

Former Shredded Wheat Factory, Broadwater Rd, Welwyn Garden City
(South Side)

Residential development

TRANSPORT ASSESSMENT

Prepared by: Entran Ltd

On behalf of: Metropolitan Thames Valley Housing

DATE: February 2021



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(South Side)

Residential development

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EXECUTIVE SUMMARY

- i. This Transport Assessment (TA) has been prepared by Entran Ltd in support of a hybrid planning application for residential development at South Side of the former Shredded Wheat factory site. The proposed development relates to phases 2 and 3 and will provide up to 721 residential dwellings.
- ii. Planning permission was granted in February 2019, subject to a range of conditions and obligations, for a comprehensive redevelopment of the wider site to create a mixed-use quarter. The approved planning application was supported by a Transport Assessment (TA) dated January 2018, prepared by Entran. The TA assessed the transport effects of the proposed development and suggested a range of transport improvement measures including extensive pedestrian and cycle facilities in Broadwater Road and Bridge Road.
- iii. This current planning application provides an uplift of up to 286 residential dwellings compared to the extant planning permission.
- iv. This TA has been prepared alongside a Transport Implementation Strategy which provides the opportunity to reduce reliance on the private car and seeks to promote sustainable travel choices to and from the site rather than merely assessing its impact.
- v. The site is very well placed to promote sustainable travel. A wide range of employment, retail, health, education and leisure facilities can be reached within walking and cycling distance of the site. In addition, a wide range of bus routes can be reached easily from the site. Welwyn Garden City rail station is immediately to the west of the site, reached via an existing footbridge over the railway. This is a good location to reduce reliance on the private car. The provision of a comprehensive mixed-use development further supports the objective to reduce the need to travel, especially by car.
- vi. The proposed development comprises an increase from 435 to, up to 721 new homes. The development includes car and cycle parking, access, landscaping and other supporting infrastructure.
- vii. Phase 2 (Full planning application) of the proposed development includes 185 residential car parking spaces comprising allocated residential spaces, dedicated visitor spaces and Car Club spaces across the Site. The car parking provision has been calculated to meet predicted demand. Car parking for Phase 3 (Outline planning application) will be provided on the basis of the same methodology.
- viii. The development provides a new Car Club; residents would be offered Car Club membership as part of the Residents' Travel Plan so that those households who do not own a vehicle will still have access to a vehicle as and when they may need one. The Car Club would be available to the wider community thereby reducing on-street parking pressure on the surrounding local roads. Secure cycle parking will be provided for every dwelling.
- ix. The development will be supported by a four-part Transport Implementation Strategy comprising a Framework Travel Plan (FTP), Construction Logistics Plan (CLP), Delivery & Servicing Plan (DSP) and Car Parking Management Plan (CPMP). Final versions of the CLP, DSP and CPMP will be prepared (prior to commencement and occupation respectively) in partnership with HCC and WHBC. Similar documents have already been submitted and approved in connection with Phase 1 which is under construction.
- x. A detailed assessment of vehicle trips has been carried out, comparing those associated with the approved scheme and those associated with the current proposals. This assessment has established that the forecast vehicle trips are slightly lower than those previously used to assess the operational capacity of the site accesses and the wider highway network. The result on the wider highway network will be broadly the same as the approved scheme. The same off-site highway mitigation measures will therefore be required.
- xi. The wider development will deliver a wide range of transport improvements. The internal layout of the scheme itself will provide a high quality, permeable environment for pedestrians and cyclists. This will include landscaped links and routes as well as new public realm.



- xiii. The wider development will deliver extensive improvement works to Broadwater Road and Bridge Road, reducing vehicle speeds and providing improved facilities for pedestrians and cyclists. The junction of Broadwater Road and Bridge Road will be re-modelled as an 'octobout' in line with the previously approved scheme.
- xiv. The footbridge over the railway will be refurbished and improved as part of the wider development and provided with a new, wider set of steps on the site side, together with a new passenger lift.
- xv. The wide range of highways and transport improvements will mitigate the effects of the additional travel demand generated by the development and will significantly enhance the sustainable travel options for Welwyn Garden City as a whole.



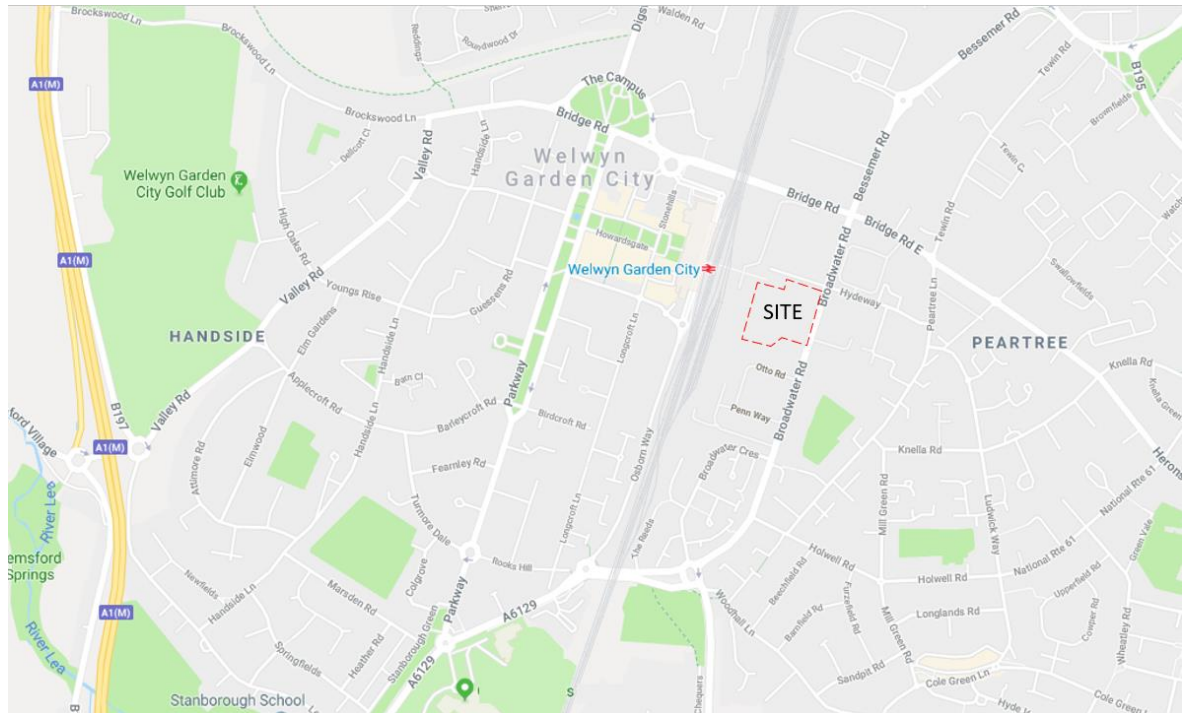
1. INTRODUCTION

- 1.1. This Transport Assessment (TA) has been prepared by Entran Ltd in support of a hybrid planning application for Phase 2 (Full) and Phase 3 (Outline) of the South Side of the former Shredded Wheat Factory site, to provide a residential development. Full details of the proposed development are contained in section 6 of this report.
- 1.2. Planning permission was granted in February 2019 by Welwyn Hatfield Borough Council (WHBC) for a mixed-use quarter to provide new homes, employment, art, health and community uses on the site of the former Shredded Wheat Factory in Welwyn Garden City (6/2018/0171/MAJ). The overall site is in two separate ownerships, divided north and south, either side of Hydeway. Phase 1 of the South side is already under construction. This new planning application relates only to the South Side phases 2 and 3.
- 1.3. For clarity, this report refers to the current application red line as 'the Site' (i.e. the South Side) and refers to the wider approved scheme as the 'wider site'. Where necessary, the northern part of the wider site is referred to as the North Side.
- 1.4. The Site falls within the jurisdiction of Welwyn Hatfield District Council (WHDC) who are the planning authority and Hertfordshire County Council (HCC) who are the local highway authority.
- 1.5. This TA has been developed following extensive discussions with the highway authority during the determination of the approved scheme; it takes account of the comments received as well as local and national policy and guidance.
- 1.6. Guidance published by the DfT and the DCLG in 2007 provided advice on the content and preparation of Transport Assessments and Transport Statements. It also assisted stakeholders to determine whether an assessment may be required and, if so, what the level and scope of the assessment should be.
- 1.7. Previous guidance on the assessment of traffic implications associated with development proposals was contained in the "Guidelines for Traffic Impact Assessment" published by the Institute of Highways and Transportation (IHT). Since the IHT guidelines were produced, there has been a significant change in Government policy and general guidance regarding improved sustainability in transport. The fundamental difference between TAs and the old TIAs is that TAs seek to influence modes of travel and assess person-trips rather than vehicle trips, whereas TIAs were based on the principles of "predict and provide" for the private car.
- 1.8. The 2007 document brought the Guidance on transport assessment up to date with these changes in Government policy, and expanded it to address the assessment of the potential implications of development proposals on the entire transport system.
- 1.9. In 2014 DCLG published a suite of Planning Practice Guidance including advice entitled "Travel plans, transport assessments and statements in decision taking". The 2007 guidance has been superseded by the PPG as current government guidance on the transport related effects of development, but many highway authorities still refer to it as useful advice on detailed matters of transport assessment.

2. SITE LOCATION AND DESCRIPTION

- 2.1. The proposed development Site is described as brownfield land and is located on the eastern edge of Welwyn Garden City's town centre on Broadwater Road. The Site is bounded by Hydeway to the north, Broadwater Road to the east, residential development including South Side Phase 1 to the south, and the East Coast Mainline to the west.
- 2.2. The application red line boundary is included as **Appendix A** and a location plan is included as Figure 2.1 below:

Figure 2.1 – Site Location



- 2.3. The wider site was previously occupied by the Nabisco Shredded Wheat Factory including some distinctive silos, which are listed buildings and the production building is also a Grade II listed building which has been closed since 2008. These are located on the North Side and fall outside the boundary of this planning application.

Means of access

- 2.4. The Site currently takes vehicular access from Broadwater Road by means of five existing dropped-crossing (haulingway) style accesses.
- 2.5. Within the North Site, a short spur road links to a footbridge that connects the site to the Railway Station and to the Howard Shopping Centre on Howardsgate.



3. RECENT PLANNING HISTORY

- 3.1. The Welwyn Hatfield District Plan was adopted by Welwyn Hatfield Borough Council (WHBC) in 2005. WHBC adopted a supplementary planning document in 2008 to guide the redevelopment of the former Shredded Wheat Factory site. The SPD sets out design guidance for the wider site in respect of, amongst other things:
 - Pedestrian network
 - Cycle routes
 - Public transport connections
 - Vehicular routes, and
 - Parking
- 3.2. WHBC's Draft Local Plan was submitted for examination in May 2017. The Local Plan Examination is currently in progress.
- 3.3. In 2015, Spen Hill Developments Ltd submitted a planning application for the redevelopment of the wider site. The scheme comprised 850 dwellings, a hotel and a range of employment, retail, health and community facilities. Planning permission was granted in August 2017 subject to a range of conditions and obligations, including the requirement for extensive off-site highway improvements.
- 3.4. In 2018 a planning application was submitted by The Wheat Quarter Limited (6/2018/0171/MAJ) for a comprehensive redevelopment of the wider site to create a mixed-use quarter comprising:
 - Up to 1340 residential dwellings, including 414 affordable dwellings;
 - 114 extra care homes
 - A new Civic Building including
 - Health uses
 - Community uses
 - Employment (office)
 - Retail
 - Food and beverage
 - Change of use of the Grade ii listed building to deliver employment space
 - International Art centre
 - Gym
 - Creche
 - Network Rail TOC Building
- 3.5. The South Side contained only residential dwellings, consisting of 643 apartments with phases 2 and 3 accounting for 435 of these apartments.
- 3.6. Planning permission was granted in February 2019 subject to a range of conditions and obligations, including the requirement for the previously agreed off-site highway improvements.
- 3.7. The approved planning application was supported by a Transport Assessment (TA) dated January 2018, prepared by Entran. The TA assessed the transport effects of the proposed development and suggested a range of transport improvement measures including extensive pedestrian and cycle facilities in Broadwater Road and Bridge Road west.
- 3.8. During the determination period Entran produced a series of Technical Notes in response to queries raised by the local highway and planning authorities. This TA takes account of the methodologies used in the 2018 TA, as well as matters agreed in each of the Technical Notes.



4. LOCAL HIGHWAY NETWORK

- 4.1. Broadwater Road forms part of the A1000 which links the A1(M), to the north of Welwyn Garden City, to the A414 and Hatfield to the south, before continuing on to north London.
- 4.2. Broadwater Road has a width of approximately 8.0m and is subjected to a 30mph speed limit, which is enforced by speed cameras. There are a number of roads joining Broadwater Road which provides access to residential areas; there are also a number of employment sites with direct access on to Broadwater Road.
- 4.3. Bridge Road is a dual carriageway that runs from the east to west, with access to the town centre via Hunters Bridge which crosses the railway and is subjected to a 30mph speed limit. The width of the carriageway varies from 14m to 15.5m as the number of lanes changes from single to two lanes in either direction. There is a central reserve for the majority of its length.
- 4.4. The junction between Bridge Road and Broadwater Road is a four-arm signal controlled junction with two approach lanes on Bridge Road east and three approach lanes on the other three arms. The signals include uncontrolled pedestrian crossings with central refuges on each arm.



5. LOCAL TRANSPORT NETWORK

Pedestrian movement.

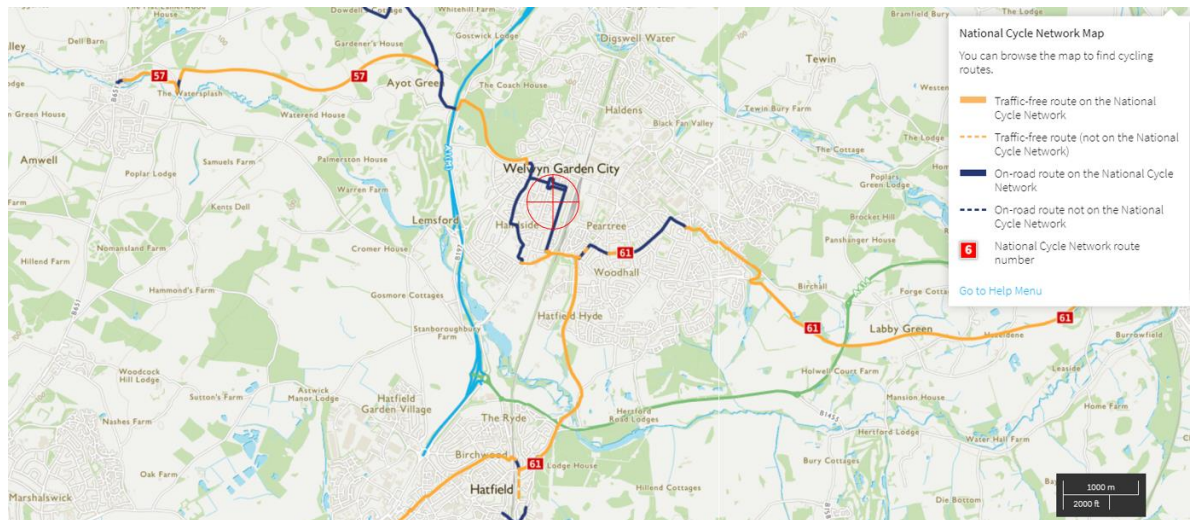
- 5.1. Acceptable journey distances on foot vary depending on the purpose of the journey, the environment in which the journey is taking place and of course the individual walking. Prior to being superseded by the National Planning Policy Framework (NPPF) PPG13 suggested that walking offers the greatest potential to replace short car trips for journeys less than 2km. The IHT guide 'Providing for Journeys on Foot' suggests that for journeys to work a desirable walking distance would be 500m, an acceptable walking distance would be 1km and the preferred maximum walking distance would be 2km, in line with the PPG13 advice.
- 5.2. The site is accessible to the town centre and surrounding areas and facilities through an extensive footway network, which includes the footbridge linking Hydeway to the railway station. The town centre and railway station are both within approximately 200m from the site, which is within the desirable walking distance for commuting and shopping.
- 5.3. There are footways along both sides of Broadwater Road, one with a grass verge between the carriageway and the footway, with the width varying from approximately 3.2m to 4m.
- 5.4. Bridge Road has footways along both sides of the carriageway, with the width varying from approximately 2.6m to 2.9m. The footways continue along Bridge Road East, although the width varies from approximately 2.3m on the north side and 3.9m on the south side.
- 5.5. Bessemer Road has footways of between 2.6m and 2.9m along both sides of the carriageway.
- 5.6. There are footways along both sides of Hydeway, with widths of between 2.4m and 2.5m.
- 5.7. The footbridge which provides access to the railway station has a width of approximately 3m and is currently accessed on the site-side via a flight of steps, restricting access for wheelchair users and, making access for those with pushchairs difficult.
- 5.8. There are currently two signal-controlled pedestrian crossings within 200m walk of the site providing access across Broadwater Road (south of Hydeway and north of Otto Way) as well as uncontrolled crossings at the junction between Broadwater Road, Bessemer Road and Bridge Road. All formal crossing points, whether controlled or uncontrolled, have flush dropped kerbs and tactile paving.
- 5.9. Overall, the footways in the area around the site are generally in a reasonable state of repair and street lighting is provided.
- 5.10. Figure 5.1 below shows five, ten and fifteen minute walking isochrones from the site to the surrounding area. This demonstrates that a wide range of facilities and transport hubs are within easy walking distance from the site. This includes the Howards Centre, railway station and bus station. Additional retail, food and drink, pharmacy and health facilities are within easy walking distance as well as education and employment.

Figure 5.1 – Pedestrian isochrones.

- 5.11. It is evident that a comprehensive range of retail, employment, education, health and leisure facilities are within easy walking distance of the site, further reducing reliance on the car for short journeys. The site is extremely well located to promote travel on foot.

Cycle movement.

- 5.12. It is widely recognised that cycling has the potential to substitute for short car trips, particularly those that are less than 5km. The site lies within 5km of every point in Welwyn Garden City and as such all local facilities, such as schools, leisure and employment sites are all within an acceptable cycling distance.
- 5.13. Figure 5.2 below shows the site's proximity to the National Cycle Network. This demonstrates that a series of traffic-free (green) and lightly trafficked (purple) cycle routes provide access to a wider catchment by bike. The Great North Way, National Cycle Network Route 12 (NCN12) runs from Enfield Lock in north London to Spalding via Stevenage and Peterborough. NCN12 generally leads north to south and connects Route 61 (Cole Green Way) & 57; which lead east towards Hertford and west towards Harpenden respectively. The site benefits from the National Cycle Network as it is directly to the east and leads to Route 61 & 12.

Figure 5.2 – Proximity to National Cycle Network

- 5.14. Hydeway (west) to the north of the Site is signed as an advisory cycle route to the station. The 'footway' on the southern side of Hydeway is signed as a cycle route. This is somewhat ambiguous as it should be signed as a shared cycleway/footway.
- 5.15. Cole Green Way runs from Hertford to Welwyn Garden City along the path of a former railway and caters for cyclists, horse riders and walkers. The 6km path is popular with cyclists and walkers with much of the surface being well maintained.

Figure 5.3 – Image of Cole Green Lane between Welwyn Garden City and Hertford

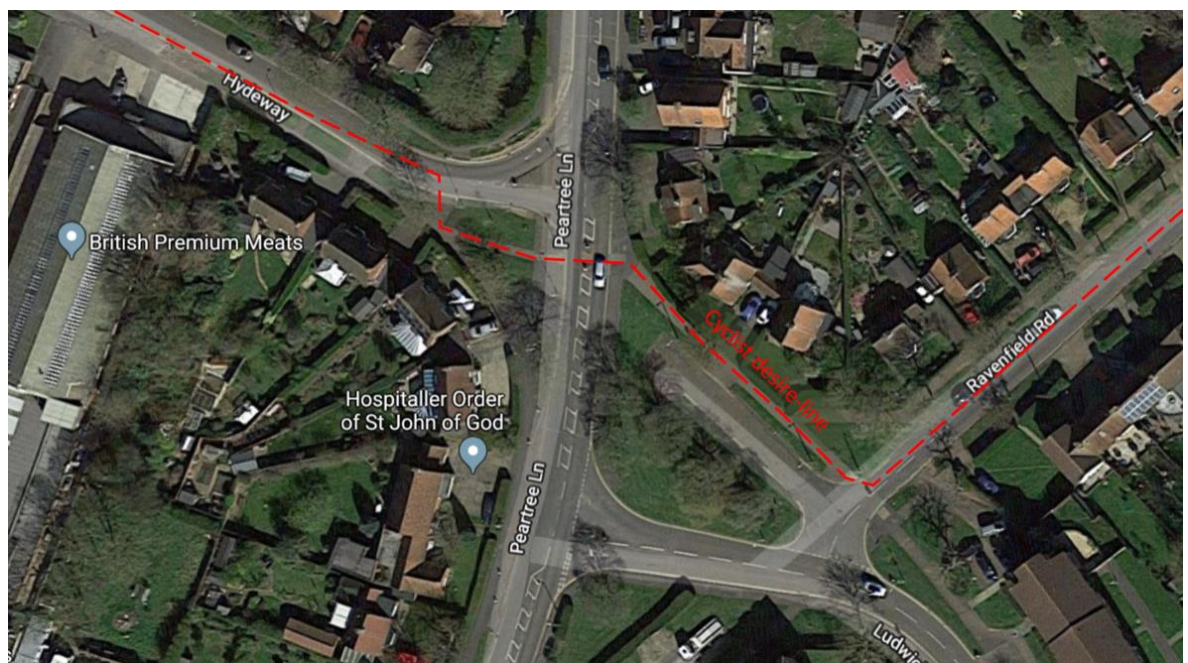
- 5.16. An extract from the WHBC Cole Green Way cycle map is shown in figure 5.4 below with the development site location indicated.

Figure 5.4 – Extract from Cole Green Way cycle map



- 5.17. This plan shows the existing traffic-free cycle routes in Welwyn Garden City and also shows a proposed cycle route running along the western side of Broadwater Road. This is proposed as part of the consented development on the wider site.
- 5.18. Additional signage directs cyclist from the junction with Broadwater road, east along Hydeway (east) towards Bridge Road East. We understand from local ward Councillors that this results in cyclists using the footway between Peartree Lane and Ravenfield Road. This is illustrated in Figure 5.5 below.

Figure 5.5 – Cyclist desire line from Hydeway east





- 5.19. The combination of the National Cycle Network, local cycle routes, proposed routes and lightly trafficked residential roads make the proposed development site a suitable location to promote travel by bike.

Public transport

- 5.20. The nearest bus stops are located on Broadwater Road, Bridge Road and Osborn Way, which is the local bus station. The entire Site is within 200m of six bus stops; these are served by over 15 bus services in total. Bus stop on Broadwater Road are served by the 601 route, with the majority of other services available from the bus stops on Bridge Road. The bus services, duration and frequency can be seen on table 5.1. Full, current bus timetables can be found at arrivabus.co.uk, centrebus.info, greenline.co.uk, tfl.gov.uk and unobus.info.

Table 5.1 - Bus route summary, Bridge Road and Broadwater Road

No	Details	Duration	Frequency
201	Welwyn Garden City – Welham Green	0923 – 1004	1 trip per day (Tuesday and Friday)
203	Welwyn Garden City – Watton at Stone	1245 - 1323	1 trip per day (Thursday only)
204	Welwyn Garden City – Panshanger Circular	1045 - 1424	2 trips per day (Tuesday, Thursday and Friday)
206	Welwyn Garden City – Panshanger Circular	0845 - 1505	2 trips per day (Tuesday, Thursday & Friday)
230	Welwyn Garden City – At. Albans	1032 - 1505	2 trips per day (Only Wednesday)
242	Welwyn Garden City – Waltham Cross	0814 - 1840	2 hours
301	Hemel Hempstead - Stevenage	0547 - 2348	20 – 30 mins
314	Welwyn Garden City – Hitchin	0740 - 0825	8 trips per day
315	Kimpton - Welwyn Garden City	0700 - 1825	4 trips per day
366	Luton – Welwyn Garden City - Hatfield	0606 - 1907	1 per hour
388	Herford - Welwyn Garden City - Stevenage	0637 - 0825	1 trip (Schooldays only)
401	Welwyn Garden City – Panshanger Circular	0610 - 1950	20 – 30 mins
403	Woodhall and Haldens Circular	0721 - 1904	30 – 40 mins
404	Welwyn Garden City – South Hatfield	0900 - 1755	2 hours
405	Welwyn Garden City – South Hatfield	1000 – 1655	2 hours
601	Borehamwood – St Albans - Welwyn Garden City	0616 - 2026	20 – 30 mins
653	Welwyn Garden City – New Greens	0548 - 2247	20 mins
724	Heathrow Airport - Harlow	0315 - 2209	20 -30 mins

Table 5.2 - Bus route summary, additional Bus Station services

No	Details	Duration	Frequency
215	The Frythe – Welwyn Garden City	1015 - 1233	2 services per day (Tuesday, Thursday and Friday)
302	Welwyn Garden City – Hemel Hempstead	0632 - 2049	30 mins (No services between 0900 – 1500)
314	Welwyn Garden City – Westmill Estate	1050 - 1650	2 services per day (Thursday and Friday)
W4	Welwyn Garden City - Meppershall	1215 - 1322	1 service per day (Thursday only)

- 5.21. A review of the geographic locations of the towns and villages served by the bus routes in Tables 5.1 and 5.2 shows that 14 routes serve locations to the north and south of Welwyn Garden City while 12 routes serve locations to the east and west.
- 5.22. It is clear that the Site is well served by frequent bus services which are located close to the Site. The services in table 5.1 connect with the bus station allowing passengers to connect to the wider local bus network. The bus station is less than 500m (5-6 minutes' walk) from the site.
- 5.23. Works to improve the Bus station were completed in May 2018. The new bus station layout segregates pedestrians and buses in order to improve safety and ensure ease of access for all bus passengers. A custom designed bus shelter has been provided for all six bus stops and contains seating, lighting and bus information.

Figure 5.6 – Street view of the newly improved bus station

Rail

- 5.24. The nearest rail station is Welwyn Garden City, located to the west of the site and accessed via the footbridge which connects the site to the town centre. The station is served by the Great Northern Route (southern end of East Coast Main Line). Welwyn Garden City train station benefits from a bus terminus, taxi rank and secure, covered cycle parking. Trains from Welwyn Garden City provide a direct link to London King's Cross station to the south and Peterborough to the north. The journey times to main destinations can be found in Table 5.3.

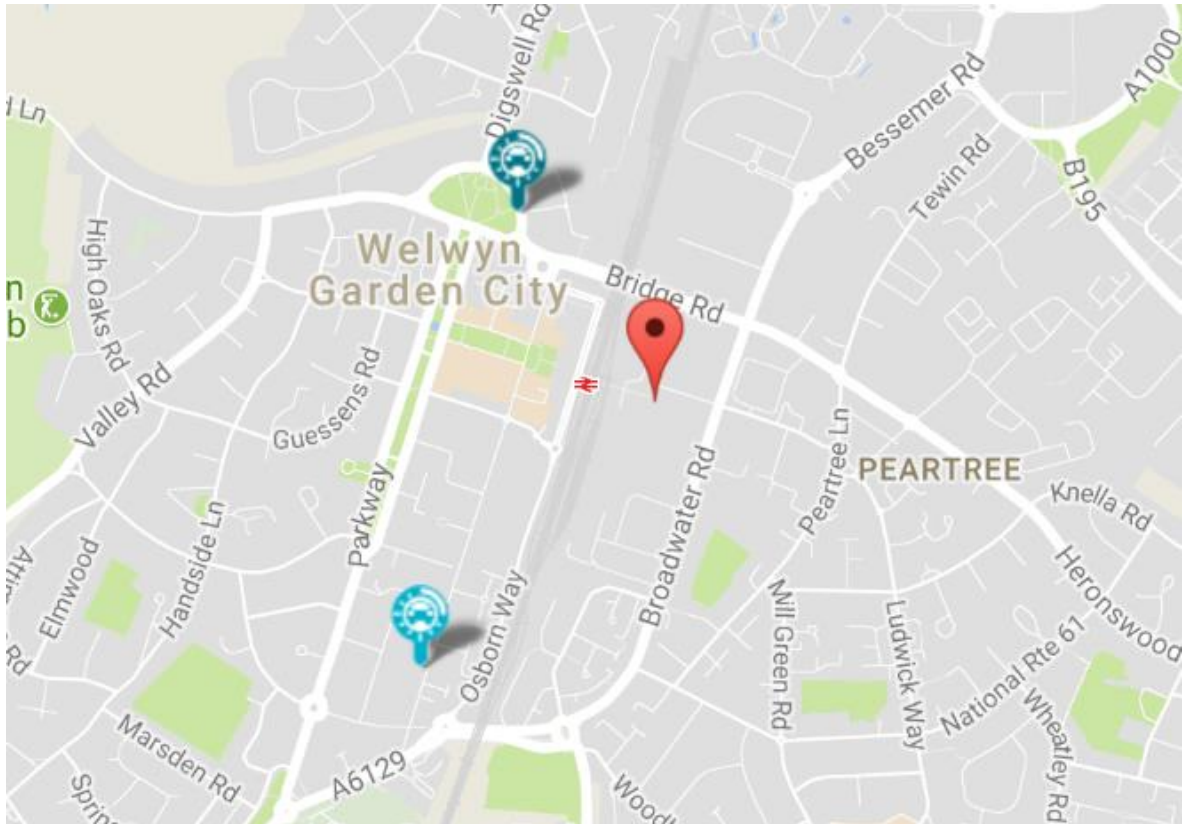
Table 5.3 - Train journeys from WGC train station

Destination	Duration
London King's Cross	23 mins
Moorgate	47 mins
Cambridge	57 mins
Peterborough (via Stevenage)	1hr 4mins
Stevenage	10 mins
Royston	35 mins

Car Clubs

- 5.25. There are two Car Clubs operating in the Welwyn Garden City area including E-Car and Hiya Car. The closest of these is the E-Car space in the WHBC car park, the second is a Hiya car space is on Longcroft Lane, 1.1km (15 minutes' walk) from the site.

Figure 5.7 – Existing Car Club locations



Section conclusion

- 5.26. It is clear that ample opportunities exist to travel to and from the site by foot, by bike, or using local public transport. Some areas have been found that would benefit from improvements for pedestrians and cyclists but overall this is a good site to promote sustainable travel and reduce reliance on the private car.

6. DEVELOPMENT DESCRIPTION AND MEANS OF ACCESS

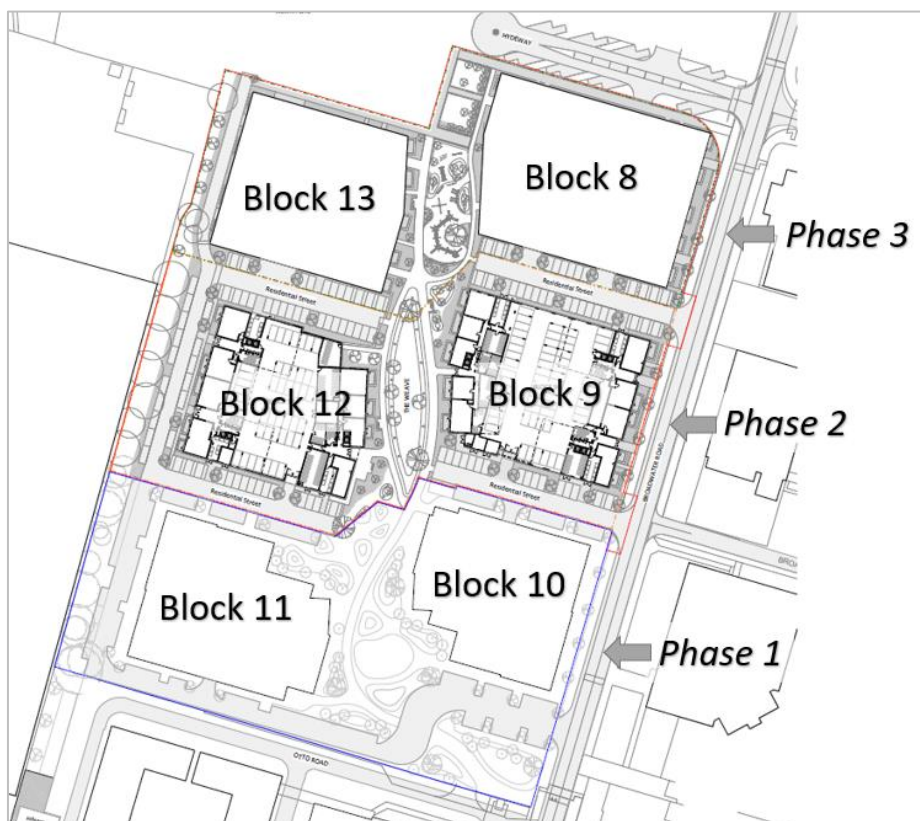
- 6.1. The Hybrid planning application comprises: Full planning application for residential development (Use Class C3) with associated car parking, access and landscaping; and Outline planning application for residential development (Use Class C3) with associated access (all matters reserved except for access).
- 6.2. Phase 2 seeks Full planning permission for 317 residential dwellings and Phase 3 seeks Outline planning permission for up to 404 residential dwellings. In total, planning permission is sought for up to 721 residential dwellings; an uplift of 286 residential dwellings compared to the extant planning consent for these phases.
- 6.3. The proposed residential accommodation is summarised in Table 6.1 below, showing the unit mix per Block, and as a whole for the two phases. The numbers for Blocks 8 and 13 are illustrative as Outline planning permission is being sought for Phase 3.

Table 6.1 – Summary residential schedule of accommodation

Units	B8	B9	B12	B13	TOTAL
Studio/1 bed	81	65	60	66	272
2 bed	129	93	91	111	424
3 bed	11	4	4	6	25
TOTAL	221	162	155	183	721

- 6.4. The proposed schedules of accommodation are included as **Appendix B**. A set of architects' plans are included as **Appendix C**.

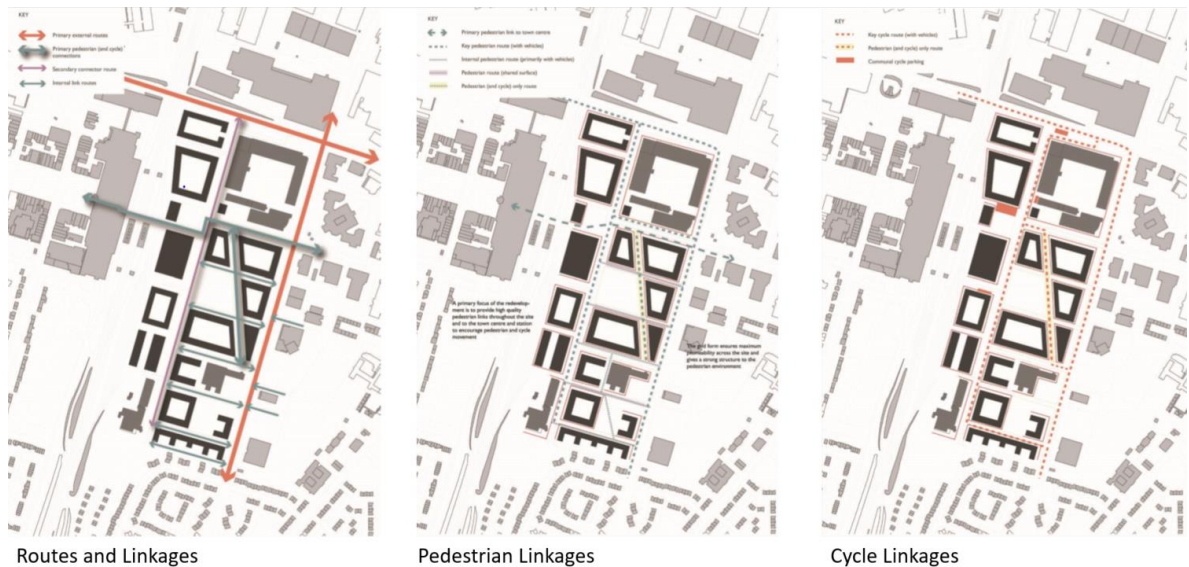
Figure 6.1 – Site layout reference plan



Movement strategy

- 6.5. The adopted Broadwater Road West SPD provides guidance on the approach to access, linkages and routes into and through the site, Figure 6.1 below shows the masterplan pedestrian and cycle links. This includes new or improved pedestrian and cycle links between the site and the town centre, across the railway, along Bridge Road and along Broadwater Road. These principles informed the movement strategy for the approved wider site, and continue to inform the proposed development.

Figure 6.2 – SPD routes and linkages diagram



Means of access

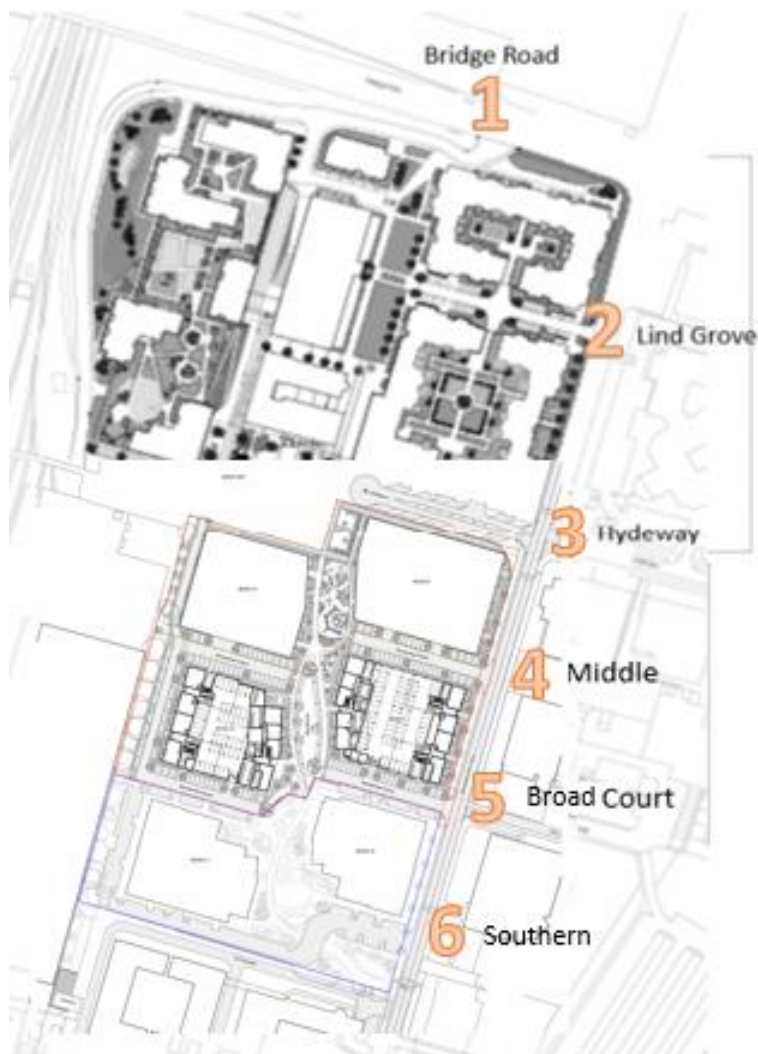
- 6.6. The movement strategy for the scheme is guided by the SPD and the previous planning permissions. The central core is to be developed as a pedestrian realm with access for cyclists. Cycle parking locations have been chosen so that cyclists can park their bikes close to the entrance of whichever building they are visiting. As a general principle, movement corridors within these core areas are shared by pedestrians and cyclists.
- 6.7. Vehicular access to the Site is gained from Broadwater Road via a number of new cul-de-sac roads. The junction arrangements were agreed with HCC and WHBC as part of the previous applications. The agreed junction arrangements have therefore been retained as part of the current proposals. These predominantly shared space cul-de-sacs provide direct access to the parking areas but maintain the integrity of the pedestrian and cycle areas in the heart of the development.

- 6.8. For ease of reference, the site accesses to the wider site are summarised below in Table 6.2 and illustrated in Figure 6.2.

Table 6.2 – Site accesses

Junction	Site	Access
1	North	Bridge Road
2	North	Lind Grove
3	North	Hydeway
4	South	Middle
5	South	Broad Court
6	South	Southern

Figure 6.3 – Wider site access reference names and numbers



- 6.9. The Site accesses are described in greater detail below.



Hydeway

- 6.10. The extant planning permission provided access into the Site (Block 8) from Hydeway. However, the revised proposals for Phase 3 remove that means of access into the Site.

Middle Access

- 6.11. The middle access from Broadwater Road, will be a priority junction with Broadwater Road. The site access arm will be raised to provide a shared surface within the site.
- 6.12. The junction will provide access to a limited amount of surface level car parking and the undercroft parking beneath Block 8.

Broad Court

- 6.13. The site access immediately opposite Broad Court will be a priority junction with Broadwater Road. The site access arm will be raised to provide a shared surface within the site.
- 6.14. The junction will provide access to a limited amount of surface level parking and the undercroft parking beneath Block 10 (Phase 1) and the proposed block 9.

Southern access

- 6.15. The Southern Access into the proposed development from Broadwater Road will be a raised table priority junction, with Broadwater Road forming the main arms. The access road into the site will continue as a shared surface although a separate footway/cycleway will be provided adjacent to it, providing direct access into the south site's central pedestrianised landscape area.
- 6.16. The junction will provide access to a limited amount of surface level car parking as well as the undercroft parking beneath block 11 (Phase 1) which is currently under construction and the proposed blocks 12 and 13.

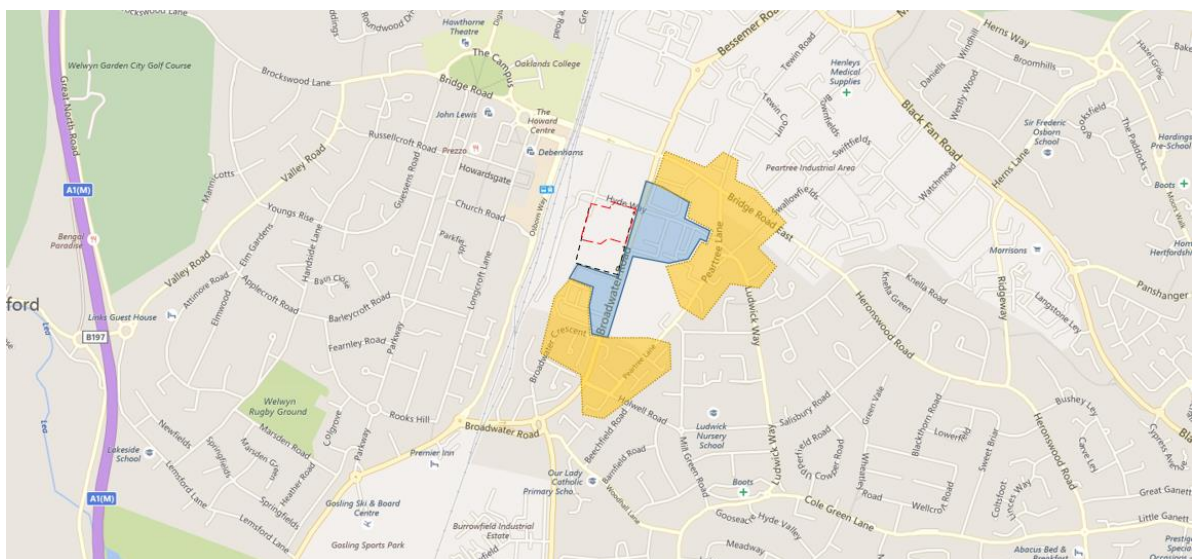
7. PARKING

- 7.1. As part of the Transport Assessment for the approved development, Entran produced a technical note (TN4) explaining the parking strategy for the wider development. That technical note examined WHDC parking standards (including zonal approach), the objectives of the Framework Travel Plan, the differentials between the residential parking demand and commercial parking demand and the need for a Parking Management Plan.
- 7.2. The general principles of the approved parking strategy have been followed for this new proposal; however, the approach to residential car parking better reflects the new unit mix and the effects of Car Club membership on vehicle ownership.

Parking need and harm

- 7.3. If a development in an inaccessible location provides less parking than it *needs* then the residents' ability to travel would be limited, potentially resulting in social exclusion. That is not the case here. The accessibility audit described in Section 5 demonstrates that residents in the proposed development would have a genuine choice of modes of travel. These residents would not be reliant on a private car to travel to work, education, leisure, shopping or other journeys. The provision of a new Car Club as part of this development means that those residents who choose not to own a car would still have access to one as often as they like. (This is described further below). The issue of parking 'need' is fully addressed by the proposed development.
- 7.4. In most cases, if a development provides insufficient parking then vehicles may be displaced onto the surrounding highway network resulting in *harm* to the free flow of traffic or the amenity of local residents. In this instance, however, the residential roads surrounding the site are either privately maintained or covered by comprehensive, enforceable waiting restrictions. Figure 7.1 below shows 200m and 500m walking routes from the site. The existing waiting restrictions are considered sufficient to prevent any effect on the surrounding residential roads, however, the extant consent is subject to a S106 obligation to fund pre and post-occupation parking studies and to fund any necessary traffic regulation orders (TROs) to reinforce the on-street waiting restrictions surrounding the wider site. This addresses the issue of harm.

Figure 7.1 – Side roads within 200m and 500m walking distance from Site





Parking Strategy

- 7.5. The development has been designed from the outset to reduce reliance on the car, to capitalise on the Site's excellent location and to promote sustainable travel choices for both residents and visitors. The proposed development is supported by a comprehensive Travel Plan which sets out ambitious targets for walking, cycling and public transport use, and includes a range of infrastructure and management measures to achieve those targets. The residual 'essential' car journeys have been assessed and accommodated. The site is very well placed for people to live and work here without using a car. Indeed, the high level of Car Club provision means that residents can quite easily live here without owning a car, but still have access to one as and when they might need it for those essential journeys.
- 7.6. WHBS's parking standards are set out in Welwyn Hatfield District Local Plan Review – Car Parking Standards (2004) and the Interim Policy for Car Parking Standards (2014). The standards are subject to zonal areas and are guidelines rather than maximum or minimum standards. The Interim Policy states that parking may be provided above or below the guideline figures as long as information is submitted to justify the level of provision. The Site is located within Zone 2.
- 7.7. A detailed review of Census data for the Peartree area indicates an average vehicle ownership per household in the region of 0.6 per dwelling. This represents unrestrained vehicle ownership so it is reasonable to apply a level of reduction to the guideline resident's parking standards. Visitor and car club spaces will be provided in addition to this number.

DCLG research

- 7.8. In 2007 the then DCLG commissioned the research paper 'Residential Car Parking Research' which was used to inform PPS3. Whereas PPS3 has been superseded by NPPF this research document is very useful in providing an empirical background to increases or decreases in parking demand depending on proportions of allocated or unallocated spaces, or mixes of unit sizes and tenure. This is discussed below.
- 7.9. The DCLG research paper shows that if all parking spaces are allocated to individual dwellings then demand for parking spaces increases. This is, in part, a result of parking spaces being allocated to households who do not own a vehicle. The Census data showed that around 40% of all households living in flats in the Peartree ward had no vehicle. That figure is for households with no structured Travel Plan in place, and no easy access to Car Club vehicles.
- 7.10. The lowest parking demand is achieved by having all spaces unallocated (i.e. first come, first served) but this is unpopular with some housing developers and is not accepted by some housing associations. The solution is to allocate parking spaces to households rather than to properties. This simply means that a parking space is available for the exclusive use of a household upon request, usually for a fee. This way, households without vehicles are not allocated parking spaces unnecessarily. Such a system requires a management company involvement but this is usually possible where flats are rented or leasehold as in this case.



Car Clubs

- 7.11. CoMoUK is an independent body which promotes shared mobility including car clubs, 2+ sharing, bike sharing and taxi sharing. Part of CoMoUK's work is research, best practice and technical advice. They state that on average one Car Club vehicle removes the need for between 10 and 20 private parking spaces.
- 7.12. Recent developments in Hertfordshire which have included Car Clubs have suggested that each Car Club space would equate to at least 6 car parking spaces. This is well below the advice from CoMoUK but still demonstrates the benefits of providing Car Club spaces rather than allocated car parking spaces. Each Car Club spaces therefore equates to anything from 6 to 20 residential parking spaces.
- 7.13. The development will deliver a new community Car Club with a range of spaces across the Site, including electric vehicle charging points (EVCP). Three Car Club operators have reviewed the proposed development, assessed the accessibility of the area and calculated the viability of a Car Club in this location. They have confirmed they would be pleased to provide new Car Club vehicles as part of the transport strategy for this residential development. The decision as to which company will operate the Car Club will be down to a commercial decision by the developer. The obligation to provide the Car Club will fall to the developer who will be required to let a contract with a commercial operator which would be expected to include:
- Free 3 year membership for new residents providing access to cars on site, the rest of Hertfordshire and the UK ;
 - First car to be delivered by first occupation;
 - Bespoke marketing material and membership certificates;
 - Briefing of sales staff at the development on the car club and attendance at promotional events;
 - 24/7 customer service team;
 - 24/7 booking system including mobile booking site (IOS and Android) and iPhone app;
 - Vehicle insurance;
 - Vehicle maintenance; and
 - Creation of reports and statistics for the developer and Council.
- 7.14. This would be fully funded by the developer at no expense to the new occupiers. Importantly, the Car Club would also be available to local residents in the area thereby reducing parking demand beyond the development site itself. Further details of the Car Club are contained in the Framework Travel Plan.
- 7.15. The provision of the Car Club will be secured by appropriate planning condition.
- 7.16. In accessible areas Car Clubs allow residents who only require occasional use of a vehicle to make the choice not to own a vehicle themselves. Equally, many two-car households only use 1.1 cars on a regular basis so the provision of a Car Club allows them to own a single vehicle and use the Car Club as often as they like on a pay-as-you-go basis.



Residential car parking

- 7.17. The on-site Car Club will significantly reduce the private residential car parking demand, whilst still allowing residents the ability to use a car for those journeys where they cannot, or choose not to walk, cycle or use public transport. The approved development included a parking strategy based on allocated residents' parking provision at a rate 40% below the guidelines, but with Car Club and Visitor spaces in addition to that number. This is important because the Council's adopted car parking standards are inclusive of all visitor parking.
- 7.18. For the proposed development, the ratio of parking spaces for each unit size has been reviewed. The same overall principles as the approved scheme have been applied but the ratios differ slightly. This is shown in Table 7.1 below:

Table 7.1 – Approved and proposed parking ratios (residents' parking)

	Guideline	Approved allocated	Proposed allocated	Car Club	Vis	Provision
Studio	0.75	0.48	0.40	0.02	0.08	0.50
1-bed	0.75	0.48	0.40	0.02	0.08	0.50
2-bed	1.00	0.63	0.53	0.02	0.08	0.63
3-bed	1.50	0.93	0.80	0.02	0.08	0.90

- 7.19. When these are applied to the proposed residential unit mix set out in Table 6.1, the resultant car parking demand is as shown in Table 7.2 below. It should be noted that the numbers for Blocks 8 and 13 are illustrative as Outline permission is being sought for Phase 3.

Table 7.2 – Residential car parking demand, phases 2 and 3.

Units	B8	B9	B12	B13	
Studio	32	26	24	26	108
1 bed	0	0	0	0	0
2 bed	68	49	48	59	225
3 bed	9	3	3	5	20
Allocated	109	78	75	90	353
Visitor	18	13	12	15	58
Car Club	4	3	3	4	14
Total	132	94	91	108	425

- 7.20. The proposed development of the South Side phases 2 and 3 will therefore include a total of 185 residential car parking spaces for Phase 2 with an illustrative total of 425 spaces, including 14 Car Club spaces (equivalent to at least 84 allocated spaces) and 58 spaces for visitors. When these are taken into consideration the total residential car parking provision would be equivalent to an average of approximately 0.59 parking spaces per dwelling.
- 7.21. It is important to note that the South Side is a comprehensive development by a single developer/operator. The total parking provision for Phases 1, 2 and 3 would be 576 spaces for (up to) 929 flats. That equates to an average of 0.62 spaces per dwelling. Full car parking calculations are included as **Appendix D**.



Parking space details

- 7.22. All standard car parking spaces for Phase 2 have been designed to be a minimum of 2.4m x 4.8m. Those spaces designed to be suitable for disabled drivers have an additional 1m length and 1.2m width although these areas may be accommodated in the overall aisle width where appropriate. All aisles are a minimum of 6.0m wide where a vehicle is required to reverse into them.
- 7.23. 20% of the spaces will be provided with electric vehicle charging points (EVCP). Where practicable, a further 20% will have passive EVCP provision.
- 7.24. Undercroft residential parking areas will have gates set back from the carriageway. These will be electronically operated either by keypad or transponder.
- 7.25. Parking for Phase 3 will be designed along the same principles.
- 7.26. Vehicle swept path analyses demonstrating the operation of the Phase 2 car parking areas are included as **Appendix E**.

Cycle parking provision

- 7.27. Cycle parking provision for the proposed development will be provided in accordance with WHBC parking standards.
- 7.28. Cycle parking will be provided for the proposed new homes at a ratio of one space per dwelling. The total residential cycle parking provision across phases 2 and 3 will therefore be a minimum of 721 spaces (based on the illustrative scheme for Phase 3). In line with local and national guidance the cycle parking has been disaggregated into smaller secure cycle stores close to the residential cores. Best practice suggests that smaller stores are more secure and more likely to be used. The decision to place them next to the residential cores not only makes the journey between store and apartment shorter, it also means that the residents are more likely to be sharing the cycle store with immediate neighbours and those who they meet on a daily basis. This also adds to a feeling of security and increases the usage of the cycle stores.
- 7.29. All cycle stores will be secure and well-lit. Figure 7.2 below is an extract from the Design and Access Statement and illustrates the disaggregation of residential cycle parking in Blocks 9 and 12 (Phase 2). The same principles will be applied to Phase 3.

Figure 7.2 – Residential cycle parking locations (marked orange)





8. FRAMEWORK TRAVEL PLAN

- 8.1. As stated in the introduction, this TA has been developed to seek to influence modes of travel to the proposed development rather than merely predicting travel patterns and providing mitigation.
- 8.2. The development will be supported by a four-part Transport Implementation Strategy (TIS) comprising:
- Framework Travel Plan;
 - Delivery and Servicing Plan;
 - Construction Logistics Plan;
 - Car Parking Management Plan
- 8.3. These are described in the following chapters.
- 8.4. The development will be supported by a Framework Travel Plan (FTP) for residents, staff and visitors. The full FTP has been submitted in support of this application and is summarised below.
- 8.5. The development proposals present an opportunity for the FTP approved as part of the consented scheme to be reviewed and updated in accordance the DCLG Planning Practice Guidance note entitled “Travel plans, transport assessments and statements in decision taking” (2014).
- 8.6. The FTP provides a framework against which individual travel plans will be prepared for the residential element of the scheme. The provision of a FTP at the planning stage therefore secures the necessary obligations and procedures whilst allowing the individual TPs to be tailored to the needs of the development as it progresses. The detailed Travel Plan for the South Side Phase 1 has already been submitted and approved by WHBC. The detailed Travel Plan for Phases 2 and 3 will follow the same principles and go further in strengthening the sustainable travel options across the site.
- 8.7. The updated FTP includes an audit of sustainable travel options available to this site. It also includes details of mode-share targets following the implementation of the proposed development.
- 8.8. The FTP sets out clear objectives and targets and then lists a range of proposed measures. The measures are described as follows:
- **Hard measures** – these are infrastructure provision or improvements;
 - **Soft measures** – these are management measure, incentives, marketing initiatives etc.;
 - **Secured measures** – these are either existing measures or those to be delivered by the development;
 - **Potential measures** – these are an ‘arsenal’ of measures available to the TP Co-ordinator if required, to be chosen according to survey feedback so that resources can be targeted towards those measures found to be most effective.
- 8.9. The FTP includes an action plan with a clear schedule of surveys, monitoring and reviews. It also explains how the FTP can be secured and enforced.
- 8.10. The TP will play a valuable role in supporting the South side’s sustainability concepts and extend them to the way in which people travel to, from and within Welwyn Garden City.
- 8.11. The proposed development will provide appropriate infrastructure to encourage sustainable travel and will also provide information and incentives where practicable.
- 8.12. The effects of travel choices on our environment, our health and our quality of life are well documented. Sources describe how increases in road traffic have produced unsustainable levels of congestion and pollution. The effects can be felt at a local level through poor air quality, noise and busier roads and at a global level through suggested linkages to climate change. Journeys by road are becoming slower and more unreliable causing problems for business and stress to drivers.



- 8.13. Until 2020 there had been a significant increase in the proportion of individuals travelling to work by car. Over 80% of car journeys to work in Hertfordshire used to be driver only, but this is changing. The recent travel restrictions resulting from the Coronavirus pandemic have resulted in a significant increase in flexible working arrangements that are likely to influence future working arrangements and travel choices. Even a small modal shift in home-work-home journeys away from the car would result in a considerable reduction in traffic congestion at peak times.
- 8.14. Travel planning must be realistic and should not expect to remove car usage altogether. Instead, an effective travel initiative will maximise the use of sustainable travel to achieve more sensible and appropriate use of the private car. If every car commuter used an alternative to the car on just one day a week, car usage levels for commuting would be reduced by as much as 20% immediately, with commuter parking requirements also reduced by up to 20%. In an accessible location such as the Wheat Quarter, however, low-car or car-free housing is a realistic prospect.

Infrastructure

- 8.15. A key element of the proposed development is the introduction of appropriate infrastructure to encourage sustainable travel.
- 8.16. The Site is already highly accessible on foot, by bike and by bus and rail. The transport infrastructure surrounding the Site lends itself to encouraging these modes of travel. The development has therefore been designed to incorporate direct segregated pedestrian access into the site, and to provide secure cycle parking spaces for each dwelling.
- 8.17. In addition, as part of the wider consent, improvements will be made to the pedestrian realm on Bridge Road and Broadwater Road as well as links into the town centre to enhance the pedestrian and cycle environment around the site.

Car Club

- 8.18. Three car club operators have reviewed this site location and the proposed development and have agreed that they would be happy to provide a Car Club as part of this development.
- 8.19. The car club operator would provide the vehicles and operate the Car Club. Their offer would include:
- Free 3-year membership providing access cars on site, the rest of Hertfordshire and the UK ;
 - First car to be delivered by first occupation;
 - Bespoke marketing material and membership certificates;
 - Briefing of sales staff at the development on the car club and attendance at promotional events;
 - 24/7 customer service team;
 - 24/7 booking system including mobile booking site (IOS and Android) and iPhone app;
 - Vehicle insurance;
 - Vehicle maintenance and valeting;
 - Creation of reports and statistics for the developer and Council;
- 8.20. This would be fully funded by the developer at no expense to the new occupiers. Importantly, the Car Club would also be available to local residents in the area. The provision of the Car Club can be secured by appropriate planning condition.



Residents' Travel Pack

- 8.21. Unlike employment, retail or educational sites it is not possible to dictate to residents how they should travel. For this reason residential travel planning is based on the provision of infrastructure and information rather than the imposition of management procedures. However, the benefit of residential travel planning is that it enables all new residents make an informed choice about their travel choices before they move into their new home. In the case of this proposed residential development the introduction of appropriate infrastructure and the communication of relevant information are structured as a 'Residential Travel Information Pack'.
- 8.22. It will be the responsibility of the developer to ensure that residents are provided with an information pack containing details of the Car Club, public transport timetables and maps, as well cycling and pedestrian infrastructure as part of the marketing information prior to purchase, and when they move into the flats.
- 8.23. The site's communal areas will be maintained by a management company. The management company will be obliged to provide an update to the 'Residents Travel Pack' once every twelve months in order that any new residents are made aware of their local transport options. However, modern technology means that developers and management companies have even greater interaction with residents so it is likely that once these proposed homes are occupied, any such information will be provided digitally and can be updated within days, or hours.
- 8.24. The information pack will include information and incentives for all purchasers/tenants. The information will enable the new residents to make informed decisions about their modes of travel. The incentives will be provided by the developer in the first instance and will be dependent on negotiating suitable packages with local shops and services. The likely content of the Residents' Travel Pack will be:
- Car Club membership and information;
 - Cycle route information;
 - Sustrans leaflets on the beneficial effects of walking and cycling ;
 - Free or discounted reflective clothing i.e. cycle bib, arm bands etc.;
 - Free or discounted bicycle locks/helmets;
 - Developer to negotiate local cycle shop discount ;
 - Details of local cycle groups;
 - Details of BikeBUDi travel system ;
 - Bus route/timetable information;
 - Free bus 'taster' tickets;
 - Rail timetable and route information;
 - Details of car-sharing website (e.g. www.Liftshare.com);
 - Details of CarBUDi travel system;
 - Notice/message board in foyer of flats to allow people to car share/walk/cycle together (perhaps at night for safety);
 - Developer to negotiate preferential rates at local car-hire company;
 - Taxi company information – possible discount vouchers for a taxi company;
 - Details of TaxiBUDi travel system; and
 - Supermarket home delivery details.
- 8.25. This list is not exhaustive or a prescriptive list of what will be in the travel pack but provides details of the likely content of the pack. Details of the final pack will be agreed in partnership with the Council.



9. DELIVERY AND SERVICING PLAN

- 9.1. This Delivery and Servicing Plan (DSP) highlights the implications of the proposed redevelopment with regard to existing and also proposed servicing constraints. This report takes into consideration the adopted methods of good design practice. This DSP has been prepared in accordance with the Freight Transport Association document '*Designing for Deliveries*' and the guidance document '*Managing freight effectively: Delivery and Servicing Plans*'.
- 9.2. A DSP has already been submitted and approved for Phase 1. The DSP for Phases 2 and 3 follows the same principles.
- 9.3. DSPs aim to provide consideration of consolidation and collaborative delivery arrangements to help reduce the impact of commercial goods and servicing vehicle activity in and out of premises/developments.
- 9.4. A refined version of this DSP will be prepared in partnership with WHDC and HCC prior to the proposed development being occupied; however, the structure, obligations and principles are included here for agreement prior to determination.

Orientation

- 9.5. The Site includes a number of cul-de-sacs, and areas of privately maintained public realm. For ease of reference an orientation plan is included below as Figures 9.1. The service areas for the Site are described as locations CS1 – CS6.
- 9.6. The servicing requirements that influence the residential components of the layout are refuse collection and daily deliveries. The layout has been tested for a 4-axle large refuse vehicle. This exceeds the requirement for a 3-axle refuse vehicle as dictated by WHBC. The layout has also been tested for daily deliveries (Post, supermarket deliveries, Amazon parcels etc.) using a 7.5t box van. Residential properties may also have occasional larger deliveries (removal vans, white goods) but these vehicles will operate in the same manner as the refuse vehicles.
- 9.7. The South Side refuse vehicle swept paths are included as **Appendix E**.

Figure 9.1 – South Side servicing locations

- 9.8. Cul-de-sacs 1, 2 and 3 (CS1-CS3) serve residential blocks 11-13. CS2 and CS3 do not have formal turning heads so refuse vehicles use the parking entrances to turn. This allows a refuse vehicle to reach a point within 15m of the bin stores for blocks 11 and 12, as well as 13B. The road CS4 has been down-graded to a Home Zone type area. This route is too long for a refuse vehicle to reverse its entire length to service block 13A so refuse will be collected from a presentation area at CS3.
- 9.9. CS5 (middle access) and CS6 (Broad Court) would operate in the same way as CS2 and CS3.
- 9.10. Whereas refuse and recycling may be collected weekly or every fortnight, the residential development will attract daily deliveries of post, groceries or parcels. Swept path analyses of a 7.5t box van are included as **Appendix E**. These vans can comfortably use the car parking areas for daily deliveries.

Emergency vehicle access

- 9.11. The internal layout has been assessed to ensure fire appliances (and other smaller emergency vehicles) can gain access to every residential core.

Refuse collection

- 9.12. Refuse stores are provided at ground floor level with double-doors directly onto the building frontage. Residents will be able to bring refuse down to ground level where they will have easy access into the refuse stores. The refuse stores will have doors opening onto hard paved areas linking directly to the vehicle access routes. This arrangement ensures the bin stores are no further than 15m from the access roads or service locations. Refuse and recycling bins can be collected directly from the stores and wheeled to the vehicles.



Consolidation

- 9.13. Residents will be advised of the importance of consolidating deliveries where possible. New residents will be provided with information explaining how they can consolidate deliveries such as supermarket deliveries with their neighbours and how this can deliver cost savings. This accords with WHBC advice.

Hours of delivery

- 9.14. There are no restrictions on the hours of delivery to any residential premises in this area so there is no need for a general restriction on servicing hours

Route management

- 9.15. The site takes access from Broadwater Road (A1000). There are no height or weight restrictions on this road that would result in HGV diversion routes to or from the site.
- 9.16. As a principle, all drivers will be advised to use the highest category of road legally available to them and to avoid residential roads where practicable.

First time delivery

- 9.17. Provisions will be made for first time deliveries. This will ensure that there is a safe and secure location to drop parcels off if residents are unavailable to take receipt of goods at time of delivery. This will reduce the need for return visits.

Promotion of LGV rather than HGV

- 9.18. Residents will be advised of the benefits of promoting delivery by Light Goods Vehicles. New residents will be provided with a leaflet explaining what information should be provided to delivery companies to maximise the use of small vehicles for deliveries or to advise of appropriate servicing arrangements for larger vehicles. This accords with WHBC advice.



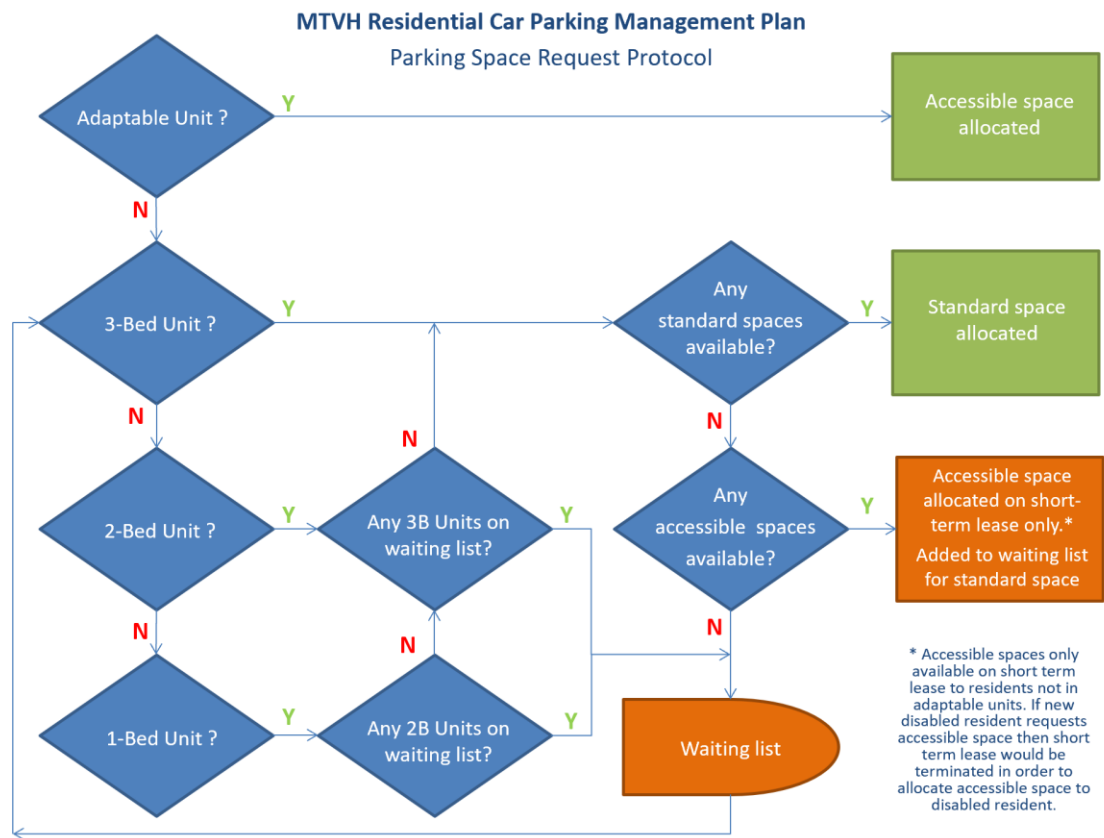
10. CONSTRUCTION LOGISTICS PLAN

- 10.1. Prior to commencement on site a Construction Logistics Plan (CLP) will be drawn up in partnership with HCC and WHBC and submitted for approval. The CLP will comply with the guidance document '*Building a better future for freight: Construction Logistics Plans*'.
- 10.2. The South side CLP will:
- Help the construction process comply with NPPF and the Traffic Management Act;
 - Demonstrate that construction materials can be delivered, and waste removed in a safe, efficient and environmentally friendly way;
 - Identify deliveries that could be reduced, re-timed or even consolidated, particularly during busy periods;
 - Help cut congestion on Hertfordshire roads and ease pressure on the environment;
 - Improve reliability of deliveries to the site;
 - Reduce fuel costs.
- 10.3. The CLP must include:
- On-site management and design;
 - Off-site management;
 - Vehicle numbers;
 - Vehicle types;
 - Hours of delivery;
 - Route management;
 - Procurement strategy
 - Operational efficiency;
 - Waste management;
 - Road trip reduction; and
 - Targets and monitoring.
- 10.4. The CLP will be a stand-alone document but sit alongside the Framework Travel Plan, Delivery & Servicing Plan and Car Parking Management Plan in a four-part *Transport Implementation Strategy*.



11. CAR PARKING MANAGEMENT PLAN

- 11.1. In line with the previously approved scheme, a Car Parking Management Plan will be prepared and implemented to ensure that only permitted vehicles are able to park within the residential car parks. A Car Parking Management Plan has already been submitted and approved for Phase 1, so the same principles will be applied to Phases 2 and 3.
- 11.2. The main principles of the plan will be:
- Parking spaces will be allocated to individual households;
 - All residents vehicles will need to be registered with the Management Company;
 - Any unregistered vehicles will only be permitted to park within visitor spaces for a limited time period before being fined, unless booked in by a resident;
 - Car Club parking spaces will be provided as part of the development and managed by a private operator;
 - All eligible residents will be provided with free Car Club membership for a minimum period of three years.
- 11.3. The undercroft parking areas will have gates at their entrances. These will be set back from the access routes. The entire South side will be permeable and accessible to pedestrians and cyclists so there will be no perception of any gated communities, but the parking areas will be secure and only accessible by those authorised to do so.
- 11.4. Parking spaces will be allocated to households on request. Priority will be given to family units. Residents who require an accessible space will be allocated one. Surplus accessible spaces will be available to non-disabled residents on a short-term lease only. A draft allocations protocol is indicated below. The protocol has already been agreed with HCC and WHBC as part of the approved Car Parking Management Plan for Phase 1.

**Figure 11.1 – Draft residents parking space request protocol**



12. TRIP GENERATION

- 12.1. The impact of the proposed development is determined by comparing the net increase in journeys between the lawful use of the site and the proposed development. Accordingly, the DfT Guidance on Transport Assessment (March 2007) advises at paragraph 4.7 that baseline traffic data should be derived as follows:

“Baseline transport data

- *The quantification of person trips generated from the existing site and their modal distribution, or, where the site is vacant or partially vacant, the person trips which might realistically be generated by any extant planning permission or permitted uses;”*

- 12.2. The site is currently vacant so the baseline constitutes the trips which would be generated by the extant planning permission. These were set out in full in the Entran Transport Assessment in 2018 (and subsequent Technical Notes) and agreed by the Highway and Planning Authorities.
- 12.3. The transport impact of the proposed development is therefore determined by comparing the journeys associated with the extant use of the Site and those anticipated for the proposed use.
- 12.4. The 2015 TA prepared by TPA explored the predicted residential traffic generation in detail. It first established the predicted resident population of the proposed development, then established the likely working population. From this information the methodology was to quantify journeys to work by mode and then to establish non-work journeys. The total trips were then distributed onto the highway network. This methodology was far more detailed than a conventional assessment of the TRICS database and was originally considered to be accurate, but it was subsequently found to result in some anomalies. These were found to stem from using journey-to-work assumptions for non-work journeys. This had an adverse effect on some junctions within the study area as the residential trip rates were showing significant departures during the PM peak which would not normally be expected. Prior to the application being determined, Entran produced Technical Note 6 in November 2018 entitled ‘Residential trip rate review and Hydeway junction re-assessment’. TN6 demonstrated that a conventional assessment of the TRICS database produced a more reliable vehicle trip forecast for ‘all trips’ as opposed to just journeys to work. On the basis of TN6, HCC as local highway authority withdrew their objection to the proposed development, agreed that the off-site highway improvements would be fit for purpose, and recommended a package of planning conditions and S106 obligations.
- 12.5. The result of the above series of assessments is that the off-site highways impact of the wider site has been assessed on the basis of residential vehicle trips rates that are significantly higher than are now thought to be reasonable. Furthermore, the TRICS trip rates submitted in TN6 were agreed by HCC prior to the previous application being approved.
- 12.6. For the reasons set out above, this assessment uses the TRICS database to determine vehicle trips for the proposed residential development. The TRICS database was already used for the non-residential uses so that methodology has been carried forward into this Transport Assessment.
- 12.7. In all other respects, the method of distributing traffic per site access, and distributing traffic across the wider highway network is the same as used in the 2015 and 2018 Transport Assessment.

- 12.8. Table 12.1 shows the approved residential vehicle trips associated with phases 2 and 3 of the South side, based on the 2015 method.

Table 12.1 – Consented scheme (south side phase 2 and 3 only) –assessed vehicle trips for 435 dwellings

Use	AM peak			PM peak		
	Arr	Dep	Total	Arr	Dep	Total
Resi	9	139	148	131	98	229

- 12.9. The revised methodology using the TRICS database is based on the agreed parameters set out in TN6, namely using surveys sites from England only (outside London), of a size similar to the proposed development (+/- 50%), and in town centre locations. The trip rates from TN6 have been used for the proposed residential apartments.
- 12.10. Tables 12.2 and 12.3 below show the residential TRICS trips rates from TN6 and the new TRICS trip rates for the care units.

Table 12.2 – Proposed development – residential flats trip rates (TRICS TN6)

	Trip Rate per Unit	
	Arrivals	Departure
08:00-09:00	0.058	0.185
17:00-18:00	0.164	0.088
Daily	1.134	1.188

- 12.11. Full TRICS calculations are included as **Appendix F** and the TRICS data is included as **Appendix G**.
- 12.12. The forecast traffic generation from the proposed 721 apartments (based on the maximum number of dwellings for Phase 3), are shown in Table 12.3 below

Table 12.3 – Proposed development – residential vehicle trips (based on TRICS)

Use	AM peak			PM peak		
	Arr	Dep	Total	Arr	Dep	Total
Resi	42	133	175	118	63	182

- 12.13. This shows that the proposed residential accommodation would be expected to generate up to 175 vehicle trips during the morning peak hour and up to 182 vehicle trips during the evening peak hour.

- 12.14. Tables 12.4 below show the total peak hour vehicle trips assessed for the South side's 2nd and 3rd phase of the approved scheme and now forecast for the current proposal.

Table 12.4 – Comparison - Residential traffic generation

	AM	PM
Approved scheme (2018 TA)	148	229
Proposed development (2020 TA)	175	182
Net difference	27	-47

- 12.15. Table 12.4 indicates the evening peak hour will see less than the vehicle trips that were previously used to assess the operational capacity of the site accesses and off-site highway improvements.
- 12.16. Table 12.5 below therefore disaggregates the vehicle movements via each of the Site accesses.

Table 12.5– Combined residential non-residential vehicle trips via each access

	TA (2018)		TA (2020)		Net difference	
	AM	PM	AM	PM	AM	PM
Access 4	50	77	57	59	7	-18
Access 5	11	17	34	35	23	18
Access 6	87	135	84	87	-3	-48

- 12.17. Table 12.7 indicates that whereas the proposed development is predicted to generate slightly fewer vehicle trips overall than had previously been used to assess the site accesses, the net difference is not consistent across all three accesses. Access 6 (Southern) would see significantly fewer vehicle trips than had previously been used to assess this junction. Access 4 (Middle) would see a negligible increase in the morning peak but a material reduction in the evening peak. Junction 5 (Broad Court) is predicted to experience slightly more vehicle trips than had previously been used to assess this junction. However, Junction 5 was previously shown to operate with significant spare capacity and no queuing so this small change in vehicle numbers would have no measurable effect on the operation of that junction.
- 12.18. This analysis demonstrates that the very robust form of traffic impact assessment previously used to assess the operational capacity of the site accesses and wide highway network, was based on an over-estimation of the predicted residential vehicle trips for this development. The revised vehicle trips agreed in TN6, prior to the determination of the extant consent, result in lower residential vehicle movements. When these more realistic vehicle trip rates are applied to the proposed development, the trips generated are less than those previously used to assess the operational capacity of the site accesses and wider highway network. There is therefore no need for any further assessment of traffic impact.

Multi-modal transport effects

- 12.19. An additional TRICS assessment has been completed to assess the net effect on walking, cycling and public transport journeys, when compared to the extant consent. This is set out in detail in Technical Note 6, included here as **Appendix H**.



13. TRANSPORT IMPROVEMENTS

- 13.1. The previously approved development on the wider site included a comprehensive range of transport improvement measures. Some of these were integral components of the development, some were dictated by the SPD and some were proposed as mitigation measures to address the transport effects of development.
- 13.2. The wider development will deliver significant highway improvement works to Bridge Road and Broadwater Road as well as off-site highway improvements to increase operational capacity at a number of roundabouts remote from the Site. These works were secured by planning conditions which limit the level of occupancy of the wider site until the works have been completed.
- 13.3. All highway works will be delivered by means of a Section 278 Agreement with the local highway authority. The S278 technical approval will include a requirement for a traffic management plan to ensure safe working practices within the highway as well as minimal disruption to pedestrian and cycle movements.
- 13.4. The proposed development will enhance the existing permeability of the local walking and cycling network through implementation of a number of measures including provision of walking and cycling facilities through the site. The wider site includes the refurbishment of the rail footbridge and the re-modelling of Bridge Road and Broadwater Road to reduce vehicle speeds and enhance pedestrian and cycle routes and crossings.

Road hierarchy

- 13.5. The access roads which form part of the internal road network, will all be shared surfaces with a width of approximately 6m.
- 13.6. All accesses from Broadwater Road will have raised entrance tables to assist pedestrian/cycle movement along Broadwater Road.

Broadwater Road improvements

- 13.7. The redevelopment proposals will reallocate the existing highway land along Broadwater Road so that there is greater provision for pedestrians and cyclists. The existing carriageway will be narrowed to 6.75m while a 4m foot/cycleway will be provided along both sides of the carriageway across the site frontage, where possible.
- 13.8. The narrowing of Broadwater Road will continue along its entire length, providing the opportunity to widen pedestrian and cycle facilities along the length of Broadwater Road as the area is redeveloped in the future, subject to land ownership.
- 13.9. The existing pedestrian crossing facilities along Broadwater Road will be retained, although the signalised crossing south of Hydeway will be relocated further north.
- 13.10. The proposed scheme is shown in TPA drawing 1309-14-PL137 included in **Appendix I**.

Bridge Road / Hunters Bridge improvements

- 13.11. Overall traffic calming measures proposed along Broadwater Road will be extended to include Bridge Road and Hunters Bridge so that the characteristics of these roads are changed from being vehicle dominant to an area which is more attractive to pedestrians and cyclists.
- 13.12. TPA drawing 1309-14-PL111 (included in **Appendix I**) shows the proposed traffic calming along Bridge Road. The proposals will narrow the highway land allocated to vehicles so that there is a single 3m lane in either direction. This in turn allows the foot/cycleways to be widened to 4m along both sides of the carriageway and a central pedestrian area of approximately 5.7m will also be provided.



Rail bridge

- 13.13. The existing rail bridge between North Side and the railway station will be refurbished as part of the wider development. This will include demolishing the existing steps on the site side of the rail lines and replacing them with a new set of much wider steps directly onto the newly created public square. The steps will include provision to wheel bicycles up onto the bridge. A range of bespoke cycle parking facilities will be provided beneath the steps. A lift will also be provided to allow access for the mobility impaired or for those with pushchairs for example. The bridge itself will be refurbished in agreement with Network Rail.

Broadwater Road / Bridge Road junction

- 13.14. The existing signalised crossroads of Broadwater Road / Bridge Road and Bessemer Road will be altered to a shared space 'octabout', as shown in TPA drawing 1309-14-PL106, included here within **Appendix I**.
- 13.15. The proposed octabout will operate along the same principals as a roundabout albeit on a less formal basis, as the intention is to introduce controlled uncertainty to drivers which will result in slower vehicle speeds and a more agreeable environment for pedestrians and cyclists.

Broadwater Road / Osborne Way / Stanborough Road junction

- 13.16. The Stanborough Road arm of the Broadwater Road / Osborn Way / Stanborough Road roundabout will be widened to 8.5m to increase the approach capacity.

Broadwater Road / A1000 Chequers roundabout

- 13.17. The Broadwater Road and A1000 Chequers arms of the Broadwater Road / Broadwater crescent / A1000 Chequers roundabout will be improved to increase the flare lengths on both arms to increase the entry capacity.

Hydeway west

- 13.18. The kerb radii on the entry to Hydeway west will be increased to improve entry / egress for HGVs. The radii on the western arm of Hydeway will also be altered and the whole junction will become a raised table.
- 13.19. Highway rights will be extinguished (stopped-up) from Hydeway west so that the road will become private in line with the other access roads into the Wheat Quarter. A 3m wide shared cycleway/footway will be provided along the southern side which will remain a public right of way between Broadwater Road and the new steps to the rail bridge.

Peartree Lane / Ravenfield cycle route

- 13.20. The existing pedestrian crossing over Peartree Lane at the eastern end of Hydeway will be upgraded to allow cyclists to cross and then to use the carriageway of the cul-de-sac section of Peartree Lane rather than the footway.



14. SUMMARY AND CONCLUSIONS

- 14.1. This Transport Assessment (TA) has been prepared by Entrant Ltd in support of a hybrid planning application for residential development at South Side of the former Shredded Wheat factory site. The proposed development relates to phases 2 and 3 and will provide up to 721 residential dwellings.
- 14.2. Planning permission was granted in February 2019, subject to a range of conditions and obligations, for a comprehensive redevelopment of the wider site to create a mixed-use quarter. The approved planning application was supported by a Transport Assessment (TA) dated January 2018, prepared by Entrant. The TA assessed the transport effects of the proposed development and suggested a range of transport improvement measures including extensive pedestrian and cycle facilities in Broadwater Road and Bridge Road.
- 14.3. This current planning application provides an uplift of up to 286 residential dwellings compared to the extant planning permission.
- 14.4. This TA has been prepared alongside a Transport Implementation Strategy which provides the opportunity to reduce reliance on the private car and seeks to promote sustainable travel choices to and from the site rather than merely assessing its impact.
- 14.5. The site is very well placed to promote sustainable travel. A wide range of employment, retail, health, education and leisure facilities can be reached within walking and cycling distance of the site. In addition, a wide range of bus routes can be reached easily from the site. Welwyn Garden City rail station is immediately to the west of the site, reached via an existing footbridge over the railway. This is a good location to reduce reliance on the private car. The provision of a comprehensive mixed-use development further supports the objective to reduce the need to travel, especially by car.
- 14.6. The proposed development comprises an increase from 435 to up to 721 new homes. The development includes car and cycle parking, access, landscaping and other supporting infrastructure.
- 14.7. Phase 2 (Full planning application) of the proposed development includes 185 residential car parking spaces comprising allocated residential spaces, dedicated visitor spaces and Car Club spaces. Car parking for Phase 3 (Outline planning application) will be provided on the basis of the same methodology.
- 14.8. The development provides a new Car Club; residents would be offered Car Club membership as part of the Residents' Travel Plan so that those households who do not own a vehicle will still have access to one as and when they may need one. The Car Club would be available to the wider community thereby reducing on-street parking pressure on the surrounding local roads. Cycle parking is provided for every dwelling.
- 14.9. The development will be supported by a four-part Transport Implementation Strategy comprising the Framework Travel Plan (FTP), Construction Logistics Plan (CLP), Delivery & Servicing Plan (DSP) and Car Parking Management Plan (CPMP). Final versions of the CLP, DSP and CPMP will be prepared (prior to commencement and occupation respectively) in partnership with HCC and WHBC.
- 14.10. A detailed assessment of vehicle trips has been carried out, comparing those associated with the approved scheme and those associated with the current proposals. This assessment has established that the forecast vehicle trips are slightly lower than those previously used to assess the operational capacity of the site accesses and the wider highway network. The result on the wider highway network will be broadly the same as the approved scheme. The same off-site highway mitigation measures will therefore be required.
- 14.11. The wider development will deliver a wide range of transport improvements. The internal layout of the scheme itself will provide a high quality, permeable environment for pedestrians and cyclists. This will include landscaped links and routes as well as new public realm.

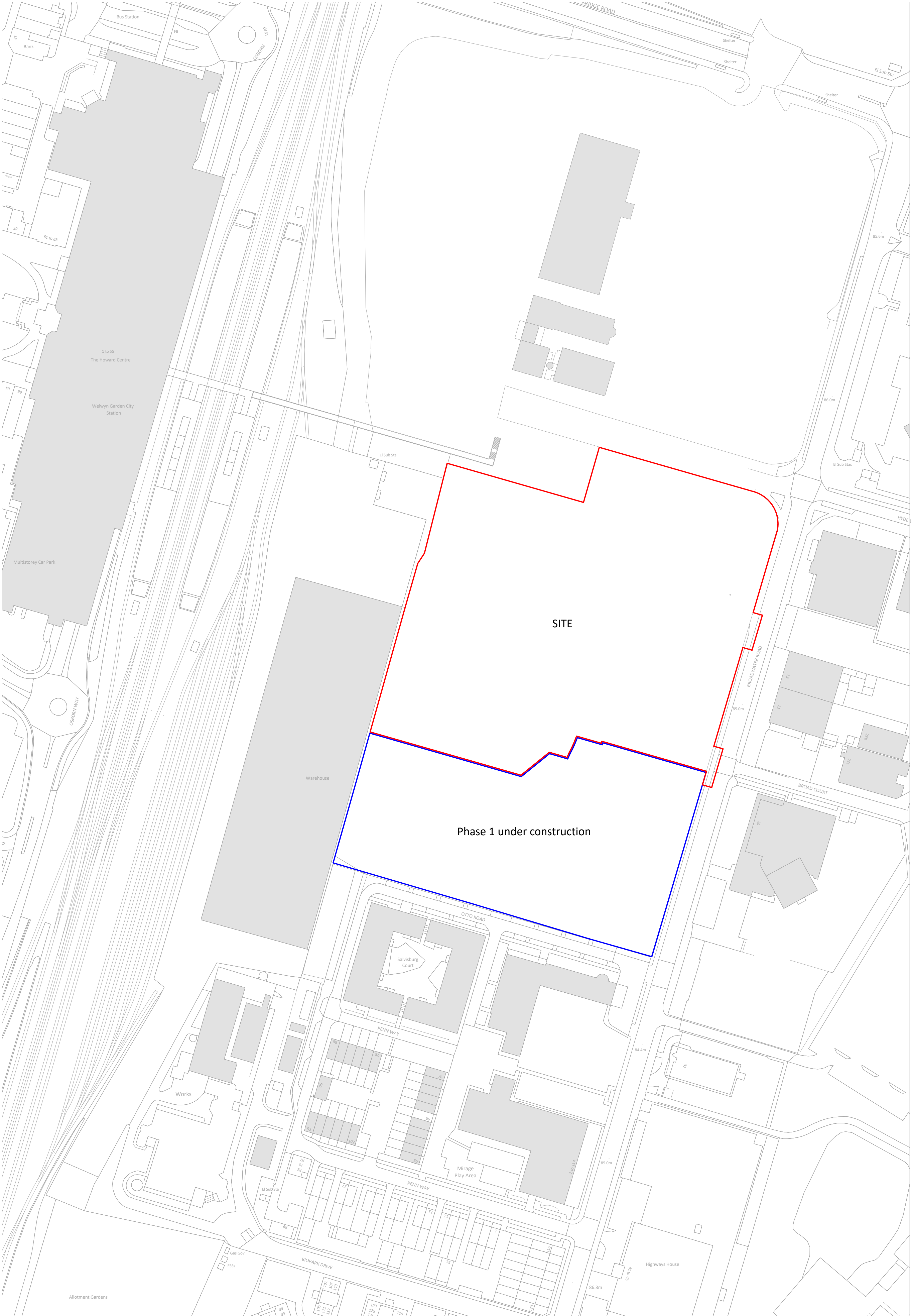


- 14.12. The wider development will deliver extensive improvement works to Broadwater Road and Bridge Road, reducing vehicle speeds and providing improved facilities for pedestrians and cyclists. The junction of Broadwater Road and Bridge Road will be re-modelled as an 'octobout' in line with the previously approved scheme.
- 14.13. The footbridge over the railway will be refurbished as part of the wider development and provided with a new, wider set of steps on the site side, together with a new passenger lift.
- 14.14. The wide range of highways and transport improvements will mitigate the effects of the additional travel demand generated by the development and will significantly enhance the sustainable travel options for Welwyn Garden City as a whole.
- 14.15. For the reasons set out in this Transport Statement there is no reason why the proposed development should be refused on grounds of highway capacity or safety, impact on the transport network or sustainability. The provision of new homes at South Side offers an opportunity to enhance this area and have a positive effect on transport. It should be positively supported by the local highway authority.



Appendix A

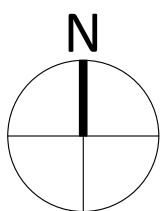
Planning application red line



NOTES
CONSULTANTS
- Refer to highways consultant's drawings for details
- Refer to landscape consultant's drawings for details
- Landscaping layout is indicative only

AREAS
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South Site
Location Plan

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P1
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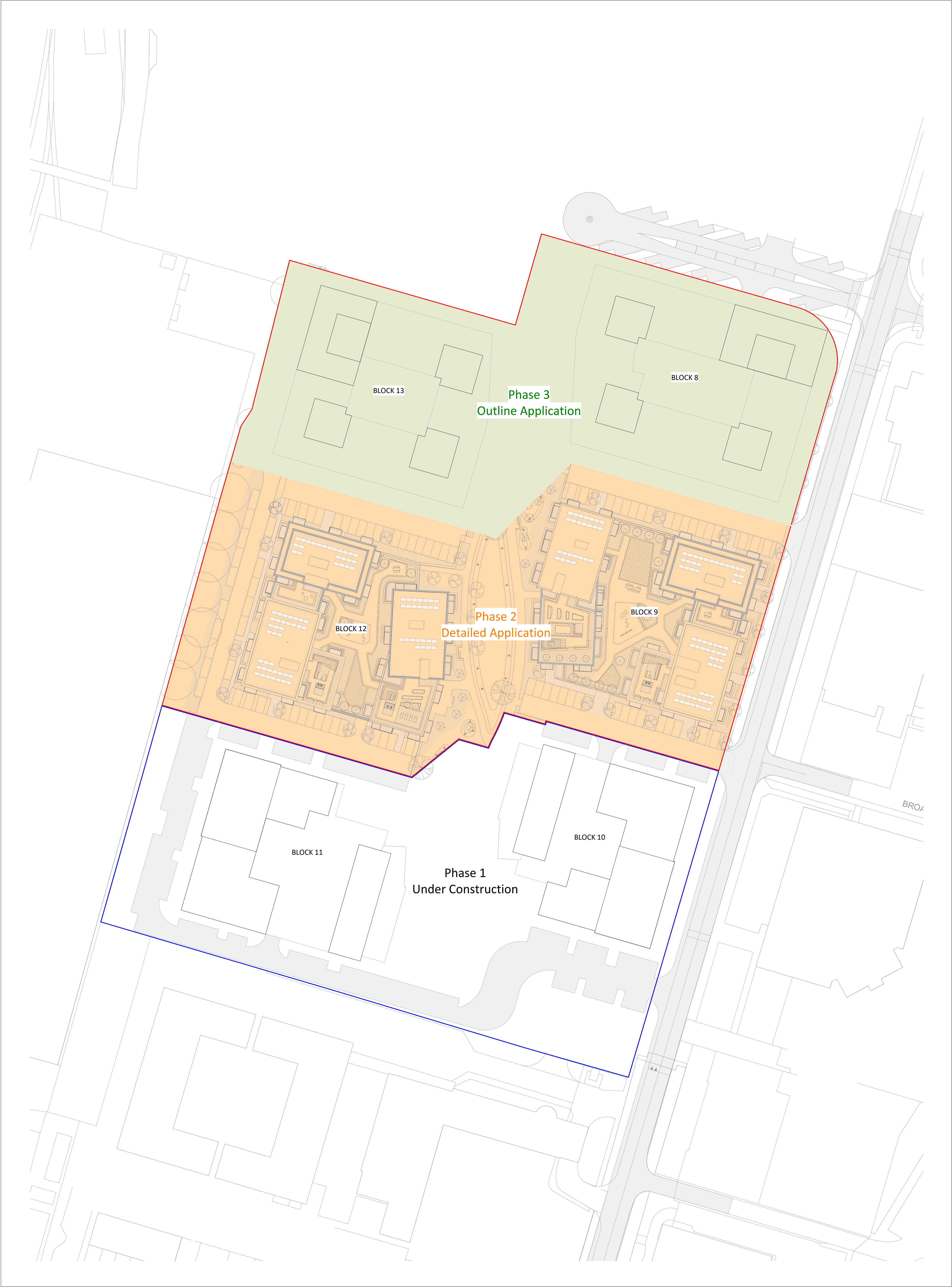
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Site Plan - Existing

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Appendix B

Schedules of accommodation

PROPOSED						
BLOCK 8	GEA		GIA		NSA	
	sq m	sq ft	sq m	sq ft	sq m	sq ft
Ground	3452	37,158	1535	16,520	845	9,092
First	3466	37,313	1654	17,802	1206	12,980
Second	2742	29,510	2578	27,752	2048	22,046
Third	2558	27,538	2398	25,810	1936	20,844
Fourth	2558	27,538	2398	25,810	1947	20,954
Fifth	2558	27,538	2398	25,810	1947	20,954
Sixth	2558	27,538	2398	25,810	1947	20,954
Seventh	2001	21,540	1836	19,765	1442	15,527
Eighth	420	4,517	375	4,038	301	3,237
Ninth	420	4,517	375	4,038	301	3,237
TOTAL	22734	244706	17944	193153	13919	149824

PROPOSED						
BLOCK 9	GEA		GIA		NSA	
	sq m	sq ft	sq m	sq ft	sq m	sq ft
Ground	3033	32,647	2931	31,544	575	6,190
First	1982	21,329	1844	19,849	1474	15,865
Second	1982	21,329	1844	19,849	1502	16,171
Third	1982	21,329	1844	19,849	1502	16,171
Fourth	1982	21,329	1844	19,849	1502	16,171
Fifth	1813	19,518	1686	18,143	1354	14,577
Sixth	1465	15,766	1356	14,595	1071	11,523
Seventh	912	9,811	834	8,978	653	7,028
Eighth	458	4,932	419	4,513	328	3,535
Ninth	325	3,498	293	3,149	222	2,393
TOTAL	15932	171489	14894	160319	10184	109623

APARTMENT NUMBERS					
1 Bed 1P	1 Bed 2P	2 Bed 3P	2 Bed 4P	3 Bed 5P	TOTAL
No.	No.	No.	No.	No.	No.
3	4	2	4	1	14
2	6	2	8	1	19
1	12	8	10	2	33
1	11	6	11	2	31
1	10	7	12	1	31
1	10	7	12	1	31
1	10	7	12	1	31
1	7	4	11	0	23
0	0	1	2	1	4
0	0	1	2	1	4
11	70	45	84	11	221
5.0%	31.7%	20.4%	38.0%	5.0%	100.0%
81	129	11			221
36.7%	58.4%	5.0%			100.0%

APARTMENT NUMBERS					
1 Bed 1P	1 Bed 2P	2 Bed 3P	2 Bed 4P	3 Bed 5P	TOTAL
No.	No.	No.	No.	No.	No.
0	3	2	4	0	9
2	9	2	10	1	24
1	9	2	11	1	24
1	9	2	11	1	24
1	9	1	11	0	22
1	6	0	10	0	17
1	2	0	7	0	10
1	0	0	4	0	5
0	0	0	3	0	3
9	56	11	82	4	162
5.6%	34.6%	6.8%	50.6%	2.5%	100.0%
65	93	4			162
40.1%	57.4%	2.5%			100.0%

PROPOSED						
BLOCK 12	GEA		GIA		NSA	
	sq m	sq ft	sq m	sq ft	sq m	sq ft
Ground	2661	28,641	2564	27,595	501	5,397
First	1905	20,508	1773	19,082	1410	15,175
Second	1905	20,508	1772	19,074	1443	15,531
Third	1905	20,508	1772	19,074	1443	15,531
Fourth	1905	20,508	1772	19,074	1443	15,531
Fifth	1737	18,697	1613	17,366	1295	13,938
Sixth	1465	15,764	1356	14,592	1070	11,523
Seventh	912	9,811	834	8,979	654	7,034
Eighth	456	4,912	419	4,515	329	3,541
Ninth	325	3,499	293	3,149	222	2,390
TOTAL	15176	163354	14168	152499	9809	105589

APARTMENT NUMBERS					
1 Bed 1P	1 Bed 2P	2 Bed 3P	2 Bed 4P	3 Bed 5P	TOTAL
No.		No.	No.	No.	No.
0	2	0	5	0	7
4	7	0	11	1	23
2	7	2	11	1	23
2	7	2	11	1	23
2	7	2	11	1	23
2	7	1	11	0	21
1	6	0	10	0	17
1	2	0	7	0	10
1	0	0	4	0	5
0	0	0	3	0	3
15	45	7	84	4	155
9.7%	29.0%	4.5%	54.2%	2.6%	100.0%
60		91		4	155
38.7%		58.7%		2.6%	100.0%

PROPOSED						
BLOCK 13	GEA		GIA		NSA	
	sq m	sq ft	sq m	sq ft	sq m	sq ft
Ground	2952	31,775	1256	13,523	582	6,265
First	2952	31,775	1210	13,020	876	9,429
Second	2372	25,534	2228	23,986	1761	18,958
Third	2187	23,535	2045	22,007	1644	17,699
Fourth	2187	23,535	2045	22,007	1651	17,774
Fifth	2187	23,535	2045	22,007	1651	17,774
Sixth	2187	23,535	2045	22,007	1651	17,774
Seventh	1737	18,699	1587	17,079	1223	13,167
Eighth	390	4,193	348	3,742	274	2,949
Ninth	390	4,193	348	3,742	274	2,949
TOTAL	19538	210311	15154	163120	11588	124737

APARTMENT NUMBERS					
1 Bed 1P	1 Bed 2P	2 Bed 3P	2 Bed 4P	3 Bed 5P	TOTAL
No.	No.	No.	No.	No.	No.
2	3	0	2	2	9
2	5	1	4	2	14
1	12	4	9	2	28
1	7	8	10	0	26
1	7	8	10	0	26
1	7	8	10	0	26
1	7	8	10	0	26
1	8	4	7	0	20
0	0	1	3	0	4
0	0	1	3	0	4
10	56	43	68	6	183
5.5%	30.6%	23.5%	37.2%	3.3%	100.0%
66		111		6	183
36.1%		60.7%		3.3%	100.0%

PROPOSED						
TOTAL	GEA		GIA		NSA	
	sq m	sq ft	sq m	sq ft	sq m	sq ft
BLOCK 8	22734	244,706	21451	230,902	13919	149,824
BLOCK 9	15932	171,489	14894	160,319	10184	109,623
BLOCK 12	15176	163,354	14168	152,499	9809	105,589
BLOCK 13	19538	210,311	18369	197,723	11588	124,737
TOTAL	73380	789860	68882	741442	45501	489774

APARTMENT NUMBERS					
1 Bed 1P	1 Bed 2P	2 Bed 3P	2 Bed 4P	3 Bed 5P	TOTAL
No.	No.	No.	No.	No.	No.
11	70	45	84	11	221
9	56	11	82	4	162
15	45	7	84	4	155
10	56	43	68	6	183
45	227	106	318	25	721
6.2%	31.5%	14.7%	44.1%	3.5%	100.0%
10	25	25	35	5	
272	424	25	721		
37.7%	58.8%	3.5%	100.0%		

The NSA is the sum of the all of the GIAs of the individual apartments

The areas have been measured as shown on the following drawings: 18009.1-P1-9-100 Series, 18009.1-P1-12-100 Series, 18009.1-SK-8-100 Series and 18009.1-SK-12-100 Series

The areas are approximate and relate to the likely areas of the building at the current state of the design.

The standard RICS Code of Practice for measuring areas has been used with the exception that internal balconies are not included in GIA/NSA

***Balconies are excluded in GIA & GEA calculation**

Any decisions to be made on the basis of these predictions, whether as to project viability, pre-letting, lease agreements and the like, should make allowance for the following:

1. Design development.
2. Accurate site survey, site levels and dimensions.
3. Construction methods and building tolerances.
4. Local Authority consents.



Appendix C

Architects' plans



NOTES

CONSULTANTS

- Refer to highways consultant's drawings for details
- Refer to landscape consultant's drawings for details
- Landscaping layout is indicative only

AREAS

- Refer to area schedule

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Scale @ A1: 1 : 500
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CAD File No:

MTVH
South Site
Ground Floor Plan

PLANNING
18009.1
P0-100



NOTES

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AREAS

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Scale @ A3: 1 : 1000

CAD File No:

MTVH
South Site
First Floor Plan

PLANNING
18009.1

P0-101

P1

Revision



1 Site Elevation - East D
1 : 500 @A1



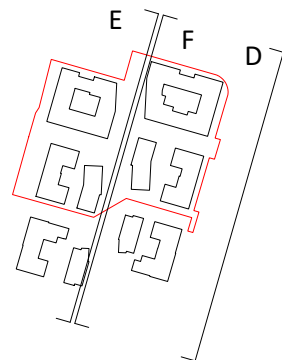
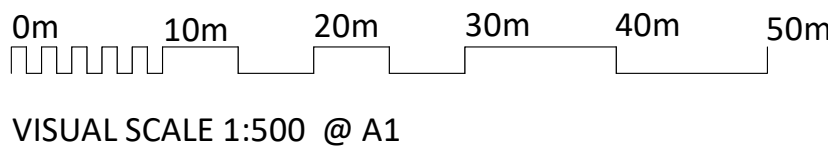
2 Site Elevation - Through Weave E
1 : 500 @A1



3 Site Elevation - Through Weave F
1 : 500 @A1

NOTES
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AREAS
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MTVH
South Site
Elevations, Sheet 2

PLANNING
18009.1

P0-302





Appendix D

Parking calculations

Spaces per dwelling

0.53

	Std	Allocated	Approved
Studio	0.75	0.40	0.48
1-bed	0.75	0.40	0.48
2-bed	1.00	0.53	0.63
3-bed	1.50	0.80	0.93
Twodio	1.00	0.53	

Units	B8	B9	B12	B13	
Studio/ 1bed	81	65	60	66	272
1 bed					0
2 bed	129	93	91	111	424
3 bed	11	4	4	6	25
Twodio					0
	221	162	155	183	721

Table 2	B8	B9	B12	B13	
Studio/ 1bed	32	26	24	26	108
2 bed	68	49	48	59	225
3 bed	9	3	3	5	20
	109	78	75	90	353
					425
Vis	18	13	12	15	58
CC	4	3	3	4	14
Total	132	94	91	108	425

14 Car Club 2% initial provision
58 Visitor 8%

0.49 allocated per dwelling

0.59 total per dwelling

By Phase

Phase 2

Phase 3

Table 3	B9	B12	B8	B13	
Studio/ 1bed	26	24	32	26	108
2 bed	49	48	68	59	225
3 bed	3	3	9	5	20
	78	75	109	90	353
Vis	13	12	18	15	58
CC	3	3	4	4	14
Total	94	91	132	108	425

14 Car Club
58 Visitor

185

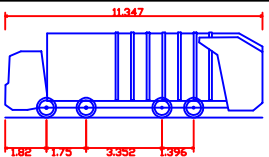
240

total



Appendix E

Swept path analyses



Large Refuse Vehicle (4 axle)
Overall Length 11.347m
Overall Width 2.500m
Overall Body Height 3.751m
Min Body Ground Clearance 0.304m
Track Width 2.500m
Lock to lock time 6.00s
Wall to Wall Turning Radius 11.330m

REV	DATE	REVISION DETAILS	BY
-----	------	------------------	----



2nd & 3rd Floors | Northgate House | Upper Borough Walls | Bath | BA1 1RG
TELEPHONE : 0117 937 4077

PROJECT TITLE
WELWYN GARDEN CITY
SOUTH SIDE

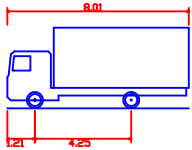
DRAWING TITLE
REFUSE VEHICLE
SWEEP PATH ANALYSIS

CLIENT / ARCHITECT

STATUS

SCALE 1:1000	AT A3	DRAWN JPB
CHECKED RF		APPROVED RF

DRG SIZE A3	DATE FEB 21	DRAWING NUMBER SK201	REV -
----------------	----------------	-------------------------	----------



7.5t Box Van
Overall Length 8.01m
Overall Width 2.21m
Overall Body Height 2.25m
Min Body Ground Clearance 0.351m
Track Width 1.064m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 7.400m

REV	DATE	REVISION DETAILS	BY
-----	------	------------------	----



2nd & 3rd Floors | Northgate House | Upper Borough Walls | Bath | BA1 1RG
TELEPHONE : 0117 937 4077

PROJECT TITLE
WELWYN GARDEN CITY
SOUTH SIDE

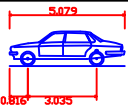
DRAWING TITLE
BOX VAN
SWEEP PATH ANALYSIS

CLIENT / ARCHITECT

STATUS

SCALE 1:1000	AT A3	DRAWN JPB
CHECKED RF		APPROVED RF

DRG SIZE A3	DATE FEB 21	DRAWING NUMBER SK202	REV -
----------------	----------------	-------------------------	----------



Large Car (2006)
Overall Length 5.079m
Overall Width 1.872m
Overall Body Height 1.525m
Min Body Ground Clearance 0.310m
Max Track Width 1.831m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 5.900m

REV	DATE	REVISION DETAILS	BY
-----	------	------------------	----



2nd & 3rd Floors | Northgate House | Upper Borough Walls | Bath | BA1 1RG
TELEPHONE : 0117 937 4077

PROJECT TITLE
WELWYN GARDEN CITY
SOUTH SIDE

DRAWING TITLE
LARGE CAR
SWEEP PATH ANALYSIS

CLIENT / ARCHITECT

STATUS

SCALE 1:1000	AT A3	DRAWN JPB
CHECKED RF		APPROVED RF

DRG SIZE A3	DATE FEB 21	DRAWING NUMBER SK203	REV -
----------------	----------------	-------------------------	----------



Appendix F

Trip calculations

Residential trips data

Table 1.1 - Residential flats trips/rates

	721		Phase 2+3		
	Trip Rate per Unit		Trips Generated		
	Arrivals	Departure	Arrivals	Departure	Total
08:00-09:00	0.058	0.185	42	133	175
17:00-18:00	0.164	0.088	118	63	182
Daily	1.134	1.188	818	857	1674

Table 1.2 - Residential parking distribution

	Parking spaces	Portion
Access 4	127	33%
Access 5	75	19%
Access 6	186	48%
Total	388	

Trips via access points

Table 1.3 - Total resi trips via access points

	Arrivals		Departure		Two-way		Daily	Approved Scheme Daily	Net Difference
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak			
Access 4	14	39	44	21	57	59	548	653	-105
Access 5	8	23	26	12	34	35	324	145	179
Access 6	20	57	64	30	84	87	803	1137	-334
Total	42	118	133	63	175	182	1674	1935	-261

Distribution

Table 1.4 - Residential daily distribution

	Link a	Link b	Link c	Link d	Link e	Link f	Link g
Access 4	31	31	183	65	278	270	270
Access 5	18	18	108	38	164	164	159
Access 6	45	45	268	95	408	408	395
Total	94	94	559	198	850	842	824

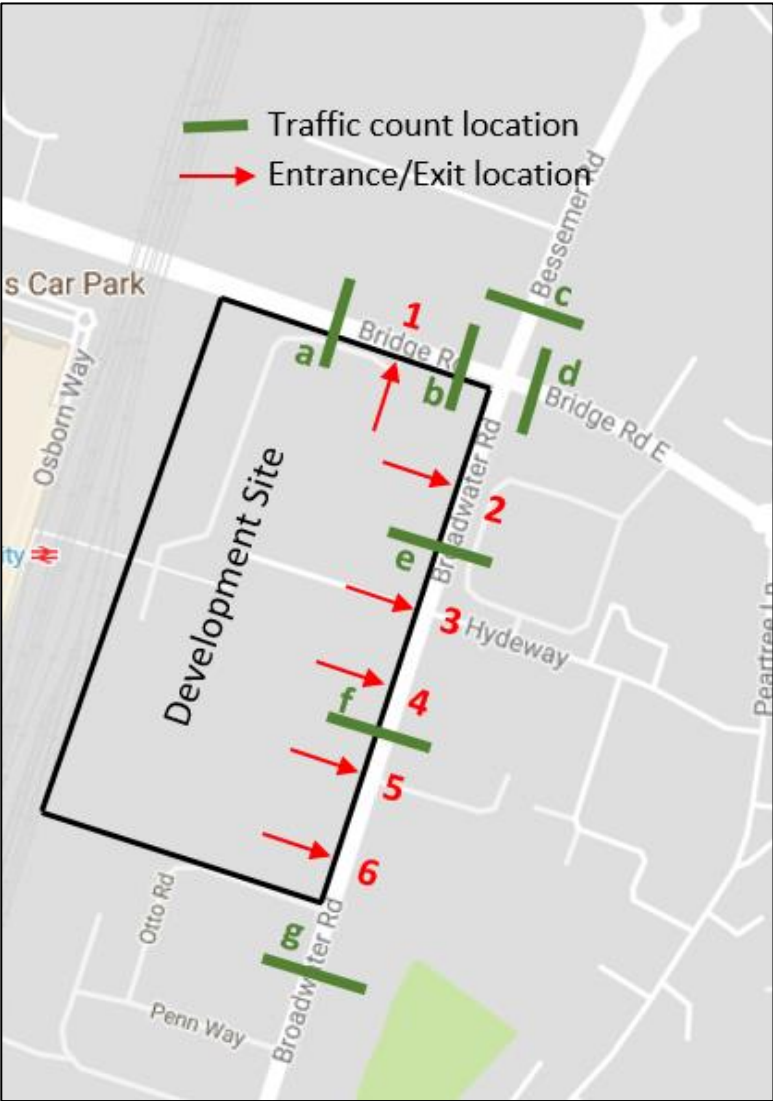


Table 1.5 - Residential access points peak hour distribution

Development AM Peak

J4

x	A	B	C
A	\	7	131
B	21	\	22
C	169	7	\

J5

x	A	B	C
A	\	4	113
B	13	\	13
C	186	4	\

J6

x	A	B	C	D
A	\	10	48	0
B	31	\	32	0
C	197	10	\	0
D	0	0	0	\

Development PM Peak

J4

x	A	B	C
A	\	19	206
B	10	\	11
C	214	19	\

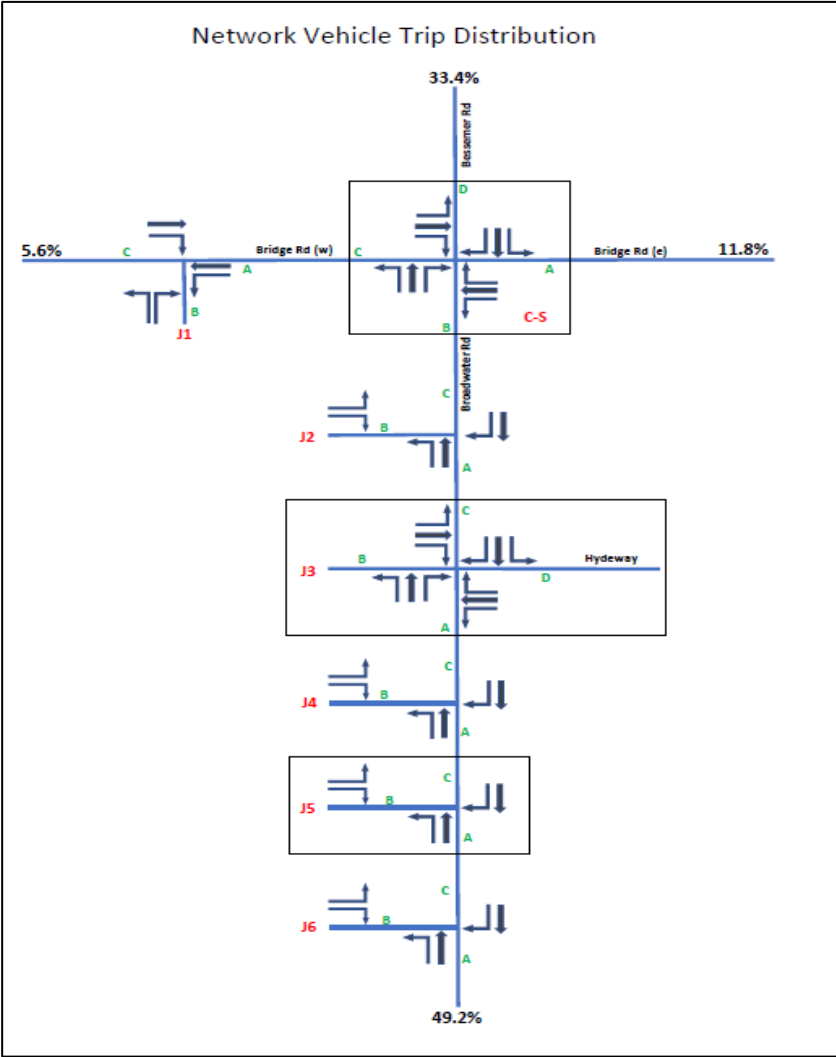
J5

x	A	B	C
A	\	11	211
B	6	\	6
C	202	11	\

J6

x	A	B	C	D
A	\	28	191	0
B	15	\	15	0
C	152	28	\	0
D	0	0	0	\

The A-C and C-A flows use data of previous TA south site





Appendix G

Residential TRICS data

Calculation Reference: AUDIT-337901-181031-1023

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	EX ESSEX	1 days
	SC SURREY	1 days
03	SOUTH WEST	
	BR BRISTOL CITY	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
	NF NORFOLK	1 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	NT NOTTINGHAMSHIRE	2 days
06	WEST MIDLANDS	
	WM WEST MIDLANDS	1 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
 Actual Range: 44 to 135 (units:)
 Range Selected by User: 6 to 140 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/09 to 11/11/16

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

Selected survey days:

Monday	1 days
Tuesday	3 days
Wednesday	1 days
Thursday	2 days
Friday	1 days
Saturday	1 days

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

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town Centre	4
Suburban Area (PPS6 Out of Centre)	4
Edge of Town	1

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

Selected Location Sub Categories:

Residential Zone	4
Built-Up Zone	2
No Sub Category	3

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

Secondary Filtering selection:

Use Class:

C3

9 days

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

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	3 days

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

Population within 5 miles:

50,001 to 75,000	2 days
125,001 to 250,000	3 days
250,001 to 500,000	4 days

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

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	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:

No

9 days

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

PTAL Rating:

No PTAL Present

9 days

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

LIST OF SITES relevant to selection parameters

1	BR-03-C-01 CLARENCE ROAD	FLATS & TERRACED		BRI STOL CITY
	BRISTOL Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings:		102	
	Survey date: MONDAY		09/11/09	Survey Type: MANUAL
2	CA-03-C-02 WESTFIELD ROAD NETHERTON PETERBOROUGH	BLOCK OF FLATS		CAMBRI DGESHI RE
	Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of dwellings:		44	
	Survey date: TUESDAY		18/10/11	Survey Type: MANUAL
3	EX-03-C-02 WESTCLIFF PARADE WESTCLIFF SOUTHEND-ON-SEA	BLOCK OF FLATS		ESSEX
	Edge of Town Centre Residential Zone Total Number of dwellings:		94	
	Survey date: TUESDAY		22/10/13	Survey Type: MANUAL
4	NF-03-C-01 PAGE STAIR LANE	BLOCKS OF FLATS		NORFOLK
	KING'S LYNN Edge of Town Centre Built-Up Zone Total Number of dwellings:		51	
	Survey date: THURSDAY		11/12/14	Survey Type: MANUAL
5	NT-03-C-01 LAWRENCE WAY	HOUSES (SPLIT INTO FLATS)		NOTTINGHAMSHIRE
	NOTTINGHAM Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of dwellings:		56	
	Survey date: TUESDAY		08/11/16	Survey Type: MANUAL
6	NT-03-C-02 CASTLE MARINA ROAD	HOUSES (SPLIT INTO FLATS)		NOTTINGHAMSHIRE
	NOTTINGHAM Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of dwellings:		135	
	Survey date: WEDNESDAY		09/11/16	Survey Type: MANUAL
7	SC-03-C-04 LONDON ROAD BURPHAM GUILDFORD	BLOCK OF FLATS		SURREY
	Edge of Town Residential Zone Total Number of dwellings:		72	
	Survey date: SATURDAY		23/10/10	Survey Type: MANUAL
8	SF-03-C-01 STATION HILL	BLOCKS OF FLATS		SUFFOLK
	BURY ST EDMUNDS Edge of Town Centre Built-Up Zone Total Number of dwellings:		85	
	Survey date: THURSDAY		18/12/14	Survey Type: MANUAL
9	WM-03-C-04 GILLQUART WAY PARKSIDE COVENTRY	BLOCKS OF FLATS		WEST MIDLANDS
	Edge of Town Centre Residential Zone Total Number of dwellings:		55	
	Survey date: FRIDAY		11/11/16	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
DC-03-C-02	low number of flats
DS-03-C-01	low number of flats
DS-03-C-02	low number of flats
EX-03-C-01	low number of flats
HC-03-C-02	low number of flats
OX-03-C-01	low number of flats
SF-03-C-03	low number of flats

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	9	77	0.056	9	77	0.117	9	77	0.173
08:00 - 09:00	9	77	0.053	9	77	0.177	9	77	0.230
09:00 - 10:00	9	77	0.072	9	77	0.102	9	77	0.174
10:00 - 11:00	9	77	0.094	9	77	0.101	9	77	0.195
11:00 - 12:00	9	77	0.084	9	77	0.082	9	77	0.166
12:00 - 13:00	9	77	0.097	9	77	0.092	9	77	0.189
13:00 - 14:00	9	77	0.110	9	77	0.112	9	77	0.222
14:00 - 15:00	9	77	0.098	9	77	0.111	9	77	0.209
15:00 - 16:00	9	77	0.092	9	77	0.072	9	77	0.164
16:00 - 17:00	9	77	0.120	9	77	0.076	9	77	0.196
17:00 - 18:00	9	77	0.159	9	77	0.088	9	77	0.247
18:00 - 19:00	9	77	0.147	9	77	0.075	9	77	0.222
19:00 - 20:00	1	72	0.111	1	72	0.097	1	72	0.208
20:00 - 21:00	1	72	0.083	1	72	0.069	1	72	0.152
21:00 - 22:00	1	72	0.083	1	72	0.042	1	72	0.125
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.459			1.413			2.872

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:	44 - 135 (units:)
Survey date date range:	01/01/09 - 11/11/16
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	1
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	7

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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



Appendix H

TN6, Multi-modal trips

Wheat Quarter, Broadwater Road, Welwyn Garden City

TECHNICAL NOTE 6

Residential vehicle trip rate review and Hydeway junction re-assessment

1. Introduction

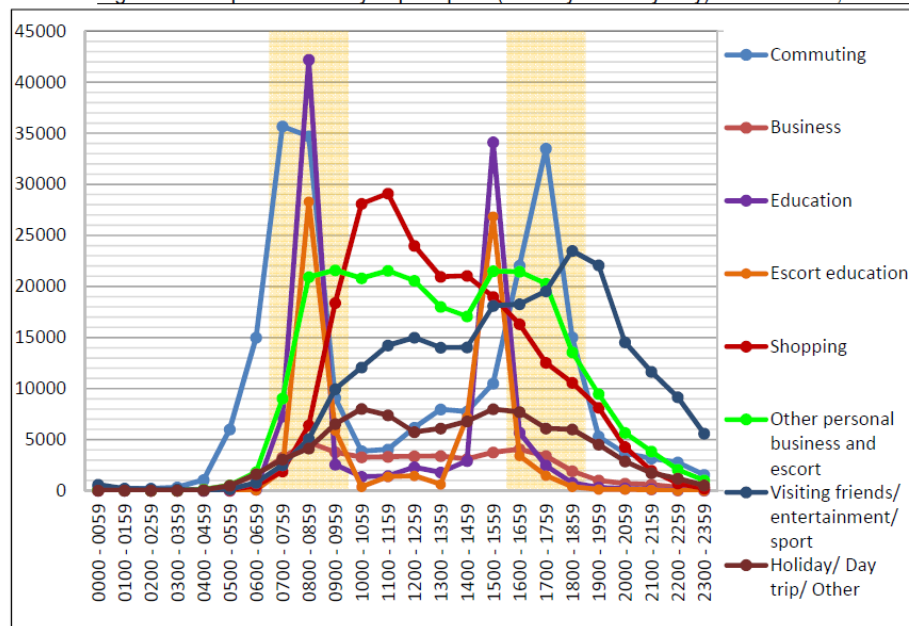
- 1.1. Entran prepared a Transport Assessment (TA) dated January 2018 in support of a planning application for the regeneration of the former Shredded Wheat Factory, known as the Wheat Quarter. Section 12 of that TA set out the predicted vehicle trip generation associated with the proposed development. The methodology for deriving the vehicle trips was based on the Transport Assessment for the previously approved development, prepared by Transport Planning Associates (TPA) in 2015. That methodology formed the basis on which planning permission was granted in August 2017 for a mixed-use development on this site. The same methodology was therefore followed in the January 2018 TA.
- 1.2. In September 2018 Entran prepared Technical Note 5 (TN5) which, at HCC's request, applied a lower level of 'suppression due to reduced car parking' to the residential trip rates than had been used in the TA. The result was a 7% increase in overall residential vehicle trips compared to the TA, but the same overall conclusion that the proposed development would generate broadly the same number of vehicle trips as the consented scheme.
- 1.3. Notwithstanding the above, due to the location of car parks across the site, the traffic associated with the proposed development would be distributed across the six site accesses in different proportions to the consented scheme. The junction of Hydeway/Broadwater Road would experience higher vehicle trips than the consented scheme due to two residential car parks using this road for access.
- 1.4. The junction capacity analysis included in the TA was based on an uncontrolled cross-roads and showed queueing on Hydeway, particularly during the PM peak hour. As a result, an alternative junction design was examined in order to assess the effects of introducing a signal controlled junction. The LinSig results showed a reduction in the queue length but did not remove the queue altogether.

2. Trip rate methodology

- 2.1. As stated above, the January 2018 TA, prepared by Entran, used the trip generation methodology used by TPA in support of the consented scheme. As a result of further discussions with HCC regarding the operational capacity of the signal junction, Entran has reviewed the assumptions made in respect of residential vehicle trip generation.
- 2.2. TPA set out their vehicle trip assumptions in their Tech Note 6 and Tech Note 9. In those notes they derived residential vehicle trips based on census journey-to-work data and ONS 'trip purpose' data. Figure 3.2 from TPA's Tech Note 6 is reproduced below. It shows trip start time by trip purpose. The journeys described as 'commuting' correlate with the 'journeys to work' figures derived from Census data.



Figure 3.2 - Trip Start Time by Trip Purpose (Monday to Friday only): Great Britain, 2008/12



2.3. TPA's Tech Note 6 then established vehicle trips for all site uses and summarised them in Table 5.1, reproduced below:

Table 5.1 Trip Generation Overview

Use	AM Peak			PM Peak		
	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way
Residential	0	253	253	235	0	235
Employment*	124	0	124	0	115	115
School**	0	119	119	0	0	0
Leisure and Other***	33	132	165	237	356	593
Hotel	7	10	16	7	5	12
Retail	24	26	50	28	28	57
Restaurant	0	0	0	19	16	34
Total	188	539	727	527	520	1,049

*Trips generated by the Office/Research element of the development

**School trips generated by residential element of the development

***Leisure and other trips generated by residential element of the development

2.4. Based on the TPA methodology, the trips referred to as 'Residential' are in fact journeys to work. Those described as 'school' are journeys from home to school and those described as 'Leisure and other' are a combination of non-work journeys including shopping, visiting friends, sport and entertainment as shown in their Figure 3.2. However, there appears to be an inherent anomaly built in to these assumptions; the non-work trips have been grouped together as residential trips and then assigned as trips originating from home. It does not follow that most trips for sport (for example) originating at 5.30pm would be a residential trip, starting from home. The result is that the consented development would generate 235 residents arriving home from work during the PM peak, but 593 non-work trips arriving or departing from the proposed flats during the same PM peak period. Importantly, by grouping non-work trips together as 'residential' trips, Table 5.1 shows the residential development generating 356 residential *departures* during the PM peak. This is highly unlikely.



Clearly, a large proportion of shopping and leisure trips which start during the PM peak will originate from a place of work, not from home.

- 2.5. Unfortunately, this anomaly was carried forward into the trip generation methodology used in Entran's TA and the subsequent Technical Notes. Entran's TN5 derived the following vehicle trips:

TPA							Entran						
892							1158						
AM peak							AM peak						
Use	Arr	Dep	Total	Arr	Dep	Total	Use	Arr	Dep	Total	Arr	Dep	Total
Resi	0	253	253	235	0	235	Resi	0	328	328	305	0	305
School*	0	119	119	0	0	0	School	0	154	154	0	0	0
Other**	33	132	165	237	356	593	Other	43	171	214	308	462	770
Resi	33	504	537	472	356	828	Resi	43	654	697	613	462	1075
Employment	124	0	124	0	115	115							
Hotel	7	10	17	7	5	12							
Retail	24	26	50	28	28	56							
Restaurant	0	0	0	19	16	35							
Comml	155	36	191	54	164	218							
Total	188	540	728	526	520	1046							
* school trips generated by resi development							Parking suppression						
** leisure and other trips generated by residential development							Residents Spaces Ratio						
							892 866 0.971						
							1158 993 0.857 0.94 6% suppre 1454 993						
							AM peak PM peak						
							Use Arr Dep Total Arr Dep Total						
							Resi 0 310 310 288 0 288						
							School 0 146 146 0 0 0						
							Other 40 162 202 290 436 727						
							Resi 40 618 658 578 436 1015						

- 2.6. This shows the TPA methodology top-left, including 828 PM peak vehicle trips (from 866 parking spaces) of which 356 were residential departures. When the same methodology is applied to the current proposal the table bottom-right shows 1015 vehicle trips (from 993 residential spaces) of which 436 would be PM peak residential departures. It is highly unlikely that the residential development would generate more than one peak hour trip per parking space. This therefore appears to over-estimate the number of residential vehicle trips and in particular the number of non-work residential vehicle trips.
- 2.7. It should be noted that the figures in the January '18 TA showed 949 PM peak residential trips from 993 residential parking spaces but the method to derive that figure (12% suppression) was criticised by HCC even though the outcome appears to be more probable than the revised TN5 assessment. However, even that rate of trips per parking space appears to be unrealistically high.

3. Comparative TRICS assessment

- 3.1. Given the questionable outcomes from the complex trip generation methodology carried forward from the TPA assessments, Entran has carried out a simple comparative assessment of predicted residential vehicle trip rates using the TRICS database. The TRICS data captures all trips for all purposes. It would not therefore have been possible to conduct the workplace destination distribution that TPA included in their TA using TRICS data alone. However, it is a useful comparative exercise to establish whether the residential trips derived by the longer (Census and ONS) method appear to be reasonable.
- 3.2. The TRICS trip rates and vehicle trips are shown in Table 3.1 below (TRICS data included as Appendix A).

Table 3.1 – Comparative TRICS Assessment (1454 flats – including extra care)

	trip rate			trips		
	arrival	depart	total	arrival	depart	total
0800-0900	0.053	0.177	0.230	77	257	334
1700-1800	0.159	0.088	0.247	231	128	359



- 3.3. This shows that, based on empirical survey data from other similar residential developments, the 1454 proposed flats (including the Extra Care units) would be expected to generate some 266 vehicle trips in the AM peak and 286 in the PM peak. This is clearly significantly less than the 658 AM and 1015 PM trips calculated using the TPA methodology. Furthermore, the TRICS ratio of arrivals and departures in the PM peak shows the expected bias towards arrivals (roughly 2:1) whereas the TPA methodology results in a significantly higher number of departures during the PM peak than might be expected.
- 3.4. It is also important to note that this TRICS assessment has made no deductions for internal linked trips between the proposed residential units and the complimentary employment, retail and leisure uses.
- 3.5. This comparative assessment using the standard TRICS methodology appears to support the suggestion in paragraph 2.6 above that the TPA methodology results in an over-estimation of residential vehicle trips and in particular the proportion of non-work residential trips.
- 3.6. Even if the non-work residential trips were reduced by 50% the resultant total residential trips would still be significantly higher than the comparative TRICS assessment; however, the ratios of arrivals to departures would be more realistic as shown below

Table 3.2 – Adjusted residential vehicle trips

Use	AM Peak			PM Peak		
	Arr	Dep	Total	Arr	Dep	Total
Resi	0	310	310	288	0	288
School	0	146	146	0	0	0
Other	20	81	101	145	218	363
Resi	20	537	557	433	218	651

- 3.7. This illustrates that even with a 50% reduction in the presumed non-work trips (to take account of the anomaly identified in paragraph 2.4) the total predicted residential vehicle trips would be almost twice those derived using TRICS.

4. Hydeway/Broadwater Road

- 4.1. The residential vehicle trips have been assigned to the six site accesses in proportion to the number of residential parking spaces served by each access. The Hydeway vehicle trips also include those associated with the station, taxis and a small element of pass-by retail. When the adjusted vehicle trips shown in Table 3.2 are applied proportionately to Hydeway and the non-residential trips are added, the resultant total peak hour vehicle trips would be as follows (See Appendix B).

Table 4.1 – Hydeway peak hour vehicle trips (adjusted)

AM peak			PM peak		
Arr	Dep	Total	Arr	Dep	Total
77	266	343	229	235	464

- 4.2. As a comparison, when the TRICS-derived vehicle trips are applied proportionately to Hydeway and the non-residential (station and retail) peak hour vehicle trips added, the resultant total vehicle trips would be as follows.

Table 4.2 – Hydeway peak hour vehicle trips (TRICS)

AM peak			PM peak		
Arr	Dep	Total	Arr	Dep	Total
98	160	258	152	158	310



- 4.3. This review of the predicted vehicle trips using the Hydeway junction illustrates that the anomaly in the TPA methodology results in an over-estimation of residential vehicle trips and, importantly, an over-estimation of departures during both the AM and PM peaks.
- 4.4. The PICADY analysis included in Section 13 of the TA has therefore been repeated for the revised figures; the outcomes are shown in Tables 4.1 and 4.2. Full details of the PICADY outputs are included as Appendix C and summarised below.

Table 4.3 – Junction 3; Hydeway (adjusted trips)

	AM peak			PM Peak		
	Max RFC	Max Q (v)	Delay (s)	Max RFC	Max Q (v)	Delay (s)
Site access L	0.45	0.8	22.4	0.51	1.0	30.7
Site access R	0.68	2.0	47.3	0.73	2.4	68.5
Broadwater Rd S	0.15	0.2	6.33	0.16	0.2	7.9
Hydeway East L	0.09	0.1	13.5	0.08	0.1	13.0
Hydeway East R	0.15	0.2	17.3	0.18	0.2	27.2
Broadwater Rd N	0.06	0.1	7.31	0.26	0.5	6.7

- 4.5. This demonstrates that when the anomalies from the original assessment methodology are removed, the original junction improvements for Hydeway would operate with spare capacity.
- 4.6. For completeness, the same exercise using conventional TRICS data for the residential trips results in the following junction capacity analysis:

Table 4.4 – Junction 3; Hydeway (TRICS)

	AM peak			PM Peak		
	Max RFC	Max Q (v)	Delay (s)	Max RFC	Max Q (v)	Delay (s)
Site access L	0.18	0.2	10.8	0.20	0.3	12.0
Site access R	0.39	0.6	22.6	0.41	0.7	26.7
Broadwater Rd S	0.15	0.2	6.4	0.15	0.2	7.7
Hydeway East L	0.09	0.1	13.0	0.07	0.1	11.3
Hydeway East R	0.14	0.2	15.6	0.14	0.2	20.1
Broadwater Rd N	0.09	0.1	7.2	0.17	0.3	6.5

- 4.7. This assessment demonstrates that if a standard TRICS assessment is used to derive predicted residential trip generation for the proposed development, the original junction improvements for the Hydeway junction would operate with ample spare capacity. It also shows that the 'adjusted' methodology referred to in Tables 4.1 and 4.3 is a very robust assessment.



5. Summary and conclusion

- 5.1. The Transport Assessment (TA) submitted in support of the planning application for the Wheat Quarter included a methodology for deriving predicted vehicle trips based on the Transport Assessment for the approved development, prepared by Transport Planning Associates (TPA) in 2015. That methodology formed the basis on which planning permission was granted in August 2017 for a mixed-use development on this site. The same methodology was therefore followed in the January 2018 TA.
- 5.2. The junction capacity analyses included in the TA showed queueing on Hydeway. A further assessment was therefore carried out to examine the effects of redesigning that junction as a signal controlled cross roads. This showed reduced queueing but did not remove the queues altogether.
- 5.3. In conducting the further capacity analyses, certain unexpected outcomes were found. A detailed review was undertaken and a significant anomaly found in the residential trip generation methodology, carried forward from the previously approved scheme. When this anomaly is corrected the result in a marked reduction in the predicted residential vehicle trip generation.
- 5.4. As a form of control, a standard TRICS analysis has been undertaken. It shows that even with the anomaly removed, the predicted residential trip generation is almost twice that derived using TRICS. It is therefore a very robust form of assessment.
- 5.5. The junction of Hydeway and Broadwater road has been re-tested using the adjusted figures (and the TRICS figures) and found to operate with spare operational capacity.
- 5.6. This assessment demonstrates that that if the adjusted residential trip rates are used, or a standard TRICS assessment is used to derive predicted residential trip generation for the proposed development, the original junction improvements for the Hydeway junction would operate with ample spare capacity. It also shows that the 'adjusted' methodology is still a very robust assessment.
- 5.7. The proposed development will generate broadly the same level of traffic as the approved scheme. The comprehensive package of highway improvements, agreed as part of the previous consent will be suitable to accommodate the traffic associated with the current proposals and should therefore be secured by condition or obligation as part of any planning permission.