way West	61	101	0	6			
	D - College Way North	7	9	40	0			

Vehicle Mix

Heavy Vehicle Percentages

	То								
From		A - Site Access	B - Waitrose	C - College Way West	D - College Way North				
	A - Site Access	0	0	0	0				
	B - Waitrose	0	0	0	0				
	C - College Way West	0	0	0	0				
	D - College Way North	0	0	0	0				

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Site Access	0 00	0.00	0.0	А
B - Waitrose	0 08	4.08	0.1	A
C - College Way West	0.17	4.05	0.2	A
D - College Way North	0 07	4.42	0.1	А



Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	112	858	0 000	0	0.0	0.000	А
B - Waitrose	50	30	966	0 052	50	0.1	3.932	А
C - College Way West	126	3	1074	0.118	126	0.1	3.794	А
D - College Way North	42	121	911	0 046	42	0.0	4.140	А

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	135	845	0 000	0	0.0	0.000	А
B - Waitrose	60	36	962	0 063	60	0.1	3.992	А
C - College Way West	151	4	1074	0.141	151	0.2	3.900	А
D - College Way North	50	146	896	0 056	50	0.1	4.255	А

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	165	827	0 000	0	0.0	0.000	А
B - Waitrose	74	44	957	0 077	74	0.1	4.076	A
C - College Way West	185	4	1073	0.172	185	0.2	4.050	А
D - College Way North	62	178	876	0 070	62	0.1	4.421	А

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	165	827	0 000	0	0.0	0.000	А
B - Waitrose	74	44	957	0 077	74	0.1	4.076	А
C - College Way West	185	4	1073	0.172	185	0.2	4.052	А
D - College Way North	62	178	876	0 070	62	0.1	4.421	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	135	845	0 000	0	0.0	0.000	А
B - Waitrose	60	36	962	0 063	60	0.1	3.994	А
C - College Way West	151	4	1074	0.141	151	0.2	3.902	А
D - College Way North	50	146	896	0 056	50	0.1	4.257	А

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	113	858	0 000	0	0.0	0.000	А
B - Waitrose	50	30	965	0 052	50	0.1	3.934	А
C - College Way West	126	3	1074	0.118	127	0.1	3.801	А
D - College Way North	42	122	911	0 046	42	0.0	4.146	A



Base 2019, PM

Data Errors and Warnings

Severity	Area	ltem	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	College Way / Site Access	Mini-roundabout		A, B, C, D	4.81	А

Junction Network Options

Driving side Lighting		Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH mm)	Finish time (HH mm)	Time segment length (min)
D2	Base 2019	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Site Access		~	64	100.000
B - Waitrose		✓	191	100.000
C - College Way West		✓	144	100.000
D - College Way North		~	102	100.000

Origin-Destination Data

Demand (PCU/hr)

	То									
		A - Site Access	B - Waitrose	C - College Way West	D - College Way North					
	A - Site Access	0	0	48	16					
From	B - Waitrose	0	0	172	19					
	C - College Way West	1	140	0	3					
	D - College Way North	0	12	90	0					



	То									
		A - Site Access	B - Waitrose	C - College Way West	D - College Way North					
	A - Site Access	0	0	0	0					
From	B - Waitrose	0	0	0	0					
	C - College Way West	0	0	0	0					
	D - College Way North	0	0	0	0					

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Site Access	0 09	5.17	0.1	А
B - Waitrose	0 24	5.38	0.3	A
C - College Way West	0.15	4.03	0.2	А
D - College Way North	0.13	4.63	0.1	А

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	48	181	817	0 059	48	0.1	4.679	А
B - Waitrose	144	115	913	0.158	143	0.2	4.673	А
C - College Way West	108	26	1060	0.102	108	0.1	3.779	А
D - College Way North	77	106	921	0 083	76	0.1	4.261	А

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	58	217	796	0 072	57	0.1	4.876	А
B - Waitrose	172	138	899	0.191	172	0.2	4.949	А
C - College Way West	129	31	1057	0.122	129	0.1	3.881	А
D - College Way North	92	127	908	0.101	92	0.1	4.410	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	70	266	767	0 092	70	0.1	5.170	А
B - Waitrose	210	169	880	0 239	210	0.3	5.374	А
C - College Way West	159	38	1053	0.151	158	0.2	4.026	А
D - College Way North	112	155	890	0.126	112	0.1	4.627	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	70	266	766	0 092	70	0.1	5.171	А
B - Waitrose	210	170	879	0 239	210	0.3	5.379	А
C - College Way West	159	39	1052	0.151	159	0.2	4.026	А
D - College Way North	112	155	890	0.126	112	0.1	4.628	А



18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	58	218	795	0 072	58	0.1	4.881	А
B - Waitrose	172	139	899	0.191	172	0.2	4.956	А
C - College Way West	129	32	1057	0.123	130	0.1	3.884	А
D - College Way North	92	127	908	0.101	92	0.1	4.414	А

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	48	182	817	0 059	48	0.1	4.685	А
B - Waitrose	144	116	912	0.158	144	0.2	4.685	А
C - College Way West	108	26	1060	0.102	109	0.1	3.783	А
D - College Way North	77	106	921	0 083	77	0.1	4.267	А



No Dev 2027, AM

Data Errors and Warnings

Severity	Area	ltem	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms B and C have 80% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	College Way / Site Access	Mini-roundabout		A, B, C, D	4.18	А

Junction Network Options

Driving side	Driving side Lighting		In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH mm)	Finish time (HH mm)	Time segment length (min)
D3	No Dev 2027	AM	ONE HOUR	08:00	09:30	15

 Vehicle mix source
 PCU Factor for a HV (PCU)

 HV Percentages
 2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Site Access		✓	2	100.000
B - Waitrose		√	71	100.000
C - College Way West		✓	179	100.000
D - College Way North		✓	60	100.000

Origin-Destination Data

Demand (PCU/hr)

			То		
From		A - Site Access	B - Waitrose	C - College Way West	D - College Way North
	A - Site Access	0	0	2	0
	B - Waitrose	0	0	67	4
	C - College Way West	65	108	0	6
	D - College Way North	7	10	43	0



		То								
		A - Site Access	B - Waitrose	C - College Way West	D - College Way North					
	A - Site Access	0	0	0	0					
From	B - Waitrose	0	0	0	0					
	C - College Way West	0	0	0	0					
	D - College Way North	0	0	0	0					

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Site Access	0 00	0.00	0.0	А
B - Waitrose	0 08	4.11	0.1	A
C - College Way West	0.18	4.11	0.2	A
D - College Way North	0 08	4.49	0.1	А

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	121	853	0 000	0	0.0	0.000	А
B - Waitrose	53	32	964	0 055	53	0.1	3.951	А
C - College Way West	135	3	1074	0.125	134	0.1	3.828	А
D - College Way North	45	130	906	0 050	45	0.1	4.180	А

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	145	839	0 000	0	0.0	0.000	А
B - Waitrose	64	39	960	0 066	64	0.1	4.015	А
C - College Way West	161	4	1074	0.150	161	0.2	3.943	А
D - College Way North	54	155	890	0 061	54	0.1	4.305	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	177	820	0 000	0	0.0	0.000	А
B - Waitrose	78	47	955	0 082	78	0.1	4.106	А
C - College Way West	197	4	1073	0.184	197	0.2	4.106	А
D - College Way North	66	190	868	0 076	66	0.1	4.487	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	177	820	0 000	0	0.0	0.000	А
B - Waitrose	78	47	955	0 082	78	0.1	4.106	А
C - College Way West	197	4	1073	0.184	197	0.2	4.108	A
D - College Way North	66	190	868	0 076	66	0.1	4.487	A



09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	145	839	0 000	0	0.0	0.000	А
B - Waitrose	64	39	960	0 066	64	0.1	4.018	А
C - College Way West	161	4	1074	0.150	161	0.2	3.944	A
D - College Way North	54	156	890	0 061	54	0.1	4.307	А

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	0	121	853	0 000	0	0.0	0.000	А
B - Waitrose	53	32	964	0 055	54	0.1	3.955	А
C - College Way West	135	3	1074	0.125	135	0.1	3.832	А
D - College Way North	45	130	906	0 050	45	0.1	4.185	А



No Dev 2027, PM

Data Errors and Warnings

Severity	Area	ltem	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	College Way / Site Access	Mini-roundabout		A, B, C, D	4.92	А

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH mm)	Finish time (HH mm)	Time segment length (min)
D4	No Dev 2027	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Site Access		✓	68	100.000
B - Waitrose		✓	203	100.000
C - College Way West		✓	153	100.000
D - College Way North		~	109	100.000

Origin-Destination Data

Demand (PCU/hr)

			То		
		A - Site Access	B - Waitrose	C - College Way West	D - College Way North
	A - Site Access	0	0	51	17
From	B - Waitrose	0	0	183	20
	C - College Way West	1	149	0	3
	D - College Way North	0	13	96	0



		То										
		A - Site Access	B - Waitrose	C - College Way West	D - College Way North							
	A - Site Access	0	0	0	0							
From	B - Waitrose	0	0	0	0							
	C - College Way West	0	0	0	0							
	D - College Way North	0	0	0	0							

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Site Access	0.10	5.28	0.1	А
B - Waitrose	0 26	5.54	0.3	A
C - College Way West	0.16	4.08	0.2	А
D - College Way North	0.14	4.71	0.2	А

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	51	193	810	0 063	51	0.1	4.741	А
B - Waitrose	153	123	908	0.168	152	0.2	4.755	А
C - College Way West	115	28	1059	0.109	115	0.1	3.809	А
D - College Way North	82	112	917	0 090	82	0.1	4.309	А

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	61	232	787	0 078	61	0.1	4.957	А
B - Waitrose	182	147	893	0 204	182	0.3	5.062	А
C - College Way West	138	33	1056	0.130	137	0.1	3.920	А
D - College Way North	98	135	903	0.109	98	0.1	4.472	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	75	284	756	0 099	75	0.1	5.283	А
B - Waitrose	224	180	873	0 256	223	0.3	5.539	А
C - College Way West	168	41	1051	0.160	168	0.2	4.077	А
D - College Way North	120	165	884	0.136	120	0.2	4.711	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	75	284	756	0 099	75	0.1	5.284	А
B - Waitrose	224	181	873	0 256	224	0.3	5.544	А
C - College Way West	168	41	1051	0.160	168	0.2	4.078	А
D - College Way North	120	165	884	0.136	120	0.2	4.712	А



18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	61	232	787	0 078	61	0.1	4.963	А
B - Waitrose	182	148	893	0 204	183	0.3	5.073	А
C - College Way West	138	33	1056	0.130	138	0.2	3.923	А
D - College Way North	98	135	903	0.109	98	0.1	4.476	А

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	51	194	809	0 063	51	0.1	4.750	А
B - Waitrose	153	124	908	0.168	153	0.2	4.770	А
C - College Way West	115	28	1059	0.109	115	0.1	3.817	А
D - College Way North	82	113	916	0 090	82	0.1	4.315	А



With Dev 2027, AM

Data Errors and Warnings

Severity	Area	ltem	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	College Way / Site Access	Mini-roundabout		A, B, C, D	4.32	А

Junction Network Options

Driving side	Driving side Lighting		In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH mm)	Finish time (HH mm)	Time segment length (min)
D5	With Dev 2027	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Site Access		✓	91	100.000
B - Waitrose		~	71	100.000
C - College Way West		✓	126	100.000
D - College Way North		✓	45	100.000

Origin-Destination Data

Demand (PCU/hr)

			То		
		A - Site Access	B - Waitrose	C - College Way West	D - College Way North
	A - Site Access	0	0	91	0
From	B - Waitrose	0	0	67	4
	C - College Way West	18	108	0	0
	D - College Way North	0	10	35	0



		То								
		A - Site Access	B - Waitrose	C - College Way West	D - College Way North					
	A - Site Access	0	0	0	0					
From	B - Waitrose	0	0	0	0					
	C - College Way West	0	0	0	0					
	D - College Way North	0	0	0	0					

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Site Access	0.12	4.97	0.1	A
B - Waitrose	0 09	4.39	0.1	A
C - College Way West	0.13	3.85	0.1	A
D - College Way North	0 06	4.23	0.1	А

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	69	115	857	0 080	68	0.1	4.562	А
B - Waitrose	53	94	926	0 058	53	0.1	4.124	А
C - College Way West	95	3	1074	0 088	94	0.1	3.672	A
D - College Way North	34	94	928	0 037	34	0.0	4.026	А

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	82	137	843	0 097	82	0.1	4.726	А
B - Waitrose	64	113	914	0 070	64	0.1	4.232	А
C - College Way West	113	4	1074	0.105	113	0.1	3.746	А
D - College Way North	40	113	916	0 044	40	0.0	4.110	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	100	168	825	0.121	100	0.1	4.966	А
B - Waitrose	78	139	899	0 087	78	0.1	4.387	А
C - College Way West	139	4	1073	0.129	139	0.1	3.851	А
D - College Way North	50	139	900	0 055	49	0.1	4.230	А

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	100	168	825	0.121	100	0.1	4.967	А
B - Waitrose	78	139	898	0 087	78	0.1	4.388	А
C - College Way West	139	4	1073	0.129	139	0.1	3.851	А
D - College Way North	50	139	900	0 055	50	0.1	4.230	А



09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	82	138	843	0 097	82	0.1	4.729	А
B - Waitrose	64	113	914	0 070	64	0.1	4.234	А
C - College Way West	113	4	1074	0.105	113	0.1	3.750	A
D - College Way North	40	113	916	0 044	41	0.0	4.111	А

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	69	115	857	0 080	69	0.1	4.568	А
B - Waitrose	53	95	925	0 058	54	0.1	4.128	А
C - College Way West	95	3	1074	0 088	95	0.1	3.675	А
D - College Way North	34	95	928	0 037	34	0.0	4.029	А



With Dev 2027, PM

Data Errors and Warnings

Severity	Area	ltem	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms B and C have 88% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	College Way / Site Access	Mini-roundabout		A, B, C, D	4.65	А

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH mm)	Finish time (HH mm)	Time segment length (min)
D6	With Dev 2027	PM	ONE HOUR	17:00	18:30	15

 Vehicle mix source
 PCU Factor for a HV (PCU)

 HV Percentages
 2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Site Access		✓	38	100.000
B - Waitrose		✓	203	100.000
C - College Way West		✓	225	100.000
D - College Way North		✓	19	100.000

Origin-Destination Data

Demand (PCU/hr)

	То									
From		A - Site Access	B - Waitrose	C - College Way West	D - College Way North					
	A - Site Access	0	0	38	0					
	B - Waitrose	0	0	183	20					
	C - College Way West	76	149	0	0					
	D - College Way North	0	13	6	0					



	То									
		A - Site Access	B - Waitrose	C - College Way West	D - College Way North					
	A - Site Access	0	0	0	0					
From	B - Waitrose	0	0	0	0					
	C - College Way West	0	0	0	0					
	D - College Way North	0	0	0	0					

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Site Access	0 05	4.65	0.1	А
B - Waitrose	0 23	4.93	0.3	A
C - College Way West	0 23	4.42	0.3	А
D - College Way North	0 03	4.43	0.0	А

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	29	126	850	0 034	28	0.0	4.381	А
B - Waitrose	153	33	964	0.159	152	0.2	4.432	А
C - College Way West	169	15	1067	0.159	169	0.2	4.004	А
D - College Way North	14	169	882	0 016	14	0.0	4.149	А

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	34	151	835	0 041	34	0.0	4.492	А
B - Waitrose	182	40	960	0.190	182	0.2	4.630	А
C - College Way West	202	18	1065	0.190	202	0.2	4.170	А
D - College Way North	17	202	861	0 020	17	0.0	4.265	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	42	185	815	0 051	42	0.1	4.654	А
B - Waitrose	224	48	954	0 234	223	0.3	4.921	А
C - College Way West	248	22	1063	0 233	247	0.3	4.415	А
D - College Way North	21	247	833	0 025	21	0.0	4.434	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	42	185	815	0 051	42	0.1	4.655	А
B - Waitrose	224	48	954	0 234	224	0.3	4.926	А
C - College Way West	248	22	1063	0 233	248	0.3	4.417	А
D - College Way North	21	248	833	0 025	21	0.0	4.435	А



18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	34	151	835	0 041	34	0.0	4.496	А
B - Waitrose	182	40	960	0.190	183	0.2	4.637	А
C - College Way West	202	18	1065	0.190	203	0.2	4.176	А
D - College Way North	17	203	861	0 020	17	0.0	4.267	А

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Site Access	29	127	850	0 034	29	0.0	4.383	А
B - Waitrose	153	33	964	0.159	153	0.2	4.443	А
C - College Way West	169	15	1067	0.159	170	0.2	4.012	А
D - College Way North	14	170	881	0 016	14	0.0	4.154	А